



Oregon

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U.S. Army Corps of Engineers
Attention: Mr. Dominic Yballe
P.O. Box 2946
Portland, OR 97208-2946

RE: 401 Water Quality Certification Decision for U.S. Army Corps of Engineers 404 Joint Permit Application #2008-00414 (Department of State Lands # APP0052419) & Sec. 10 Coast Guard Bridge Permit Application for the Columbia River Crossing

Dear Mr. Yballe:

The Department of Environmental Quality has reviewed the U.S. Army Corps of Engineers (USACE) Permit Application #2008-00414 (Department of State Lands # APP0052419) received by DEQ on February 11, 2013, and amendments submitted on May 17, 2013, requesting a 401 water quality certification, as well as the Application for US Coast Guard Bridge Permit (dated January 30, 2013). The Oregon and Washington Departments of Transportation (the "Applicants") propose to discharge fill into the Columbia River, including a channel of the Columbia River south of Hayden Island (referred to in the Application as "North Portland Harbor"), and to the Sandy River, and to discharge treated stormwater to the Columbia Slough. Impacts to these waters of the state are anticipated during the Initial Construction Program (ICP) to construct replacement bridges over the Columbia River along Interstate 5¹, during an aquatic habitat restoration mitigation project in the Sandy River, and from post-construction stormwater discharges to the Columbia River and to the Columbia Slough. This 401 certification decision applies to the project as described in the Joint Permit Application #2008-00414 and executed within the state of Oregon with potential impacts to Oregon jurisdictional waters.

The USACE issued a public notice for the project on February 11, 2013, and an additional public notice on June 7, 2013, for amendments to the project. Opportunity for submitting public comment to USACE¹ and DEQ were circulated with the notices. DEQ issued a draft of this 401 certification decision and its accompanying Evaluation Report and Findings for public notice and comment on June 25, 2013.

Project Area: The entire project area runs along a 5-mile segment of the I-5 corridor from its southern end along Victory Boulevard in Portland, Oregon, across the Columbia River at River Mile 106.5, to its northernmost point into downtown Vancouver, Washington. This 401 certification decision evaluates impacts to portions of the Columbia River, including the channel south of Hayden Island, within the state of Oregon and the Columbia Slough. This 401 certification decision also evaluates impacts to the Sandy River resulting from a proposed mitigation project. Additionally, the 401 certification decision applies to all "contributing impervious area" associated with public highways, roads, streets, roadside areas, and auxiliary features (e.g., rest areas, viewpoints, heritage markers, park and ride facilities, pedestrian and bicycle facilities) owned or controlled by the Oregon Department of Transportation, that occur within the project area, or are contiguous to the project area, and that discharge runoff into the project area, before being discharged directly or indirectly into a stream, wetland, or subsurface water through a ditch, gutter, storm drain, dry well, other underground injection system.

¹ The ICP includes construction of three new bridges over the "North Portland Harbor." A fourth bridge, connecting Hayden Island to I-5 south, is proposed in the Application and included in this 401 certification decision, but will be constructed at a later date and not during the ICP.

Impacts that occur within the state of Washington and its jurisdictional waters are covered under that state's 401 certification Order.

Status of Affected Waters of the State: The Columbia River is classified in various reaches as water quality limited under the Clean Water Act, Section 303(d), for the parameters of: arsenic, DDE (DDT metabolite), fecal coliform, polychlorinated biphenyls (PCBs), pH, polynuclear aromatic hydrocarbons (PAHs), and temperature. Some segments are also listed by the state as ones with potential concerns for the parameters of: cadmium, copper, iron, lead, mercury, nickel, silver, tributyltin, zinc, aldrin, alkalinity, alpha-BNC, benzo(a)anthracene, benzo(g,h,i)perylene, Bhc, chrysene, cyanide, DDD, DDT, dieldrin, dioxins/furans endrin, hexavalent chromium, manganese, phenol, phosphorus, pyrene, and radionuclides.

In the Columbia River, Total Maximum Daily Loads (TMDLs) have been developed by DEQ and approved by the U.S. Environmental Protection Agency for the parameters of: dioxin (2,3,7,8-TCDD) and total dissolved gas. EPA has not yet completed development of a TMDL for the parameter of temperature, and DEQ has not yet completed TMDLs for the parameters of arsenic, DDE, fecal coliform, PCBs, pH, and PAHs.

EPA has designated the Lower Columbia as one of seven of the Nation's Great Water Bodies and one of 27 estuaries in the National Estuary Program.

The Columbia Slough is 303(d) listed for lead, iron, and manganese. TMDLs have been established for pH, dissolved oxygen, temperature, phosphorous, chlorophyll a, bacteria, lead, PCBs, DDE/DDT, dieldrin, and dioxin (DEQ 1998, DEQ 2006).

The Sandy River is considered water quality limited for temperature and approved for a temperature TMDL (DEQ 2010b). The Sandy River is also designated as a National Wild and Scenic River and an Oregon State Scenic Waterway within the proposed project area.

Designated beneficial uses in the Columbia River, the Columbia Slough, and Sandy River potentially impaired by the above listed parameters include: public and private domestic water supply, industrial water supply, irrigation, livestock watering, anadromous fish passage, salmonid fish rearing and spawning, resident fish and aquatic life, wildlife and hunting, boating, fishing, water contact recreation, and aesthetic quality.

Published DEQ Fish Use Designations designate the Columbia River Main stem as a salmon and steelhead migration corridor and designate the Columbia Slough for salmon and trout rearing and migration. The Sandy River, in the mitigation project reach, is designated as a salmon and trout rearing and migration corridor by OAR 340 Division 041 Figure 286A.

PROJECT DESCRIPTION & SUMMARY OF IMPACTS:

I-5 Crossing Bridges: Main stem

Two new bridge spans over the Columbia River between Vancouver, WA and Portland, OR will be constructed between 2014 and 2018. The eastern bridge structure will carry northbound vehicular traffic on the upper deck while providing for pedestrian and bicycle traffic on the lower deck. The western bridge structure will carry southbound vehicular traffic on its upper deck while carrying light rail extension from the Expo Center in Portland to Clark College in Vancouver on the lower deck.

Fill (as defined by USACE) below the ordinary high water level (OHWL) on the main stem of the

Columbia River results from geotechnical borings, temporary cofferdams, permanent steel casings for bridge support and permanent shaft caps. In the main stem the project will result in approximately 60,348 cubic yards of temporary fill and 46,375 cubic yards of permanent fill.

I-5 Crossing Bridges: "North Portland Harbor"

Construction of three bridges over the Columbia River channel south of Hayden Island is currently estimated to occur between 2015 and 2020. The three new bridge spans will be constructed adjacent to the existing bridge (which will be modified as part of the Project). One bridge will include a 2-lane northbound ramp carrying Marine Drive traffic to I-5 north. Another 2-lane southbound ramp will carry southbound I-5 traffic to Marine Drive. A multimodal local bridge will carry light-rail and a 2-lane roadway with bike lanes and a sidewalk over the river. A fourth bridge, one of the two auxiliary lanes for carrying southbound I-5 traffic to Marine Drive, will be constructed after the ICP as funding becomes available (but its impacts were described in the 404 Joint Application and are evaluated within this 401 certification decision).

According to the Proposed Project Amendment submitted May 17, 2011, the construction of each bridge column in the North Portland Harbor will require the installation of an over-sized casing (small diameter cofferdam). The USACE-defined fill below the OHWL consists of geotechnical borings, temporary cofferdams, permanent steel casings and columns for bridge supports and permanent concrete seals. As many as 16 of the 36 total over-sized casings/cofferdams will be in place in this channel of the river at any one time. The presence of casings/cofferdams for the three proposed bridges in the ICP equals a temporary loss of approximately 285 square feet and 316 cubic yards of habitat per casing/cofferdam. This equals a temporary loss of 7,980 square feet and 8,837 cubic yards. For the fourth bridge, the Hayden Island to I-5 south bridge that is not included in the ICP, the temporary loss equals 2,280 square feet and 2,525 cubic yards. Permanent impacts from concrete seals being left in place result in 206 square feet and 46 cubic yards of fill per casing/cofferdam, in addition to approximately 79 square feet of permanent impact related to each bridge shaft. Permanent impacts to waters of the U.S. from casings/cofferdams for all North Portland Harbor bridges will be 7,416 square feet.

Approximately 300 to 800 in-water steel pipe piles (to support temporary work structures) will be in place at any one time representing approximately 2,600 square feet of impact. The fourth bridge will require temporary work bridges consisting of approximately 400 temporary 24-inch piles, representing 1,260 square feet of impact.

Permanent shafts for the three bridges in the ICP will result in a total permanent impact of 2,199 square feet. The fourth bridge will consist of eight drilled shafts, representing approximately 628 square feet of additional impact.

Removal of up to 90 cubic yards over approximately 2,433 square feet of riprap or concrete within this area of the river is also proposed and will occur up to 7 days during construction.

Existing Bridge Demolition:

The existing I-5 bridge structures across the Columbia River will be demolished after all traffic is routed onto the new bridges. Demolition is expected to take approximately 18 months. The project proposes to permanently remove 0.639 acres and 43,868 cubic yards below the OHWL from existing bridge piers and structures. Each pier is approximately 3,090 square feet in area and 4,854 cubic yards in volume. Five of the nine piers (Piers 7 through 11) are located within Oregon, resulting in the permanent removal of 0.356 acre and 24,431 cubic yards of existing structures.

Other ground disturbance activities included in the ICP:

Improvements are proposed for the Hayden Island interchange, Marine Drive Interchange, and the Victory Boulevard interchange. The Metropolitan Area Express (MAX) yellow line will be extended north from the existing platform at the Portland Expo Center to Vancouver, WA. Total trackway pervious and impervious surfaces from the Expo Center to the touchdown in Vancouver (not including the stacked highway structure) are approximately 25,000 and 160,000 square feet, respectively. Impacts from these activities will occur above OHWL.

Mitigation:

Compensatory non-wetland mitigation to offset impacts to aquatic habitat from construction and operation of the Columbia River Crossing bridges in Oregon will be provided through a fish and riparian habitat restoration project located within Dabney State Recreation Area on the northern shoreline of the Sandy River at RM 8.0 near Troutdale, Oregon. Proposed restoration activities will involve excavation and fill placement to replace existing culverts (approximately seven along Bonnie Brook), and excavation and fill to allow installation of large wood pieces and key boulders. Final dimensions of large wood pieces and boulders has not yet been determined however estimates of fill for large wood and boulder installation are expected to be approximately 5 cubic yards per large woody debris structure (approximately 60 are proposed), and approximately 15 cubic yards for two engineered log jams. Total temporary work will entail approximately 365 cubic yards of fill and 3,075 cubic yards of removal.

AUTHORITIES

In exercising authority under 33 U.S.C. § 1341, ORS Chapter 468B, and Oregon Administrative Rules (OAR) 340 Division 48, DEQ evaluated this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. §§1311, 1312, 1313, 1316, and 1317 (Sections 301, 302, 303, 306 and 307 of the Clean Water Act);
2. Conformance with Oregon state water quality standards and rules in OAR Chapter 340, Divisions 41 and 48 and with other requirements of state laws;
3. Conformance with the applicable² Washington state water quality standards contained in Chapter 173-201A Washington Administrative Code (WAC); and
4. Conformance with the provision of using all known, available and reasonable methods to prevent and control pollution of state waters as required by ORS Chapter 468B.

Based on the Joint Permit Application, supplemental information provided, DEQ's Evaluation Report and Findings (enclosed), and consideration of public comment, DEQ is reasonably assured that the activities, as proposed and conditioned, will be conducted in a manner that will not lower water quality, will not adversely affect existing or beneficial uses, and will comply with applicable water quality standards and other appropriate requirements of state law. In view of the foregoing and in accordance with 33 U.S.C. §1341, ORS Chapter 468B and OAR 340 Division 48, water quality certification is granted to the Applicants for the project activities described in the Application, subject to the conditions within this certification decision, provided the conditions are made part of the USACE and USCG permits.

² The applicable Washington standards are only the standards that may be impacted by the project and are more stringent than Oregon's. See Evaluation Report and Findings, section 2.1 for more discussion.

Certification of this proposal does not authorize Applicants to exceed applicable state water quality standards. Furthermore, nothing in this certification absolves the Applicants from liability for contamination and any subsequent cleanup of surface waters, ground waters or sediments resulting from project construction or operations.

401 WATER QUALITY CERTIFICATION CONDITIONS

A. Timing:

1. This 401 certification decision is valid for ten (10) years from the date of issuance of the USACE 404 permit.
2. In-water work is allowed only within the Oregon Department of Fish and Wildlife (ODFW) preferred time window as specified in Oregon Guidelines for Timing of In-water Work to Protect Fish and Wildlife Resources, June 2008 (or most current), or as provided in an ODFW written recommendation regarding an in water work window variance request or as provided by National Marine Fisheries Service (NMFS) approval.

B. General Conditions

1. In this 401 certification decision, the term "Applicants" means the Oregon and Washington State Departments of Transportation and their agents, assignees, and contractors.
2. All submittals required by this 401 certification decision must be sent to DEQ Northwest Region, 401 Program Coordinator, 2020 S.W. 4th Ave., Portland, OR 97201 or via e-mail (preferred) to the 401 Coordinator at christensen.sara@deq.state.or.us. The submittals must be identified with USACE project # 2008-00414 and include the Applicants' name, project name, project location, the project contact and the contact's phone number.
3. Work authorized by this 401 certification decision is limited to the work described in the Section 404 Joint Permit Application submitted on February 11, 2013, and addendum submitted May 17, 2013. The Applicants will be out of compliance with this 401 certification decision and must submit an updated application if the information contained in the Application is voided or becomes obsolete due to subsequent changes to the project not described in the existing Application.
4. In the event of significant project modifications, the Applicants must submit an updated Application. Within 30 days of receipt of any updated information, DEQ will determine if the revised project requires a new 401 certification decision and public notice or if a modification to this 401 certification decision is required.
5. The Applicants must send a copy of the final USACE 404 Permit and the Coast Guard's Bridge Permit to DEQ's 401 Coordinator within two weeks of receiving it.
6. The Applicants must keep copies of this 401 certification decision on the job site and readily available for reference by Applicants, personnel and contractors, DEQ personnel, the construction superintendent, construction managers and lead workers, and state and local government inspectors.
7. The Applicants must allow DEQ personnel or an authorized contractor to:
 - a. Enter upon the project property, including mitigation sites;

- b. Have access to any records that must be kept under the conditions of these permits or this certification;
 - c. Inspect, at reasonable times, any monitoring or operational equipment or method; collection, treatment, pollution prevention or discharge facility or device; and
 - d. Sample or monitor any discharge of pollutants or any mitigation site.
8. DEQ may modify or revoke this 401 certification decision, in accordance with OAR 340-048-0050, in the event the project changes or DEQ receives new information indicating that the project activities are having a significant adverse impact on state water quality or beneficial uses.
 9. The Applicants must ensure that all project engineers, contractors, and other workers at the project site with authority to direct work have read and understand relevant conditions of this 401 certification decision and all permits, approvals, and documents referenced in this 401 certification decision. The Applicants must provide DEQ a signed statement (see Attachment A for an example) from each signatory that s/he has read and understands the conditions of this 401 certification decision and the above-referenced permits, plans, documents and approvals. These statements must be provided to DEQ before construction begins.
 10. The Applicants must follow the conservation measures of the NMFS Biological Opinion, and any revisions to that document, prepared for the project.
 11. This 401 certification decision does not authorize direct, indirect, permanent, or temporary impacts to waters of the state or related aquatic resources, except as specifically detailed in the Applications and Permits specific to this 401 certification decision.
 12. Failure of any person or entity to comply with the 401 certification decision may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this 401 certification decision.

C. Notification Requirements

1. Notification must be made via phone or e-mail (e-mail is preferred) and in accordance with Section B, General Condition 2 above, to DEQ's 401 Coordinator when any of the conditions in subsections (a) – (e) below apply:
 - a. Immediately following a violation of applicable water quality standards, spill to waters of the state, or when the project is out of compliance with any conditions of this 401 certification decision.
 - i. In addition to the phone or e-mail notification, the Applicants must submit a detailed written report to DEQ within five (5) days that describes the nature of the event, corrective action taken or planned, steps to be taken to prevent a reoccurrence, results of any samples taken, and any other pertinent information.
 - b. At least ten (10) days prior to all pre-construction meetings;
 - c. At least ten (10) days prior to conducting initial in-water work activities for each waterbody;
 - d. At least seven (7) days prior to the start of over water bridge construction and bridge demolition activities;
 - e. At least seven (7) days within project completion.

D. Water Quality Monitoring & Criteria

1. **Aquatic life movements:** Any activity that may substantially disrupt the movement of those species of aquatic life indigenous to the water body, including those species that normally migrate through the area, is prohibited. Unobstructed fish passage must be provided at all times during any authorized activity. Exceptions to this prohibition must be reviewed and approved, in writing, in advance by ODFW and NMFS.
2. **Turbidity:** This 401 certification decision does not authorize the Applicants to exceed applicable the state water quality standard for turbidity as described in OAR 340-041-0036: No more than a ten percent cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity.
 - a. **Compliance Distance in the Columbia River:** Pursuant to OAR 340-041-0036(2), exceptions to the turbidity standard are allowed for limited duration activities necessary to accommodate construction, without specific written authorization from the DEQ, to allow a temporary compliance distance during and immediately after necessary in-water construction activities that result in disturbance of in-place sediments. This can occur only after the activity has received all other necessary local and state permits and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity standard. The temporary point of compliance is designated as follows: 300 feet downstream of the activity causing the turbidity exceedance.³
 - b. **BMPs to Minimize In-stream Turbidity:** All practicable Best Management Practices (BMPs) on disturbed banks and within waters of the state, including those described in (i)-(iv) below, must be implemented to minimize turbidity during in-water work.
 - i. Sequence/Phasing of work – Work activities must be conducted so as to minimize the duration of sediment-disturbing activities and prevent continuous turbidity discharges.
 - ii. Spatial limitations – Activities that result in simultaneous disturbances across the width of the waterway are not allowed.
 - iii. Bucket control - All in-stream digging passes by excavation machinery and placement of fill in-stream using a bucket must be completed so as to minimize turbidity. All practicable techniques such as employing an experienced equipment operator, not dumping partial or full buckets of material back into the wetted stream, adjusting the volume, speed, or both of the load, and using a closed-lipped environmental bucket must be implemented;
 - iv. Underwater debris removal must be performed using a clamshell bucket to minimize material loss into the channel.
 - v. Machinery may not be driven into the flowing channel;
 - vi. Excavated material must be placed so that it is isolated from the water's edge or wetlands and not placed where it could re-enter waters of the state uncontrolled; and,

³ Both Oregon and Washington have jurisdiction in the Columbia River. For aspects of this project within the Columbia River, the applicable water quality standard is whichever state standard is the most stringent. This is to protect the states from adverse impacts of the other state's less stringent standard. For turbidity within the Columbia River both states' turbidity standards are the same (although expressed differently). Both states also allow exceedances of the standard to accommodate construction activities. Washington's standard allows exceedances for construction activities but prescribes a 300' point of compliance for waters above 100 cfs, WAC 173-201A-200(1)(e)(i)(C), while Oregon's standard allows exceedances for "limited duration activities" but prescribes no other limitation. In the absence of a prescriptive point of compliance for "limited duration activities", this 401 certification decision uses a 300' point of compliance that equals Washington's.

- vii. Containment measures such as silt curtains, geotextile fabric, and silt fence must be implemented and properly maintained in order to minimize in-stream sediment suspension and resulting turbidity.
3. **pH:** This 401 certification decision does not authorize Applicants to exceed the Aquatic Life pH criteria as described in WAC 173-201A-200 (1)(g): pH criteria must be within the range of 6.5 to 8.5, with a human-caused variation within the range of less than 0.5 units.⁴
 4. **Water Quality Monitoring and Protection Plans:** The Applicants must submit a Water Quality Monitoring and Protection Plan (WQMPP) to the 401 Coordinator at DEQ for review at least 20 working days prior to beginning all work activities below the ordinary high water line (OHWL), in-water and over-water. **Work in the mainstem of the Columbia River is not authorized to begin until approval from DEQ or Ecology is received.** At a minimum, the WQMPP submitted to DEQ must include:
 - a. The names(s) and phone numbers(s) of the pollution control inspector and the person responsible for on-site monitoring and reporting;
 - b. A work sequence or phasing plan;
 - c. The BMPs and procedures to be used to protect water quality during specific activities proposed below the OHWL, in-water, and over-water;
 - d. A water monitoring/sampling plan for turbidity and pH which include sample locations and frequency;
 - i. Required monitoring/sampling procedures:
 - I. Physical monitoring frequency must be at least every 2 hrs, unless otherwise approved by DEQ or Ecology.
 - II. pH sampling must occur prior to turbidity sampling.
 - III. pH sampling must be performed with a calibrated Hach Model SensION (or equivalent) portable pH meter for pH monitoring.
 - IV. Background pH samples must be taken before concrete placement in the shafts or on the bridge deck begins. One pH test must be made when the pumping or placement of concrete has finished for the day. The sample container must be triple-rinsed with distilled water before the sample is taken.
 - V. Turbidity analysis must be performed with a calibrated Hach 2100 P (or equivalent) portable turbidimeter and recorded in Nephelometric Turbidity Units (NTU).
 - VI. Monitoring/sampling locations for turbidity must include, but are not limited to: background, half the distance to the point of compliance and at the point of compliance, unless otherwise approved by Ecology or DEQ.
 - e. A map with numbered or named sampling locations associated with the in-water work activities;
 - f. Contingencies during in-water work activities; and

⁴ As stated above in fn.3, the 401 certification decision applies the standard that is the most stringent. For pH increases Washington has the more stringent standard because it places a limitation on the variation allowed (no more than 0.5 units) within the pH range. Oregon has no limit on variation. See the Evaluation Report and Findings for further analysis.

- g. An analysis of the proposed cumulative impacts of pH and turbidity discharges from the proposed work activities on existing uses of the waterbody including aquatic life and water quality. The analysis must include an estimate on how often the discharges will occur, the duration of each discharge, and location within the waterway where the discharge occurs.
5. Any significant changes or additions to the WQMPP must be approved by DEQ or Ecology in writing before work described therein may commence.
6. Monitoring/sampling results required under WQMPPs must be submitted monthly to the DEQ 401 coordinator.
7. If the monitoring/sampling results indicate that the water quality standards have not been met, or that the cumulative impacts of discharges may adversely impact existing or beneficial uses, DEQ may impose additional limitations on in-water work, as well as mitigation and additional monitoring.
8. Compliance with WQMPPs does not authorize any violations of state and federal water pollution control laws.

E. Construction & Demolition

1. The Applicants must obtain coverage under the current construction stormwater National Pollutant Discharge Elimination System (NPDES) 1200-C Permit for this project.
2. Wherever practicable, Applicants must give highest priority to work practice alternatives that utilize reuse or disposal of water with no discharge to public waters.
3. Within the project limits⁵ all environmentally sensitive areas including, but not limited to, wetlands, wetland buffers, and mitigation areas must be fenced with high visibility construction fence (HVF) prior to commencing construction activities. Construction activities include equipment staging, materials storage, and work vehicle parking. *Note: This condition does not apply to activities such as pre-construction surveying and installing HVF and construction zone signage.*
 - a. All field staff must be trained to recognize HVF, understand its purpose and properly install it in the appropriate locations.
 - b. HVF must be maintained until all work is completed for each project or each stage of a staged project.
4. **Vegetation Protection and Restoration:**
 - a. Riparian, wetland, and shoreline vegetation in the project area must be protected from disturbance to the maximum extent practicable through one or more of the following:
 - i. Minimization of project and impact footprint;
 - ii. Designation of staging areas and access points in open, upland areas;
 - iii. HVF and other barriers demarking construction areas; and
 - iv. Use of alternative equipment (e.g., spider hoe or crane).

⁵ Project limits include mitigation sites, staging areas, borrow sources, and other sites developed or used to support project construction.

