

**Department of the Army Environmental Assessment and Statement of Findings  
for NWP-2014-177/2 and NWP-2015-111**

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## MEMORANDUM FOR RECORD

### **SUBJECT: Department of the Army Environmental Assessment and Statement of Findings for the Above-Referenced Standard Individual Permit Application**

This document constitutes the Environmental Assessment, 404(b)(1) Guidelines Evaluation, as applicable, Public Interest Review, and Statement of Findings for the subject application.

**1.0 Introduction and Overview:** This memorandum is an evaluation of three interrelated projects: 1) Kalama Manufacturing and Marine Export Facility, 2) Kalama Lateral Project, and 3) Kalama Methanol Facility. The proposed Kalama Methanol Facility would manufacture methanol from natural gas. The proposed Lateral Project is a pipeline to transport natural gas from an existing mainline to the proposed Kalama Methanol Facility. The manufactured methanol would be loaded onto ships for export at the proposed Marine Export Facility. The scope for evaluation of these three proposed projects is further discussed in Section 2.

Information about the Marine Export Facility and the Kalama Lateral Project subject to one or more of the U.S. Army Corps of Engineers' (Corps) regulatory authorities is provided in Section 1, detailed evaluation of the activities are found in Sections 2 through 11 and findings are documented in Section 12 of this memorandum. Further, summary information about the activities including administrative history of actions taken during project evaluation is attached (ORM2 Summary) and incorporated in this memorandum. Information about the Kalama Methanol Facility subject to Department of Energy review is also incorporated in this memorandum.

#### 1.1 Applicant:

- U.S. Army Corps of Engineers (Corps) Permit Application: Kalama Manufacturing and Marine Export Facility (Marine Export Facility), NWP-2014-177/2. Applicant: Port of Kalama (Port)
- U.S. Army Corps of Engineers Permit Application: Kalama Lateral Project (Lateral Project) NWP-2015-111. Applicant: Northwest Pipeline LLC (Northwest Pipeline). The Federal Energy Regulatory Commission (FERC) is the lead agency for this project. FERC's public notice for this action was filed under Docket No: CP15-8-000.
- U.S. Department of Energy (DOE) loan guarantee application for construction and startup of the Kalama Methanol Facility. Project proposed for funding: Natural gas-to-methanol production plant and storage facilities at the Port of Kalama (Kalama Methanol Facility). Applicant: Northwest Innovation Works, LLC – Kalama (NWIW)

### 1.1.1 Lead and Cooperating Agencies:

The Corps, the DOE and the FERC are the three Federal agencies that have evaluated the proposed three projects per the National Environmental Policy Act (NEPA), the Clean Water Act Section 404(b)(1), the Endangered Species Act (ESA), Section 106 of the National Historic Preservation Act (Section 106) and associated Tribal Trust Responsibilities (Tribal Consultation). This Environmental Assessment (EA) was prepared to meet the NEPA requirements of the Corps and DOE for the projects listed above.

The FERC has control and responsibility over the proposed Kalama Lateral Project (NWP-2015-111). The FERC is the lead Federal agency for the lateral pipeline. Separately, in July 2015, FERC prepared an EA for its evaluation of Northwest Pipeline's application for a Certificate of Public Convenience and Necessity for the construction and operation for the natural gas pipeline under Section 7(c) of the Natural Gas Act and issued a certificate of public convenience and necessity on 11 April 2016. The Corps was a cooperating agency in the development of that EA.

In regards to Corps' review, this document constitutes the Environmental Assessment, Section 404(b)(1) Guidelines Evaluation, Public Interest Review, and Statement of Findings for the projects described below:

- U.S. Army Corps of Engineers Permit Application NWP-2014-177/2; Port of Kalama for the Marine Export Facility
- U.S. Army Corps of Engineers Permit Application NWP-2015-111; Northwest Pipeline LLC for the Lateral Project

The lead/cooperating agency status and the types of review executed by each Federal agency is summarized in the table below:

Table 1: Summary of Federal Agency Participation

Review	Corps	DOE	FERC
NEPA Review	Lead for Marine Export Facility. Cooperating agency with FERC for Lateral Project.	Cooperating agency with Corps	Lead for Lateral Project
Section 404(b)(1) Review	Lead for Marine Export Facility and Lateral Project	N/A	N/A
ESA Consultation	Lead for Marine Export Facility and Lateral Project	Cooperating agency with Corps	Cooperating agency with Corps
Section 106 Consultation	Lead for Marine Export Facility	Cooperating agency with Corps	Lead for Lateral Project
Tribal Consultation	Lead for Marine Export Facility	Cooperating agency with Corps	Lead for Lateral Project

#### 1.1.1.1 Corps Lead District:

The Portland District is the Corps lead district for processing permit applications for certain ports in the lower Columbia River to include the Port of Kalama. The Seattle District processes permit actions in Washington State and would typically be the lead for the Lateral Project permit application. However, the Marine Export Facility and associated upland facilities (NWP-2014-177/2) and the Lateral Project (NWP 2015-111) are connected actions for purposes of NEPA as the projects do not have independent utility. Therefore, the Portland District has served as the lead Corps district and evaluated the Lateral Project pipeline in conjunction with the Marine Export Facility in order to provide a comprehensive review of the project.

#### 1.1.1.2 Department of Energy Participation:

This document constitutes DOE's EA in consideration of a potential loan guarantee for the Kalama Methanol Facility. The purpose and need for agency action is to comply with the DOE mandate under the Energy Policy Act of 2005 (Energy Act) to select projects for possible financial assistance (a loan guarantee) that meet the goals of the Act. The DOE is using the NEPA process and this EA to inform their decision on whether or not to issue NWIW a loan guarantee to support construction and startup of the proposed Kalama Methanol Facility. The methanol facility would be located entirely on approximately 90 acres within the Port of Kalama district in Cowlitz County, Washington. The DOE assisted in the preparation of this EA in accordance with the NEPA (42 USC 4321, et seq.), Council on Environmental Quality (CEQ) NEPA implementing regulations (40 CFR Parts 1500–1508), and DOE NEPA implementing procedures (10 CFR Part 1021). This EA provides the DOE with the environmental information to evaluate whether to issue NWIW a loan guarantee

for the Kalama Methanol Facility. DOE's decision whether to issue the loan guarantee would occur in a separate action.

## 1.2 Proposed Project Descriptions:

### 1.2.1 Marine Export Facility Project Description:

#### 1.2.1.1 Activity Location:

The proposed Marine Export Facility project site is located on the shoreline of the Columbia River at River Mile (RM) 72, at the Port of Kalama, at the terminus of Tradewinds Road, Kalama, Cowlitz County, Washington (Sections 25 and 36, Township 7 North, Range 2 West, and Section 31, Township 7 North, Range 1 West).

The Port proposes to utilize the upland portion of the project site itself (also referred to as the North Port site) and the South Port upland disposal site located north of the TEMCO grain terminal at approximately RM 77 for upland disposal of dredged material. The Port proposes to utilize the beach nourishment site at the Port's shoreline park (Louis Rasmussen Park) at RM 76 for in-water placement of dredged material. Dredged material may also be transported to Ross Island Sand and Gravel in Portland, Oregon for its use (any in-water placement of dredged or fill material by Ross Island Sand and Gravel is subject to a separate Department of the Army permit).

The Port has proposed three categories of compensatory mitigation for the proposed project: 1) pile removal; 2) engineered log jam (ELJ) installation; and 3) riparian habitat restoration and wetland buffer enhancement. The Port proposes to remove existing timber piles currently located in the channel north of the Marine Export Facility site. The ELJ installation and riparian habitat restoration would be located on the project site shoreline. The wetland buffer enhancement would be located along the recreational access road located along the northern edge of the Marine Export Facility project site.

The table below outlines the locations of the project components of the Marine Export Facility:

Table 2. Locations of Project Components of NWP-2014-177/2 Marine Export Facility

Work	Waterway	Location (Descriptive)	Lat/Long
Construction of Marine Export Terminal	Columbia River	North Port site	Lat: 46.043235° Long: -122.87678°
Berth Dredging	Columbia River	North Port site	Lat: 46.043235° Long: -122.87678°
In-water Disposal of Dredged Material	Columbia River	Beach nourishment site along shoreline of the Port's Louis Rasmussen Park at RM 76 (Beach nourishment site)	Lat: 45.996282 Long: -122.844893
Upland Disposal of Dredged Material	upland	South Port upland disposal site located north of the Temco Grain Export at approximately RM 77	Lat: 45.998346 Long: -122.840575
		North Port upland disposal site located on the proposed Marine Export Facility site.	Lat: 46.043235° Long: -122.87678°
Compensatory Mitigation	Columbia River	Existing timber piles would be removed from the off channel portion in the undeveloped area immediately north of the Marine Export Facility site.	Lat: 45.04444 Long: -122.86667
		Installation of ELJs along the nearshore habitat along the Columbia River shoreline adjacent to the Marine Export Facility site.	Lat: 46.043235° Long: -122.87678°
		Riparian enhancement and invasive species management within an area along the Columbia River shoreline at the Marine Export Facility site. Enhancement of wetland buffer at the north end of the Marine Export Facility site.	Lat: 46.043235° Long: -122.87678°
Construction of Collector Well	Columbia River	North Port site. Five of the lateral lines would radiate out under the Columbia River and riverward of the Columbia River Ordinary High Water Line.	Lat: 46.043235° Long: -122.87678°
Construction of Temporary Crane Pad, Barge Access, and Temporary Site Access for Construction	Columbia River	North Port site. Temporary concrete crane pad would be constructed in uplands.	Lat: 46.043235° Long: -122.87678°

## 1.2.1.2 Description of activity requiring permit:

Marine Terminal Construction: The Marine Export Facility involves the construction of a new marine terminal located in the Columbia River at River Mile 72 to export methanol that is produced at the Kalama Methanol Facility that is proposed for construction in the upland portion of the project site. The marine terminal would consist of a dock, a berth, methanol pipelines, inert gas lines,

vapor return lines, support structures, loading equipment, utilities, and a stormwater system.

The terminal would consist of a single berth to accommodate the oceangoing tankers that would transport methanol to destination ports. The dock would be designed to accommodate oceangoing vessels. An estimated 3 to 6 ships per month would use the terminal based on the production of the plant. The berth would be designed to accommodate other vessel types and, when not in use for loading methanol, would be made available for general use by the Port, primarily as a lay berth where vessels could moor while waiting to use other Port berths.

The dock would consist of an access trestle, transition platform, berth trestle, and turning platform. A single access trestle would be constructed measuring 34 feet wide and approximately 365 feet long to provide vehicle, equipment, and emergency access to the dock. From the access trestle, the berth face of the dock would extend approximately 530 feet downstream, and would consist of an approximately 100-foot by 54-foot transition platform, a 370-foot by 36-foot berth trestle, and a 104-foot by 112-foot turning platform. The dock would be supported by precast 24-inch octagonal concrete piles supporting a cast-in-place (CIP) concrete pile caps and precast, pre-stressed, haunched concrete deck panels. Piles would be installed by impact hammer or by vibratory hammer, dependent on pile type. The dock would total approximately 44,943 square feet and include 320 concrete piles and 16 steel pipe piles. The bottom of the superstructure (deck, pile caps, etc.) would be located above the ordinary high water mark.

Methanol would be transferred from the bulk product storage tanks in the Kalama Methanol Facility to the dock for loading onto vessels by three 16-inch pipelines. In addition, there would be three 6-inch vapor return lines and three 2-inch inert gas (nitrogen) lines running from the Kalama Methanol Facility to the loading equipment on the dock. All of the pipelines, as well as mechanical, electrical, and plumbing utilities, would be elevated above the dock surface on a steel frame pipe rack. Three complete loading systems on three arms would be installed to transfer methanol from the pipelines to the vessel manifold. Each has a liquid loading line, a vapor return line, and an inert gas line. (Cowlitz County 2016)

For vessel mooring, two 15-foot by 15-foot breasting dolphins would be constructed near the center of the berth trestle. Steel plates would bridge the distance between the dock and dolphins. Each breasting dolphin would consist of seven 24-inch precast, pre-stressed concrete battered piles supporting a cast-in-place concrete pile cap with mooring bollards.

Four 15-foot by 15-foot mooring dolphins would be constructed (two upstream and two downstream of the platforms) for securing bow and/or stern lines. Each mooring dolphin would consist of 12, 24-inch-diameter precast octagonal concrete piles supporting a cast-in-place concrete pile cap. The dolphins would be equipped with mooring bollards and electric capstans. Access to the mooring dolphins would be provided from the platform by trussed walkways with open grating surfaces. The walkways would be 3 feet wide, have a combined length of 375 feet and would be supported by four 18-inch-diameter steel pipe piles.

The fender system would consist of 9-foot by 9-foot ultra-high molecular weight polyethylene (UHMW-PE) face panels with a super cone fender unit and two 12-inch-diameter steel pipe fender piles. Below the fender panels, the fender piles would have 18-inch-diameter high-density polyethylene sleeves. Fender units would be placed on the dock face, two upstream and two downstream, and on the two breasting dolphins.

A small building would be constructed on a corner of the turning platform for dockworker use. A second small building would be constructed at the center of the dock, adjacent to the loading arms. The building would be used as an operations shack for the loading arms.

To ensure the public safety of the boating public, the U.S. Coast Guard (USCG) Waterway Management Branch would require that a Private Aid to Navigation (PATON) be installed to mark this facility. The Port has not yet applied for a USCG permit to install approved aids to navigation on the structure. The Port would apply for this permit consistent with the USCG guidance at least 30 days prior to installation. The lights installed would be consistent with 33 CFR Part 62. It is anticipated that each of the 4 dolphins and the 2 outside corners of the dock would be marked with yellow lights with a slow flashing rhythm. The USCG may require more or less markings and may require yellow "dayboard" markers for visibility during daylight hours.

Since pile layout is conceptual, a 10 percent contingency has been added for the estimated number of concrete piles. This would accommodate potential revisions to the pile layout and configuration as the structural design is finalized. With the addition of the contingency, the proposed terminal would require the installation of approximately 320, 24-inch concrete piles; 12, 12-inch steel pipe piles; and 4, 18-inch steel pipe piles. The project may require the installation of temporary piles during construction. The exact number of temporary piles would be determined by the contractor. Based on the typical needs for form work and pile templates, it is estimated that approximately 250 temporary pile placements



may be needed for the construction of the dock. The total number of temporary piles in place at any one time would likely be less as piles would be pulled and moved during the construction process. Temporary piles are typically steel pipe or h-piles and would be driven with a vibratory hammer. These are placed and removed as necessary during the pile driving and over-water construction process.

The proposed terminal would result in a total of approximately 44,943 square feet of new, permanent, solid overwater coverage. A total of 1,079 square feet of new, permanent benthic impact would be associated with new pile footprints.

Berth Dredging: The existing berth serving the Port's North Port Terminal would be extended downstream to accommodate vessel activities at the proposed dock. The extended berth area would be deepened to -48 feet Columbia River datum (CRD) with a 2-foot over dredge allowance consistent with the existing adjacent berth for a maximum depth of -50 feet. The berth would extend at an angle from the edge of the Columbia River navigation channel to the berthing line at the face of the proposed dock. The footprint of the expanded berth would be approximately 18 acres, of which approximately 16 acres would require dredging to achieve the berth depth. Existing water depths in the proposed berth area vary from -50 feet CRD to -39 feet CRD. The total volume to be dredged for the project is approximately 126,000 cubic yards (CY).

The Port proposes to conduct dredging using mechanical (clamshell) or hydraulic dredging methods, depending on various factors including volume, distance to permitted placement sites, contractor preference, and/or the need for material for future upland projects at the Port. Material that is dredged using mechanical methods would be placed directly in an upland disposal site or on a scow or bottom dump (split) barge for in-water disposal. Material that is dredged using hydraulic dredging methods would be pumped as a slurry through a pipeline that floats on the water using pontoons, is submerged, or runs across dry land. Dredged material transported by hydraulic pipeline to an upland management site shall be dewatered at the upland disposal site prior to final placement or re-handling. Dredging activities would be conducted during the August 1 to December 31 in-water work window. Annual maintenance dredging would likely be required to maintain the berth to the permitted depth and shall be authorized separately.

Dredged Material Disposal: Dredged material may be disposed of at both upland and in-water disposal sites. The Port proposes to utilize two upland disposal sites for disposal of dredged material: the upland portion of the project site itself (also referred to as the North Port site) and the South Port upland

disposal site located north of the TEMCO grain terminal at approximately RM 77. Dewatering of dredged material would generally be accomplished using settling ponds or overland flow. Settling ponds would be sized based on the settling characteristics of the dredged material and the rate of dredging. Return water from the dredged material would either be infiltrated to the ground or would be discharged to the Columbia River through existing weirs at the disposal sites. Return water would be sampled to show it meets state water quality turbidity standards prior to being discharged. Dredged material may also be transported to Ross Island Sand and Gravel in Portland, Oregon for its use (any in-water placement of dredged or fill material by Ross Island Sand and Gravel is subject to a separate Department of the Army permit).

The total dredge volume is approximately 126,000 cubic yards. The Port proposes to dispose of the dredged material at three sites: the beach nourishment site (in-water placement), the South Port upland placement site, and the upland portions of the North Port site. The amount of material placed at either the beach nourishment site or upland sites would be based on the capacity of the individual disposal sites at the time of placement and up to the total volume dredged. Up to approximately 126,000 cubic yards (the full amount that would be dredged) could be placed at the upland sites. If the Port utilizes a combination of the beach nourishment site and the upland sites, up to approximately 60,000 CY of dredged material would be placed at the beach nourishment site; the remaining volume of dredged material would be placed at either the South Port upland site or the upland portions of the North Port site. The beach nourishment site includes submerged and exposed shoreline. Dredged material would either be placed in-water or would be placed onto the exposed shoreline. Material used as beach nourishment may be placed by hydraulic dredge, bottom-dump barge, or clamshell within the limits of the approved boundaries of the beach nourishment site. All material placement would be below the ordinary high water mark (OHWM) at the beach nourishment site.

Collector Well: The Port proposes to install a collector well to gather water for industrial uses. The collector well would be constructed in uplands near the Columbia River shoreline. The collector well would measure 22 feet wide (inside diameter) by 100 feet in depth and would connect to a 2,200 square foot pump station facility. Infiltration laterals, 200 feet in length would be installed through the caisson, at approximately 98-feet below the exiting ground surface, and into the water-bearing formations using a hydraulic jacking tool. These lateral lines radiate out from the caisson. Five of the lateral lines would be installed under the bed of the Columbia River and extend waterward of the Ordinary High Water Line.

Temporary Crane Pad, Barge Access, and Temporary Site Access for Construction: It is expected that some of the components of the facility would be assembled offsite and transported to the project site via barge. These components may be offloaded from the existing North Port dock, directly from barges using a temporary crane, or would be offloaded across temporary false work for the new dock trestle. A temporary concrete crane pad may be constructed on an upland portion of the site for offloading materials/equipment from barges. The temporary crane pad would be located in an area outside of riparian buffers and above the ordinary high water mark of the Columbia River. The temporary concrete pad would be demolished and the temporary crane removed prior to project completion.

Modules would be delivered to the site in self-anchoring barges, which would anchor offshore using spuds or similar temporary anchors. Barges would anchor offshore, and would not ground out on the beach. Barges would typically only be anchored in place for approximately 1-2 days, as material is being unloaded. Once offloaded, the equipment/modules would be moved into place and erected on the site.

Construction Timing: The proposed project would be developed in one or two phases. The construction duration would be approximately 26 to 48 months depending on whether it is built in one or two phases. Construction is expected to begin after permits are issued (if and when issued) in the spring of 2019 and be completed in the fall of 2021 or spring of 2023. It is anticipated that pile driving would be completed over approximately 120 days (not necessarily consecutive) during the 2019/2020 or 2020/2021 in-water work windows. Ordinarily, work would be conducted during standard day light working hours, roughly 8 to 10 hours per day. Construction would take place from the uplands and/or from barges spudded in place.

#### 1.2.1.3 Proposed avoidance and minimization measures

The project would follow the following best management practices (BMPs) to further minimize the extent of any effects to the aquatic environment.

##### General Best Management Practices:

- In-water work would be conducted only during the in-water work window that is ultimately approved for this project.
- Project construction would be completed in compliance with Washington State Water Quality Standards (Washington Administrative Code [WAC] 173-201A), including those listed below.
- Petroleum products, fresh cement, lime, concrete, chemicals, or other toxic or deleterious materials would not be allowed to enter surface waters.

- There would be no discharge of oil, fuels, or chemicals to surface waters, or onto land where there is a potential for re-entry into surface waters.
- Fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc., would be checked regularly for leaks, and materials would be maintained and stored properly to prevent spills.
- A spill prevention, control, and countermeasures (SPCC) plan would be prepared by the contractor and used during all demolition and construction operations. A copy of the plan with any updates would be maintained at the work site.
- The SPCC plan would outline BMPs, responsive actions in the event of a spill or release, and notification and reporting procedures. The plan also would outline management elements, such as personnel responsibilities, project site security, site inspections, and training.
- The SPCC plan would outline the measures to prevent the release or spread of hazardous materials found on site or encountered during construction but not identified in contract documents including any hazardous materials that are stored, used, or generated on site during construction activities. These items include, but are not limited to, gasoline, diesel fuel, oils, and chemicals.
- Applicable spill response equipment and material designated in the SPCC plan would be maintained at the job site.

Overwater Work Best Management Practices. Typical construction BMPs for working in, over, and near water would be applied; these include activities such as the following:

- Checking equipment for leaks and other problems that could result in the discharge of petroleum-based products or other material into waters of the Columbia River.
- Corrective actions would be taken in the event of any discharge of oil, fuel, or chemicals into the water. These actions would include:
  - Beginning containment and cleanup efforts immediately upon discovery of the spill and completing them in an expeditious manner in accordance with all applicable local, state, and federal regulations. Spill response would take precedence over normal work. Cleanup would include proper disposal of any spilled material and used cleanup material.
  - Ascertaining the cause of the spill and taking appropriate actions to prevent further incidents and environmental damage.
  - Reporting spills to Ecology's Northwest Regional Spill Response Office at (425) 649-7000.
  - Excess or waste materials would not be disposed of or abandoned waterward of the OHWM or allowed to enter

waters of the state. Waste materials would be disposed of in an appropriate manner consistent with applicable local, state, and federal regulations.

- Demolition and construction materials would not be stored where wave action or upland runoff can cause materials to enter surface waters.
- Oil-absorbent materials would be present on site for use in the event of a spill or if any oil product is observed in the water.

Pile Installation Best Management Practices. Pile installation BMPs to be applied would include the following:

- A vibratory hammer would be used to drive steel piles to minimize underwater and terrestrial noise levels.
- If steel piles require impact installation or proofing, a bubble curtain would be used.
- Marine mammal monitoring would be conducted during pile installation activities to minimize impacts to marine mammals. The Applicant has applied for an Incidental Harassment Authorization (IHA) with NOAA Fisheries for the unavoidable incidental harassment of marine mammals that could occur during pile installation.

Overwater Concrete Placement Minimization and Best Management Practices. On-site concrete placement would follow appropriate BMPs that include the following:

- Wet concrete would not come into contact with surface waters.
- Forms for any concrete structure would be constructed to prevent leakage of wet concrete.
- Concrete process water would not be allowed to enter the river. Any process water/contact water would be routed to a contained area for treatment and would be disposed of at an upland location.

Dredging Best Management Practices:

- Dredging would be conducted during the in-water work window that is ultimately approved for this project.
- Dredging would be conducted to prevent impingement of juvenile salmonids by dredging equipment or clamshell or hydraulic dredge. Regular observation of sediment aboard the barge or at the placement areas would be conducted. If impingement occurs, clamshell operations would be adjusted (slowed) or modified to increase the opportunity for juveniles to avoid the bucket and/or

suction head. The hydraulic dredge would be lowered deeper into the sand to reduce water entrainment.

- Construction activities would be conducted in compliance with Surface Water Quality Standards for Washington (WAC 173-201A) or other conditions as specified in the water quality certification and/or construction stormwater permit.
- Appropriate BMPs would be employed to minimize sediment loss and turbidity generation during dredging. BMPs may include, but are not limited to, the following:
  - Smooth closure of the bucket when at the bottom;
  - No stockpiling of dredged material on the riverbed;
  - Maintaining suction head of hydraulic dredge in the river bed to the extent practicable;
  - Using a buffer plate or other means to reduce flow energy of the hydraulic dredge at the placement area; and other conditions as specified in the water quality certification.
  - Enhanced BMPs may also be implemented and may include, but are not limited to, the following:
    - Slowing the velocity (i.e., cycle time) of the ascending loaded clamshell bucket through the water column.
    - Pausing the dredge bucket near the bottom while descending, and near the water line while ascending.
    - Placing filter material over the barge scuppers to clear return water.
  - If sediment is placed on a barge for delivery to the placement area, no spill of sediment from the barge would be allowed. The barge would be managed such that the dredged sediment load does not exceed the capacity of the barge. The load would be placed in the barge to maintain an even keel and avoid listing. Hay bales and/or filter fabric may be placed over the barge scuppers to help filter suspended sediment from the barge effluent, if needed, based on sediment testing results.

Dredge Material Placement Best Management Practices. The following BMPs and conservation measures would be implemented to minimize environmental impacts during dredged material transport and placement:

- The contractor would be required to use a tightly sealing bucket during dredging and to monitor for spillage during transfer operations.
- Visual water quality monitoring and, if necessary, follow-up measurements would be conducted around the barge at the removal and upland transfer area to confirm that material is not being released.
- Sediment that is dredged by hydraulic dredge and placed in-water by hydraulic pipeline would be discharged at the riverbed to the extent practicable to minimize turbidity in the water column.
- Material used as beach nourishment would be placed within the limits of the boundaries and below OHWM.
- To prevent fish stranding, the slope for beach nourishment would be 3:1 horizontal to vertical (33 percent) without any swales.
- Sediment placement would use methods that minimize sediment loss and turbidity to the maximum extent possible.
- The placement activities would be monitored visually to ensure placed sediment is contained inside of the specified boundaries.
- Enhanced BMPs may be implemented to control sediment migration and turbidity and may include the following:
  - Selective sediment placement at areas with low dispersion.
  - Lowering the discharge pipeline toward the bottom elevation.
  - Placing sediment to build confinement dikes followed by placing the sediment into them.
  - Installing a silt curtain or similar equipment where appropriate.
- If upland stockpiling of dredged material becomes necessary, BMPs would be employed as appropriate to control runoff and erosion. Such BMPs may include: (1) installing silt fences, hay bales, and/or containment berms; (2) managing runoff and elutriate water; and (3) routine inspection of the stockpile areas to verify that BMPs are functioning properly.

Changes from Public Notice: Port is only proposing use of the beach nourishment site on the Washington side for in-water placement of dredged material, RM 76 for in-water placement of dredged material; only removing 157 rather than 320 piles as part of proposed mitigation, installing 10 rather than 8 ELJs, and enhancing approximately 2.42 acres rather than 1.41 acres of riparian habitat along the shoreline of the Columbia River adjacent to the site. The Port has also changed the proposed start date for construction.

#### 1.2.1.4 Proposed compensatory mitigation:

The Port has proposed three categories of mitigation for the proposed project: 1) pile removal; 2) ELJ installation; and 3) riparian habitat restoration and wetland buffer enhancement for impacts to overwater and aquatic habitat associated with construction of the overwater structure. The project did not propose impacts to wetlands. .

Pile Removal: The Port proposes to remove a portion of an existing timber pile dike located in the backwater channel adjacent to the site on Port property. The piles are wood, either untreated or treated with creosote. Piles are estimated to range between 12 and 14 inches in diameter at the mud line. Approximately 157 piles would be removed to restore a minimum of 123 square feet of benthic habitat, within an area approximately 2.05 acres in size. These structures, in their current configuration, affect the movement of water and sediment into and out of approximately 13 acres of the backwater area. The removal of the piles would facilitate sediment transport and seasonal flushing of the area, which would help improve water quality and in the long-term would maintain this area as an off-channel refuge for juvenile salmonids. The pile structure would only be partially removed, per a recommendation by the Washington Department of Fish and Wildlife (WDFW), to allow for some of the untreated piles to remain as vertical structure, while still providing for the sediment transport and associated water quality and habitat improvement benefits. Pile removals would provide both in-kind mitigation for benthic habitat impacts associated with new piling, as well as out-of-kind habitat mitigation in the form of sediment transport and water quality habitat improvement.

Engineered Log Jam (ELJ) Installation: The applicant would install ten ELJs in the nearshore habitat along the Columbia River shoreline adjacent to the site. Each ELJ would measure approximately 20 by 20 feet and be composed of large-diameter untreated logs, logs with root wads attached, small woody debris, and boulders. They would be anchored to untreated wood piles driven a minimum of 20 feet into the stream bed and would be fastened to the piles by drilling holes in the wood and inserting 1-inch through-bolts for attaching chains to secure the wood to the piles. The logs that comprise the structure would be further bolted together to create a complex crib structure with 2- to 3-inch interstitial spaces. These spaces may be filled with smaller wood debris and/or boulders to enhance structural complexity and capture free floating wood from the Columbia River. The eight structures would represent a total of 4,000-square feet of new large woody material, installed along approximately 1,000-linear feet of Columbia River shoreline. The logjams would provide refuge and foraging opportunities for out-migrating juvenile salmonids. The 10 ELJs proposed for this



project would offset overwater coverage at a ratio of one structure to approximately 4,494 square feet of overwater coverage.

Riparian Restoration and Wetland Buffer Enhancement: The Port proposes to conduct riparian enhancement and invasive species management within an area approximately 2.42 acres in size along the Columbia River shoreline at the site. The Port also proposes to enhance approximately 0.58 acre of wetland buffer at the north end of the site to offset unavoidable wetland buffer impacts. The riparian and wetland buffer habitats would be enhanced by removing invasive species and installing native trees and shrubs that are common to this reach of the Columbia River shoreline and adjacent wetlands. Native plantings proposed for the riparian restoration include black cottonwood (*Populus trichocarpa*) and a mix of native willow species including Columbia River willow (*Salix fluviatilis*), Pacific willow (*Salix lasiandra*), and Sitka willow (*Salix sitchensis*). Portions of the wetland buffer would be planted with black cottonwood. Invasive species management at the site would target locally common and aggressive invasive weed species, primarily Scotch broom (*Cytisus scoparius*) and Himalayan blackberry (*Rubus armeniacus*). The restoration sites would be monitored and maintained for 5 years to document proper site establishment.

## 1.2.2 Lateral Project Description

### 1.2.2.1 Activity Location:

The 3.1-mile long linear project is located in water bodies and wetlands in Kalama, Cowlitz County, Washington (Sections 28, 29, 31, 32, 33, Township 7 North, Range 1 West, and Section 36, Township 7 North, Range 2 West). The starting coordinates of the project are 46.053155 ° North, 122.812895° West. The ending coordinates of the project are 46.047724° North, 122.866394° West. The project would begin near Mile Post (MP) 1254.1 of the existing northwest mainline system. The route runs west following the Mt. Pleasant ridgeline for approximately 0.8 mile, then turning sharply southwest for 0.1 mile crossing the intersection of Raven Ridge and Hale Barber Roads. After crossing the intersection, the route continues southwest following Raven Ridge Road and the Mt. Pleasant ridgeline for about 0.3 mile before heading down slope in a westerly direction toward the floodplain of the Kalama River for 0.8 mile passing the north side of the Kress Lake recreation area. From there, the pipeline route continues to the northwest, crossing the Olympic Pipeline right-of-way, a Bonneville Power Administration power line right-of-way, and Old Highway 99 before turning southwest and crossing Interstate 5 (I-5) and the Burlington Northern Santa Fe Railroad line. After crossing the railroad, the pipeline would enter the proposed Kalama Methanol Facility site. .

#### 1.2.2.2 Description of activity requiring permit:

Northwest Pipeline proposes to construct and operate approximately 3.1 miles of 24-inch diameter natural gas pipeline and related facilities extending from Northwest Pipeline's mainline to NWIW's proposed methanol production facility located within the north industrial area of the Port of Kalama, in Cowlitz County, Washington (Kalama Methanol Facility). The Project would begin at the interconnection of Northwest Pipeline's existing Ignacio/Sumas 30-inch mainline at approximate MP 1254.14 in Section 33, T. 7 N., R. 1W. in Cowlitz County, Washington and would be located within a new permanent 50-foot-wide pipeline right-of-way (ROW), and a temporary 100-foot construction ROW that would require vegetation clearing. The pipeline would be installed using horizontal directional drilling (HDD) and conventional trenching methods. Constructing the pipeline would generally require the excavation of a trench (typically 5 to 6 feet in depth) with the exception of short stretches under streams and roads or areas crossed by HDD (approximately 45-52 ft. under the surface elevations).

The proposed route runs west from the mainline following the Mt. Pleasant ridgeline for approximately 0.8 miles through secondary growth forest, then turning sharply southwest through a residential area for 0.1 mile crossing the intersection of Raven Ridge and Hale Barber Roads. After crossing the intersection, the route continues southwest following Raven Ridge Road and the Mt. Pleasant ridgeline for about 0.3 mile through a residential area before heading downslope in a westerly direction through secondary growth forest toward the floodplain of the Kalama River for 0.8 mile. The route then passes the north side of the Kress Lake recreation area. From there, the pipeline route continues to the northwest, crossing the Old Highway 99 through agricultural land, turns southwest and crosses underneath Interstate 5 (I-5) and the Burlington Northern Santa Fe Railroad line. After crossing the railroad, the pipeline would enter the Kalama Methanol Plant Facility site.

Construction of the 3.1-mile, 24-inch diameter welded steel natural gas pipeline would cross four wetlands for approximately 844 linear feet and 5 streams and 3 ditches for a total of 24 linear ft. using HDD and open trench method. The proposed pipeline would be installed via HDD under three of the five wetlands for a total of 824 ft. and under two perennial waterbodies for a total of 6 ft.

Construction of the proposed project would result in 0.07 acre of temporary impacts and 0.01 acre of permanent impact within Corps jurisdictional wetlands; and would result in 0.044 acre (18 linear feet) of temporary impacts to Corps jurisdictional streams and ditches. Temporary impacts to wetlands, streams and ditches are associated with trenching for the placement of pipe and

the construction of the right-of-way (ROW). The proposed pipeline would be installed using an open trench method through one wetland, one ditch, and 5 streams. One wetland is within the ROW but is outside the trench line. The estimated temporary excavation and backfill volume for all wetlands and streams crossed by the pipeline via dry-open cut trench is approximately 22.22 cubic yards in wetlands, and approximately 16.67 cubic yards in streams and ditches. All trench work would be backfilled with excavated native material. The wetlands and stream bottoms would be returned to preconstruction contours.

All streams and ditches impacted by the open trench method are expected to be dry at the time of construction. If water is present at the time of construction, these streams and ditches would be crossed using a dry open-cut ditch method by either fluming or dam and pump. Banks would be stabilized and temporary sediment barriers would be installed before returning the flow across the construction work area by removing the flumes or other temporary structures used to isolate the stream flow from the work area during installation of the pipeline. If water is not present in these streams or ditches, Northwest Pipeline would complete the crossing using standard upland construction methods. Two perennial streams (S-2A7 and S-A26) would be crossed using HDD methods and are expected to occur during the recommended in-water work window for the Columbia River tributaries. The HDD entry and exit points have been located as far away from the streams as possible and the drill path would be separated from the bottom of the channel by sufficiently dense sediments to limit the potential for inadvertent surface returns into the streams.

The 0.01 acre of permanent impact of wetland W-2A2 is due to the scrub-shrub vegetative being altered to an emergent wetland vegetation regime for the portion of the wetland that would be present in the ROW. In addition, there is a total of 2.39 temporary impacts to wetland and stream buffers.

Table 3: Lateral Project Impacts to Wetlands Summary:

Wetland	Location	Work/Impact Type	Approximate Crossing Length	Temporary or Permanent Impact	Impact Acreage	Approximate Amount of Temporary Excavation Volume (Material excavated and used as backfill)
W-2A8 (PEM)	46.30513 °N/ 122.8626 °W	Pipeline installed underneath by HDD.	230 ft.	0	0	0
WL-B (PEM)	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	536 ft.	0	0	0
WL-A (PEM)	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	58 ft.	0	0	0
W-2A2 (PSS)	46.0507 °N/ 122.8508 °W	Pipeline to be installed by trench crossing.	20 ft.	Temporary and Permanent	0.03 acre (temporary) 0.01 acre permanent (vegetative conversion) Total 0.04 acre	22.22 CY (cubic yards)
W-2A1 (PEM)	46.0521 °N/ 122.8474 °W	Wetland is outside of trench line, would be scalped of vegetation but not excavated. Pipeline to be installed by trench crossing.	0	Temporary	0.04 acre	0 CF

Table 4 Lateral Project Impacts to Streams and Ditches Summary:

Stream/ Ditch	Location	Work/ Impact Type	Approximate crossing length	Temporary or Permanent Impact?	Impact Acreage	Approximate Amount of Temporary Excavation Volume (Material excavated and used as backfill)
Stream S-2A7 (Ditch #3), perennial	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	3 linear feet	0	0	0
Stream S-A26 (Ditch #2), perennial	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	3 linear feet	0	0	0
Ditch 1, intermittent	46.408 °N/ 122.857 °W	Waterbody is in study area but is avoided by project. Northwest would setback construction disturbance from the waterbody and protect it through installation of Best Management Practices	n/a	0	0	0
Ditch 4, intermittent	46.408 °N/122.857 °W	Pipeline to be installed by trench crossing.	3 linear feet	Temporary	0.01 acre	2.78 CY
Stream S-2A3, perennial	46.0507 °N/122.8508 °W	Pipeline to be installed by trench crossing.	5 linear feet	Temporary	0.012 acre	4.63 CY
Stream S-1A3, intermittent	46.0525 °N/ 122.8447 °W	Pipeline to be installed by trench crossing.	4 linear feet	Temporary	0.009 acre	3.70 CY
Stream S-1A2, intermittent	46.0532 °N/ 122.8425 °W	Pipeline to be installed by trench crossing.	4 linear feet	Temporary	0.009 acre	3.70 CY
Stream S-1A1, intermittent	46.0537 °N/122.8302 °W	Pipeline to be installed by trench crossing.	1 linear feet	Temporary	0.002 acre	0.93 CY
Stream S-0A1, intermittent	46.0550 °N/ 122.8271 °W	Pipeline to be installed by trench crossing.	1 linear feet	Temporary	0.002 acre	0.93 CY

**Construction Timing:** The current project schedule is to begin construction of the project in 2019 commencing with the horizontal direction drill which would cross Columbia River tributaries having a fish window of August 1 to March 31. The terrestrial portion of the project would likely be constructed later, depending

upon construction schedule of the Kalama Methanol Facility and customer preference. Regardless of the calendar year this portion of the pipeline is constructed, it would involve crossing Kalama River tributaries with an in-water work window of August 1-August 15th.

#### 1.2.2.3 Proposed avoidance and minimization measures:

Northwest Pipeline would utilize BMPs to prevent runoff and erosion. After completion of construction and during final clean-up, original topographic conditions and contours of uplands, wetlands, riparian areas and streambeds would be restored to reestablish drainage patterns and wetland hydrology. Any excess backfill would be spread over upland areas and stabilized during cleanup. Where the pipeline trench may drain a wetland, Northwest Pipeline would install trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology. A permanent slope breaker and a trench breaker would be installed through wetlands at the base of slopes near boundaries between the wetland and adjacent upland area. The trench breaker would be located immediately upslope of the slope breaker.

Impacts to wetlands and wetland buffers would also be minimized using general revegetation procedures as outlined in the Erosion Control and Revegetation Plan. Fertilizer or lime would not be used in wetlands. After construction, wetlands would be seeded using seed mixtures approved by the Corps, Washington Department of Ecology (WDOE) and Cowlitz County.

Northwest Pipeline would install temporary construction bridges to cross water bodies, where necessary. Clearing equipment may be allowed one pass to cross over water bodies before installation of equipment bridges. All other construction equipment would only cross water bodies using equipment bridges.

As part of the initial route analysis, Northwest Pipeline evaluated numerous route possibilities. Northwest Pipeline routes crossing less wetlands and fewer streams were considered preferable to routes affecting more of these resources. Additionally, longer routes that would significantly increase the amount of land disturbance and easements required were considered less desirable. The route preferred by Northwest Pipeline is the alternative that would result in fewer impacts to aquatic habitats and water quality while minimizing impacts to residences. Northwest Pipeline avoided additional wetland impacts by locating the construction ROW to the north of the wetland W-2A4 and aligning the temporary work area to remain outside of the wetland boundaries. The work would impact upland areas identified as "buffer" by Washington Department of Ecology (WDOE) regulations). Northwest Pipeline proposes to utilize the HDD crossing method to install the pipeline beneath three emergent wetlands and two perennial streams (ditches). The HDD method minimizes in-stream impacts by

eliminating the need for in-stream excavation and eliminating the need to open cut and backfill a large portion of emergent wetlands. During HDD pipeline installation, all of the wetlands and ditches drilled under would be subject to monitoring for potential inadvertent returns of drill fluids. To minimize impacts to Wetland W-2A1, the construction ROW has been reversed at this location meaning that the grading and travel lane for construction would not overlay the wetland. The wetland is located partially in the construction ROW and partly in a TEWA. This location would allow the wetland to be only “grubbed” of surface vegetation and protected by construction mats if soils are wet.

Northwest Pipeline would reduce/minimize potential wetland and waterbody impacts by incorporating the measures outlined in Federal Energy Regulatory Commission’s (FERC’s) Wetland and Waterbody Construction and Mitigation Procedures (hereafter FERC’s Wetland and Waterbody Procedures) and FERC’s Upland Erosion Control, Revegetation, and Maintenance Plan (hereafter FERC’s Upland Plan) into the Project design and the Erosion Control and Revegetation Plan. Northwest has requested modifications from the FERC Wetland and Waterbody Procedures at a few locations based on topographic or other site-specific construction feasibility issues which prevent locating a TEWA 50 feet from a wetland or waterbody boundary.

To minimize the extent of Lateral Project-related disturbance, Northwest Pipeline would verify and clearly mark (with flagging) the construction limits and boundaries of all sensitive areas (including waterbodies and wetlands) prior to clearing for construction. Flagged boundaries would be maintained during construction. Northwest would ensure that all construction activities are confined to the certificated work limits authorized for construction.

During construction, Northwest Pipeline would have an Environmental Inspector (EI) present during all phases of construction within wetlands and waterbodies to ensure compliance with the FERC Upland Plan and Wetland and Waterbody Procedures as well as other Project permit stipulations/requirements.

To minimize potential for spills and any impact from such spills, Northwest Pipeline would developed a Spill Plan for Oil and Hazardous Materials (Spill Plan) to implement during construction. Fueling and storage of hazardous materials would be conducted in accordance with Northwest’s Spill Plan and FERC’s Wetland and Waterbody Procedures.

To minimize impacts to wetlands, Northwest has reduced (or “necked-down”) the width of the construction right-of-way through wetlands from 100 feet to 75 feet where feasible. Neck-downs through wetlands are consistent with FERC’s Wetland and Waterbody Procedures. A typical construction right-of-way

configuration through wetlands is shown on Drawing 2504.34-X-0008 in the ECRP.

Where clearing is required, Northwest would cut, mow, or shear woody vegetation and leave roots intact to facilitate sprouting of tree and shrubs, help minimize erosion and reduce recovery time following construction. Silt fence and/or hay bale sediment barriers would be installed at the edges of the construction right-of-way in wetlands where there is a possibility for excavated trench spoil to flow into undisturbed areas of the wetland.

Dewatering of the trench would be accomplished in a manner such that no heavily silt-laden water flows into any wetland or waterbody. Trench breakers would be installed where necessary to prevent the wetland from draining through the pipeline trench and to maintain its hydrologic integrity. A diagram of a trench breaker is provided in the ECRP, (Drawing 2504.34-X-0001). Where the pipeline trench can potentially drain a wetland, the trench bottom would be sealed as necessary to maintain wetland hydrology.

After construction, all disturbed areas within wetlands would be returned to their preconstruction contours, to the extent practicable, to maintain the wetland's hydrologic characteristics.

Northwest Pipeline would utilize existing roads, rights-of-way and previously disturbed areas to minimize impacts to the extent practicable.

