Appendix E

Draft In-Water Work Isolation and Fish Removal Performance Standard for the Columbia River Crossing

The following performance standard is proposed as an impact minimization measure for the installation of and fish capture associated with cofferdams and other in-water work area isolation structures. Cofferdams used for the project will be limited to those around the in-water piers of the existing Columbia River bridge and the near-shore pier complexes of the proposed Columbia River bridge. These cofferdams are not proposed to be dewatered.

Isolation of In-Water Work Area

Where isolation of an in-water work area is required by the Project Engineer, such as in the case of a cofferdam (dewatered or not), completely isolate the work area from the active flowing channel using a structure that is capable of completely excluding fish from the in-water work area. Due to the depths and the velocities that occur in the Columbia River, various types of cofferdams will be required for isolation. Prepare a Work Area Isolation Plan for all work below the bankfull elevation requiring flow diversion or isolation. Include the sequencing and schedule of dewatering and re-watering activities, if applicable, and a plan view of all isolation elements, as well as a list of materials to adequately provide appropriate redundancy of key plan functions (e.g., an operational and properly sized backup generator, pumps, hoses, etc.). Pile driving and clamshell dredging may occur without isolation during the project's approved in-water work period, providing compliance has been achieved with all other relevant performance standards.

Monitor in-water work isolation areas at least once per day for isolation integrity and evidence of fish immigration. If fish are observed to be entering isolation areas, cease any operations significantly affecting water quality within the isolation area until the point of ingress can be located and repaired. Once full isolation has been reestablished, perform fish salvage within isolation as outlined below.

Reporting and Chain of Custody

Keep a record of isolation area conditions and submit to the Agency in conjunction with annual reporting. Include in reports the following information:

- Date at beginning of isolation
- Date at end of isolation
- Size and approximate shape of isolation area
- Methods used to achieve isolation
- Reason for isolation
- Incidence and frequency of isolation failure (if applicable)
- Incidence and frequency of fish salvage performed
- Methods used to repair isolation (if applicable)

- Scientific Taking Permit Number

If fish mortality occurs inside work area isolation structures and/or adjacent pile driving activities, collect mortalities via dip net or by other means that will not damage samples (fish mortalities). Transfer samples immediately to clean sealable containers and label with the following information.

- Job/Project Number
- Location of mortality(s)
- Time and date mortality(s) first observed
- Name of collector
- Scientific Sampling Permit Number
- Container ID (example: Sample 1 of 4)
- Number and species of dead fish

Place container(s) on ice immediately and notify regulatory authority(s) according to the incidental take provisions of the biological opinion(s) and scientific taking permit(s). In addition, keep a record of water temperatures, dissolved oxygen levels, and conductance readings (if electroshocking was occurring) from waters adjacent to mortality(s). Also record average water depth and the construction activity type occurring at the time of the observed mortality(s). The aforementioned data should be collected immediately after mortality(s) are observed and collected, and should be included in annual reporting. Transfer samples only to the Services (National Marine Fisheries Service [NMFS], United States Fish and Wildlife Service [USFWS]) in the case of federally listed fish, or to the Oregon Department of Fish or Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW) for unlisted fish, unless otherwise approved in writing by the Services and the appropriate regulatory authorities. Keep a record of the date, time, location, and condition of the samples when transferring to Service employees.

Fish Capture and Release

Before, intermittently during, and immediately after isolation, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods prudent to minimize risk of injury.

- The entire capture and release operation must be conducted or supervised by a fisheries biologist who shall be named on fish salvage authorizations, experienced with work area isolation, and competent to ensure the safe handling of all fish. Do not use electrofishing if water temperatures exceed 64° Fahrenheit, unless no other fish capture method is feasible or successful.
- If electrofishing equipment is used to capture fish, comply with NMFS Electrofishing Guidelines.[1]
- All pumps must employ a fish screen that meets all of the following specifications:
    - Each screen includes an automated cleaning device with a minimum effective surface area of 2.5 square feet per cubic foot per second, and a nominal maximum approach velocity of 0.4 feet per second, or no automated cleaning device, a minimum effective surface area of 1 square foot per cubic foot per second, and a nominal maximum approach rate of 0.2 foot per second.

[1] Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act, June 2000. Available at: http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/upload/electro2000.pdf.

  - Screen is constructed of round or square screen mesh that is no larger than 2.38 millimeters (mm) (0.094 inch) in the narrow dimension, or any other shape that is no larger than 1.75 mm (0.069 inch) in the narrow dimension.
  - Each fish screen must be installed, operated, and maintained according to NMFS fish screen criteria.
- Handle all fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.
- Ensure that water quality conditions, including dissolved oxygen levels, within fish transport systems (e.g., buckets) are sufficient to promote fish recovery. Brief holding times; clean, cold, and circulated water; and aerators may be used to maintain water quality conditions.
- Release fish into a safe release site as quickly as possible, and as near as possible to capture site(s).
- In the event of mortalities, do not transfer federally listed fish to anyone except the Services, unless otherwise approved in writing by the Services and the appropriate regulatory authorities.
- Obtain all other federal, state, and local permits necessary to conduct the capture and release activity, such as an ODFW Incidental Take Permit(s) and/or a Scientific Taking Permit(s). Individuals supervising fish salvage must be named on the permits.
- Allow the Services and the appropriate regulatory authorities to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.
- Prevent the spread of aquatic invasive species by adhering to Oregon Department of Transportation (ODOT) Aquatic Species Prevention Methods.
- Report salvage effort results, as called for in relevant permits, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to fish, stream conditions before and following placement and removal of barriers, the means of fish removal, the number and species of fish removed, the condition of all fish released, and any incidence of observed injury or death.
  - For ODOT, report the salvage effort results using the ODFW Fish Rescue and Salvage Reporting Form. By December 31 of the year(s) in which fish salvage was performed, submit this form to the ODFW district biologist and a copy to the ODOT Aquatic Biology and Fish Passage Program Coordinator.
  - Report the following information to Washington State Department of Transportation (WSDOT): lead biologist, date of collection, species name, approximate number, location (Water Resource Inventory Area, highway number, water body), county, disposition, federal status, and permit/permitting authority(s).