- b. If authorized work results in unavoidable vegetative disturbance that has not been accounted for in proposed mitigation, vegetation must be successfully reestablished to a degree that it functions (for water quality purposes) at least as well as it did before the disturbance. The vegetation must be reestablished by the completion of authorized work.
5. **Deleterious waste materials:** Potentially harmful materials and construction debris including, but not limited to: uncured cement, welding slag and grindings, concrete saw cutting by-products, sandblasted materials, chipped paint, tires, wire, steel posts, asphalt and waste concrete may not be placed in or where they could come into contact with or enter waters of the state, including wetlands.
 - a. Concrete, cement, or grout must be cured prior to any contact with flowing waters;
 - b. Only clean fill, free of waste and polluted substances, may be used;
 - c. All practicable controls must be employed to prevent discharges of spills of deleterious materials to surface or ground water;
 - d. An adequate supply of materials needed to contain deleterious materials during a weather event must be maintained at the project construction site and deployed as necessary; and
 - e. All foreign material, refuse, and waste must be removed from the area.
6. All construction debris, excess sediment, and other solid waste material must be properly managed and disposed of in an upland disposal site approved by the appropriate regulatory authority.
7. Turbid de-watering water associated with in-water work must not be discharged directly to waters of the state, including wetlands. Turbid de-watering water must be routed to an upland area for on-site or off-site settling.
8. Clean de-watering water associated with in-water work that has been tested and confirmed to meet water quality standards may be discharged directly to waters of the state including wetlands. The discharge outfall method must be designed and operated so as not to cause erosion or scour in the stream channel, banks, or vegetation.
9. **Equipment & Maintenance:** All equipment used below the OHWL must use bio-degradable hydraulic fluid.
10. **Drilling:** Applicants must:
 - a. Isolate drilling operations in wetted stream channels using a steel casing or other appropriate isolation method to prevent drilling fluids from contacting water;
 - b. Use containment measures to prevent drilling debris from entering the channel;
 - c. Cover all waste or spoils if precipitation is falling or imminent;
 - d. Recover and dispose, or recycle, all drilling fluids and waste to prevent entry into flowing water, off-channel habitats and wetlands; and
 - e. Remove as much of the remaining drilling fluid as possible (e.g. by pumping) from the casing to reduce turbidity when the casing is removed.
11. **Spill Prevention:** Applicants must submit a Spill Prevention, Control and Countermeasures Plan to DEQ for review at least 20 working days prior to commencing each phase of construction and demolition activities. In addition to addressing ODOT and WSDOT Standard Specifications, it must address the conditions prescribed below:

- a. Vehicles must be fueled, operated, maintained, and construction materials must be stored in areas that minimize disturbance to habitat and prevent adverse effects from potential discharges. In addition, the following specific requirements apply:
 - i. Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150 feet or more from any waters of the state. An exception to this distance can be made if prior approval is granted.
 - ii. If staging areas are within 150 feet of any waters of the state as allowed by subsection(a)(i) of this condition, full containment of potential contaminants must be provided to prevent soil and water contamination, as appropriate;
 - iii. All vehicles operated within 150 feet of any waters of the state must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected in the vehicle staging area must be repaired before the vehicle resumes operation;
 - iv. Before operations begin and as often as necessary during operation, equipment must be steam cleaned (or undergo an approved equivalent cleaning) until all visible external oil, grease, mud, and other visible contaminants are removed if the equipment will be used below the OHWL; and
 - v. All stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 feet of any waters of the state must be diapered to absorb leaks, unless other suitable containment is provided to prevent potential spills from entering any waters of the state.
 - b. An adequate supply of materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials) needed to contain spills must be maintained at the project construction site and deployed as necessary.
 - c. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., must be checked regularly for drips or leaks, and must be maintained and stored properly to prevent spills into waters of the state.
 - d. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working areas may not be discharged into waters of the state. The Applicants must set up a designated area for washing down equipment.
 - e. A separate area must be set aside, which does not have any possibility of draining to surface waters, for the wash-out of concrete delivery trucks, pumping equipment, and tools.
 - f. Barges must not be allowed to ground-out during in-water construction.
 - g. Barges must be swept, as necessary, and kept free of material that could be blown into water.
 - h. Portable toilets that are placed on over water structures must be secured.
12. **Erosion Control:** In addition to adhering to all conditions of the 1200-C NPDES permit and the Erosion and Sediment Control Plan developed for the project during construction, the erosion control measures, or comparable measures, as specified in the Environmental Protections Agency's Construction Site Stormwater Runoff Control website (http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=min_measure&min_measure_id=4), must be implemented to prevent or control movement of soil into waters of the state.
13. Concrete process/contact water generated from in-water work activities on the mainstem Columbia River within a confined area that cannot be dewatered, must be treated to meet the applicable water quality standard for pH, as expressed in Section D, condition 3, above, prior to discharge to waters of the state.

14. Except for concrete process/contact water as described in condition 13, above, no process wastewater and treated process wastewater may be discharged to the Columbia River.
15. Except for the Columbia River, as noted above, process wastewater and treated process wastewater generated in Oregon may be discharged to other waters of the state only as provided in a 1200-C NPDES Stormwater permit.
16. During demolition, structures shall be removed from the banks, existing roads, or from adjacent bridges whenever possible.
17. All saw cut water and debris generated from saw cutting activities that occur above or over water must be contained and disposed of appropriately with no possible entry to waters of the state.
18. During demolition, structures must be removed from the banks, existing roads, or from adjacent bridges whenever possible.
19. No structural material may enter waters of the state during bridge construction and demolition activities.
20. Demolition of existing bridge piers must be done through use of a wire-saw unless otherwise approved by DEQ and Ecology.
21. **Piling Removal:** Vibratory extraction is the preferred method of pile removal. The following measures must be applied to reduce the incidence of sediment disturbance and contaminant mobilization.
 - a. The Applicants must use a trained equipment and crane operator to:
 - i. Install a floating surface boom for capture and containment of debris and floatable pollutants;
 - ii. Vibrate each pile to break the skin friction bond between pile and sediment, to avoid pulling out a large block of soil and possibly breaking off the pile in the process;
 - iii. Remove each pile slowly;
 - iv. Do not allow extraction equipment (e.g., bucket, steel cable, vibratory hammer) to enter the water; and,
 - v. Once loose, immediately transfer the piling along the most direct route to a contained, dry storage site.
 - b. Pile cutoff is an acceptable alternative if vibratory extraction or pulling is not feasible. When cutting is necessary, Applicants must:
 - i. Time work to occur at lowest water possible;
 - ii. Use a pneumatic underwater chainsaw; and,
 - iii. In areas that are tidally influenced or prone to scour, cut the pile at least three feet below the sediment surface.
 - c. Pile Handling and Disposal:
 - i. Piles removed from the substrate must be moved immediately from the water onto a barge or onto upland. The pile must not be shaken, hosed off, left hanging to drip or any other action intended to clean or remove adhering material from the pile.

- ii. During pile removal, containment booms and absorbent sausage booms must be placed around the perimeter of the work area to capture wood debris, oil, and other materials from being released into waters. All debris that is collected must be disposed upland in an approved disposal site.
- iii. Water left in the containment on the barge may not be discharged into waters of the state.

d. **Removal of Creosote Piles:**

- i. An underwater saw must be used to cut off individual piles at or below the sediment surface.
- ii. Each pile must be removed slowly.
- iii. Once loose, piles must be transferred immediately along the most direct route to a contained, dry storage site.
- iv. Two feet of clean material must be placed over removal areas as soon as practicable to contain contaminants potentially disturbed during the removal activities;
- v. Chemically treated piles may not be broken, pinched or twisted.
- vi. Applicants must ensure that no chemically treated wood debris falls into waters of the state, and if it does, it must be removed immediately and disposed of properly.
- vii. Applicants may not leave treated wood pile(s) in the water or stacked on the streambank.
- viii. All treated wood debris removed during the project, must be disposed of at an upland facility approved for hazardous materials of this classification.

F. **Mitigation:** Applicants will provide mitigation to offset impacts to Oregon waters from construction and operation of the project according to the proposed Dabney Habitat Restoration project described in Attachment F of the Application.

G. **Emergency/Contingency Measures/ Spill incident reporting:** Work that is out of compliance with the provisions of this 401 certification decision, conditions causing distressed or dying fish, discharges of oil, fuel, or chemicals into waters of the state or onto land with a potential for entry into waters of the state, is prohibited. If such work, conditions, or discharges occur, the Applicants must notify DEQ (see Section C, Notification Requirements, condition (1)(a), above) and immediately take the following actions:

- a. Cease operations at the location of the non-compliance;
- b. Assess the cause of the water quality problem and take appropriate action(s) to correct the problem or prevent further environmental damage or both. Containment and cleanup must begin immediately and be completed as soon as possible, taking precedence over normal work; and
- c. In the event that petroleum products, chemicals, or any other deleterious materials are discharged into waters of the state, or onto land with a potential to enter waters of the state, the discharge must be promptly reported to the Oregon Emergency Response Service (OERS, 1-800-452-0311). Immediately notify the National Response Center at 1-800-424-8802, for actual spills to water only.
- d. If the project activity causes a water quality problem which results in distressed or dying fish, the Applicants must immediately: cease operations; take appropriate corrective action(s) to prevent further environmental damage; collect fish specimens and water samples; and notify DEQ, ODFW, NMFS and USFWS as appropriate.

H. **Contaminated Soils & Coordination with DEQ Clean-up Program:**

1. Materials generated by the project must be properly stored, managed and disposed of in accordance with DEQ's solid waste rules (OAR 340 Divisions 93 through 97). Contaminated soils excavated during the project activities must be disposed of at a DEQ authorized facility or managed under DEQ Cleanup Program oversight.
2. Before offsite reuse in Oregon of material generated by the project, a DEQ Solid Waste Program clean fill determination, beneficial use approval or Solid Waste Letter of Authorization must be obtained.
3. Applicants must identify any sites in the project footprint listed in the Environmental Cleanup Site Information (ESCI) Database. Prior to any work that may disturb these sites, Applicants must enter into an intergovernmental agreement with DEQ Voluntary Cleanup Program to undertake any needed sampling or further assessment of these sites.
4. Applicants must report to DEQ any locations not in ESCI where visual contamination is found, or where sample values indicate that onsite contamination levels exceed appropriate human health and ecological risk based concentrations.
5. Applicants must complete and follow a DEQ-approved Contaminated Media Management Plan, for any work performed in contaminated media.

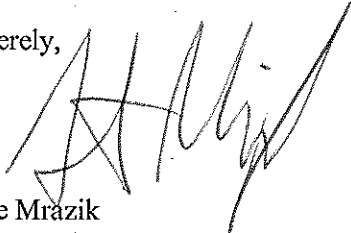
I. Stormwater Management:

1. The Applicants must capture and treat stormwater from all contributing impervious areas.
 - a. **Stormwater Management Plans:** Applicants must implement stormwater management plans that capture and treat all stormwater from contributing impervious areas according to the requirements of the ODOT manual within the ODOT right of way, and according to the City of Portland Stormwater Management Manual outside of the ODOT right of way. Constructed wetlands may be designed according to Clean Water Services Guidelines.
 - b. Any revisions to preliminary stormwater plans and stormwater design reports, and final post-construction stormwater plans for the Oregon project area must meet applicable ODOT, City of Portland, and Clean Water Service standards and manuals, as described above.
 - c. Revisions must be submitted to the DEQ 401 Coordinator for review and approval prior to construction.
2. **Stormwater Management & System Maintenance:** Effective construction, operation and maintenance practices for the lifetime of the proposed project are required. These include but are not limited to:
 - a. Maintenance techniques and frequency for each system component must follow appropriate recommendations in accepted manuals.
 - b. Appropriate temporary and permanent BMPs must be installed and maintained to protect permanent stormwater facilities from sedimentation and inputs of other pollutants or waste generated during or after construction, which could decrease the effective and optimal functioning of these facilities.
 - c. Long-term operation and maintenance of stormwater treatment facilities will be the responsibility of the Oregon Department of Transportation, unless and until an agreement transferring that responsibility to another entity is submitted to DEQ.

If the Applicants are dissatisfied with this 401 certification decision, including any conditions contained in this 401 certification decision, a contested case hearing may be requested by filing an answer and request for hearing in accordance with OAR 340-011-0107 and OAR 340-048-0045. Such request must be made in writing and sent to the DEQ Office of Compliance and Enforcement at 811 SW 6th Avenue, Portland Oregon 97204 or via fax at 503-229-5100 within 20 days of the mailing of this certification decision.

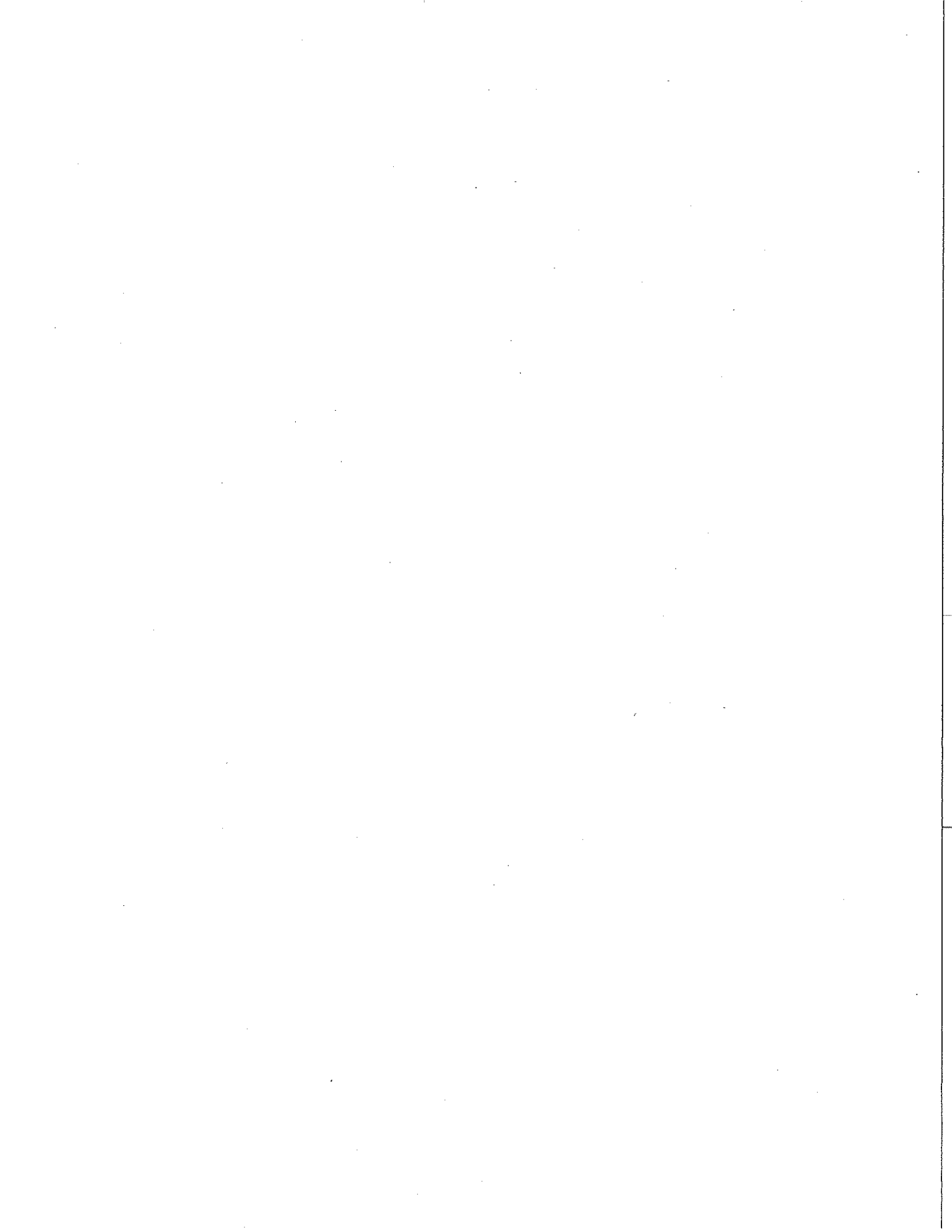
The DEQ hereby certifies this project in accordance with the Clean Water Act and state rules, with the above conditions. If you have any questions, please contact Courtney Brown at brown.courtney@deq.state.or.us or by phone at 503 229-6839 or at the address on this letterhead.

Sincerely,



Steve Mrazik
Water Quality Manager
Northwest Region

cc: Washington Department of Transportation & Oregon Department of Transportation, DBA Columbia River Crossing Project, Attn: Steve Morrow, Authorized Agent, Environmental Coordinator, 700 Washington St., Suite 300, Vancouver, WA 98660 (*via e-mail & U.S. mail*)
Russ Klassen, DSL, 775 Summer St., Suite 100, Salem, OR 97301-1279
Marc Liverman, NMFS, Oregon State Habitat Office, 1201 NE Lloyd Blvd., Suite 1100, Portland, OR 97232-1274



Water Quality Certification Statement of Understanding

I, _____, state that I will be involved as an Oregon State Department of Transportation (ODOT) employee or an agent, contractor for ODOT on the Columbia River Crossing Project in _____ County, Oregon. I further state that I have read and understand the relevant conditions of Department of Environmental Quality 401 certification decision for Application No. 2008-00414 issued for the project and the applicable permits and approvals referenced therein which pertain to the project-related work for which I am responsible.

Signature

Date

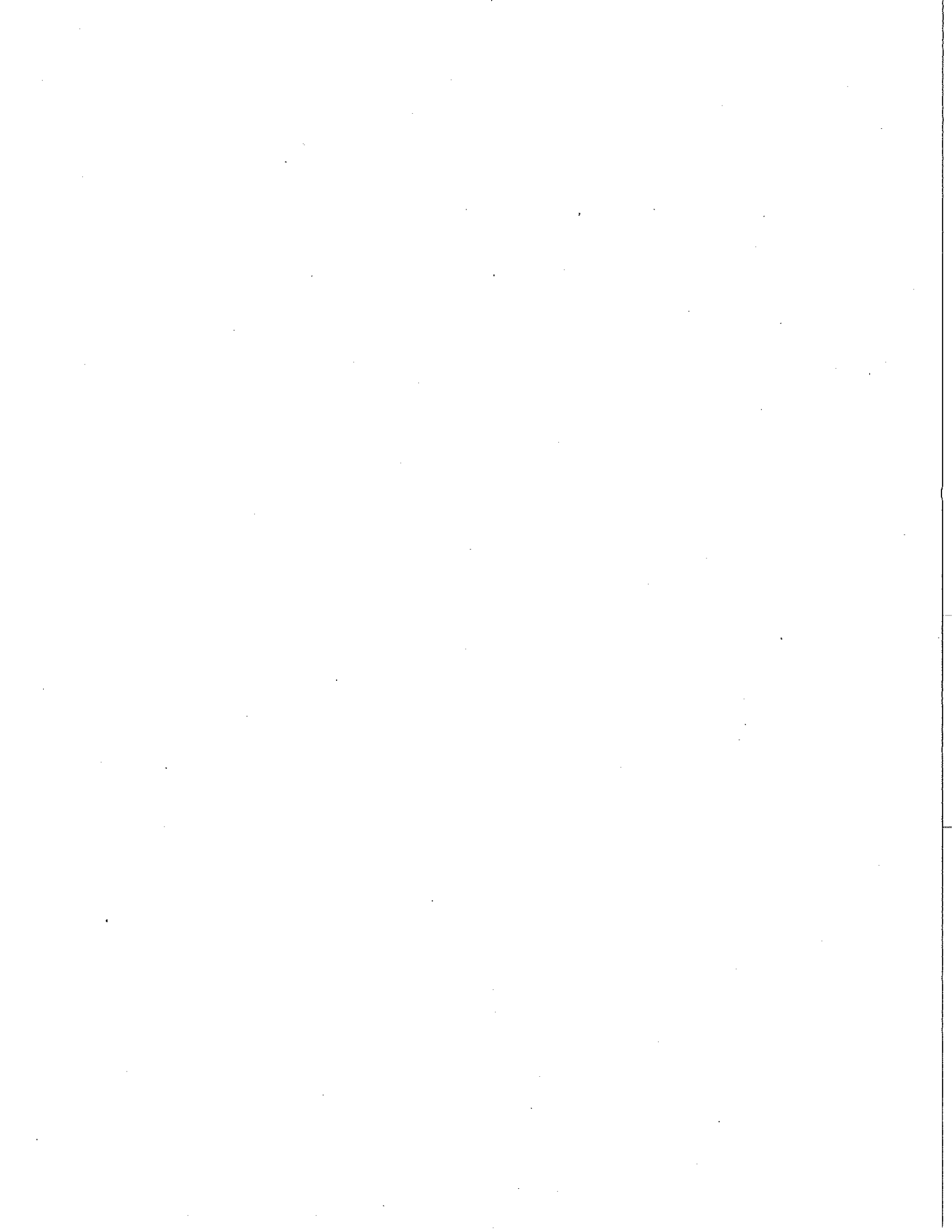
Company

Phone number

Address

City, State, and Zip Code

* This statement shall be signed by everyone involved in the project that has the authority to direct work and/or supervise project workers, per condition B(9) in the Water Quality Certification.



Evaluation Report & Findings

Application for Certification Pursuant to Section 401 of the Federal Clean Water Act

Submitted via Joint Application to the U.S. Army Corps of Engineers
For the Columbia River Crossing

August 30, 2013

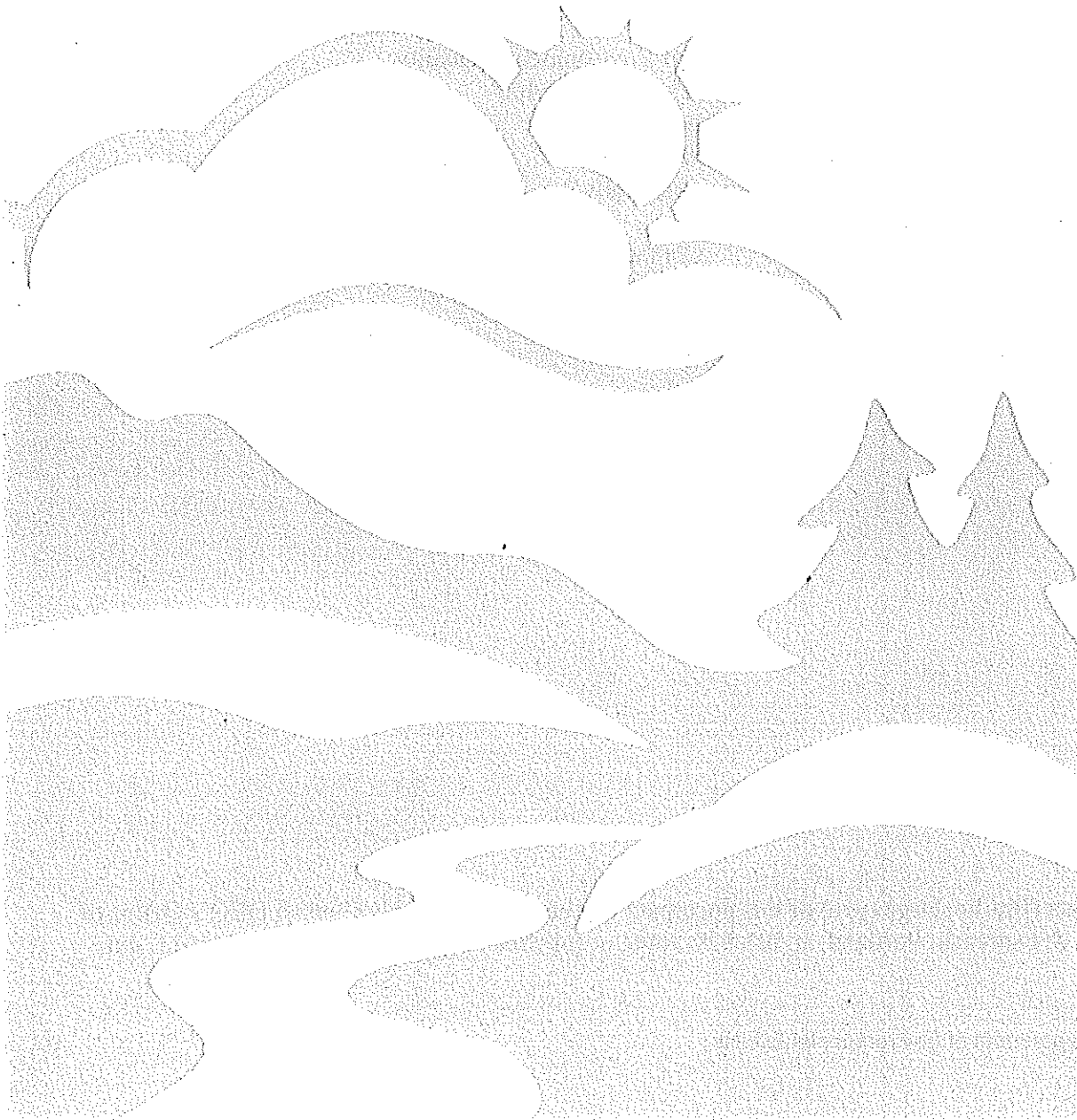


State of Oregon
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www.oregon.gov/DEQ

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restoring, maintaining and
enhancing the quality of
Oregon's air, land and
water.



This report prepared by:

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Portland, OR 97201
1-800-452-4011
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Contact:
Courtney Brown
503-229-6839

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

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1. INTRODUCTION

The Department of Environmental Quality received preliminary 401 Water Quality Certification application materials from the US Army Corps of Engineers (USACE) on February 11, 2013. USACE requested DEQ issue a 10 year water quality certification for in-water work related to the Initial Construction Program (ICP)¹, the first phase of construction in a “design-build” format of the “Columbia River Crossing Project” (“the Project”). An application was also submitted on January 30, 2013, to the Coast Guard for a Section 10 permit to build the bridges across the Columbia River.

The Project proposes replacement and new construction of bridges crossing the Columbia River at River Mile 106.5 and the river channel south of Hayden Island, along the I-5 corridor, between Oregon and Washington, as well as associated infrastructure. DEQ requested and received clarifications and additional information throughout the application process. The Applicants, Oregon and Washington Departments of Transportation, doing business as the Columbia River Crossing (CRC) submitted an addendum to the application on May 17, 2013, and a signed acceptable Land Use Compatibility Statement as required by OAR 340-048-0020(2) on May 29, 2013.

DEQ requested and received comments on this final Evaluation Report and Findings and associated 401 certification decision, together referred to as the “401 certification decision,” pursuant to Section 401 of the Clean Water Act (33 U.S.C. Section 1431), Oregon Revised Statutes (ORS 468B) and Oregon Administrative Rules (OAR 340 Division 48). All comments received during the 35-day public comment period (which ran from June 25, 2013, through July 29, 2013) were considered. Those comments that were relevant to DEQ’s evaluation under Section 401 of the CWA and OAR 340 Division 48 are transcribed or summarized within this document and are accompanied by DEQ responses.

The record generated in the process of reviewing the application, supplemental information submitted by the Applicants, and materials received as part of the public review and comment process, are considered part of the record regarding this application.

¹ This 401 certification decision evaluated and certified the proposed ICP, plus one bridge proposed for construction after the ICP, depending on funding within the channel of the Columbia River south of Hayden Island referred to in the application as the “North Portland Harbor”. For the purposes of this certification decision, references to ICP include the fourth bridge. See Section 4 “North Portland Harbor” Bridges for further explanation.

2. REQUIREMENTS FOR CERTIFICATION

Section 401 of the CWA establishes requirements for state certification of proposed projects or activities that may result in any discharge to navigable waters. Before a federal agency may issue a permit or license for any project that may result in any discharge to navigable waters, the state must certify that the proposed project or activity will comply with applicable effluent limitations, water quality-related effluent limitations, water quality standards and implementation plans, national standards of performance for new sources, and toxic and pretreatment effluent standards (Sections 301, 302, 303, 306, and 307, respectively, of the CWA) and any state regulations adopted to implement these sections. The state is further authorized to condition any granted certificate to require compliance with appropriate water quality-related requirements of state law.