Northwest Pipeline would utilize specific measures to minimize stream and ditch crossing impacts. Northwest Pipeline proposes to install the pipeline at potentially fish-bearing streams and ditches using the HDD method, which may occur outside of Washington Department of Fish and Wildlife (WDFW) recommended in-water construction windows. None of these streams proposed to be crossed using the open trench method support fish life; therefore, no fish handling would be required. Streams crossed by the open trench method are expected to be dry at the time of construction, and if so, crossings may take place outside of the WDFW recommended in-water work windows for the Kalama River tributaries (August 1 to August 15) and Columbia River tributaries within the Project area (August 1 to March 31). Streams proposed to be crossed by the open trench method that are flowing at the time of construction, would be crossed using dry open cut crossing procedures (flume or dam and pump). Flumes or dams and pumps would be completely installed and functioning prior to any instream disturbance. All dry open cut crossings would be completed as a single effort to minimize the time of in-stream disturbance. A summary of typical fluming procedures follows:



- A flume pipe (or pipes) is placed on the bottom of the waterbody and aligned with the flow of the stream. The size of the flume pipe and the number of pipes to be used is determined by the potential amount of flow in the particular waterbody at the time of construction. The flume pipe is longer than the construction area width of the crossing.
- A temporary dam of sandbags and plastic is constructed at the upstream end of the flume, resulting in the entire stream flow passing through the flume and bypassing the construction area. This allows continuous stream flow to downstream reaches.
- A similar temporary dam of sandbags and plastic is constructed at the downstream end of the flume. This prevents the water in the stream from back flowing into the construction area.
- Fish are removed in the construction area between the dams prior to dewatering the work area.
- All instream excavation is done between the dams. The dams prevent turbid water created by construction from flowing downstream.
- Adequate downstream flow rates would be maintained through the flume pipe. Temporary spoil placement would be at least 10 feet from the waterbody and would be contained by sediment barriers.
- Clean gravel or cobbles would be placed in the upper one-foot of trench backfill using specifications provided by the Washington Department of Fish and Wildlife (WDFW) and
- All banks would be stabilized and temporary sediment barriers would be installed within 24 hours of completing the crossing.

#### 1.2.2.4 Proposed compensatory mitigation:

Northwest Pipeline proposes to provide compensatory mitigation by purchasing credits from the Columbia River Wetland Mitigation Bank to compensate wetland impacts. Northwest Pipeline would purchase 0.01 credit to compensate for the permanent impacts to scrub-shrub wetlands to Corps jurisdictional wetlands. Northwest Pipeline would purchase an additional 0.04 acre credit for temporary impacts to wetlands and lastly Northwest Pipeline would purchase 0.60 acre credit for temporary impacts to wetland and riparian buffers. Thus, in total Northwest Pipeline would purchase 0.65 acre credit from the Columbia River Wetland Mitigation Bank to mitigate the project's impacts.

#### 1.2.3 Kalama Methanol Facility Project Description:

##### 1.2.3.1 Activity Location:

The Kalama Methanol Facility would be located at the Port's North Port site at 222 West Kalama River Road in unincorporated Cowlitz County,

Washington (Latitude: 46.05° North, Longitude: 122.87° West). As previously discussed, the North Port site is located at approximately RM 72 along the east bank of the Columbia River. The methanol plant 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.

#### 1.2.3.2 Description of activity:

The Kalama Methanol Facility would be located on a 90-acre site along the Columbia River. The plant would receive the natural gas from the lateral pipeline, convert the gas to methanol, and utilize the Marine Export Facility to transport the methanol overseas.

The plant would be comprised of two methanol production lines with both lines producing 5,000 tons per day of AA-grade methanol from natural gas feedstock. The production lines would occupy approximately 14 acres of the project site and consist of reforming, methanol synthesis and distillation towers approximately 235-feet-tall. Waste heat from the methanol production process would be managed through two cooling towers, one for each production line that would consist of five cells each. The cooling towers would be approximately 290-foot-long, 110-foot-wide, and 40-foot-tall. The production lines would each contain an air separation unit (ASU) that would use a low-temperature process to separate various gases from the air, such as oxygen and nitrogen, for use in the plant process. Each unit would consist of an air intake and filter, compressors, washing towers, sieves, distillation elements, and tanks. The ASUs would be approximately 225,000-square-foot and 60-foot-tall.

NWIW's methanol process would utilize approximately 4.4 million gallons per day (3,038 gallons per minute (gpm)) of industrial water. The majority of the process water used on site would be sent to the cooling towers then to a recycling system to be reused. NWIW would minimize the amount of water needed for the Kalama Methanol Facility by implementing the Zero Liquid Discharge (ZLD) system and reusing the methanol process water instead of discharging treated wastewater to the Columbia River, see Section 7.1.

Fourteen methanol storage tanks would be required during various steps in the production process. Specifically, two rework tanks would be required to hold up to 2,275,000 gallons of raw methanol during the production process, and would be approximately 82 feet in diameter and 58 feet in height. Four shift tanks would hold approximately 1,000,000 gallons of refined methanol for testing

prior to discharge to the storage tanks, and would be approximately 60 feet in diameter and 50 feet in height. Eight bulk product storage tanks would be required to hold 9,400,000 gallons (approximately 26,000 tons) of methanol prior to being loaded onto vessels, and would be approximately 105 feet in height and 145 feet in diameter and encased in a containment berm. A piping system would convey methanol from the bulk product storage tanks to the loading arms at the Marine Export Facility. Additional methanol plant infrastructure would include interconnecting facilities, including piping, product pipelines, electrical, and control systems; a flare system for the disposal of flammable gases during startup, shutdown, and malfunctions; fire suppression infrastructure and a risk management system; security gate houses, laboratory, control rooms, warehouses, and other buildings and enclosures; and the natural gas meter station and transfer equipment.

The facility would meet its electric power demands using a combination of grid electric power and on-site power generation. New power lines would be added on existing poles to the project site and a new substation would be constructed within the project site. In addition to the grid power, a new on-site 125-megawatt power generation facility would be constructed and consist of two natural gas-fired combustion turbines and one steam turbine. The exhaust stacks would be the tallest element of the power generation facility and would be approximately 90-feet-tall. Waste heat from the power generation facility would be managed through one cooling tower located adjacent to the cooling towers installed for the methanol production process.

1.2.3.3 Proposed avoidance and minimization measures: DOE would not require additional avoidance or minimization measures. NWIW proposed avoidance and minimization measures is discussed in Section 8.3 Kalama Methanol Facility Mitigation.

1.2.3.4 Proposed compensatory mitigation: The mitigation measures previously described by the USACE are required. The DOE would not require additional compensatory mitigation. NWIW proposed compensatory mitigation is discussed in Section 8.3 Kalama Methanol Facility Mitigation.

1.3 Existing conditions and any applicable project history:

1.3.1 Marine Export Facility (NWP-2014-177/2):

The Marine Export Facility would be located at the Port's North Port site at 222 West Kalama River Road in unincorporated Cowlitz County, Washington. Existing Port of Kalama facilities are located along the Columbia River between approximately RM 72 and RM 77. The North Port site is located at approximately RM 72 along the east bank of the Columbia River. The Burlington Northern

Santa Fe (BNSF) Railway and Interstate 5 (I-5) lie immediately to the east. 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 is the owner of the project site and has leased approximately 90-acres of the 100-acre site to NWIW for construction and operation of the proposed facility.

The project site is largely zoned for industrial use. Cowlitz County's current comprehensive plan designates the majority of the project site as Heavy Industrial. A small area in the northwest portion of the project site is designated as "Forestry – Open Space". Appropriate uses in the Heavy Industrial designation are identified as "heavy industrial uses, for example lumber and plywood mills, metal manufacturing, sand and gravel operations, foundry or iron works, quarries". Appropriate uses in the Forestry – Open Space classification are identified as timber management, agriculture, residential and outdoor recreation complimentary to other encouraged uses. The County Shorelines Management Master Program (SMMP) designates the shoreline environment at the project site as Urban and Conservancy. The SMMP states that the urban designation is suitable for intensive recreation, residential, industrial, and commercial development.

The proposed project site was filled to its current elevation in 1980 using material dredged from the Columbia River. An existing building is located on the southwest portion of the project site. This approximately 38,000-square-foot building is currently used as a warehouse and office space for the Steelscape manufacturing facility and includes parking, loading, and landscaped areas. This building and adjacent areas would be reused as part of the proposed project. The remainder of the project site is undeveloped and sparsely vegetated. Site topography is generally flat and consists primarily of sandy dredged material.

The proposed berth site has never been dredged. The existing depths varying from -50 feet CRD to -39 feet CRD, and is adjacent to the existing North Port berth which is dredged to a depth of -48 feet plus 2 feet over depth. The existing shoreline at the Marine Export Facility site is composed of a narrow, sandy beach. The Washington beach nourishment site is currently utilized by the Port for placement of maintenance dredge material. The Beach Nourishment Site is approximately 4-acres and extends from the shoreline to approximately 250 feet into open water. The substrate is predominately sand. Existing depths range from -10 ft. to -30 ft. CRD (as of Sept 2016 Kalama Maintenance Dredging Report).

### 1.3.2 Lateral Project (NWP-2015-111):

The proposed route of the Lateral Project runs through second growth forest on previously harvested timber land and a residential area. Along this route, the pipeline would cross approximately 2.0 miles of private forest land, approximately 0.6 mile of developed land, approximately 0.4 mile of agricultural land, and approximately 0.1 mile of residential land (FERC 2015). The proposed pipeline alignment would cross five wetlands (W-2A8, AL-B, WL-A, W-2A2, and W-2A1), four ditches in an existing agricultural area (S-2A7, S-A26, Ditch 1, and Ditch 4), and five streams (S-2A3, S-1A3, S-1A2, S-1A1, and S-0A1).

### 1.3.3 Kalama Methanol Facility:

The methanol facility is situated in the upland portion of the North Port Site. See Existing Conditions description for Marine Export Facility.

### 1.4 Permit Authority:

Marine Export Facility: Section 10 of the Rivers and Harbors Act (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).

Lateral Project: Section 404 of the Clean Water Act (33 USC 1344)

Kalama Methanol Facility proposed in the NWIW application to DOE: The Energy Policy Act of 2005 (Energy Act) established a Federal loan guarantee program for eligible energy projects that employ innovative technologies. Title XVII of the Energy Act authorizes the Secretary of Energy to make loan guarantees for a variety of types of projects, including those that “avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases (GHG); and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued.” The two principal goals of the loan guarantee program are to encourage commercial use in the United States (U.S.) of new or significantly improved energy-related technologies and to achieve substantial environmental benefits by reducing reliance on fossil fuels and reducing GHG emissions.

**2.0 Scope of review for National Environmental Policy Act (i.e. scope of analysis), Section 7 of the Endangered Species Act (i.e. action area), and Section 106 of the National Historic Preservation Act (i.e. permit area)**

2.1 Determination of scope of analysis for National Environmental Policy Act (NEPA):

The scope of analysis includes the specific activity requiring a Department of the Army permit. Other portions of the entire project are included because the Corps does have sufficient control and responsibility to warrant federal review. The following factors were considered:

2.1.1 Whether or not the regulated activity comprises "merely a link" in a corridor type project:

The regulated activities listed in the project descriptions for the Marine Export Facility, Lateral Project, and Kalama Methanol Facility do not comprise "merely a link". New construction of the Marine Export Facility (a dock, a berth, loading equipment, utilities, and a stormwater system); berth dredging; dredged material disposal; collector well; temporary crane pad, barge access; and temporary site access for construction would occur in-water and in uplands of the proposed Marine Export site. Natural gas would be delivered to the Methanol Plant by the Lateral Project, which crosses both uplands and wetlands. The Lateral Project would extend from an existing natural gas line to the proposed Methanol Facility. The Kalama Methanol Facility would be constructed in uplands.

2.1.2 Whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity:

The Marine Export Facility would require a DA permit, including the dock, berth dredging and in-water disposal of dredged material, temporary construction access, collector well, and mitigation. The construction of the in-water portion of the Marine Export Facility is affected by the location and configuration of the upland portions of the project, in particular the Kalama Methanol Facility. A smaller pipeline (not the pipeline described in NWP-2015-111) would convey methanol produced from the Methanol Facility to the dock. There is some flexibility in the configuration of the dock and Methanol Facility; however, changes in the location and/or configuration of the Kalama Methanol Facility would result in location and/or configuration change in the Marine Export Facility, and vice versa.

The Lateral Project wetland crossings require a DA permit. There are alternative layouts for how the Lateral Project could reach the facility and how many streams/wetlands it would cross, however the location and/or configuration of the Methanol Facility would affect the entry point of the lateral pipeline into the Methanol Facility site.

### 2.1.3 The extent to which the entire project will be within the Corps jurisdiction.

Marine Export Facility: The extent of the project directly within Corps jurisdiction (i.e., waters of the U.S.) includes: berth dredging, in-water disposal of dredged material, dock, barge loading crane, collector well construction, mitigation sites, and navigation aid.

Lateral Project: The extent of the project directly within Corps jurisdiction (i.e., waters of the U.S.) includes: five wetlands, five streams and five ditches.

Kalama Methanol Facility: The Kalama Methanol Facility is located in uplands and is not within Corps jurisdiction.

### 2.1.4 The extent of cumulative Federal control and responsibility:

a. The Corps has control and responsibility over the Marine Export Facility project (NWP-2014-177/2). The Corps has control and responsibility over the Kalama Lateral Project (NWP-2015-111) where it crosses waters of the U.S.

b. The FERC has control and responsibility over the proposed Kalama Lateral Project (NWP-2015-111). The FERC is the lead Federal agency for the lateral pipeline. FERC has evaluated the pipeline for a Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act and issued a certificate of public convenience and necessity on April 11, 2016. FERC issued an EA for the pipeline in July 2015. USACE was a cooperating agency in the preparation FERC's EA.

c. The DOE would exercise control over the Kalama Methanol Facility through administration of a potential loan guarantee for the facility's construction and startup, and is a cooperating agency for the USACE environmental review. DOE is reviewing the upland Methanol Facility to inform the decision on whether to provide a loan guarantee to NWIW. The Lateral Project and Marine Export Facility would not be included in DOE's potential financial assistance. However, DOE's decision would be informed by the NEPA analysis of all of the associated facilities, including the Marine Export Facility, Kalama Methanol Facility, and Lateral Project.

### 2.1.5 Final description of scope of analysis:

In accordance with 33 CFR Part 325, Appendix B, the NEPA review would be extended over all three proposed projects, including portions outside waters of the United States, only if sufficient Federal control and responsibility over the entire project is determined to exist; that is, if the regulated activities and those activities involving regulation, funding, etc. by other federal agencies comprise a substantial portion of the overall project. Therefore, the Corps' scope of analysis for these projects includes the proposed jurisdictional work and upland work for:

- Marine Export Facility (NWP-2014-177/2). Work within the boundaries of the Marine Export Facility proposed project area, including the jurisdictional work (as described in the Marine Export Facility project description: dock, berth dredging, in-water dredged material disposal sites, construction collector well, mitigation site, and temporary access from the water) and associated upland facilities (Kalama Methanol Facility and construction parking areas).
- Kalama Lateral Project (NWP-2015-111). Includes the jurisdictional work (wetland and stream crossings) and upland structures (pipeline in-between crossings and tie in location buildings) within the area of the construction boundary along the 3.1 mile pipeline. The scope of analysis does not include the existing roads or neighboring facilities.
- Kalama Methanol Facility. Includes the entire 90-acre methanol plant.

## 2.2 Determination of the "Corps action area" for Section 7 of the Endangered Species Act (ESA):

### 2.2.1 Marine Export Facility:

The Corps is the lead agency for ESA consultation. The Corps determined the ESA action area for the potential impacts of the proposed Marine Export Facility is one mile from the Marine Export Facility project area to include this project area to the point where turbidity and noise levels caused by construction reduce to background levels, the vessel routes to the proposed dredged material disposal areas, and disposal of dredged material at the disposal areas. The project is located at RM 72; therefore, the action area would extend from RM 72 to 74. The Corps does not have control and responsibility over vessel traffic. Potential impacts from vessel traffic related to vessel type, size, speed, and directional route are outside the Corps control and responsibility.

### 2.2.2 Lateral Project: The Corps is the lead agency for ESA consultation. Given the overall federal involvement by FERC over the pipeline, the ESA action area is the entire 3.1-mile pipeline route.



2.2.3 Kalama Methanol Facility: The Corps is the lead agency for ESA consultation. However, the construction of the Kalama Methanol Facility is not within the Corps jurisdiction; therefore, the Corps cannot condition a permit for Methanol Facility construction. Given that neither the Marine Export Facility nor the Lateral Project would occur but for construction of the Kalama Methanol Facility, the ESA action area reviewed by NMFS and USFWS incorporates the Kalama Methanol Facility construction site.

2.3 Determination of permit area for Section 106 of the National Historic Preservation Act (NHPA):

The permit area includes those areas comprising waters of the United States that will be directly affected by the proposed work or structures, as well as activities outside of waters of the U.S. because all three tests identified in 33 CFR 325, Appendix C(g)(1) have been met.

2.3.1 Final description of the permit area:

- Marine Export Facility: The permit area for the Methanol Export Facility includes several areas. Construction of the Methanol Export Facility, would be located at the Port of Kalama RM 72, includes the dock, berth, staging areas, uplands between dock and pipeline, collector well, mitigation sites. The dredged material would be disposed of at in-water disposal sites (Washington flow lane site and the Beach Nourishment site) and/or upland disposal sites (South Port and North Port sites). The Corps is the lead agency for Section 106 consultation of the Marine Export Facility.
- Lateral Project: The permit area for the Lateral Project extends from its beginning at the existing northwest mainline system (near MP 1254.1) to its terminus at the Kalama Methanol Facility site. The entire extent of the pipeline is within FERC's jurisdiction; therefore, FERC is the lead agency for Section 106 consultation for the entire length of the pipeline including Corps' permit areas. The Corps would adopt FERC's Section 106 compliance for this component of the project. The Corps permit area for the Lateral Project includes only the portions of the pipeline which impact waters of the United States. Within the permit area, the Corps would consider direct impacts to cultural resources.
- Kalama Methanol Facility: The permit area for the Kalama Methanol Facility is the North Port construction site at Port of Kalama RM 72. The Corps permit area includes the upland Methanol Facility construction site. The Corps' Section 106 consultation of the Marine Export Facility includes this permit area

### 2.3.2 Three Part Test.

Activities outside waters of the United States are included because all of the following tests are satisfied: (i) Such activity would not occur but for the authorization of the work or structures within the waters of the United States; (ii) Such activity is integrally related to the work or structures to be authorized within waters of the United States (or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program); and (iii) Such activity is directly associated (first order impact) with the work or structures to be authorized.

### 2.3.3 Scope of Analysis Determination.

a) Marine Export Facility: The permit area for the Methanol Export Facility includes several areas. Construction of the Methanol Export Facility, would be located at the Port of Kalama RM 72, includes the dock, berth, staging areas, uplands between dock and pipeline, collector well, mitigation sites. The dredged material would be disposed of at in-water disposal sites (Washington flow lane site and the Beach Nourishment site) and/or upland disposal sites (South Port and North Port sites). The Corps is the lead agency for Section 106 consultation of the Marine Export Facility.

b) Lateral Project: The permit area for the Lateral Project extends from its beginning at the existing northwest mainline system (near MP 1254.1) to its terminus at the Kalama Methanol Facility site. The entire extent of the pipeline is within FERC's jurisdiction; therefore, FERC is the lead agency for Section 106 consultation for the entire length of the pipeline including Corps' permit areas. The Corps would adopt FERC's Section 106 compliance for this component of the project. The Corps permit area for the Lateral Project includes only the portions of the pipeline which impact waters of the United States. Within the permit area, the Corps will consider direct impacts to cultural resources.

c) Kalama Methanol Facility: The permit area for the Kalama Methanol Facility is the North Port construction site at Port of Kalama RM 72. The Corps permit area includes the upland Methanol Facility construction site. The Corps' Section 106 consultation of the Marine Export Facility includes this permit area.

### **3.0 Purpose and Need**

#### **3.1 Marine Export Facility**

##### **3.1.1 Purpose and need for the project as provided by the applicant and reviewed by the Corps:**

“The objective of the proposed project is to construct and operate a manufacturing facility to produce methanol from natural gas using technology that produces less air pollution and GHG emissions than methanol production using coal. This “greener” methanol will be exported to global markets by oceangoing vessel.

Global demand for methanol is high for use as a feedstock for olefin, a component in the manufacturing of many everyday items. Recent forecasts predict an increase in worldwide demand for methanol from 60 million metric tonnes (MMT) in 2013 to 190 MMT in 2023. Currently coal is widely used for methanol production.

The project will provide economic benefit to the region, create jobs, improve access to recreational resources and thus meets the Port’s mission, and produce methanol using a technology that will produce less air pollution and GHG emissions than methanol production using coal. The project will therefore meet the Port’s mission to “induce capital investment in an environmentally responsible manner to create jobs and to enhance public recreational opportunities”.

##### **3.1.2 Basic project purpose, as determined by the Corps:**

The basic project purpose is to provide a facility for ship loading.

##### **3.1.3 Water dependency determination:**

The activity does not require access or proximity to or siting within a special aquatic site to fulfill its basic purpose. Therefore, the activity is not water dependent.

##### **3.1.4 Overall project purpose, as determined by the Corps:**

To provide a marine terminal and supporting infrastructure to export methanol produced at the proposed Kalama Methanol Facility to global markets by oceangoing vessel.

### 3.2 Lateral Project

#### 3.2.1 Purpose and need for the project as provided by the applicant and reviewed by the Corps:

Northwest Pipeline is proposing to construct and operate a 3.1-mile, 24-inch-diameter natural gas pipeline to provide 320,000 Dekatherms per day (Dth/d) of natural gas transportation service to NWIW's proposed Methanol Plant.

#### 3.2.2 Basic project purpose, as determined by the Corps:

The basic project purpose is to transport natural gas.

#### 3.2.3 Water dependency determination:

The activity does not require access or proximity to or siting within a special aquatic site to fulfill its basic purpose. Therefore, the activity is not water dependent.

#### 3.2.4 Overall project purpose, as determined by the Corps:

To construct a natural gas pipeline to provide natural gas transportation to service NW Innovation Works proposed methanol plant.

### 3.3 Kalama Methanol Facility

#### 3.3.1 Purpose and need for the project as provided by the applicant and reviewed by the Corps:

N/A. There is no application for a Corps permit.

#### 3.3.2 Basic project purpose, as determined by the Corps:

N/A. There is no application for a Corps permit.

#### 3.3.3 Water dependency determination:

N/A. There is no application for a Corps permit.

#### 3.3.4 Overall project purpose, as determined by the Department of Energy:

To construct and operate a natural gas to methanol facility to ship the methanol primarily to Asia for the production of olefins.

#### 4.0 Coordination

- 4.1 The results of coordinating the proposal on Public Notice (PN) are identified below, including a summary of issues raised, any applicant response and the Corps' evaluation of concerns.

A complete application for the Marine Export Facility (NWP-2014-177/2) was received on October 7, 2015. A complete application for the Lateral Project (NWP-2015-111) was received on 13 May 2015. A Joint Public Notice describing the two proposed projects was issued on October 9, 2015. Comments received on the two proposed actions are summarized below

- 4.1.1. Were comments received in response to the PN? Yes

- 4.1.2 Were comments forwarded to the applicant for response?

Yes. Corps sent letters dated 07 December 7 2015 to the Port (NWP-2014-177) and Northwest Pipeline (NWP-2015-111) requesting their response to the comments. A second set of comments was forwarded to the Port on 18 October 2016 and Northwest Pipeline on 18 October 2016.

Both the Port and Northwest Pipeline responded to the Corps letters requesting response to the public notice comments. The Port responded to the following comments/issues identified by the Corps in letters dated 05 February 2016 and 19 October 2016. Northwest Pipeline responded to the following comments/issues identified by the Corps in letters dated 23 December 2015 and 21 October 2016.

- 4.1.3 Was a public meeting and/or hearing requested and, if so, was one conducted?

Yes, a public meeting/hearing was requested but was not held. The Corps determined that additional information from such a hearing was not needed to make a final permit decision. The Corps did not receive comments to the public notice that raised substantial issues which could not be resolved informally. Comments were received from federal, state, local agencies, organizations, individuals, and other interested parties.

- 4.1.4 Comments received in response to public notice:

Comment 1:

Commenter: U.S. Coast Guard (USCG), received 14 October 2015

Commented on Project No:

- NWP-2014-177/2 Marine Export Facility  
 NWP-2015-111 Lateral Project

Comment: USCG Bridge Program reviewed public notice and has no comment. Believed their Waterways Management Branch might have comments.

Port Response: The Port has received correspondence from the USCG and will coordinate before commencing dredging and dredge material disposal operations.

Corps Evaluation: The USCG's comments are addressed in Section 7.1, General Public Interest Review, Navigation.

Comment 2:

Commenter: USCG, dated 19 Oct 2015

Commented on Project No:

- NWP-2014-177/2 Marine Export Facility
- NWP-2015-111 Lateral Project

Comment: To ensure the public safety of the boating public, the Coast Guard Waterways Management Branch will require that a Private Aid to Navigation be installed to mark this facility. The USCG recommended the following special conditions:

- a. Coordinate with the Coast Guard directly for all Coast Guard related requirements.
- b. Provide the Corps with an application for any aids to navigation associated with this project after coordination with the Coast Guard.

Port Response: The Port has not yet applied for a U.S. Coast Guard (USCG) permit to install approved aids to navigation on the structure. The Port will coordinate directly with the USCG regarding the design and specifications of any required Private Aids to Navigation (PATON). The Port will provide the Corps with a copy of the PATON application when the application has been completed and submitted to the USCG. The Port will apply for this permit consistent with the USCG guidance at least 30 days prior to installation.

Corps Evaluation: The USCG's comments are addressed in Section 7.1, General Public Interest Review, Navigation.

Comment 3:

Commenter: USCG, dated 19 October 2015

Commented on Project No:

- NWP-2014-177/2 Marine Export Facility
- NWP-2015-111 Lateral Project

Comment: USCG has no comment. Project falls outside of the jurisdiction of the Coast Guard for the purposes of marine navigation.

Northwest Pipeline Response: None needed

Corps Evaluation: None needed

Comment 4:

Commenter: Environmental Protection Agency (EPA), received 09 November 2015

Commented on Project No:

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment 4a: EPA encourages the use of on-site mitigation to improve shore conditions along the Columbia River. EPA supports the use of in-water placement of dredged material associated with the extension of the berth serving the Port's North Port Terminal. The EPA comments do not need to be addressed at this time.

Port Response to 4a: Comment noted by the Port.

Corps Evaluation to 4a. The Corps has noted the EPA's comment. See Section 6, Evaluation of the 404(b)(1) Guidelines, Section 7 Mitigation, and Section 8 Compensation and other mitigation actions.

Comment 4b: EPA recommended that: i) the pipeline be installed using the open trench cut method and be installed at a depth well below the stream bed sufficient to prevent any potential exposure to scour. The EPA is concerned that the pipeline will not be installed deep enough below the streambed which would result in increased likelihood of scouring and exposure of the buried pipe. ii) If an open trench cut method is utilized, crossings should be located at straight sections of the stream perpendicular to the banks, whenever possible. iii) Northwest Pipeline should avoid crossing any meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in the erosion and scouring of the stream bed. EPA requested that Northwest Pipeline provide an analysis regarding the potential stability for an 8-foot depth pipeline installation in these intermittent channels to support the proposed design.

Northwest Pipeline Response to 4b: Northwest Pipeline responded that concerns regarding scour is discussed in the FERC EA, Section B.1.1 Environmental Analysis, Geology and Soils, Geological Hazards - Erosion (page 27):

*"The Project would cross two perennial streams and five intermittent channels. The two perennial stream channels are located between the eastern side of Interstate 5 and the toe of Mount Pleasant west-facing slope and would be crossed using a HDD. Also, the HDD workspaces would be located outside expected scour or lateral migration of the channels. The intermittent channels are small scale with little contributing basin area for flow development. As such, vertical scour resulting from recurrent flows at the locations of the intermittent channels would be unlikely." (FERC 2015)*

A Geologic Hazards Assessment was included as Appendix 6A to Resource Report 6, Geological Resources FERC Docket No. CP15-8-000 and was submitted to FERC in October 2014.

Corps Evaluation to 4b: The Corps has reviewed the FERC EA and concurs with FERC's findings. The EPA's comments are addressed in Section 7.1, General Public Interest Review, Shoreline erosion and accretion.

Comment 5:

Commenter: Washington State Department of Natural Resources (DNR), received 09 November 2015

Commented on Project No:

- NWP-2014-177/2 Marine Export Facility
- NWP-2015-111 Lateral Project

Comment 5a: Any work or equipment staging on state-owned aquatic lands within the channel or river outside of the Port Management Agreement would require a DNR right-of-entry. DNR requested that the Port and Northwest Pipeline directly coordinate with DNR. Please coordinate directly with DNR to obtain all necessary permits and authorizations.

Port Response to 5a: "The Port has an existing port management agreement with DNR that covers most of the areas in which work or equipment staging would occur on state-owned aquatic lands. The proposed pile removal mitigation activity would be conducted outside the Port's port management agreement, but on Port-owned aquatic lands. The JARPA for the project has been submitted to DNR, and the applicant will coordinate directly with DNR regarding right-of-entry for any construction activities that may be necessary outside of the port management agreement."

Northwest Pipeline Response to 5a: The only lands crossed by the pipeline under DNR ownership are the lands underlying navigable waters in accordance with DNR regulations. Northwest would submit an application to DNR after the relevant permits following the receipt of a Section 404 approval from the Army if and when issued.

Corps Evaluation to 5a: The Corps has noted DNR's comment and Port's response. The Corps' permit includes the following limitations: the permit does not obviate the need to obtain other Federal, state, or local authorizations required by law; the permit does not grant any property rights or exclusive privileges; and the permit does not authorize any injury to the property or rights of others.

Comment 5b: The project site is habitat for federally-listed salmonids and federally-threatened shoreline birds. These impacts should be considered and appropriate mitigation measures should be provided for construction within this area.

Port Response to 5b: "The Port has prepared a biological assessment (BA) and compensatory mitigation plan and submitted them to the USACE in support of the ESA Section 7 consultation for the project. The BA identifies the ESA-listed



species and designated critical habitats (as well as those proposed for listing/designation) that could be affected by the project, and documents those activities that could result in adverse effects (“take”) of ESA-listed species. The BA and mitigation plan both document all of the impact avoidance and minimization measures that have been incorporated in the project to avoid and minimize the extent of effects to ESA-listed species.” (BergerABAM 2015, revised 2016)

“The mitigation plan documents and describes the mitigation measures proposed for the project, including the avoidance and minimization measures, BMPs, and the suite of compensatory mitigation measures that have been proposed to compensate for unavoidable impacts. As described previously, the project incorporates three categories of compensatory mitigation actions to offset impacts to aquatic and terrestrial/riparian/wetland habitats: (1) pile removal; (2) ELJ installation; and (3) riparian habitat restoration and wetland buffer enhancement.

The BA also includes a detailed analysis and assessment of the potential impacts to streaked horned lark (*Eremophila alpestris var. strigata*), including an assessment of habitat suitability at the site, as well as a detailed discussion of the avoidance and minimization measures that have been incorporated in the project to avoid direct and indirect impacts to this species. The BA provides documentation that:

- Most of the project site does not provide suitable nesting habitat for streaked horned lark. (BergerABAM 2016)
- The area of the project site that previously provided nesting habitat for streaked horned lark is located in the northern section of the site, on an area of dredge material that was placed as part of the USACE’s Columbia River navigation channel project. The USACE recently conducted an ESA Section 7 consultation for dredging associated with the maintenance of the navigation channel and, according to the analysis, the USACE expected this portion of the site to remain as suitable habitat for larks only through the end of the 2015 nesting season, after which the site will be “unsuitable” because of vegetation succession (USACE 2014, USFWS 2014).
- While the site will have transitioned to an unsuitable state for streaked horned lark nesting by the time site preparation begins, the potential remains that individual larks could be present during site preparation. Therefore, consistent with measures in the USFWS biological opinion (USFWS 2014), the project has incorporated additional BMPs to avoid direct impacts to streaked horned larks that could be present at the site during site preparation and construction.
- The Port proposes to conduct initial site preparation activities (clearing and grading) within areas previously identified as potentially suitable for streaked horned lark nesting habitat (as identified in USACE 2014 and USFWS 2014) outside of the nesting season. This is consistent with the

site preparation impact minimization measures described in the USACE BA and the associated USFWS biological opinion (USACE 2014; USFWS 2014).

As the BA documents, the project incorporates measures to avoid and minimize the extent of adverse effects to streaked horned lark. However, since the potential remains for individual larks to be affected during site preparation activities if they are present, the BA makes a “may affect, likely to adversely affect” determination for streaked horned lark. The Corps is currently conducting a formal ESA consultation with USFWS for the project.” (BergerABAM 2016) Corps Evaluation to 5b: The Port has proposed mitigation measures, including the avoidance and minimization measures, BMPs, and the suite of compensatory mitigation measures to compensate for potential, unavoidable impacts to habitat for federally-listed salmonids and federally-threatened shoreline birds, see Section As described previously, the project incorporates three categories of compensatory mitigation actions to offset impacts to aquatic and terrestrial/riparian/wetland habitats: (1) pile removal; (2) ELJ installation; and (3) riparian habitat restoration and wetland buffer enhancement. See Section 1.2.1.3 Proposed avoidance and minimization measures and Section 1.2.1.; Section 7.1 Public Interest Factor Review, 7. Fish and Wildlife Values; and Section 8.1 Marine Export Facility Mitigation. The Corps has consulted with NMFS and USFWS in regards to potential impacts to ESA listed species, see Section 10.1 Section 7(a)(2) of the Endangered Species Act (ESA).

Comment 5c: What measures have been taken to minimize risk of anchored vessels waiting to be loaded on shipping lanes and species habitats?

Port Response to 5c: “The anticipated production and loading schedule for the facility indicates that only a single methanol vessel serving the facility is anticipated to be present in the river at any given time.

“Vessel anchorage on the river is under the direction of the USCG, as authorized under the Ports and Waterways Safety Act (33 CFR § 109.07). The USCG has published inland navigation rules that dictate vessel movement and anchorage on the Columbia River (USCG 2014). Vessels can anchor only at a berth or in designated anchorage areas, and must be in a safe position for their size, draft, and duration at anchor.

In addition, the Lower Columbia River Harbor Safety Committee has published a harbor safety plan, which provides anchorage guidelines and BMPs for vessel operators intending to anchor in a harbor in the Lower Columbia River to increase safety and minimize impacts to other river users and the natural environment (LCRHSC 2013).” (BergerABAM 2016)

Corps Evaluation to 5c: The DNR’s comments are addressed in General Public Interest Review, Navigation.

Comment 5d: How would the change in hydrodynamics from the new in-water structure affect scour in the intertidal and shallow sub tidal environments?

Port Response to 5d: “The Port consulted extensively with Coast & Harbor Engineering (CHE, consultant) during the design of the proposed dock and berth regarding the hydrodynamic effects of the design. CHE prepared a hydrodynamic assessment of the proposed dock and berth in August 2015, which was included in the Port’s permit application to the Corps

In order to respond to this question, CHE conducted additional hydrodynamic modeling and assessment (CHE 2015). The findings of the additional hydrodynamic modeling indicate that velocities may increase slightly within certain portions of the nearshore environment. However, these changes in velocity would be small, and would not affect the stability of sediment in the nearshore environment because of the relatively large size of sediment particles at the site (CHE 2015).” (BergerABAM 2016)

Corps Evaluation to Comment 5d: The DNR’s comments are addressed in Section 7.1 Public Interest Factors Shoreline Erosion and Accretion.

Comment 5e: How would waves, currents, and propeller wash change the sediment characteristics and hydrodynamic environment?

Port’s Response to Comment 5e: “The findings of the supplemental hydrodynamic modeling assessment (CHE 2015) indicate:

- The proposed project would not result in changes in wave energy impacting the streambank slopes, and wave hydrodynamics would not affect sediment composition around the project site.
- As described above, changes in water velocity would be small, and would not affect the stability of sediment in the nearshore environment because of the relatively large size of sediment particles at the site.
- Wash from the main propeller could impact deep-water portions of the berth basin but not the slope beneath the dock.
- Use of bow thrusters when pushing vessels away from the berth could result in increased scour in the lower portion of the berth slope (up to approximately 4 feet at -36 feet Columbia River Datum [CRD]), but would be negligible at water depths of -18 feet CRD and above” (BergerABAM 2016)

Corps Evaluation to Comment 5e: The DNR’s comments are addressed in Section 7.1 Public Interest Factor, Shoreline Erosion and Accretion.

Comment 5f: Will aquatic vegetation and habitat be affected by changes in wave energy, sediment transport, or substrate due to users at the proposed terminal?

Port Response to Comment 5f: “Based on the analysis presented in the CHE supplemental hydrodynamic modeling assessment (CHE 2016), and as described in the responses to questions 5d and 5e above, the proposed terminal and associated uses (vessel berthing and loading) will not result in changes to hydrodynamics or sediment transport or deposition that would affect aquatic vegetation or habitat conditions.

The new berth and terminal may result in minor changes to water velocities and patterns of sediment mobilization and deposition, but these would not result in significant changes in hydrodynamic conditions or substrate

movement or deposition, and would not affect aquatic habitat suitability for any species. There is little to no aquatic vegetation at the site or within the vicinity, and aquatic vegetation will not be affected by the proposed project.

As described in the response to question 5e, the proposed project is not expected to result in changes in wave or current conditions that would result in any measurable or significant effects to nearshore habitat conditions. Propeller wash from project vessels could result in additional scour within the new berth basin, primarily in waters between -36 feet CRD and -18 feet CRD. This is due in part to the fact that the berth has been designed without slope armoring to minimize impacts to aquatic habitats. Above -18 feet CRD, scour associated with propeller wash is expected to be negligible, and propeller wash would have no effect on adjacent streambanks (CHE 2016).

Scour within the berth basin could result in some localized movement and redistribution of material from adjacent nearshore areas. However, movement of material from outside the berth would be expected to be minor, and would be limited to areas adjacent to the berth. The Port's existing North Port berth (which has a steeper 2:1 design slope than the proposed berth, and is similarly unarmored) is located immediately upstream of the proposed dock and berth, and has not shown signs of significant movement of material from adjacent nearshore areas. Scour within the berth basin associated with propeller wash, therefore, would not be expected to affect the quantity or quality of aquatic habitat function." (BergerABAM 2016)

Corps Evaluation of Comment 5f: The DNR's comments are addressed in Section 7.1 Public Interest Factor, Shoreline Erosion and Accretion.

Comment 5g: Has the Port considered alternative disposal sites that may be used by the Corps for future upland dredge material placement?

Port Response to 5g: "The Port is party to a project cooperation agreement between several other Lower Columbia River ports and the Corps to provide sites for the placement of dredge material associated with the maintenance of the federal navigation channel. This agreement details the responsibilities of each port to provide capacity for the upland placement of dredge material. As obligated by the agreement, the Port is coordinating with the Corps Navigation Branch regarding the need for additional capacity. The Corps has not identified the need for any material placement at North Port in the current five-year dredging plan, and has indicated that the Port does not need to provide an alternative site at this time. The agreement obligates the Port to provide capacity for future upland placement of dredge material when that capacity is requested, and the Port will continue to coordinate with the Corps Navigation Branch to meet this obligation." (BergerABAM 2016)

Corps Evaluation of Comment 5g: This comment is beyond the scope of this project; however, the Port has and will continue to coordinate with the Corps Water Maintenance Section.

Comment 6

Commenter: Corps, Portland District Waterways Maintenance Section, received 10 November 2015

Commented on Project No.

- NWP-2014-177/2 Marine Export Facility
- NWP-2015-111 Lateral Project

Comment: Navigation section reviewed the provided information and found no concerns with the proposed Marine Export Facility related to potential adverse impacts on sediment deposition and maintenance dredging requirements in the Federal Navigation Channel.

Port Response: The Port noted the comment.

Corps Evaluation of Comment: The Corps' comments are addressed in the Section 7.1 Public Interest Factor, Navigation.

Comment 7

Commenter: National Marine Fisheries Service, received 30 November 2015

Commented on Project No.

- NWP-2014-177/2,
- NWP-2015-111

Comment 7a: The return water to the Columbia River will be 30 degrees Celsius. With climate change and waters warming, is there an ability to lower the temperature of the return water?

Port Response to Comment 7a: The Port "would like to clarify that the proposed temperature of return water from the facility would be 20 degrees Celsius (68 degrees Fahrenheit) (rather than 30 degrees).

Surface water quality standards are designated for the Columbia River between the river mouth (River Mile [RM-0]) and the Washington-Oregon border (RM-309.3), inclusive of the project site, as: salmonid spawning, rearing, and migration habitat; primary contact recreation; various water supply uses (domestic, industrial, agricultural, and stock water supply); and miscellaneous uses (i.e., wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics) (WAC 173-201A-602).

To protect these designated uses, the water quality standard for temperature that applies to the Columbia River is: "Temperature shall not exceed a 1-day maximum (1-DMax) of 20.0°C [20.0 degrees Celsius] due to human activities." WAC 173-201-602, Table 602. The proposed discharge temperature, then, will meet the applicable water quality standard for temperature at the point of discharge. By the nature of this 1-DMax standard, the maximum temperature will not exceed 20 degrees Celsius and, therefore, the average temperature of discharged wastewater will be less than 20 degrees Celsius.

Moreover, the mixing zone analysis conducted for this project documents that ambient water temperatures in the Columbia River mainstem at the site generally range between 20 and 22 degrees Celsius during summer low flow (7Q101) conditions (ESA Vigil-Agrimis 2015). This estimate was based on an analysis of temperature data from the US Geological Survey stream gage at the Beaver Army Terminal as well as on a review of other studies completed at the

site (Parametrix 1996). Thus, when the ambient river temperature exceeds the standard, the discharge from the facility will have a slight cooling effect on the river.

The proposed project would generate an average wastewater flow of approximately 390 gallons per minute (gpm) (0.87 cubic feet per second [cfs]) with a maximum of approximately 470 gpm (1.047 cfs). By comparison, flows in the tidal portions of the Columbia River typically range between 110,000 and 400,000 cfs. The wastewater flow from the proposed project represents less than 0.001 percent of the volume of flow in the river. Therefore, the temperature of the facility's discharge will have very little effect on the temperature of the river and, in any event, as stated above, will be slightly cooler than the temperature of the river.

Wastewater cooling to the 20 degree Celsius standard is possible with a plate style heat exchanger using the Methanol Facility's raw water as the cooling medium. This discharge temperature is substantially less than the discharge temperature limits of other facilities that discharge similar or larger volumes of cooling water to the Columbia River, which are as high as 40 degrees Celsius (104 degrees Fahrenheit). To cool discharge temperatures below 20 degrees Celsius would require technology that would have greater impacts on the environment, including greater footprints, increased energy consumption and resulting air emissions. A change in technology to active coolers would require even greater energy demands and emissions. The environmental costs of cooling the water further, therefore, are outweighed by the negligible effect this cooling would have on water temperatures in the river." (BergerABAM 2016)  
Corps Evaluation of Comment 7a: The Kalama Methanol Facility will be implementing a zero liquid discharge (ZLD) system which would reuse the methanol process water, no process water would be discharged to the Columbia River. The ZLD system was proposed after receipt of NMFS comment. The ZLD system produces a byproduct of approximately 10 tons of dry salt cake per day consisting of magnesium, sodium sulfate, and sodium magnesium chloride. This salt cake would be disposed of in a landfill. The NMFS' comments are addressed in Section 7.1 Public Interest Factor, Water Supply and Conservation; and Water Quality.

Comment 7b: There is a section in the BA that refers to dredging. Maintenance dredging will likely be required to maintain the berth to the permitted depth. This activity will occur in the same manner as used for the establishment of the berth. The volumes and frequency of maintenance dredging events will vary based on the needs of the facility and the rate of shoaling. It is estimated that an average of 27,000 cubic yards of sediment could be deposited yearly. Is the applicant asking for a multi-year dredging permit?

Port Response to Comment 7b: The Port is not requesting a multi-year dredging permit as part of this application.

Corps Evaluation of 7b. Corps confirmed with Port that they do not request a multi-year dredging permit as part of this application. Maintenance dredging of the Marine Export Facility will be separately evaluated as part of the Port's

collective maintenance dredging project. The NMFS' comments are addressed in the Section 7.1 Public Interest Factors, Navigation.

Comment 8

Commenter: Mike Long, received 14 October 2015

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment: Supports construction of new industrial plants in Cowlitz County.

Port and Northwest Pipeline Response: Comment noted

Corps Evaluation: Comment noted

Comment 9

Commenter: Ted Rubenstein, received 14 October 2015

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment: Concurs with Mike Long.

Port and Northwest Pipeline Response: Comment noted

Corps Evaluation: Comment noted

Comment 10

Commenter: Roman Fedorka, Received 24 October 2015

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment 10: How is the applicant ensuring the pipeline will meet public safety requirements during an earthquake?

Northwest Pipeline Response: Geologic Hazards are addressed in the Kalama Lateral Project Environmental Assessment, FERC Docket No. CP15-8-000, Section B.1.1 Environmental Analysis, Geology and Soils, Geological Hazards (pages 27 - 30).

It was the determination of the FERC that, "*Given the nature of the geologic resources and hazards, and Northwest's impact avoidance, minimization, and mitigation measures, we conclude that potential geologic hazards to the Project and potential impacts on geological resources resulting from the Project would be effectively avoided, managed and minimized.*" (FERC 2015)

Corps Evaluation: Roman Fedorka's comment is addressed in Section 7.1 Public Interest Factors, Safety.

