



# Oregon

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May 15, 2020

Sent Via Electronic Mail to Hladick.Christopher@epa.gov

Mr. Chris Hladick, Regional Administrator  
U.S. Environmental Protection Agency, Region 10  
1200 Sixth Avenue, Suite 900  
M/S ECL-122, Seattle, WA 98101-3188

RE: Notification to U.S. Environmental Protection Agency (EPA) Pursuant to § 401(a)(2) for Bonneville Project, WA0026778; The Dalles Lock and Dam, WA0026701; John Day Project, WA0026832; and McNary Lock and Dam, WA0026824

Dear Chris:

EPA notified DEQ on March 17, 2020, that it intends to issue NPDES permits for the above-listed facilities, which discharge pollutants to the Columbia River. The EPA determined the permits may affect the quality of waters of the State of Oregon. In recognition of the requirements of §401(a)(2) of the Clean Water Act (CWA), EPA notified DEQ of this action and provided the draft NPDES permits for DEQ review.

## **Objection**

In accordance with CWA §401(a)(2), within 60 days after receiving the notification, DEQ has determined that the discharges will affect the quality of Oregon's waters and will violate water quality requirements in the State of Oregon. DEQ is therefore notifying the EPA in writing of its objection to the issuance of the permits and requests a public hearing.

## **Parameters of Interest**

As required by CWA §401(a)(2), after taking into account the following recommendations and upon any additional evidence presented to the EPA at the hearing, EPA shall condition the permits "in such manner as may be necessary to insure compliance with applicable water quality requirements."

Oregon Administrative Rules (OAR 340-041-0101) describe the designated uses that are part of water quality standards for the Columbia River. These uses include, among others, Salmon and

Steelhead Migration Corridor (mouth to WA border (RM 309)), Salmon and Steelhead Spawning through Fry Emergence (RM 141.5 to RM 143.5) and Shad and Sturgeon Spawning and Rearing (RM 146 to RM 203), fishing, boating and water contact recreation.

As noted by EPA, the EPA draft NPDES permits do not address waters that flow over the spillway or pass through the turbines (EPA NPDES Fact Sheet USACE Lower Columbia River Hydroelectric Generating Permits, Page 18). In completing a CWA § 401 Water Quality Certification, DEQ evaluates all operations and water-quality impacts associated with a federally licensed or permitted activity. For dam operations this could include the effect of water passing through turbines, water impounded by the facilities' operations, water spilled over spillways and the impact on fish movement.

Numeric criteria that are set to protect these aquatic life uses include criteria for total dissolved gas (TDG), temperature and biocriteria. Due to the operation of hydroelectric facilities including the movement of water over spill ways, exceedances of these parameters are common. Criteria set to protect human health include parameters such as Polychlorinated Biphenyls (PCBs). PCBs are associated with hydroelectric facilities due to their presence in transformers and other equipment.

## **Temperature**

The Columbia River is water quality limited (ODEQ 2012 Integrated Report) for temperature through the entire length creating the border of the State of Oregon (river mile 0 to 303.9) due to exceedances of the migration corridor criteria of 20.0°C. The migration corridor temperature (OAR 340-041-0028(4)(d)) criteria includes three components: the seven-day-average maximum temperature may not exceed 20°C; cold water refugia that are sufficiently distributed so as to allow salmon and steelhead migration without significant adverse effects from higher water temperatures elsewhere in the water body and the seasonal thermal pattern in Columbia and Snake Rivers must reflect the natural seasonal thermal pattern.

Dam operations generally alter water temperature and thermal regimes by altering retention times within reaches, changing exposure time to heating and cooling influences, changing water depths, and reducing shading.

EPA states that effluent temperature data for the Lower Columbia Dams are limited, but based on available data and analysis, discharges from the facilities have minimal impact on Columbia River temperatures. Under Section 401, DEQ reviews all temperature impacts from dam operations, including any effects of water flow changes due to impoundment and reservoir stratification. Based on daily average forebay temperatures (2010 through 2019), the average annual number of days exceeding the 20°C temperature criteria is 54 days at Bonneville, 58

days at The Dalles, 59 at John Day and 48 days at McNary. The exceedances occur approximately from late June until mid-September. Available data indicate the Bonneville and The Dalles reservoirs have very little temperature variation at different depths. The John Day reservoir heats up near the surface on warm days, and there is a substantial temperature gradient in the McNary reservoir. Following development of a temperature total maximum daily load (TMDL), DEQ requires implementation of the load allocation in Section 401 Water Quality Certifications. The TMDL should evaluate all components of the applicable temperature standard: the 20°C numeric criteria, availability of sufficient cold water refugia and the natural seasonal thermal pattern. DEQ expects EPA to incorporate any necessary conditions for TMDL implementation associated with the dams into the NPDES permits.