Under the federal CWA, states have primary responsibility and authority for protecting water quality. The CWA defers to state requirements for protection of water quality as long as they are not less stringent than established federal minimums. Indeed, federally approved state requirements and standards become federal requirements and standards.

In the Section 401 certification process, the state acts under the authority of the federal law but must also comply with state law. In Oregon, statutory authority for Section 401 certification is contained in ORS chapter 468B. DEQ is the agency of the State of Oregon designated to carry out the certification functions prescribed by Section 401 of the CWA. DEQ may issue an unconditional certification where a project will not impact water quality. A conditioned certification may be issued where a project may impact water quality, but the state is reasonably assured that implementation of the conditions contained in the certification will result in compliance with standards and other applicable requirements of state law. Where a project cannot be undertaken in accordance with water quality standards, certification is denied.

Administrative rules (OAR Chapter 340 Division 48) prescribe DEQ's procedures for issuing Section 401 certifications. A complete application for Section 401 certification includes, at a minimum, general information about the project, as well as specific and substantive information necessary to demonstrate that the proposed project or activity will comply with water quality requirements. (OAR 340-048-0020(2)). DEQ may also request any additional information necessary to adequately evaluate the project impacts on water quality (OAR 340-048-0020(3)).

2.1 Interstate cooperation

Oregon and Washington state waters both extend into the main stem of the Columbia River. Discharges from the ICP will originate on both the Oregon and Washington sides of the river, as well as near and over the state line. It is virtually certain that the water quality impacts from most if not all discharges associated with the ICP within the Columbia River, including the portion of the river south of Hayden Island referred to as "North Portland Harbor" in the Application, will be shared by both states, regardless of where they originate.

Under paragraph (1) of subsection (a) of CWA Section 401, DEQ must certify that discharges will comply with applicable provisions of the CWA including CWA Section 303. Under CWA Section 303, the standards applicable to the Washington side of the Columbia River are the standards adopted by the Washington Department of Ecology (Ecology) and approved by EPA. The standards applicable to the Oregon side of the Columbia River are those adopted by the DEQ and approved by EPA. Similarly, paragraph (2) of the subsection (a) of CWA Section 401 includes provisions intended to ensure that the discharge will not violate any water quality standards or other requirements of the other state. These provisions carry the necessary implication that a certifying state may consider the standards and other water quality requirements of a downstream or boundary state.

OAR 340 Division 48 rules regarding 401 certification expressly require DEQ to determine whether the project complies with the water quality standards set out in OAR 340, Division 41 and other water quality related requirements of Oregon law. Division 48 rules do not expressly address interstate coordination. However, compliance with CWA Section 303 is also required by the rules and, as noted above, Washington's standards are covered by that provision in the context of a shared waterway, such as the Columbia River. To maintain consistency between DEQ's rules, the provisions in Section 401 and Section 303 discussed above, and with the general provisions in ORS chapter 468.035(1)(c) and 468B.015(5), DEQ may cooperate with other states to carry out the objectives of the state water quality provisions and the Clean Water Act.

Under the interstate circumstances presented by the project, DEQ interprets CWA Section 401 and ORS 468.035(1), 468B.015(5), 468B.030 and 468B.035 to allow DEQ to use the most stringent standards adopted by either Washington or Oregon under CWA Section 303 for 401 certification of the project. Additionally, DEQ interprets these provisions to allow for conditions ensuring compliance with other water-quality related requirements of both states for purposes of CWA Section 401(d). Where DEQ Findings conclude that a standard may be impacted, this document also reviews the applicable Washington standard.

3. SUMMARY OF APPLICATION

3.1 Documents Filed by Applicants

The following documents, filed by the Applicants, are considered to comprise the Application for 401 certification of the project and have become part of the DEQ record:

- Section 404 CWA Joint Permit Application Form and Attachments, prepared by the CRC, received by DEQ on February 11, 2013, including ICP Stormwater Design Report, Draft Report, October 2012
- Oregon Removal-Fill Joint Permit Application and Attachments, prepared by CRC, dated January 3, 2013. Amendment to the Oregon Removal-Fill Joint Permit Application, prepared by CRC, dated May 22, 2013.
- Proposed Addendum to 404 Joint Permit Application, prepared by CRC, updated May 17, 2013
- Final Environmental Impact Statement, Interstate 5 Columbia River Crossing, May 2011, ROD, signed December 7, 2011
- Application for US Coast Guard Bridge Permit prepared by CRC, dated January 30, 2013
- Biological Assessment, CRC Interstate 5, prepared by Parametrix, dated June 24, 2010.
- Endangered Species Act Section 7 Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Conservation Recommendations for the Columbia River Crossing, prepared by National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration, dated January 19, 2011
- Final Sediment Characterization Report, Interstate 5 Columbia River Crossing, July 2011
- Dredging Project Review Group Technical Memorandum, dated August 5, 2011
- Initial Construction Program (ICP) Stormwater Design Report (draft report), Columbia River Crossing, October 2012.
- DEQ Land Use Compatibility Statement, signed by City of Portland, dated May 29, 2013
- Applicant's Position to Support DEQ's Water Quality Criteria Review, prepared by CRC, May 2013
- Draft CRC Responses to July 29, 2013, NEDC Comments on DEQ Draft 401 WQC

In addition, DEQ evaluated and considered published stormwater manuals, City of Portland, Environmental Services report "Columbia Slough Watershed: Water Quality Findings and Recommendations" (2007), verbal and e-mail communications within DEQ and with USACE, NMFS, ODFW, EPA, DSL, Washington DOE and Columbia River Crossing staff and consultants.

3.2 Complete Application

The application was complete on May 29, 2013, when a signed, acceptable Land Use Compatibility Statement was received.

3.3 Legal Name and Address of Project Applicant

Washington Department of Transportation & Oregon Department of Transportation, DBA
Columbia River Crossing Project (CRC)
700 Washington St., Suite 300
Vancouver, WA 98660

3.4 Description of Project Location

The main thrust of the Columbia River Crossing Project and the only phase of the project with proposed in-water work is the ICP. The ICP project area extends 3.5 miles between the I-5/Victory Boulevard interchange at the project's southern end in Portland, Oregon and the I-5/Fourth Plain Boulevard interchange at the project's northern end in Vancouver, Washington; Township 1 North, Range 1 East, Sections 3 and 4, and Township 2 North, Range 1 East, Sections 14, 15, 22, 23, 26, 27, 33 and 34.

The ICP includes the new Columbia River Crossing Bridge which will be built to the west of the existing structure over the Columbia River at approximately River Mile 106.5. Additionally, new bridges will be built over a channel of the Columbia River south of Hayden Island, called the "North Portland Harbor." The project area extends .25-mile on either side of the new bridges. Improvements will also be made to Hayden Island, Marine Drive, and Victory Boulevard interchanges. Additional in-water work will take place within the Columbia River main stem during demolition of the old, existing bridge structure. Mitigation for temporary and permanent impacts to the Columbia River will be provided at the Dabney State Park at approximately River Mile 8.0 of the Sandy River near Troutdale. The Columbia Slough at RM 6.5 will receive some discharges of treated stormwater.

3.5 Waters of the State Impacted by Project

Waters of the state impacts by the proposed ICP include: the Columbia River main stem as well as a 1,000' foot wide, 20'-30' foot deep channel of the Columbia River south of Hayden Island referred to in the application as the "North Portland Harbor," also known as the Oregon slough. In Oregon, stormwater runoff from the project area will be discharged to the "North Portland Harbor" as well as to the Columbia Slough at RM 6.5 (via the Peninsula Drainage District No. 1 and No. 2 surface water systems and associated pump stations), which ultimately drains to the Willamette River. Compensatory mitigation will occur in the Sandy River.

3.6 Impacted Property Landowners

Appendix B to Attachment A of the Section 404 Joint Permit Application contains tax lot numbers and Property Owner information for Properties Directly Impacted by the project as well as those properties adjacent to properties directly impacted.

4. DESCRIPTION OF PROPOSED PROJECT

The CRC Project proposes a suite of transportation improvements occurring over a 5-mile stretch of I-5 over the next twenty years. The purpose of the Project, as stated in the Application is “to improve I-5 corridor mobility by addressing present and future travel demand and mobility needs ... from approximately Columbia Boulevard in Portland, OR to SR 500 in Vancouver, WA.” The specific needs the project proposes to address are: “growing travel demand and congestion, impaired freight movement, limited public transportation operation, connectivity and reliability, safety, substandard bicycle and pedestrian facilities, and seismic vulnerability.”

The majority of the improvements, and the only phase of the project with proposed in-water impacts, is the ICP. The ICP will occur over a period of 10 years between a 3.5 mile stretch of I-5 between the I-5/Victory Boulevard interchange in Portland, OR, and the I-5/Fourth Plain Boulevard interchange in Vancouver, WA.

Design/Build: The Project is a “design/build” project, meaning the Project as described in the Application is 30% designed. Once construction contracts are awarded, the remaining 70% of the construction details will be designed by the contractors. In evaluating the water quality impacts of the ICP, DEQ considered the worst-case scenarios of potential water quality impacts resulting from activities described in the Application. To further evaluate those impacts through the course of the Project, the 401 certification decision requires development and submittal of Water Quality Monitoring and Protection Plans prior to beginning each phase of in-water work activities. The Plans will inform DEQ as to the specific construction activities, the BMPs and procedures used to protect water quality during those activities, and propose specific water quality monitoring during the activity. For work in the main stem of the Columbia, Washington’s Department of Ecology will approve the Plans. In-water work in the main stem may not begin until Ecology approval is received. Oregon will review Plans for work outside of the main stem of the Columbia, within Oregon. In the event of significant project modifications or unanticipated adverse water quality impacts the 401 certification decision requires submittal of an updated Application and allows DEQ to modify or revoke the 401 certification decision.

Elements of the proposed work under Oregon’s jurisdiction include:

Columbia River “main stem” Bridges: Two new bridge spans over the Columbia River between Vancouver, WA and Portland, OR, will be constructed between 2014 and 2018. One bridge, the eastern structure, will carry northbound vehicular traffic on the upper deck while providing for pedestrian and bicycle traffic on the lower deck. The second bridge to the west will carry southbound vehicular traffic on its upper deck while carrying light rail extension from the Expo Center in Portland, Oregon to Clark College in Vancouver, Washington on the lower deck. These bridges are the subject of the current application before the US Coast Guard.

The two bridges will consist of six pairs of in-water pier complexes for a total of 12 in-water piers (two pier complexes will be on land). There will be 6 10-foot diameter drilled shafts per pier for a total of 72 permanent shafts, topped by a shaft cap. The total plan area of the 72 shafts is 5,654

square feet. In-water construction of the 72 permanently drilled shafts to support the bridge structure will be done by installing a large diameter steel casing with an oscillator, vibratory hammer or rotator. Installation is estimated to be two working days per casing, if welding is necessary; one work day is estimated for each weld. Soil will be excavated from inside the casing, drilling will continue approximately 10 feet below the casing, reinforcing steel will be installed into the shaft, and then the shaft will be filled with concrete. Installation of each drilled shaft is estimated to take approximately 10 days. Total duration of permanent shaft installation could vary depending on the type and quantity of equipment used and soil conditions, but is estimated to be approximately 30 months. Shaft caps fabricated off-site will be transported to the site and placed on top of the drilled shafts with cranes, work barges, and material barges.

Two temporary coffer dams will be installed at two pier complexes. Interlocking sections of sheet piles will be installed with a vibratory hammer or with press-in methods. Each coffer dam will be approximately 20,625 square feet. Temporary steel pipe piles will be installed to moor barges, and to support two temporary work platforms and work bridges. Installation will be done using a vibratory hammer or push-in method and extraction will be done using vibratory methods or direct pull. Each work platform/bridge will be in place for 150 to 500 work days. The number of temporary platforms or bridges in the Columbia River will vary between zero and four. Up to 12 barges at one time may be on site over the life of the project to be used as platforms to conduct work activities and to haul materials. The over-water footprint caused by barges will be up to 120,000 square feet at any one time. The total estimated over water footprint of temporary structures will be up to 261,370 square feet. Approximately 1,008 steel pipe piles to provide load-bearing support for temporary in-water structures (e.g. work platforms, bridges) will be installed and removed throughout construction using a vibratory hammer and then proofed with an impact hammer. Approximately 160 non-load bearing steel pipe piles (each in place for approximately 120 days) will be used to moor barges used as work platforms. There will be approximately 1,168 piles placed over the course of the project.

Temporary bents will be built requiring approximately 16 48-inch piles per bent within the water column, encompassing approximately 202 square feet and 300 cubic yards per bent. Temporary battered and vertical non-load-bearing steel pipe piles will be installed to moor barges, to support two temporary work platforms.

Columns will likely be constructed of cast-in-place reinforced concrete. Construction of each column is estimated to take 120 days per pier complex. The superstructure will be constructed of structural steel, cast-in-place concrete or precast concrete. The final elements will require cranes, work barges and material barges in the river year-round.

The bridge superstructure will be constructed with structural steel, cast-in-place concrete, or precast concrete. If used, precast elements will be fabricated at a casting yard. Construction will require cranes, work barges, and material barges.

The activities listed above may occur at more than one pier complex at a time.

“North Portland Harbor” Bridges: Construction of the bridges across the channel of the Columbia south of Hayden Island is currently estimated to occur between 2015 and 2020. Three new bridge spans over this portion will be constructed adjacent to the existing bridge (which will be modified as part of the Project). One bridge will carry a 2-lane northbound ramp carrying Marine

Drive Traffic to I-5 north. Another 2-lane southbound ramp will carry southbound I-5 traffic to Marine Drive. A multimodal local bridge will carry light-rail and a 2-lane roadway with bike lanes and a sidewalk over the harbor. A fourth bridge, which will carry one of two auxiliary lanes for southbound traffic between Hayden Island and I-5 south, will be constructed subsequent to the ICP but its impacts are considered here. A separate Coast Guard bridge permit application will be submitted in the future for the construction of the bridges across the "North Portland Harbor."

For all these bridges bent columns will be constructed of cast-in-place reinforced concrete and will require cranes, work barges, and material barges. Approximately 36 shafts will be installed to support the bridge columns. The total duration of drilled shaft installation will be approximately 18 months.

Each column will require the installation of an over-sized casing (small-diameter cofferdam). As many as 16 of the 36 total over-sized casings/cofferdams will be in place at any time. Casings/cofferdams will be seated into the sediment with a vibratory driver. Fish salvage will occur during and after isolation. The temporary presence of the casings/cofferdams in NPH will result in the temporary total loss of approximately 7,980 square feet and 8,837 cubic yards (285 square feet and 316 cubic yards of habitat per casing/coffer dam). For the fourth bridge that is not included in the ICP the temporary loss equals 2,280 square feet and 2,525 cubic yards. Habitat will not be accessible to fish while casing/cofferdams are in use— a period of approximately 30-36 days per casing/cofferdam.

The installation of each shaft will include a permanent concrete seal to allow for connection of drilled shafts to columns below water level. The top of the seal will be at or within six feet of the existing mudline. These will be left in place and will result in additional permanent substrate impact of 206 square feet and 46 cubic yards of habitat per casing/cofferdam in addition to approximately 79 square feet of permanent impact related to each bridge shaft. Permanent impacts to waters of the US from casings/cofferdams for all NPH bridges will be 7,416 square feet.

Eight temporary work bridges, 36 oscillator support platforms and 23 support towers will be constructed to support equipment and drilled shafts construction. These temporary structures may be present between one and just over two years each; however, not all of these structures will be in place at the same time. There will be approximately 1,278 temporary piles (24-inches in diameter) to support temporary in-water work structures, although only 300 to 800 piles are estimated to be in the water at any one time, representing approximately 2,600 square feet of impact. The fourth bridge will require temporary work bridges consisting of approximately 400 temporary 24-inch piles, representing 1,260 square feet of impact. The piles will be installed with a vibratory hammer and then proofed with an impact hammer.

Permanent shafts for the three bridges in the ICP will result in a total permanent impact of 2,199 square feet. The fourth bridge will consist of eight drilled shafts, representing approximately 628 square feet of impact.

Potential removal of riprap or concrete within North Portland Harbor will result in the removal of up to 90 cubic yards over approximately 2,433 square feet occurring up to 7 days during construction.

Bridge superstructure will consist of concrete deck on girders. Girders will be constructed of

precast concrete girders or structural steel (plate) girders. Precast girders will be fabricated at a casting yard. This element of construction will require work bridges, material barges, and cranes.

Existing Bridge Demolition: Demolition of the existing bridges will begin after traffic is rerouted to the new Columbia River bridge structures. The total overwater area of the existing bridges in Oregon is approximately 3.74 acres. Barges will be used as platforms to perform the demolition and to haul materials and equipment to and from the work site. Up to six stationary or moving barges are expected to be present at any one time during bridge demolition. Approximately 160 (24-inch) steel pipe piles will be used to anchor and support the barges. All temporary piles will be installed using a vibratory hammer or push-in method and will be extracted using vibratory methods or direct pull. Piles will be installed and removed continuously throughout the demolition process. The existing Columbia River bridges will be demolished in two stages: superstructure deconstruction and substructure deconstruction.

- **Superstructure deconstruction:** Demolition of the superstructure will begin with removal of the counterweights which will be cut into pieces and transferred off-site via truck or barge. Next, the lift towers will be cut into manageable pieces and loaded onto barges by a crane. Prior to removal of the trusses, the deck will be removed by cutting it into manageable pieces; these pieces will be transported by barge or truck or by using a breaker, in which case debris will be caught on a barge or other containment system below the work area. After demolition of the concrete deck, trusses will be lifted off of their bearings and onto barges and transferred to a shoreline dismantling site.
- **Substructure deconstruction:** Nine sets of the 11 existing Columbia River bridge piers are below the OHW level and are supported on a total of approximately 1,800 driven timber piles. A diamond/wire saw will be used to cut the concrete piers into manageable chunks that will be transported offsite via barge. Cofferdams will not be used. Although ODOT maintenance personnel regularly inspect the existing bridge, the timber piles located underneath the existing piers are inaccessible and have not been inspected. Therefore, it is unknown whether these timber piles have been treated with creosote, but given their age and intended purpose, it is assumed that they have been so treated. Only piles that could pose a navigation hazard will be removed or cut off below mud line. These piles include those that are present in the proposed navigation channels and any that extend above the surface of the river bed. Piles will either be removed (using a vibratory extractor, direct pull, or clam shell dredge) or cut off below the mud line using an underwater saw. The exact number of piles to be removed is unknown and the likely area and volume of removal cannot be calculated at this time.

Additional Ground Disturbance:

Roadway improvements to the Hayden Island, Marine Drive and Victory Boulevard interchanges, as well as extension of Metropolitan Area Express (MAX) yellow line north from the existing platform at the Portland Expo Center to Vancouver, WA, will impact and create new impervious area. Stormwater runoff from these impacted areas will be captured and treated. Approximately 0.87 acres of existing vegetation in the project area will be permanently impacted. Approximately 12 mature trees will be removed within the riparian zone of the Columbia River and NPH.

Mitigation:

A habitat restoration project is planned at Dabney State Park along the northern shoreline of the Sandy River at RM 8.0 near Troutdale, Oregon, approximately 14 miles upstream of the CRC. The intent of the project is to create habitat credits and provide habitat uplift to offset unavoidable impacts to waters from construction and operation of the CRC project. Specifically, the project proposes to: restore or enhance approximately 14,000 linear feet of Sandy River side channel and tributary habitat, place approximately 60 large wood structures instream, placement of two engineered log jams to provide increased spawning and rearing habitat as well as increased biomass production, replacement of seven culverts along Bonnie Brook, a tributary to the Sandy River, to restore fish access to over 8,000 linear feet of perennial stream habitat.

4.1 Stormwater Management

Presently, an estimated 135,000 trips across the Columbia River bridges are made every day. There is no treatment of stormwater runoff from the existing bridges within the project area. Stormwater runoff from the existing bridges discharges directly into the Columbia River through scuppers. The Applicants' overall approach to stormwater management is to treat runoff to reduce the following pollutants that are typically associated with transportation projects: debris and litter, suspended solids such as sand, silt and particulate metals, oil and grease, and dissolved metals.

The Applicants developed Preliminary Stormwater Management Plans and a Stormwater Design Report for post-construction stormwater treatment in the project area within Oregon. Those plans propose to treat all contributing impervious areas (CIA) within the project area. For purposes of this project CIA means all impervious surfaces associated with public highways, roads, streets, roadside areas, and auxiliary features (*e.g.*, park and ride facilities, pedestrian and bicycle facilities) owned or controlled by the transportation agency (*i.e.* the Applicants), that occur within the project area, or are contiguous to the project area, and that discharge runoff into the project area, before being discharged directly or indirectly into a stream, wetland, or subsurface water through a ditch, gutter, storm drain, dry well, other underground injection system. All stormwater from CIA will be captured, kept separate, and treated before that water is discharged and mixed with run-on from other impervious surfaces not owned or controlled by the Applicants. This will prevent stormwater from overwhelming existing treatment facilities.

Within the Columbia Slough watershed, the project will increase the total CIA by approximately 6.3 acres. A total of 36.3 acres of CIA surfaces within the Columbia Slough watershed will receive water quality treatment from the project. For the Columbia River Watershed south of the state line within Oregon, the project will create approximately 51.8 acres of new, rebuilt, and resurfaced pollution-generating impervious surfaces with about 3.3 acres of new sidewalk and bike-pedestrian paths. Including Washington, the project will increase the total impervious area by approximately 24.6 acres for a total CIA of 189.1 acres.

Applicants' stormwater plans and design reports for the project area were developed to meet stormwater management hydrologic and hydraulic reporting and permitting requirements of ODOT and the City of Portland. Within ODOT right of way, ODOT manuals/guidelines were used to design stormwater management facilities except with regard to constructed wetlands and swales.

Constructed wetlands used to treat stormwater on Hayden Island and Marine Drive areas were designed according to Clean Water Services' guidelines. Swales proposed within the ODOT right of way were sized using MGSFlood, a sizing tool per the WSDOT Highway Runoff Manual. Amended soil planters will also be used within the City of Portland. Except as provided above, the City of Portland Stormwater Management Manual will be used to design stormwater treatment facilities and all final designs will meet City of Portland treatment requirements. The 401 certification decision requires that revisions to preliminary plans and reports as well as post-construction stormwater plans for the project must be approved by DEQ.

Additionally, the certification decision requires that prior to construction, Applicants must apply for and secure coverage under the 1200-C National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit for construction activities including clearing, grading, excavation, materials or equipment staging and stockpiling that will disturb one or more acres and may discharge to surface waters or conveyance systems leading to surface waters of the state. During construction, Applicants must follow the approved Erosion and Sediment Control Plan developed for the project, as required by the 1200-C NPDES Stormwater Permit.

5. ISSUANCE OF PUBLIC NOTICE

A Public Notice was issued by the USACE on February 11, 2013, that described the entire project and included DEQ's Public Notice in accordance with OAR 340-048-0032. An additional Public Notice was issued by the USACE on June 7, 2013, that described an addendum to the bridge construction in the "North Portland Harbor" and included DEQ's 401 Public Notice in accordance with OAR 340-048-0032. Relevant water quality and beneficial use comments received during public notice were considered and incorporated as appropriate into the draft 401 certification decision.

6. APPLICABLE WATER QUALITY REGULATIONS AND DEQ EVALUATIONS

Oregon's water quality regulations are in Oregon Administrative Rules (OAR) Chapter 340, Divisions 40 through 56 and 71. Division 40 contains the state's groundwater standards. Division 41 entitled "Water Quality Standards: Beneficial Uses, Policies, and Criteria for Oregon" contains the surface water standards, and is the most relevant with respect to Section 401 certification evaluation of a proposed project. The requirements and standards set forth in Division 41 were adopted to comply with the surface water quality protection provisions of both state and federal law. The water quality standards in Division 41 are composed of three elements: beneficial uses, water quality criteria (both narrative and numeric), and the antidegradation policy.

As stated above in Section 2.1, for pollutant parameters that may be impacted from the proposed project, DEQ evaluated *both* the Oregon water quality standard in OAR 340 Division 041 and the Washington water quality standard in the Washington Administrative Code (WAC) Chapter 173-201A for that parameter, and applied the most stringent in the certification decision.

6.1 Protection of Existing and Beneficial Uses

Oregon law and the federal Clean Water Act require that the level of water quality necessary to protect existing uses and potential beneficial uses be maintained and protected. The regulatory approach used is to:

1. Identify existing uses and beneficial uses that are recognized as significant with regard to water quality protection;
2. Develop and adopt standards of quality for significant water quality parameters to define the quality that is necessary to protect the identified beneficial uses;
3. Establish and enforce case-by-case discharge limitations for each source that is permitted to discharge treated wastes into public waters to assure that water quality standards are not violated and beneficial uses are not impaired; and
4. Establish and implement "best management practices" for a variety of "land management" activities to minimize their contribution to water quality standards violations or impairment of beneficial uses.

The table below indicates the designated beneficial uses for the Columbia River in reaches subject to the proposed project (Main Stem Columbia Basin, OAR 340-41-0101). Except for "Commercial Navigation & Transportation," the same beneficial uses in Table 1, below, have been designated for the Columbia Slough, and the Sandy River.

**Table 1: Beneficial Uses for
the Columbia River – RM 86
to 309**

Public Domestic Water
Supply
Private Domestic Water
Supply
Industrial Water Supply
Irrigation
Livestock Watering
Anadromous Fish Passage
Salmonid Fish Rearing
Salmonid Fish Spawning
Resident Fish and Aquatic
Life
Wildlife and Hunting
Boating
Fishing
Water Contact Recreation
Aesthetic Quality
Hydropower
Commercial Navigation &
Transportation

Oregon rules do not define or designate existing uses. Federal rule defines existing uses as “those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.” 40 CFR sec. 131.3(e). The intent of existing use protection is to protect the highest and best use attained in the river since 1975. Since 1975, water quality, fish uses, and aquatic life of the Columbia River, Columbia Slough and the Sandy Rivers – the existing uses at issue in this Project – have generally improved.