Comment 11, 12, 13

Commenter: Emily Herbert, received 26 October 2015. Gregory Monahan received 26 October 2015, Kelly O'Hanley, received 09 November 2015.

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment: Requested a public hearing. Request denial of permits. Concerned that the proposed Marine Export Facility and Lateral Project will contribute to increased levels of atmospheric carbon dioxide and climate change.

Port and Northwest Pipeline Response: Comment noted.

Corps Evaluation: The Corps has determined that a public hearing is not required. Emily Herbert's and Gregory Monahan's comments are addressed in Section 7.1.1 Climate Change, and Section 9 Cumulative Effects.

Comment 14

Commenter: Columbia Riverkeeper, received 05 November 2015

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment 14: They believe the project should be denied for the following reasons.

Comment 14a: Construction of a methanol refinery and export terminal would impact species protected under the Endangered Species Act;

Port Response to Comment 14a: The Port prepared a "biological assessment (BA), which was submitted to the Corps in support of the Endangered Species Act (ESA) Section 7 consultation for the project. The BA evaluates the ESA-listed species and designated critical habitats (as well as those proposed for listing/designation) that could be affected by the project, and documents those activities that could result in adverse effects ("take") of ESA-listed species. The BA also documents the impact avoidance and minimization measures that have been incorporated into the project to avoid and minimize the extent of effects to ESA-listed species.

The Corps has initiated formal ESA consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). The applicant has worked closely with the Corps, NMFS, and USFWS throughout the development of the project and the consultation process to design a project that avoids and minimizes impacts to ESA-listed species and designated critical habitats (as well as those proposed for listing/designation)." (BergerABAM 2016)

Corps Evaluation of 14a: Columbia Riverkeeper's comments are addressed in Section 10.1 Endangered Species Act. See further discussion in response to comment 14b.

Comment 14b: The project would impact the restoration efforts in the Columbia River Estuary done to enhance salmonids habitat. Address how the mitigation is enhancing restoration efforts in the mitigation plan;

Port Response to 14b: The Port has "prepared a mitigation plan which was submitted to the USACE as part of the Joint Aquatic Resource Permit Application (JARPA). The plan documents and describes the mitigation measures proposed for the project, including the avoidance and minimization measures, best management practices (BMPs), and the suite of compensatory mitigation measures that have been proposed to compensate for unavoidable impacts.



The project incorporates three categories of compensatory mitigation actions to offset impacts to aquatic and terrestrial/riparian/wetland habitats and enhance habitat for salmonids: (1) pile removal; (2) engineered log jam (ELJ) installation; and (3) riparian habitat restoration and wetland buffer enhancement. The mitigation plan proposes the following specific measures:

- Removal of treated-timber piles associated with two deteriorated timber pile structures in the freshwater tidal backwater channel adjacent to the project site. Removing these piles would restore benthic habitat, improve fish access, and improve hydraulics and sediment transport within approximately backwater habitat that provides refugia for out migrating and wintering juvenile salmonids.
- Install ELJs along the shoreline of the Columbia River adjacent to the site. The installation of these ELJs will increase the complexity of aquatic habitat with the interstitial spaces that allow juvenile and adult salmonids to evade predation. The ELJs also will provide refuge and foraging opportunities for juvenile and adult salmon, particularly for small out migrant fish moving downstream during the spring/early summer peak of outmigration.
- Restore approximately riparian habitat adjacent to the Columbia River at the site. This measure includes removing invasive species and installing native trees and shrubs in order to restore a more highly functioning riparian condition. This restoration will improve aquatic habitat function at the site with a natural source of leaf litter and woody debris and insect and invertebrate fauna, and stabilize banks naturally to minimize erosion. The removal of invasive species and the increased dominance of native vegetation, which will provide a food source for the native birds and small mammals that use the site, will improve terrestrial riparian condition and habitat function.
- Restore wetland buffer adjacent to the recreation access improvements at the north end of the project site. Removing invasive species and installing native trees will enhance the existing condition of the wetland buffer and will replace native vegetation that is impacted as a result of the project. The proposed invasive species management will improve the habitat conditions within the buffer and minimize the spread of aggressive species that otherwise could affect the quality of the adjacent wetland. These mitigation actions will offset the relatively minor unavoidable impacts to wetland buffers associated with the project, and the project will result in no net loss of wetland or wetland buffer function.

These particular proposed mitigation activities were selected to address (1) the requirements of USACE's compensatory mitigation guidance (Compensatory Mitigation for Losses of Aquatic Resources Final Rule (33 CFR Parts 332)) (USACE 2008), and (2) the management guidance and recommendations in Lower Columbia River salmon recovery planning documents, including the Lower Columbia Fish Recovery Board (LCFRB) sub basin plan for the Lower Columbia River mainstem (Lower Columbia Fish

Recovery Board 2010) and the Columbia River Estuary ESA Recovery Plan Module for Salmon and Steelhead (NMFS 2011). The LCFRB Lower Columbia River sub basin plan identifies the restoration of riparian condition and in-stream habitat diversity (including riparian restoration and enhancement and the installation of instream large wood structures such as the ELJs proposed for this project) as priorities for salmon recovery. Similarly, the Columbia River Estuary ESA Recovery Plan Module for Salmon and Steelhead identifies riparian restoration (including the restoration of instream and shoreline complexity) and pile removal as specific management objectives. The measures included with the proposed project complement restoration efforts in the estuary of the Columbia River.” (BergerABAM 2016)

Corps Evaluation of 14b: Columbia Riverkeeper’s comments are addressed in Section 7.1 Public Interest Factors Fish and Wildlife Values and Section 8.0 Mitigation.

Comment 14c: The project may impact public safety and health.

Port Response to Comment 14c: “An environmental impact statement (EIS) is being prepared pursuant to the Washington State Environmental Policy Act (SEPA). The EIS is addressing potential impacts to public safety and health. A quantitative risk assessment has been prepared as an appendix to the EIS. The assessment evaluates the risks of the proposed facility to on-site employees and the off-site community from an accidental release from the methanol production, storage, and vessel loading operations. The EIS also will include a safety and health aspects report which will document the potential public safety and health hazards that could be associated with the project, as well as the general safeguards and protective measures that will be incorporated to protect workers, the public, and the environment. Copies of the draft EIS, when published for public comment, and of the final EIS, when issued, will be provided to the USACE.” (BergerABAM 2016)

Northwest Pipeline Response to Comment 14c:

“In addition, the Federal Energy Regulatory Commission (FERC) published an environmental assessment on July 13, 2015 of the natural gas pipeline being proposed by Northwest Pipeline, LLC. The environmental assessment addresses the risk to public safety and health and the impacts from the proposed pipeline project, and concludes that “available data show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation...” and that “...operation of the Project would represent a slight increase in risk to the nearby public.” (Williams 2015)

Corps Evaluation of Comment 14c: Columbia Riverkeeper’s comment is addressed in Section 7.1 Public Interest Factor Safety.

Comment 14d: The alternatives analysis is insufficient and does not address considering the use of existing docks or discuss alternative dock designs or locations.

Port Response to Comment 14d: An expanded discussion of the alternatives that were considered was provided to the Corps.

Corps Evaluation of Comment 14d: Columbia Riverkeeper's comments are addressed in the Alternatives Analysis in Section 5.0.

Comment 14e: How is the applicant ensuring the public safety of residences near the proposed pipeline?

Northwest Pipeline's Response to Comment 14e: "Residential Areas are addressed in the Kalama Lateral Project Environmental Assessment, FERC Docket No. CP15-8-000, Section B.4.2 Environmental Analysis, Land Use and Visual Resources, Residential Areas (pages 52 - 53) (Attachment 2).

It was the determination of the FERC that, "We have reviewed Northwest's residential drawings and the measures it would implement to minimize impacts on the two closest residences and find them acceptable. Additionally, we are requesting comments on the drawings and measures to ensure they satisfy the concerns of affected parties." (Williams 2015)

Corps Evaluation of Comment 14e: Columbia Riverkeeper's comment is addressed in Section 7.1 Public Interest Factor, Safety.

Comment 14f: How is the applicant minimizing habitat fragmentation due to the pipelines location and maintenance?

Northwest Pipeline's Response to Comment 14f: "Habitats are addressed in the Kalama Lateral Project Environmental Assessment, FERC Docket No. CP15-8-000, Section B.3.0 Environmental Analysis, Vegetation, Fisheries and Wildlife (pages 39 - 48) (Attachment 2).

Regarding potential vegetative habitat impacts, it was the determination of the FERC that, "*Based on the limited footprint of the Project, the general types of vegetation present on potentially affected lands, the presence of similar vegetation adjacent to affected lands, and Northwest's implementation of impact minimization measures, we conclude that constructing and operating the Project would not significantly impact vegetation.*

Regarding potential fisheries habitat impacts, it was the determination of the FERC that, "*Because Northwest proposes to cross the only two perennial waterbodies using a HDD that would not directly affect fish habitat and because the streams crossed are already located in developed/disturbed areas, we conclude that constructing and operating the Project would not significantly impact fisheries.*"

Regarding potential wildlife, wildlife habitat and priority habitat impacts, it was the determination of the FERC that, "*The measures Northwest would implement to minimize impacts on vegetation would also serve to minimize impacts on wildlife, wildlife habitat, and priority habitats, species and areas. Therefore, based on the characteristics of the habitat types crossed, the wildlife species occupying these habitats, Northwest's proposed construction methods, the presence of similar habitats adjacent to and in the vicinity of construction activities, the implementation of impact avoidance and minimization measures and its adherence to our recommendation concerning oak woodlands, we conclude that constructing and operating the Project would not significantly impact wildlife habitats or species.*" (Williams 2015)

Corps Evaluation to Comment 14f: Columbia Riverkeeper's comments are addressed in Section 7.1 Public Interest Factors Fish and Wildlife Values

Comment 15

Commenter: Port of Kalama, received November 6, 2015

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Projects

Comment 15a. Supports construction of the projects.

Comment 15b. The Port of Kalama supports the Kalama Lateral Route shown on Figure 2B, Enclosure 2, Page 4 of 30 (NWP-2015-111), in the Joint Public Notice. Once the Kalama Lateral pipeline enters Port property on the west side of the BNSF rail track, the Port of Kalama supports both alternatives of the gas line shown as on Figure 3: Conceptual Site Plan/Enclosure 1 (Page 3 of 15) (NWP-2014-177/2) in the Joint Public Notice.

Port and Northwest Pipeline Response: Comment noted

Corps Evaluation: Comment noted

Comment 16

Commenter: John Carlton, received 09 November 2015.

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Lateral Project

Comment: 16: Requested to comment on proposed methanol plants in Kalama and Tacoma 2. Voiced concerns regarding the large amounts of water used by Kalama Methanol Facility. 3. Requested Corps position on the Methanol Facility's water usage and additional information regarding the facility's proposal.

Port Response: N/A. Comment not forwarded to either Port or Northwest Pipeline since neither application would operate the Methanol Plant.

Corps Evaluation: The Corps (Portland District) directed Mr. John Carlton to the Seattle District for questions regarding projects in Tacoma. Mr. John Carlton's comments are addressed in Section 7.1 Public Interest Factor, Water Supply and Conservation.

4.1.5 Were additional issues raised by the Corps including any as a result of coordination with other Corps offices? Yes

If yes, provide discussion including coordination of concerns with the applicant, applicant's response and Corps' evaluation of the response:

The Portland Sediment Evaluation Team reviewed the dredging component of the project for compliance with the 2009 Sediment Evaluation Framework for the Pacific Northwest (SEF) guidance, see Section 6.2.6. The Portland District Waterways Management Group reviewed the proposed Marine Export Facility and Kalama Methanol Facility to identify potential Section 408 issues, see Section 10.8.

4.1.6 Were comments raised that do not require further discussion because they address activities and/or effects outside of the Corps' purview? Yes

Comment 17

Commenter: Roman Fedorka, Received 24 October 2015

Comment 17a: Raised the issue of the lifespan of plastic products resulting from methanol manufactured at this facility.

Corps Response: The production and lifespan of plastic produced outside of the United States is independent of and too attenuated and far removed from the projects proposed by the Port or Northwest Pipeline. The use and lifespan of the commodity is not determined by the proposed actions. This issue is outside the Corps' purview.

Comment 17b: Raised the issue of Chinese ownership of Northwest Pipeline LLC.

Corps response: The evaluation of the ownership of Northwest Pipeline is outside the Corps' purview.

4.1.7 Comments received after closure of Public Notice period

Comment 18

Commenter: Columbia Riverkeeper, received 12 September 2016

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Kalama Lateral Project

Comment 18: Concerned that operation of proposed project will indirectly trigger the need for regional gas pipeline expansion and that the Corps' NEPA Analysis must address the impacts of new pipeline construction caused by the construction of the Kalama Methanol Facility.

Northwest Pipeline Response to Comment 18: The Kalama Lateral Project can provide natural gas service to the Kalama Methanol Facility for the long-term without the need to expand the Northwest system to accommodate the volume needed. (Williams 2016) Future proposed projects may require a system expansion and the requisite environmental analysis will be conducted for those future projects.

Corps Evaluation: Based on the information available, including consideration of Northwest Pipeline's response, there is not sufficient evidence to consider expansion of the larger Northwest system a "reasonably foreseeable action". This is a hypothetical/speculative future activity. There is no current proposal or other information for the Corps to consider the scope, magnitude, or timeframe of such future activity. This issue is outside the Corps' purview.

Comment 19

Commenter: Columbia Riverkeeper, received 06 April 2017

Commented on Project No.

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Kalama Lateral Project

Comment 18: When will the Corps make a decision on the permits for the Kalama methanol dock?

Corps Response: Corps responded in an email dated 07 April 2017, stating that the application is still under review and the tentative schedule is to complete evaluation of the application within the next few months.

Comment 20

Commenter: Columbia Riverkeeper, received 14 March 2018

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Kalama Lateral Project

Comment 20: Requested written response from, or an in-person meeting with the Corps regarding the scope and nature of the Corps' pending environmental review, pursuant to NEPA, of NWIW's proposed Kalama methanol refinery, export terminal, and pipeline. Stated that Corps should prepare an Environmental Impact Statement (EIS) to evaluate NWIW's entire proposal, including the upland portions of the methanol refinery and pipeline route.

Corps Response: The Corps responded to Columbia Riverkeeper in an email dated 21 March 2018, stating "At this time, the Corps is preparing, in coordination with the U.S. Department of Energy, an environmental assessment (EA) in accordance with the National Environmental Policy Act (NEPA), which will address the effects of the terminal, methanol refinery, and pipeline route to determine the significance of the proposal's environmental effects."

Comment 21

Commenter: Columbia Riverkeeper, received 05 April 2018

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Kalama Lateral Project

Comment 21: It is Columbia Riverkeeper's opinion that the Corps prepare an EIS rather than an EA because the project will have significant environmental impacts. The Corps should start the EIS process now, with a scoping comment period. Although the Corps has not formally requested scoping comments on its NEPA review of the Kalama methanol refinery, export terminal, and pipeline, Riverkeeper provides the following additional comments and attached information about the direct, indirect, and cumulative impacts that the Corps' NEPA review should address. The Corps' NEPA document should address the off-site upstream and downstream impacts of NWIW's proposal. Such impacts include, but are not limited to, the impacts of natural gas extraction, regional pipeline construction, GHG emissions, and the potential end uses of NWIW's methanol. Specifically, the Corps' NEPA document should contain a lifecycle analysis of the greenhouse gas (GHG) emissions associated with NWIW's proposal.

Corps Response: This Environmental Assessment (EA) evaluates the direct, indirect, and cumulative effects of the terminal, methanol refinery, and pipeline route. This evaluation includes, but is not limited to: air quality, shipping impacts (Section 9.5.2 Indirect effects), and greenhouse gases (Section 7.1 Public Interest Factor 4B. Air Quality and Greenhouse Gas); climate change (Section

7.1.1 Climate Change); proposed mitigative actions (Section 8.3 Kalama Methanol Facility mitigation); and cumulative impacts (Section 9.0 Consideration of Cumulative Impacts). Other agencies have authority and responsibility over natural gas extraction and pipeline construction, including the Department of the Interior and FERC. The proposed lateral line will connect to the existing Igancio/Sumas mainline pipeline. FERC separately evaluated the impacts of the proposed lateral line in an EA for its authorization of the pipeline. The evaluation of the end use of methanol is too attenuated and far removed from the subject permit applications. Countries overseas will secure sources of methanol regardless of the Corps' decisions on these permit applications. Commercial markets drive the need for and destination of methanol which could change regardless of the Corps' decision. However, the Port and Cowlitz County developed a supplemental draft EIS which includes a life-cycle analysis which evaluated upstream and downstream GHS emissions.

Comment 22

Commenter: Columbia Riverkeeper, received 17 July 2018

NWP-2014-177/2 Marine Export Facility

NWP-2015-111 Kalama Lateral Project

Comment 22: Columbia Riverkeeper forwarded to the Corps the request Columbia Riverkeeper sent to the Port of Kalama that the SEPA EIS analyze the social cost of carbon. Columbia Riverkeeper stated that these comments were "relevant to the Corps ongoing NEPA analysis of the proposed Kalama methanol refinery."

Corps Response: NEPA does not require a cost-benefit analysis or a social cost of carbon analysis. This EA evaluates air quality and greenhouse gases (Section 7.1 Public Interest Factor 4B. Air Quality and Greenhouse Gas); climate change (Section 7.1.1 Climate Change); proposed mitigative actions (Section 8.3 Kalama Methanol Facility mitigation); and cumulative impacts (Section 9.0 Consideration of Cumulative Impacts). As discussed in these sections, the GHG effects would be mitigated by the installation of an electric system for dock methanol exporting ships, implementation of ultra low emissions technology for methanol production, and the purchase of greenhouse credits and/or a contribution of funding to a GHG mitigation fund.

## 4.2 Tribal Coordination

- 4.2.1 In addition to the Public Notice, based on the project location the following Indian Tribes were notified by email of the proposed project on 19 October 2015, requesting comments on identification of historic properties and assessment of effect of the proposed projects (NWP-2014-177/2 and NWP-2015-111), to the tribes listed below. Notification included project description, public notice, maps and cultural resources report. The notified tribes were asked to respond in 30 days to the notification and that if no response was received, the Corps would assume they have no concerns with the proposed work.

<input type="checkbox"/> Burns Paiute Tribe	<input checked="" type="checkbox"/> Confederated Tribes and Bands of the Yakama Nation
<input checked="" type="checkbox"/> Confederated Tribes of Siletz Indians of Oregon	<input type="checkbox"/> Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians
<input checked="" type="checkbox"/> Confederated Tribes of the Grand Ronde Community of Oregon	<input checked="" type="checkbox"/> Confederated Tribes of the Umatilla Indian Reservation
<input checked="" type="checkbox"/> Confederated Tribes of the Warm Springs Reservation of Oregon	<input type="checkbox"/> Coquille Tribe of Oregon
<input type="checkbox"/> Cow Creek Band of Umpqua Tribe of Indians	<input checked="" type="checkbox"/> Cowlitz Indian Tribe
<input type="checkbox"/> Fort Bidwell Indian Community of the Fort Bidwell Reservation of California	<input type="checkbox"/> Klamath Tribes
<input checked="" type="checkbox"/> Nez Perce Tribe	<input type="checkbox"/> Quinault Indian Nation
<input type="checkbox"/> Shoalwater Bay Indian Tribe of the Shoalwater Bay Indian Reservation	<input type="checkbox"/> Tolowa Dee-ni' Nation

Were comments received in response to the email notification? Yes

Were comments forwarded to the applicant for response? No  
 Comments received in response to the email notification:

Comment 1: Cowlitz Indian Tribe; On 30 October 2015, the Cowlitz Indian Tribe (CT) Cultural Resources Department stated their interest and recommended that an Inadvertent Discovery Plan be attached to the permit. 07 July 2016, the CT requested staff to staff meeting to discuss proposed projects (initial request forwarded from USACE Seattle District). Portland District Regulatory staff met with CT staff on 10 August 2016 to provide overview of project and Corps regulatory process and requested that the CT submit comments and concerns to the Corps. On July 7, 2016, the CT requested staff to staff level meeting to discuss the project and in a letter dated 18 November 2016, the CT requested Government to Government meeting, see Tribal Consultation section below.

Applicant's Response: N/A

Corps Evaluation: See Section 10.4 Tribal Trust Responsibilities.

Comment 2: Confederated Tribes of the Umatilla Indian Reservation; On 15 September 2016, the Umatilla stated that they would be interested in consulting on the proposed project. On 19 September 2016, 21 September 2016, and 16 November 2016, the Corps sent an email to the CTUIR to follow-up on their



interest in consulting on the proposed project and provided additional information to the CTUIR. On 26 January 2017, in a phone call with the CTUIR Intergovernmental Affairs Manager, the CTUIR expressed their concerns regarding potential threats to cultural resources due to increased traffic on the Columbia River and that the CTUIR would be submitting comments shortly. In an email dated 16 February 2017, the CTUIR stated that they intended on providing comments but that they likely would not be requesting government to government consultation. The CTUIR did not provide comments to the Corps.

Applicant's Response: N/A

Corps Evaluation: N/A

Comment 3: Confederated Tribes of the Warm Springs Reservation of Oregon; On November 9, 2015, the CTWS Cultural Resources Department stated their concern regarding the adequacy of per NHPA requirements with regards to Historic Properties of Religious and Cultural Significance to Indian Tribes. The CTWS expressed concerns that the cultural resource report compiled by Archaeological Investigations Northwest, Inc. (AINW) was not adequate "per NHPA requirements with regards to Historic Properties of Religious and Cultural Significance to Indian Tribes, as it appears to solely focus on archaeological inventory and does not document other efforts at identification for potentially eligible historic properties. Further, cultural use areas such as Usual and Accustomed Places for the Confederated Tribes of Warm Springs (CTWS) are not discussed in the AINW report. Given the importance of the Cowlitz River, this seems like a necessary consideration for the proposed Action/Undertaking/ Permit". The Corps responded to the Tribe on December 10, 2015 requesting additional information. This request for additional information was also included in the April 27, 2016 and June 22, 2016 letters, see Tribal Consultation section below. CTWS did not respond to 10 December 2015 email.

Applicant's Response: N/A

Corps Evaluation: N/A

**5.0 Alternatives Analysis** (33 CFR Part 325 Appendix B(7), 40 CFR 230.5(c) and 40 CFR 1502.14). An evaluation of alternatives is required under NEPA for all jurisdictional activities. An evaluation of alternatives is required under the Section 404(b) (1) Guidelines for projects that include the discharge of dredged or fill material. NEPA requires discussion of a reasonable range of alternatives, including the no action alternative, and the effects of those alternatives; under the Guidelines, practicability of alternatives is taken into consideration and no alternative may be permitted if there is a less environmentally damaging practicable alternative.

#### 5.1 Kalama Methanol Facility Alternatives Analysis

The DOE's Federal action covered by this NEPA review is whether or not to approve the loan guarantee for the NWIW natural gas-to-methanol facility. For purposes of this analysis, DOE assumes the site selected by NWIW is compatible with the proposed use and would be supported by state and local approvals. NWIW considered and dismissed other sites in Washington State before selecting the preferred project location based on its superior location and available existing industrial facilities. Further, there are no unresolved conflicts concerning alternative uses of available resources associated with the site that would suggest the need for other alternatives (40 CFR 1508.9(b)). Therefore, other than the No Action Alternative, there is no alternative to the proposed action considered in the NEPA review of the Kalama Methanol Facility. Under the No Action Alternative, the DOE would not issue a loan guarantee for the proposed methanol facility. For purposes of this analysis, DOE assumes that if loan guarantee funds are not disbursed to support the methanol facility then the construction and operation activities would not occur; however, it is possible that financing could be found elsewhere.

#### 5.2 Discharges of fill material subject to evaluation

- Marine Export Facility (NWP-2014-177/2): The proposed discharge of up to 60,000 CY of dredged material at the Beach Nourishment Site, and discharges associated with return water at the North Port and South Port upland placement sites.
- Lateral Project (NWP-2015-111) is the temporary placement of sandbags for dewatering (cofferdams), temporary placement of excavated soils from trench excavation, and the redeposit of soils/stream gravels to backfill the pipeline trench.

#### 5.3 Marine Export Facility Alternatives Analysis

5.3.1 Site selection/screening criteria: In order to be practicable, an alternative must be available, achieve the overall project purpose (as defined by the Corps), and be feasible when considering cost, logistics and existing technology.

Criteria for evaluating alternatives as evaluated and determined by the Corps:

- a) Location: The alternative site must be located within the Port of Kalama. The applicant, Port of Kalama, is a government entity and is limited to properties within the Port district.
- b) Site Size: The alternative site must be of sufficient size to accommodate a marine terminal for the export of methanol including the dock, a berth, loading equipment, utilities, and a storm water system. The minimum length needed to construct the dock for export of methanol is approximately 525 ft. The berth must be a minimum length needed to accommodate a 900-foot ship, the largest design vessel that would call on the berth. In regards to the disposal sites, the disposal site must be of sufficient size to accommodate the proposed volume of material.
- c) Water Depth: The alternative must be able to accommodate water depth - 48 ft. CRD plus 2 ft. over depth to accommodate the largest design vessel that would call on the berth.
- d) Logistics: Access to methanol production and storage facilities: The terminal and methanol facility do not need to be co-located; however, the alternative site must have access to methanol storage facilities. Conversely, given that the basic project purpose is to provide a facility for ship loading, the alternative site must provide an export facility for the methanol facility,
- e) Availability: The alternative site must be available to the Port and capable of achieving the project purpose.
- f) Environmental Impact: Minimize water resource impacts associated with either construction of the dock or construction of the pipeline from Methanol Facility to the loading dock. Minimize water resource impacts associated with placement or disposal of dredged material.

### 5.3.2 No action alternative

The no action alternative would not require a Corps permit; therefore, the marine export facility would not be constructed.

Criteria a: N/A

Criteria b: N/A

Criteria c: There would be no new berth; therefore, the no action alternative would not be able to accommodate vessels needed to export methanol.

Criteria d: There would be no marine export facility; therefore, the no action alternative would not provide an export facility for the methanol facility and would not meet the basic project purpose.

Criteria e. N/A

Criteria f: The no action alternative would have no impacts to water resources.

5.3.3 Alternatives: Alternatives are described and evaluated to determine whether or not each is practicable under the Guidelines or reasonable under NEPA

- Applicant Preferred Alternative: Construction of a new berth at the North Port site;
- Alternative 1: Modification of the existing North Port Dock
- Alternative 2: Expansion of the existing North Port Dock;
- Alternative 3: Construction of a new berth at the Emerald Kalama site;
- Alternative 4: Construction of a new berth at the Central Port site;
- Alternative 5: Construction of a new berth at the South Port Site
- Alternative 6: In-water Disposal Alternative: Dredged material disposal at the Beach Nourishment Site (applicant's preferred alternative).
- Alternative 7: Upland Disposal Alternative: Dredge material disposal at the upland portion of the North Port site and the South Port upland disposal site.

5.3.4 Evaluate alternatives and whether or not each is practicable under the Guidelines or reasonable under NEPA:

Applicant Preferred Alternative: Construction of a new berth at the North Port site:

Criteria a: The site is owned by the Port.

Criteria b: The site is large enough to accommodate a marine terminal for the dock, a berth, loading equipment, utilities, and a stormwater system, including minimum length needed and ability to be dredged to the minimum depth (see Dredge Depth Alternative discussion below) needed to accommodate the largest design vessel that would call on the berth.

Criteria c: The North Port site can accommodate a water depth of -48ft CRD plus 2 ft. over depth.

Criteria d: The North Port site is large enough to accommodate both the marine terminal and methanol storage facilities (i.e. the Methanol Facility). A short pipeline would be constructed within the site to convey methanol from the storage facilities to the dock.

Criteria e: The site is available to the Port and is capable of achieving the project purpose.

Criteria f: Dock construction would result in approximately 44,943 square feet of overwater structure and would require installation of 320 concrete piles and 16 steel pipe piles. Construction of a methanol conveyance pipeline would not cross any waters other than its terminus on the dock over the Columbia River.

Alternative 1: Modification of the existing North Port Dock. This alternative would modify the existing North Port Dock used by the neighboring Steelscape facility. The modifications would not change the footprint of the existing dock. This existing dock would be shared by both Steelscape for unloading steel coils and the Port for export of methanol.

- Criteria a: The North Port dock is owned by the Port.
- Criteria b: Equipment necessary for loading methanol onto ships would interfere with Steelscape's ability to unload steel coils from the dock and would represent a potential safety hazard to Steelscape's operations by reducing the usable area on the dock needed to safely unload steel coils.
- Criteria c: The North Port berth can accommodate a water depth of -48ft CRD plus 2-ft over depth.
- Criteria d: The North Port site is large enough to accommodate both the marine terminal and methanol storage facilities (i.e. the Methanol Facility). A short pipeline would be constructed within the site to convey methanol from the storage facilities to the dock.
- Criteria e: The North Port Dock is available to the Port; however, it is not capable of achieving the project purpose, see discussion in Criteria b.
- Criteria f: This alternative would likely not result in additional environmental impacts to water resources.

Alternative 2: Expansion of the existing North Port Dock: This alternative would be a 1,000-foot long by 100-foot wide, pile supported northward extension to the existing dock, oriented parallel to the shoreline.

Criteria a: The site is owned by the Port.

Criteria b: The site is large enough to accommodate a marine terminal for the dock, a berth, loading equipment, utilities, and a stormwater system, including minimum length needed and ability to be dredged to the minimum depth (see Dredge Depth Alternative discussion below) needed to accommodate the largest design vessel that would call on the berth.

Criteria c: The North Port site can accommodate a water depth of -48ft CRD plus 2 ft. over depth.

Criteria d: The North Port site is large enough to accommodate both the extended North Port dock and methanol storage facilities (i.e. the Methanol Facility). A short pipeline would be constructed within the site to convey methanol from the storage facilities to the dock.

Criteria e: The site is available to the Port and is capable of achieving the project purpose.

Criteria f: This alternative would require 637 piles and would result in nearly three times more overwater coverage (127,200 total square feet new overwater coverage, as opposed to the 44,943 square feet in the proposed

dock), resulting in a larger permanent adverse effect to open water habitat and greater temporary construction effects to aquatic habitat. Construction of a methanol conveyance pipeline would not cross any waters other than its terminus on the dock over the Columbia River.

#### Alternative 3 - Emerald Kalama Site

Criteria a: The Emerald Kalama Site is not owned by the Port. However, this site is within the Port District.

Criteria b: The site is large enough to accommodate a marine terminal for the dock, a berth, loading equipment, utilities, and a stormwater system.

Criteria c: The Emerald Kalama site can accommodate a water depth of -48ft CRD plus 2 ft. over depth.

Criteria d: The Emerald Kalama Site is not large enough to accommodate both the methanol facility and marine terminal. Assuming that the methanol facility is constructed at the North Port Site as proposed, methanol would need to be conveyed from the North Port facility to the Emerald Kalama site. Potential methanol conveyance alternatives include a new pipeline which would be approximately 1.5 miles long. This pipeline would roughly run parallel to the Columbia River and would cross the Kalama River, rail lines, wetlands located within the right of way, buried utilities, and hydrogen and nitrogen lines serving the Emerald Kalama site, requiring planning and budget for crossing design and acquiring right of ways.

Criteria e: The site is available to the Port and is capable of achieving the project purpose.

Criteria f: Construction of a 1.5-mile long methanol pipeline would likely cross wetlands and result in adverse effects to wetlands located along the section of right of way between the Kalama Methanol Facility and the Emerald Kalama site and in the vicinity of the Kalama River crossing.

#### Alternative 4 - Central Port site

Criteria a: The site is owned by the Port.

Criteria b: The site is large enough to accommodate a marine terminal for the dock, a berth, loading equipment, utilities, and a stormwater system.

Criteria c: The Central Port site can accommodate a water depth of -48ft CRD plus 2 ft. over depth.

Criteria d: The Central Port site is not large enough to accommodate both the methanol facility and marine terminal. Assuming that the methanol facility is constructed at the North Port Site as proposed, methanol would need to be conveyed from the North Port facility to the Emerald Kalama site. Potential methanol conveyance alternatives include a new pipeline which would be approximately 2 miles long. This pipeline would roughly run parallel to the Columbia River and would cross the Kalama River, rail lines, wetlands located within the right of way, buried utilities, and hydrogen and nitrogen lines serving

the Emerald Kalama site requiring planning and budget for crossing design and acquiring right of ways.

Criteria e: The site is available to the Port and is capable of achieving the project purpose.

Criteria f: Construction of a 2-mile long methanol pipeline would likely cross wetlands and result in adverse effects to wetlands located along the section of the right of way between the Kalama Methanol Facility and the Central Port site, and in the vicinity of the Kalama River crossing.

#### Alternative 5 - South Port Site

Criteria a: The site is owned by the Port.

Criteria b: The site is large enough to accommodate a marine terminal for the dock, a berth, loading equipment, utilities, and a stormwater system.

Criteria c: The South Port site can accommodate a water depth of -48ft CRD plus 2 ft. over depth.

Criteria d: The Central Port site is not large enough to accommodate both the methanol facility and marine terminal. Assuming that the methanol facility is constructed at the North Port Site as proposed, methanol would need to be conveyed from the North Port facility to the Emerald Kalama site. Potential methanol conveyance alternatives include a new pipeline which would be approximately 4 miles long. This pipeline would roughly run parallel to the Columbia River and would cross the Kalama River, rail lines, wetlands located within the right of way, buried utilities, and hydrogen and nitrogen lines serving the Emerald Kalama site and a park belonging to the city of Kalama requiring planning and budget for crossing design and acquiring right of ways.

Criteria e: The site is available to the Port and is capable of achieving the project purpose.

Criteria f: Construction of a 4-mile long methanol pipeline would likely cross wetlands and result in adverse effects to wetlands located along the section of the right of way between the Kalama Methanol Facility and the South Port site, and in the vicinity of the Kalama River crossing.

Alternative 6: In-water Disposal of Dredged Material at the Beach Nourishment Site: The Port proposes disposal of a maximum 126,000 CY of dredged material volume for initial capital dredging for the berth. The Port proposes placement of 60,000 CY of this material at the Beach nourishment site; and disposal of approximately 66,000 CY at the South Port Upland Disposal Site and the uplands of the North Port site (proposed project site).

Criteria a: The beach nourishment site is located within the Port of Kalama.

Criteria b: The beach nourishment site is large enough to accommodate the proposed 60,000 CY of dredged material.

Criteria c: N/A

Criteria d: The beach nourishment site can accommodate equipment needed for disposal operations and the site is large enough to accommodate disposal of 60,000 CY of dredged material.

Criteria e: The beach nourishment site is available to the Port and is capable of achieving the project purpose.

Criteria f: In-water placement of dredged material at the Beach Nourishment site would have a localized temporary adverse effect on water quality of the Columbia River; however, the in-water placement of dredged material would beneficially effect the sediment budget of the river and shoreline habitat at the Beach Nourishment Site. The shoreline modifications resulting from in-water disposal at the Beach Nourishment site would likely enhance populations of aquatic animals by creating shallow water habitat.

Alternative 7 Disposal Site Alternative All Upland: Upland placement of dredged material at the South Port Site and North Port Site

Criteria a: The South Port Site and North Port Site are owned by the Port.

Criteria b: The South Port and North Port upland sites are large enough to accommodate the proposed dredge volumes.

Criteria c: N/A

Criteria d: The upland site is large enough to accommodate the entire volume of dredged material.

Criteria e: The sites are available to the Port and are capable of achieving the project purpose.

Criteria f: Upland placement of dredged material would avoid the discharge of sediment into the Columbia River. A minor, temporary, localized adverse effect to aquatic resources from upland placement would be the release of decant water from dewatering processes into the Columbia River. Placement of dredged material entirely in uplands would remove sediment, a critical component of the littoral and ecological processes, from the Columbia River system.

### 5.3.6 Comparison of Alternatives

The No Action alternative: The No Action alternative is not practicable or reasonable because it would not meet the basic project purpose to provide a facility for ship loading. Therefore, the No Action alternative is not practicable under the Guidelines or reasonable under NEPA.

Applicant Preferred Alternative: Construction of a new berth at the North Port site: The site is owned by the Port and is large enough to accommodate the marine terminal and methanol facility in close proximity to each other; the site can also accommodate a deep draft berth. An approximately 3,000-ft pipeline would run between the marine terminal loading structures and the methanol



storage tanks. The proposed dock design would minimize overwater coverage. This alternative is practicable under the Guidelines or reasonable under NEPA.

Alternative 1, modification of the existing North Port Dock: This alternative is not practicable or reasonable because it is not of sufficient size. It would adversely affect the operations of Steelscape, the existing North Port Dock tenant. Alternative 1 is not practicable under the Guidelines or reasonable under NEPA.

Alternative 2, expansion of the existing North Port Dock: This alternative is not practicable or reasonable because the design would require approximately 300 more piles (637 total piles) as the applicant's preferred alternative, and would result in nearly three times more overwater coverage (127,200 total square feet new overwater coverage, as opposed to the 44,943 square feet in the applicant's preferred alternative) and thus would result in greater impact to benthic and aquatic habitats in the Columbia River. Given that construction of this alternative would result in greater adverse effects benthic and aquatic habitat than the proposed alternative, this alternative is not practicable under the Guidelines and reasonable under NEPA.

Alternative 3 (the Emerald Kalama site), Alternative 4 (Central Port site), and Alternative 5 (South Port site): These alternatives are not practicable or reasonable alternatives because of the increase to the total cost of the project resulting from planning and construction of the pipeline needed to transport methanol from the manufacturing facility to any of the alternative sites which are located over a mile away, compared to the approximately 3,000-ft of pipeline proposed in the applicant's preferred alternative. In addition, construction of the methanol pipeline would require crossing of the Kalama River and wetlands which would likely result in greater environmental effects than the preferred alternative which does not require any wetland or river crossings. Given the logistical challenges and environmental impacts associated with construction of a methanol pipeline, these alternative are not practicable under the Guidelines or reasonable under NEPA.

Alternative 6: In-water placement of dredged material at the Beach Nourishment Site: In-water placement of dredged material at the Beach Nourishment Site is a practicable and feasible alternative. In-water placement of dredged material is a discharge of fill into a water of the United States; however, the placement of dredged material at the Beach Nourishment site would have a beneficial effect on creation of shoreline habitat and would allow for retention of sediment in the Columbia River system, and would have minimal adverse effects to the aquatic environment. Given the environmental benefits of discharging dredged material at WA Beach Nourishment site, this alternative is practicable under the Guidelines and reasonable under NEPA.

Alternative 7: Upland Placement of Dredged Material at the North Port and South Port sites: The placement of dredge material at an upland site would alternative would minimize potential adverse effects to the aquatic environment (such as temporary increase in turbidity). Given the environmental benefits of disposing of dredged material at the upland site, this alternative is practicable under the Guidelines and reasonable under NEPA.

5.3.7 Least environmentally damaging practicable alternative under the 404(b)(1) Guidelines (if applicable) and the environmentally preferable alternative under NEPA:

The applicant's preferred marine terminal alternative, in-water disposal of dredged material at the Beach Nourishment Site, and the upland placement of dredged material at the North Port and South Port sites are the least environmentally damaging practicable alternative and the environmentally preferable alternative.

5.4 Lateral Project Alternatives Analysis

5.4.1 Site selection/screening criteria: In order to be practicable, an alternative must be available, achieve the overall project purpose (as defined by the Corps), and be feasible when considering cost, logistics and existing technology.

Criteria for evaluating alternatives as evaluated and determined by the Corps:

Criteria a: Route minimizes the length of pipeline. Minimizing length of pipeline minimizes adverse environmental impact associated with the pipeline and creation and maintenance of the right of way.

Criteria b: Avoid areas not suitable for pipeline construction (areas with steep topography [15% to 30% slopes or greater] and areas with soils prone to landslides. Sections of pipeline constructed in areas with steep topography and/or soils prone to landslides would be vulnerable to damage from unstable soils.

Criteria c: Minimizes the number of wetland and stream crossings, avoids impacting high quality wetlands, and avoids extensive HDD drilling under the Columbia River and Kalama River.

Criteria d: Minimize impacts to residences and businesses (# of homes and businesses within 50-125 ft. of the pipeline centerline).

Criteria e: Does the alternative meet the project purpose?

5.4.2 No action alternative: The no action alternative is no construction of the Lateral Project.

Criteria a: No construction would occur in the No Action Alternative, therefore, this alternative would minimize the length of pipeline constructed.

Criteria b: No construction would occur in the No Action Alternative, therefore, this alternative would avoid areas not suitable for pipeline construction.

Criteria c: No construction would occur in the No Action Alternative; therefore this alternative would minimize the adverse effects to aquatic resources.

Criteria d: No construction would occur in the No Action Alternative; therefore this alternative would minimize impacts to residences and businesses.

Criteria e: This alternative would not meet the project purpose.

5.4.3 Alternatives. Alternatives are described and evaluated to determine whether or not each is practicable under the Guidelines or reasonable under NEPA:

Alternative 1: Timber Rock Route (applicant's preferred alternative): The proposed Timber Rock Route is approximately 3.1 miles long and begins near MP 1254.1 of Northwest's existing mainline system. The route runs west following the Mt. Pleasant ridgeline for approximately 0.8 mile. It then turns sharply and heads southwest for approximately 0.1 mile before turning west for 0.2 mile to Raven Ridge Road, and continues west 0.1 mile crossing the intersection of Raven Ridge and Hale Barber roads. After crossing the intersection, the route continues southwest following Raven Ridge Road and the Mt. Pleasant ridgeline for about 0.3 mile before heading down slope in a westward direction to the floodplain of the Kalama River. At this point the route turns and proceeds in a westerly direction for approximately 0.8 mile passing the north side of Kress Lake recreation area. From there it continues to the northwest crossing the Olympic Pipeline (Olympic) ROW, a Bonneville Power Administration (BPA) power line ROW, and Old Pacific Highway 99 before turning to the southwest and crossing Interstate 5 (I-5) and the Burlington Northern Santa Fe Railroad line. After crossing the railroad, it enters the Methanol Plant site on property owned by the Port.

Criteria a: This alternative is 3.1 miles long.

Criteria b: Approximately 1.2 miles of the route is located on a ridge top which avoids potential geological hazards (e.g., landslide areas) in the area between the mainline system and the Kalama Methanol Facility.

Criteria c: The route crosses 5 streams and three ditches), none of which are considered critical habitat for threatened or endangered fish species. The waterbody crossings located within the Port property east of I-5 are potentially fish bearing and may support salmonids, but would be crossed using the HDD crossing method. This route also crosses four wetlands for a length of approximately 844 feet; although approximately 824 ft. would be constructed using the HDD method.

Criteria d: The proposed Timber Rock Route crosses seven roads including I-5, which would be crossed using the horizontal directional drill (HDD) crossing method. Three houses are located within 125 feet of the route, but none of these are within 50 feet of the proposed pipeline centerline.

Criteria e: This alternative meets the project purpose.

Alternative 2: Astoria Lateral –Hendrikson Drive: This alternative is approximately 7.7 miles long and begins at Northwest mainline near MP 1249.3 at the existing take-off for Northwest's Astoria Lateral and runs generally parallel to the Astoria Lateral for approximately 3.0 miles. The alternative then turns and proceeds north following Hendrickson Drive until it crosses West Kalama River Road. After crossing West Kalama River Road, it follows Tradewinds Road to the Methanol Plant site.

Criteria a: This alternative is 7.7 miles long and is the longest of the alternatives. This route is 4.6 miles longer than the proposed route.

Criteria b: This route crosses 2,426-ft steep side-sloped areas.

Criteria c: This alternative also crosses 10 waterbodies (seven perennial and three intermittent/ephemeral), including the Kalama River and two unnamed tributaries to the Columbia River that support ESA-listed salmonids.

Criteria d: This alternative would cross several residential driveways. The centerline of the alternative would also pass within 125-ft of 30 residences. This alternative also passes through or near recreational areas, biking/walking trails, a marina, a sewage treatment plant, and a number of industrial businesses, all of which are avoided by the proposed route. Additionally, this alternative would cross six railroad spur lines within the Port industrial area.

Criteria e: This alternative meets the project purpose.

Alternative 3 Astoria Lateral – Olympic Pipeline Route Alternative: This alternative is approximately 7.1 miles long and begins at Northwest's mainline (MP 1249.3) near the existing take-off for Northwest's Astoria Lateral. It runs westward generally parallel to the Astoria Lateral for approximately 1.4 miles until it reaches the existing Olympic ROW. It then turns and proceeds northwestward following the Olympic ROW for approximately 4.8 miles until it intersects the proposed Timber Rock Route at about MP 2.1. From there this alternative follows the same alignment as the proposed route to the Methanol Plant site.

Criteria a: This alternative is 7.1 miles long and is the second longest of the alternatives.