6.2 Water Quality Standards

Water quality standards are developed for varying geographic areas to protect beneficial uses. Generally, if a water quality standard fully protects the most sensitive beneficial use, then all beneficial uses are fully protected. Water quality standards have been adopted for water quality parameters that are most significant or useful in regulating pollution. These standards take the form of both numeric and narrative criteria and have been established based on best available information at the time they were adopted.

7. POTENTIAL MODIFICATION OF SURFACE WATER QUALITY

7.1 Antidegradation

OAR 340-041-0004

(1) Purpose. The purpose of the Antidegradation Policy is to guide decisions that affect water quality such that unnecessary further degradation from new or increased point and nonpoint sources of pollution is prevented, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. The standards and policies set forth in OAR 340-041-0007 through 340-041-0350 are intended to supplement the Antidegradation Policy.

(2) Growth Policy. In order to maintain the quality of waters in the State of Oregon, it is the general policy of the Commission to require that growth and development be accommodated by increased efficiency and effectiveness of waste treatment and control such that measurable future discharged waste loads from existing sources do not exceed presently allowed discharged loads except as provided in section (3) through (9) of this rule.

(3) Non-degradation Discharges. The following new or increased discharges are subject to this Division. However, because they are not considered degradation of water quality, they are not required to undergo an antidegradation review under this rule:

(a) Discharges Into Existing Mixing Zones. Pollutants discharged into the portion of a water body that has been included in a previous mixing zone for a permitted source, including the zones of initial dilution, are not considered a reduction in water quality, so long as the mixing zone is established in accordance with OAR 340-041-0053, there are no other overlapping mixing zones from other point sources, and the discharger complies with all effluent limits set out in its NPDES permit.

(b) Water Conservation Activities. An increase in a pollutant concentration is not considered a reduction in water quality so long as the increase occurs as the result of a water conservation activity, the total mass load of the pollutant is not increased, and the concentration increase has no adverse effect on either beneficial uses or threatened or endangered species in the water body.

(c) Temperature. Insignificant temperature increases authorized under OAR 340-041-0028(11) and (12) are not considered a reduction in water quality.

(d) Dissolved Oxygen. Up to a 0.1 mg/l decrease in dissolved oxygen from the upstream end of a stream reach to the downstream end of the reach is not considered a reduction in water quality so long as it has no adverse effects on threatened and endangered species.

(4) Recurring Activities. Since the baseline for applying the antidegradation policy to an individual source is the water quality resulting from the source's currently authorized discharge, and since regularly-scheduled, recurring activities remain subject to water quality standards and the terms and conditions in any applicable federal and state permits, certifications and licenses, the following activities will not be considered new or increasing discharges and will therefore not trigger an antidegradation review under this rule so long as they do not increase in frequency, intensity,

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duration or geographical extent:

- (a) Rotating grazing pastures,
- (b) Agricultural crop rotations, and
- (c) Maintenance dredging.

(5) Exemptions to the Antidegradation Requirement. Some activities may, on a short term basis, cause temporary water quality degradation. However, these same activities may also have substantial and desirable environmental benefits. The following activities and situations fall into this category. Such activities and situations remain subject to water quality standards, and must demonstrate that they have minimized adverse effects to threatened and endangered species in order to be exempt from the antidegradation review under this rule:

(a) Riparian Restoration Activities. Activities that are intended to restore the geomorphology or riparian vegetation of a water body, or control invasive species need not undergo an antidegradation review so long as the Department determines that there is a net ecological benefit to the restoration activity. Reasonable measures that are consistent with the restoration objectives for the water body must be used to minimize the degradation;

(b) Emergency Situations. The Director or a designee may, for a period of time no greater than 6 months, allow lower water quality without an antidegradation review under this rule in order to respond to public health and welfare emergencies (for example, a significant threat of loss of life, personal injury or severe property damage); and

(c) Exceptions. Exceptions authorized by the Commission or Department under (9) of this rule.

(7) Water Quality Limited Waters Policy: Water quality limited waters may not be further degraded except in accordance with section (9)(a)(B), (C) and (D) of this rule.

(9) Exceptions. The Commission or Department may grant exceptions to this rule so long as the following procedures are met:

(a) In allowing new or increased discharged loads, the Commission or Department must make the following findings:

(A) The new or increased discharged load will not cause water quality standards to be violated;

(B) The action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality. This evaluation will be conducted in accordance with DEQ's "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and section 401 water quality certifications," pages 27, and 33-39 (March 2001) incorporated herein by reference; and

(C) The new or increased discharged load will not unacceptably threaten or impair any recognized beneficial uses or adversely affect threatened or endangered species. In making this determination, the Commission or Department may rely upon the presumption that if the numeric criteria established to protect specific uses are met the beneficial uses they were designed to protect are protected. In making this determination the Commission or Department may also evaluate other State and federal agency data that would provide information on potential impacts to beneficial uses for which the numeric criteria have not been set;

(D) The new or increased discharged load may not be granted if the receiving stream is classified as being water quality limited under sub-section (a) of the definition of "Water Quality Limited" in OAR 340-041-0002, unless:

(i) The pollutant parameters associated with the proposed discharge are unrelated either directly or indirectly to the parameter(s) causing the receiving stream to violate water quality standards and being designated water quality limited; or

(ii) Total maximum daily loads (TMDLs), waste load allocations (WLAs) load allocations (LAs), and the reserve capacity have been established for the water quality limited receiving stream; and compliance plans under which enforcement action can be taken have been established; and there will be sufficient reserve capacity to assimilate the increased load under the established TMDL at the time of discharge; or

(iii) Effective July 1, 1996, in water bodies designated water-quality limited for dissolved oxygen, when establishing WLAs under a TMDL for water bodies meeting the conditions defined in this rule, the Department may at its discretion provide an allowance for WLAs calculated to result in no measurable reduction of dissolved oxygen (DO). For this purpose, "no measurable reduction" is defined as no more than 0.10 mg/L for a single source and no more than 0.20 mg/L for all anthropogenic activities that influence the water quality limited segment. The allowance applies for surface water DO criteria and for Inter-gravel dissolved oxygen (IGDO) if a determination is made that the conditions are natural. The allowance for WLAs applies only to surface water 30-day and seven-day means; or

(iv) Under extraordinary circumstances to solve an existing, immediate and critical environmental problem, the Commission or Department may, after the completion of a TMDL but before the water body has achieved compliance with standards, consider a waste load increase for an existing source on a receiving stream designated water quality limited under sub-section (a) of the definition of "Water Quality Limited" in OAR 340-041-0002. This action must be based on the following conditions:

(I) That TMDLs, WLAs and LAs have been set; and

(II) That a compliance plan under which enforcement actions can be taken has been established and is being implemented on schedule; and

(III) That an evaluation of the requested increased load shows that this increment of load will not have an unacceptable temporary or permanent adverse effect on beneficial uses or adversely affect threatened or endangered species; and

(IV) That any waste load increase granted under subparagraph (iv) of this paragraph is temporary and does not extend beyond the TMDL compliance deadline established for the water body. If this action will result in a permanent load increase, the action has to comply with sub-paragraphs (i) or (ii) of this paragraph.

(b) The activity, expansion, or growth necessitating a new or increased discharge load is consistent with the acknowledged local land use plans as evidenced by a statement of land use compatibility from the appropriate local planning agency.

(c) Oregon's water quality management policies and programs recognize that Oregon's water bodies have a finite capacity to assimilate waste. Unused assimilative capacity is an exceedingly valuable resource that enhances in-stream values and environmental quality in general. Allocation of any unused assimilative capacity should be based on explicit criteria. In addition to the conditions in subsection (a) of this section, the Commission or Department may consider the following:

(A) Environmental Effects Criteria:

(i) Adverse Out-of-Stream Effects. There may be instances where the non-discharge or limited discharge alternatives may cause greater adverse environmental effects than the increased discharge alternative. An example may be the potential degradation of groundwater from land application of wastes;

(ii) In-stream Effects. Total stream loading may be reduced through elimination or reduction of other source discharges or through a reduction in seasonal discharge. A source that replaces other sources, accepts additional waste from less efficient treatment units or systems, or reduces discharge loadings during periods of low stream flow may be permitted an increased discharge load year-round or during seasons of high flow, so long as the loading has no adverse effect on

threatened and endangered species;

(iii) Beneficial Effects. Land application, upland wetlands application, or other non-discharge alternatives for appropriately treated wastewater may replenish groundwater levels and increase streamflow and assimilative capacity during otherwise low streamflow periods.

(B) Economic Effects Criteria. When assimilative capacity exists in a stream, and when it is judged that increased loadings will not have significantly greater adverse environmental effects than other alternatives to increased discharge, the economic effect of increased loading will be considered. Economic effects will be of two general types:

(i) Value of Assimilative Capacity. The assimilative capacity of Oregon's streams is finite, but the potential uses of this capacity are virtually unlimited. Thus it is important that priority be given to those beneficial uses that promise the greatest return (beneficial use) relative to the unused assimilative capacity that might be utilized. In-stream uses that will benefit from reserve assimilative capacity, as well as potential future beneficial use, will be weighed against the economic benefit associated with increased loading;

(ii) Cost of Treatment Technology. The cost of improved treatment technology, non-discharge and limited discharge alternatives may be evaluated.

7.1.1 Application of Antidegradation Policy

The above rule is intended to prevent unnecessary further degradation of water quality resulting from point and non-point source discharges and to protect, maintain, and enhance existing and designated beneficial uses. The parameter-specific water quality standards supplement this policy by providing standards against which to judge whether discharges could adversely affect one or more beneficial uses.

DEQ is required to interpret and apply the EQC adopted water quality standards, including the antidegradation policy, in a manner consistent with the guiding federal rules. DEQ developed an internal management directive (IMD) "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and Section 401 Water Quality Certifications," issued March 2001 to guide interpretation of the antidegradation policy when considering issuance of water quality permits and certifications.²

The antidegradation policy review includes the following steps, as described in the IMD,:

1. Determine if an Antidegradation Review is needed;
2. If needed, determine if a significant lowering of water quality will occur and whether existing beneficial uses may be adversely affected;
3. Factors to consider in allowing a lowering of water quality include:
 - a. The classification of the waterbody (outstanding, high, or limited);
 - b. Consideration of alternative treatments; and,
 - c. Comparison of the economic or social benefits with the environmental costs;

² On August 13, 2013, EPA concluded a review of portions of Oregon's Antidegradation IMD as ordered by the U.S. District Court for the District of Oregon in the case of *Northwest Environmental Advocates v. United States Environmental Protection Agency*, Case No: 3:05-cv-1876-AC (D. Ore). In its review, EPA concluded that many components of the IMD are consistent with federal rules, but that certain components of the IMD are not consistent with federal rule. EPA's comments on the IMD were considered in the development of the 401 certification decision and the Evaluation Report and Findings.

4. Determine whether or not the permit or certification should be drafted. DEQ may allow approval of new discharges or activities that may have some theoretical or detectable impact on quality of waters provided that:
 - a. Adverse impact on water quality will not be significant;
 - b. Any change in water quality will not adversely affect existing, designated and potential beneficial uses; and,
 - c. Highest and best practicable treatment and control of waste discharges and activities is employed to minimize any adverse effects on water quality.
5. Publish the Antidegradation review for public comment.

7.1.2 Present Condition

The Columbia River: The Columbia River is classified in various reaches as Water Quality Limited under the CWA, Section 303(d), for the parameters of: arsenic, DDE (DDT metabolite), fecal coliform; PCB; pH; polynuclear aromatic hydrocarbons (PAHs); and temperature. Some segments are also listed by the state as ones with potential concerns for the parameters of: cadmium, copper, iron, lead, mercury, nickel, silver, tributyltin, zinc, aldrin, alkalinity, alpha-BNC, benzo(a)anthracene, benzo(g,h,i)perylene, Bhc, chrysene, Cyanide, DDD, DDT, Dieldrin, Dioxins/Furans/Endrin, Hexavalent Chromium, Manganese, Phenol, Phosphate Phosphorus, Pyrene, and Radionuclides.

In the Columbia River, Total Maximum Daily Loads (TMDLs) have been developed by DEQ and approved by the U.S. Environmental Protection Agency for the parameters of: dioxin (2,3,7,8-TCDD) and total dissolved gas. EPA has not yet completed development of a TMDL for the parameter of temperature, and DEQ has not yet completed TMDLs for the parameters of arsenic; DDE; fecal coliform; PCBs; pH; and PAHs.

EPA has designated the Lower Columbia as one of seven of the Nation's Great Water Bodies and one of 27 estuaries in the National Estuary Program.

The Columbia Slough: DEQ placed the Columbia Slough on the state's 303(d) list in 1994/1996 for lead, iron, and manganese. TMDLs have been established for pH, DO, temperature, phosphorous, chlorophyll a, bacteria, lead, PCBs, DDE/DDT, dieldrin, and dioxin (DEQ 1998, DEQ 2006).

The City of Portland Bureau of Environmental Services (BES) has undertaken intensive water quality monitoring on the Columbia Slough since 1995. BES collected monthly grab samples from nine monitoring sites along the Slough, and performed continuous monitoring of temperature, pH, DO, and conductivity at 4-6 sites for 10 years. With few exceptions, water temperatures in the Slough do not meet the temperature standard at OAR 340-041-0028 and are trending up during summer months (BES 2007). The main cause of elevated water temperatures is likely the installation of levees which alter the Slough's physical features. Elevated water temperatures are also likely due to the lack of shade sources, long water residence time in a shallow channel, the altered hydrological cycle with reduced aquifer recharge and groundwater inflow during summer months, and tidal influence from the Willamette River (bringing cooler water in the summer and warmer water in the fall and early winter) (City of Portland 2013).

The Slough has DO during some periods of the year below the absolute minimum water quality standard for that parameter, with several major DO depressions in the winter. These are thought to result from the Portland International Airport's deicing discharges and decomposition of algae and aquatic plants in the Slough's eutrophic system. (BES 2007).

In July 2005, a Record of Decision (ROD) was issued on a cleanup program devised by the DEQ and the City of Portland. The Columbia Slough Sediment Program aims to remediate widespread sediment contamination through source control contamination reduction, contaminant removal by dredging "hot spots," and long-term monitoring to ensure the program's effectiveness (BES 2006). In September 2010, DEQ and the City of Portland agreed to extend the cleanup program through 2015 (BES 2011). This program includes specific tasks to control sources of pollution, treat stormwater runoff, and clean up contaminated sediments in the Lower Columbia Slough, Whitaker Slough, and Buffalo Slough. DEQ has also signed agreements with ODFW and the Multnomah County Drainage District in regards to cleanup activities in the Columbia Slough (DEQ 2010a).

Sandy River: Water quality within the Sandy River is moderate with high seasonal turbidity and temperature (NMFS 2009). The Sandy River is considered Water Quality Limited for temperature and is subject to an approved temperature TMDL (DEQ 2010b). The river within proposed habitat restoration activities is designated as a National Wild and Scenic River, an Oregon State Scenic Waterway, and a state park (Dabney State Recreation Area).

7.1.3 Applicants' Position on Antidegradation

CRC has conducted extensive turbidity and sediment testing within the project area through the test pile project and sediment characterization study, respectively. These studies indicate that there is no significant potential for lowering of water quality as a result of the construction and operation of the proposed facilities. Similarly, CRC maintains that the water quality standards for the parameters of Bacteria, Nuisance Phytoplankton, Temperature and Total Dissolved Gas would be met during construction and operation of the facilities.

The Sandy River within the proposed habitat restoration area is designated as a National Wild and Scenic River, an Oregon State Scenic Waterway, and a state park (Dabney State Recreation Area). Thus, during proposed habitat restoration activities, CRC will follow guidelines per OAR 340-041-0004 (8)(a) as described above.

CRC is committed to ensuring that existing and designated beneficial uses will be protected, that water quality will not be lowered and that the water quality standards for the parameters of Narrative Criteria, Biocriteria, DO, pH, Total Dissolved Solids (TDS), Toxic Substances, Temperature, Turbidity, etc., will be met during proposed project activities (Applicants' position regarding these specific parameters is described within Section 7, below). CRC and their contractors will implement effective measures for isolation, pollution prevention, control and containment, chemically treated wood removal and handling, and stormwater management during construction and operation of the proposed facilities, and accomplish successful compensatory mitigation efforts. Therefore, all designated beneficial and fish uses will be protected.

With CRC's concurrence, DEQ is including conditions in the certificate that are designed to ensure compliance with more restrictive standards and control measures in the State of Washington's rules.

The inclusion of a 300-foot compliance point, and the exclusion by DEQ of the latitude for occasional exceedance of the turbidity threshold as normally allowed under DEQ water quality certifications, results in stricter turbidity requirements than would otherwise be applicable. Similarly, DEQ has imposed a condition that process wastewater and treated process wastewater may not be discharged to the Columbia River. This condition is more strict than is normally allowed in 401 water quality certifications.

Elevated temperature loads are unlikely to occur from stormwater runoff or other activities. Given the large volume of the water in the lower Columbia River, any effect from the CRC project would not increase or decrease water temperatures by more than 0.25 degrees F. Similarly, with the exception of re-vegetation of portions of the habitat enhancement site, temperature modification is not anticipated and it would likely decrease rather than increase.

7.1.4 Public Comment on Antidegradation

Public comments regarding antidegradation were received in response to DEQ's Public Notice of an Information Meeting on May 6, 2013, regarding the Columbia River Crossing Clean Water Act Section 401 Water Quality Certification Application. The comments state that insufficient information for DEQ to conduct an evaluation of water quality impacts has been provided by the Applicants and that that project will have significant short-term and long-term impacts on the water quality on the Columbia River and the Columbia Slough, and will adversely affect salmon and beneficial uses. The comments further state that the proposed project is not necessary nor do the benefits outweigh the harm. Further, without more detailed information demonstrating that the proposed project will have not impair beneficial uses, DEQ cannot certify the project.

Additional comments regarding antidegradation were received during the public comment period on the draft 401 certification. The commenter first states that the Project will negatively affect water quality; the Project will likely result in a measureable change in water quality as compared to water not impacted by anthropogenic sources and that the Project will result in adverse impacts on turbidity, temperature, and habitat conditions for salmonids. Given these impacts, the commenter states that DEQ must carefully analyze the Project. Further, the commenter states that DEQ's analysis fails because in making a determination regarding the category of receiving waters as a High Quality Water or a Water Quality Limited Water, for instance, DEQ "made a blanket determination for each of the waterbodies, not a parameter by parameter evaluation.... DEQ must identify each parameter that may be impacted by the action, for each receiving water and assign the correct category." Then, DEQ may proceed with applying the antidegradation rule based on the category of the waterbody.

The commenter states that "DEQ appears to conflate compliance with water quality criteria with compliance with the Antidegradation policy" and that this is not the appropriate antidegradation standard. The commenter states that instead "DEQ must determine if the discharges will lower water quality. If that is found, it must then determine whether the lowering of water quality is permissible pursuant to one of the enumerated exceptions in the Antidegradation policy." An exception may be made only after the EQC makes findings that "[n]o other reasonable alternatives exist except to lower water quality; [t]he action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality ...; [a]ll water quality standards will be met and beneficial uses protected; and federal threatened and endangered aquatic

species will not be adversely affected. OAR 340-041-0004(6)(a)-(d). The commenter states that DEQ and the EQC have made no such findings and could not, given the facts.

7.1.5 DEQ Evaluation and Finding on Antidegradation

Pursuant to DEQ's Antidegradation policy and rule, any activity that proposes to discharge a new or increased load or any other activity that will lower water quality is subject to an in depth antidegradation review.

This Project proposes to discharge new loads of turbidity and pH to the Columbia River. In addition, mitigation in the Sandy River will result in some discharges of turbidity to the Sandy River. No other load or discharge of pollutant parameters are expected (all stormwater discharges to the Columbia River and Columbia Slough will be fully treated). Given the proposed discharges of new loads, the project is subject to an antidegradation review. However, according to DEQ's Antidegradation IMD, "new [401] certifications that will not result in a lower water quality do not require a complete review, but the permit record must fully document that no lowering of water quality is expected to occur for any water quality parameter." DEQ does not anticipate the new loads from the proposed activity will result in lower water quality. Therefore, a complete antidegradation review is not necessary. The following sub-sections of this Evaluation Report and Findings provide DEQ's analysis and documentation for relevant water quality standards that no lowering of water quality is expected to occur for any water quality parameter.

Additionally, the Project will capture and treat stormwater runoff from all contributing impervious areas. Stormwater from the existing bridges currently drains untreated to the river below. In this regard, the project will improve water quality of the Columbia River by intercepting, diverting and treating stormwater discharges that, if allowed to discharge to the River below, would adversely affect water quality.

Because no lowering of water quality is expected or allowed for any water quality parameter a full antidegradation review is not necessary.

7.2 Statewide Narrative Criteria

OAR 340-041-0007

(1) Notwithstanding the water quality standards contained in this Division, the highest and best practicable treatment and/or control of wastes, activities, and flows must in every case be provided so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels.

~~(2) Where a less stringent natural condition of a water of the State exceeds the numeric criteria set out in this Division, the natural condition supersedes the numeric criteria and becomes the standard for that water body. However, there are special restrictions, described in OAR 340-041-0004(9)(a)(D)(iii), that may apply to discharges that affect dissolved oxygen.³~~

³ This section of OAR 340-041-0007 was disapproved by the EPA on August 8, 2013, and is not applicable.

(3) For any new waste sources, alternatives that utilize reuse or disposal with no discharge to public waters must be given highest priority for use wherever practicable. New source discharges may be approved subject to the criteria in OAR 340-041-0004(9).

(7) Road building and maintenance activities must be conducted in a manner so as to keep waste materials out of public waters and minimize erosion of cut banks, fills, and road surfaces.

(8) In order to improve controls over nonpoint sources of pollution, federal, State, and local resource management agencies will be encouraged and assisted to coordinate planning and implementation of programs to regulate or control runoff, erosion, turbidity, stream temperature, stream flow, and the withdrawal and use of irrigation water on a basin-wide approach so as to protect the quality and beneficial uses of water and related resources. Such programs may include, but not be limited to, the following:

(a) Development of projects for storage and release of suitable quality waters to augment low stream flow;

(b) Urban runoff control to reduce erosion;

(c) Possible modification of irrigation practices to reduce or minimize adverse impacts from irrigation return flows;

(d) Stream bank erosion reduction projects; and

(e) Federal water quality restoration plans.

(9) The development of fungi or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or that are injurious to health, recreation, or industry may not be allowed;

(10) The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shellfish may not be allowed;

(11) The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry may not be allowed;

(12) Objectionable discoloration, scum, oily sheens, or floating solids, or coating of aquatic life with oil films may not be allowed;

(13) Aesthetic conditions offensive to the human senses of sight, taste, smell, or touch may not be allowed;

(14) Radioisotope concentrations may not exceed maximum permissible concentrations (MPC's) in drinking water, edible fishes or shellfishes, wildlife, irrigated crops, livestock and dairy products, or pose an external radiation hazard;

(15) Minimum Design Criteria for Treatment and Control of Wastes. Except as provided in OAR 340-041-0101 through 340-041-0350, and subject to the implementation requirements set forth in OAR 340-041-0061, prior to discharge of any wastes from any new or modified facility to any waters of the State, such wastes must be treated and controlled in facilities designed in accordance with the following minimum criteria.

(a) In designing treatment facilities, average conditions and a normal range of variability are generally used in establishing design criteria. A facility once completed and placed in operation should operate at or near the

design limit most of the time but may operate below the design criteria limit at times due to variables which are unpredictable or uncontrollable. This is particularly true for biological treatment facilities. The actual operating limits are intended to be established by permit pursuant to ORS 468.740 and recognize that the actual performance level may at times be less than the design criteria.

(B) Industrial wastes:

(i) After maximum practicable in-plant control, a minimum of secondary treatment or equivalent control (reduction of suspended solids and organic material where present in significant quantities, effective disinfection where bacterial organisms of public health significance are present, and control of toxic or other deleterious substances);

(ii) Specific industrial waste treatment requirements may be determined on an individual basis in accordance with the provisions of this plan, applicable federal requirements, and the following:

(I) The uses that are or may likely be made of the receiving stream;

(II) The size and nature of flow of the receiving stream;

(III) The quantity and quality of wastes to be treated; and

(IV) The presence or absence of other sources of pollution on the same watershed.

(iii) Where industrial, commercial, or agricultural effluents contain significant quantities of potentially toxic elements, treatment requirements may be determined utilizing appropriate bioassays;

(iv) Industrial cooling waters containing significant heat loads must be subjected to off-stream cooling or heat recovery prior to discharge to public waters;

(v) Positive protection must be provided to prevent bypassing of raw or inadequately treated industrial wastes to any public waters;

(vi) Facilities must be provided to prevent and contain spills of potentially toxic or hazardous materials.

7.2.1 Application of Narrative Criteria Standard

This standard is self-explanatory in its purpose of prohibiting degradation of water quality, particularly with respect to aesthetic offenses.

7.2.2 Present Condition of Applicable Narrative Criteria

7.2.2.1 Fungi and Other Growths

The degraded condition of the Columbia River and Columbia Slough are influenced by the high level of urbanization as well as stream and bank alteration that has occurred. The Sandy River basin does not share the same level of urbanization as the Columbia River; however, the basin does

contain small urban centers, dispersed rural/residential areas, and intermixed forestry and agriculture practices.

The Columbia River Mainstem and the Sandy River are relatively fast moving. Comparatively, the portion of the Columbia River south of Hayden Island has moderate flow and the Columbia Slough is relatively slow moving. The Columbia Slough is impounded by several barriers, thus restricting flow. Slow flows and nutrient laden stormwater runoff likely create conditions for algal and other growths during warm times of the year. However, there is little current information available as to unacceptable deleterious effect on stream bottoms, fish or other aquatic life; or demonstrating that fungi or other growths are injurious to health, recreation, or industry in the subject waterways.

7.2.2.2 Creation of Taste, Odor, Toxic or Other Conditions Deleterious to Fish, Aquatic Life, Drinking Water Potability or Fish or Shellfish Palatability

There is no current information available as to unacceptable taste and odor in the system of surface waters having a deleterious effect on fish, other aquatic life, potability of drinking water, or palatability of fish or shellfish.