Criteria b: This alternative would cross 6,183-ft steep terrain. The section of this alternative that follows the Olympic ROW traverses hilly terrain for about 3.7 miles that consists of both ridgelines and side-slopes. In addition, this alternative crosses approximately 3,294-ft of landslide area.

Criteria c: This alternative crosses 14 waterbodies (10 perennial [including the Kalama River] and four intermittent); five of these waterbodies contain ESA listed salmonids.

Criteria d: This alternative would pass 14 residences/businesses, within 125 feet of 24 residences/businesses, and within 250 feet of 31 residences/businesses.

Criteria e: This alternative meets the project purpose.

Alternative 4 Northern BPA Route Alternative: This alternative is approximately 3.1 miles long and begins at the existing Northwest mainline near MP 1255.6. The route runs southwest and downslope for approximately 1.1 miles along moderate to severely side sloped topography. It then heads west for approximately 0.4 mile passing to the north of a small residential area. The route then joins the existing BPA power line and Olympic ROW and follows this utility corridor south for approximately 0.9 mile. The route then joins the proposed Timber Rock Route at about MP 2.5 and follows the proposed route to the Methanol Plant site.

Criteria a: This alternative is 3.1 miles long.

Criteria b: This alternative crosses steep terrain and major active landslide area; and three debris flow landslide areas.

Criteria c: This alternative crosses nine waterbodies (seven perennial and two intermittent). None of these waterbodies support ESA-listed fish species. This alternative would cross two wetlands by the HDD method.

Criteria d: This alternative requires expansion of the ROW for approximately 30 percent of the existing BPA/Olympic utility corridor. The pipeline would be within 50 feet of two homes and within 125 feet of two additional homes, and seven residences/businesses within 250 feet of the centerline.

Criteria e: The alternative meets the project purpose.

Alternative 5 Cascade Natural Gas Northern Route Alternative: This alternative is approximately 5.9 miles long and begins at Northwest's mainline (MP 1258.4) heading generally west crossing Maple Hill Road and continuing west for approximately 1.5 miles before crossing Old Pacific Highway, a small lake, and I-5. The small lake and I-5 would be crossed using the HDD method. On the west side of I-5, this alternative would proceed south about 0.2 mile to avoid an area of new commercial development before turning west again and crossing under a Burlington Northern Santa Fe railroad freight yard and a flood control levee for the Columbia River. Due to the width of the freight yard and to avoid impacts on the flood control levee, this segment of this alternative would likely require the use of the HDD method. This alternative would then proceed generally southward for approximately 0.9 mile along the northeast shoreline of Carroll's Channel of the Columbia River, crossing under a BPA power line ROW, before

turning southwestward, crossing Carroll's Channel, and making landfall on Cottonwood Island. The river would be crossed using the HDD method. This route would proceed generally southward for approximately 1.5 miles along the middle of Cottonwood Island before turning southeast and crossing Carroll's Channel a second time, making landfall on the east bank of the Columbia River on land owned by the Port. The second crossing of the river would also be crossed using the HDD method. Once across the river this route turns southward and proceeds about 0.2 mile to the proposed Methanol Plant site.

Criteria a: This alternative is 5.9 miles long and is the third longest alternative.

Criteria b: This alternative would cross more 20,860 feet steep side-slopes, and would cross about 577 feet of deep-seated landslides and an additional 464 feet of unstable slopes.

Criteria c: This alternative would also cross nine waterbodies (all perennial). One of these waterbodies (Carroll's Channel of the Columbia River) would be crossed twice by this alternative. This waterbody supports ESA-listed salmonids and is also considered essential fish habitat. This alternative would cross 6 wetlands. This alternative would also cross approximately 1.8 miles of Cottonwood Island which is known habitat for cavity nesting ducks, bald eagles, osprey, and Columbia white-tailed deer.

Criteria d: There would be no homes or businesses located within 125 feet of the centerline and only two located within 250 feet.

Criteria e: The alternative meets the project purpose.

Alternative 6 Energy Northwest SEPA Checklist Route Alternative: This alternative is approximately 3.1 miles long and begins at Northwest's existing mainline near MP 1254.1. From that point, it runs southwesterly for about 1.8 miles along the hills above Kalama River Road before turning to the northwest near BPA's Cardwell substation and proceeding for about 0.8 mile along the north side of the Kress Lake recreation area before joining the proposed Timber Rock Route. This alternative then continues to the southwest following the same alignment as the proposed route for about 0.4 mile to the Methanol Plant site.

Criteria a: This alternative is 3.1 miles long.

Criteria b: Approximately 1.8 miles of this alternative are located parallel to significant side slopes, including two moderately large intermittent drainages. During periods of heavy rainfall, the slopes bordering these drainages are subject to hydrologic loading that could create unstable slope conditions, which would increase lateral pressure on the pipeline. This alternative also crosses an existing landslide area for about 1,100 feet.

Criteria c: This alternative crosses 10 waterbodies (three intermittent and seven perennial), eight of the ten streams do not support threatened or endangered fish species. The two waterbodies on the Port property east of I-5, which are potentially fish bearing, would be crossed using the HDD crossing

method. This alternative would cross the same three wetland complexes (totaling approximately 824 feet) utilizing HDD as the proposed route.

Criteria d: This alternative would cross four roads and would affect three homes within 250-ft of the centerline.

Criteria e: The alternative meets the project purpose.

Alternative 7 South of and Parallel with Mt. Pleasant Road Route Alternative:

This alternative is approximately 2.8 miles long and begins at the existing Northwest mainline near MP 1254.1. The route follows the ridge crest west for approximately one mile until it meets Hale Barber Road. From there the route descends a steep west-facing slope and then follows a moderate to steep side slope for about 4,500 feet before turning southwest and descending 1,950 feet down a spur ridge and joining the proposed Timber Rock Route. From there it follows the same alignment as the proposed route to the Methanol Plant site.

Criteria a: This alternative is approximately 2.8 miles.

Criteria b: This alternative crosses approximately 5,272 ft. of steep terrain and 10,096 ft. of steep side slopes.

Criteria c: This alternative crosses eight perennial waterbodies.

Criteria d: This alternative crosses the same number of roads as the proposed route and would pass close to slightly more residences/businesses. Specifically, four residences/businesses would be within 250 feet of the alternative centerline.

Criteria e: The alternative meets the project purpose.

Alternative 8 North of and Crossing Mt. Pleasant Road Route Alternative: This alternative is approximately 2.5 miles long and begins near the existing Northwest mainline (MP 1255.0). The route heads southwestward up and down slopes for approximately 0.5 mile until it meets with Mt. Pleasant Road. It then turns and heads west across Mt. Pleasant Road and then southwest crossing Mt. Pleasant Road for a second time. Shortly after this second crossing, the route turns south for a short distance and then heads southwest for about 0.8 mile across steep side slopes and downslope to the north side of the Kress Lake recreation area. From there the route joins and follows the same alignment as the proposed Timber Rock Route to the Methanol Plant site.

Criteria a: This alternative is 2.5 miles long.

Criteria b: This alternative would cross 3,247-ft steep slopes; and 7,735-ft of slightly less (>30%) steep slopes.

Criteria c: This alternative would cross three wetland complexes utilizing HDD (totaling approximately 824feet).

Criteria d: This alternative is not collocated with any existing ROW. This alternative crosses six roads. The centerline of this alternative would be located within 50 feet of 2 homes/businesses than the proposed route and five of homes/businesses within 250 feet.

Criteria e: The alternative meets the project purpose.

Alternative 9 Mt. Pleasant Road Route Alternative: This alternative is approximately 3.0 miles long and begins near MP 1255.2 of the existing Northwest mainline. The route proceeds in a southwesterly direction within the road ROW of Mt. Pleasant Road for approximately 0.7 mile until it intersects with Hale Barber Road. From that point it continues southward in the road ROW for approximately 0.3 mile toward Mt. Pleasant Cemetery. The route then turns and proceeds southwest following Raven Ridge Road for 0.2 mile before leaving the road and continuing southwestward along a greenfield route down the axis of a spur ridge of Mt. Pleasant to the edge of the Kalama River floodplain. From this point, the route proceeds west crossing a BPA transmission line and the Olympic ROW, and then northwest passing the north side of Kress Lake recreation area until it joins the proposed Timber Rock Route. It then follows the same alignment as the proposed route to the Methanol Plant site.

Criteria a: This alternative is 3 miles long.

Criteria b: This alternative is crosses 3,522-ft steep and 10,002-ft side sloping terrain. The alternative avoids potential geological hazards such as landslide areas by placing the pipeline in the road ROW and on a ridge top for much of its length.

Criteria c: This alternative would cross five waterbodies (four perennial and one intermittent). This alternative would cross three wetland complexes utilizing HDD (totaling approximately 824-ft).

Criteria d: This alternative crosses 4 roads. This alternative requires installation of about 1.1 miles of the pipeline in existing roads through residential areas. Construction of this section of pipeline would result in temporary construction disturbances to homes in this section of pipeline. This alternative would also directly impact more landowners and be located within 50, 125, and 250 feet of 26 residences/businesses. This alternative bisects the Kalama Quarry from northeast to southwest for about 3,148 feet, including an 838-foot-long section of active mining. The permanent easement that would be associated with this alternative would directly affect about 3.6 acres of land for future mining, but could potentially affect a larger area of the mine due to the safety zone needed if blasting were required to loosen and remove bedrock.

Criteria e: The alternative meets the project purpose

Alternative 10: Kalama River Road Route Alternative: This alternative is approximately 2.8 miles long and begins near the existing Northwest mainline (MP 1253.6). This alternative then runs westward for approximately 1.6 miles within the road easement of Kalama River Road. It then leaves the Kalama River Road easement and proceeds northwestward for about 0.6 mile before joining the proposed Timber Rock Route. From there, this alternative follows the same alignment as the proposed Timber Rock Route across I-5 and the Burlington Northern Santa Fe Railway to the Methanol Plant site.



Criteria a: This alternative is 2.5 miles long.

Criteria b: This alternative would cross a significant stretch (55 percent of the route) of geologically unstable ground. Kalama River Road crosses a number of unmapped active landslides that result in the need for routine road repairs. Installing the pipeline within the road easement would subject the pipeline to potentially excessive lateral pressures.

Criteria c: This alternative crosses 10 waterbodies (one intermittent and nine perennial). This alternative would cross three wetlands.

Criteria d: The Kalama River valley provides significant access to residences and commercial timberlands east of the existing Northwest mainline. Road closures and/or delays for construction of this alternative would potentially impact at least 92 homes in the 2 miles east of the take-off point and many more beyond that distance. Additionally, construction of this alternative would disrupt area logging operations, access to a state-run fish hatchery and access to recreational fishing sites on the Kalama River, and emergency services.

Criteria e: The alternative meets the project purpose.

Alternative 11 Modrow Road Route Alternative: This alternative is approximately 3.3 miles long and begins near the existing Northwest mainline (MP 1253.0). This alternative runs in a northwesterly direction for approximately 0.5 mile before turning and heading southwest for about 1,035 feet in the ROW of Bates Road until it reaches Modrow Road. This alternative then proceeds west within the ROW of Modrow Road for about 700 feet before turning north and west, and cutting across Ascot Drive. After crossing Ascot Drive, this alternative proceeds northwest for 1,500 feet and then turns west and crosses a residential area for about 1,800 feet before crossing Modrow Road a second time, just east of the Kalama River. From there this alternative continues west across the Kalama River until it reaches Kalama River Road. It then proceeds north for about 975 feet to a point just north of BPA's Cardwell substation. From there it follows the same alignment as the Mt. Pleasant Road Route Alternative for about 3,180 feet until it reaches the proposed Timber Rock Route. It then follows the same alignment as the proposed route to the Methanol Plant site.

Criteria a: This alternative is approximately 3.3 miles.

Criteria b: This alternative would cross 11,679 ft. of steep side slopes (greater than 30% slope).

Criteria c: This alternative crosses nine waterbodies including the Kalama River; and Cedar Creek and the Kalama River which supports ESA-listed fish species. This alternative would cross four wetlands.

Criteria d: The centerline of this alternative passes within 50 feet of three residences/businesses, within 125 feet of 12 residences/businesses, and within 250 feet of 28 residences/businesses.

Criteria e: The alternative meets the project purpose.

Alternative 12. Landowner Route Alternative – February 1: This alternative is approximately 3.2 miles long and begins near the existing Northwest mainline (MP 1253.9). From that point it runs west for about 1.8 miles along the hills above Kalama River Road before joining the ENW SEPA Checklist Route Alternative near the Kalama Quarry access road and follows that route alternative for about 1.4 miles to the Methanol Plant site.

Criteria a: This alternative is approximately 3.2 miles.

Criteria b: This alternative crosses 12,858ft of steep side slope terrain. This alternative is also subject to a number of geological concerns. This alternative takes off from the mainline near the middle of the Kalama North landslide. This alternative crosses moderately large intermittent drainages. During periods of heavy rainfall, the slopes bordering these drainages are subject to hydrologic loading that could create unstable slope conditions, which would increase lateral pressure on the pipeline. This alternative also crosses a second existing landslide area for a distance of approximately 1,453-ft.

Criteria c: This alternative crosses 10 waterbodies (three intermittent and seven perennial; USGS, 2007), which is three more waterbodies than the proposed route. This alternative crosses three wetlands.

Criteria d: There would be no homes/businesses within 250 feet of the pipeline.

Criteria e: The alternative meets the project purpose.

Alternative 13. Landowner Route Alternative – May 7: This alternative is approximately 2.7 miles long and begins near the existing Northwest mainline (MP 1254.1). From that point, it runs west for about 0.9 mile before intersecting Northwest's proposed Timber Rock Route at about MP 1.1. It parallels Northwest's proposed Timber Rock Route for about 0.1 mile before deviating from the Timber Rock Route and continuing southwesterly for about 1.0 mile before joining the proposed Timber Rock Route near the Old Pacific Highway 99 crossing and continuing to the Methanol Plant site.

Criteria a: This alternative is 2.7 miles long.

Criteria b: One of the major differences between this alternative and the proposed route pertains to slopes and geologic hazards. This alternative would cross 10,444 ft. of steep side slopes.

Criteria c: This alternative crosses eight waterbodies. This alternative would cross three wetland complexes utilizing HDD (totaling approximately 824 feet).

Criteria d: This alternative would cross seven roads. This alternative would affect 18 landowners.

Criteria e: The alternative meets the project purpose.

5.4.4 Evaluate alternatives and whether or not each is practicable under the Guidelines or reasonable under NEPA:

No Action Alternative: This alternative would have the least adverse effect on aquatic resources, road, businesses and homes. However, this project would not meet the project purpose. This alternative is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 1 Timber Rock Route (applicant's preferred alternative): The pipeline length of the alternative is on the shorter range of lengths of the evaluated alternatives. This alternative minimizes crossings of unstable soils and wetlands. This alternative minimizes impacts to homes and businesses. This alternative meets the project purpose. This alternative meets all the evaluation criteria and is practicable under the Guidelines and reasonable under NEPA.

Alternative 2: Astoria Lateral –Hendrikson Drive: The length of this alternative is the longest of the evaluated alternatives, 7.7 miles compared to 3.1 of the applicant's preferred alternative. This alternative crosses multiple steep side-sloped areas. This route crosses nearly ten times more steep side-sloped areas than applicant's preferred alternative. This alternative would have adverse effects on three water bodies that support ESA-listed salmonids. This alternative would pass through or near multiple homes, public infrastructure facilities, and rail road lines; and would adversely affect ESA-listed salmonids. Therefore, this alternative is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 3 Astoria Lateral – Olympic Pipeline Route Alternative: The length of this alternative is the second longest of the evaluated alternatives, 7.1 miles compared to 3.1 of the applicant's preferred alternative. This alternative would adversely affect five waterbodies that support ESA listed species. This alternative is four miles longer than the applicant's preferred route and would more than double the amount of land disturbance and easements compared to the applicant's preferred route. It would also more than triple the number of affected landowners and increase the number of homes and businesses close to the route; and would adversely affect ESA-listed salmonids. Therefore, this alternative is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 4 Northern BPA Route Alternative: This alternative crosses roughly four times more steep terrain than the applicant's preferred route, and crosses or is in close proximity to more mapped landslides than the applicant's preferred route. This alternative would have about the same impact on wetlands as the applicant's preferred route. This alternative would have more impact on nearby residences/businesses than the applicant's preferred route. This alternative

would cross large areas of unstable soils (steep terrain); therefore, is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 5 Cascade Natural Gas Northern Route Alternative: This alternative is 5.9 miles long compared to 3.1 miles of the applicant's preferred alternative. This alternative would cross more steep side-slopes than the applicant's preferred route (20,860 feet versus 3,384). This alternative would adversely affect habitat for ESA-listed species and several wildlife species that inhabit Cottonwood Island. This alternative is not practicable under the Guidelines nor is it reasonable under NEPA. This alternative would cross large areas of unstable soils (steep terrain) and would adversely affect wildlife habitat; therefore, is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 6 Energy Northwest SEPA Checklist Route Alternative: This alternative is roughly the same length as the applicant's preferred alternative. This alternative crosses more steep terrain including more steep side slopes than the applicant's preferred route. This alternative is also subject to a number of geological hazards not present along the applicant's preferred Timber Rock Route. This alternative contains three more waterbodies than the applicant's preferred route and would cross the same number of wetlands as the applicant's preferred route. This alternative would cross large areas of unstable soils; therefore, is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 7 South of and Parallel with Mt. Pleasant Road Route Alternative: This alternative is shorter than the applicant's preferred alternative. One of the major differences between this alternative and the applicant's preferred route pertains to slopes. Specifically, this alternative crosses more steep (> 30 percent) terrain including more steep side slope than the applicant's preferred route. This alternative crosses eight perennial waterbodies, which is six more perennial streams than the applicant's preferred route. This alternative would have nearly the same impact on wetlands as the applicant's preferred route. This alternative crosses the same number of roads as the applicant's preferred route and would pass close to slightly more residences/businesses. Specifically, four residences/businesses would be within 250 feet of the alternative centerline (one more than the applicant's preferred route). This alternative would cross large areas of unstable soils and a greater number of water bodies; therefore, is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 8 North of and Crossing Mt. Pleasant Road Route Alternative: This alternative is shorter than the applicant's preferred alternative. This alternative would cross slightly less steep slopes and side slopes greater than 15 percent, and like the applicant's preferred route, would avoid landslides and other

unstable lands. This alternative crosses 30 percent more steep side slopes than the applicant's preferred alternative. This alternative would cross nine perennial waterbodies, which is seven more than the applicant's preferred route. This alternative would have the same impact on wetlands as the applicant's preferred route. This alternative is shorter than the preferred alternative and would reduce the total acreage of disturbance as well as the amount of temporary and permanent ROW. However, this alternative would also cross more parcels and affect more landowners. This alternative would cross large areas of unstable soils and adversely affect multiple landowners; therefore, is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 9 Mt. Pleasant Road Route Alternative: This alternative is approximately the same length as the applicant's preferred alternative; and crosses roughly similar amounts of steep and side sloping terrain as the applicant's preferred route. This alternative would cross five waterbodies (four perennial and one intermittent), which is two less than the applicant's preferred route. This alternative would also directly impact more landowners and be located within 50, 125, and 250 feet of more residences/businesses. This alternative would have the same impact on wetlands as the applicant's preferred route. This alternative bisects the Kalama Quarry from northeast to southwest for about 3,148 feet, including an 838-foot-long section of active mining. By comparison, the applicant's preferred route crosses 3,054 feet of the Kalama Quarry, generally from east to west. This east to west crossing results in a smaller impact on potential future quarry operations. This alternative would adversely affect multiple landowners and would adversely affect operations at the Kalama Quarry; therefore, is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 10: Kalama River Road Route Alternative: This alternative is 2.5 miles long and is shorter than the applicant's preferred alternative. This alternative crosses more steep terrain including more steep side slope than the applicant's preferred route. In addition, a section of this alternative would follow a section of Kalama River Road which crosses a number of unmapped active landslides. This alternative crosses 10 waterbodies (one intermittent and nine perennial), which is three more than the applicant's preferred route. This alternative would have approximately the same wetland impacts as the applicant's preferred route. This construction of this alternative would temporarily adversely affect 92 residences, area logging operations, access to a state-run fish hatchery and access to recreational fishing sites on the Kalama River, and emergency services. This alternative would cross large areas of unstable soils and would adversely affect area residents and operations, therefore this alternative is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 11 Modrow Road Route Alternative: This alternative is approximately 3.3 miles and is slightly longer than the applicant's preferred alternative. This alternative would cross 11,679-ft of steep side slopes (greater than 30% slope) compared to 3,384-ft of the applicant's preferred alternative. This alternative would also cross a fourth wetland complex in addition to the three wetland complexes that are crossed by the applicant's preferred route. The addition of this fourth wetland would increase the length of wetland crossings by approximately 278-ft. Since this wetland would likely need to be open cut, this alternative would result in roughly 0.5 acre more wetland impact than the applicant's preferred route. This crosses large areas of unstable soils and would result in an additional 0.5 acres of wetland impact, therefore, alternative is not practicable under the Guidelines nor is it reasonable under NEPA. The centerline of this alternative passes within 50 feet of three residences/businesses, within 125 feet of 12 residences/businesses, and within 250 feet of 28 residences/businesses. This compares to zero, three, and three residences/businesses at these distances for the applicant's preferred route. This alternative would require two more road crossings and would also cross several residential driveways. As a result, a greater number of landowners, residences, and businesses would be subjected to noise, traffic, and other construction related inconveniences along this alternative than the applicant's preferred route.

Alternative 12. Landowner Route Alternative – February 1: This alternative is approximately 3.2 miles and is slightly longer than the applicant's preferred alternative. This alternative crosses more steep terrain including more steep side slope than the applicant's preferred route. This alternative is also subject to a number of geological hazards not present along the applicant's preferred route. This alternative crosses 10 waterbodies (three intermittent and seven perennial), which is three more waterbodies than the applicant's preferred route. This alternative would have similar impacts to wetlands as the applicant's preferred alternative. Unlike the applicant's preferred alternative, there would be no homes/businesses within 250 feet of the pipeline. This alternative would cross large areas of unstable soils and wetland impacts; therefore, it is not practicable under the Guidelines nor is it reasonable under NEPA.

Alternative 13: Landowner Route Alternative – May 7: This alternative is 2.7-miles long and is shorter than the applicant's preferred alternative. This alternative crosses more steep terrain including approximately 7,100-ft more side slope greater than 30 percent than the applicant's preferred route. This alternative crosses eight waterbodies (one intermittent and seven perennial), which is one more than the applicant's preferred route. This alternative would have the same impacts on wetlands as the applicant's preferred alternative. This alternative is approximately 0.4-mile shorter than the applicant's preferred route and would have the same number of road crossings. This alternative would

increase the number of affected landowners by one. This alternative would cross large areas of unstable soils (including steep terrain that would be difficult to construct through and to restore and stabilize); therefore, it is not practicable under the Guidelines nor is it reasonable under NEPA.

5.4.5 Least environmentally damaging practicable alternative under the 404(b)(1) Guidelines (if applicable) and the environmentally preferable alternative under NEPA:

Alternative 1: Timber Rock Route (applicant's preferred alternative) is the least environmentally damaging practicable alternative under the 404(b)(1) Guidelines and the environmentally preferable alternative under NEPA.

## **6.0 Evaluation for Compliance with the Section 404(b)(1) Guidelines.**

6.1 Kalama Methanol Facility: There is no discharge of dredge or fill material into a water of the United States associated with the Kalama Methanol Facility, therefore the Kalama Methanol Facility is not included in this evaluation for compliance with the Section 404(b)(1) Guidelines.

### 6.2 Marine Export Facility

The following sequence of evaluation is consistent with 40 CFR 230.5. The discharges being evaluated under the Guidelines are placement of up to 60,000 cubic yards of dredged material into the Columbia River at a beach nourishment site at the Port's shoreline park (Louis Rasmussen Park) at RM 76 and the North Port and South Port upland disposal sites' discharge of return water to the Columbia River.

The Port proposes placement of approximately 60,000 CY of dredged material into the existing Beach Nourishment disposal site. The amount of material placed in water would not exceed 60,000 CY. The Port proposes to place dredged material at upland and in-water sites. Remaining material would be placed at the South Port site or on the uplands of the North Port site to provide material for construction or other uses.

The Port proposes discharge of return water to the Columbia River from de-watered dredged material disposed of at the North Port and/or the South Port sites. The Port proposes to dewater dredged materials placed at the North Port and/or South Port sites using settling ponds or overland flow. Settling ponds would be sized based on the settling characteristics of the dredged material and the rate of dredging. Water from the dredged material would be infiltrated to the ground. Any un-infiltrated return water (if any) would be discharged to the Columbia River through existing weirs.

6.2.1 Practicable alternatives to the proposed discharge consistent with 40 CFR 230.5(c) are evaluated in Section 5. The statements below summarize the analysis of alternatives.

In summary, based on the analysis in Section 5.0 above, the no-action alternative, which would not involve discharge into waters, is not practicable.

For those projects that would discharge into a special aquatic site and are not water dependent, the applicant has demonstrated there are no practicable alternatives that do not involve special aquatic sites.



It has been determined that there are no alternatives to the proposed discharge that would be less environmentally damaging (Subpart B, 40 CFR 230.10(a)). The proposed discharge in this evaluation is the practicable alternative with the least adverse impact on the aquatic ecosystem, and it does not have other significant environmental consequences.

6.2.2 Candidate disposal site delineation (Subpart B, 40 CFR 230.11(f)). Each disposal site shall be specified through the application of these Guidelines:

Discussion:

Beach Nourishment Site: The Beach Nourishment Site is located in the Columbia River upstream from the proposed Marine Export Facility site along the federal navigation channel at approximately River Mile 76. The site is currently utilized for disposal of the Port's maintenance dredging material. The Beach Nourishment Site is approximately 4-acres and extends from the shoreline to approximately 250 feet into open water. The site substrate is predominately sand. Dredged material would be placed at the beach nourishment site using bottom dump barges or placed by excavator below the ordinary high water mark. Dredged material placed at this site would disperse along the shoreline where it would accumulate to replenish sediments eroded from the shoreline. Existing depths range from -10 ft. to -30 ft. CRD. Site monitoring associated with the Port's maintenance dredging indicates that depth dynamics inside of the placement area boundaries was mild with insignificant bottom depth changes. Small and predominant erosional type depth changes were observed over most of the area of the Beach Nourishment Placement Site. A total balance of sediment (combined accretion and erosion) inside of the designated area is estimated at approximately 1,500 CY per year, which yields an erosion rate of approximately 125 CY per month.

Upland Disposal Sites: The North Port Upland Disposal site is located on the upland portion of the project area itself. The North Port Upland Disposal site was historically used as a dredged material disposal site for material dredged from the Columbia River. The South Port upland disposal site is located north of the TEMCO grain terminal at approximately RM 77, and is currently utilized by the Port as an upland dredged material disposal site for its maintenance dredging material. Hydraulically dredged material would be pumped into the upland disposal sites. Return water would be infiltrated to the ground. Remaining un-infiltrated return water (if any) would be discharged to the Columbia River through existing weirs.

6.2.3 Potential impacts on physical and chemical characteristics of the aquatic ecosystem (Subpart C 40 CFR 230.20). See Table 5:

Table 5 – Potential Impacts on Physical and Chemical Characteristics						
Physical and Chemical Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Substrate					X	
Suspended particulates/ turbidity				X		
Water				X		
Current patterns and water circulation				X		
Normal water fluctuations				X		
Salinity gradients		X				

Discussion:

Substrate:

Beach Nourishment Site: The discharge of dredged material at the Beach Nourishment Site can result in changes to the complex physical, chemical and biological characteristics of the substrate at the Beach Nourishment Site. The dredged material would largely be composed of sand. The substrate at the Beach Nourishment Site is predominately sand. The disposal of approximately 60,000 CY of dredged material at the Beach Nourishment Site would not change particle size, shape, or degree of compaction of the existing substrate. Placement of dredged material at the Beach Nourishment site would temporarily elevate the bottom contours of the submerged shoreline. Dredged material is placed in the water at the beach nourishment site using bottom dump barges or placed below the ordinary high water mark by an excavator mounted on a barge. Changes in substrate elevation and contour would result in changes in water circulation, depth, current pattern, water fluctuation and water temperature. Placement of dredged material at the beach nourishment site would replenish sand that has been eroded from the beach by the Columbia River. Given that the River gradually erodes the beach, the placement of material at the Beach Nourishment site would have a minor, beneficial, long term effect on substrate.

North Port and South Port Upland Sites: The return water from the upland disposal site would be low in suspended sediments per conditions of the 401 water certificate. There would be little to no substrate deposition at the point of discharge into the Columbia River. Therefore, the proposed discharge would have a negligible effect on substrate in the Columbia River.

Suspended particulates/turbidity:

Beach Nourishment Site: The discharge of dredged material at the Beach Nourishment site can result in greatly elevated levels of suspended particulates, in the water column within the Beach Nourishment Site. Turbidity controls for placement of dredged material at the Beach Nourishment Site are listed in the Water Quality Certification, see Section 10.5. Elevated suspended particulate levels and turbidity could adversely affect aquatic species during disposal events. Sediment plumes are expected to quickly dissipate either through quickly dropping out of the water column or be diluted by riverine flow. The lower Columbia River is regularly subject to strong winds and currents that generate naturally high levels of turbidity. Any increases in turbidity and suspended sediments placement of dredged material at the Beach Nourishment Site would be within the normal range of variation in the lower Columbia River.

Upland Disposal Site: The discharge of return water into the Columbia River is not likely to result in changes to suspended particulate levels and turbidity given that the return water would be sampled to show it meets state water quality turbidity standards prior to being discharged as required in the Water Quality Certification, see Section 10.5. Therefore, the proposed discharge would have a negligible effect on particulate levels and turbidity of the Columbia River.

Water:

Beach Nourishment Site: The dredged material would be low in nutrients, organic material, or contaminants. In addition, placement of dredged material would not result in an increase of biological oxygen demand at the Beach Nourishment Site. Placement of dredged material at the Beach Nourishment Site would not result in any changes to clarity, color, odor of the water at the Beach Nourishment Site; therefore would have a minor, short term adverse effect on water.

Upland Disposal Site: The return water from the upland disposal site would be low in nutrients, organic material, or contaminants. In addition, placement of dredged material would not result in an increase of biological oxygen demand in the Columbia River. Therefore, discharge of return water into the Columbia River would not result in any changes to clarity, color, odor of the water in the Columbia River; therefore would have a minor, short term adverse effect on water.

Current patterns and water circulation:

Beach Nourishment Site: The Port modeled currents at the Beach Nourishment Site as part of its maintenance dredging program. The modeling

indicates that river currents would eventually disperse the placed dredged material into the Columbia River system and would beneficially contribute to the sediment budget of the Columbia River and provide sediment used in channel morphology processes (sand bars, beaches, etc.). Therefore, placement of dredged material at the beach nourishment site would have a minor effect (short term) on current patterns and water circulation.

Upland Disposal Site: The discharge of return water in the Columbia River is a relatively small volume of water compared to the Columbia River; therefore, discharge of return water would have a negligible effect on current patterns and water circulation.

Normal water fluctuations:

Beach Nourishment Site: As discussed above, currents would eventually disperse the placed dredged material into the Columbia River system and the site would return to original depth; therefore, in-water disposal at the Beach Nourishment Site would have minor, short term, adverse effect on normal water fluctuations.

Upland Disposal Site: The discharge of return water in the Columbia River is a relatively small volume of water compared to the Columbia River; therefore, discharge of return water would have a negligible effect on normal water fluctuations.

Salinity gradients:

Beach Nourishment Site: The disposal of dredged material into the Beach Nourishment Site would have no effect on the salinity levels in the Columbia River given that the source of the dredged material is the Columbia River.

Upland Disposal Site: The discharge of return water into the Columbia River would have no effect on the salinity levels in the Columbia River given that the source of the dredged material is the Columbia River.

6.2.4 Potential impacts on the living communities or human uses (Subparts D, E and F):

6.2.4.1 Potential impacts on the biological characteristics of the aquatic ecosystem (Subpart D 40 CFR 230.30). See Table 6:

Table 6 – Potential Impacts on Biological Characteristics						
Biological characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Threatened and endangered species				X		
Fish, crustaceans, mollusk, and other aquatic organisms					X	
Other wildlife			X			

Discussion:

Threatened and endangered species: See Section 10.1.

Fish, crustaceans, mollusk, and other aquatic organisms:

Beach Nourishment Site: The discharge of dredged material can adversely affect populations of fish, crustaceans, mollusks and other food web organisms. Discharge of dredged and fill material may result in the debilitation or death of sedentary organisms by smothering, or alteration of the substrate upon which they are dependent. The placement of 60,000 CY at the beach nourishment site would have both long term and short term minor adverse effect on the aquatic ecosystem and organisms. Disposal activities would smother immobile organisms and cause mobile organisms to leave the area. Disposal activities could adversely affect travel corridors and available food sources. Increased water turbidity could adversely affect wildlife species which rely upon sight to feed. However, these effects are expected to be minor and temporary given that the disposal site is subject to river currents and other disturbances. The placement of up to 60,000 CY of dredged material at the Beach Nourishment site would beneficially effect the sediment budget of the river and indirectly benefit river habitat. The shoreline modifications resulting from disposal at the Beach Nourishment site would enhance communities and populations of aquatic animals by creating shallow water habitat. Placement of dredged material at the Beach Nourishment Site would have a minor beneficial effect (long term) on fish, crustaceans, mollusk, and other aquatic organisms.

Upland Disposal Site: Return water would be discharged through existing weirs. Given that return water would be sampled to show it meets state water quality turbidity standards prior to being discharged, this discharge would have negligible effect on aquatic organisms.

The disposal of dredged material at an upland site would adversely affect

the sediment budget of the river by removing sediment from the Columbia River system. Removing sediment from the river by dredging changes the dimensions of the river and can cause increased erosion off-site; however, given the size of the dredge area in relation to the lower Columbia River at this location these effects are negligible. Removing sediment from the river can also affect habitat forming processes. Loss of available sediments may affect the creation/maintenance of habitats such as beaches and shallow water. Placement of dredged material at the Upland Disposal Site would have a minor adverse effect (long term) on fish, crustaceans, mollusk, and other aquatic organisms.

Other wildlife:

Beach Nourishment Site: The beach nourishment site is generally not habitat for non-aquatic wildlife species. The placement of dredged material at the Beach Nourishment Site would have negligible effect on other wildlife.

Upland Disposal Site: The Columbia River in the immediate vicinity of the weir outlet is generally not habitat for non-aquatic wildlife species. The discharge of return water into the Columbia River would have a negligible effect on other wildlife.

6.2.4.2 Potential impacts on special aquatic sites (Subpart E 40 CFR 230.40). See Table 7:

Table 7 – Potential Impacts on Special Aquatic Sites						
Special Aquatic Sites	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Sanctuaries and refuges		X				
Wetlands		X				
Mud flats		X				
Vegetated shallows		X				
Coral reefs		X				
Riffle and pool complexes		X				

Discussion:

Sanctuaries and refuges: The proposed discharge in this evaluation would not occur in or affect sanctuaries or refuges.

Wetlands: The proposed discharge in this evaluation would not occur in or affect wetlands.

Mudflats: The proposed discharge in this evaluation would not occur in or affect mudflats.

Vegetated shallows: The proposed discharge in this evaluation would not occur in or affect vegetated shallows.

Coral reefs: The proposed discharge in this evaluation would not occur in or affect coral reefs.

Riffle and pool complexes: The proposed discharge in this evaluation would not occur in or affect riffle and pool complexes.

6.2.4.3 Potential impacts on human use characteristics (Subpart F 40 CFR 230.50). See Table 8:

Table 8 – Potential Impacts on Human Use Characteristics						
Human Use Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Municipal and private water supplies		X				
Recreational and commercial fisheries				X		
Water-related recreation				X		
Aesthetics				X		
Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves		X				

Discussion:

Municipal and private water supplies:

Beach Nourishment Site: The length of the Columbia River along the Beach Nourishment Site is not utilized for municipal or private water supply; therefore, placement of dredged material at the Beach Nourishment site would

have no effect on municipal and private water supplies.

Upland Disposal Site: The length of the Columbia River along the Upland Disposal Site is not utilized for municipal or private water supply; therefore, the discharge of return water would have no effect on municipal and private water supplies.

Recreational and commercial fisheries:

Beach Nourishment Site: The length of the Columbia River along the Beach Nourishment Site is utilized for recreational fishing. Placement of dredged material on the beach would temporarily disrupt recreational fishing activities. Therefore, placement of dredged material at the Beach Nourishment site would have an adverse minor effect (short term) on recreational fishing.

Upland Disposal Site: The length of the Columbia River along the upland disposal site is utilized for recreational fishing. The discharge return water into the Columbia River would not disrupt recreational fishing activities. Therefore, discharge of return water into the Columbia River would have a negligible effect on recreational fishing.

Water-related recreation:

Beach Nourishment Site: The length of the Columbia River along the Beach Nourishment Site is utilized for water related recreation. Placement of dredged material on the beach would temporarily disrupt water-related recreation on the beach and this length of the river. Therefore, placement of dredged material at the Beach Nourishment site would have an adverse minor effect (short term) on water related recreation.

Upland Disposal Site: The length of the Columbia River along the upland disposal site is utilized for water-related recreation. The discharge return water into the Columbia would not disrupt water-related recreation. Therefore, discharge of return water into the Columbia River would have a negligible effect on water-related recreation.

Aesthetics:

Beach Nourishment Site: The discharge of dredged material at the Beach Nourishment Site can result in greatly elevated levels of suspended particulates, in the water column for a short period of time. Temporary elevated suspended particulate levels and turbidity create turbid plumes generated by the disposal activities may be highly visible and aesthetically displeasing. However, it is expected that river currents would quickly dissipate the turbidity plume. Exposed, graded dredged material on the beach would temporarily change the visual appearance of the beach from a naturalistic setting into a constructed newly graded slope. However, wave action is expected to quickly redistribute the



material in a more natural looking beach. Therefore, discharge of dredged material at the Beach Nourishment site would have a minor adverse effect (short term) on aesthetics.

Upland Disposal Site: The return water from the upland disposal site would be low is suspended sediments. The discharge of the return water would not affect the aesthetics of the Columbia River in the vicinity of the discharge point. Therefore, discharge of the dredged material at the Upland Disposal Site would have a negligible effect on aesthetics.

Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves:

Beach Nourishment Site: The Beach Nourishment Site is not located within or in the vicinity of national parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves; therefore the placement of dredged material at the Beach Nourishment Site would have no effect on the parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves

Upland Disposal Site: The Upland Disposal Site is not located within or in the vicinity of parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves; therefore, the placement of dredged material at the Upland Disposal Site would have no effect on the parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves

6.2.5 Pre-testing evaluation (Subpart G, 40 CFR 230.60):

The following has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. See Table 9:

Table 9 – Possible Contaminants in Dredged/Fill Material	
Physical characteristics	X
Hydrography in relation to known or anticipated sources of contaminants	X
Results from previous testing of the material or similar material in the vicinity of the project	X
Known, significant sources of persistent pesticides from land runoff or percolation	X
Spill records for petroleum products or designated (Section 331 of CWA) hazardous substances	X
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	X
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	X

Discussion: See Section 6.2.2 Candidate disposal site delineation

It has been determined that testing is required because the discharge site and extraction sites are adjacent, subject to the same sources of contaminants and have substantially similar materials. Although the discharge material may be a carrier of contaminants, it is not likely to degrade the disposal site.

6.2.6 Evaluation and testing (Subpart G, 40 CFR 230-61):

Discussion: Proposed dredged site and dredged material has been reviewed by the Portland Sediment Evaluation Team (PSET). This project was evaluated using the 2009 Sediment Evaluation Framework for the Pacific Northwest (SEF) guidance. To determine dredged material suitability for unconfined, aquatic placement, the analytical results were compared to freshwater benthic toxicity screening levels (SLs) published in the 2006 Interim Final SEF. The proposed project would dredge 126,000 cubic yards of material to construct the Marine Export Facility Berth. By memoranda dated 13 May 2015 (revised 23 June 2015), the PSET agencies determined that dredge prism material from the proposed berth site is suitable for unconfined, aquatic placement. No additional characterization is required until February 2022. In addition, since the proposed berth area has never been dredged before, the PSET assumes that the new surface material is similar in nature to the dredge prism material. Therefore, the new surface material is suitable for unconfined, aquatic exposure. Given that the dredge prism material from the proposed berth site is suitable for unconfined, aquatic placement, the discharge of return water is not likely to result changes to contaminant availability in proximity of the discharge site. Therefore, the proposed discharge would not increase contaminant availability.

6.2.7 Actions to minimize adverse impacts (Subpart H). The following actions, as appropriate, have been taken through application of 40 CFR 230.70-230.77 to ensure minimal adverse effects of the proposed discharge. See Table 10:

Table 10 – Actions to Ensure Adverse Effects are Minimized	
Actions concerning the location of the discharge	X
Actions concerning the material to be discharged	X
Actions controlling the material after discharge	X
Actions affecting the method of dispersion	X
Actions affecting plant and animal populations	X
Actions affecting human use	

Discussion:

Beach Nourishment Site: As discussed in Section 6.2.6, the Port coordinated with the PSET to determine if the dredged material is suitable for unconfined aquatic disposal. The dredged material is suitable for in-water disposal, which minimizes the potential adverse effects to water quality. Dredging and associated disposal would occur during in-water work windows for ESA listed species. Port has also implemented BMPs for beach placement to minimize turbidity, sediment loss and fish stranding, see Section 1.

Upland Disposal Site: The Port would implement the conditions of the 401 water quality certificate which would minimize adverse effects to the Columbia River from turbidity.

6.2.8 Factual Determinations (Subpart B, 40 CFR 230.11). The following determinations are made based on the applicable information above, including actions to minimize effects and consideration for contaminants. See Table 11:

Table 11 – Factual Determinations of Potential Impacts						
Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Physical substrate					X	
Water circulation, fluctuation and salinity				X		
Suspended particulates/turbidity				X		
Contaminants			X			
Aquatic ecosystem and organisms					X	
Proposed disposal site			X			
Cumulative effects on the aquatic ecosystem					X	
Secondary effects on the aquatic ecosystem					X	

Discussion:

Physical substrate:

Beach Nourishment Site: Placement of dredged material at the Beach Nourishment Site would have a beneficial effect on aquatic habitat substrate by replenishing sand needed to maintain the beach. This beneficial effect would be long term given the gradual and constant rate of erosion from the Columbia River

at this site. The Port would need to periodically place sand and/or dredged material on the beach. Therefore, the placement of dredged material would have a minor long term beneficial effect on substrate.

Upland Disposal Site: The discharge of return water into the Columbia River is not likely to result in changes to the complex physical, chemical and biological characteristics of the substrate given that the return water would be sampled to show it meets state water quality turbidity standards prior to being discharged. Therefore, the proposed discharge would have a negligible effect on substrate in the Columbia River.

Water circulation, fluctuation and salinity:

Beach Nourishment Site: Given that the Beach Nourishment Site is located on an open stretch of the Columbia River, the placement of dredged material at this site would result in minor flow obstructions, changes in the direction or velocity of the Columbia River flow and localized circulation; and would result in a negligible reduction in the dimensions of the Columbia River. The placement of dredged material at the Beach Nourishment Site would have no effect on the salinity levels in the Columbia River given that the source of the dredged material is the Columbia River. Therefore, placement of dredged material at the Beach Nourishment Site would have a minor, adverse short term effect on water circulation, fluctuation and salinity.

Upland Disposal Site: The return water would be discharged at a single point therefore, this discharge would have a negligible effect on water circulation and fluctuation. The discharge of return water would have no effect on the salinity levels in the Columbia River given that the source of the return water is the Columbia River.

Suspended particulates/turbidity:

Beach Nourishment Site: Given the high flow volumes and ambient levels of suspended particulates and turbidity of the Columbia River, it is anticipated that elevated levels of suspended particulates and turbidity associated with the placement of dredged material at the Beach Nourishment site would be quickly dissipated and adverse effects to water quality and to aquatic species from suspended particulate levels would have a minor short term adverse effect.

Upland Disposal Site: The discharge of return water into the Columbia River is not likely to result in changes to suspended particulate levels and turbidity given that the return water would be sampled to show it meets state water quality turbidity standards prior to being discharged. Therefore, discharge

of return water into the Columbia River would have a negligible effect on suspended particulates/turbidity.

Contaminants:

Beach Nourishment Site: The proposed dredged material has been approved by PSET for suitability for unconfined aquatic disposal; therefore, the placement of dredged material at the Beach Nourishment Site would have a negligible effect; it would not result in introduction, relocation or increase in contaminants at the site.

Upland Disposal Site: The proposed dredged material would be evaluated by PSET for suitability for upland placement and discharge of return water; therefore, the discharge of return water from the upland site would have a negligible effect; it would not result in introduction, relocation or increase in contaminants at the site.

Aquatic ecosystem and organisms:

Beach Nourishment Site: Placement operations would temporarily adversely affect bottom-dwelling organisms; however, the grain size of the dredged material is similar to the grain size of existing substrate at the placement site which would provide suitable habitat for displaced bottom-dwelling organisms to recolonize the site. The placement of sand at the Beach Nourishment site would have a minor, short term beneficial effect to bottom-dwelling organisms by contributing to the sediment budget of the river and indirectly benefit river habitat. The shoreline modifications resulting from disposal of dredged material at the Beach Nourishment site would enhance communities and populations of aquatic animals by creating shallow water habitat. Placement of dredged material at the Beach Nourishment Site would have a beneficial long term effect on fish, crustaceans, mollusk, and other aquatic organisms. However

Upland Disposal Site: Return water would be discharged through existing weirs. Given that return water would be sampled to show it meets state water quality turbidity standards prior to being discharged, this discharge would have negligible effect on aquatic ecosystem and organisms.

Proposed disposal site:

Beach Nourishment Site: The Beach Nourishment Site is the smallest practicable mixing zone that would allow for successful beach nourishment and minimization of adverse effects to the above described factors; and would have a negligible effect on the proposed disposal site.

Upland Disposal Site: The point of discharge of return water to the Columbia River is the smallest practicable mixing zone that would minimize adverse effects to the above described factors; and would have a negligible effect on the proposed disposal site.

Cumulative effects on the aquatic ecosystem: See Section 9.0 for cumulative effects.

Secondary effects on the aquatic ecosystem: See Section 9.0 for secondary (i.e., indirect) effects.

6.2.9 Findings of compliance or non-compliance with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12). Based on the information above, including the factual determinations, the proposed discharge has been evaluated to determine whether any of the restrictions on discharge would occur. See Table 12:

Subject	Yes	No
1. Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?)		X
2. Will the discharge cause or contribute to violations of any applicable water quality standards?		X
3. Will the discharge violate any toxic effluent standards (under Section 307 of the Act)?		X
4. Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?		X
5. Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries?		X
6. Will the discharge cause or contribute to significant degradation of waters of the U.S.?		X
7. Have all appropriate and practicable steps (Subpart H, 40 CFR 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?	X	

Discussion: As described above, the placement of dredged material at the Beach Nourishment Site and discharge of return water from the upland disposal

site complies with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12).

### 6.3 Kalama Lateral Project

The discharges being evaluated under the Guidelines are permanent backfill of trenches with native material; trench breakers; temporary fill for cofferdams; temporary structures needed for construction such as sediment barriers and flumes, and temporary sidecast fill.

#### 6.3.1 Practicable alternatives to the proposed discharge consistent with 40 CFR 230.5(c) are evaluated in Section 5. The statements below summarize the analysis of alternatives.

In summary, based on the analysis in Section 5.0 above, the no-action alternative, which would not involve discharge into waters, is not practicable.

For those projects that would discharge into a special aquatic site and are not water dependent, the applicant has demonstrated there are no practicable alternatives that do not involve special aquatic sites.

It has been determined that there are no alternatives to the proposed discharge that would be less environmentally damaging (Subpart B, 40 CFR 230.10(a)). The proposed discharge in this evaluation is the practicable alternative with the least adverse impact on the aquatic ecosystem, and it does not have other significant environmental consequences.

#### 6.3.2 Candidate disposal site delineation (Subpart B, 40 CFR 230.11(f)). Each disposal site shall be specified through the application of these Guidelines:

Discussion:

Fill would be placed in the following waters:

- Wetland W-2A2: PEM wetland dominated by red alder (*Alnus rubra*) and reed canary grass (*Phalaris arundinacea*) located within an area disturbed by construction activities. The wetland is approximately 20 ft. wide at the pipe crossing. Construction would occur during the dry season; therefore, surface water would not be present at the time of construction. The excavation depth and backfill depth is 6 ft. below the wetland surface.
- Ditch 4: Excavated ditch located within an area disturbed by past construction activities. Ditch 4 is approximately 3ft wide and has intermittent flow. The excavation and backfill depth (mixing zone) is approximately 8 ft. below the ditch bed surface.

- Stream S-2A3: Perennial stream located in an area disturbed by past logging activities that is approximately 5 ft. wide. The excavation and backfill depth (mixing zone) is approximately 8 ft. below the stream bed surface.
- Stream S-1A3: Intermittent stream located in an area disturbed by past logging activities that is approximately 4 ft. wide. The excavation and backfill depth (mixing zone) is approximately 8 ft. below the stream bed surface.
- Stream S-1A2: Intermittent stream located in an area disturbed by past logging activities that is approximately 4 ft. wide. The excavation and backfill depth (mixing zone) is approximately 8 ft. below the stream bed surface.
- Stream S-1A1: Intermittent stream located in an area disturbed by past logging activities that is approximately 1-ft wide. The excavation and backfill depth (mixing zone) is approximately 8 ft. below the stream bed surface.
- Stream S-0A1: Intermittent stream located in an area disturbed by past logging activities that is approximately 1-ft wide. The excavation and backfill depth (mixing zone) is approximately 8 ft. below the stream bed surface.

6.3.3 Potential impacts on physical and chemical characteristics of the aquatic ecosystem (Subpart C 40 CFR 230.20). See Table 13:

Table 13 – Potential Impacts on Physical and Chemical Characteristics						
Physical and Chemical Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Substrate				X		
Suspended particulates/ turbidity				X		
Water				X		
Current patterns and water circulation				X		
Normal water fluctuations				X		
Salinity gradients		X				

Discussion:

Substrate: Construction of the Lateral Project requires open trenching of substrate to a maximum depth of 6 ft. to lay the pipeline under a minimum of 3 ft.



of cover. Substrate impacts are associated with the excavation of the trench, temporary side-cast of material excavated from the pipeline trench, and permanent backfill of the trench with native material. Excavated material would be temporarily placed in wetlands within the construction ROW during construction. The substrate would be temporarily buried until the side-cast material is removed and substrate is re-graded. Excavated wetland topsoil and subsoil would be segregated and the surface layer of the installation trench would be backfilled with the excavated topsoil and graded to pre-construction contours; therefore, there would be no permanent alteration to substrate elevations or contours. Streambeds would be regraded to pre-construction contours and gravels replaced. Vegetation and soil organisms occupying the excavated wetland and stream substrates would be adversely effected by the excavation activity; however, they would be expected to quickly recolonize backfilled substrate. Therefore, the proposed work in the above described aquatic resources would result in minor short term effects to the substrate.

Suspended particulates/turbidity: Turbidity controls are listed in the 401 Water Quality Certification. Northwest Pipeline proposes to work in the wetland and streams during the dry season when there is low likelihood of surface water in wetlands and when streams are expected to be dry, which would limit the extent of or even eliminate turbidity plumes. If water is present in the streams at the time of construction, Northwest Pipeline would de-water the ditch using flume or dam and pump for wetland, stream and ditch crossings. Northwest Pipeline has developed an erosion control plan to retain sediments within the right-of-way during construction. It is anticipated that the first flows from rain would cause a pulse of turbidity from the disturbed stream crossings, however, these effects would be temporary and short term. Therefore, the proposed discharge would have a minor short term effect on suspended particulates and turbidity levels.

Water: Northwest Pipeline proposes to work in the wetland and streams during the dry season when there is low likelihood of surface water in wetlands and when streams are expected to be dry, which would limit the extent of or even eliminate turbidity plumes. If water is present in the streams at the time of construction, Northwest Pipeline would de-water the ditch using flume or dam and pump for wetland, stream and ditch crossings. These measures would minimize changes to clarity, color and odor of the water; and would minimize the introduction of nutrients or other organic material into the stream flow. Therefore, the proposed discharge would have a minor short term effect on water.

Current patterns and water circulation: To minimize effect on surface water flows, Northwest Pipeline proposes to work in wetland and streams during the dry season when there is low likelihood of surface water in the wetlands and when streams are expected to be dry. If water is present in the streams at the time of construction, Northwest Pipeline would temporarily dewater the stream crossing section utilizing a flume or dam and pump) method, which would result in a temporary change or diversion in stream flow. These structures would be

removed upon completion of construction. Trenches created in wetland would be lined with trench breakers. Trench breakers, (stacked sand bags, foam, or bentonite) would be installed in the trench around the pipe in steeply sloped areas to prevent movement of subsurface water along the pipeline. Trench breakers would also be installed at the base of slopes adjacent to wetlands and waterbodies and where needed to avoid draining of wetlands. Following pipeline construction, stream crossings would be returned to their original contours and the original substrate (i.e., stream gravels) would be redeposited. Any excess backfill would be spread over upland areas and stabilized during cleanup. Therefore, the proposed discharges would have minor short term effects to circulation patterns and water circulation.

Normal water fluctuations: Following pipeline construction, stream crossings would be returned to their original contours and the original substrate (i.e., stream gravels) would be redeposited; wetlands would be regraded to their original contours and revegetated. Post-construction stream flows would be similar to pre-construction flows. Stream and wetland habitat would be similar to pre-construction conditions. Therefore, the proposed discharge would have minor short term effects on normal water fluctuations.

Salinity gradients: The proposed discharges occur in freshwater systems and the proposed backfill material is parent material; therefore, the proposed discharges would have no effect on salinity gradients.

6.3.4 Potential impacts on the living communities or human uses (Subparts D, E and F):

6.3.4.1 Potential impacts on the biological characteristics of the aquatic ecosystem (Subpart D 40 CFR 230.30). See Table 14:

Biological characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Threatened and endangered species				X		
Fish, crustaceans, mollusk, and other aquatic organisms				X		
Other wildlife			X			

Discussion:

Threatened and endangered species: See Section 10.1.

Fish, crustaceans, mollusk, and other aquatic organisms: Excavation and backfill of trench through streams would have an adverse effect on organisms that reside within the stream bed; however, it is anticipated that these organisms would quickly recolonize the backfilled substrate. It is anticipated that the first flows from rain would cause a pulse of turbidity from the disturbed stream crossings, however, these effects would be minor temporary and short term on organisms in the immediate area of the stream crossing and downstream.

Other wildlife: The proposed discharges would have a negligible effect on other wildlife given that the total area of the proposed discharges is limited to backfill of the trench.

6.3.4.2 Potential impacts on special aquatic sites (Subpart E 40 CFR 230.40).  
See Table 15:

Table 15 – Potential Impacts on Special Aquatic Sites						
Special Aquatic Sites	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Sanctuaries and refuges		X				
Wetlands				X		
Mud flats		X				
Vegetated shallows		X				
Coral reefs		X				
Riffle and pool complexes		X				

Discussion:

Sanctuaries and refuges: The proposed discharge in this evaluation would not occur in or affect sanctuaries or refuges.

Wetlands: The proposed discharge would have a minor short term effect on wetlands. The backfill of the pipeline trench would result in minor, short term effects to physical and chemical characteristics of Wetland W-2A2, see Section 6.3.3, Potential impacts on physical and chemical characteristic

Mudflats: The proposed discharge in this evaluation would not occur in or affect mudflats.

Vegetated shallows: The proposed discharge in this evaluation would not occur in or affect vegetated shallows.

Coral reefs: The proposed discharge in this evaluation would not occur in or affect coral reefs.

Riffle and pool complexes: The proposed discharge in this evaluation would not occur in or affect riffle and pool complexes.

6.3.4.3 Potential impacts on human use characteristics (Subpart F 40 CFR 230.50). See Table 16:

Table 16 – Potential Impacts on Human Use Characteristics						
Human Use Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Municipal and private water supplies		X				
Recreational and commercial fisheries		X				
Water-related recreation		X				
Aesthetics				X		
Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves		X				

Discussion:

Municipal and private water supplies: The proposed discharges would have no effect. The proposed discharges do not occur in aquatic resources utilized for municipal or private water supplies.

Recreational and commercial fisheries: The proposed discharges would have no effect. The proposed discharges do not occur in aquatic resources utilized for recreational or commercial fisheries.

Water-related recreation: The proposed discharges would have no effect. The proposed discharges do not occur in aquatic resources utilized for water-related recreation.

Aesthetics: The proposed discharges would have a minor short term effect on aesthetics. The newly backfilled portion of the trenched wetland would visually contrast from the surrounding vegetated areas and may appear aesthetically displeasing to some individuals.

Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves: The proposed discharges would have no effect. The proposed discharges do not occur in national parks, national and historic monuments, national seashores, wilderness areas, research sites and similar preserves.

6.3.5 Pre-testing evaluation (Subpart G, 40 CFR 230.60):

The following has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. See Table 17:

Table 17 – Possible Contaminants in Dredged/Fill Material	
Physical characteristics	
Hydrography in relation to known or anticipated sources of contaminants	X
Results from previous testing of the material or similar material in the vicinity of the project	
Known, significant sources of persistent pesticides from land runoff or percolation	
Spill records for petroleum products or designated (Section 331 of CWA) hazardous substances	
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	X
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	

Discussion: Native material excavated from wetlands and stream beds would be used to backfill the excavated pipeline trench. This native material has a low likelihood of contaminants due to the low-density residential, timber harvest, and agricultural land uses along the proposed pipeline route.

It has been determined that testing is not required because the discharge and extraction sites are adjacent, subject to the same sources of contaminants and have substantially similar materials. Although the discharge material may be a carrier of contaminants, it is not likely to degrade the disposal site.

6.3.6 Evaluation and testing (Subpart G, 40 CFR 230-61):

Discussion: N/A. Testing is not required.

6.3.7 Actions to minimize adverse impacts (Subpart H). The following actions, as appropriate, have been taken through application of 40 CFR 230.70-230.77 to ensure minimal adverse effects of the proposed discharge. See Table 18:

Table 18 – Actions to Ensure Adverse Effects are Minimized	
Actions concerning the location of the discharge	X
Actions concerning the material to be discharged	X
Actions controlling the material after discharge	X
Actions affecting the method of dispersion	X
Actions affecting plant and animal populations	X
Actions affecting human use	X

Discussion: Northwest Pipeline has taken actions to ensure adverse effects are minimized. The proposed discharge is backfill of a trench with native material. Northwest Pipeline has proposed use of best management practices to minimize adverse effects to stream flows, wetland and streambed substrates, and water quality.

6.3.8 Factual Determinations (Subpart B, 40 CFR 230.11). The following determinations are made based on the applicable information above, including actions to minimize effects and consideration for contaminants. See Table 19:

Table 19 – Factual Determinations of Potential Impacts						
Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Physical substrate				X		
Water circulation, fluctuation and salinity				X		
Suspended particulates/turbidity				X		
Contaminants		X				
Aquatic ecosystem and organisms				X		
Proposed disposal site				X		
Cumulative effects on the aquatic ecosystem				X		

Table 19 – Factual Determinations of Potential Impacts						
Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Secondary effects on the aquatic ecosystem				X		

**Discussion:**

Physical substrate: Wetland and streambed substrates would be disturbed during trenching activities; however, the trench would be backfilled with native material. The proposed discharges would have a minor, short term, adverse effect to physical substrate.

Water circulation, fluctuation and salinity: The trench backfill would be regraded to original contours resulting in minor changes to stream flow. The proposed discharges would have a minor short term effect to water circulation and fluctuation. The proposed discharge would occur in a freshwater environment and the proposed discharge is native material; therefore, there would be no effect on salinity.

Suspended particulates/turbidity: Northwest Pipeline proposes to work in the wetland and streams during the dry season when there is low likelihood of surface water in wetlands and when streams are expected to be dry, which would limit the extent of or even eliminate turbidity plumes. If water is present in the streams at the time of construction, Northwest Pipeline would de-water the ditch using a flume or dam and pump for wetland, stream and ditch crossings. Northwest Pipeline has developed an erosion control plan to retain sediments within the right-of-way during construction. The proposed discharges would have a minor adverse, short term, effect on suspended particulates and turbidity.

Contaminants: The proposed discharge is native material that would not introduce new sources of contamination into the affected aquatic resources. The proposed discharges would have no adverse effects on contaminant levels within the affected aquatic resources.

Aquatic ecosystem and organisms: Newly backfilled stream beds would temporarily be low quality habitat for aquatic organisms; however, it is anticipated that these areas would quickly revegetate and be quickly recolonized by aquatic organisms. The proposed discharges would have a minor, short term, adverse effect on aquatic ecosystem and organisms.

Proposed disposal site: The discharges would temporarily adversely affect substrate, suspended particulates/turbidity, and biological characteristics of the proposed disposal sites. The proposed discharge would have a minor adverse short term effect on the proposed disposal sites.

Cumulative effects on the aquatic ecosystem: See Section 9.0 for cumulative effects.

Secondary effects on the aquatic ecosystem: See Section 9.0 for secondary (i.e., indirect) effects.

6.3.9 Findings of compliance or non-compliance with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12). Based on the information above, including the factual determinations, the proposed discharge has been evaluated to determine whether any of the restrictions on discharge would occur. See Table 20:

Table 20 – Compliance with Restrictions on Discharge		
Subject	Yes	No
1. Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?)		X
2. Will the discharge cause or contribute to violations of any applicable water quality standards?		X
3. Will the discharge violate any toxic effluent standards (under Section 307 of the Act)?		X
4. Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?		X
5. Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries?		X
6. Will the discharge cause or contribute to significant degradation of waters of the U.S.?		X
7. Have all appropriate and practicable steps (Subpart H, 40 CFR 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?	X	

Discussion: As described above, the backfill of trench aquatic resources with native material complies with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12).



**7.0 General Public Interest Review (33 CFR 320.4 and RGL 84-09)**

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest as stated at 33 CFR 320.4(a). To the extent appropriate, the public interest review below also includes consideration of additional policies as described in 33 CFR 320.4(b) through (r). The benefits which reasonably may be expected to accrue from the proposal are balanced against its reasonably foreseeable detriments.

7.1 All public interest factors have been reviewed and those that are relevant to the proposal are considered and discussed in additional detail. See Table 21 and the discussion that follows.

Table 21: Public Interest Factors		Effects					
		None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
1. Conservation:							
Marine Export Facility				X			
Lateral Project				X			
Kalama Methanol Facility			X				
2. Economics:							
Marine Export Facility						X	
Lateral Project						X	
Kalama Methanol Facility						X	
3. Aesthetics:							
Marine Export Facility					X		
Lateral Project					X		
Kalama Methanol Facility					X		
4. General Environmental Concerns:							
Marine Export Facility				X			

Table 21: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
Lateral Project			X			
Kalama Methanol Facility			X			
4A. Noise						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility				X		
4B. Air Quality						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility			X			
4C. Traffic/Transportation Patterns						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility				X		
5. Wetlands:						
Marine Export Facility			X			
Lateral Project			X			
Kalama Methanol Facility			X			
6. Historic Properties:						
Marine Export Facility	X					
Lateral Project	X					
Kalama Methanol Facility	X					
7. Fish and Wildlife Values:						

Table 21: Public Interest Factors		Effects				
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
Marine Export Facility			X			
Lateral Project			X			
Kalama Methanol Facility			X			
8. Flood Hazards:						
Marine Export Facility	X					
Lateral Project	X					
Kalama Methanol Facility	X					
9. Floodplain Values:						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility				X		
10. Land Use:						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility				X		
11. Navigation:						
Marine Export Facility				X		
Lateral Project	X					
Kalama Methanol Facility				X		
12. Shoreline Erosion and Accretion:						
Marine Export Facility					X	
Lateral Project			X			
Kalama Methanol Facility				X		

Table 21: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
13. Recreation:						
Marine Export Facility					X	
Lateral Project				X		
Kalama Methanol Facility					X	
14. Water Supply and Conservation:						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility				X		
15. Water Quality:						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility				X		
16. Energy Needs:						
Marine Export Facility				X		
Lateral Project					X	
Kalama Methanol Facility				X		
17. Safety:						
Marine Export Facility			X			
Lateral Project			X			
Kalama Methanol Facility			X			
18. Food and Fiber Production:						
Marine Export Facility	X					
Lateral Project				X		

Table 21: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
Kalama Methanol Facility	X					
19. Mineral Needs:						
Marine Export Facility				X		
Lateral Project		X				
Kalama Methanol Facility				X		
20. Consideration of Property Ownership:						
Marine Export Facility				X		
Lateral Project				X		
Kalama Methanol Facility	X					
21. Needs and Welfare of the People:						
Marine Export Facility			X			
Lateral Project			X			
Kalama Methanol Facility			X			

Discussion of effects on factors above:

1. Conservation:

(i) Marine Export Facility: Construction of the Marine Export Facility may modify the natural resource characteristics of the project area. Construction of the dock, berth dredging and other construction activities associated with the Marine Export Facility would permanently alter preconstruction conditions at the proposed site. Required compensatory mitigation would result in the restoration and enhancement of riparian and aquatic habitats that would offset losses of conservation values. Conclusion: Construction of the Marine Export Facility would have an adverse but neutral effect as result of mitigative action.

(ii) Lateral Project: Construction of the Lateral Project may modify the natural resource characteristics of the project area. Trenching through aquatic resources, backfill of trenching, and creation of a pipeline right-of-way for operational and maintenance activities would permanently alter preconstruction

conditions at the proposed site. Required compensatory mitigation would result in the restoration and re-establishment of wetland habitats that would offset losses of conservation values. Conclusion: Construction of the Marine Export Facility would have a temporary adverse but neutral effect as result of mitigative action.

(iii) Kalama Methanol Facility: Construction of the Kalama Methanol Facility may modify the natural resource characteristics of the project area. The construction and operation of structures, parking lots, and other ground covering activities associated with the Kalama Methanol Facility would permanently alter preconstruction conditions and limit vegetative growth except for landscaping activities. Conclusion: The Kalama Methanol Facility would have an adverse effect on conservation.

## 2. Economics:

(i) Methanol Marine Export Facility: The unemployment rate in Cowlitz County is 8.4% compared to 6.6% in the local metro region (seven Washington counties (Cowlitz, Clark, Lewis, Pacific, Skamania, Thurston, and Wahkiakum) and five Oregon counties (Clackamas, Columbia, Multnomah, Washington, and Yamhill)). During construction, the Marine Export Facility would temporarily generate construction jobs and revenue for contractors as well as revenue for building supply companies that sell construction materials. Once construction is complete, operation of the Marine Export Facility would permanently generate local jobs through employment of longshoremen and other positions in Cowlitz County. Conclusion: The effects on economics would be beneficial.

(ii) Lateral Project: The unemployment rate in Cowlitz County is 8.4% compared to 6.6% in the local metro region (seven Washington counties (Cowlitz, Clark, Lewis, Pacific, Skamania, Thurston, and Wahkiakum) and five Oregon counties (Clackamas, Columbia, Multnomah, Washington, and Yamhill)). During construction, the Lateral Project would temporarily generate construction jobs and revenue for contractors as well as revenue for building supply companies that sell construction materials. Once construction is complete, operation of the lateral pipeline would be automated; therefore, it is not likely to generate local permanent jobs. However, the continued operation of the Lateral Project would provide economic benefit by supporting the operation of the Kalama Methanol Facility. Conclusion: The effects on economics would be beneficial.

(iii) Kalama Methanol Facility: The unemployment rate in Cowlitz County is 8.4% compared to 6.6% in the local metro region (seven Washington counties (Cowlitz, Clark, Lewis, Pacific, Skamania, Thurston, and Wahkiakum) and five Oregon counties (Clackamas, Columbia, Multnomah, Washington, and Yamhill)). During construction, the Kalama Methanol Facility would temporarily

generate construction jobs and revenue for contractors as well as revenue for building supply companies that sell construction materials. Once construction is complete, operation of the Kalama Methanol Facility would permanently generate local jobs through employment of plant operators and other positions in Cowlitz County. Conclusion: The effects on economics would be beneficial.

### 3. Aesthetics:

(i) Marine Export Facility: The industrial character of the Marine Export Facility would contrast with the naturalistic character of residential properties directly across the Columbia River, Prescott Beach Park northwest of the project site, and wetlands north of the North Port Site. Nighttime lighting would be associated with the operation of the Marine Export Facility. However, the construction and operation of the Marine Export Facility, including lighting, docking of construction barges, and docking of ships, is consistent with the North Port Site's existing land use classification and the industrial character of Port properties south and west of the North Port Site. Conclusion: The construction and operation of the Marine Export Facility would have a negligible effect to aesthetics.

(ii) Lateral Project: Vegetation removal, equipment use and material stock piling during construction would temporarily adversely affect aesthetics along the Lateral Project route. The pipeline would be buried along the entire proposed route; however, the pipeline requires construction of a permanent pipeline right-of-way for maintenance and operation of the pipeline. This right-of-way would be devoid of trees and shrubs, and would result in minor permanent adverse effects to aesthetics. Northwest Pipeline has committed to completing final cleanup of an area within 20 days after backfilling the trench (10 days in residential areas). Trees and shrubs would be allowed to grow back in areas affected during construction that are outside of the permanent pipeline right-of-way. (FERC 2015) Conclusion: Construction of the Lateral Project would have a negligible effect on aesthetics.

(iii) Kalama Methanol Facility: The industrial character of the Kalama Methanol Facility would contrast with the naturalistic character of residential properties directly across the Columbia River, Prescott Beach Park northwest of the project site, and wetlands north of the North Port Site. However, the construction and operation of the methanol plant, including the construction of a temporary construction crane and water vapor exhaust plumes from cooling towers, is consistent with the proposed project site's existing land use classification and industrial character of Port properties immediately south and west of the North Port Site. Nighttime lighting and the flare system, for the safe disposal of flammable gasses and vapors, would blend in with the other industrial

activities along the Columbia River. Conclusion: Construction and operation of the Kalama Methanol Facility would have a negligible effect to aesthetics.

4. General environmental concerns:

(i) Marine Export Facility: The construction and operation of the Marine Export Facility would have an adverse effect on benthic, aquatic, and riparian habitats; fish and wildlife values; endangered species and water quality. However, the Port would take mitigative action to address these adverse effects and the resulting effect would be neutral, see Section 8.1 Mitigation Marine Export Facility.

ii) Lateral Project: The construction of the Lateral Project would have an adverse effect on benthic, aquatic, and riparian habitats; fish and wildlife values; endangered species and water quality. However, Northwest Pipeline would take mitigative action to address these adverse effects and the resulting effect would be neutral, see Section 8.2 Mitigation Kalama Lateral Project.

(iii) Kalama Methanol Facility: The construction and operation of the Kalama Methanol Facility would have an adverse but neutral effect as a result of mitigative actions on water quality, with the implementation of the zero liquid discharge system, and air quality, with the implementation of ultra low emissions technology. NWIW would implement one of several options for the mitigation of the project generated GHG emissions, including 1) purchasing verified carbon credits through carbon credit markets/banks, or 2) by paying the amount of the total carbon credit into a GHG mitigation fund. Either option would assist in the reduction of GHGs and assist in the production of renewable energy.

4A. Noise:

(i) Marine Export Facility: Construction of the Marine Export Facility would temporarily increase noise in the project area. Marine terminal construction would only occur during daylight hours and would cease at night. Noise effects to fish resulting from pile driving activities associated with construction of the Marine Export Facility is discussed in the Public Interest Factor 7. Fish and Wildlife Values. Operation of the Marine Export Facility would generate noise associated with methanol loading activities at the berth; however, the level of noise would be typical of an active Port facility. Conclusion: The construction and operation of the Marine Export Facility would have a temporary, adverse effect on noise.

(ii) Lateral Project: Construction of the lateral project would temporary increase noise levels in the project area. Generally the increase in noise levels would be limited to daylight hours with the exception of HDD activities which may occur continuously for several days until drilling is complete. Blasting and use of



hydraulic hammers or rock saws may occur in areas of hard, non-rippable bedrock. HDD activities, blasting, and use of hydraulic hammers or rock saws may generate excessive increases in noise. The applicant has proposed and FERC has accepted a sound monitoring and noise mitigation measures for HDD activities and a Project Blasting Plan. (FERC 2015) Operation of the Lateral Project would generate a negligible amount of noise. Conclusion: The construction of the Lateral Project would have a temporary, adverse effect on noise.

(iii) Kalama Methanol Facility: Construction of the Kalama Methanol Facility would temporarily increase noise in the project area, but primarily occur during daylight hours. Construction equipment (e.g., bulldozer, dump truck, scraper, paver, etc.) would employ properly sized and maintained mufflers, engine intake silencers, and engine enclosures, and they would participate in turning off idle equipment.

Operation of the methanol facility would create similar noise effects as the other industrial facilities along the river, but occur on a permanent, continuous basis. Operation of the Kalama Methanol Facility would generate noise from the various aspects of the manufacturing process (e.g., methanol loading pump, cooling towers, enclosed flare, power generation, air separation unit, etc.). NWIW would be required to mitigate the estimated sound levels to comply with the nearest, and most restrictive, nighttime noise limits in Oregon (closest residential development is located across the Columbia River in Oregon). The calculated increases in sound levels would exceed the 10 dBA limit over the existing L50 sound levels in Oregon and possibly along portions of the eastern and northern project site boundaries. NWIW would implement mitigation measures to reduce sound levels to meet standards and reduce effects. Conclusion: The construction and operation of the Kalama Methanol Facility would have a negligible effect on noise.

#### 4B. Air Quality and Greenhouse Gas:

(i) Marine Export Facility: The construction of the proposed Marine Export Facility is not expected to generate quantities of airborne pollutants or greenhouse gases beyond that which is typical of marine export facilities of a similar size because the Port would utilize standard construction techniques and equipment similar to those used to construct other marine export facilities in the region. Operation of the proposed Marine Export Facility is expected to generate reduced quantities of airborne pollutants and greenhouse gases typical of marine export facilities because methanol transport tankers docked at the export facility would utilize electricity from shore, rather than follow the common practice where docked tankers generate their own source of electricity using on-board fossil-fueled engines or generators (a practice referred to as hoteling). Use of electricity from shore would reduce the quantity of airborne pollutants and

greenhouse gases emitted by docked tankers. (Cowlitz County 2016, Cowlitz County 2018) However, vessels utilizing the export facility as a lay berth would hotel at the berth and emit airborne pollutants and greenhouse gases. Emissions from vessels transits to and from the marine terminal is discussed in Secondary Effects Section 9.1 Direct and Indirect Effects of the Proposed Activity.

Conclusion: The construction and operation of the Marine Export Facility would have a minor adverse long term effect on air quality and greenhouse gas emissions.

(ii) Lateral Project: The construction of the proposed Lateral Project is not expected to generate quantities of airborne pollutants or greenhouse gases beyond that which is typical of a natural gas pipeline of a similar size. Construction activities may result in temporary elevated levels of dust in the area of construction; however, it is expected that airborne pollutants and greenhouse gas emissions from gasoline and diesel fueled construction equipment used to construct the proposed Lateral Project would have minor temporary adverse effects on air quality because of the relatively small amount of excavation and drilling activity needed to construct the pipeline. The operation of the proposed Lateral Project may produce minor amounts of fugitive methane emissions which would have a minor adverse effect on greenhouse gas emissions. (Cowlitz County 2018) Conclusion: The construction and operation of the lateral project would have a temporary minor adverse effect on air quality and greenhouse gas emissions. (FERC 2015 and Cowlitz County 2016)

(iii) Kalama Methanol Facility: The project related emissions of the Kalama Methanol Facility can be separated into upstream, downstream, and direct site-specific (construction and operations) effects. Effects on air quality would occur during construction of the Kalama Methanol Facility from gasoline and diesel fueled construction equipment. Minor temporary adverse effects would occur from emissions and dust. Operation of the methanol facility would result in a permanent adverse effect on air quality. NWIW would adhere to the Southwest Clean Air Agency's Air Discharge Permit that would enforce federal and state air quality standards. The Shoreline Substantial Development and Shoreline Conditional Use Permits, issued by Cowlitz County and the Washington State Department of Ecology, would require NWIW to reduce and/or mitigate GHG emissions and provide annual reports during operations. The facility would directly and indirectly increase GHG emissions in Washington State (Cowlitz County 2018). Combined, the three years of construction and the upstream and downstream power and emissions calculated over the lifetime of the project, 40 years, would increase the Washington State CO<sub>2</sub> emissions by 0.96 million metric tons per year. Overall, the project emissions would be approximately 1% of Washington State's GHG emissions. NWIW plans to utilize Ultra Low Emission (ULE) technology to minimize direct emissions during operations. The ULE technology would minimize GHG emissions by reusing process heat and onsite

natural gas boilers. NWIW has also planned to voluntarily mitigate 100 percent of all project generated GHG emissions in the State of Washington. NWIW has several options for the mitigation of the project generated GHG emissions, including 1) purchasing verified carbon credits through carbon credit markets/banks, or 2) by paying the amount of the total carbon credit into a GHG mitigation fund. Either option would assist in the reduction of GHGs and assist in the production of renewable energy. Conclusion: Construction and operation of the Kalama Methanol Facility would have an adverse but neutral effect as a result of mitigative actions.

4c. Traffic/Transportation Patterns:

(i) Marine Export Terminal: Construction of the Marine Export Terminal would have minor temporary effect on traffic and transportation patterns. Movement of construction equipment and materials during construction would result in increased congestion within the Port of Kalama and the Interstate 5 on/off ramps. Operation of the Marine Export Facility would result in permanent minor increases in traffic as a result of transport of maintenance and operating materials to the plant and increase number of commuting workers. Conclusion: Construction and operation of the Marine Export Terminal would have minor permanent effect of traffic and transportation patterns.

(ii) Lateral Project: Construction of the lateral project would have minor temporary effect on traffic and transportation patterns. Movement of construction equipment and materials during construction would result in increased congestion along the pipeline route. Traffic increases resulting from construction of the lateral project would cease once construction is completed. Maintenance activities resulting from operation of the lateral project would generate minimal traffic. Conclusion: Construction and operation of the Marine Export Terminal would have minor permanent effect of traffic and transportation patterns.

(iii) Kalama Methanol Facility: Construction of the Kalama Methanol Facility would have minor temporary effect on traffic and transportation patterns. Movement of construction equipment and materials during construction would result in increased congestion within the Port of Kalama and the Interstate 5 on/off ramps. Operation of methanol plant would result in permanent minor increases in traffic as a result of transport of maintenance and operating materials to the plant and increase number of commuting workers. Traffic increases resulting from construction of the lateral project would cease once construction is completed. Conclusion: Construction and operation of the methanol plant would have a minor temporary and permanent effect of traffic and transportation patterns.

5. Wetlands:

i) Marine Export Facility: As discussed in Section 1, the project site was formerly a dredged material disposal site. Site soils are composed of dredged material and are highly permeable, and do not pond water for a length of time sufficient to develop wetland characteristics. Site investigations completed by the Port in 2014 did not find wetlands within the project site. The 2014 investigation identified two wetlands, Wetland A and Wetland B, but these wetlands do not extend into the proposed project site. (ELS 2014) Wetland A is located north of the project site and is characterized as a riverine wetland associated with the Columbia River. Wetland B is located near the intersection of Kalama River Road and Tradewinds Road, southeast of the site. It is associated with a ditch and beaver dam impoundment. Riverine wetlands associated with the Columbia River are present immediately adjacent to the shoreline and their extent corresponds with the OHWM. (ELS 2014)

The wetland buffer width of Wetland A mandated by Cowlitz County regulations (defined under the Cowlitz County Critical Areas Protection Ordinance [Cowlitz County Code [CCC] Section 19.15.120.C.4.]), extends onto the northern end of the project site. The wetland buffer that extends onto the project site consists of noxious weeds, and cottonwood trees and saplings. (Berger ABAM 2015, revised 2016) Approximately 0.09 acre of this wetland buffer would be affected by the proposed recreational access improvements. The Port has proposed to enhance approximately 0.58 acres of wetland buffer at the north end of the site to mitigate for unavoidable wetland buffer effects to meet the requirements of the Cowlitz County Critical Areas Protection Ordinance. This wetland buffer enhancement is discussed in more detail in Section 8. Mitigation.

Wetlands A and B are not expected to be affected by groundwater withdrawals via the proposed collector well during operation of the methanol plant. The construction and operation of the proposed Marine Export Facility would not affect the existing hydrologic connectivity of these two wetlands. Effects to wetlands from stormwater runoff would be minimized by the implementation of stormwater management systems at the proposed Marine Export Facility.

Conclusion: Construction and operation of the Marine Export Facility would have no direct effects on wetlands, but would have indirect effects on wetlands due to the loss of wetland buffer. However, the Port has proposed to mitigate for these effects, see Section 8. Mitigation.

ii) Lateral Project: Construction of the 3.1-mile, 24-inch diameter welded steel natural gas pipeline would cross five wetlands (W-2A8 [PEM], WL-B [PEM], WL-A [PEM], W-2A2 [PSS], and W-2A1[PEM]); five streams (S-2A3 [perennial], S-1A3 [intermittent], S-1A2 [intermittent], S-1A1 [intermittent] and S-0A1 [intermittent]); and 3 ditches (S-2A7 [perennial], S-A26 [perennial], and Ditch

4) using HDD and open trench methods. All of the aquatic resources to be crossed by the project are considered waters of the U.S. based on the Corps' preliminary jurisdictional determination. The proposed pipeline would be installed via HDD under three wetlands (W-2A8, WL-B, and WL-A) for a total of 824 ft. and under two ditches (S-2A7 and S-A26) for a total of 6 ft. The proposed pipeline would be installed via open trench under one wetland (W-2A2) for a length of approximately 20 feet, one ditch (Ditch 4) and 5 streams (S-2A3, S-1A3, S-1A2, S-1A1, and S-0A1) for a length of approximately 18 linear feet. One wetland (W-2A1) is within the ROW but is outside the trench line. See Section 1 Table 3.

Wetlands (W-2A8, WL-B, WL-A) and ditches (S-2A7, S-A26, Ditch 1 and Ditch 4) occur within previously disturbed areas used for agricultural production. Land use activities associated with residential development and timber harvests have disturbed Wetland W-2A2 (PSS), Wetland W-2A1 (PEM), and Streams S-2A3, S-1A3, S-1A2, S-1A1 and S-0A1.

Construction of the proposed project would result in 0.07 acre of temporary effects (0.03 acres in W-2A2 and 0.04 acres in W-2A1) and 0.01 acre of permanent effects (.01 acres in W-2A2) within wetlands; and would result in 0.044 acre (18 linear feet) of temporary effects to streams and ditches. Temporary effects to wetlands, streams and ditches are associated with trenching for pipe placement and the construction of the ROW). The estimated temporary excavation and backfill volume for all wetlands and streams crossed by the pipeline via dry-open cut trench is approximately 22.22 cubic yards in wetlands, and approximately 16.67 cubic yards in streams and ditches. All trench work would be backfilled with excavated native material. The wetlands and stream bottoms would be returned to preconstruction contours.

The 0.01 acre of permanent effect of wetland W-2A2 is due to the scrub-shrub vegetative being altered to an emergent wetland vegetation regime for the portion of the wetland that would be present in the ROW. The Lateral Project would have a total of 2.39 acres of temporary buffer effects. Vegetation in wetland and stream buffers would be cut to ground level in the construction right-of-way.

Use of HDD technology would have minimal effect on wetlands and ditches as work would be completed approximately 45-52 ft. under the surface elevations and the exit and entry points of the HDD operations are located in uplands. No right of way would be constructed in wetlands and ditches crossed using HDD.

Construction of the Lateral Project requires open trenching through two wetlands (W2-A1 and W-2A2) to a maximum depth of 6 ft. to lay the pipeline under a minimum of 3 ft. of cover. A total of 22.22 cubic yards of native material would be used to backfill the portions of the trench excavated in wetlands. The

typical construction ROW for Lateral Project construction is 100 ft. wide; however, the construction ROW would be reduced to a width of 75 ft. within the wetland crossings. Excavated material would be temporarily placed in wetlands within the construction ROW during construction. Topsoils and subsoils would be segregated and the surface layer of the installation trench would be backfilled with topsoil. Silt fence and/or hay bale sediment barriers would be installed at the edges of the construction ROW in wetlands where there is a possibility for excavated trench material to flow into undisturbed areas of the wetland. Dewatering of the trench would be accomplished in a manner such that no heavily silt-laden water flows into any wetland or waterbody. Trench breakers would be installed where necessary to prevent the wetland from draining through the pipeline trench and to maintain its hydrologic integrity. Where the pipeline trench can potentially drain a wetland, the trench bottom would be sealed as necessary to maintain wetland hydrology.

Backfilled areas would be graded to original contours and would be revegetated. Any excess backfill would be spread over upland areas and stabilized during cleanup. To promote reestablishment of native wetland species, up to 12 inches of topsoil would be salvaged in all wetlands and wetland buffers over the trench line. Temporary Work Areas (TEWA) have been located a minimum of 50 feet from the edge of wetlands and waterbodies, where possible, to minimize effects to wetland buffers and riparian zones as required by FERC's Wetland and Waterbody Procedures, with modifications at a few locations where topographic or other site-specific construction feasibility issues prevent locating a temporary work area 50-ft from a wetland or waterbody boundary.

Northwest Pipeline would purchase 0.01 mitigation bank credit to compensate for the permanent effects to scrub-shrub wetlands to jurisdictional wetlands. Northwest would purchase an additional 0.04 mitigation bank credit for temporary effects to wetlands and 0.60 mitigation bank credit for temporary effects to wetland and riparian buffers. Thus, in total Northwest would purchase 0.65 mitigation bank credit from the Columbia River Wetland Mitigation Bank to mitigate the project's effects. See Section 8 for a complete description of effects and compensatory mitigation.

Conclusion: The construction of the Lateral Project would result in permanent and temporary adverse effects to wetlands and waters. However, these effects would be neutral and offset with compensatory mitigation.

(iii) Kalama Methanol Facility: See Marine Export Facility discussion.

Conclusion: The construction and operation of the Methanol Facility would result in adverse but neutral effect as result of mitigation for effects to wetland buffers.

6. Historic properties:

(i) Marine Export Terminal: The Corps is the lead federal agency for compliance with Section 106 for marine export facility. In implementing 33 CFR part 325, Appendix C, the three-part test for determining permit area was applied to this project. Based on that analysis, it was determined that all in-water and upland facilities associated with the Marine Export Facility (including the Kalama Methanol Facility) would be considered within the Corps permit area.

The Port conducted a cultural resource survey that included in-water and upland components. That survey described three historic-era sites within the project area. These sites were described as historic water structures and mostly consisted of pilings. These three sites were recommended as ineligible for listing in the National Register of Historic Places (NRHP). The survey indicated that much of the project site was covered in a substantial layer of fill material and was categorized by the archeologists as having a low-potential for deeply buried archeological sites and no further archeological work was recommended. The Corps archeologist reviewed this report and concurred with the Port's recommendation of the ineligibility of the three sites noted above and the recommendation that no further archeological reconnaissance was needed due to the low potential for deeply buried sites. An additional archeological survey was done for proposed parking locations associated with the project, one of which is near a pre-contact tribal site. That survey did not identify any cultural resources and noted that no further work would be needed as long as the parking area located near the abovementioned site would only consist of the placement of material. Based on the two surveys noted above, the Corps determined this project would have No Effect on historic properties.

This undertaking, the results of the cultural resource survey, and the Corps preliminary effect determination were sent to the tribes on 19 October 2015. The Cowlitz responded to this notification on 30 October 2015, and requested an Inadvertent Discovery Plan be included as a condition of the permit. The Confederated Tribes of the Warm Springs (CTWS) also responded on 09 November 2015 and noted the cultural resource report did not address usual and accustomed sites or historic properties of religious and cultural significance to Indian Tribes. The Branch archeologist followed up with the CTWS on 10 December 2015 to provide further information on the nature of the site and request any information the tribe may have that further indicates there could be a tribal site within the project area. No response was received to that initial follow up. Additional emails and letters were sent to all consulting tribes which provided the Corps final "No Effect" determination as well as a copy of the addendum report for the proposed parking locations. The only response received to the follow up notifications was from the Cowlitz Tribe who expressed a number of concerns, some of which were cultural-resource related. The Corps engaged in extensive follow up consultation with the Cowlitz Tribe, including a

meeting between the Commander and their Chairman. Although the Cowlitz express general concerns with cultural resources throughout the follow up consultation, no concerns specific to the project site were noted.

The proposed permit area/APE were sent to the Washington Department of Archaeology and Historic Preservation (DAHP) on 19 October 2015. In a letter dated 16 November 2015 DAHP responded and requested the Corps considered the effects of vessel traffic within the APE. In a letter dated 25 March 2016, the Corps responded to DAHP and provided the following: a justification on the APE, the results of both cultural resource reports (initial and addendum), and a determination of “no historic properties affected.” In a letter dated May 5, 2016 DAHP concurred with that determination. In a letter dated 05 May 2015, the DAHP concurred that the 3 sites are not eligible for listing in the National Register of Historic Places and concurred with the Corps Determination of No Historic Properties Affected. No historic properties would be affected by this undertaking

Conclusion: The proposed Marine Export Facility would have no effect on historic properties.