Drinking water is drawn from the Columbia River Mainstem and proximal groundwater wells for communities, farms and homeowners many miles upstream of the project area. Shellfish harvest occurs downstream in the Columbia River Mainstem.

Short-term groundwater pumping in depressed road sections within the project area on the Oregon side may create a cone of depression that increases the risks of contamination from nearby contaminated sites. Sites with existing soil or groundwater contamination near construction areas would be further studied and tested before any groundwater pumping occurs, in order to avoid causing such contamination to spread. For each contaminated site that poses a threat to groundwater quality, remedial actions would be determined and implemented to prevent the spread of contaminants. Design elements may be altered based on site conditions if deemed necessary to prevent contaminant spreading.

Drinking water is not drawn from the Sandy River Mainstem but within upstream tributaries. Water from groundwater wells within the basin occur with approximately 99 percent of the water going towards municipal and agricultural needs and approximately 1 percent for industrial and recreational uses. There may also be numerous private wells for domestic use but these wells account for less than 15,000 gallons of water per day (SRBP 2005). Habitat restoration activities within the proposed project area are not anticipated to impact groundwater or drinking water. Shellfish harvest does not occur within the Sandy River or its tributaries.

Toxic substances are discussed in Section 7.11 of this document. The Columbia River is listed as impaired for multiple parameters which may contribute to deleterious conditions for fish and aquatic life while fishing and shellfish harvest occurs in the Columbia River. No information is available to indicate any adverse affects to fish or shellfish palatability.

7.2.2.3 Appreciable Bottom or Sludge Deposits or any Organic or Inorganic Deposits

There are no known records of contaminated sediments in the Columbia River Mainstem portion of the project area (USACE 2009). A sediment characterization study detected constituents at concentrations below the Sediment Evaluation Framework (SEF) screening levels at all sample locations. Therefore, there is very little risk that in-water work in the Columbia River would re-suspend contaminated sediments. At "North Portland Harbor", contaminated sediments have been identified, but they are likely outside of the project footprint.

There are known contaminated sediments in the Columbia Slough. The Columbia Slough Sediment Program, devised by the DEQ and the City of Portland, aims to remediate widespread sediment contamination through source control contamination reduction, contaminant removal by dredging "hot spots," and long-term monitoring to ensure the program's effectiveness (BES 2006). The cleanup program was recently extended through 2015. This program includes specific tasks to control sources of pollution, treat stormwater runoff, and clean up contaminated sediments in the

Lower Columbia Slough, Whitaker Slough, and Buffalo Slough. DEQ has also signed agreements with ODFW and the Multnomah County Drainage District in regards to cleanup activities in the Columbia Slough (DEQ 2010). Since the CRC project is not conducting in-water work in the Columbia Slough and the proposed stormwater facilities are projected to decrease pollutant loading of the Columbia Slough, exacerbation of these sediments is not anticipated due to the project activities.

There are no known heavy metals or miscellaneous toxic pollutants within the stream sediments and/or soils adjacent to the stream channel in the Sandy River within the project area (SRBP 2007). Therefore, there is very little risk that in-water work during habitat restoration activities would re-suspend contaminated sediments.

7.2.2.4 Objectionable Discoloration, Scum, Oil Sheens, or Floating Solids or Coating of Aquatic Life with Oil Films

No information is available that indicates that any of these issues are currently present in the Columbia River, the Columbia Slough or the Sandy at the project locations. However, the potential for sheens to appear due to accidental spills or incidental to industrial uses is present, especially in the highly urbanized areas of the Columbia River.

7.2.2.5 Aesthetic Conditions Offensive to the Human Senses of Sight, Taste, Smell or Touch

No information is available that indicates that any of these issues are currently present in the subject waterways at the project locations.

7.2.2.6 Radioisotope Concentrations

No information is available that indicates current exceedance of maximum permissible concentrations (MCPs) in drinking water, edible fishes or shellfishes, wildlife, irrigated crops, livestock and dairy products within the Columbia River, the Columbia Slough or the Sandy. There is no external radiation hazard posed by current conditions of the affected waterways.

7.2.2.7 Minimum Design Criteria for Treatment and Control of Wastes

The current I-5 and North Portland Harbor Bridges do not control or treat any stormwater runoff. Stormwater runoff discharges from existing bridges through scuppers directly into the Columbia River.

7.2.3 Applicant's Position on Narrative Criteria

7.2.3.1 Fungi and Other Growths

Due to the limited duration of most of the proposed impacts to waters, and with treatment of stormwater to reduce/eliminate nutrient laden discharges to the Columbia River and Columbia Slough, CRC believes that further degradation of Fungi and Other Growths is unlikely within the subject waterways.

7.2.3.2 Creation of Taste, Odor, Toxic or Other Conditions Deleterious to Fish, Aquatic Life, Drinking Water Potability or Fish or Shellfish Palatability

Due to the limited duration of most of the proposed impacts to waters, CRC believes that further degradation of Taste, Odor, Drinking Water Potability or Fish or Shellfish Palatability is unlikely. Creation of Toxic or Other Conditions Deleterious to Fish or Aquatic Life could occur due to loss of fish habitat, passage or prey species at North Portland Harbor or Columbia River Mainstem; or due to increased, uncontrolled or untreated stormwater discharge from associated impervious surfaces. However, these impacts have been minimized through project design to the extent possible. Isolation of in-water work areas and containment measures have been proposed to minimize any potential for mobilization of existing contaminants in sediment. Design of the project elements has considered fish passage, where appropriate, and habitat and water quality impact avoidance, minimization and mitigation.

The CRC will employ the most restrictive water quality requirement project-wide, meaning that in many cases, the level of stormwater treatment will exceed that of the local jurisdiction. In addition to treating new impervious surfaces the project creates, approximately 188 acres of existing impervious surfaces have been identified that will be retrofitted to meet current stormwater treatment standards.

7.2.3.3 Appreciable Bottom or Sludge Deposits or any Organic or Inorganic Deposits

Formation of Appreciable Deleterious Bottom Deposits when aquatic life is present may occur if contamination is disturbed along the river bed of the "North Portland Harbor" or if there are changes to the stream bed or banks that alter the geomorphic and flow conditions at the project location during project activities. However, CRC does not anticipate any disturbance of contamination during construction or as a result of bed or bank alteration.

A high level of stormwater treatment will be incorporated into the proposed project in order to decrease pollutant loading into the Columbia Slough; thus, CRC does not anticipate stormwater discharge into the Columbia Slough to result in the formation of Appreciable Deleterious Bottom Deposits.

CRC concludes that project activities associated with habitat restoration within the Sandy River will not result in the disturbance of contamination or increase pollutant loading into the waterway; thus, formation of Appreciable Deleterious Bottom Deposits within the Sandy River is not anticipated.

7.2.3.4 Objectionable Discoloration, Scum, Oil Sheens, or Floating Solids or Coating of Aquatic Life with Oil Films

Additional Objectionable Sheens, floating solids, and the like may occur during in-water work caused by accidental spills or by post-construction stormwater runoff, if it is not properly treated and controlled. However, CRC anticipates that the implementation of spill prevention and response measures and installation of stormwater Best Management Practices (BMPs) will prevent these effects.

7.2.3.5 Aesthetic Conditions Offensive to the Human Senses of Sight, Taste, Smell or Touch

Due to the limited duration of most of the proposed impacts to waters, CRC concludes that further degradation of Aesthetic Conditions of the subject waterways is unlikely.

7.2.3.6 Radioisotope Concentrations

Due to the limited duration of most of the proposed impacts to waters and the lack of evidence of a significant presence of radioisotopes in subject waterways, CRC concludes that further water quality degradation due to radioisotopes is unlikely.

7.2.3.7 Minimum Design Criteria for Treatment and Control of Sewage Wastes

CRC concludes that this criterion is not applicable because no new or modified discharge of sewage wastes is proposed.

7.2.3.8 Summary of CRC's Position on Narrative Criteria

CRC concludes that impacts to the narrative criteria are unlikely. However, spill prevention and response measures will be imposed to minimize impacts from accidental sheens and floating solids, creation of toxins, and disturbance of contaminants, etc. Also, post-construction stormwater management will be designed and implemented to prevent pollution from being discharged into waters of the state.

7.2.4 Public Comment on Narrative Criteria OAR 340-041-0007

DEQ received a comment that DEQ failed to address some of the narrative criteria, particularly those "that appear to be most applicable to the Project": the criteria regarding road building and maintenance activities (OAR 340-041-0007(7)), "the highest and best practicable treatment and/or control of wastes, activities and flows" that have been used in this case "so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures ..." (OAR 340-041-0007(1)), whether there are any "less stringent natural conditions" that exceed the numeric criteria for the waterbodies (OAR 340-041-0007(2)), and whether noise from construction will violate the prohibition against the creation of a condition that is deleterious to fish (OAR 340-041-0007(11)).

Habitat modifications caused by in-water work including the hydroacoustic effects of pile driving was considered in the Section 7.2.5.6 of the Evaluation Report and Findings. As discussed in that section, the 401 certification decision requires adherence to NMFS conservation measures and in-water work windows, both of which are established for the purpose of limiting and mitigating adverse impacts to fish from noise and other habitat modifications.

The other applicable sections of OAR 340-041-0007 are evaluated Section 7.2.5, below. Subsections OAR 340-041-0007(4), (5), (6) are not applicable to this project.

7.2.5 DEQ Evaluation and Finding on Narrative Criteria

7.2.5.1 The highest and best practicable treatment and/or control of wastes, activities, and flows must in every case be provided so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels.

DEQ is reasonably assured that the work practices proposed by the Applicants and memorialized in the 401 certification decision, as well as the stormwater treatment proposed by the Applicants and conditions of the 401 certification decision impose the highest and best practicable treatment and/or control of wastes, activities and flows so as to maintain dissolved oxygen and overall water quality at the highest possible levels and water temperatures, coliform bacteria concentrations, dissolved chemical substances, toxic materials, radioactivity, turbidities, color, odor, and other deleterious factors at the lowest possible levels.

7.2.5.2 For any new waste sources, alternatives that utilize reuse or disposal with no discharge to public waters must be give highest priority for use wherever practicable.

In light of the comment described above regarding DEQ's failure to address some of the Narrative Criteria, DEQ amended the 401 certification decision to require the Applicants to give highest priority to alternatives that utilize reuse or disposal with no discharge to public waters wherever practicable.

7.2.5.3 Road building and maintenance activities must be conducted in a manner so as to keep waste materials out of public waters and minimize erosion of cut banks, fills, and road surfaces.

The 401 certification decision includes conditions to prevent waste materials from entering public waters and to minimize erosion of cut banks, fills and road surfaces. For instance, Applicants must obtain coverage under a construction stormwater NPDES permit which will apply to any land clearing, grading or excavation activities that may occur during road building. That permit requires implementation of Best Management Practices to control and prevent erosion and runoff from construction activities into waters of the state. In addition the 401 certification decision includes a prohibition on deleterious waste materials and construction debris from being placed in or where it could come into contact with or enter waters of the state, and conditions to contain and properly dispose of waste materials.

7.2.5.4 To improve controls over nonpoint sources of pollution, federal, State, and local resources management agencies will be encouraged and assisted to coordinate planning and implementation of programs to regulate or control runoff, erosion, turbidity, stream temperature, stream flow, and the withdrawal and use of irrigation water on a basin-wide approach so as to protect the quality and beneficial uses of water and related resources.

To the extent this section of the Narrative Criteria applies to the CRC project, there has been extensive coordination between federal state and local agencies to ensure the project regulates and controls for runoff and turbidity. In particular, proposed stormwater designs meet local, state and federal criteria for flow control, pollutant reduction and fish protection and the 401 certification decision includes conditions to control for turbidity, and for the Applicants to monitor and report on turbidity discharges throughout each phase of the project. Erosion, stream temperature, flow and withdrawal of irrigation water will not be impacted by the proposed activities.

7.2.5.5 Fungi and Other Growths

DEQ does not anticipate impacts to this parameter.

7.2.5.6 Creation of Taste, Odor, Toxic or Other Conditions Deleterious to Fish, Aquatic Life, Drinking Water Potability or Fish or Shellfish Palatability

Creation of Taste, Odor, Drinking Water Potability or Fish or Shellfish Palatability issues are unlikely to occur as a result the proposed activities.

Creation of Conditions Deleterious to Fish or Aquatic Life could occur due habitat modifications caused by in-water work methods (e.g. hydroacoustic effects of pile driving). However, conditions requiring spatial and temporal limitations on turbidity, as well as isolation of in-water work areas, containment measures, and spill prevention measures and other BMPs must be implemented to minimize the potential for adverse impacts, according to the 401 certification decision. Adherence to NMFS conservation measures and NMFS and ODFW in-water work windows is required in the 401 certification decision.

Preliminary Stormwater Management Plans and Design Reports were developed by the Applicants, following the standards of ODOT, City of Portland, and Clean Water Services Stormwater Manuals to prevent the addition of heavy metals and other toxics present in stormwater run off from being discharged to waters of the state. The final stormwater plans implemented must be in accord with NPDES MS-4 permits held by the City of Portland to achieve the highest practicable treatment and control of stormwater runoff from all impervious surfaces associated with the project.

Creation of Toxic conditions deleterious to fish could result from disturbance to contaminated river sediments should they be present and disturbed during project activities. The 401 certification decision includes conditions to prevent and limit toxic conditions such as: identifying sites in the project area listed in the ESCI database, proper storage and handling of contaminated soils, coordination with DEQ, debris removal with a clamshell bucket as opposed to dredging, etc.

Material removed from North Portland Harbor would likely be large riprap and concrete; therefore, some disturbance of sediments would occur. If it is found that there is potential for in-water work to disturb contaminated sediments, the 401 certification decision requires coordination with DEQ's Clean-up Program. The 401 certification decision also requires that any removed sediments would be disposed of in a permitted upland disposal site, if required.

7.2.5.7 Appreciable Bottom or Sludge Deposits or any Organic or Inorganic Deposits

In the affected waterways in the Project area there are no anticipated appreciable bottom or sludge deposits resulting from the proposed project. Containment and spill prevention measures are required in the 401 certification decision to prevent any other kind of deposits, including organic or inorganic deposits.

7.2.5.8 Objectionable Discoloration, Scum, Oil Sheens, or Floating Solids or Coating of Aquatic Life with Oil Films

Objectionable Sheens, floating solids, and coating of Aquatic Life with oil films is not anticipated by the proposed project or allowed under the 401 certification decision. In the event that a spill occurs during in-water work it must be properly treated, controlled, and reported to DEQ under the 401 certification decision. In addition, the 401 certification decision contains conditions requiring spill prevention and other preventative measures as well as monitoring for accidental or incidental release of fluids which may cause sheens.

Under the 401 certification decision vehicle and equipment maintenance, washing and re-fueling must occur in an upland location and be contained so as to prevent any discharge to surface waters.

7.2.5.9 Aesthetic Conditions Offensive to the Human Senses of Sight, Taste, Smell or Touch

Degradation of Aesthetic Conditions offensive to human senses is unlikely.

7.2.5.10 Radioisotope Concentrations

The proposed project is not expected to introduce any material or practice that could result in an exceedance of MCPs or pose an external radiation hazard.

7.2.5.11 Minimum Design Criteria for Treatment and Control of Wastes

The Applicant has proposed to treat all CIA within the project area and to capture and treat CIA stormwater before it is discharged or mixed with "run-on" from other surfaces not owned or controlled by Applicants. In doing so, the Applicant has agreed to apply ODOT's stormwater manual within the ODOT right of way and the City of Portland's stormwater manual guidelines and calculation rate in its stormwater planning. Both manuals are within average conditions and a normal range of variability in establishing design criteria. Once developed, post-construction stormwater management plans will be submitted to DEQ for approval.

Based on preliminary stormwater plans and design reports and compliance with 401 certification decision to treat all CIA within the project area, DEQ is reasonably assured that discharge of wastes from the projects new and modified facilities will be treated and control in accordance with the minimum criteria.

7.3 Bacteria (Applicable standards)

OAR 340-041-009

(1) Numeric Criteria: Organisms of the coliform group commonly associated with fecal sources (MPN or equivalent membrane filtration using a representative number of samples) may not exceed the criteria described in paragraphs (a) and (b) of this paragraph:

(a) Freshwaters and Estuarine Waters Other than Shellfish Growing Waters:

(A) A 30-day log mean of 126 *E. coli* organisms per 100 milliliters, based on a minimum of five (5) samples;

(B) No single sample may exceed 406 *E. coli* organisms per 100 milliliters.

(b) Marine Waters and Estuarine Shellfish Growing Waters: A fecal coliform median concentration of 14 organisms per 100 milliliters, with not more than ten percent of the samples exceeding 43 organisms per 100 ml.

(10) Water Quality Limited for Bacteria: In those water bodies, or segments of water bodies identified by the Department as exceeding the relevant numeric criteria for bacteria in the basin standards and designated as water-quality limited under section 303(d) of the Clean Water Act, the requirements specified in section 11 of this rule and in OAR 340-041-0061(12) must apply.

(11) In water bodies designated by the Department as water-quality limited for bacteria, and in accordance with priorities established by the Department, development and implementation of a bacteria management plan may be required of those sources that the Department determines to be contributing to the problem. The Department may determine that a plan is not necessary for a particular stream segment or segments within a water-quality limited basin based on the contribution of the segment(s) to the problem. The bacteria management plans will identify the technologies, best management practices and/or measures and approaches to be implemented by point and nonpoint sources to limit bacterial contamination. For point sources, their National Pollutant Discharge Elimination System permit is their bacteria management plan. For nonpoint sources, the bacteria management plan will be developed by designated management agencies (DMAs) which will identify the appropriate best management practices or measures and approaches.

7.3.1 Application of Bacteria Standard

This bacteria standard is one of public health significance and takes into account the cumulative impacts of all coliform bacteria discharges; however, its major emphasis is on the control of human fecal coliform bacteria sources.

7.3.2 Present Condition of Bacteria

Bacteria discharges to the Columbia River occur at Portland and Astoria as a result of municipal wastewater discharges. Both of these sources are under operating under DEQ Department Orders.

Livestock and other sources of fecal related bacteria that could enter the Columbia River or Sandy River exist upstream of the project areas. Multiple municipal and industrial waste water discharges, which may contain bacteria, are permitted into the Columbia River; industrial discharges are permitted into the Columbia Slough. Multiple streams in the Columbia Basin are listed as impaired for the parameter of bacteria, but development of a TMDL to address bacteria has not yet been completed.

The Columbia Slough receives discharges that contain bacteria when stormwater overwhelms the capacity of existing pipes that carry both sewage and stormwater. The City of Portland started construction of the East Side Big Pipe project in 2006. This project was designed to control combined sewer overflows to the Columbia Slough and Willamette River. A 300-foot long tunnel boring machine was used to construct the nearly 6-mile long tunnel along the east bank of the Willamette River from SE 17th and McLoughlin to Swan Island. The tunnel boring machine completed tunneling in October 2010 and the city activated the East Side Big Pipe in fall 2011.

Other sources of Bacteria include urban stormwater runoff, which impacts all of the subject waterways. Because excessive levels of Bacteria in the Columbia Slough classify it as impaired, TMDLs have been developed for Bacteria in the Willamette Basin as well as E. Coli and Fecal Coliform in the Lower Willamette Sub basin. After several years of TMDL implementation, it is anticipated that Bacteria levels will be reduced. At the present time, however, the Columbia Slough is still impaired for the criterion of Bacteria.

7.3.3 Applicants' Position on Bacteria

CRC does not anticipate the proposed activities to introduce new sources of Bacteria to the subject waterways. In addition, the installation of proposed post-construction stormwater management features and improvements to existing stormwater treatment facilities may help to reduce Bacteria entering the subject waterways.

7.3.4 Public Comment on Bacteria

No comments regarding Bacteria were received.

7.3.5 DEQ Evaluation and Finding on Bacteria

Proposed activities are not anticipated to introduce new sources of bacteria to the Columbia River, the Columbia Slough, and the Sandy River.

7.4 Biocriteria

340-041-0011: Waters of the State shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

340-041-0002(76) defines "Without Detrimental Changes in the Resident Biological Community" as "no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region."

"Ecological integrity" is defined in OAR 340-041-0002(19) as "the summation of chemical, physical, and biological integrity capable of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat for the region."

An "Appropriate Reference Site or Region" is defined in OAR 340-041-0002(5) as "a site on the same water body or within the same basin or eco-region that has similar habitat conditions and represents the water quality and biological community attainable within the areas of concern."

7.4.1 Application of Biocriteria Standard

The biocriteria standard is meant to complement the parameter-specific criteria. The parameter-specific criteria are designed to give full protection to the most sensitive beneficial use, with the implicit assumption that if the most sensitive beneficial use is protected, then all uses will be protected. However, the application of these criteria is very limited in considering multiple stressors and cumulative effects. By contrast, the biocriteria standard is aimed at assessing total impact to the community in situ. Biocriteria make it possible to evaluate the impact of a source without a need for measuring every possible water quality variable. Thus, the standard is applied as a measure of the impact of a source by comparing the biological integrity (as represented by appropriate expressions) downstream of the source with that at a reference site or region.

7.4.2 Present Condition of Biocriteria

The ecological integrity of the Columbia River is degraded due to continued anthropogenic disturbance associated with the current and historic hydroelectric dams, navigation practices, land use practices, and point source and non-point source discharges.

The documented biological community within the Columbia River includes resident and anadromous fish, turtles, amphibians, aquatic invertebrates, passerine birds, shore birds, raptors, and small mammals, though the water quality criteria of Biocriteria applies only to aquatic life. In the project area there are 16 species, including 13 salmonids listed as threatened or endangered under the Federal Endangered Species Act, as detailed in the 2011 NMFS Biological Opinion. Of the 13 listed salmonid species, two spawn in the main stem. A number of NMFS Biological Opinions cover these species. While the factors that have led to the decline of these 13 species are manifold, water quality has played a role.

Green and white sturgeon (*Acipenser* spp.) are present in the Columbia River. Their presence seems to be greater in summer, lower in winter and at some intermediate level in the spring. Migrating eulachon (smelt) densities vary by season, but seem to be at their greatest abundance in the spring. Dungeness crab (*Metacarcinus magister*) are present in the river up to RM 18. River lamprey (*Lampetra ayresii*) and Pacific lamprey migrate between the Columbia River and the Pacific Ocean through the subject waterway.

Of the species which inhabit the Columbia River, federally listed Chinook salmon, coho salmon, steelhead, bull trout (*Salvelinus confluentus*), and eulachon migrate into the Sandy River. Suitable bull trout migration habitat is present within the Sandy River; however, extremely limited numbers of individuals are documented within the action area. Also, benthic community richness within the proposed project area is low (SRBP 2007).

7.4.3 Applicants' Position on Biocriteria

Impacts to subject waterways are anticipated to occur during project related construction activities. However, the majority of potential impacts to water quality will be temporary in nature and minimized due to implementation of isolation, containment, and preventative measures. Permanent impacts from the placement of new structures into the Columbia River Mainstem and North Portland Harbor have also been minimized by design. Compensatory mitigation will be implemented to offset unavoidable impacts and is anticipated to improve habitat and water quality conditions. Finally, on-going impacts from increased stormwater discharge from associated impervious surfaces have been addressed with the CRC's preliminary post-construction stormwater plan, which is anticipated to improve conditions in some areas where stormwater treatment is not currently applied or is ineffective.

Also, a Biological Assessment (BA), as well as an Endangered Species Act re-initiation document, was prepared by CRC with respect to potential impacts to the trust species of NMFS and USFWS. This assessment provides information on threatened and endangered salmonids, eulachon, Steller sea lions (*Eumetopias jubatus*), killer whales (*Orcinus orca*), and sturgeon, their habitat needs, and potential impacts related to the proposed project activities. CRC also provided an Ecosystems Technical Report as part of the National Environmental Policy Act process that provides a detailed look at the existing conditions of the affected waterways with respect to water quality, aquatic life

use, vegetation, and terrestrial species use. CRC believes there will be adequate BMPs applied, adequate studies conducted, and adequate measures implemented to demonstrate that the proposed project activities are protective of ESA-listed salmonids, eulachon, green sturgeon, bull trout, as well as listed terrestrial species and non-listed species within the project area that are specific to this criteria.

In addition, impacts to the aquatic ecosystem associated with project activities will occur, but are expected to be minimal for the following reasons: the substrate of the Columbia and Sandy Rivers naturally consists primarily of coarse sand; organisms abundance is low and they are adapted to the dynamic nature of the habitat; impacts are short-term; and activities will be scheduled to avoid periods of ESA-listed species abundance to the extent practicable.

Furthermore, a Biological Opinion (BO) issued by NMFS (and informal concurrence by USFWS) evaluated the project for its impacts on species listed under ESA. That BO and its revision contains conservation measures which, if implemented will be protective of the listed species.

Critical habitat for the Southern distinct population segment (DPS) of eulachon was proposed on January 5, 2011 (76 FR 515), designated on October 20, 2011, and took effect on December 19, 2011 (76 FR 65324). This designation includes the Columbia River from its mouth upstream to Bonneville Dam (RM 146), and the Sandy River from the confluence with the Columbia River upstream to the confluence with Gordon Creek (approximately 12 miles) (76 FR 65349).

Designated critical habitat for this species is present in the action area in the Columbia River, North Portland Harbor, and Sandy River; it is not present in the Columbia Slough. The effect determination for eulachon critical habitat is in the process of being updated for the CRC project to "may affect, likely to adversely affect" to reflect the final designation.

In addition, bull trout critical habitat had been proposed but not finalized at the time the 2010 biological assessment was written, and the biological assessment contained language appropriate for the proposed critical habitat of "will not destroy or adversely modify." Project design changes described in the 2013 re-initiation document are not anticipated to change the effects determination of the 2010 BA for the final designation of bull trout critical habitat. Therefore, the effects determination has been updated to "may affect, likely to adversely affect."