(ii) Lateral Project: FERC is the lead agency responsible for compliance with Section 106 for the lateral project. FERC considers all 127 acres of the land that would be disturbed by this project as the area of potential effect. This area includes all Corps permit locations. In a document dated January 13, 2015, FERC initiated consultation with a number of stakeholders including ACHP, EPA, U.S. Department of the Interior, National Park Service, Department of Interior Bureau of Indian Affairs, DAHP, and Indian tribes that may have an interest in the project area. No substantive cultural resource concerns were received in response to that initial contact. In addition to these stakeholders, on January 13, 2015, the same document was sent to the Confederated Tribes of the Chehalis and Cowlitz Indian Tribe. Only the Cowlitz responded with a request to be a consulting party and requested the inclusion of an Inadvertent Discovery Plan. In addition, on March 17, 2015, the FERC sent letters to nine tribes regarding this project. No response to those letters were received.

Starting in 2012, the cultural resources consultant for Northwest Pipeline, AINW (Archaeological Investigations Northwest, Inc.) conducted a pedestrian archeological survey. The survey inventoried a total of 135 acres along the pipeline route. No archeological resources were identified as part of that initial effort. That said, three cultural resources were identified and include the Old Pacific Highway and Northern Pacific Railroad, both of which were previously determined to be not eligible for listing in the NRHP, and the Mt. Pleasant Cemetery which remained unevaluated for listing in the NRHP. Given this project would use HDD methodology near these cultural resources, the cultural resource report determined these three resources would not be affected by this



action. That said, approximately 38 acres were not covered during the survey due to landowner permission issues. The report results were sent to DAHP and in a letter dated September 25, 2012, they concurred that the cultural resources would not be affected as long as they were avoided, and that a further survey would be needed for the 38 acres.

A supplemental survey was done for 33 of the remaining 38 acres in 2016. The remaining five acres of the project APE are located within the right-of-way of BNSF's Seattle Subdivision rail line and I-5. This area was not surveyed as Northwest Pipeline would install the pipeline at this location via horizontal directional drilling (HDD). Access to the area was also prohibited due to safety concerns. This supplemental survey did not identify any cultural resources and recommended no further work. This determination was sent to DAHP for comment, and in a letter dated October 3, 2016, they concurred with the no effect determination and requested a copy of the Cemetery Impact Plan.

An approximately 0.72-acre proposed temporary work area is on Cemetery District #6 property (near the above mentioned cemetery site). The proposed pipeline trench would be adjacent to an existing buried powerline utility in Hale-Barber and Raven Ridge Roads. Northwest Pipeline has initiated discussions with the local PUD about temporarily removing the powerline during construction of the pipeline and the reinstallation of the powerline once the pipeline is completed. Northwest Pipeline would file with FERC a cemetery impact avoidance, minimization, and mitigation plan, developed in consultation with Cowlitz County Cemetery District #6. This plan would confirm the restoration of access roads and assure the pipeline project collaborates with Cemetery District #6 for expansion plans related to a recently acquired land parcel.

The Branch archeologist reviewed the documentation provided by FERC and found it is sufficient for the Corps permit undertaking. Therefore, the Corps concurs with FERC's determination that this action would have no effect on historic properties with the condition that the Cemetery Impact Plan be in place prior to ground disturbance.

Conclusion: The proposed Lateral Project would have no effect on Historic Properties.

(iii) Kalama Methanol Facility: The construction footprint of the Kalama Methanol Facility is located within the APE evaluated for the Marine Export Facility. See Marine Export Facility discussion.

## 7. Fish and wildlife values:

Threatened and endangered Species are addressed in Section 10.

(i) **Marine Export Facility:** The proposed location of the Marine Export Facility is on the eastern shore of the Columbia River adjacent to the existing North Port dock and includes deep water habitat (deeper than -11.6 feet CRD [20 feet below OHWM]), shallow water habitat (less than -11.6 ft. CRD [20 feet below OHWM]) and sandy riparian shoreline habitat.

**Berth Dredging:** The proposed berth would be located downstream and dredged to the same depth as the existing adjacent North Port berth and would extend at an angle from the edge of the Columbia River navigation channel to the berthing line at the face of the proposed dock. The footprint of the proposed berth is approximately 18 acres, of which approximately 16 acres would require dredging to achieve the berth design depth of -48-ft CRD with a 2-ft over dredge for a maximum depth of -50-ft. The existing water depths in the proposed berth area vary from -50-ft. CRD to -39-ft. CRD. Dredging of the proposed berth would permanently alter aquatic habitat in the Columbia River within the berth footprint. The proposed berth is sited entirely in deep water habitat. Dredging would permanently alter approximately 16 acres of benthic habitat by removing approximately 126,000 cubic yards of material to achieve the design depth. The majority of benthic organisms within the proposed dredge prism would be removed during dredging. No shallow water habitat would be converted to deep water habitat by the dredging of the berth. There is little to no aquatic vegetation at the site or within the vicinity, and aquatic vegetation would not be affected by berth dredging. Dredging is proposed to occur during the in-water work window of August 1 through December 31 to minimize effects to anadromous species. Dredging would result in a temporary, localized increase in turbidity. It is expected that fish would avoid the area during dredging activities.

**Dredged Material Disposal:** Dredged material would be disposed at the Washington Beach Nourishment disposal site or upland sites as described in Section 1. In-water disposal of dredged material would result in localized turbidity and temporarily alter aquatic habitat in the Columbia River. Documented behavioral effects of turbidity on fish include avoidance, disorientation, decreased reaction time, increased or decreased predation and increased or decreased feeding activity. However, the turbidity associated with the Columbia River in-water disposal is expected to be short-term, localized, and temporary; therefore, there would be minimal effects to fish and wildlife. The shoreline modifications resulting from disposal at the Beach Nourishment site would enhance communities and populations of aquatic animals by creating shallow water habitat.

**Dock:** The dock would consist of a single berth to accommodate the ocean going tankers that would transport methanol to destination ports. The marine terminal would include a dock (44,943 square feet and includes mooring dolphins and fenders), a berth, loading equipment, utilities, and a storm water system. The proposed terminal would require the installation of approximately 320, 24-inch concrete piles; 12, 12-inch steel pipe piles; and 4, 18-inch steel pipe piles.

Based on the typical needs for form work and pile templates, it is estimated that approximately 250 temporary pile placements would be installed during construction of the dock. The total number of temporary piles in place at any one time would likely be less as piles would be pulled and moved during the construction process. The exact number of temporary piles would be determined by the contractor. Piles would be installed using a vibratory hammer and are not expected to require impact proofing. If impact proofing is required, a bubble curtain would be employed. The proposed project would be developed in one or two phases. The construction duration would be approximately 26 to 48 months depending on whether it is built in one or two phases.

Construction of the dock would result in permanent effects to aquatic habitat. With the single exception of a portion of the access trestle, the design of the terminal locates the platforms, dolphins, and structures, approximately 34,018 square feet of the total new overwater coverage, in water deeper than - 11.6-ft CRD (20 feet below OHWM). Approximately 10,925 square feet of new overwater coverage associated with the access trestle, would occur in and over shallow water habitat (water shallower than -11.6-ft CRD [20 feet CRD]).

Construction and operation of the marine terminal would result in effects to aquatic habitat. Increased shading over open water habitat could result in changes to primary productivity. Shadowed open water aquatic habitat and piles may provide habitat for predatory fish such as bass and northern pike minnow which prey on other fish such as juvenile salmon. Shadowed aquatic habitat and the terminal structure can interrupt the riparian travel corridor for fish. The Port has minimized effects of shading to shallow water habitat by designing the terminal such that (with the exception of the access trestle) the platforms, dolphins, and structures associated with the terminal would be located in deep water habitat. There is currently no riparian habitat at the proposed dock site, therefore, the access trestle connection to shore would not affect shoreline riparian habitat. The access trestle abutments have been designed and configured to eliminate the need for shoreline armoring along the riverbank. Dock lighting may result in changes to night time fish behavior and may result in increased rates of predation extending the duration of predation by allowing visual predators to forage at night. Predatory birds may be attracted to the dock structure for perching opportunities, and dock lighting may result in changes to predatory bird feeding behaviors.

Approximately 1,079 square feet benthic habitat would be lost due to pile footprints. Approximately 906 square feet of pile associated benthic habitat loss would be located in deep water habitat. Approximately 173 square feet of benthic habitat loss associated with new pile footprints for the access trestle, would occur in shallow water habitat. Concrete piles would be installed with an impact hammer. A bubble curtain would not be used during impact driving of

concrete piles. Steel piles would be driven with a vibratory hammer. If steel piles cannot be driven with a vibratory hammer an impact hammer would be used. In this scenario, a bubble curtain or other method of noise attenuation would be employed to reduce the potential for effects from temporarily elevated underwater noise levels. In addition, the project may require the installation of temporary piles during construction. Temporary piles are typically steel pipe or h-piles and would be driven with a vibratory hammer. These are placed and removed as necessary during the pile driving and over-water construction process. Pile installation is proposed to occur during the in-water work window of August 1 through December 31. Noise effects to fish associated with pile driving are expected to be localized and temporary due to the use of the vibratory hammer for installation of steel piles. Turbidity effects associated with pile driving are expected to be localized and temporary due to the sandy benthic substrate. Benthic organisms within the footprint of individual piles at the time of pile-driving would likely perish. It is expected that fish would avoid the area during pile driving activities.

Vessel Traffic: Vessels would arrive at the terminal from the Pacific Ocean via the Columbia River navigation channel. Based on the typical vessel size and production of the plant, an estimated 3 to 6 ships per month or 36 to 72 ships a year would use the berth for loading of methanol. Please see Section 9.1 Indirect Effects.

Mitigation Construction: The Port proposes to restore approximately 123 square feet of benthic habitat by the removal of approximately 157 piles associated with an existing pile structure located in the adjacent Columbia River backwater area north of the project site. The Port would remove a portion of a row of existing timber piles now located in the freshwater backwater channel portion of the project site on Port property. These piles, in their current configuration, affect the movement of water and sediment into and out of approximately 13 acres of this backwater area. The removal of the piles would facilitate sediment transport and seasonal flushing of this backwater area. The backwater wetland is currently accreting sediment and removal of the piles would both improve water quality and also help to maintain this area as an off-channel refuge for juvenile salmonids in the long term. Pile removals would provide both in-kind mitigation for benthic habitat effects associated with new piling, as well as out-of-kind habitat mitigation in the form of sediment transport and water quality improvement.

The Port also proposes to install 10 ELJs along the shoreline of the Columbia River adjacent to the site. These large wood structures would increase complex in-river habitat with interstitial spaces that would allow juvenile and adult salmonids to evade predation by marine mammals, birds, and fish. The log jams would provide refuge and foraging opportunities for out-migrating juvenile

salmonids. Each ELJ would be a minimum of approximately 400 square feet in size, composed of large-diameter untreated logs, logs with root wads attached, small wood debris, and boulders. The ten structures would represent a total of 4,000 square feet of new large woody material, installed along approximately 1,000 linear feet of Columbia River shoreline and would be installed using small construction equipment operated from land.

The proposed riparian plantings may result in both terrestrial and aquatic habitat improvements by providing a riparian habitat that may serve as a source of insect and invertebrate fauna, leaf litter, detritus, and woody debris to the aquatic system. The riparian enhancements may also provide natural streambank stability, minimizing bank erosion and sedimentation. The establishment of native vegetation may also improve habitat suitability for native birds and other terrestrial species that rely on these riparian habitats.

The proposed wetland buffer plantings and invasive species management may enhance the condition of the wetland buffer. The proposed plantings may replace native vegetation that would be affected as a result of the project, and may help establish a forest canopy where none currently exists.

Conclusion: Construction and operation of the Marine Export Facility would have an adverse but neutral effect on fish and wildlife values as result of mitigative action.

(ii) Lateral Project: The proposed alignment would cross wetland and stream habitats that support the foraging, breeding, and resting activities of a variety of amphibians, reptiles, birds and mammals that commonly occur in the area. Approximately 2 miles of the proposed pipeline alignment runs through previously harvested second growth forest. The Project would also cross developed (0.57 mile), agricultural (0.39 mile), and residential (0.12 mile) lands. The habitat types associated with these lands include second growth deciduous and coniferous forest and agricultural land. The proposed pipeline would be located across two State of Washington priority habitats; the Carrolls Bluff Oaks (oak woodlands) and the Kalama Flats (wetlands). According to the WDFW, Oak Woodlands are distinct ecosystems that provide valuable habitat contributing to wildlife diversity. The Carroll Bluff Oaks (MP 2.1 – 2.4) site contains streams, exposed rock outcroppings, unique plant communities, and supports concentrations of band tailed pigeons. The Kalama Flats (MP 2.4 – 3.1) site supports cavity nesting ducks, small concentrations of swans, ducks, geese, and bandtailed pigeons.

Four state priority wildlife species may occur in the project area, the bald eagle (*Haliaeetus leucocephalus*), eastern wild turkey (*Meleagris gallopavo silvestris*) Canada goose (*Branta Canadensis*), and elk (*Cervus elaphus*). Bald eagles have not been documented within 0.5 mile of the proposed project

footprint. Wild turkeys, Canadian geese, and elk have high recreational value both for consumptive and non-consumptive purposes.

Construction and operation of the Lateral Project would temporarily and permanently affect wildlife and wildlife habitat. Project related activities include clearing and trenching. The use of construction equipment would temporarily decrease and permanently alter available wildlife habitat, change the characteristics of adjacent wildlife habitat, displace wildlife, alter wildlife behavior; and could increase the rates of mortality, injury and stress experienced by wildlife. Construction and maintenance of a permanent right of way would fragment forested habitat and would create "edge effects" which could further affect the mortality, injury, and stress experienced by wildlife. Wildlife found in the Lateral Project study area are relatively mobile species and would most likely avoid the project area during construction. Construction activities would be temporary and conducted during the summer after breeding/nesting seasons, therefore, effects to wildlife from construction would be minimal.

As described in the Wetlands section above, the construction of the Lateral project would have temporary effects on wetland and stream habitats. Use of HDD to install the pipeline from approximately mile point 2.5 to 2.98 would minimize effects to aquatic and wetland habitat. One stream, S2-A3, is classified by Washington as a "Type F" stream and would be considered potentially fish bearing also for construction planning and BMP utilization. Streams not proposed to be crossed by HDD are expected to be dry at the time of construction and work would occur outside of the WDFW-recommended in-water work windows for the Kalama River tributaries (August 1 to August 15) and Columbia River tributaries within the Project area (August 1 to March 31). If water is present in these streams, they would be crossed using dry open cut crossing procedures (flume or dam and pump). Northwest Pipeline would use dry open-cut crossing methods to cross the five intermittent streams, if water is present at the time of construction. None of these streams support fish life; therefore, no fish handling would be required.

In the unlikely event of HDD failure, Northwest Pipeline has indicated that it would abandon the original drilling effort and re-attempt the HDD in a slightly different position. In the event that the HDD cannot be completed, Northwest Pipeline indicated that it would cross waterbodies S-2A6 and S-2A7 using a dry crossing technique during the appropriate WDFW in-water work windows, using a flume, dam and pump method or a conventional bore method. In this situation, the Northwest Pipeline would be required to notify and coordinate with all applicable agencies prior to performing the work.

Conclusion: Construction and operation of the Lateral Project would have an adverse but neutral effect on fish and wildlife values as result of mitigative action.

(iii) Kalama Methanol Facility: The upland portion of the site of the Marine Export Facility Site was previously utilized from approximately 1979-2008 as a dredged material upland disposal site for the Corp's deepening and maintenance dredging of the Columbia River Federal Navigation Channel. The majority of the proposed 100-acre site is undeveloped. The site is surrounded by a chain link fence, preventing use of the site by large wildlife but smaller wildlife may utilize the site. The dredged material is actively managed to deter use by wildlife such as the Streaked Horned Lark. Construction of the methanol facility would permanently remove this site as habitat for wildlife, including the Streaked Horned Lark. However, through negotiations with the Cowlitz County Hearing Examiner for the Shoreline Substantial Development Permits, the Port proposed to mitigate impacts to aquatic resources by maintaining and restricting future development on 95 acres north of the project site. This area provides wildlife access to the Columbia River and provides riparian and wetland habitat for wildlife including the federally ESA listed Columbia River white tail deer.

Conclusion: Construction and operation of the Kalama Methanol Facility would have an adverse but neutral effect on fish and wildlife values as a result of mitigative action.

#### 8. Flood hazards:

(i) Marine Export Terminal: The proposed Marine Export Terminal does not contain a flood impoundment structure. Conclusion: The Marine Terminal would have no effect on flood hazards.

(ii) Lateral Project: The proposed Lateral Project does not contain a flood impoundment structure. Conclusion: The Lateral Project would have no effect on flood hazards.

(iii) Kalama Methanol Facility: The proposed Kalama Methanol Facility does not contain a flood impoundment structure. Conclusion: The Kalama Methanol Facility would have no effect on flood hazards.

#### 9. Floodplain values:

(i) Marine Export Terminal: The majority of the Marine Export Terminal site is not located within the regulated FEMA 100-year floodplain. The project site boundary extends into the Columbia River for the dock, this portion of the Marine Export Terminal site is within the 100-year floodplain along with a narrow strip along the Columbia River shoreline and along the north tip of the site. The construction of the dock and proposed riparian plantings would result in a minor reduction in flood storage within the floodplain. Conclusion: The Marine Terminal would have a negligible effect on floodplain values.

(ii) Lateral Project: The pipeline would pass through approximately 0.5 mile of the Columbia River 100-year floodplain, Zone A, between MPs 2.4 to 2.9. Since the pipeline would be placed underground, construction of the Lateral project would result in a negligible reduction in flood storage in the floodplain. Conclusion: The Lateral Project would have a negligible effect on floodplain values.

(iii) Kalama Methanol Facility: The majority of the Kalama Methanol Facility is located outside of the FEMA 100-year floodplain. A small portion of the Kalama Methanol Facility, that is adjacent to the Columbia River shoreline, would be located within the 100-year floodplain. The narrow strip of land along the northern portion of the project site would include sections of the existing access road to the recreation area, infiltration pond, pump house, and well facility. NWIW would obtain a county Floodplain Permit and adhere to applicable codes and federal guidance, including Cowlitz County Code 16.25, Floodplain Management. Construction of these facilities would result in a reduction in flood storage; however, the Kalama Methanol Facility is not expected to measurably affect the elevation of floodwater during construction or operation due to the large size of the floodplain at this location and the volume of fill within the 100-year floodplain (Cowlitz County 2015). Conclusion: The Kalama Methanol Facility would have a negligible effect on floodplain values.

#### 10. Land use:

(i) Marine Export Terminal: Cowlitz County's current comprehensive plan designates the majority of the project site as Heavy Industrial. A small area in the northwest portion of the project site is designated as "Forestry – Open Space". Appropriate uses in the Heavy Industrial designation are identified as "heavy industrial uses, for example lumber and plywood mills, metal manufacturing, sand and gravel operations, foundry or iron works, quarries". Appropriate uses in the Forestry – Open Space classification are identified as timber management, agriculture, residential and outdoor recreation complimentary to other encouraged uses. The County Shorelines Management Master Program (SMMP) designates the shoreline environment at the project site as Urban and Conservancy. The SMMP states that the urban designation is suitable for intensive recreation, residential, industrial, and commercial development.

Conclusion: The Marine Export Terminal would have a negligible effect on land use designations set by Cowlitz County. The Port applied for and received Cowlitz County and Washington Department of Ecology Shoreline Substantial Development and Conditional Use Permits. These permits were initially invalidated by the Shorelines Hearing Board, but the invalidation was reversed by the Superior Court. Following completion of the SEPA EIS, these permits would



be reviewed by Cowlitz County and/or Washington Department of Ecology to determine if the permits need to be modified, conditioned, or denied.

(ii) Lateral Project: The Lateral Project is subject to several local land use plans and ordinances including the Cowlitz County Comprehensive Plan, the Cowlitz County Code, and the Cowlitz County Critical Areas Ordinance. The Comprehensive Plan's Community Facilities Element includes goals and policies related to the planning and development of major utility lines. Chapter 16.10 of the Cowlitz County Code addresses construction of gas and oil pipelines. The code requires utility companies to obtain a general permit from the Board of County Commissioners and separate permits for each anticipated road crossing. The ordinance requires that proposed pipeline projects be reviewed for compliance with the policies in the Comprehensive Plan. Northwest Pipeline has applied for/received necessary County permits and authorizations (Critical Areas Ordinance, Pipeline Ordinance, Grading Ordinance, and County Road Crossing Permits). Conclusion: The Lateral Project would have a negligible effect on land use.

(iii) Kalama Methanol Facility: The Kalama Methanol Facility site is located in an industrial use area at the Port of Kalama. The site is currently unzoned and undeveloped, but the methanol facility would be compatible and consistent with nearby land uses. NWIW's development of the site is not expected to create compatibility effects or change the existing land use of adjacent properties or recreational uses. Conclusion: The Kalama Methanol Facility would have a negligible effect on land use.

#### 11. Navigation:

(i) Marine Export Facility: The proposed dock would extend from the shoreline into the Columbia River. The proposed berth would extend at an angle from the edge of the Columbia River navigation channel to the berthing line at the face of the proposed dock and would be located approximately 650 feet from the edge of the navigation channel. The proposed location of the dock is such that any vessel using the facility would not interfere with use of the navigation channel or anchorages by blocking or otherwise preventing access. The anticipated production and loading schedule for the Marine Export Facility indicates that only a single methanol vessel serving the facility is anticipated to be present in the river at any given time.

During the initial berth dredging there would be construction vessel traffic localized along the Federal Navigation Channel from the proposed berth site to the Washington Beach Nourishment Site and the South Port upland disposal site.

The Port would likely need to conduct maintenance dredging to maintain the authorized depth. It is estimated that an average of 27,000 cubic yards of

sediment could be dredged yearly. Maintenance dredging would likely be required to maintain the berth to the permitted depth and would be authorized separately. Location of in-water dredged material disposal sites and the volume of material placed at the dredged material site is coordinated with the Corps Portland District Waterways Management Section to ensure that placement of dredged material would not have an adverse effect on the Federal Navigation Channel, see Section 10.8.

Construction of the Kalama Methanol Facility would also result in increased ship traffic around the project site. It is expected that some of the components of the Kalama Methanol Facility (e.g., boilers, water, treatment, substation, and motor control centers) would be assembled offsite and transported to the project site via barge. These components may be offloaded from the existing North Port dock, directly from barges using a temporary crane, or would be offloaded across temporary false work for the new dock trestle. A temporary concrete crane pad would be constructed on an upland portion of the site for offloading materials/equipment from barges. Once offloaded, the equipment/modules would be moved into place and erected on the site. The temporary concrete pad would be demolished and removed prior to project completion.

Components would be delivered to the site in self-anchoring barges, which would anchor offshore using spuds or similar temporary anchors. Barges would anchor offshore, and would not ground out on the beach. Barges would typically only be anchored in place for approximately 1-2 days, as material is being unloaded. The proposed berth and construction barge anchoring areas are located outside the Federal Navigation Channel.

An analysis of the project and its effect on river flow and sediment movement was conducted by the Port in 2015 and indicated that the proposed dock and berth would not affect sedimentation rates or dredging needs of the federal navigation channel. A Section 408 review was conducted by the Corps' Portland District Waterways Maintenance Section. There are no concerns with the proposed terminal related to potential adverse effects on sediment deposition and maintenance dredging requirements in the Federal Navigation Channel. To ensure the public safety of the boating public, the U.S. Coast Guard Waterway Management Branch would require that a Private Aid to Navigation (PATON) be installed to mark this facility. The Port has not yet applied for a US Coast Guard (USCG) permit to install approved aids to navigation on the structure. The Port would apply for this permit consistent with the USCG guidance at least 30 days prior to installation. The lights installed would be consistent with 33 CFR Part 62. It is anticipated that each of the 4 dolphins and the 2 outside corners of the dock would be marked with yellow lights with a slow flashing rhythm. The USCG may

require more or less markings and may require yellow “dayboard” markers for visibility during daylight hours.

Operation of the proposed terminal would have minor permanent effects to navigation. The new terminal would service 36-72 vessels per year, vessel types ranging from Suezmax to Handymax. Vessels from the Pacific Ocean would travel up the Columbia River to the terminal and repeat this course in the opposite direction when leaving the terminal. Vessel traffic on the Columbia River is regulated by the U.S. Coast Guard. In general the annual volume of ship traffic on the Columbia River fluctuates. According to vessel entry and transit data, the Columbia River accommodated approximately 1,581 cargo and passenger vessels, tank ships, and articulated tug barge transits in 2014. (Cowlitz County 2015) The increase in ship traffic resulting from operation on the terminal is minor. During facility operation, ships utilizing the Marine Export Facility may occupy nearby anchorage areas.

The collector well lateral lines would not extend underneath or near the Federal Navigation Channel. The lateral lines would extend a maximum of approximately 50 feet waterward of the OHWM and at depths of approximately 100 feet below ground level, well below the depth of the navigation channel and river floor. The lateral lines would not extend as far as the face of the dock, which itself is located approximately 650 feet from the edge of the Federal Navigation Channel. In summary, the lateral lines would not interfere with maintenance dredging of the Federal Navigation Channel.

Conclusion: Construction of the proposed Marine Export Facility, including dredging, dredge disposal, and pile driving activities, and the Kalama Methanol Facility would have a temporary adverse effect to navigation during construction. The Marine Export Facility would result in a new structure and an increase in ship traffic, but would not adversely affect navigation in the Columbia River because the dock and berth are located outside of the federal navigation channel and the proposed number of vessels calling on the facility would be a small increase in the total number of vessels transiting the Lower Columbia. The collector well lateral lines would have no effect to navigation.

(ii) Lateral Project: The proposed Lateral Project is not located in navigable waters. Conclusion: The Lateral Project would have no effect on Navigation.

(iii) Kalama Methanol Facility: The Kalama Methanol Facility is included in the Marine Export Terminal discussion above.

12. Shoreline erosion and accretion:

(i) Marine Export Terminal: The shore of the Columbia River is unarmored at the site of the proposed Marine Export Terminal. The proposed design does not propose armoring the shoreline. Dredging of the new berth and construction of the dock may result in slightly increased water velocities within certain portions of the nearshore environment. However, these changes in velocity would be small, and would not affect the stability of sediment in the nearshore environment because of the relatively large size of sediment particles at the site. Operation of the new berth would result in changes to erosion and accretion within the berth. Prop-wash from the main propeller of ships utilizing the berth could affect deep-water portions of the berth basin but not the slope beneath the dock. Use of bow thrusters when pushing vessels away from the berth could result in increased scour in the lower portion of the berth slope, but would be a negligible effect at water depths of -18 feet CRD and above. In general, the proposed dock and berth would not result in changes in wave energy affecting the streambank slopes. Wave hydrodynamics would not affect sediment deposition around the dock and berth site.

As discussed in Section 5.2 Water circulation, fluctuation and salinity, 60,000 CY of dredged material placed at the beach nourishment site would migrate onto the adjacent shoreline by wave action and currents. This process would beneficially contribute to the creation and stabilization of the adjacent shoreline. Conclusion: The proposed dock and berth would have a negligible effect on shore erosion and accretion; however, the in-water placement of dredged material at the beach nourishment site would have a beneficial effect on shore erosion and accretion.

(ii) Lateral Project: Construction of the 3.1-mile, 24-inch diameter welded steel natural gas pipeline would cross five wetlands, 5 streams, and 3 ditches for a total of approximately 868 linear ft., using HDD and open trench methods. The HDD crossings would have no effect on erosion and accretion on ditches or wetland.

The proposed pipeline would be installed using an open trench method through one wetland, one ditch, and 5 streams. Constructing the pipeline would generally require the excavation of a trench with the exception of short stretches under streams and roads or areas crossed by HDD. The pipeline would be installed at a depth of 6-8-ft under the streams and ditches. These streams and ditches are small scale with little contributing basin area for flow; therefore, erosion and head cutting resulting from stream flows would be unlikely. Northwest Pipeline has committed to completing final cleanup of an area within 20 days after backfilling the trench (10 days in residential areas). Subsurface erosion, also known as "soil piping", in the backfilled trench would be controlled with trench breakers installed in accordance with Northwest's ECRP. Trench

breakers would be designed to slow, but not completely stop subsurface water flow in such a way that drainage in the backfilled trench simulates native natural drainage. Where necessary, additional drainage enhancements would be installed to further improve seepage characteristics within the trench. Final cleanup includes final grading and installation of permanent erosion control devices in accordance with landowner requests, or as required by Northwest Pipeline's ECRP. Temporary erosion control devices would be installed as necessary after initial disturbance of wetlands or adjacent upland areas to prevent sediment flow into wetlands in accordance with Northwest's ECRP. These devices would be maintained until revegetation of wetlands are complete. Conclusion: Construction of the Lateral Project would have an adverse but neutral effect as a result of mitigative action.

(iii) Kalama Methanol Facility: The Kalama Methanol Facility would be elevated above the Columbia River. The sandy dredged fill and alluvial soils exposed along the riverbank near the facility may be subject to erosion from waves, wakes, and flooding, but no indications of severe erosion hazards have been identified along the river at the facility site and the sandy soils are considered to be less prone to erosion than silt or clay soils. As required by the Washington State Department of Ecology, NWIW would decrease erosion concerns by developing a project specific construction storm water pollution prevention plan, including best management practices, to be implemented during construction. During operation, surface water runoff from the impervious surfaces would be minimized by the implementation of the Kalama Methanol Facility's storm water management systems. (Cowlitz County 2015) Conclusion: Construction and operation of the Kalama Methanol Facility would have a negligible effect on shore erosion and accretion.

### 13. Recreation:

(i) Marine Export Facility: An informal shoreline recreation area, currently accessible to the public, is adjacent to the northern boundary of the proposed project site. This area is managed by the Port, and includes informal trails and water access but no built recreation facilities. (Cowlitz County 2015) The informal recreation area is accessed by passing through and along a road on the northern boundary of the project site. In conjunction with the construction of the Marine Export Facility and Kalama Methanol Facility, the Port would improve the access road and construct a new parking area. Users of this informal recreation area north of the project site would experience some change in user experience because of the increased activity and industrial facilities associated with the Kalama Methanol Facility (e.g., the infiltration pond and wastewater treatment area), but the area would continue to be available for use by the surrounding community with increased accessibility from the improved roadway and new parking area. The road improvements and parking lot construction would occur

in uplands and are not within Corps jurisdiction. However, mitigation for wetland buffer effects from parking lot construction is incorporated into the proposed Marine Export Facility project.

The length of the Columbia River along the proposed Marine Export Facility site is used for recreational boating and fishing. The construction and operation of the Marine Export Facility would not affect the continued use of the Columbia River for recreational purposes. At completion, the proposed project would result in the introduction of approximately 3 to 6 vessels per month (36 to 72 per year) to the Columbia River. This increase would be relatively small compared to the typical historic levels for river traffic. According to vessel entry and transit data, the river accommodated approximately 1,581 cargo and passenger vessels, tank ships, and articulated tug barge transits in 2014. (Cowlitz County 2015) When not in use for loading methanol, the proposed berth would be made available for general use by the Port for other cargo loading and unloading, for vessel supply operations, as a lay berth, for short- and long-term vessel moorage, and for topside vessel maintenance. This general use by the Port would result in minor additional vessel traffic to the berth, but this traffic would still be within the typical historic levels for river traffic. Furthermore, in most cases it is expected that these would be vessels that would already be transiting the Columbia River for other reasons. Recreational users already co-exist with and take account of commercial vessels within the river, including large oceangoing ships. These recreational users would similarly take account of the relatively small increase in river traffic resulting from the proposed action. (Cowlitz County 2015)

The Port proposes placement of up to 60,000 CY of dredged material at the beach nourishment site which is immediately offshore of the Louis Rasmussen Park. The active placement of dredged material at the site by barge, would affect recreational users at the park, beach, and the river along the beach. The visual presence of a tug and barge close to the shoreline and engine noise from the tug would be disruptive to recreational users at the park and beach during placement. The eventual migration of the dredged material onto the beach would have a long term beneficial effect on recreation at the park and beach. Conclusion: Construction and operation of the Marine Export Facility and the Kalama Methanol Facility would have a temporary short term adverse effect and a long term beneficial effect on recreation.

(ii) Lateral Project: The Lateral Project proposed route does not cross areas that are currently utilized for public recreation. The pipeline would be buried which would likely have no effect on future recreational opportunities along the Lateral Project route. Conclusion: Construction and operation of the lateral project would have a negligible effect on recreation.

(iii) Kalama Methanol Facility: The Kalama Methanol Facility is included in the Marine Export Facility discussion above. NWIW would maintain public access to the recreation area.

14. Water supply and conservation:

(i) Marine Export Facility: A collector well would be constructed by the Port. The lateral lines would extend into the underlying alluvial aquifer associated with the Columbia and Kalama rivers. (Cowlitz County 2015) Groundwater in the aquifer is hydrologically connected directly to the Columbia River and does not show measureable lag time in response to changing river levels. (Cowlitz County 2015) The recharge in this aquifer is rapid as it depends on precipitation and the connection to the river. Water withdrawn from the collector well would primarily be used by the Kalama Methanol Facility. See the Kalama Methanol Facility below for additional discussion regarding the withdrawal of water from the collector well and the use of the water. The Marine Export Facility would have minimal consumptive water use for operation and maintenance of the dock facilities, and maintenance of ships utilizing the berth as a lay berth; therefore, would have a negligible effect on municipal water supplies and water intakes. Conclusion: The Marine Export Facility would have a negligible effect on water supply and conservation.

(ii) Lateral Project: No known groundwater supply springs or seeps occur within 150 feet of the proposed Lateral Project, nor have they been identified through Northwest Pipeline's field investigations in areas where survey permission has been granted. No known public water supply wells are located within 400 feet of the Project. There are two known wells, and one possible well, located in the vicinity of the Project. In the event that a private well or water supply system was damaged beyond repair due to construction-related activities, Northwest Pipeline would provide a temporary water source and replace the lost water either through connection to a potable water system or by drilling a new well. (FERC 2015) All such activities would be coordinated with the individual landowner. Construction and operation of the Lateral Project would have minimal consumptive water use; therefore, would have a negligible effect on municipal water supplies and water intakes. Conclusion: The Lateral Project would have negligible effect on water supply and conservation.

(iii) Kalama Methanol Facility: The Kalama Methanol Facility would utilize industrial and domestic water during operations. Industrial water would be needed for the methanol creation process and the onsite cooling towers. NWIW's methanol process would utilize approximately 4.4 million gallons per day (3,038 gallons per minute (gpm)) of process water. The raw water would be accessed from a new groundwater well. (Cowlitz County 2016) NWIW would purchase approximately 5,600 gallons per day of potable water from the City of

Kalama for domestic uses in restrooms, washbasins, and breakrooms. The domestic water would be routed to the Port’s water treatment facility after usage. The industrial water would be needed for the methanol creation process and the onsite cooling, and would be obtained by collector wells.

The new collector well would draw up to approximately 3,440 gpm that would be treated onsite and used as process water. Operation of the new water well is not expected to result in aquifer drawdown or affect the ability of other users (e.g., private landowners and the City) to draw water from permitted wells in the alluvial aquifer. Aquifer testing determined that a pumping rate of up to 6,600 gallons/minute would have no discernible drawdown (i.e., less than 0.1 foot within 3,400 feet of the well). (Cowlitz County 2016) The well would have a negligible effect on the City of Kalama water supply, which is located over a mile away and is connected directly next to the Kalama River. Similarly, there are no other private landowner wells within 3,400 feet of the proposed Port well. There are no critical aquifer recharge areas (CARAs) present within the project site. (Cowlitz County 2015)

The Port has obtained three water rights from the Washington State Department of Ecology to use groundwater at the rates and quantities listed below. Of the Port’s permitted 15 million gallons of industrial water per day, NWIW plans to utilize approximately 1/3 of the Port’s total water rights for the methanol production process. The table below summarizes these water rights. No domestic uses are anticipated for water from the new well for this project. However, the groundwater use permits allow for the possibility of the Port to serve domestic uses. This is not currently planned and would require additional infrastructure that is not currently included in the project.

Table 22. Water Rights Overview

<b>Permit Number</b>	<b>Max Flow Rate (gpm)</b>	<b>Max Annual Use (acre-feet)</b>	<b>Allowable Uses</b>
G2-30035	350	565	Industrial, Commercial, Domestic
G2-30036	3,500	5,600	Industrial, Commercial
G2-30283 <i>(well associated with this water right is currently unconstructed)</i>	6,600	10,640	Industrial, Manufacturing, Commercial, Irrigation, Power Generation, Highway/Fire Protection
<i>Totals</i>	<i>10,450</i>	<i>16,805</i>	



The majority of the water used on site would be sent to the cooling towers, which are designed for recycling water through eight cycles. The cooling towers are designed for an approximate discharge rate of 404 gpm to the firewater pond where it is cooled through a heat exchanger with incoming raw water and recycled through the system (described below). NWIW would rely on a Zero Liquid Discharge (ZLD) system for reuse of all methanol process wastewater. The ZLD system decreases the amount of water needed for the methanol process and eliminates the need for wastewater to be discharged to the Columbia River. However, the ZLD system produces a byproduct of approximately 10 tons of dry salt cake per day. The salt cake consist of magnesium, sodium sulfate, and sodium magnesium chloride which are considered non-hazardous. NWIW plans to dispose of it at a landfill. (Cowlitz County 2016) Approximately 2,831 gpm would be lost to the atmosphere at the cooling towers through evaporation. The remaining water would be either reused in the production process (170 gpm) or consumed in chemical reactions (<100 gpm) in the reforming process.

Conclusion: The overall water usage of the plant is not anticipated to adversely affect the availability of industrial or domestic water supplies. With use of the ZLD system, no industrial wastewater would be discharged to the Columbia River. The overall water usage of the plant is not anticipated to adversely affect groundwater or the availability of industrial or domestic water supplies.

#### 15. Water quality:

(i) Marine Export Terminal: A 401 water quality certification has been issued, see Section 10.5. Construction and operation of the Marine Terminal would result in a minor temporary effects to turbidity and water circulation during dredging /disposal operations and pile driving. These effects would be localized to the area around the work site and at the in-water disposal sites during disposal operations. See Section 6.

There are no new or expanded water outfalls proposed with construction of the Marine Export Facility. Stormwater from the dock would be collected and conveyed to upland treatment and infiltration swale. The stormwater system would also accommodate stormwater from the existing North Port Dock which is currently infiltrated in an upland swale that would be removed for the development. The WDOE regulates outfalls to the Columbia River under the National Pollutant Discharge Elimination System Program (NPDES) to ensure the discharge would not degrade water quality. Water pumped from the collector well would be directed to the process water system designed for the Methanol

Plant. Some pump flush water would be discharged to an infiltration pond just north of the proposed collector well building.

Water discharges from vessels utilizing the berth may reduce water quality. Vessel cooling system and ballast water discharge is primarily regulated by the USEPA under the NPDES Vessel General Permit (VGP) program. The VGP is required to ensure water quality is not degraded due to commercial vessel traffic in waters of the United States. The program is administered through the EPA to ensure that operation of the vessel is compliant with Section 402 of the Clean Water Act. The proposed berth would also be used as a lay berth for vessels calling on the Port. Maintenance and repair activities expected to occur on the dock when used as a lay berth that are potential sources of pollutants to the river include pressure washing; sanding; painting; electrical work; mechanical work; metal work; short-term material storage (paints, lubricants, solvents, zinc anodes, etc.); heavy-equipment operations; and other industrial activities. Potential pollutants may include petroleum products, metals, debris, and other substances through surface runoff and direct deposition.

Dredged material placed in the upland sites would be dewatered in the upland site using either settling ponds or overland flow. Settling ponds would be sized based on the settling characteristics of the dredged material and the rate of dredging. Water from the sediments would be either infiltrated to the ground or would be discharged to the river through weirs already constructed at the disposal sites. Discharge water would be sampled to show it meets state water quality turbidity standards prior to being discharged.

Conclusion: The construction and operation of the Marine Export Terminal would have temporary, short-term adverse effect on water quality.

(ii) Lateral Project: A 401 water quality certification has been issued, see Section 10.5. Construction of the Lateral Project would result in minor temporary effects to turbidity and water circulation during excavation and backfill of the trench. These effects would be localized to the area around the work site. See Section 6.

Use of a HDD could result in an inadvertent release of drilling fluids (bentonite and other inert/non-toxic additives), commonly referred to as a “frac-out”. A frac-out into a waterbody could temporarily affect water quality (turbidity and sedimentation). Additionally, an inadvertent release of construction related fuel and/or fluids could also affect water quality. However, effects to water quality are not anticipated. The likelihood of a frac-out is greatest within 100 feet of the HDD entry point and 300 feet of the exit point. All wetlands and waterbodies are located well outside these areas. In addition, HDD would be performed during the WDFW in-stream construction windows (even though no in-stream disturbance is proposed), further decreasing potential effects (e.g.,

turbidity and sedimentation) in the event that a frac-out did occur; and stream flows during HDD installation would be expected to be low based on seasonal patterns, further reducing potential effects and mobilization of drilling mud and/or turbidity plumes if a frac-out did occur. Northwest Pipeline has completed an HDD feasibility study which indicated that the HDD could be accomplished successfully. In the event of a frac-out, Northwest Pipeline would implement numerous measures as described in its ECRP, project-specific Drilling Fluid Contingency Plan for Horizontal Directional Drilling Operations, Spill Plan, Unanticipated Discovery of Contamination Plan, and Water Quality Monitoring Plan. FERC has reviewed these plans and determined that they are appropriate for minimizing effects.

Once the pipeline is installed, the entire pipeline would be hydrostatically tested in sections to ensure that the system is free from leaks and would provide the required margin of safety at operating pressures. The water for testing would be obtained from a municipal source. These discharges would be assessed for parameters such as flow, total petroleum hydrocarbons, chlorine, pH, oily sheen, and diesel range hydrocarbons in accordance with Northwest Pipeline's Water Quality Monitoring Plan, as applicable. After testing, the test water would be discharged to temporary extra workspace adjacent to the construction ROW. The hydrostatic test water discharge would occur at the surface for infiltration in an upland area and would occur through an appropriately sized discharge structure as described in Northwest Pipeline's ECRP.

Operation of the lateral project would not have an adverse effect on water quality. The applicant would not use herbicides within 100 feet of a waterbody. All herbicides used on the permanent easement would be applied in accordance with federal, state, and local regulations and landowner approval.

Conclusion: The construction of the Lateral Project would have temporary, short term adverse effect on water quality. Operation of the lateral project would not have an adverse effect on water quality.

(iii) Kalama Methanol Facility: As described in the Water Supply and Conservation discussion above, NWIW has implemented the ZLD system into the methanol plant design, no industrial wastewater would be discharged into the Columbia River. The industrial wastewater stream would be directed to an evaporator and crystallizer that would process the water for reuse on site. Wastewater would be evaporated to separate out solids and a high-quality distillate water suitable for reuse in the facility. Solids in the wastewater would be crystallized into a salt cake that would be disposed as solid waste in licensed off-site landfills. The raw water demand would be reduced based on the reuse of distillate. Since no water would be discharged to the Columbia River, the Kalama Methanol Facility would not affect water temperature in the Columbia River.

Since construction and operation of the Kalama Methanol Facility would temporarily and permanently install impervious surfaces on the project site, NWIW would utilize a stormwater management system. NWIW plans to implement a construction stormwater pollution prevention plan and best management practices during construction and obtain a National Pollutant Discharge Elimination System (NPDES) General Stormwater Discharge Permit for operations. Stormwater would not be directly discharged to the Columbia River; it would be managed by a collection system, treated, transferred to an onsite infiltration pond, and disposal system (Cowlitz County 2016).

Conclusion: The Kalama Methanol Facility would have a negligible effect on water quality.

#### 16. Energy needs:

(i) Marine Export Terminal: The proposed Marine Export Terminal would be used to export methanol manufactured by the Kalama Methanol Facility. The Marine Export Terminal would not increase the production, transmission, or conservation of energy. The construction and operation of the Marine Export Terminal may increase energy consumption in the area, particularly electricity and petroleum products. The project site is located in an industrial area and would connect to existing electrical infrastructure and receive electricity from the local utility district. Conclusion: The Marine Export Terminal would have a negligible effect on energy needs.

(ii) Lateral Project: The proposed Lateral Project pipeline would increase the transmission of energy by constructing a new natural gas distribution pipeline. The natural gas pipeline is subject to approval by the FERC (which FERC has approved), which regulates the transmission and sale of natural gas for resale in interstate commerce. The construction and operation of the Lateral Project may increase energy consumption in the area, particularly electricity and petroleum products. The Lateral Project would transmit 320,000 Dth/d of natural gas to the Kalama Methanol Facility for use in the manufacture of methanol. Conclusion: The Lateral Project would have a beneficial effect on the transmission of energy by supplying the Methanol Facility with natural gas.

(iii) Kalama Methanol Facility: The methanol plant would meet its electric power demands using a combination of grid electric power and on-site power generation. The Cowlitz Public Utility District would upgrade a powerline on existing poles between the Kalama Industrial Substation to the methanol plant, and install a new 115-kV transmission line on new poles between the substation and the existing transmission line. The substation would receive redundant supply with the new transmission line and new equipment, such as a 115-kV breakers and switches, within the existing footprint of the station. In addition to

the grid power, a new on-site 125-megawatt power generation facility would be constructed and consist of two natural gas-fired combustion turbines and one steam turbine. With the modifications to the substation and powerlines and the addition of the new power generation facility, the energy needs for the methanol plant would be met without significant adverse effects to the existing electricity demand. Conclusion: The Kalama Methanol Facility would have a negligible effect on energy needs.

17. Safety:

(i) Marine Export Facility: Construction and operation of the Marine Export Facility would be subject to Federal, state and local safety laws and regulations. Construction of the Marine Export Facility would have effects similar to that of any large construction project and could include impacts to individual workers at the construction site and to the surrounding population. Risks that could result in a negative effect to on-site workers include, but are not limited to: vehicle accidents; trips, slips, fall; drowning (overwater and nearshore construction); blunt trauma; overhead hazards that have potential to fall; and exposures to spills.

Operation of the Marine Export Facility, including the handling of methanol, may have effects to human safety. Methanol is a clear, colorless, water-soluble liquid. It is flammable and considered a hazardous substance under the Emergency Planning and Community Right-to-Know Act (40 CFR 302.4). Methanol would be stored in unpressurized tanks at the Kalama Methanol Facility site and would be transported to the dock, via pipeline, for loading onto ships. During operation of the Marine Export Facility, there is risk of a methanol spill during loading of methanol onto export vessels. In the event of a spill, humans can be exposed to methanol via ingestion and skin and/or eye contact. Chronic exposure to methanol, either orally or by inhalation, causes headaches, insomnia, gastrointestinal problems, and blindness. A spill plan would be put in place before operation of the plant. (Cowlitz County 2016)

The Port would install a PATON at the Marine Export Terminal per USCG navigation safety requirements to ensure safe navigation at the berth. Methanol is classified as a hazardous material per 49 CFR Part 172; however, a waterways suitability determination from the USCG is not required.

Conclusion: There is a risk of adverse effects from construction and Operation of the Marine Export Facility; however, the effect is neutral effect as a result of mitigative action.

(ii) Lateral Project: Construction and operation of the Lateral Project would be subject to Federal, state and local safety laws and regulations. Construction of the Lateral Project would have effects similar to that of any large construction

project and includes effects to individual workers at the construction site and to the surrounding population. Risks that could result in a negative effect to on-site workers include, but are not limited to: vehicle accidents; trips, slips, fall; blunt trauma; overhead hazards that have potential to fall; and exposures to spills.

Operation of the lateral pipeline would have a slight increase in risk to public safety due to the potential for accidental release of natural gas and resulting fire or explosion. (FERC 2015) Natural gas is not considered to be chemically toxic but an asphyxiate with an inhalation hazard; exposure to high concentrations can result in serious injury or death. Mixtures of natural gas in air in unconfined conditions are generally diluted and do not typically present an asphyxiate hazard. Natural gas is a flammable and explosive material.

The Lateral Project would be designed, constructed, operated, and maintained in accordance with U.S. Department of Transportation (DOT) regulations in 49 CFR Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards;" Federal Energy Regulatory Commission (FERC) regulations in 18 CFR Part 380.15, "Guidelines to be Followed by Natural Gas Pipeline Companies in the Planning, Clearing, and Maintenance of Rights-of-Way and the Construction of Aboveground Facilities;" and other applicable federal, state, and local regulations. As the lead Federal Agency, FERC has reviewed the proposed project and has determined that the Northwest Pipeline has taken measures to address risks to public safety per regulations set by the DOT's Pipeline and Hazardous Materials Safety Administration.

FERC has also determined that the closest mapped seismic fault, the Portland Hills Fault, is located approximately 23 miles south-southwest of the lateral pipeline. FERC has determined that "given the low to moderate hazard for earthquake wave propagation in the proposed project area and modern, buried, welded steel pipeline standards and safety requirements, the potential effects from earthquakes and faults would be minimal". Northwest Pipeline's implementation of Federal regulations for design and operation of the pipeline minimizes the risk of injury/fatality, but does not eliminate them.

Conclusion: There is a risk of adverse effects from the lateral project; however, the effect is neutral effect as a result of mitigative action.

(iii) Kalama Methanol Facility: As discussed in the Marine Export Facility section, spills of hazardous substances could occur during construction of the Kalama Methanol Facility. Construction personnel would follow all required state and federal safety guidelines to ensure personnel and public safety and would implement a spill prevention, control, and countermeasures plan and Best Management Practices for standard procedures on handling accidental spills and releases of toxic substances. (Cowlitz County 2016)

During operations of the Kalama Methanol Facility, a catastrophic tank failure or other worst-case incident could result in a pool fire, jet fire, or vapor cloud explosion. However, modeling of the worst-case scenario indicated that the destructive force of an explosion at the proposed methanol facility would not extend beyond the facility site. (Cowlitz County 2016) 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. The methanol facility is designed and would be constructed with comprehensive safeguards to prevent accidental spills, releases and leaks; detect releases; and contain and minimize the effects of spills and releases in accordance with the DOT Minimum Federal Safety Standards in 49 CFR 192. (Cowlitz County 2016) The design of the methanol facility includes secondary containment berms around the storage tanks to capture 110% of the tank contents plus precipitation from a 24-hour, 100-year storm event. Full emergency response capabilities would be available at the site, including an emergency alarm system and a comprehensive gas detection and fire suppression system. The facility would be required to prepare and maintain the SPCCP during operations that was implemented during construction. The flare system would be used as part of the safety systems to dispose of flammable gases and vapors. Emergency response team would be trained and certified in compliance with U.S. Occupational Safety & Health (OSHA), Washington Industrial Safety and Health Act (WISHA), Process Safety Management (PSM), and National Fire Protection Association requirements and stationed on site. (Cowlitz County 2016) The facility would include an on-site firehouse and fire brigade in addition to being supported by the Cowlitz County Fire District 5. 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. Conclusion: There is a risk of adverse effects from the Kalama Methanol Facility; however, the effect is neutral effect as a result of mitigative action.

18. Food and fiber production:

(i) Marine Export Terminal: The Marine Export Terminal project site is not currently utilized for food or fiber production. Conclusion: The construction and operation of the Marine Export Terminal would have no effect on food and fiber production.

(ii) Lateral Project: The Lateral Project crosses approximately 18.4 acres of farmland along the western end of the proposed alignment. Northwest Pipeline would utilize HDD to cross the agricultural area to avoid surface effects and disturbance of farmland and has proposed an Erosion Control and Revegetation Plan to minimize effects of trenching and construction of the right of way. Adverse effects to farmland would be temporary and impacted areas would

be returned to agricultural use. There would be no loss of farmland resulting from the construction of the pipeline corridor.

Forest lands in the Later Project route are not currently utilized for fiber production. Removal of trees for construction of the 100 ft. construction ROW through existing forest lands (approximately 2 miles in length) would have a no effect on fiber production given the timber is not currently managed for fiber production. There would be a negligible effect on future fiber production if these areas were in the future acquired and managed for timber; however, the Corps is not aware of any foreseeable plans to utilize the timber for fiber production.

Conclusion: Construction and operation of the Lateral Project would have a negligible effect on food production and fiber production.

(iii) Kalama Methanol Facility: The Kalama Methanol Facility project site is not currently utilized for food or fiber production; therefore construction and operation of the plant would have no effect on food or fiber production.

Conclusion: The construction and operation of the Methanol Plant would have no effect on food and fiber production.

#### 19. Mineral needs:

(i) Marine Export Terminal: Construction of the Marine Export Terminal would increase demand for building materials used for construction of the dock facilities and collector well. The increased demand for building materials would include materials such as steel, aluminum and copper, which are made from mineral ores, but the project does not propose mining activities. The potential need for new mines to meet mineral needs is beyond the scope of the Corps' evaluation for this permit action. Conclusion: Given that no mining activities are proposed, the construction and operation of the Marine Export Terminal would have a negligible effect on mineral needs.

(ii) Lateral Project: Construction of the Lateral Project would increase demand for building materials used for construction of the pipeline. The increased demand for materials would include building materials, such as steel, aluminum and copper, which are made from mineral ores. This project does not propose mining activities. The potential need for new mines to meet mineral needs is beyond the scope of the Corps' evaluation for this permit action.

The Kalama Quarry is located north and south of the Lateral Project alignment between approximately MP 1.4 and 1.8. While the project would be located approximately 400 feet north of the active portion of the 100-acre site, construction of the Lateral Project through the permitted mine area could temporarily limit or reduce the production of future mineral resources of economic value on this property. Mining activities would be prohibited within the permanent ROW. (FERC 2015) Construction activity and the establishment of the



permanent right-of-way associated with the Lateral Project could limit or reduce the production of the Kalama Quarry, located north and south of the project between approximately MP 1.4 and 1.8. (FERC 2015)

Conclusion: The construction and operation of the Lateral Project would have a moderate adverse effect on the ability of the Kalama Quarry to meet mineral needs.

(iii) Kalama Methanol Facility: Construction of the Kalama Methanol Facility would increase demand for building materials used for construction of the natural gas to methanol facilities. The increased demand for building materials would include materials such as steel, aluminum, and copper, which are made from mineral ores. This project does not propose mining activities. The potential need for new mines to meet mineral needs is beyond the scope of the evaluation for this action. Conclusion: The construction and operation of the Kalama Methanol Facility would have a negligible effect on mineral needs.

## 20. Consideration of property ownership:

(i) Marine Export Facility: A portion of the proposed project site is owned by the Port and is zoned as an industrial property. A portion of the project would occur on Washington state-owned aquatic lands. The Port has an existing port management agreement with DNR that covers most of the areas in which work or equipment staging. The Port has submitted an application to coordinate directly with DNR regarding right-of-entry for any construction activities that may occur on state-owned aquatic lands outside of the port management agreement area. Conclusion: The construction and operation of the Marine Export Facility would have a negligible effect on property ownership.

(ii) Lateral Project: Land ownership on the property in the project alignment is almost entirely private, other than the Port of Kalama properties. The Project route begins near MP 1254.14 of Northwest Pipeline's existing Ignacio to Sumas mainline system. The majority of the Project alignment consists of large residential lots or private timberlands, accessed by existing private, state and county roads. From MPs 1.4 to 1.8, the Project crosses the permitted mining footprint of the Kalama Quarry (but the actual current mine disturbance footprint is approximately 440 feet south of MP 1.7). Between MPs 2.4 and 2.8, the Project crosses Port of Kalama property currently being leased for farming. Between MPs 2.8 and 3.0, the Project crosses major transportation corridors (Interstate 5 [1-5] and BNSF railroad). Between MPs 3.0 and 3.1 the Project crosses Port of Kalama Property currently used for industrial uses. Northwest Pipeline has obtained easements for all these properties.

The only lands crossed by the pipeline under DNR ownership are the lands underlying navigable waters in accordance with DNR regulations. Northwest would submit an application to DNR after the relevant permits

following the receipt of a Section 404 approval from the Army if and when issued. Conclusion: The construction and operation of the Lateral Project would have a negligible effect on property ownership.

(iii) Kalama Methanol Facility: NWIW has leased approximately 90 acres from the Port of Kalama to construct and operate the Kalama Methanol Facility. Associated with the lease of the property would be access to the Marine Export Facility, new and existing access roads, the industrial and domestic water supplies, etc. (Cowlitz County 2016) The terminus of the natural gas pipeline would connect to the methanol facility in the northeast corner of the project site. Conclusion: The construction and operation of the Kalama Methanol Facility would have no effect on property ownership.

21. Needs and welfare of the people:

(i) Marine Export Facility: The proposed project would have some temporary and long-term adverse effects on the environment and public safety, but would have a greater beneficial long-term effect on economics and recreation. Conclusion: The construction and operation of the Marine Export Facility would have a neutral effect on the needs and welfare of the people.

(ii) Lateral Project: The proposed project would have some temporary and long-term adverse effects on the environment and public safety but would have a greater beneficial long-term economic effect. Conclusion: The construction and operation of the Marine Export Facility would have a neutral effect on the needs and welfare of the people.

(iii) Kalama Methanol Facility: The proposed project would have some temporary and long-term adverse, but mitigated, environmental effects, but maintain some long-term economic benefits. Conclusion: The construction and operation of the Kalama Methanol Facility would have a neutral effect on the needs and welfare of the people.

Section 7.1.1: Climate Change.

The Port voluntarily provided the Corps with an analysis of greenhouse gas emissions that they produced for other local, state, and/or federal requirements, entitled Kalama Manufacturing and Marine Export Facility, Final Environmental Impact Statement, dated 1 September 2016, and a draft Supplemental Environmental Impact Statement dated November 2018. Northwest Pipeline provided an analysis of greenhouse gas emissions conducted by the Federal Energy Regulatory Commission which is included in the "Kalama Lateral Project Environmental Assessment", dated July 2015. The proposed Marine Export Facility and Lateral Project within Corps federal control and responsibility likely would result in a negligible release of greenhouse gases into the atmosphere when compared to global greenhouse gas emissions. Greenhouse gas emissions have been shown to contribute to climate change.

Aquatic resources can be sources and/or sinks of greenhouse gases. For instance, some aquatic resources sequester carbon dioxide whereas others release methane; therefore, authorized impacts to aquatic resources can result in either an increase or decrease in atmospheric greenhouse gas. These impacts are considered de minimis. Greenhouse gas emissions associated with the Corps federal action may also occur from the combustion of fossil fuels associated with the operation of construction equipment, increases in traffic, etc. The Corps has no authority to regulate emissions that result from the combustion of fossil fuels. These are subject to federal regulations under the Clean Air Act and/or the Corporate Average Fuel Economy (CAFE) Program. Greenhouse gas emissions from the Corps action have been weighed against national goals of energy independence, national security, and economic development and determined not contrary to the public interest. . The portions of these documents pertaining to the Marine Export Facility and Lateral Project provides supporting information to the Corps' evaluation.

**Kalama Methanol Facility:** The Kalama Methanol Facility would produce GHG emissions during construction (e.g., operation of construction equipment) and during operation of the project to produce methanol. The Kalama Methanol Facility is located in uplands and is not within Corps jurisdiction. See Section 9 for a discussion of cumulative effects of the proposed Marine Export Facility, Lateral Project, and Methanol Facility.

## 7.2 General evaluation criteria under the public interest review

### 7.2.1 Marine Export Facility

7.2.1.1 The relative extent of the public and private need for the proposed structure or work: As stated in Section 3.1 Marine Export Facility Purpose and Need, the basic project purpose is to provide a facility for ship loading. There is a private need for the proposed Marine Export Facility. Construction of the Marine Export Facility would provide a facility for the export of methanol produced at the neighboring Kalama Methanol Facility. The proposed Marine Export facility would also be utilized as a lay berth facility for the Port which would increase the efficiency of loading operations at the Port. The proposed Marine Export Facility would address public need for local employment opportunities and a potential increase in the local tax base.

7.2.1.2 If there are unresolved conflicts as to resource use, explain how the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work was considered.

Discussion: There were no unresolved conflicts identified as to resource use.

7.2.1.3 The extent and permanence of the beneficial and/or detrimental effects that the proposed work is likely to have on the public and private use to which the area is suited:

Detrimental effects are expected to be minimal and permanent.

Beneficial effects are expected to be minimal and permanent.

The extent and permanence of the beneficial and/or detrimental effects, which the proposed work is likely to have on the public, and private uses to which the area is suited. Detrimental effects are expected to be minimal although they would be permanent in the construction area. The beneficial effects associated with utilization of the property would be permanent. Detrimental effects would result due to the development of the Marine Export Facility, construction of the Lateral Project, and construction of the Kalama Methanol Facility. The beneficial effects associated with the utilization of the property would be permanent and would contribute to the local economy and would provide a new methanol export facility to serve the export market

## 7.2.2 Kalama Lateral Project

7.2.2.1 The relative extent of the public and private need for the proposed structure or work: As stated in Section 3.2, the basic project purpose is to transport natural gas. (e.g., Public benefits include employment opportunities and a potential increase in the local tax base. Private include land use and economic return on the property). There is private need for the proposed Lateral Project Construction of the Lateral Project would facilitate the export of methanol produced at the neighboring Kalama Methanol Facility. The public need for the Lateral Project is to provide natural gas for the operation of the Kalama Methanol Facility. The operation of the Kalama Methanol Facility would provide jobs and economic benefits to the economy

7.2.2.2 If there are unresolved conflicts as to resource use, explain how the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work was considered.

Discussion: There were no unresolved conflicts identified as to resource use.

7.2.2.3 The extent and permanence of the beneficial and/or detrimental effects that the proposed work is likely to have on the public and private use to which the area is suited:

Detrimental effects are expected to be minimal and permanent.

Beneficial effects are expected to be minimal and permanent.

The extent and permanence of the beneficial and/or detrimental effects, which the proposed work is likely to have on the public, and private uses to which the area is suited. Detrimental effects are expected to be minimal although they would be permanent in the construction area. The beneficial effects associated with utilization of the property would be permanent. Detrimental effects would result due to the development of the Marine Export Facility, construction of the Lateral Project, and construction of the Kalama Methanol Facility. The beneficial effects associated with the utilization of the property would be permanent and would contribute to the local economy and would provide a new methanol export facility to serve the export market.

### 7.2.3 Kalama Methanol Facility

The purpose of this evaluation in Section 7.2 is to make the required public interest determination and what needs to be considered in the evaluation of “every application” (per 33 CFR 320.4(a)(2)), as opposed to an evaluation of effects under NEPA. Given that the Kalama Methanol Facility is located outside of Corps jurisdiction (i.e. no Corps permit required), a public interest determination is not warranted for the Kalama Methanol Facility.

**8.0 Mitigation**(33 CFR 320.4(r), 33 CFR Part 332, 40 CFR 230.70-77, 40 CFR 1508.20 and 40 CFR 1502.14)

8.1 Marine Export Facility

8.1.1 Avoidance and Minimization: When evaluating a proposal including regulated activities in waters of the United States, consideration must be given to avoiding and minimizing effects to those waters. Avoidance and minimization measures are described above in Sections 1 and 3.

Were any other mitigative actions including project modifications discussed with the applicant implemented to minimize adverse project impacts (see 33 CFR 320.4(r)(1)(i))? Yes

Approximately 0.09 acre of wetland buffer would be impacted by the proposed recreational access improvements. The wetland buffer that extends onto the project site consists noxious weeds, and cottonwood trees and saplings. The Port has proposed to enhance approximately 0.58 acre of wetland buffer at the north end of the site to mitigate for unavoidable wetland buffer impacts. The Port also proposes to conduct riparian enhancement and invasive species management within an area approximately 2.42 acres in size along the Columbia River shoreline at the proposed project site. In-water work would be conducted during in-water work windows.

8.1.2 Is compensatory mitigation required to offset environmental losses resulting from proposed unavoidable impacts to waters of the United States? Yes

Provide rationale: As described in Section 7.1 Public Interest Factor Fish and Wildlife Values, the design of the terminal locates approximately 34,018 square feet of overwater structures in water deeper than -11.6 feet CRD. Approximately 10,925 square feet of new overwater coverage associated with the access trestle, would occur in and over shallow water habitat (water shallower than -11.6 feet CRD).

The construction of the Marine Export Facility would result in permanent impacts to deep and shallow water aquatic habitat, and riparian habitats. Impacts include shading of open water habitat, modification of benthic habitat located within new piling footprints, temporary benthic habitat modification associated with berth dredging. The proposed Marine Export Facility would result in impacts to a small acreage of riparian habitat associated with construction of the dock trestle.

Columbia River aquatic habitats and associated riparian habitats are important to multiple fish and wildlife species, including ESA-listed species; therefore,

compensatory mitigation is required to reduce the individual and cumulative adverse environmental impacts to a minimal level.

8.1.3 Type and location of compensatory mitigation

8.1.3.1 Is the impact in the service area of an approved mitigation bank? Yes

If yes, does the mitigation bank have appropriate number and resource type of credits available? No. Construction of the overwater structure would result in loss of function of open water habitat within the footprint of the overwater structure. The proposed Marine Export Facility is within the service area of the Columbia River Mitigation Bank; however, this bank does not offer credits for riverine overwater structure impact. Therefore, the Port is unable to propose purchase of in-kind mitigation credit that would replace the same functions that would be lost through placement of overwater structures at the project site.

8.1.3.2 Is the impact in the service area of an approved in-lieu fee program? No

If yes, does the in-lieu fee program have the appropriate number and resource type of credits available? N/A

8.1.3.3 Selected compensatory mitigation type/location(s). See Table 23:

Table 23 – Mitigation Type and Location	
Mitigation bank credits	
In-lieu fee program credits	
Permittee-responsible mitigation under a watershed approach	
Permittee-responsible mitigation, on-site and in-kind	X
Permittee-responsible mitigation, off-site and/or out of kind	

8.1.3.4 Does the selected compensatory mitigation option deviate from the order of the options presented in §332.3(b)(2)-(6)? Yes.

If yes, provide rationale for the deviation, including the likelihood for ecological success and sustainability, location of the compensation site relative to the impact site and their significance within the watershed, and/or the costs of the compensatory mitigation project (see 33 CFR §332.3(a)(1)): See Section 8.1.3.1 and Section 8.1.3.2.

8.1.4 Amount of compensatory mitigation: As part of the application, the applicant submitted a mitigation plan titled Mitigation Plan, Kalama Manufacture and Marine Export Facility dated August 2015-Revised September 2016. The proposed mitigation is to restore approximately 123 square feet of benthic habitat by the removal of approximately 157 piles associated with portions of two

existing pile structures located in the adjacent Columbia River backwater; install 10 ELJs along the shoreline of the Columbia River adjacent to the site; and enhance approximately 2.42 acres of riparian habitat along the shoreline of the Columbia River adjacent to the site, and approximately 0.58 acre of wetland buffer by installing native plantings and implementing an invasive species management program.

Rationale for required compensatory mitigation amount: The mitigation plan is designed to compensate for the loss of shallow water habitat, benthic habitat and riparian habitat. The proposed mitigation would provide wildlife habitat and habitat diversity, and enhanced food web support. Removal of approximately 157 piles associated with portions of two existing pile structures located in the adjacent Columbia River backwater would restore benthic habitat and improve hydraulics and sediment transport in the backwater. Installation of the ELJs would enhance nearshore aquatic habitat complexity for fish and invertebrates, and provide enhanced food web support. Enhancement of riparian habitat and planting of wetland buffer would improve the habitat complexity along the shoreline, providing wildlife habitat and food web support.

- 8.1.5 Mitigation Acceptance: The mitigation plan proposed by the applicant is reasonable, has been specifically designed to compensate for impacts to shallow water habitat, benthic habitat and riparian habitat and their functions as a result of the proposed project. The Corps have determined that implementation of the mitigation plan would compensate for unavoidable impacts to jurisdictional aquatic resources in a rough proportionality to the project impacts with the addition of Special Conditions listed in Section 10 of this document.
- 8.1.6 For permittee responsible mitigation identified in 8.3.3 above, the final mitigation plan must include the items described in 33 CFR 332.4(c)(2) through (c)(14) at a level of detail commensurate with the scale and scope of the impacts. As an alternative, the district engineer may determine that it would be more appropriate to address any of the items described in (c)(2) through (c)(14) as permit conditions, instead of components of a compensatory mitigation plan. Presence of sufficient information related to each of these requirements in the applicant's mitigation plan is indicated by "Yes" in Table 24. "No" indicates absence or insufficient information in the plan, in which case, additional rationale must be provided below on how these requirements would be addressed through special conditions or why a special condition is not required:



Table 24 – Permittee-Responsible Mitigation Plan Requirements		
Requirement	Yes	No
Objectives	X	
Site selection	X	
Site protection instrument	X	
Baseline information	X	
Determination of credits	X	
Mitigation work plan	X	
Maintenance plan	X	
Performance standards	X	
Monitoring requirements	X	
Long-term management plan	X	
Adaptive management plan	X	
Financial assurances	X	
Other		

For any “No”, provide rationale on how the subject component(s) of the compensatory mitigation plan will be addressed as special conditions or why no special conditions are required: N/A

## 8.2 Kalama Lateral Project

- 8.2.1 Avoidance and Minimization: When evaluating a proposal including regulated activities in waters of the United States, consideration must be given to avoiding and minimizing effects to those waters. Avoidance and minimization measures are described above in Sections 1 and 3.

Were any other mitigative actions including project modifications discussed with the applicant implemented to minimize adverse project impacts (see 33 CFR 320.4(r)(1)(i))? No

- 8.2.2 Is compensatory mitigation required to offset environmental losses resulting from proposed unavoidable impacts to waters of the United States? Yes

Provide rationale: Construction of the 3.1-mile, 24-inch diameter welded steel natural gas pipeline would result in 0.204 acre of temporary impacts and 0.01 acre of permanent impact within Corps jurisdictional wetlands; and result in 0.044 acre of temporary impacts to streams and ditches. The temporary impacts are associated with trench installation of the pipeline. The pipeline trench would be

backfilled with native material, graded to pre-construction contours, and surface substrate replaced.

Wetland and stream habitats are important to fish and wildlife species; therefore, compensatory mitigation is required to reduce the individual and cumulative adverse environmental impacts to a minimal level.

Table 25. Summary of Wetland Impacts:

Wetland	Location	Work/Impact Type	Approximate Crossing Length	Temporary or Permanent Impact	Impact Acreage	Approximate Amount of Temporary Excavation Volume (Material excavated and used as backfill)
W-2A8 (PEM)	46.30513 °N/ 122.8626 °W	Pipeline installed underneath by HDD.	230 ft.	n/a	0	0
WL-B (PEM)	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	536 ft.	n/a	0	0
WL-A (PEM)	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	58 ft.	n/a	0	0
W-2A2 (PSS)	46.0507 °N/ 122.8508 °W	Pipeline to be installed by trench crossing.	20 ft.	Temporary and Permanent	0.03 acres (temporary) 0.01 acres permanent (vegetative conversion) . Total 0.04 acres	22.22 CY (cubic yards)
W-2A1 (PEM)	46.0521 °N/ 122.8474 °W	Wetland outside of trench line, would be scalped of vegetation but not excavated. Pipeline to be installed by trench crossing.	50ft	Temporary	0.04 acres	0 CF

Table 26 Impacts to streams and ditches summary:

Stream/Ditch	Location	Work/Impact Type	Approximate crossing length	Temporary or Permanent Impact?	Impact Acreage	Approximate Amount of Temporary Excavation Volume (Material excavated and used as backfill)
Stream S-2A7 (Ditch #3), perennial	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	3 linear feet	0	0	0
Stream S-A26 (Ditch #2), perennial	46.408 °N/ 122.857 °W	Pipeline installed underneath by HDD.	3 linear feet	0	0	0
Ditch 1, intermittent	46.408 °N/ 122.857 °W	Waterbody is in study area but is avoided by project. Northwest would setback construction disturbance from the waterbody and protect it through installation of BMPs	n/a	0	0	0
Ditch 4, intermittent	46.408 °N/ 122.857 °W	Pipeline to be installed by trench crossing.	3 linear feet	Temporary	0.01 acres.	2.78 CY
Stream S-2A3, perennial	46.0507 °N/ 122.8508 °W	Pipeline to be installed by trench crossing.	5 linear feet	Temporary	0.012 acres	4.63 CY
Stream S-1A3, intermittent	46.0525 °N/ 122.8447 °W	Pipeline to be installed by trench crossing.	4 linear feet	Temporary	0.009 acres	3.70 CY
Stream S-1A2, intermittent	46.0532 °N/ 122.8425 °W	Pipeline to be installed by trench crossing.	4 linear feet	Temporary	0.009 acres	3.70 CY
Stream S-1A1, intermittent	46.0537 °N/ 122.8302 °W	Pipeline to be installed by trench crossing.	1 linear feet	Temporary	0.002 acres	.93 CY
Stream S-0A1, intermittent	46.0550 °N/ 122.8271 °W	Pipeline to be installed by trench crossing.	1 linear feet	Temporary	0.002 acres	.93 CY

8.2.3 Type and location of compensatory mitigation

8.2.3.1 Is the impact in the service area of an approved mitigation bank? Yes

If yes, does the mitigation bank have appropriate number and resource type of credits available? Yes

8.2.3.2 Is the impact in the service area of an approved in-lieu fee program? No

If yes, does the in-lieu fee program have the appropriate number and resource type of credits available? N/A

8.2.3.3 Selected compensatory mitigation type/location(s). See Table 27:

Table 27 – Mitigation Type and Location	
Mitigation bank credits	X
In-lieu fee program credits	
Permittee-responsible mitigation under a watershed approach	
Permittee-responsible mitigation, on-site and in-kind	
Permittee-responsible mitigation, off-site and/or out of kind	

8.2.3.4 Does the selected compensatory mitigation option deviate from the order of the options presented in §332.3(b)(2)-(6)? No

If yes, provide rationale for the deviation, including the likelihood for ecological success and sustainability, location of the compensation site relative to the impact site and their significance within the watershed, and/or the costs of the compensatory mitigation project (see 33 CFR §332.3(a)(1)): N/A

8.2.4 Amount of compensatory mitigation:

Northwest Pipeline would purchase 0.65 credit from the Columbia River Wetland Mitigation Bank to mitigate the project’s impacts. See table below, source: Kalama Lateral Pipeline Project: Wetland, Waterbody and Critical Area Buffer Mitigation Plan dated 25 January 2017. See Table Below:

Table 28 Amount of Compensatory Mitigation

Wetland and Critical Area Compensatory Mitigation Proposal and Calculations						
	Wetland Category Rating	Project Disturbance in Wetland or Wetland/Riparian buffer (acres)	Southwest Washington Mitigation Banks Bank Credits per Resource Impact <sup>1</sup>	Estimate Compensatory Mitigation Requirement for Permanent Wetland Impacts  Project Disturbance (acres) x Bank Credits per Resource Impact	Estimated Compensatory Mitigation Requirement for Long-Term Temporary Project Impacts <sup>3</sup>  (Ratio: one-quarter of ratio for Permanent Impacts)	Northwest Proposed Compensatory Mitigation Estimate for Long-Term Temporary Project Impacts <sup>4</sup>  (Ratio: one-half of ratio for Permanent Impacts)
Totals by Wetland Category	I	0	Case by case	0	0	0
	II	0.04 (temp)	1.2	0	0.012	0.024
	II	<0.01 (perm)	1.2	0.01	0	0
	III	0.04 (temp)	1.0	0	0.01	0.02
	IV	0	.85	0	0	0
<b>Total</b>		<b>0.09</b>	<b>--</b>	<b>0.01</b>	<b>0.02</b>	<b>0.04</b>
<b>Critical Area Buffer</b>						
Westside Lowlands Conifer-Hardwood Forest Riparian buffers		1.99	Case by Case 1.0 <sup>2</sup>		<b>0.55</b>	N/A
Wetland buffers		0.19	Case by Case 1.0 <sup>2</sup>		<b>0.05</b>	N/A
<sup>1</sup> <a href="http://www.habitatbank.com/wp-content/uploads/2010/08/Southwest-Washington-Mitigation-Banks-Brochure.pdf">http://www.habitatbank.com/wp-content/uploads/2010/08/Southwest-Washington-Mitigation-Banks-Brochure.pdf</a> <sup>2</sup> Assumed ratio. <sup>3</sup> <a href="http://www.ecy.wa.gov/biblio/0606011a.html">http://www.ecy.wa.gov/biblio/0606011a.html</a> Section 6.5.6 Mitigation Ratios for Temporary Impacts and Conversions (pg. 77). <sup>4</sup> Northwest proposes to increase the compensatory mitigation ratios for temporal impacts to wetlands recommended by WDOE from ¼ to ½ because of Northwest's experience with past projects (i.e., Capacity Replacement Project and Evergreen Expansion Project), which have shown it can be problematic to meet restoration requirements due to landowner actions within the pipeline easement(s). <input type="checkbox"/> <b>Gray cells represent subtotals for credits. Total credits = 0.65.</b>						

Rationale for required compensatory mitigation amount: Northwest Pipeline would purchase 0.01 bank credit from the Columbia River Wetland Mitigation Bank to compensate for the Project's permanent wetland impacts (i.e. vegetative conversion). For the Project's long-term temporal impacts to wetlands and critical area buffers, Northwest would apply the Washington Department of Ecology recommended one-quarter compensatory mitigation ratio for temporary impacts to wetland and riparian buffers and would double the compensatory ratio for impacts to wetlands. Using these criteria, Northwest would purchase an additional 0.04 credit for temporary impacts to wetlands and lastly Northwest would purchase 0.60 credit for temporary impacts to wetland and riparian buffers.

### 8.3 Kalama Methanol Facility

As a result of the Washington State Environmental Policy Act review, NWIW would implement ULE technology during operation to decrease the potential greenhouse gas emissions and utilize the ZLD method to reuse process

wastewater in a closed loop system to avoid direct impacts to the Columbia River. The Port would place approximately 95 acres of wetlands and environmentally sensitive areas north of the project location into permanent conservation status, per discussions with the Cowlitz County Hearing Examiner during negotiations for the Shoreline Substantial Development Permit, to mitigate impacts for construction of the methanol facility.

## 9.0 Consideration of Cumulative Impacts

(40 CFR 230.11(g) and 40 CFR 1508.7, RGL 84-9) Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor direct and indirect but collectively significant actions taking place over a period of time. A cumulative effects assessment should consider how the direct and indirect environmental effects caused by the proposed activity requiring DA authorization (i.e., the incremental impact of the action) contribute to cumulative effects, and whether that incremental contribution is significant or not.

### 9.1 Identify/describe the direct and indirect effects caused by the proposed activity:

Effects of the Marine Export Facility and Lateral Project are described in Sections 6 and 7. Effects of the Kalama Methanol Facility are described in Section 7. The effects of the projects are summarized below:

#### 9.1.1 Direct Effects:

Wetlands: The three proposed projects, collectively, would result in 0.01 acre of permanent impact to wetlands and 0.07 acre of temporary impact. The majority of impacts to wetlands are temporary impacts resulting from trenching to install the Lateral Project. These impacts would result in the permanent loss of wetland functions and services; or the temporary impairment of functions and services due to temporary impacts.

#### Fish and Wildlife Values:

Substrate: Dredging at the Marine Export Facility would directly affect 16 acres of benthic habitat. In-water disposal of dredge material at the Beach Nourishment site would affect 4 acres of benthic habitat, and would raise bottom substrate elevations as the site.

Aquatic Habitat: The Marine Export Facility would alter habitat through the addition of approximately 44,943 square feet of over-water structure. The footprint of the piling would replace benthic habitat. Construction of the structure, to include piling installation, would temporarily affect fish and wildlife through elevated turbidity and noise.

Upland Habitat: The proposed projects, collectively, would result in development of the North Port site and would cover the majority of the 100-acre site with impervious surfaces. Construction of the Kalama Methanol Facility would permanently restrict vegetative growth and wildlife habitat on the North Port site and would remove a potential source of streaked horned lark habitat.

The construction of a permanent ROW associated with the Lateral Project would directly affect wildlife through the loss of forest habitat, fragmentation of forested habitat and creation of “edge effects”.

#### 9.1.2 Indirect Effects:

##### Indirect Effects from Increased Vessel Traffic on the Lower Columbia River (Wake Stranding, Vessel Emissions, Aquatic Invasive Species):

Wake Stranding: The export of methanol resulting from the operation of the proposed projects, collectively, would result in an approximately 2.3%-4.6% increase in the number of vessels transiting the lower Columbia River annually. An estimated 36-72 ships per year would use the Marine Export Facility based on the production levels of the proposed Kalama Methanol Facility. Ocean going vessels can produce large wakes when transiting the river with cargo. These wakes may strand juvenile fish on shallow sloping beaches, potentially resulting in the death of the stranded individual. Ship wake stranding impacts on fish, including ESA species, would be an indirect effect of the proposed activity that is associated with increased vessel traffic.

Vessel Emissions: The export of methanol resulting from the operation of the proposed projects, collectively, would result in a 2.3%-4.6% increase in the number of vessels transiting the lower Columbia River annually. This increase would result in indirect adverse effects to air quality. It is expected that vessel emissions would increase proportionally to the increase in number of vessels transiting the lower Columbia River.

Aquatic Invasive Species: Vessel traffic is a method of transport for some aquatic invasive species. Increased ship traffic may bring aquatic invasive species via ballast water or attachment to the outer surface of ships. The discharge of ballast water, used to provide vessel stability, may introduce aquatic non-indigenous species.

Shoreline erosion and Accretion: Shoreline erosion resulting from ship wake may occur, and would be a collective indirect effect of the proposed projects.

Water Supply and Conservation: The construction and operation of the proposed project, collectively, would result in withdrawals of water from the City of Kalama’s water supply and the aquifer located directly below project site.

Water Quality: The construction of the proposed projects, collectively, would increase impervious surface on the North Port site. The resulting run-off from impervious surfaces would affect water quality.

Air Quality and Greenhouse Gas: The proposed projects, collectively, would cumulatively increase the volume of greenhouse gases emitted into the atmosphere.

A secondary impact to air quality would be from the increase in emissions from increase ship traffic. Given that the export of methanol resulting from the



operation of the proposed projects would result in a minor increase in the number of vessels transiting the lower Columbia River; the projects would have a minor contribution to the cumulative adverse impact on air quality in the assessment area.

Safety: Construction and operation of the proposed project, collectively, would result in increased safety risk to workers and the public

9.2 The geographic scope for the cumulative effects assessment is:

The geographic area for the cumulative and secondary impacts assessment for the Marine Export Terminal, Kalama Methanol Facility and Lateral Project is the Columbia River corridor within the Lower Columbia-Clatskanie Watershed (LCCW, HUC 17080003). The boundary of the LCCW Columbia River corridor (assessment area) is defined as starting from St. Helens, OR and ending at Westport, OR. The assessment area encompasses both Washington and Oregon shorelines of the Columbia River. The assessment also includes a narrow 3.1 mile long corridor that encompasses the entire route of the Lateral Project. The assessment area includes the shorelines of the major cities of Westport, OR; Clatskanie, OR; Rainier, OR; Columbia City, OR; St. Helens, OR; Longview, WA; Kalama, WA; and Woodland, WA as well as other smaller communities. Land uses within the LCCW include farming, silviculture, commercial, residential and industrial. The Ports of Westward, Longview, Kalama, and St. Helens are located within the assessment area boundary.

9.3 The temporal scope of this assessment covers: Pre-European settlement to 5 years from date of construction.

9.4 Describe the affected environment:

Historic conditions of the assessment area: The pre-European settlement historic condition of the Columbia River shoreline within the assessment area was largely sandy beaches and riverine wetlands. The Columbia River was free flowing and subject to seasonal flow volumes including flooding. The number of salmon in historic annual runs greatly exceeded the number of salmon in current annual runs. Coniferous and deciduous forests and grass uplands, interlaced with streams and wetlands, composed the majority of the lands along the Columbia River above the shoreline.

Major changes to the assessment area: The historic environmental conditions in the assessment area have been altered over time due to human activities. The changes to the Columbia River include construction of hydropower dams, which artificially regulate the flow of the river; loss of aquatic habitat; loss of wetland habitat; loss of riparian habitat; stream channelization; armoring of riverbanks; and the impairment of fisheries habitat.

From the 1920s-1960s, timber was the primary industry within the assessment area. Major land use changes in the assessment area is the conversion of wetlands and forest into agricultural lands, industrial areas, urban developments, and the construction of major transportation infrastructure such as railroads and Interstate 5. The increase in development and impervious surface has altered the hydrologic regime within the assessment area.

Development of ports (Port of Kalama, Port of Longview, Port Westward, Port of St. Helens, and Port of Woodland) and cities along the shoreline has resulted in construction of overwater structures such as docks, and dredging and in-water placement of dredged material in the Columbia River. The majority of the ports in the assessment area were established in the beginning to middle of the twentieth century to export forest products, natural resource products, agricultural products, and other industrial products.

In 1963, the Corps began dredging and diking activities for an improved navigation channel on the Columbia River with a depth of -40ft CRD and a width of 600ft. The improved navigation channel allowed larger ships to transit the Columbia River resulting in an increase of export/import activity on the Columbia River. The Port of Kalama and Longview became deep draft ports (-35ft CRD). In 2010, the Corps completed deepening of the federal navigation channel from -40ft CRD to -43ft CRD.

Recreational boat marinas (St Helens Marina, Scipio's Goble Landing, Elochoman Slough Marina) are within the assessment area. Numerous private recreational docks are distributed along both the Washington and Oregon shorelines. Riprap banks and larger dock structures are primarily found on Washington and Oregon shorelines within urban, industrial areas, and residential areas. Several miles of continuous riprap-protected shoreline can be found where Hwy 4 runs along the Washington shoreline of the Columbia River.

Current conditions of the assessment area: Both the Washington and Oregon shorelines within the assessment area are still developed as described above with stretches of undeveloped shoreline and wetlands interspersed throughout. Multiple species of salmonids and fish that either reside in or migrate through the assessment area are listed as threatened or endangered under the Endangered Species Act.

According to vessel entry and transit data, the Columbia River accommodated approximately 1,581 cargo and passenger vessels, tank ships, and articulated tug barge transits in 2014. (Cowlitz County 2016) The ports and marinas conduct maintenance dredging of their prospective berths and dispose of dredged material at a combination of upland and in-water sites. The Corps also conducts maintenance dredging of the federal navigation channel and disposes of dredged material at a combination of upland and in-water sites. The Washington Beach nourishment placement site is currently utilized by the Port of Kalama for placement of their maintenance dredging material.

9.5 Determine the environmental consequences:

9.5.1 Direct effects:

Wetlands: The proposed projects, collectively, would result in minor wetland losses and impacts within the assessment area but these losses would be off-set by compensatory mitigation (see Section 8.0). Since this loss would be mitigated, the projects would have a negligible contribution to the cumulative effect on wetland loss and impacts in the assessment area.

Fish and Wildlife Values: The proposed projects, collectively, would permanently alter fish and wildlife habitat, including that of ESA-listed species.

Aquatic Habitat: The project footprint of the Marine Export Terminal would have a minor contribution to the acreage loss of open water habitat within the assessment area and a minor contribution to impacts to fish resulting from increased shading over deep water habitat. The cumulative impacts to primary productivity and cumulative increase of predation rates are minor. Noise effects to fish associated with pile driving are expected to be localized and temporary due to the use of the vibratory hammer for installation of steel piles. If steel piles cannot be driven with a vibratory hammer an impact hammer would be used in combination with a bubble curtain or other method of noise attenuation to reduce the potential for effects from temporarily elevated underwater noise levels. These collective effects would have a minor contribution to cumulative impacts to fish. Dredging and disposal of dredged material would result in a temporary, localized increase in turbidity. The temporary nature of these impacts to turbidity are localized and projected to dissipate with distance. It is expected that fish would avoid the area during dredging and disposal activities but would return when these activities are completed.

Substrate: The permanent alteration of 16 acres of benthic habitat associated with berth dredging would be an alteration of a very small percentage of the total benthic habitat in the assessment area. In-water placement of 60,000 CY of dredged material at the beach nourishment site would represent a very small percentage increase in the total volume of dredged material placed in-water by the dredging projects within the assessment area.

Upland Habitat: Construction of the Methanol Facility would result in a reduction in the total acreage of lark habitat in the assessment area and would contribute to the cumulative loss of lark habitat in the assessment area. The Lateral Project would result in the loss of wetland and forest habitat.

These effects to fish and wildlife would be largely limited to the project sites and mitigated for (see Section 8.0), therefore, the projects would have a minor contribution to the cumulative adverse impacts to fish and wildlife values in the assessment area.

#### 9.5.2 Indirect effects:

Indirect effects of increased ship traffic (Wake Stranding, Vessel Emissions, and Aquatic Invasive Species): An increase of 36-72 ships (approximately 2.3%-4.6% increase) represents a minor annual percentage increase of traffic on the Columbia River.

**Wake Stranding:** The export of methanol resulting from the operation of the proposed projects would result in a minor approximately 2.3%-4.6% increase in the number of vessels transiting the lower Columbia River. The magnitude of the effect would depend on various factors that are not within the Corps' jurisdiction (e.g., draft of vessel, speed of vessel, slope of beach). This increase represents a minor annual percentage increase of traffic on the Columbia River and would have a minor contribution to the cumulative adverse effect on ship wake stranding impacts to fish in the assessment area.

**Vessel emissions:** A secondary impact to air quality would be from the increase in emissions from increased number of vessels transiting the lower Columbia River. The projects would have a minor contribution to the cumulative quantity of vessel emissions in the assessment area.

**Aquatic Invasive Species:** The United States Environmental Protection Agency (EPA) regulates ballast water intake and discharge in U.S. waters through the National Pollutant Discharge Elimination System (NPDES) program under their authority found in Section 402 of the Clean Water Act. The USCG requires ballast water to be treated by using an approved ballast water management system, discharge to onshore facility or another vessel for treatment, or to only use water from a U.S. public water system. Given existing oversight of this issue, an increase in ship traffic would have a minor potential to contribute to cumulative adverse effect of aquatic invasive species introduction and establishment in the assessment area.