Other species, in addition to ESA species, susceptible to project impacts include: white sturgeon; Pacific and River lamprey; and other resident, migratory, and benthic organisms. Little information exists on the vulnerability of these species to project impacts, though it is understood that species use of and benthic productivity in areas with depths between -35 and -65 feet, are generally low (DEQ 2008).

In summary, while the current biological integrity of the subject waterways is degraded, CRC believes that the proposed project activities will not have a measurable negative effect to the biological systems in the waterways, and may even improve habitat and water quality conditions. This is provided that all practicable isolation, containment and impact prevention measures, the comprehensive post-construction stormwater plan, and successful completion of the compensatory mitigation are implemented.

7.4.4 Public Comment on Biocriteria

No comments regarding Biocriteria were received.

7.4.5 DEQ Evaluation and Finding on Biocriteria

NMFS evaluated the project for its impacts on species listed under the Endangered Species Act in a BO issued January 19, 2011. A new, revised BO will be issued August 30, 2013. The 2011 BO proposes provisions for the protection of listed species. The 401 certification decision requires the Applicants to comply with the BO's conservation measures as well as the NMFS and ODFW recommendations regarding in-water work windows. The 401 certification decision also includes prohibitions on disrupting aquatic life movements and requires unobstructed fish passage at all times. Further, the 401 certification prohibits violating any water quality standard and places additional limitations on turbidity and pH discharges to protect existing and beneficial uses such as aquatic life.

Through strict adherence with the conditions mentioned above as well as conditions of the 401 certification decision designed to protect water quality from untreated stormwater discharges, turbidity, toxics and other harmful pollutants, DEQ is reasonably assured the project will comply with the Biocriteria standard.

7.5 Dissolved Oxygen

OAR 340-041-0016

Dissolved Oxygen (DO): No wastes may be discharged and no activities may be conducted that either alone or in combination with other wastes or activities will cause violation of the following standards: The changes adopted by the Commission on January 11, 1996, become effective July 1, 1996. Until that time, the requirements of this rule that were in effect on January 10, 1996, apply:

(1) For water bodies identified as active spawning areas in the places and times indicated on the following Tables and Figures set out in OAR 340-041-0101 to 340-041-0340: Tables 101B, 121B, and 190B, and Figures 130B, 151B, 160B, 170B, 180A, 201A, 220B, 230B, 260A, 271B, 286B, 300B, 310B, 320B, and 340B, (as well as any active spawning area used by resident trout species), the following criteria apply during the applicable spawning through fry emergence periods set forth in the tables and figures and, where resident trout spawning occurs, during the time trout spawning through fry emergence occurs:

(a) The dissolved oxygen may not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is 8.0 mg/l or greater, then the DO criterion is 9.0 mg/l;

(b) Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels must not be less than 95 percent of saturation;

(c) The spatial median intergravel dissolved oxygen concentration must not fall below 8.0 mg/l.

(2) For water bodies identified by the Department as providing cold-water aquatic life, the dissolved oxygen may not be less than 8.0 mg/l as an absolute minimum. Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 8.0 mg/l, dissolved oxygen may not be less than 90 percent of saturation. At the discretion of the Department, when the Department determines that adequate information exists, the dissolved oxygen may not fall below 8.0 mg/l as a 30-day mean minimum, 6.5 mg/l as a seven-day minimum mean, and may not fall below 6.0 mg/l as an absolute minimum (Table 21); 13

(3) For water bodies identified by the Department as providing cool-water aquatic life, the dissolved oxygen may not be less than 6.5 mg/l as an absolute minimum. At the discretion of the Department, when the Department determines that adequate information exists, the dissolved oxygen may not fall below 6.5 mg/l as a 30-day mean minimum, 5.0 mg/l as a seven-day minimum mean, and may not fall below 4.0 mg/l as an absolute minimum (Table 21);

(4) For water bodies identified by the Department as providing warm-water aquatic life, the dissolved oxygen may not be less than 5.5 mg/l as an absolute minimum. At the discretion of the Department, when the Department determines that adequate information exists, the dissolved oxygen may not fall below 5.5 mg/l as a 30-day mean minimum, and may not fall below 4.0 mg/l as an absolute minimum (Table 21);

7.5.1 Application of Dissolved Oxygen Standard

Dissolved oxygen is essential for maintaining aquatic life. Historically, the depletion of dissolved oxygen was one of the most frequent water pollution problems. Its effect on aquatic organisms, especially at low concentrations, has been studied extensively. Sensitivity to low dissolved oxygen concentrations differs between species, between various life stages (egg, larvae, and adults), and between different life processes (feeding, growth, and reproduction).

7.5.2 Present Condition of Dissolved Oxygen

The water quality standard for dissolved oxygen for the Lower Columbia River is for cold-water aquatic life. Monitoring data held in EPA's STORET disclose dissolved oxygen concentrations ranging between 9.0 milligrams per liter (mg/L) and 15.8 mg/L. A compilation of data from DEQ's LASAR database includes approximately 70 measurements recorded between 2006 and 2008 at 3 locations (Station ID 34164, 35255, and 35254) in proximity to the proposed bridge location on the Columbia River. These concentrations ranged between 7.1 mg/L and 10.7 mg/L.

The Columbia River is not currently listed as impaired for the parameter of dissolved oxygen. Dissolved oxygen levels in temperature impaired portions of the Columbia River may be reduced during lowest flows of summer when river temperatures are at their highest. However, dissolved oxygen in the Columbia River may be improved by augmented flows released from behind dams during the summer months.

Within the Columbia Slough TMDL implementation actions are addressing dissolved oxygen impairments. Stormwater treatment actions similar to those that are proposed by Applicants are being implemented by Designated Management Agencies under the TMDL within the Columbia Slough.

Current data for dissolved oxygen at the habitat restoration site (Dabney State Park) is not available; however, data from DEQ's LASAR database includes 4 measurements recorded between 1992 and 1994 at Dabney State Park (Station ID 11780) and 18 measurements recorded between 2010 and 2012 downstream from the park at the Troutdale Bridge (Station ID 10674). These concentrations ranged between 9.0 mg/L and 11.8 mg/L at the park and between 9.3 mg/L and 12.9 mg/L at the bridge.

7.5.3 Applicants' Position on Dissolved Oxygen

CRC believes that the potential for degradation to dissolved oxygen levels caused by the proposed project is negligible. Specifically, with the exception of North Portland Harbor, impacts to the river beds of the Columbia River and Sandy River will occur where the sediments contain very low levels of organic material. During the sediment characterization study, sediment samples collected from the North Portland Harbor and Columbia River Main stem, in general, consisted of medium to fine sand with various percentages of silt and some clay.

CRC anticipates that the potential for degradation to dissolved oxygen levels caused by habitat restoration activities will be negligible because the Sandy River is dominated by sand, bed mobility within the river is high, and benthic community richness is low (PGE 2002; SRBP 2007).

In summary, CRC believes that the proposed activities will result in short-term, highly localized reductions in the quantity of dissolved oxygen in those areas in which finer grained sediment and organics may be present. This is not the nature of the sediments in the current main stem navigation channel itself or the Sandy River. For areas outside the navigation channel, there is insufficient data.

Proposed activities are unlikely to further degrade dissolved oxygen levels in the subject waterways, provided all practicable isolation, containment and control measures are implemented.

7.5.4 Public Comment on Dissolved Oxygen

No comments regarding Dissolved Oxygen were received.

7.5.5 DEQ Evaluation and Finding on Dissolved Oxygen

In-stream and inter-gravel dissolved oxygen levels can be influenced by many factors. Potential factors include: temperature increases; pH changes; substrate content; groundwater inflow and hyporheic exchange; levels of total suspended solids; presence of toxics, excess dissolved gases, algal blooms or other decaying organic matter; and degree of sedimentation already occurring within the stream. For project impacts related to the proposed in-water bridge construction and demolition, potential factors are likely limited to: levels of total suspended solids, turbidity substrate content; presence of toxics; temperature increases; and pH changes.

Impairment of dissolved oxygen can be avoided by controlling the above factors through adherence with the 401 certification decision conditions regarding pollution prevention, containment, stormwater management, characterizing sediment for potential contaminants; keeping organic matter from entering the streambed; limiting riparian vegetation removal and restoring disturbed vegetation; employing effective erosion and sediment control measures; and stabilizing disturbed

stream beds and banks prior to reintroduction of stream flows. Measures to avoid pH changes due to river contact with uncured cement must be applied during construction, as required by the 401 certification. The Columbia River main stem does not have finer grained sediment where organics that may contribute to dissolved oxygen are generally present. Moreover the Columbia River has sufficient flow to attenuate small reductions in dissolved oxygen levels.

In the portion of the Columbia River south of Hayden Island known as the "North Portland Harbor" there are potentially areas of contaminated sediment as well as the likelihood of finer grained sediment. Applicants must adhere to the 401 certification conditions in Section H regarding coordination with DEQ Clean-up Program and effectively implement BMPs to limit turbidity and pH.

The impact to the Columbia Slough will be from treated stormwater discharges. It is expected that stormwater treatment methods will be effective at removing heavy metals and other pollutants and the discharges will have a negligible impact on dissolved oxygen in the Slough.

Provided Applicants and their contractors strictly adhere to the conditions of the 401 certification decision, DEQ is reasonably assured that dissolved oxygen levels will not be impaired by the proposed action.

7.6 Nuisance Phytoplankton Growth

OAR 340-041-0019

(1)(a) The following values and implementation program must be applied to lakes, reservoirs, estuaries and streams, except for ponds and reservoirs less than ten acres in surface area, marshes and saline lakes:

(b) The following average Chlorophyll a values must be used to identify water bodies where phytoplankton may impair the recognized beneficial uses:

(A) Natural lakes that thermally stratify: 0.01 mg/l;

(B) Natural lakes that do not thermally stratify, reservoirs, rivers and estuaries: 0.015 mg/l;

(C) Average Chlorophyll a values may be based on the following methodology (or other methods approved by the Department): A minimum of three samples collected over any three consecutive months at a minimum of one representative location (e.g., above the deepest point of a lake or reservoir or at a point mid-flow of a river) from samples integrated from the surface to a depth equal to twice the secchi depth or the bottom (the lesser of the two depths); analytical and quality assurance methods must be in accordance with the most recent edition of Standard Methods for the Examination of Water and Wastewater.

(2) Upon determination by the Department that the values in section (1) of this rule are exceeded, the Department may:

(a) In accordance with a schedule approved by the Commission, conduct such studies as are necessary to describe present water quality; determine the impacts on beneficial uses; determine the probable causes of the exceedance and beneficial use impact; and develop a proposed control strategy for attaining compliance where technically and economically practicable. Proposed strategies could include standards for additional pollutant parameters, pollutant discharge load limitations, and other such provisions as may be appropriate. Where natural conditions are responsible for exceedance of the

values in section (1) of this rule or beneficial uses are not impaired, the values in section (1) of this rule may be modified to an appropriate value for that water body;

(b) Conduct necessary public hearings preliminary to adoption of a control strategy, standards or modified values after obtaining Commission authorization;

(c) Implement the strategy upon adoption by the Commission.

(3) In cases where waters exceed the values in section (1) of this rule and the necessary studies are not completed, the Department may approve new activities (which require Department approval), new or additional (above currently approved permit limits) discharge loadings from point sources provided that it is determined that beneficial uses would not be significantly impaired by the new activity or discharge.

7.6.1 Application of Standard for Nuisance Phytoplankton

Certain types of wastes in water, under proper ambient conditions, may stimulate nuisance algal growths. The magnitude of such growths is determined by measuring chlorophyll *a*, a photosynthetic pigment which is very closely correlated to biomass. OAR 340-41-0019 sets forth a process for determining when phytoplankton growths may be reaching nuisance proportions. This rule is designed to trigger further study and control strategies if the chlorophyll *a* values exceed specified levels in streams or lakes. Where natural conditions are responsible for the algal blooms, the existing level of chlorophyll is considered to be the upper level of acceptability.

7.6.2 Present Condition of Nuisance Phytoplankton

No data is available specific to Nuisance Phytoplankton levels in the project area of the Columbia River.

Nutrient levels (nuisance phytoplankton) within the Sandy River are not elevated; however, enrichment, generally caused by failing septic tanks or runoff from areas of heavy fertilizer usage, does occasionally occur within the river. These increases in nutrients may cause dense mats of green or brown filamentous algae during summer months (SRBP 2007).

The Columbia Slough is a eutrophic system. As nutrients and organic substances enter the Slough, biological productivity such as phytoplankton and algal growth increases. Human activities such as urban runoff can greatly accelerate eutrophication by increasing the rate at which nutrients and organic substances enter the water. (BES 2007)

7.6.3 Applicants' Position on Nuisance Phytoplankton

Historical data on abundance of nuisance phytoplankton is limited, but current information suggests that phytoplankton productivity in the Lower Columbia River is low due to quick flushing times and exposure to lethal levels of salinity. Additionally, higher phytoplankton populations are associated with increased light penetration which is not anticipated to occur during project activities. The CRC biological assessment states that increased shading from the proposed overwater structures may result in decreased productivity of underwater vegetation and that lowered light levels may reduce or eliminate macrophyte beds, algae, and other aquatic vegetation beneath the overwater structures.

The altered condition of the stream reaches in the area of potential impact due to urbanization (channelization, bank hardening, stormwater inputs containing nutrients, bacteria and other components) have likely created conditions favorable to Nuisance Phytoplankton (quiescent sections with higher temperatures and presence of nutrients to create algal blooms). However, the potential for nuisance phytoplankton growth arising due to project activities is not apparent. Project activities within the Columbia River, Columbia Slough, or the Sandy River will not result in decreased salinity or flushing rates, or increases of light penetration. To the contrary, improved treatment and control of stormwater runoff and increased shading due to overwater structures and riparian restoration may actually discourage algal growth. Therefore, CRC is reasonably assured that the proposed project activities will not create conditions favorable for Nuisance Phytoplankton and may even improve conditions related to this parameter.

7.6.4 Public Comment on Nuisance Phytoplankton

No comments regarding Nuisance Phytoplankton were received.

7.6.5 DEQ Evaluation and Finding on Nuisance Phytoplankton

Multiple wastewater treatment facilities (domestic and industrial) are permitted to discharge to the Columbia River. These common sources of nutrients may enhance nuisance phytoplankton growth. The deep, fast flowing waters of the Columbia at the project area, however, are typically contrary to the favorable conditions (warm, slow; nutrient rich waters) which promote nuisance phytoplankton growth and algal blooms.

The Columbia Slough is a eutrophic system prone to phytoplankton growth and algal blooms, as a result of nutrient input. However, discharges of stormwater from the project to the Slough will go through multiple levels of treatment and are not expected to introduce any new nutrients to the Slough. Therefore, increases in nuisance phytoplankton and associated algal blooms are not likely as a result of the Project.

7.7 pH

OAR 340-041-0104 Water Quality Standards and Policies Specific to the Main Stem Columbia River (1) pH (hydrogen ion concentration). pH values may not fall outside the following range: main stem Columbia River (mouth to river mile 309): 7.0 - 8.5.

WAC 173-201A-200(1) (g) Aquatic life pH criteria. Measurement of pH is expressed as the negative logarithm of the hydrogen ion concentration. Table 200 (1)(g) lists the pH levels for each of the aquatic life use categories.

Table 200 (1) (g)
Aquatic Life pH Criteria in Fresh Water

Use Category	pH Units
Salmonid Spawning, Rearing, and Migration	pH shall be within the range of 6.5 to 8.5 with a

	human-caused variation within the above range of less than 0.5 units.
Salmonid Rearing and Migration Only	Same as above.

7.7.1 Application of pH standard

The values measured for pH relate to the balance of acid and alkaline substances in the water. The theoretical range is from 1 (very acid) to 14 (very alkaline). Most streams in Oregon have pH values falling somewhere between 6.5 and 8.5. There may be seasonal fluctuations in the pH number due to substances entering the water from land or bio-chemical activity in the water. Since the fish and other aquatic life in any particular stream have evolved under rather specific pH conditions, it is important a pH standard reflects natural conditions and will prevent any intolerable acid/alkalinity imbalances.

Oregon’s pH standard for the Columbia basin has a slightly narrower range (7.0 - 8.5) than Washington’s applicable pH standard (6.5 - 8.5). Both standards have an upper limit of 8.5. At the lower limit Oregon’s standard is more restrictive than Washington’s. However, Washington’s pH standard also prohibits a human-caused variation of more than .5 units over the back-ground pH, while Oregon’s merely requires pH to stay within the range of 7.0 - 8.5, without further restrictions for human caused variation. For purposes of this 401 certification decision we deem the Washington pH standard more stringent because it prohibits variation within the range greater than .5 units. That the lower limit of Washington’s pH range is 0.5 units lower than Oregon’s lower limit is inconsequential because the proposed activities that may impact pH – activities involving concrete – could only increase pH, not decrease it. The lower limits of the Oregon and Washington ranges will not be affected.

7.7.2 Present Condition of pH

The Mainstem Columbia River Basin-specific pH limit is between 7.0 and 8.5 (OAR 340-041-0104). DEQ’s LASAR database includes approximately 60 measurements recorded between 2006 and 2008 at 3 locations (station ID 34164, 35255, and 35254) in proximity to the project area on the Columbia River. These measurements range from 6.95 to 8.94 with the vast majority of measurements falling around the average (mean) of 7.89.

The LASAR database also includes measurements recorded at Marker #47 (Station ID#10616, River Mile 98) in the Columbia River taken between 1967 through 1973 which fell between 7.5 and 8.5. At that marker, measurements began again in 1991 and have continued every-other-month up to the present. Since 1991, the Columbia River has occasionally exceeded the pH standard, but for the most part, it is attaining.

Currently, the Columbia River is Water Quality limited for pH resulting from pH samples that were just above 8.5. However, pH data compiled in DEQ’s water quality index data, from sampling performed every-other-month at buoy 47, just up-stream of the confluence of the Willamette and the Columbia Rivers, show the pH sub-index is in excellent condition and has been since this sampling

began in February 1991. Conditions of the Columbia River today likely approximate the existing uses of those waters based on the trends of water quality over time and the data available.

The basin specific pH limit for the Sandy River is between 6.5 and 8.5 (OAR 340-041-0290). Data from DEQ's LASAR database includes 3 measurements recorded between 1992 and 1994 at Dabney State Park (Station ID 11780) and 17 measurements recorded between 2010 and 2012 downstream from the park at the Troutdale Bridge (Station ID 10674). Recorded pH ranged between 7.50 and 8.30 (7.77 average) at the park and between 7.00 and 7.80 (7.47 average) at the bridge.

According to the TMDL established by DEQ in 1998 for the Columbia Slough, pH should not fall outside the range of 6.5-8.5. In a eutrophic system such as the Slough, the pH of the water is influenced by photosynthesis. Excessive aquatic plant and algal growth can cause large daily fluctuations in pH.

Data regarding pH levels of the Columbia River, Sandy River and Columbia Slough in 1975 is not available but given the uses of these waterways in 1975, the lack of regulation, and infrastructure that provided for direct point source discharges to these waterways, DEQ concludes that existing uses of water quality, aquatic life and habitat as it relates to pH are likely better now than in 1975.

7.7.3 Applicants' Position on pH

Activities that could temporarily alter local pH in the subject streams include contact with uncured concrete or mobilization of some contaminants into the water column. There are several activities associated with in-water work in the Columbia River that may pose a threat to pH levels:

- Uncured concrete will be present in numerous locations, both in and over the water, for the construction of the shaft caps, piers, and superstructure for the new bridges.
- Construction of the superstructure will involve the use of numerous other potential contaminants, including various petroleum products, adhesives, metal solder, concrete and metal dust, asphalt, and others.
- Bridge demolition will occur both in and over the water which may release contaminants such as concrete debris, fines, and dust created by saw cutting.

Although there are several sources of uncured concrete contamination, there is a low risk that these will enter the Columbia River as a Spill Prevention, Control, and Countermeasures (SPCC) plan will be implemented to contain pollutants.

During construction of the drilled shafts, uncured concrete will be poured into water-filled steel casings, creating a mix of concrete and water. As the concrete is poured into the casing, it will displace this highly alkaline mixture. The project will implement BMPs to contain the mixture and ensure that it does not enter any surface water body. Once contained, the water will be treated to meet water quality standards described in the 401 certification decision and either released to a wastewater treatment facility or discharged to a surface water body.

In-water bridge demolition will take place only in the main stem of the Columbia River. The contractor will be required to prepare a demolition plan according to ODOT and WSDOT standard specifications. The plan will be submitted to ODOT and WSDOT and DEQ and will not be

implemented without being approved and stamped by a registered professional engineer. The demolition plan will specify containment methods to ensure that bridge elements and wastes do not enter the Columbia River.

Nine sets of the 11 existing Columbia River bridge piers are below the ordinary high water (OHW) level. Each pier is approximately 3,090 sq. ft. in area and 4,854 cy in volume. Five of the nine piers (Piers 7 through 11) are located within Oregon waters. Demolition of the concrete piers is proposed to use the following method:

- A diamond wire/wire saw will be used to cut the concrete piers into manageable chunks that will be transported offsite via barge. A cofferdam will not be used.
- Concrete piers will be removed down to the river bottom with the remaining portions abandoned in place. This strategy will require at least a portion of the cutting to occur beneath the water surface.
- Present schedule demolition will occur over an 18 month period, likely beginning in 2022 and concluding in 2023.

Throughout the demolition of the existing Columbia River bridges, impact minimization measures will be used in accordance with regulations, permits, and state department of transportation specifications. However, currently there are no containment measures planned for the wire saw-cutting of the existing bridge piers. Below presents detailed measures to avoid and/or minimize impacts from bridge demolition activities.

- The contractor will prepare a SPCC Plan prior to beginning construction. The SPCC Plan will identify the appropriate spill containment materials; as well as the method of implementation. All elements of the SPCC Plan will be available at the project site at all times. For additional detail, consult ODOT Standard Specification 00290.00 to 00290.90 and/or WSDOT Standard Specification 1-07.15(1). For transit construction in Oregon, consult TriMet Standard Specification 01450{1.04}).
- The contractor will prepare a Water Quality Monitoring and Protection Plan for conducting water quality monitoring for all projects occurring in-water in accordance with the specific conditions issued in the Oregon and Washington 401 Water Quality Certifications. The Plan will identify a sampling methodology as well as method of implementation to be reviewed and approved by the engineer.
- For demolition activities, the followings standards will apply, in addition to conditions imposed by the 401 certification decision, and any additional requirements of the Water Quality Monitoring and Protection Plan approved for the demolition phase:
 - A diamond wire saw will be used to precisely cut the concrete piers to avoid incidental fallback (or spalling). This will ensure whole segments can be lifted out of the water and minimal debris left behind.
 - Fewer cuts will be made and larger cranes will be used to haul out larger segments of concrete to reduce the amount of cutting/concrete disturbance.
 - Concrete segments will be removed immediately from the water and placed on barges. The segments will not be shaken, hosed off, left hanging to drip, or any other action intended to clean or remove adhering material from the pile.

- Sampling will occur during saw cutting to ensure the project is in compliance with State surface water quality standards WAC 173-201A (Washington) and OAR 340-041 (Oregon) for pH and turbidity.
- Ecology and DEQ will be immediately notified and the saw cutting will stop if water quality standards are exceeded.

Removal of concrete piers with a saw cutter may introduce concrete fines into the water; however, because of the high rate of dilution within the river, CRC does not anticipate the potential to cause pH levels to exceed the 8.5 threshold at the pH monitoring receiver.

During habitat restoration within the Sandy River, activities that could temporarily alter local pH (i.e., contact with uncured concrete or mobilization of some contaminants into the water column) are not anticipated.

7.7.4 Public Comment on pH

No comments regarding pH were received.

7.7.5 DEQ Evaluation and Finding on pH

Work activities involving concrete are proposed in the Columbia River. This work has the potential to increase pH in waters that come into contact with uncured cement and concrete. However, the Columbia River is water quality limited for pH and therefore, no lowering of water quality regarding pH is allowed.

The 401 certification decision requires work practices including isolating concrete from contact with waters until it is cured, isolation of in-water work areas, containment measures, berms, prohibitions on in-water placement of uncured concrete, and conditions regarding disposal of concrete process water to prevent excursions from the pH standard. Additionally, the 401 certification decision further limits excursions within the pH standard due to human caused activities to no more than a .5 unit variation.

During demolition of concrete piers with an underwater wire saw, there is currently no proposed or required containment in the 401 certification decision. During project planning discussions with Applicants and NMFS it was determined that placement of effective containment during saw cutting would result in more adverse water quality impacts than concrete fines would create during saw cutting. Once a demolition contract is awarded, a WQMPP must be developed for DEQ review and Washington Department of Ecology's approval that will propose specific pH monitoring, and impose specific containment and/or work practices to protect against pH excursions beyond the applicable standard.

Provided the Applicants adhere to the conditions of the 401 certification decision, DEQ does not anticipate any lowering of water quality in the Columbia River due to pH. The impacts from pH discharges associated with the Project are not expected to adversely affect existing or beneficial designated uses of the Columbia and are not expected to cause a violation of the water quality standard for pH. The 401 certification decision also requires pH monitoring and reporting throughout the project as well as analyses of the cumulative impacts of repetitive pH discharges

through each phase of work. This additional monitoring and analysis is expected to provide additional assurance that water quality will be protected for this parameter.

Provided that adequate isolation, containment and spill contingency measures and monitoring are implemented, DEQ is reasonably assured that pH will not be further degraded in the Columbia River as a result of the project.

7.8 Temperature

OAR 340-041-0028

(1) Background. Water temperatures affect the biological cycles of aquatic species and are a critical factor in maintaining and restoring healthy salmonid populations throughout the State. Water temperatures are influenced by solar radiation, stream shade, ambient air temperatures, channel morphology, groundwater inflows, and stream velocity, volume, and flow. Surface water temperatures may also be warmed by anthropogenic activities such as discharging heated water, changing stream width or depth, reducing stream shading, and water withdrawals.