**Shoreline erosion and Accretion:** Effects to shorelines may occur due to wakes from ship traffic. However, it is impossible to estimate ship wake erosion separately from erosion caused by other forces (current ship traffic, wind and riverine forces) and there would not likely be a measureable increase in erosion caused by additional ship traffic associated with the proposed project. The placement of dredged material at the beach nourishment site would have a beneficial effect on the cumulative accretion of sand on the beach. The proposed in-water placement of dredged material would beneficially contribute to the cumulative sediment budget of the Columbia River and provide sediment used in channel morphology processes (sand bars, beaches, etc.). Placement of dredged material at the upland site would remove sediment from the Columbia

River sediment budget and would have a minor adverse effect on the sediment budget.

Water Supply and Conservation: Water withdrawals would be within the Port's and City's water rights. Given that the withdrawals would be within the limits of water rights monitored by the Washington Department of Ecology, the projects would have a minor adverse contribution to the cumulative impacts on water supply in the assessment area.

Air Quality and GHG: GHG emissions are generally evaluated on a larger regional or global scale. As discussed in Section 7.1 (Public Interest Review, General Environmental Factors), the majority of the greenhouse gas emissions can be attributed to the operation of the Kalama Methanol Facility. The operation of the project would have an adverse, but mitigated impact on air quality. GHG emissions from the Kalama Methanol Facility operations would represent an approximately 1.02 percent increase annually from the 2013 statewide GHG totals (Cowlitz County 2018). Methanol is produced from multiple feedstocks worldwide. Most of the methanol generated in China is produced from coal-based methanol facilities that generate approximately 5.5 to 6.2 times higher GHG emissions than the anticipated GHG emissions generated at the natural gas-based Kalama Methanol Facility. NWIW anticipates that producing methanol in Kalama from natural gas would displace methanol production from existing coal-based plants in Asia (due to cost advantages). However, the proposed projects would contribute to the cumulative adverse impacts on air quality in the assessment area. However, the projects includes measures to mitigate these effects (see below).

Safety: The increase in vessel traffic due to the proposed projects would increase the likelihood of a vessel incident with a spill. However, it is likely that these safety risks would be beyond those typical of construction and dredging activities, and the operation of similar industrial facilities and berths (Cowlitz County 2016). However, the Port would implement spill monitoring, training, and response programs to reduce the risk of a methanol spill. (Cowlitz County, 2016) Incidents involving vessels loaded with methanol may result in accidental spills and releases of methanol along the Columbia River to its mouth and into the open ocean. In the unlikely event of an incident, the Maritime Fire and Safety Association would provide fire safety and oil spill response and communication coordination to fire and spill incidents involving commercial vessels in the Columbia River from the Portland/Vancouver area to Astoria. The construction and operation of the Lateral Project could have an adverse effect on safety; however, Northwest Pipeline would follow DOT and FERC regulations which would mitigate the adverse effect on safety. The proposed projects would contribute to the cumulative adverse impact on safety risk in the assessment area.

Water Quality: Given the increase in stormwater volume is minor and that stormwater would be treated on-site, the projects would have a minor contribution to the cumulative impacts on water quality in the assessment area

9.5.1 Reasonably Foreseeable: Reasonably foreseeable future actions include construction of new marine export facilities (docks and berths); maintenance dredging of port facilities; development of commercial, industrial and residential projects. The table below includes a list of reasonably foreseeable future actions. The projection is that Corps authorized development and development authorized by other agencies would continue at the current rate. Future actions would be subject to Federal, State and local requirements, as applicable, and may include project specific compensatory mitigation.

Table 28. Reasonable Foreseeable Future Action

Project Name	Location	Description
Maintenance Dredging at Port of Kalama, Port of Longview.	Port berth facilities along the Columbia River	Ongoing maintenance dredging at existing Port marine terminals under existing local, state, and federal approvals.
USACE Columbia River Channel Maintenance Dredging	Columbia River	Ongoing maintenance dredging of Columbia River navigation channel and anchorages as necessary.
Old Cowlitz Channel Dredging	Longview	Maintenance dredging of the Old Cowlitz Channel
Steelscape Steel Coil and Paint Warehouse	Port of Kalama	New 45,000-square-foot steel coil storage warehouse and 17,500-square-foot paint warehouse on southwest portion of existing site.
Port of Kalama Small Vessel Dock	Port of Kalama	New floating dock and access trestle for use by small commercial vessels that serve the oceangoing vessels on the Columbia River
Port of Kalama Marina Renovation	Port of Kalama	Phased project consisting of maintenance and repair activities, a new visitors dock and connection bridge, and an expanded launch float
Global Partners - Columbia Pacific Bio-Refinery	Port of Kalama	Proposed expansion of crude oil and ethanol export facility to as much as 1,839,600,000 gallons per year. Crude oil and/or ethanol would be received by rail, transferred to storage tanks, and exported on marine vessels.

Millennium Bulk Terminals Longview	Longview, WA	Proposed coal export terminal with new upland facilities, rail improvements, docks, and dredging activities. Coal would be received by rail, stored in stockpiles, and exported by marine vessel.
Morrow Pacific	Port Westward, Clatskanie, OR	Proposed coal export facility. Coal would be shipped by rail to Port of Morrow, where it would be stored and then shipped on barge down Columbia River to Port of St. Helens' Port Westward Industrial Park and transferred to oceangoing Panamax vessels. At full capacity, 12 barge tows/week from Morrow to Port Westward and 3 Panamax vessels per week from Port Westward to Asia.
Columbia River Carbonates	Columbia River near River Mile 82, Woodland, Cowlitz County, Washington	Proposed construction of a transloading facility for calcium carbonate (limestone). The facility would be constructed on approximately 3.9 acres owned by the applicant. A fixed commercial offshore dock with a conveyor system would transfer the limestone from barges berthed at the dock to an on-shore stockpile facility. The stockpile facility would load trucks with limestone and haul approximately 2.3 miles to the existing Columbia River Carbonates processing facility in Woodland.
Riverside Refinery	Port of Longview, WA	Proposed refinery using crude oil (delivered by rail) and renewable biofuels (would arrive via two to three vessels per month). Refined product would move to local/regional markets on existing barges or larger vessels on Columbia River. Atmospheric residuals may be shipped to other West Coast refiners.

Construction of new marine export facilities (docks and berths) may result in increased shading of overwater habitat and temporary increases in turbidity during dredging and disposal. Creation of overwater structures may adversely affect fish behavior and provide habitat for predators. Construction of new marine export facilities would have the secondary impact of increased ship traffic on the Columbia River which may increase cumulative adverse impacts of fish wake stranding, shore erosion, and air emissions from vessels in the assessment area.

It is expected that the proposed berth and existing berths along the Columbia River shoreline would be subject to future maintenance dredging and the Columbia River would be subject to future in-water placement of dredging material. It is possible that in-water placement of dredged materials from the projects would occur at the same time as disposal of dredged material from other Port of Kalama projects. The Port is authorized to maintenance dredge approximately 2.1 million cubic yards of material in a ten year period, 2013-2023. Dredged maintenance material may be placed at flow lane placement in Washington and Oregon, the Washington beach nourishment site, or upland sites. In the event that existing disposal sites are filled to capacity, the Port may request authorization to utilize new disposal sites. Continued in-water placement

of dredged material would retain sediment in the Columbia River and would have a beneficial environmental cumulative effect on the Columbia River littoral system. The Port would coordinate disposal activities with the Corps Navigation Branch to minimize impacts to navigation and sedimentation in the Federal Shipping Channel.

Within the assessment area, future development for commercial, industrial, and residential projects may result in fill of wetlands, increased acreage of impervious surface, decreased water quality, increased levels of habitat fragmentation and increased use of water.

9.6 Discuss any mitigation to avoid, minimize or compensate for cumulative effects:

See Section 8.0 Mitigation for effects to aquatic resources.

Greenhouse Gas emissions:

Marine Export Facility: To mitigate for GHG emissions resulting from operation of the Marine Export Facility, the Port would install an electrical system which would allow methanol exporting ships docked at the Marine Export Facility to utilize electricity from shore, rather than generate their own source of electricity using on-board fossil-fueled engines or generators (a practice referred to as hoteling). (Cowlitz County 2018). Ships utilizing the dock as a lay berth would not have access to this electrical system and would need to generate their own source of electricity on-board.

Kalama Lateral Project: The Kalama Lateral Project would contribute a negligible increase to regional GHG emissions. No mitigation is proposed for this component of the project.

Kalama Methanol Facility: To mitigate for GHG emissions specific to the Kalama Methanol Facility, NWIW would implement the ULE technology to minimize GHG emissions by reusing process heat and utilizing onsite natural gas boilers. NWIW would minimize the amount of water needed for the methanol process by implementing the ZLD system. The ZLD system reuses the methanol process water instead of discharging wastewater to the Columbia River. NWIW plans to mitigate for 100% of the project GHG emission sources within Washington State by purchasing carbon credits or paying into a GHG mitigation fund. Additionally, NWIW anticipates that producing methanol in Kalama from natural gas would displace methanol production from existing coal-based plants in Asia (due to cost advantages) resulting in a net global reduction of GHG.

9.7 Conclusions regarding cumulative impacts:



#### 9.7.1 Marine Export Facility

When considering the overall impacts that will result from the proposed activity, in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area described in section 9.2, are not considered to be significant . Compensatory mitigation will be required to help offset the impacts to eliminate or minimize the proposed activity's incremental contribution to cumulative effects within the geographic area described in Section 9.2. Mitigation required for the proposed activity is discussed in Section 8.0.

#### 9.7.2 Kalama Lateral Project

When considering the overall impacts that will result from the proposed activity, in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area described in section 9.2, are not considered to be significant . Compensatory mitigation will be required to help offset the impacts to eliminate or minimize the proposed activity's incremental contribution to cumulative effects within the geographic area described in Section 9.2. Mitigation required for the proposed activity is discussed in Section 8.0.

#### 9.7.3 Kalama Methanol Facility

When considering the overall impacts that will result from the proposed activity, in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area described in section 9.2, are not considered to be significant . Compensatory mitigation will not be required by DOE. However, other mitigation will be required under the SEPA process and/or volunteered by NWIW to help offset the impacts to eliminate or minimize the proposed activity's incremental contribution to cumulative effects within the geographic area as described in Section 9.2. Mitigation required for the proposed activity is discussed in Section 8.0.

## 10.0 Compliance with Other Laws, Policies, and Requirements

Section 10.0 is an evaluation of Corps compliance with other laws, policies, and requirements in regards to Corps' authority to authorize actions under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.

10.1 **Section 7(a)(2) of the Endangered Species Act (ESA):** Refer to Section 2.2 for description of the Corps action area for Section 7.

10.1.1 Has another federal agency been identified as the lead agency for complying with Section 7 of the ESA with the Corps designated as a cooperating agency and has that consultation been completed? No

10.1.2 Are there listed species or designated critical habitat present or in the vicinity of the Corps' action area? Yes

10.1.3 Effect determination(s), including no effect, for all known species/habitat, and basis for determination(s): See the attached ORM2 Summary sheet for the list of species in the action area and the effect determination for those species where the Corps completed either individual or programmatic consultation.

The Corps determined the work would have no effect on the following specie(s):

Nelson's checker-mallow (*Sidalcea nelsoniana*): The threatened Nelson's checker-mallow is a perennial herb with lavender to deep pink flowers that occurs on a variety of lands (including wetlands and road side ditches), typically characterized as open with little or no shade and is generally intolerant of encroachment of woody species. According to the FWS, the Project would be located about 18 miles south of known Nelson's checker-mallow occurrences. The Corps determined that construction and operation of the Marine Export Facility, Lateral Project, and Kalama Methanol Facility would have no effect on this species.

Yellow-billed cuckoo (*Coccyzus americanus*): The threatened yellow-billed cuckoo is a neotropical migratory bird that is known to occupy riparian woodland habitat. The FWS has proposed to designate critical habitat for this species; however, none of this habitat would be located in the State of Washington. Based on the absence of significant riparian woodland habitat and the mobility of the yellow-billed cuckoo, the Corps determined that construction and operation of the Marine Export Facility, Lateral Project, and Kalama Methanol Facility would have no effect on this species.

Oregon Spotted Frog (*Rana pretiosa*): The Oregon spotted frog inhabits emergent wetland habitats in forested landscapes and requires perennial water for protecting all age classes. Suitable habitat for the species does not occur

within the Project area, and no critical habitat proposed for designation (proposed August 29, 2013) is in Cowlitz County. The Corps determined that the construction and operation of the Marine Export Facility, Lateral Project, and Kalama Methanol Facility would have no effect on this species.

Bull Trout (*Salvelinus confluentus*): The threatened bull trout is a cold water dependent species that requires stable stream channels, clean spawning and rearing gravel, complex and diverse cover, and unblocked migratory corridors. The waterbodies affected by the Lateral Project do not provide the habitat necessary for bull trout. The Corps determined that the construction and operation the Lateral Project would have no effect on this species; however, the construction and operation of the Marine Export Terminal would likely adversely affect listed salmonids, see Section 10.1.4.

10.1.4 Consultation with either the National Marine Fisheries Service and/or the U.S. Fish and Wildlife Service was initiated and completed as required, for any determinations other than “no effect” (see the attached ORM2 Summary sheet for begin date, end date and closure method of the consultation).

National Marine Fisheries Service: The Corps requested formal consultation with NMFS for the Marine Export Terminal in a letter dated 09 October 2015. The Corps requested informal consultation with NMFS for the Lateral Project in a letter dated 09 October 2015. A biological assessment was included with both letters.

NMFS issued a Biological Opinion (BO) on 10 October 2017 that concluded consultation for the Marine Export Terminal, Lateral Project, and Kalama Methanol Facility. The BO concluded that that the proposed projects would likely adversely affect the following species: the Lower Columbia River (LCR) chinook salmon (*Oncorhynchus tshawytscha*), Upper Willamette River (UWR) chinook salmon (*O. tshawytscha*), Upper Columbia River (UCR) spring chinook salmon (*O. tshawytscha*), Snake River spring-summer and fall run chinook salmon (*O. tshawytscha*), LCR steelhead (*O. mykiss*), UWR steelhead (*O. mykiss*), SRB steelhead (*O. mykiss*), UCR steelhead (*O. mykiss*), Middle Columbia steelhead (*O. mykiss*), LCR coho salmon (*O. kisutch*), Snake River sockeye (*O. nerka*), LCR chum salmon (*O. gorbuscha*), Southern Distinct Population Segment (DPS) of the green sturgeon (*Acipenser medirostris*), the Southern DPS of the Pacific eulachon (*Thaleichthys pacificus*), blue whales, fin whales, humpback whales, sperm whales, and leatherback turtles. The BO included reasonable and prudent measures, terms and conditions, and conservation recommendations. Those reasonable and prudent measures and terms and conditions that were directed to the Corps are included as a special condition of the permit, see Section 11, Special Conditions.

The Corps requested formal consultation with USFWS for the Marine Export Terminal in a letter dated 09 October 2015. The Corps requested informal consultation with USFWS for the Lateral Project in a letter dated 09 October 2015. USFWS determined formal consultation was appropriate. A biological assessment was included with both letters.

USFWS issued a BO on 14 November 2016 that concluded consultation for the Marine Export Terminal, Lateral Project, and Kalama Methanol Facility. The BO concluded that that the proposed projects is not likely to adversely affect marbled murrelet (*Brachyramphus marmoratus*), Columbia River bull trout (*Salvelinus confluentus*) and white-tailed deer (*Odocoildus virginianus leucurus*). The BO concluded that the Marine Export Facility and Kalama Methanol Facility are likely to adversely affect the streaked horned lark but are not likely to adversely affect designated critical habitat for the streaked horned lark. The BO included reasonable and prudent measures, terms and conditions, and conservation recommendations. Those reasonable and prudent measures and terms and conditions that were directed to the Corps are included as a special condition of the permit, see Section 11, Special Conditions.

Based on a review of the information above, the Corps has determined that it has fulfilled its responsibilities under Section 7(a) (2) of the ESA for both the Marine Export Facility and the Lateral Project. The documentation of the consultation is incorporated by reference.

- 10.2 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat (EFH). Section 10.1 is documentation of Corps compliance with the Magnuson Stevens Act for evaluation of the Marine Export Facility and the Lateral Project.
- 10.2.1 Has another federal agency been identified as the lead agency for complying with the EFH provisions of the Magnuson-Stevens Act with the Corps designated as a cooperating agency and has that consultation been completed? No
- 10.2.2 Did the proposed project require review under the Magnuson-Stevens Act? Yes.
- 10.2.3 If yes, EFH species or complexes considered: Pacific coast groundfish and Pacific coast salmon
- 10.2.4 Effect(s) determination and basis for that determination(s):

Marine Export Facility: NMFS concluded that the proposed export terminal would have the following adverse effects on EFH.

- Long-term increase in predation from over water coverage and shading
- Short-term increase in underwater noise from installation of steel pipe piles

- using an impact hammer.
- Short-term increase in suspended sediment from pile installation

Lateral Project: NMFS concluded the lateral project would not adversely affect EFH.

10.2.5 Consultation with the National Marine Fisheries Service was initiated and completed as required (see the attached ORM2 Summary sheet for consultation type, begin date, end date and closure method of the consultation).

10.2.5.1 Conservation Recommendations: NMFS provided the following conservations recommendations:

- a) Implement in-water work windows and pile driving restrictions as outlined in the BiOp terms and conditions.
- b) Use a vibratory hammer when possible.

The Corps submitted its statutory reply to NMFS regarding the EFH conservation recommendations listed in the BiOp in a letter dated 06 April 2018. The Corps accepts CR 1 and CR 2 are acceptable and the applicant will refer to the biological opinion dated 10 October 2017.

Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under EFH provisions of the Magnuson-Stevens Act for both the Marine Export Facility and the Lateral Project.

10.3 **Section 106 of the National Historic Preservation Act (Section 106)**: Refer to Section 2.3 for permit area determination. Section 10.3 is documentation of compliance with Section 106 for the Corps evaluation of the Marine Export Facility and the Lateral Project.

10.3.1 Has another federal agency been identified as the lead federal agency for complying with Section 106 of the National Historic Preservation Act with the Corps designated as a cooperating agency and has that consultation been completed? No

10.3.2 Known historic properties present? No. The Corps has reviewed the documentation provided by the agency and determined it is sufficient to confirm Section 106 compliance for this permit authorization, and additional consultation is not necessary.

Effect determination and basis for that determination: The proposed projects would not have any effect on any sites listed, or eligible for listing, in the National Register of Historic Places, or otherwise of national, state, or local significance based on letter from SHPO. See Section 7, Public Interest Factors, Historic Properties.

10.3.3 Consultation was initiated and completed with the appropriate agencies, tribes and/or other parties for any determinations other than “no potential to cause effects” (see the attached ORM2 Summary sheet for consultation type, begin date, end date and closure method of the consultation). See Section 4.2 Tribal Coordination; Section 7 Public Interest Factors, Historic Properties; and Section 10.4 Tribal Trust Responsibilities. Based on a review of the information above, the Corps has determined that it has fulfilled its responsibilities under Section 106 of the NHPA for both the Marine Export Facility and the Lateral Project. Compliance documentation incorporated by reference.

#### 10.4 Tribal Trust Responsibilities

10.4.1 Was government-to-government consultation conducted with Federally-recognized Tribe(s)? Yes

Provide a description of any consultation (s) conducted including results and how concerns were addressed.

The Corps is the lead federal agency for tribal consultation for the Marine Export Facility and Lateral Project. Tribal consultation was done with two major considerations: a) Tribal Trust Responsibility, especially as it pertains to treaty reserved rights, and b) consultation under Section 106 of the National Historic Preservation Act. For tribal trust consultation, the area of consideration would be aligned with the NEPA scope. For consultation pertaining to cultural resources, direct impacts would align directly with the permit area, and consideration of effects from the undertaking were also given to known historic properties outside of the permit area.

In accordance with the Corps trust and treaty responsibilities, the Corps sent a letter notification on 14 April 2016 to the tribes listed in Section 4.2 Tribal Coordination, and requested comments regarding the proposed projects. Follow-up letters were sent to the listed tribes on 27 April 2016 and 22 June 2016.

In an email dated 7 July 2016, the Cowlitz Indian Tribe requested a staff level meeting to discuss the project. The Corps met with the Cowlitz Indian Tribe to brief the Tribe on proposed project details; Cowlitz Indian Tribe expressed concerns regarding potential impacts to health and welfare of first stocks and cultural resources along the pipeline route and asked if the Corps would release a draft Environmental Assessment (EA) or other NEPA documents for the proposed projects.

In an email dated 30 September 2016, the Cowlitz Indian Tribe requested to review the draft EA. The Corps responded to this request in emails dated 03 October 2016 and 16 November 2016 that there is no public comment period for the Regulatory Branch’s statement of findings/EA; however, the Cowlitz Indian

Tribe can directly submit their comments to the Corps to initiate discussion of any issues and concerns.

In a letter dated 18 November 2016, the Cowlitz Indian Tribe requested a Government to Government meeting. In an email dated 22 November 2016, the Corps acknowledged receipt of the Cowlitz Indian Tribe's letter. On 29 January 2017, the District Commander responded to the Government to Government consultation request, acknowledging the Cowlitz Indian Tribe's concerns and that Corps staff was working to schedule a meeting. On 31 January 2016, the Corps met with the Cowlitz Indian Tribe to discuss Tribe's concerns that the proposed mitigation for the Marine Export facility and the proposed Kalama Methanol Facility inadequately addresses overall impacts that would result from these projects; and their request see the draft permit or EA so they can determine whether appropriate mitigation measures were applied; and discuss the Cowlitz Indian Tribe's concerns regarding cultural resources along the Kalama Lateral Project alignment. On 01 March 2017, the District Commander met with the Cowlitz Indian Tribe to discuss various items including the Cowlitz Indian Tribe's concerns regarding the Marine Export Facility and Kalama Lateral Project. In a phone call on 21 April 2017, the Cowlitz Indian Tribe agreed that the Corps had fulfilled our obligations to coordinate and/or consult with the Cowlitz Indian Tribe; and that the Corps and Cowlitz Indian Tribe continue to "agree-to-disagree" on the NWP Regulatory Branch's process (which is consistent with Regulatory Districts Nationwide) as it relates to sharing draft NEPA documents but that the Cowlitz Indian Tribe recognizes this decision involves higher level policy discussion.

In summary, the Corps has determined that it has fulfilled its tribal trust responsibilities for both the Marine Export Facility and the Lateral Project.

10.4.2 Other Tribal including any discussion of Tribal Treaty rights? N/A

#### 10.5 **Section 401 of the Clean Water Act – Water Quality Certification (WQC)**

10.5.1 Is a Section 401 WQC required, and if so, has the certification been issued, waived or presumed? A general WQC has been issued for this permit. A certification for the Marine Export Facility has been issued by the Washington State Department of Ecology, dated 15 February 2017. A certification for the Kalama Lateral Project has been issued by the Washington State Department of Ecology, dated 07 June 2017.

#### 10.6 **Coastal Zone Management Act (CZMA)**

Is a CZMA consistency concurrence required, and if so, has the concurrence been issued, waived or presumed? N/A, a CZMA consistency concurrence is not required for either the Marine Export Facility or Kalama Lateral Project.

## 10.7 **Wild and Scenic Rivers Act**

Is the project located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system? No. Neither the Marine Export Facility nor Lateral Project is located within an above described rivers.

## 10.8 **Effects on Corps Civil Works Projects (33 USC 408)**

Does the applicant also require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would alter, occupy or use a Corps Civil Works project? No, the appropriate non-Regulatory office has determined that there will be no effects to federal projects that require permission from the Corps.

### Marine Export Facility:

i) Dredging of the proposed berth and in-water placement of dredged material. In a letter dated 18 February 2016 and a MFR dated 12 May 2017, the Corps stated that the proposed dredging would have no effect on the Federal navigation channel since existing depths in the channel are already commensurate with the proposed dredging depths for the berthing area. The Corps does not anticipate that removing material outside the Federal navigation channel to depths similar to the existing channel depths would cause any effects, such as shoaling or unusual scour effects. In addition, the proposed dock should act somewhat like a pile dike and assist in directing flows toward the navigation channel, thus enhancing scour and helping to limit shoaling.

ii) Removal of pile dike for mitigation. In a letter dated 18 February 2016, the Corps determined that the proposed partial removal of pile dike at RM 71. 59 downstream of the project site in the back slough area off the Carrolls Channel should not result in any negative or consequential effects.

Lateral Project: No Section 408 conditions were identified.

Kalama Methanol Facility: Pile Dike 71.87. The proposed construction of the Kalama Methanol Facility would not have an adverse effect on the Corps pile dike located immediately downstream of the berth. In a MFR dated 12 May 2017, it was determined there is no effect to the federal navigation channel and does not trigger a 408 review.

## 10.9 **Corps Wetland Policy (33 CFR 320.4(b))**

### 10.9.1 Marine Export Facility:

Does the project propose to impact wetlands? Yes



Based on the public interest review herein, the beneficial effects of the project outweigh the detrimental impacts of the project.

10.9.2 Kalama Lateral Project:

Does the project propose to impact wetlands? Yes

Based on the public interest review herein, the beneficial effects of the project outweigh the detrimental impacts of the project.

10.10 **Other (as needed):** N/A

## 11.0 Special Conditions

Section 11.0 includes special conditions that will be included in the Corps' Section 10/404 permits for the Marine Export Facility and the Kalama Lateral Project.

11.1 Are special conditions required to protect the public interest, ensure effects are not significant and/or ensure compliance of the activity with any of the laws above? Yes

11.2 Required special condition(s)

**Marine Export Facility Special Conditions.** The following conditions would be made part of any permit issued for the Marine Export Facility. Each permit condition was reviewed for enforceability.

a) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee shall be required, upon due notice from the U.S Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

*Rationale: To minimize obstruction of navigable waters.*

b) Upon starting the activities authorized in this permit/verification letter, Permittee shall notify the U.S. Army Corps of Engineers, Portland District, Regulatory Branch that the work has started. Notification shall be sent by e-mail to: cenwp.notify@usace.army.mil and the email subject line shall include: Corps No. NWP-2014-177/2, Cowlitz County.

*Rationale: To facilitate compliance visit if needed*

Endangered Species:

c) This Corps permit does not authorize you to take an endangered species, in particular, those listed in the attached biological opinions (BO). In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed BOs prepared by the National Marine Fisheries Service (NMFS) dated October 10, 2017 (Attachment 3) and the U.S. Fish and Wildlife Service (USFWS) dated November 14, 2016 (Attachment 4) contains mandatory terms

and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BOs (NMFS Reference Number WCR-2015-3594, USFWS Reference Number 01EWF00-2016-F-0065). Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BOs, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BOs, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. The USFWS/NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

*Rationale: To comply with ESA.*

In-Work Windows:

d) Pile driving installation shall be conducted during the work window of September 01-January 31.

*Rationale: To minimize effects to ESA listed species.*

d) Dredging and in-water dredged material placement shall be conducted during the window of August 01-December 31.

*Rationale: To minimize effects to ESA listed species.*

Local Notice to Mariners

f) Permittee shall notify the U.S. Coast Guard District Thirteen of the project by email at D13-PF-LNM@uscg.mil at least 14 days prior to commencing dredging operations and dock construction, so the project information can be issued in the Local Notice to Mariners

*Rationale: To minimize effects to navigation.*

PATON:

g) Permittee shall install and maintain, at your expense, any safety lights and signals prescribed by the United States Coast Guard (USCG) District Thirteen, through regulations or otherwise, on your authorized facilities. The USCG may be reached at the following email address: D13-pf-paton@uscg.mil or telephone number: (206) 220-7285. The PATON as-built drawing shall be sent by e-mail to: cenwp.notify@usace.army.mil and the email subject line shall include: Corps No. NWP-2014-177/2, Cowlitz County, PATON.

Dredging:

h) Permittee shall submit all dredging/disposal-related notifications and reports to the U.S. Army Corps of Engineers (Corps), Portland District, Regulatory Branch by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Dredging.

i) Permittee shall conduct a pre-dredge bathymetric survey of the proposed dredging site. Plotted results of the pre-dredge bathymetric survey, to include plan and section views, shall be submitted to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch in PDF format at least 30 days prior to the start of dredging by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Dredging. Results must clearly display the pre-dredge sediment surface in relation to the permitted dredge boundary and depth, as well as the location of project features such as docks, wharfs and other landmarks. The vertical datum must be clearly indicated. Full bathymetric survey data must be submitted upon request.

j) Permittee shall conduct a pre-disposal bathymetric survey of the proposed disposal site. Plotted results of the pre-disposal bathymetric survey, to include plan and section views, shall be submitted to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch in PDF format at least 30 days prior to the start of dredging by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Dredging. Results must clearly display the pre-disposal sediment surface and the disposal site boundaries, as well as the disposal site location in relation to other features or landmarks (e.g., navigation channel boundary). The vertical datum must be clearly indicated. Full bathymetric survey data must be submitted upon request.

k) At least 14 days prior to beginning dredging, the permittee shall submit to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch, a dredging operations and quality control plan for the authorized dredging and disposal by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Dredging. This plan must include: the Corps permit number, dredging contractor's name and contact information, proposed dredging schedule, proposed dredged equipment and methodology, method and equipment for dredging and disposal positioning procedures, water quality monitoring and spill control procedures, debris management procedures, and report submittal schedule. The plan must be approved by the Portland District Corps prior to the commencement of dredging. Dredge work plan shall include survey, construction drawings or other documentation sufficient in detail to show location of placement of dredged material in the upland site; and brief summary of de-watering operations.

l) At least 7 days prior to dredging, the permittee, the dredging contractor, U.S. Army Corps of Engineers representatives, Washington State Department of

Ecology representatives and Washington State Department of Natural Resources representatives shall attend a Pre-dredge Meeting to review the Department of the Army permit conditions, dredging operations and quality control plan, water quality certification, and site-use authorization, as applicable.

m) Permittee shall provide a copy of the permit transmittal letter, permit form, and permit drawings to all contractors performing any of the work authorized by this permit. A copy of the permit shall be available on the vessel(s) used in the transport and disposal of dredged material.

n) Permittee shall conduct a post-dredge bathymetric survey of the dredged site. Plotted results of the post-dredge bathymetric survey, to include plan and section views, shall be submitted to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch in PDF format within 60 days of the completion of dredging. Results must clearly display the post-dredge sediment surface in relation to the pre-dredge sediment surface and the permitted dredge boundary and depth, as well as the location of project features such as docks, wharfs and other landmarks. The vertical datum must be clearly indicated. Full bathymetric survey data must be submitted upon request.

o) Permittee shall record the date, time and the location of the vessel or barge/scow at the time of each disposal activity or for disposal while moving the position when disposal begins and the position when disposal ends. Permittee shall submit the disposal log to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch within 60 days of completion of dredging and disposal.

p) Permittee shall submit a post-dredge/disposal report. Report shall contain pre-disposal and post-disposal bathymetric survey drawing of the disposal site to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch Project Manager in PDF format within 60 days of completion of dredging by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Dredging. The vertical datum must be clearly indicated. Full bathymetric survey data must be submitted upon request. Report shall also contain condition survey or other documentation in sufficient detail to show final location of placement of dredged material in the upland site; and brief summary of de-watering operations.

*Special Conditions h-p Rationale: To facilitate documentation of compliance of dredging and disposal.*

PSET

q) If dredging cannot be completed prior to February 1, 2022, you shall coordinate with the Portland Sediment Evaluation Team (PSET) to obtain a determination regarding the need to re-characterize the dredged material.

Coordination with PSET shall be initiated at least 9 months prior to February 1, 2022.

*Rationale: To ensure dredged material is suitable for in-water disposal.*

#### Compensatory Mitigation

s) Permittee shall implement and abide by the mitigation plan, *Kalama Manufacturing and Marine Export Facility* dated August 2015, revised September 2016. Mitigation shall be constructed before or concurrent with the work authorized by the permit.

t) An as-built mitigation construction report and as-built drawings of the mitigation area(s) shall be submitted upon completion of mitigation construction. This report must be submitted by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Mitigation for review and approval. The report must prominently display the reference number NWP-2014-177-2. The year mitigation construction is completed, as determined by the Corps, represents Year 0 for mitigation monitoring.

u) Mitigation monitoring reports shall be submitted annually for 5 years to the U.S. Army Corps of Engineers (Corps), Portland District, Regulatory Branch by 31 July by Corps of each monitoring year. This report must be submitted by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Mitigation. Year 1 monitoring shall occur at least one year after completion of the mitigation site(s) as determined by the Corps. All reports must prominently display the reference number NWP-2014-177-2.

v) The Permittee shall protect and preserve the riparian plantings and allow the vegetation to grow in a natural state for as long as the permitted project remains in place.

w) The Permittee shall protect and maintain the engineered log jams for as long as the permitted project remains in place.

x) To ensure the long-term protection of the mitigation site, the Permittee shall record on mitigation site property deed a copy of this Department of the Army permit and a description of the mitigation area identified in the final mitigation plan. These documents shall be recorded with the Registrar of Deeds or other appropriate official charged with maintaining records on real property. Proof of this recorded documentation must be submitted to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch by email to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2014-177/2, Cowlitz County, Mitigation, prior to project construction.

*Special Condition s-x Rationale: To ensure successful execution of permittee responsible mitigation.*

y) Permittee's responsibility to complete the required compensatory mitigation as set forth in Special Conditions "s" through "x" shall not be considered fulfilled until Permittee has demonstrated mitigation success and has received written verification from the U.S. Army Corps of Engineers Portland District, Regulatory Branch.

*Rationale: To ensure successful execution of permittee-responsible compensatory mitigation.*

Compliance:

z) Permittee shall submit an as built report to the Corps at the address shown in Special Condition (a) by December 31, Year. The report shall contain photographs of the site; and summary of type of piling installed, number of piles and installation method. A map identifying the locations and directions of the photographs shall also be included in the as-built report.

*Rationale: To document compliance with authorized action.*

aa) Permittee shall submit a signed certification regarding the completed work and any required mitigation by email to cenwp.notify@usace.army.mil. The email subject line shall include: NWP-2014-177/2, Cowlitz County, Mitigation. A "Compliance Certification" is provided (Attachment 5).

*Rationale: To facilitate documentation of compliance.*

### **Kalama Lateral Special Conditions**

The following conditions would be made part of any permit issued for the proposed project. Each permit condition was reviewed for enforceability.

a) Upon starting the activities authorized in this permit, Permittee shall notify the U.S. Army Corps of Engineers, Portland District, Regulatory Branch that the work has started. Notification shall be sent by e-mail to: cenwp.notify@usace.army.mil and the email subject line shall include: Corps No. NWP-2015-111, Cowlitz County.

*Rationale: To notify Corps that work is starting so a compliance inspection can be completed as needed.*

Endangered Species:

b) This Corps permit does not authorize you to take an endangered species, in particular those listed in the attached biological opinions (BO). In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The enclosed BOs prepared by the National Marine Fisheries Service (NMFS) dated October 10, 2017 (Attachment 3) and the U.S. Fish and Wildlife Service (USFWS) dated November 14, 2016 (Attachment 4) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO (NMFS Reference Number WCR-2015-3594, USFWS Reference Number 01EWF00-2016-F-0066). Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached BOs, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BOs, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. The USFWS/NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

*Rationale: To comply with ESA.*

In-water Work Windows

c) In-water work in the Kalama River tributaries shall be conducted from August 01-August 15.

d) in-water work in Columbia River tributaries shall be conducted from August 01-August 15.

Cultural Resources

e) You shall develop and have in place a Cemetery Impact Plan with Cowlitz County Cemetery District #6 prior to ground disturbance between Milepost 1.1 and 1.3. The Cemetery Impact Plan shall be sent by e-mail to: cenwp.notify@usace.army.mil and the email subject line shall include: Corps No. NWP-2015-111, Cowlitz County, Cemetery Impact Plan.

*Rationale: Corps concurrence with FERC's determination that this action would have no effect on historic properties is conditioned on that a Cemetery Impact Plan be in place prior to ground disturbance.*



Compensatory Mitigation

f) Permittee shall obtain 0.05 credit from the Columbia River Wetland Mitigation Bank. Prior to performing work in waters of the U.S. authorized by this permit, permittee shall submit documentation of the completed mitigation bank transaction to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch. Documentation shall be submitted by e-mail to [cenwp.notify@usace.army.mil](mailto:cenwp.notify@usace.army.mil) and the email subject line shall include: NWP-2015-111, Cowlitz County.

*Rationale: To ensure execution of compensatory mitigation plan.*

Mechanized Equipment:

g) The Permittee shall implement the following practices to prevent or minimize impacts to the aquatic environment from mechanized equipment:

i. Use existing roads, paths, and construction pads where available. Temporary mats or pads, when required to provide access onto wetlands or tidal flats, shall be removed within 30 days of completing the authorized work.

ii. Operate equipment from the top of a streambank and conduct work outside of the active stream channel, unless specifically authorized by the District Engineer.

iii. Equipment shall not be staged, fueled, or maintained within waters of the U.S.

iv. Spill prevention and containment materials shall be maintained and be readily accessible at vehicle staging areas. The amount of spill response materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials, shovels, brooms, and containment bags) maintained on-site must be appropriate for the size of the authorized activity.

*Rationale: To minimize effects to wetlands and streams.*

Erosion Control:

h) During construction and until the site is stabilized, the permittee shall ensure all practicable measures are implemented and maintained to prevent erosion and runoff. Temporary stockpiles of excavated or dredged material shall be stabilized to prevent erosion. Once soils or slopes have been stabilized, permittee shall completely remove and properly dispose of or re-use all non-biodegradable components of installed control measures.

*Rationale: To minimize effects to wetlands and streams.*

Temporary Fills and Impacts:

i) Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces.

m) In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect).

j) Native soils and/or sediments removed from waters of the U.S. for project construction shall be stockpiled and used for site restoration to the maximum extent practicable.

k) Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody. Site restoration of temporarily filled or impacted areas shall include returning the area to pre-project ground surface contours. The permittee shall appropriately revegetate temporarily filled or impacted areas with native, noninvasive herbs, shrubs, and/or tree species sufficient in number, spacing, and diversity to replace affected aquatic functions.

*Rationale: To minimize impacts to wetlands and streams.*

Horizontal Directional Drilling Operations.

l) In the event of inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities, the Permittee shall implement the Drilling Fluid Contingency Plan for Horizontal Directional Drilling Operations, received on September 20, 2016.

m) In the event that the HDD cannot be completed, the permittee shall stop work and immediately notify the Corps prior to modifying work.

*Rationale: To minimize impacts in the event of inadvertent return of drilling fluids during HDD operations.*

Compliance:

n) Permittee shall submit a signed certification regarding the completed work and any required mitigation. The compliance certification shall be sent by e-mail to: cenwp.notify@usace.army.mil and the email subject line shall include: Corps No. NWP-2015-111, Cowlitz County, Compliance Certification. A "Compliance Certification" is provided (Attachment 5).

*Rationale: To facilitate documentation of compliance.*

## **12.0 The Corps' Findings and Determinations**

### **12.1 Marine Export Facility**

12.1.1 Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

#### 12.1.2 Presidential Executive Orders (EO):

##### 12.1.2.1 EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians:

The Marine Export Facility has no substantial effect on one or more Indian tribes, Alaska or Hawaiian natives. See Section 4.2 Tribal Coordination; Section 7 Public Interest Factors, Historic Properties; and Section 10.4 Tribal Trust Responsibilities.

##### 12.1.2.2 EO 11988, Floodplain Management:

Corps: Alternatives to location for the Marine Export Facility Project are within the floodplain, minimization and compensatory mitigation of the effects were considered above.

##### 12.1.2.3 EO 12898, Environmental Justice:

The Corps has determined that the Marine Export Facility would not use methods or practices that discriminate on the basis of race, color or national origin nor would it have a disproportionate effect on minority or low-income communities.

##### 12.1.2.4 EO 13112, Invasive Species:

Corps: The evaluation provided above for the Marine Export Facility included invasive species concerns in the analysis of impacts at the project site and associated compensatory mitigation projects. See Section 9.0 Consideration of Cumulative Impacts.

##### 12.1.2.5 EO 13212 and EO 13302, Energy Supply and Availability:

Corps: The review of the Marine Export Facility was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate

completion of this energy related project while maintaining safety, public health and environmental protections.

12.1.3 Findings of No Significant Impact: Having reviewed the information provided by the applicant and all interested parties and an assessment of the environmental impacts, I find that this permit action will not have a significant impact on the quality of the human environment. Therefore, an environmental impact statement will not be required.

12.1.4 Compliance with the Section 404(b)(1) Guidelines: Having completed the evaluation above, I have determined that the proposed discharge complies with the Guidelines, with the inclusion of the appropriate and practicable special conditions to minimize pollution or adverse effects to the affected ecosystem.

12.1.5 Public interest determination: Having reviewed and considered the information above, I find that the proposed project is not contrary to the public interest.

**PREPARED BY:**

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Date

**APPROVED FOR THE COMMANDER, AARON L. DORF, COLONEL, CORPS OF ENGINEERS, DISTRICT COMMANDER:**

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William D. Abadie  
Section Chief, Regulatory Branch

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## 12.2 Lateral Project

12.2.1 Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

### 12.2.2 Presidential Executive Orders (EO):

#### 12.2.2.1 EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians:

The Marine Export Facility has no substantial effect on one or more Indian tribes, Alaska or Hawaiian natives. See Section 4.2 Tribal Coordination; Section 7 Public Interest Factors, Historic Properties; and Section 10.4 Tribal Trust Responsibilities.

#### 12.2.2.2 EO 11988, Floodplain Management:

Corps: Alternatives to location for the Lateral Project are within the floodplain, minimization and compensatory mitigation of the effects were considered above.

#### 12.2.2.3 EO 12898, Environmental Justice:

The Corps has determined that the Lateral Project would not use methods or practices that discriminate on the basis of race, color or national origin nor would it have a disproportionate effect on minority or low-income communities.

#### 12.2.2.4 EO 13112, Invasive Species:

Corps: The evaluation provided above for the Lateral Project included invasive species concerns in the analysis of impacts at the project site and associated compensatory mitigation projects. See Section 9.0 Consideration of Cumulative Impacts.

#### 12.2.2.5 EO 13212 and EO 13302, Energy Supply and Availability:

Corps: The review of the Lateral Project was expedited and/or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy related project while maintaining safety, public health and environmental protections.

12.2.3 Findings of No Significant Impact: Having reviewed the information provided by the applicant and all interested parties and an assessment of the environmental impacts, I find that this permit action will not have a significant impact on the quality of the human environment. Therefore, an environmental impact statement will not be required.

12.2.4 Compliance with the Section 404(b)(1) Guidelines: Having completed the evaluation above, I have determined that the proposed discharge complies with the Guidelines, with the inclusion of the appropriate and practicable special conditions to minimize pollution or adverse effects to the affected ecosystem.

12.2.5 Public interest determination: Having reviewed and considered the information above, I find that the proposed project is not contrary to the public interest.

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## LIST OF ACRONYMS

ASU	air separation unit
BA	biological assessment
BMPs	best management practices
CCC	Cowlitz County Code
CEQ	Council on Environmental Quality
cfs	cubic feet per second
CFR	Code of Federal Regulations
CIP	cast-in-place
CHE	Coast & Harbor Engineering
Corps	U.S. Army Corps of Engineers
CRD	Columbia River datum
CY	cubic yards
Dth/d	dekatherms per day
DOE	U.S. Department of Energy
DNR	Washington State Department of Natural Resources
EA	Environmental Assessment
EEZ	exclusive economic zone
ELJ	Engineered Log Jam
Energy Act	Energy Policy Act of 2005
EPA	Environmental Protection Agency
ECRP	Erosion Control and Revegetation Plan
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
ft.	feet
gpm	gallons per minute
GHG	greenhouse gases
GVP	General Vessel Permit program
HDD	Horizontal Directional Drill
I-5	Interstate 5
Kalama Methanol Facility	Natural gas-to-methanol production plant and storage facilities at the Port of Kalama
lat	latitude
Lateral Project	Kalama Lateral Project
long	longitude
Marine Export Facility	Kalama Manufacturing and Marine Export Facility
MFR	Memorandum for the Record
MP	Mile point
NEPA	National Environmental Policy Act
Northwest Pipeline	Northwest Pipeline LLC
NWIW	Northwest Innovation Works, LLC – Kalama
NWP	USACE Portland District
NWS	USACE Seattle District
OHWM	Ordinary High Water Mark
PATON	Private Aid to Navigation
Port	Port of Kalama
PSET	Portland Sediment Evaluation Team
RM	River Mile
ROW	Right of Way
Section 10	Section 10 of the Rivers and Harbors Act of 1899
Section 106	Section 106 of the National Historic Preservation Act
Section 404(b)(1)	Clean Water Act Section 404(b)(1)

SEPA	Washington State Environmental Policy Act
SOF	Statement of Findings
SPCC	Spill prevention, control, and countermeasures
UHMW-PE	Ultra-high molecular weight polyethylene
USACE	US Army Corps of Engineers
USCG	United States Coast Guard
WDFW	Washington Department of Fish and Wildlife
WDOE	Washington Department of Ecology
ZLD	zero liquid discharge



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