(2) Policy. It is the policy of the Commission to protect aquatic ecosystems from adverse warming and cooling caused by anthropogenic activities. The Commission intends to minimize the risk to cold-water aquatic ecosystems from anthropogenic warming, to encourage the restoration and protection of critical aquatic habitat, and to control extremes in temperature fluctuations due to anthropogenic activities. The Commission recognizes that some of the State's waters will, in their natural condition, not provide optimal thermal conditions at all places and at all times that salmonid use occurs. Therefore, it is especially important to minimize additional warming due to anthropogenic sources. In addition, the Commission acknowledges that control technologies, best management practices and other measures to reduce anthropogenic warming are evolving and that the implementation to meet these criteria will be an iterative process. Finally, the Commission notes that it will reconsider beneficial use designations in the event that man-made obstructions or barriers to anadromous fish passage are removed and may justify a change to the beneficial use for that water body.

(3) Purpose. The purpose of the temperature criteria in this rule is to protect designated temperature-sensitive, beneficial uses, including specific salmonid life cycle stages in waters of the State.

(4) Biologically Based Numeric Criteria. Unless superseded by the natural conditions criteria described in section (8) of this rule, or by subsequently adopted site-specific criteria approved by EPA, the temperature criteria for State waters supporting salmonid fishes are as follows:

a) The seven-day-average maximum temperature of a stream identified as having salmon and steelhead spawning use on subbasin maps and tables set out in OAR 340-041-0101 to 340-041-0340: Tables 101B, and 121B, and Figures 130B, 151B, 160B, 170B, 220B, 230B, 271B, 286B, 300B, 310B, 320B, and 340B, may not exceed 13.0 degrees Celsius (55.4 degrees Fahrenheit) at the times indicated on these maps and tables;

... [numbering out of sequence due to excerpted material]

(11) Protecting Cold Water.

(a) Except as described in subsection (c) of this rule, waters of the State that have summer seven-day-average maximum ambient temperatures that are colder than the biologically based criteria in section (4) of this rule, may not be warmed by more than 0.3 degrees Celsius (0.5 degrees Fahrenheit) above the colder water ambient temperature. This provision applies to all sources taken together at the point of maximum impact where salmon, steelhead or bull trout are present.

(b) A point source that discharges into or above salmon & steelhead spawning waters that are colder than the spawning criterion, may not cause the water temperature in the spawning reach where the physical habitat for spawning exists during the time spawning through emergence use occurs, to increase more than the following amounts after complete mixing of the effluent with the river:

(A) If the rolling 60 day average maximum ambient water temperature, between the dates of spawning use as designated under subsection (4)(a) of this rule, is 10 to 12.8 degrees Celsius, the allowable increase is 0.5 degrees Celsius above the 60 day average; or

(B) If the rolling 60 day average maximum ambient water temperature, between the dates of spawning use as designated under subsection (4) (a) of this rule, is less than 10 degrees Celsius, the allowable increase is 1.0 degrees Celsius above the 60 day average, unless the source provides analysis showing that a greater increase will not significantly impact the survival of salmon or steelhead eggs or the timing of salmon or steelhead fry emergence from the gravels in downstream spawning reach.

(c) The cold water protection narrative criteria in subsection (a) do not apply if:

(A) There are no threatened or endangered salmonids currently inhabiting the water body;

(B) The water body has not been designated as critical habitat; and

(C) The colder water is not necessary to ensure that downstream temperatures achieve and maintain compliance with the applicable temperature criteria.

(12) Implementation of the Temperature Criteria.

(a) Minimum Duties. There is no duty for anthropogenic sources to reduce heating of the waters of the State below their natural condition. Similarly, each anthropogenic point and nonpoint source is responsible only for controlling the thermal effects of its own discharge or activity in accordance with its overall heat contribution. In no case may a source cause more warming than that allowed by the human use allowance provided in subsection (b) of this rule.

(b) Human Use Allowance. Insignificant additions of heat are authorized in waters that exceed the applicable temperature criteria as follows:

(A) Prior to the completion of a temperature TMDL or other cumulative effects analysis, no single NPDES point source that discharges into a temperature water quality limited water may cause the temperature of the water body to increase more than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after mixing with either twenty five (25) percent of the stream flow, or the temperature mixing zone, whichever is more restrictive; or

(B) Following a temperature TMDL or other cumulative effects analysis, waste load and load allocations will restrict all NPDES point sources and nonpoint sources to a cumulative increase of no greater than 0.3 degrees Celsius (0.5 Fahrenheit) above the applicable criteria after complete mixing in the water body, and at the point of maximum impact.

(C) Point sources must be in compliance with the additional mixing zone requirements set out in OAR 340-041-0053(2) (d).

(D) A point source in compliance with the temperature conditions of its NPDES permit is deemed in compliance with the applicable criteria.

(c) Air Temperature Exclusion. A water body that only exceeds the criteria set out in this rule when the exceedance is attributed to daily maximum air temperatures that exceed the 90th percentile value of annual maximum seven-day average maximum air temperatures calculated using at least 10 years of air temperature data, will not be listed on the section 303(d) list of impaired waters and sources will not be considered in violation of this rule.

(d) Low Flow Conditions. An exceedance of the biologically-based numeric criteria in section (4) of this rule, or an exceedance of the natural condition criteria in section (8) of this rule will not be considered a permit violation during stream flows that are less than the 7Q10 low flow condition for that water body.

7.8.1 Application of Standard for Temperature

Oregon's water temperature standard was adopted by the EQC based on research regarding effects of water temperature on salmonid productivity, modeling temperature effects of various activities, and identification of sensitive habitats.

Water quality criteria produced by national fishery experts, and provided by the federal Water Pollution Control Administration, recommended a maximum not-to-be exceeded temperature of 68°F (20°C) for salmonid growth and migration routes and 55.4°F (13°C) for salmonid spawning and egg development waters. Because of the number of trout and salmon waters that had been destroyed or made marginal or non-productive nationwide, it was further recommended that the remaining trout and salmon waters be protected. More specifically, inland trout streams and headwaters of salmon streams should not be warmed.

As temperatures increase above the optimal range spawning and egg development becomes rapidly impaired, thus limiting reproduction. With increasing temperature, salmonids and trout experience sublethal effects of impaired feeding, decreased growth rates, reduced resistance to disease and parasites, increased sensitivity to toxics, intolerance with migration, reduced ability to compete with more temperature resistant species, and increased vulnerability to predation. If temperatures are high enough for sustained periods, mortality occurs. In addition, other water quality parameters (such as dissolved oxygen) may also be adversely affected by elevated temperatures. Based on the available information, the numeric temperature criteria were established with the primary intent of protecting the most temperature-sensitive species occurring in the subject stream. It was recognized that natural temperatures may exceed the desirable upper limit for protection. However, the determination made in the adoption of the standard was that when temperatures are above the optimum established as the upper limit in the standard, discharges of waste or activities which cause a measurable increase should not be allowed.

In the context of Section 401, DEQ applies the temperature standard to activities that cause a change in temperature as well as to discharges that cause a change in temperature. The intent is to protect the fishery values that the standard was adopted to protect. Thus, if natural temperatures are above the optimum specific to the waterbody, a point source discharge will not be approved if it will cause a 0.5°F (0.3°C) or more increase in temperature outside of a limited size "mixing zone" which is established in the waste discharge permit for the source. (The mixing zone size and shape is established to assure that beneficial uses are not impaired, including fishery uses.) Similarly, an

activity or project that does not result in a discharge of waste but would cause a 0.5°F (0.3°C) or more increase in the temperature of the stream compared to the temperature that would exist without the activity or project would not be approved.

7.8.2 Present Condition of Temperature

The Columbia River is listed on the 303(d) list as water quality limited for temperature from the mouth to Bonneville Dam. The listings pertain to the summer months. Modeling work on a temperature TMDL for the Columbia River and the Snake River from its mouth at the Columbia to its confluence with the Salmon River discloses that the major impacts to temperature occur as a result of impoundments behind dams, and due to the confluence of the Snake River. The impact of numerous point sources along the river on temperature is de minimis.

The standard for streams designated as a salmon and steelhead migration corridor is that the seven-day average temperature does not exceed 20.0°C (68°F), as well as preserving cool water refugia areas that are sufficiently distributed to allow migration despite temperature impairments elsewhere in the stream.

A compilation of data in DEQ's LASAR Database is limited to grab samples from four sampling sites in the Columbia River near the project area from 1965 to 1973 and 2000 indicates field temperature measured at approximately 7.5°C to 9.5°C between December to April, 18°C in September, and 21°C to 28°C in July and August.

A temperature TMDL for the Columbia Slough was finalized by DEQ in 2006. Water temperatures throughout the Slough do not meet temperature standards during the summer (BES 2012). The main cause of elevated water temperatures is likely the installation of levees which alter the Slough's physical features. Elevated water temperatures are also likely due to the lack of shade sources, long water residence time in a shallow channel, the altered hydrological cycle with reduced aquifer recharge and groundwater inflow during summer months, and tidal influence from the Willamette River (bringing cooler water in the summer and warmer water in the fall and early winter) (City of Portland 2013).

The Sandy River within the proposed habitat restoration project area is considered water quality limited for temperature and has an approved TMDL (DEQ 2010b). The Sandy River has infrequent sites of groundwater discharge into surface waters and limited deep pools that provide temperature variation, such as providing cooling waters in the summer (SRBP 2007).

7.8.3 Applicants' Position on Temperature

CRC concludes that adverse temperature changes are not anticipated within the Columbia River or Columbia Slough due to project activities. The temporary overwater structures and the permanent shaft caps would create new areas of dense shade that could potentially provide an increase in summertime cool water refugia compared to the current condition. These increases in shade may confer a benefit to migrating and rearing salmon, although it is impossible to quantify to what extent. In addition, the implementation of stormwater management during construction and operation of the proposed facilities will limit the impact of elevated stormwater temperatures entering the waterways. Therefore, no adverse impact to salmonids or other organisms is anticipated due to temperature change.

Furthermore, given the very high flow volumes, even at low flow times in the river, CRC is not likely to contribute to or detract from the temperature regime in the river. Temperature standard exceedances on the river are produced by very large contributors such as dam forebays and the Snake River. Any effect the CRC project may have on temperature is miniscule compared to the above-mentioned contributors. Therefore, CRC concludes that temperature will not be further impaired in any of the subject streams as a result of any of the proposed project activities. CRC also believes that the proposed habitat restoration project within the Sandy River will not impact water temperature; however, improvements to the riparian area will help increase shade and potentially benefit temperature and increase cool water refugia.

7.8.4 Public Comment on Temperature

One commenter said that “the information available regarding the short-term and long-term impacts of the Project on ... temperature ... leads to the singular conclusion that the Project will negatively affect water quality.”

Without more information regarding what specific activities the commenter anticipates will impact temperature DEQ is unable to respond to this comment. DEQ anticipates the Project will not adversely impact temperature in any of the affected waterbodies. For more discussion, see Section 7.8.5, below.

7.8.5 DEQ Evaluation and Finding on Temperature

DEQ does not anticipate any lowering of water quality with respect to temperature within the Columbia River as a result of the Project activities. With the addition of permanent shading due to new overwater bridge structures and the elimination of untreated stormwater discharges directly to the river, there may be a slight reduction of stream temperatures in the Columbia River.

Elevated temperature loads from stormwater discharges are unlikely to occur in the Columbia Slough, as all stormwater discharges will go through multiple layers of treatment prior to discharge.

None of the proposed mitigation activities are expected to result in temperature increases in the Sandy River.

DEQ is reasonably assured that Temperature will not be degraded as a result of the proposed project.

7.9 Total Dissolved Gas

OAR 340-041-0031

(1) Waters will be free from dissolved gases, such as carbon dioxide hydrogen sulfide, or other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, navigation, recreation, or other reasonable uses made of such water.

(2) Except when stream flow exceeds the ten-year, seven-day average flood, the concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection may not exceed 110

percent of saturation. However, in hatchery-receiving waters and other waters of less than two feet in depth, the concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection may not exceed 105 percent of saturation.

OAR 340-041-0104 Water Quality Standards and Policies Specific to the Main Stem Columbia River

(3) Total Dissolved Gas. The Commission may modify the total dissolved gas criteria in the Columbia River for the purpose of allowing increased spill for salmonid migration. The Commission must find that:

- (a) Failure to act would result in greater harm to salmonid stock survival through in-river migration than would occur by increased spill;
- (b) The modified total dissolved gas criteria associated with the increased spill provides a reasonable balance of the risk of impairment due to elevated total dissolved gas to both resident biological communities and other migrating fish and to migrating adult and juvenile salmonids when compared to other options for in-river migration of salmon;
- (c) Adequate data will exist to determine compliance with the standards; and
- (d) Biological monitoring is occurring to document that the migratory salmonid and resident biological communities are being protected.
- (e) The Commission will give public notice and notify all known interested parties and will make provision for opportunity to be heard and comment on the evidence presented by others, except that the Director may modify the total dissolved gas criteria for emergencies for a period not exceeding 48 hours;
- (f) The Commission may, at its discretion, consider alternative modes of migration.

7.9.1 Application of Standard for Total Dissolved Gas

Part (1) of OAR 340-041-0031 refers to noxious gases that sometimes result from putrescible substances in the water. Putrescible substances may be from discharged wastes or they may be from accumulations of naturally occurring organic debris settled in stream or reservoir bottoms. Such gases have two primary adverse properties when in excess concentrations:

1. Some can be directly toxic to aquatic life; and,
2. Others consume dissolved oxygen which may lead to indirect mortalities.

Part (2) of this rule involves the supersaturation of atmospheric gases in water which may cause either crippling or lethal gas bubbles to form in the tissues of fish. The standard, based on scientifically derived evidence, is designed to prohibit discharges or activities that will result in atmospheric gases reaching known harmful concentrations. The EPA and the American Fisheries Society have identified six ways that total dissolved gas supersaturation can occur:

1. Excessive biological activity--dissolved oxygen concentrations often reach supersaturation because of excessive algal photosynthesis. Gas bubble disease in fishes results, in part, from algal blooms. Algal blooms often accompany an increase in water temperature and this higher temperature further contributes to supersaturation.
2. Water spillage at hydropower dams causes supersaturation. When excess water is spilled over the face of a dam, it entrains air as it plunges to the stilling or plunge pool at the base of the dam. The momentum of the fall carries the water and entrained gases to great depths in the pool; and, under increased hydrostatic pressure, the entrained gases are driven into solution, causing supersaturation of dissolved gases.
3. Natural waterfalls with deep plunge basins can cause supersaturation and subsequent adverse effects to fish.
4. The use of air in turbine intakes to avoid cavitation creates supersaturation--a condition that can be avoided if identified.
5. Improper engineering of hatchery water supplies can cause Venturi action.
6. Gas bubble disease may be induced by discharges from power-generating and other thermal sources. Cool, gas-saturated water is heated as it passes through the condenser or heat exchanger. As the temperature of the water rises, percent saturation increases because of the reduced solubility of gases at high temperatures. Thus, the discharged water becomes supersaturated with gases and fish or other organisms living in the heated water may exhibit gas bubble disease.

7.9.2 Present Condition of Total Dissolved Gas

The Columbia River is impaired for the parameter of Total Dissolved Gas from river mile 0 to 303.9 due to the operation of multiple hydroelectric dams on the river. A TMDL for the parameter of Total Dissolved Gas was approved by EPA and is implemented through management plans at the dams.

7.9.3 Applicants' Position on Total Dissolved Gas

Total dissolved gas is an issue related to spill at upriver dams and therefore, CRC concluded that total dissolved gas levels in the river will not be affected by the proposed project activities. (Note – Marmot Dam on the Sandy River, upstream from proposed habitat restoration activities, was removed in 2007).

7.9.4 Public Comment on Total Dissolved Gas

No comments were received regarding Total Dissolved Gas.

7.9.5 DEQ Evaluation and Finding on Total Dissolved Gas

Sources of impairment of Total Dissolved Gas are unlikely in the project areas and activities proposed are not anticipated to introduce any sources.

DEQ is reasonably assured that Total Dissolved Gas will not be degraded as a result of the proposed project.

7.10 Total Dissolved Solids

OAR 340-041-0032

Total Dissolved Solids: The concentrations listed in the basin specific criteria found in OAR 340-041-0101 through 340-041-0350, may not be exceeded unless otherwise specifically authorized by DEQ upon such conditions as it may deem necessary.

OAR 340-041-0104

Water Quality Standards and Policies Specific to the Main Stem Columbia River

(2) Total Dissolved Solids. Guide concentrations listed below must not be exceeded unless otherwise specifically authorized by DEQ upon such conditions as it may deem necessary to carry out the general intent of this plan and to protect the beneficial uses set forth in OAR 340-041-0101:

(b) All other river miles of main stem Columbia River – 500.0 mg/l.

7.10.1 Application of Total Dissolved Solids Standard

Certain dissolved chemicals in water are known to be toxic to aquatic life and antagonistic to higher animals when in drinking water at low concentrations. Maximum allowable concentrations of the known toxic or offensive substances have been incorporated in standards for the protection of both aquatic and human life.

Water quality may also be affected by a number of other substances (e.g., calcium, sodium, phosphorus, iron, etc.) that may be undesirable either individually or collectively to domestic, industrial, or agricultural uses when present in high concentrations. A measurement of their collective concentration in water is specific conductance, which can be used as a surrogate for total dissolved solids.

7.10.2 Present Condition of Total Dissolved Solids

The Columbia River, Columbia Slough and the Sandy River are not listed as impaired for the parameter of Total Dissolved Solids, however, multiple parameters that could be related to Total Dissolved Solids are listed as impaired or identified with potential concern for impairment. For the Columbia River these include Dioxin, DDT, DDE, PCBs, Arsenic, and PAHs. For the Columbia Slough these include Iron, Manganese, Lead, DDT, DDE, PCBs, Dioxin, and Dieldrin. The Sandy River is not listed as impaired for parameters related to Total Dissolved Solids.

7.10.3 Applicants' Position on Total Dissolved Solids

The potential for increases in levels of Total Dissolved Solids could arise as a result of accidental spills of mechanical fluids. Metals potentially present in sediments within the Columbia River are anticipated to be strongly associated with organic portions of sediments present within the system; thus, with proper BMPs and construction techniques, the proposed disturbance is unlikely to cause dissociation or partitioning of these metals to a dissolved state. In contrast, DDT and PCBs have hydrophilic properties, and PCBs have been shown to be released into the water column during riverbed disturbance, specifically dredging (Bridges 2008). While accidental spill of fluids from mechanical equipment is a risk with any construction near, over or in water, appropriate measures for spill prevention, containment and cleanup can be applied to minimize impacts to the water column.

Creosote treated timber piles are part of the existing I-5 bridges and are buried deep in the river sediment. In the event any piles are exposed during bridge demolition the exposed piles will be demolished during the proposed activities. Release of undegraded chemicals pooled in piling holes, liberated by breaking of chemically treated wood piles, or disturbance of contaminated sediment at the base of piles can increase levels of Total Dissolved Solids in the water column. Should exposed piles be encountered, care will be taken to apply appropriate management practices, containment measures, and handling during removal of chemically treated wood pilings.

While concentrations of some contaminants present in sediments with the potential to be disturbed could become dissolved, CRC believes that with the dilution potential within the Columbia River, Total Dissolved Solids will not be further degraded in the subject waterways. In addition, spill prevention, control, equipment inspection and maintenance, and cleanup measures will be implemented by CRC and its contractors at all interfaces with streams or other waters of the state. Furthermore, because the Sandy River is not listed as impaired for Total Dissolved Solids or parameters related to Total Dissolved Solids, and with appropriate measures for spill prevention and containment, CRC believes that it is unlikely that Total Dissolved Solids levels will increase within the Sandy River during restoration activities.

7.10.4 Public Comment on Total Dissolved Solids

No comments were received regarding Total Dissolved Solids.

7.10.5 DEQ Evaluation and Finding on Total Dissolved Solids

The potential for increases in levels of Total Dissolved Solids could arise as a result of disturbance of contaminated sediment, creosote-treated wood piles, or accidental spills of mechanical fluids. While accidental spill of fluids from mechanical equipment is a risk with any construction near, over or in water, appropriate measures for creosote piling removal, handling and disposal, spill prevention, equipment inspection and maintenance, containment and cleanup to minimize impacts to the water quality are required conditions in the 401 certification decision.

Provided the Applicants comply with the 401 certification conditions referenced above, DEQ is reasonably assured the proposed activities are unlikely to have any impact on the parameter of Total Dissolved Solids in the Columbia River.

7.11 Toxic Substances

OAR 340-041-0033

(1) Toxic substances may not be introduced above natural background levels in waters of the state in amounts, concentrations, or combinations that may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare or aquatic life, wildlife, or other designated beneficial uses.

(2) Levels of toxic substances in waters of the state may not exceed the applicable criteria listed in Tables 20, 33A, and 33B. Tables 33A and 33B, adopted on May 20, 2004, update Table 20 as described in this section.

(a) Each value for criteria in Table 20 is effective until the corresponding value in Tables 33A or 33B becomes effective.

(A) Each value in Table 33A is effective on February 15, 2005, unless EPA has disapproved the value before that date. If a value is subsequently disapproved, any corresponding value in Table 20 becomes effective immediately. Values that are the same in Tables 20 and 33A remain in effect.

(B) Each value in Table 33B is effective upon EPA approval.

(b) The department will note the effective date for each value in Tables 20, 33A, and 33B as described in this section.

(3) To establish permit or other regulatory limits for toxic substances for which criteria are not included in Tables 20, 33A, or 33B, the department may use the guidance values in Table 33C, public health advisories, and other published scientific literature. The department may also require or conduct bio-assessment studies to monitor the toxicity to aquatic life of complex effluents, other suspected discharges, or chemical substances without numeric criteria.

7.11.1 Application of Toxic Substances Standard

This standard provides protection for humans, wildlife, and aquatic life from adverse effects resulting from the presence of toxic substances above natural levels, either alone or in combination with other chemicals or substances.

7.11.2 Present Condition of Toxic Substances

The Columbia River is classified as water quality limited under Section 303(d) of the CWA for the toxics parameters of: DDE (DDT metabolite); PCB; and arsenic. An EPA approved TMDL has been developed for the toxics parameter of dioxin. Other toxics parameters listed for potential concern include: cadmium; copper; iron; lead; mercury; nickel; silver; tributyltin; zinc; aldrin; alpha-BNC; benzo(a)anthracene; benzo(g, h, i)perylene; Bhc; chlordane; chrysene; cyanide; DDD; DDT; dieldrin; endrin; hexavalent chromium; phenol; PAHs; pyrene; and radionuclides.

Less information is known about pollutants and contamination in the Columbia River south of Hayden Island. There is at least one known contamination site located at 1610 North Pier Street that is listed in DEQ's Environmental Cleanup Site Information (ESCI) database. Preliminary EPA investigations of the site and nearby Columbia River sediments in the area indicates that they are contaminated with metals, PAHs, PCBs, DDT, phthalates, and tributyltin at concentrations that represent a potential risk to on-site workers, to adjoining residents, to on-site plants and wildlife, as

well as a potential toxic and bioaccumulative threat to nearby aquatic life.

The Columbia Slough is currently listed on the 303(d) list for lead, iron, manganese, DDE, DDT, dieldrin, and dioxin. The Sandy River is not listed as impaired for toxic substances.

7.11.3 Applicants' Position on Toxic Substances

CRC provided data or information on existing conditions of Toxic Substances in the Columbia River and Columbia Slough as part of the Biological Assessment, Final Environmental Impact Statement (FEIS), Water Quality and Hydrology Technical Report, FEIS Hazardous Materials Technical Report, and Sediment Characterization Report.

Disturbance of sediments in systems with naturally or otherwise occurring levels of potentially toxic substances has been shown to increase total concentrations of those substances in the water column. However, fine silt, clay, and other organics are typically necessary for chemical adsorption to mobilize toxics into the water column and it is often unclear whether increased levels of toxics in the water column are due to dissolved or suspended solid forms. Due to the high sand content and low organic material content of the material in the Columbia River (navigation channel and overwidth areas) as well as the Sandy River, CRC believes that the material does not allow for toxic compounds to adhere to the large grained particles. CRC believes that toxics are not present in sediments that may be disturbed during proposed activities and, therefore, re-suspension of toxics in the water column due to this disturbance will not occur as a result of the proposed activities.

The Columbia River is generally known to contain contamination in sediment and in the water column, likely resulting from municipal and industrial permitted discharges (including aluminum smelters, pulp and paper plants, wood products facilities, and chemical manufacturers); atmospheric deposition; urban, industrial, agricultural, and managed forest runoff; and accidental spills of petroleum products and other hazardous materials. However, during the CRC sediment characterization study, which was conducted within the project footprint, constituents were detected at concentrations below the SEF screening levels at all sample locations in both North Portland Harbor and Columbia River Mainstem. Therefore, mobilization of these sediments is expected to have negligible adverse impacts to water quality.

Other considerations in evaluating whether toxic substances are present in amounts that are detrimental to humans, wildlife, and aquatic life include: bioavailability of the form; dilution; uptake mechanism; and other risk contributing factors. Storing, fueling, maintaining, and operation of heavy mechanized equipment in or near streams are widely recognized as having the potential to release harmful toxic substances to those waters.

CRC concluded that it is unlikely that toxics which may be present in the coarse-grained materials in the project footprint(s) will be released at levels harmful to humans, wildlife, or aquatic organisms as a result of the proposed activities. Measures to minimize re-suspension of toxics potentially present in sediment proposed for disturbance will be implemented, particularly in off-channel areas. These measures include BMP's, such as cofferdams, to minimize disturbance during construction.

Furthermore, there are no known heavy metals or miscellaneous toxic pollutants within the stream sediments and/or soils adjacent to the stream channel in the Sandy River within the project area (SRBP 2007). Therefore, there is very little risk that in-water work during habitat restoration activities would re-suspend contaminated sediments.

In accordance with the policies and preventive approach to water pollution in ORS 468B, typical minimization measures to prevent, limit, control, or abate pollution in waters of the state from these toxics will be applied by CRC and its contractors. These include, but are not limited to the following:

- minimization of mechanical equipment use near water
- use of least impactful equipment when it must be used near water
- substitution of less toxic fluids
- prescriptive equipment fueling, maintenance and storage
- toxic materials and spills containment protocols

Spills prevention, control, equipment inspection and maintenance, and cleanup measures must be incorporated into conditions in the certification and implemented by CRC at all interfaces with streams or other waters of the state. Also, chemically treated wood removal, handling, and containment measures will be implemented by CRC and its contractors during bridge demolition.

7.11.4 Public Comment on Toxic Substances

No comments were received regarding Toxic Substances.

7.11.5 DEQ Evaluation and Finding on Toxic Substances

Toxic substances in stormwater from high volumes of daily traffic crossing the existing I-5 bridges currently discharge, untreated, directly to the Columbia River. The project proposes to capture and treat all the stormwater run-off from the new and improved bridges, as well as run-off and some run on from new and improved impervious surfaces. The stormwater treatment proposed by the Project will significantly reduce the amount of harmful toxic pollutants discharged to the Columbia River.

Storing, fueling, maintaining, and operation of heavy mechanized equipment in or near waters of the state are widely recognized as having the potential to release harmful toxic substances to those waters. The 401 certification decision requires that vehicles must be fueled, operated, maintained, and construction materials stored in areas to prevent potential discharges to surface waters. Also, the 401 certification decision requires a 150-foot buffer between waters of the state and vehicle staging and maintenance areas. A condition of the certification decision requires that all equipment operated below the OHW mark must use bio-degradable fluid.

Under the 401 certification decision, hazardous materials must be properly stored and disposed of at upland locations. Any contaminated soils must be properly disposed. Coordination with DEQ's cleanup program is required for work that may disturb any cleanup sites listed in the ESCI database and additional assessment is required. Toxic materials and spills containment protocols, and other best management practices are also required.

Discharges to the Columbia Slough will be from stormwater that has been treated with multiple treatment methods. It is anticipated that treatment will remove toxic substances from the stormwater prior to discharge.

Provided the Applicants adhere to the 401 certification conditions and described above, DEQ is reasonably assured the project will comply with the toxics standard and no waters will be degraded from toxic discharges.

7.12 Turbidity

OAR 340-041-0036

Turbidity (Nephelometric Turbidity Units, NTU): No more than a ten percent cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity. However, limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or other legitimate activities and which cause the standard to be exceeded may be authorized provided all practicable turbidity control techniques have been applied and one of the following has been granted:

(2) Dredging, Construction or other Legitimate Activities: Permit or certification authorized under terms of section 401 or 404 (Permits and Licenses, Federal Water Pollution Control Act) or OAR 141-085-0100 et seq. (Removal and Fill Permits, Division of State Lands), with limitations and conditions governing the activity set forth in the permit or certificate.

WAC 173-201A-200(1) (e) Aquatic life turbidity criteria. Turbidity is measured in "nephelometric turbidity units" or "NTUs." Table 200 (1)(e) lists the maximum turbidity criteria for each of the aquatic life use categories.

Table 200 (1)(e)

Aquatic Life Turbidity Criteria in Fresh Water

Category	NTUs
Char Spawning and Rearing	Turbidity shall not exceed: <ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background

	turbidity is more than 50 NTU.
Core Summer Salmonid Habitat	Same as above.
Salmonid Spawning, Rearing, and Migration	Same as above.

(i) The turbidity criteria established under WAC 173-201A-200 (1)(e) shall be modified, without specific written authorization from the department, to allow a temporary area of mixing during and immediately after necessary in-water construction activities that result in the disturbance of in-place sediments. This temporary area of mixing is subject to the constraints of WAC 173-201A-400 (4) and (6) and can occur only after the activity has received all other necessary local and state permits and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criteria. A temporary area of mixing shall be as follows:

(C) For waters above 100 cfs flow at the time of construction, the point of compliance shall be three hundred feet downstream of the activity causing the turbidity exceedance.

7.12.1 Application of Turbidity Standard

Turbidity is a measure of the optical properties of water. Turbidity results from particulate and dissolved phase matter being held in suspension which increases scattering and absorption of light rather than its transmittance along straight lines. The turbidity standard is designed to minimize the addition of soil particles or any other suspended substances that would cause significant increases in the river's normal, seasonal turbidity pattern.

Elevated Turbidity can occur for varying durations and at varying intensities depending on a combination of several factors, including: substrate composition; stream flow; stream gradient; depth, magnitude, duration, and speed of disturbance; seasonal timing; and efficacy of turbidity control measures. Discharge of uncontrolled stormwater runoff or construction process wastewater can also increase turbidity, in both the periodic and chronic timescale.

Under the Washington turbidity standard, when background turbidity is 50 NTUs or less, turbidity shall not exceed 5 NTUs over background. Oregon's turbidity standard is set at "no more than a ten percent cumulative increase in natural stream turbidities." If the turbidity of the river is 50 NTUs,

Oregon's standard would be violated with a turbidity reading above 55 NTUs. Washington's standard would also be violated if a reading was above 55 NTUs. However, both provide exceptions for limited exceedances and this is where Washington's standard is more stringent. In Oregon, "limited duration activities" are allowed under a 401 certification decision, without further specification. Washington's rule, however, specifies its exception to the water quality standard: for waters above 100 cfs, the point of compliance shall be three hundred feet downstream. For purposes of this 401 certification decision DEQ will use a compliance distance that is the same as Washington's (300 feet) for activities that take place in the Columbia River. Turbidity occurring outside the 300 foot zone is now allowed. Visible turbidity anywhere at the 300 foot point of compliance from the activity and/or the disposal location is considered not allowed.

Oregon's turbidity standard will apply without exception to the Sandy River and the Columbia Slough.

7.12.2 Present Condition of Turbidity

The Columbia River is a large system, fed by multiple major and minor tributaries, which flows through areas with land use practices varying from rural areas to intensive agricultural use to highly urban and industrial uses. As a result of these various land use practices, both point source discharges and non-point source runoff discharges to the Columbia River, its tributaries, and the Columbia Slough contribute to increased turbidity at varying levels seasonally. Thus, turbidity in the system is variable and typically higher during winter high flow conditions. While background turbidity of the Columbia varies, under normal conditions turbidity in the project area is generally well below 50 NTUs or less. According to data in DEQ's LASAR database, except for a few outliers likely attributable to flooding in 1996, turbidity of the Columbia River at Marker #47 (Station ID #10616, RM 98) is usually under 30 NTUs. Given the coarseness and lack of fines present in the bed of the main stem of the Columbia River, turbidity is typically localized and limited in duration. Data collected by the Army Corps of Engineers during dredging activities reveals that turbidity in the main stem of the Columbia typically settles out in 30 seconds.

Turbidity within the Sandy River is also variable with high seasonal fluctuations (NMFS 2009). In the Sandy River between the confluence with the Columbia River and Dabney State Recreation Area, channel substrates are composed primarily of sand and gravel. Within the Sandy River, bed mobility is high and the sand content in the subsurface is very high (PGE 2002).

Because turbidity is a relative standard (relative to background) it is unknowable what the impact to existing uses from turbidity may have been in 1975 and since that time. While reliable data is not available dating back to 1975, generally the existing uses of water quality and aquatic life as they relate to turbidity are better today than in 1975.

7.12.3 Applicant's Position on Turbidity

CRC concluded that turbidity induced by project activities will be localized and limited in duration, which is due in part to the coarseness of the Columbia River bed material and the lack of fines present. Sediments suspended during construction will, therefore, settle out quickly. Naturally occurring turbidity levels at the river and ocean interface are highly variable, rising to high levels

during high flow events. Compared to natural fluctuations in suspended sediment levels, construction-induced turbidity would have negligible effects to the Columbia River system. Turbidity was monitored throughout the test pile program in which very little discernible impact from pile driving activities was observed, and any potential impact was significantly less than changes in ambient water clarity over time. In addition, CRC believes that any contribution to turbidity levels due to construction activities will be covered under the short-term exception criteria in the standard.

Temporary increases in turbidity are likely to occur during proposed mitigation actions within the Sandy River at the Dabney State Recreation Area. Mitigation construction will involve in-water work to install habitat features, replace culverts, install and remove cofferdams, and reconnect side channels to the main river. Thus, the project may temporarily increase turbidity above baseline levels during in-water construction, potentially degrading discrete portions of the migration and spawning habitat feature for short durations 100 feet upstream and 300 feet downstream of where new side channels are reconnected to the main river channels.

CRC concluded that the implementation of the proposed isolation and turbidity control measures and the post-construction stormwater management plan will ensure that turbidity levels will not be exacerbated in the subject waterways within the Columbia River or Columbia Slough as a result of construction and operation of the proposed facilities. Also, CRC believes with appropriate isolation measures, turbidity within the Sandy River will be short-term and isolated.

7.12.4 Public Comment on Turbidity

One commenter said that “the information available regarding the short-term and long-term impacts of the Project on ... turbidity ... leads to the singular conclusion that the Project will negatively affect water quality.”

Without more information regarding what specific activities the commenter believes will impact turbidity, DEQ is unable to respond to this comment. DEQ does not believe there will be short-term and cumulative impacts to turbidity. Conditions of the 401 certification decision are designed to control and limit these impacts and to require monitoring, reporting and analysis of those impacts. For more discussion, see Section 7.12.5, below.

7.12.5 DEQ Evaluation and Findings on Turbidity

Proposed cofferdams will isolate much of the in-water construction from river contact and, thus, prevent turbidity increases. However, short-term, limited magnitude turbidity increases are anticipated in the Columbia River during placement of those cofferdams, as well as during placement of drilled shafts, pilings, temporary work bridge piles; and during removal of temporary work bridge piles, rip rap and underwater debris, and placement of coffer dams in “North Portland Harbor.” Removal of piles during demolition of the existing Columbia River bridge may also result in turbidity pulses.

In-water work proposed by the project may result in short-term turbidity to the Columbia River and the Sandy Rivers (no turbidity impacts to the Columbia Slough are anticipated). However, any turbidity discharges from those activities must adhere to the water quality standard for turbidity at

the authorized 300' compliance distance. A 300' compliance distance is allowed during and immediately after necessary in-water construction activities in the Columbia River and *only after* appropriate best management practices to avoid or minimize disturbances of in-place sediments and exceedances of the standard have been implemented. Additionally, the 401 certification imposes spatial and temporal limitations on in-water turbidity-causing work, and requires BMPs to minimize in-stream turbidity as well as monitoring to ensure effectiveness. As the details of each phase of construction are developed, additional BMPs and monitoring will be required by approved WQMPPs.

Provided the Applicants adhere to the conditions of the 401 certification decision, DEQ does not anticipate any lowering of water quality in the Columbia River, the Columbia Slough or the Sandy River due to turbidity discharges. Further, the impacts from the Project's turbidity discharges are not expected to adversely affect existing or beneficial designated uses of those rivers and are not expected to cause a violation of the water quality standard for turbidity at the 300' compliance point. Turbidity monitoring and reporting is required throughout the project by the 401 certification decision, as are analyses of potential cumulative impacts of repetitive turbid discharges at each phase of work. This monitoring and analysis is expected to provide added assurance that there will be no lowering of water quality from turbidity discharges.

Provided that the required conditions and monitoring are implemented, DEQ is reasonably assured that turbidity will not be further degraded in the Columbia River as a result of the project

8. EVALUATION OF WATER QUALITY-RELATED REQUIREMENTS OF STATE LAW

DEQ has reviewed the information in the record and the requirements of the Oregon and applicable Washington state laws to determine the water quality-related requirements that may be applicable to the applicant's proposed project. In determining whether particular requirements may be water quality-related, DEQ has relied on the following considerations:

- a. The statute or rules promulgated pursuant to the statute, contain explicit reference to water quality and are applicable to the proposed project.
- b. The statute or rules promulgated pursuant to the statute, address factors that are necessary for maintenance of water quality in conjunction with the proposed project, or for evaluation of water quality impacts of the proposed project.
- c. The statute or rules promulgated pursuant to the statute, authorize, require, or control actions or activities that may, in conjunction with the proposed project, be reasonably expected to impact water quality.

Based on these initial criteria, DEQ has identified the following as potential water quality-related requirements of state law:

8.1 Laws Administered by the Oregon Department of State Lands

ORS 196.795 to 196.990 requires that permits be obtained from the Department of State Lands prior to any fill and removal of material from the bed or banks of any stream. Such permits, when issued, may be expected to contain conditions to assure protection of water quality so as to protect fish and aquatic habitat.

8.2 Laws Administered by Oregon Department of Fish and Wildlife

ORS 496.012 sets wildlife policy for prevention of depletion of indigenous species and toward wildlife resource decisions to be made in the best social, economical and recreational interests of all user groups

ORS 496.164 provides for cooperation and technical assistance to other agencies with regard to wildlife resource management

ORS 496.170 to 496.192 requires collection and analysis of scientific data to determine and inventory biological status of species, develop conservation strategies, and provide recommendations to other agencies regarding actions affecting threatened or endangered species

OAR 635-007-0502 et. seq. native fish conservation policy – protection of natural ecological communities and habitats tailored to individual watersheds and situations

OAR 635-059-0000 et. seq. aquatic invasive species control

OAR 635-100-0150 requires consultation with ODFW on affects to endangered species

OAR 635-410-0000 natural resource losses

OAR 635-412-0005 et. seq. addresses fish passage

OAR 635-413-0000 et. seq. fish habitat mitigation policy

OAR 635-500-0002 et. seq. addresses fish management plans

8.3 Laws Administered by Department of Environmental Quality

ORS 466.635 to 466.645 requirements for reporting and cleanup of spills of petroleum products and hazardous materials

8.4 Laws Administered by Department of Land Conservation and Development

Oregon has a comprehensive system of statewide land use planning requirements. These are based on state statutes and administrative rules adopted by the Land Conservation and Development Commission under ORS chapter 197. The rules include substantive and procedural requirements known as Statewide Goals and also implementing rules for the Goals and other statutes. Statewide Goals are implemented through comprehensive land use plans and regulations adopted by local governments and through state agency decisions when those decisions have the potential to affect land use. Under ORS 197.180, state agencies are required to make decisions in programs affecting land use that comply with Statewide Goals and that are compatible with those local land use plans and regulations that have been determined to comply with the Goals. Plans and regulations that comply with the Goals are referred to as “acknowledged.”

DEQ’s section 401 program is a program affecting land use for purposes of ORS 197.180. OAR 340-018-0030. Goals designed to protect water resources and implementing local comprehensive

plan and regulations relating to those Goals are “other appropriate requirements of State law” for purpose or CWA Section 401(d). *Arnold Irrigation Dist. v. DEQ*, (79 Or. App. 136, rev. den, 301 Or. 756 (1986)). Goals that are water quality related include Goals 5, 6 and 16.

In addition, DEQ’s rules governing applications for Section 401 certificates require applicants to supply a land use compatibility statement (“LUCS”) from the affected local government or in the alternative to identify the specific provisions of the acknowledged local land use plans and implementing regulations that are applicable to the activity at issue. The applicant must further discuss whether the local provisions have any direct or indirect relationship to water quality. OAR 340-048-0015(i).

The applicant provided a signed statement from the City of Portland City Planner that “the activity of use is allowed outright” via PCC 33.10.030.

8.5 Laws Administered by Oregon Watershed Enhancement Board

ORS 541-351 et. seq. Oregon Plan for Salmon and Watersheds

8.6 Laws Administered by Oregon Water Resources Department

8.7 Summary

Pursuant to 33 USC 1341(d) and OAR 340-048-0025, DEQ has included conditions in the 401 certification decision that are consistent with these other requirements of state law. However, issuance of a 401 certification decision does not obviate the need for any applicable permits, licenses, or other permissions required by local, state, or federal laws as interpreted by the agency charged with implementing the laws.

9. EVALUATION OF COMPLIANCE WITH SECTIONS 301, 302, 303, 306, AND 307 OF THE CLEAN WATER ACT

In order to certify a project pursuant to Section 401 of the federal CWA, DEQ must find that the project complies with Sections 301, 302, 303, 306, and 307 of the Act and state regulations adopted to implement these sections, provided appropriate permits are obtained as required.

Sections 301, 302, 306, and 307 of the federal CWA deal with effluent limitations, water quality related effluent limitations, national standards of performance for new sources, and toxic and pretreatment standards. All of these requirements relate to point source discharges and are the foundation for conditions to be incorporated in NPDES permits issued to the point sources. In this case, DEQ has incorporated such conditions into the 401 certification decisions.

Section 303 of the Act relates to Water Quality Standards and Implementation Plans. The EPA has adopted regulations to implement Section 303 of the Act. The EQC has adopted water quality standards consistent with the requirements of Section 303 and the applicable EPA rules. The EQC standards are codified in Oregon Administrative Rules Chapter 340, Division 41. The EPA has approved the Oregon standards pursuant to the requirements of Section 303 of the Act. Therefore, the applicant's project must comply with Oregon Water Quality Standards and TMDLs to qualify for certification. The Water Quality Standards Section of this evaluation and findings report detailed the considerations necessary for DEQ to include in the 401 certification decision as conditions in order to ensure compliance with water quality standards, TMDLs, and other policies.

9.1 Finding

DEQ is reasonably assured that conducting the proposed project will comply with Sections 301, 302, 303, 304, 306, and 307 of the CWA if the Applicants meet the conditions provided in the certification for this project.

10. RESPONSE TO PUBLIC COMMENTS

DEQ received several comments on the draft 401 certification decision and draft Evaluation Report and Findings during the public comment period and would like to thank those who submitted comments. DEQ appreciates the time and effort put into developing and presenting comments. The following is a summary of comments received during the public comment period along with DEQ's responses. DEQ has attempted to capture the substance of all of the comments received and did not intentionally omit any comment. Some comments germane to water quality standards, antidegradation, or the 401 certification evaluation have been incorporated into the relevant sections of the Evaluation Report and Findings, above. Other comments received that are outside the scope of that Report are presented with DEQ's responses in this section, below.

DEQ also received a response to comments from the Applicants and considered the Applicants' responses in making our final decision.

a) **The Applicants failed to evaluate a range of alternatives as required under NEPA**

The NEPA process is a federal requirement that does not have a nexus with DEQ's 401 evaluation. However, the project did go through a NEPA process which culminated in a Record of Decision issued in December 2011.

b) **In-water pier removal is not necessary**

Applicants' application states that only piles that could pose a navigation hazard will be removed or cut off below mud line. These piles include those that are present in the proposed navigation channels and any that extend above the surface of the river bed. The exact number of piles to be removed is unknown. The 401 certification decision includes conditions designed to limit in-water disturbance caused by piling removal. (see 401 certification decision, Section E, condition 20).

c) **Impact to aquifers and superfund sites in Clark county were not evaluated**

DEQ's jurisdiction does not extend to Clark County, Washington. Any impacts to waters of the state of Washington would be considered under that state's 401 certification decision.

d) **Bridge removal will cause congestion and air quality issues**

The application states that existing bridges will be removed only after the new bridges are constructed and traffic has been re-routed to the new bridges. Air quality issues are outside the scope of DEQ's evaluation under Sec. 401 and OAR 340 Division 048.

e) **Hazardous materials have not been studied**

To the extent this comment relates to hazardous materials which may be present in underwater sediment and soils in the project area, these have been studied by the Applicants and final results were submitted as part of their Application (see Final Sediment Characterization Report, Interstate 5 Columbia River Crossing, dated July 2011 and Dredging Project Review Group Technical Memorandum, dated August 5, 2011). In

addition, the 401 certification decision includes conditions related to storage, handling and disposal of contaminated soils and coordination with DEQ's clean-up program in the event that project activities may disturb any contaminated sites. (See 401 certification decision, Section H).

f) **Applicants are not following Oregon's context sensitive and sustainable solutions process**

The Context Sensitive and Sustainable Solutions process is a "decision-making framework" developed for use in implementing the Oregon Transportation Investment Act or "OTIA III" state bridge delivery program. The CRC project is not included in the OTIA III program. In any event, this "context sensitive and sustainable solutions" process is an ODOT process that is outside the scope of DEQ's 401 authority.

g) **The CRC bridge project will contribute to air pollution in the area**

One of the stated purposes and needs of the CRC project is to reduce area congestion. A reduction of congestion would also reduce air pollution caused by idling cars. The 401 certification regulates impacts to waters of the state, it does not directly affect or regulate air quality. If necessary and appropriate, air quality issues relating to the bridge project will be addressed through DEQ's air permitting process. DEQ will determine the applicability of Oregon's air quality requirements once more information is available.

h) **Since the state of Washington refused to fund their portion of the CRC, no one should be working on the project; DEQ should not be working on the project.**

DEQ processes all applications unless they are withdrawn or incomplete. The Applicants asked DEQ to proceed with our 401 evaluation process in spite of Washington's failure to provide funding.

i) **The CRC has provided insufficient information regarding proposed stormwater management plans**

The CRC has submitted a draft multi-volume stormwater design report for DEQ's evaluation. DEQ has determined that the post-construction stormwater management proposed for the project is sufficient. In addition the 401 certification decision includes conditions that the Applicants must capture and treat stormwater from all contributing impervious areas according to ODOT, City of Portland and Clean Water Services Guidelines. See 401 certification decision, Section I.

j) **The Sec. 408 authorization and water quality impacts from the dredging of new navigation channels should be included in DEQ's 401 evaluation.**

Applicants provided no information to DEQ about the Section 408 authorization and have not included this activity in the CRC project. These activities may be covered by, and subject to the conditions contained in, a 401 certification decision issued by DEQ to USACE on May 30, 2008. If these activities are not covered by the May, 2008 401 certification and the federal approval is subject to Section 401, the dredging activities will be subject to review under a separate application or a reopening and modification of this certification will be required.

- k) **DEQ cannot get “reasonable assurance” when no one on the Washington side is working on the project.**

DEQ coordinated with Washington’s Department of Ecology throughout the drafting and issuance of the 401 certification decision. The 401 certification decision, as issued, presumes participation from Ecology throughout the life of the 401 certification decision (for instance, Section D, condition 4 defers to Ecology’s approval of WQMPP).

- l) **The CRC team’s work is not high quality and its models and projections are incomplete and old. DEQ may have received similarly “shoddy” information from the Applicants.**

This is not a comment on DEQ’s 401 certification decision. DEQ received adequate information to sustain an evaluation under our Sec. 401 certification authority.

- m) **The Project may not legally proceed without approval from the Secretary of the Army under 33 USC sec 408, which is a necessary prerequisite to a Section 404 permit.**

DEQ does not issue the Sec. 404 permit. In this instance DEQ is issuing a 401 certification decision on the Sec. 404 permit Application. DEQ evaluates and issues 401 certification decisions on pending applications unless they are withdrawn or incomplete and the CRC has not withdrawn its application. Lack of a section 408 approval does not prohibit DEQ from proceeding with issuing our 401 certification decision.

- n) **The CRC has been terminated; the CRC is current being shut down**

The Applicants have not withdrawn their applications for federal permits. Applicants have asked DEQ to continue to process the 401 certification decisions on those federal applications.

- o) **Without funding to support the implementation of required conditions [in the 401 certification], DEQ has no reasonable assurances that the activity will not violate water quality standards**

The 401 certification decision only certifies the project as described in the Section 404 Joint Application. This Application presumes participation of the state of Washington during the project. The 401 certification decision requires that the Applicants submit an updated application if the information contained in the application is voided by subsequent changes to the project not authorized by the 401 certification decision, or in the event of significant project modifications. Likewise, DEQ may modify or revoke the 401 certification decision, in the event the project changes or DEQ receives new information.

- p) **The requested permits and associated 401 certification cannot be applied to other future project in Oregon. Rather, these permits are specific to the project as defined (in the application).**

This is not a comment on the draft 401 certification decision. However, the 401 certification decision requires that Applicants submit an updated application if the information contained in the application is voided by subsequent changes to the project not authorized by the 401 certification decision, or in the event of significant project modifications. Likewise, DEQ may modify or revoke the 401 certification decision, in the event the project changes or DEQ receives new information.

- q) **The Applicants failed to provide sufficient information for DEQ's 401 evaluation and for meaningful public comment. Specifically, Applicants failed to inform DEQ about authorization sought under 33 USC sec 408 to allow the Applicants to dredge new navigation channels, and the impacts to water quality from dredging.**

It is true that DEQ was not informed of the sec 408 authorization sought by Applicants with ACOE. Applicants may have to submit additional information to supplement their existing application or submit a new application for dredging activities applicants conduct as part of the project.

- r) **Details of a stormwater management plan and section 408 authorization have not been provided for public comment.**

As stated above, DEQ has received no information from Applicants regarding section 408 authorization. Applicants submitted a draft stormwater design report to DEQ along with its sec. 404 application. Once submitted DEQ considers this a public document which would have been disclosable to the public, if requested.

- s) **DEQ's public notice contained erroneous information regarding the start date of the project.**

The information contained in DEQ's public notice comes from Applicants' application. DEQ has received no other information from Applicants correcting or amending this information.

- t) **DEQ should re-open the public comment period on the 401 certification decision**

DEQ has received no information from Applicants that the proposed project has changed. In the event the project changes significantly or it is determined that an application contained false or inaccurate information regarding the activity that affects or might affect compliance with water quality standards and 401 certification decision requirements DEQ may modify or revoke the certification. See OAR 340-048-0050(1).

- u) **DEQ's antidegradation analysis is flawed.** (The details of this comment and DEQ's response are included in the Antidegradation section of the Evaluation Report and Findings, Section 7, above).

- v) **In conducting the analysis for numeric and narrative criteria, DEQ must quantify the pollutant loads allowable in order to ensure that narrative and numeric criteria are not violated and that designated beneficial uses are protected**

The comment has cited no law, rule or other authority to support the assertion that DEQ must conduct a quantitative analysis in its 401 evaluation.

- w) **The draft 401 fails to require the Applicant to report the monitoring and sampling results to DEQ.**

The 401 certification has been amended to include a condition requiring the reporting of sampling results.

11. CONCLUSIONS AND FINAL CERTIFICATION DECISION

As described in the evaluation and findings above, DEQ issues the 401 certification decision that water quality standards and policies will be met and existing uses and beneficial uses they support will be protected, provided the Applicants and its contractors apply all required management practices and control measures and otherwise comply with all conditions of the 401 certification decision.