### **Total Dissolved Gas**

Elevated TDG is caused by spill events at the four Lower Columbia River dams under consideration in the NPDES permits. TDG is not a pollutant included in the discharges authorized by these permits; however, conditions are warranted for inclusion in the permits to insure compliance with applicable water quality requirements. Elevated TDG may give rise to gas bubble trauma in fish, which can be lethal at high levels or cause chronic impairment at lower levels. Spill can occur at any time due to spill for fish passage (voluntary spill) or hydraulic capacity exceedances (involuntary spills) including instances when flow exceeds powerhouse capacity. Oregon's water quality standards set limits on TDG saturation (OAR 340-041-0031). Recognizing the need for facilitated spill for fish passage on the Columbia River, the water quality standards allow for modification of the TDG criteria for salmonid migration (OAR 340-041-0104(3)). In January 2020, the Oregon Environmental Quality Commission approved an order modifying the TDG water quality standard to allow voluntary fish passage spill by the US Army Corps of Engineers (USACE) to assist juvenile salmonid migration April 1 through August 31 for the five-year period from 2020 through 2024.

The Columbia River is water quality limited for TDG from river mile 0 to 303.9 and a TMDL was issued in 2002. Load allocations for the dams are expressed as delta P, described as pressure above ambient. The TMDL notes "compliance with load allocations will be met by specifying operational and structural goals for spills that prevent the load allocation from being exceeded. In general, the long-term goal of meeting water quality standards must be met with structural modifications to the dam" (TMDL for Total Dissolved Gas Lower Columbia River, Sept. 2002, ODEQ and Washington Department of Ecology).

The USACE has stated they have implemented all feasible structural modifications (DEQ Memorandum, Dated January 13, 2020. Subject: Agenda Item I: Proposed modification to the TDL water quality standard on the Columbia River for fish passage (Action item for EQC.) To help control TDG, the Corps installed spill deflectors at John Day, Bonneville and McNary Dams.

The Corps collects hourly data and evaluates daily twelve-hour TDG averages in the tailrace of each dam. Recent data (September 2010, through March 2020, unverified) indicates exceedance of the total dissolved gas criteria as follows: one percent at Bonneville and The Dalles dam and four percent and five percent at John Day dam and McNary dam, respectively. To ensure compliance with the TMDL and TDG criteria, outside of the voluntary spill standard modification discussed above, USACE should continue to monitor TDG and evaluate measures to increase compliance with the TMDL load allocation and criteria through adaptive management. EPA incorporating this requirement into the permits would obviate the need for Oregon's objection to permit issuance based on this pollutant.

### **Biocriteria and Statewide Narrative Criteria**

Oregon's biocriteria (OAR 340-041-0011) recognizes compliance with numeric criteria may not fully capture synergistic effects resulting from multiple stressors and cumulative impacts on aquatic species and resident biological communities. Statewide Narrative Criteria (OAR 340-041-0007(10) and (11)) require the highest and best practicable control of activities to maintain overall water quality at the highest possible levels and prohibit deleterious conditions to fish or other aquatic life.

The draft NPDES permits note the hydroelectric facilities extract river water for hydroelectric generating purposes, which are then routed internally for cooling water. The Cooling Water Intake Structures (CWIS) are the structures where water is extracted to be used to cool equipment in a facility. The CWIS may have screens to remove debris, which fish can impinge on. This CWIS can harm organisms that are entrained into the facility and unable to pass through (EPA NPDES Fact Sheet USACE Lower Columbia River Hydroelectric Generating Permits, Page 17). The draft NPDES permits require best technology available (BTA) to be used to ensure that these effects are minimized. The permits also require a CWIS Annual Report, documenting implementation, operations, and maintenance of BTA. To comply with this standard, DEQ would require implementation of BTA or other Oregon Department of Fish and Wildlife (ODFW) (and federal fisheries agency) recommended technology to reduce fish entrainment and impingement. Annual implementation reports help DEQ to determine whether additional measures should be implemented. If the technology doesn't reduce impingement, the Corps should be required to develop an adaptive management plan, and submit it to DEQ for review and approval. The Corps will then implement the plan following DEQ approval. EPA incorporating this requirement into the permits would obviate the need for Oregon's objection to permit issuance based on this pollutant.

## PCBs

Oregon Administrative Rules (OAR 340-041-0033 and OAR 340-041-8033 (Table 40)) establish criteria for the protection of human health from potential adverse effects associated with long-term exposure to toxic substances associated with consumption of fish, shellfish and water, including exposure to PCBs. The Columbia River is water quality limited for PCBs from river mile 0 to 287.1 based on fish tissue concentrations and fish consumption advisories. The draft EPA NPDES permits prohibit discharges of PCBs, in toxic amounts. The approach described in the draft NPDES permits (monitoring, development of a PCB management plan, and development of a PCB Annual Report, including future actions to adapt and refine best management practice approaches) is similar to DEQ requirements in Section 401 certifications. However, DEQ would also require the applicant to propose measures to reduce the PCB discharges to meet the discharge prohibition. Following DEQ review and approval of the proposed measures, USACE would implement the measures. EPA incorporating this requirement into the permits would obviate the need for Oregon's objection to permit issuance.

**Example conditions:** EPA incorporating the following conditions into the permits would obviate the need for Oregon's objection to permit issuance based on this pollutant.

## Temperature:

USACE shall take the following actions, which are further detailed in the conditions set out below, in order to comply with the Oregon migration corridor temperature criteria (OAR 340-041-0028(4)(d)) and to attain the load allocations in the Columbia River temperature TMDL once issued:

1. USACE shall submit a Temperature Monitoring Plan (TMP) to DEQ, which addresses the temperature monitoring and reporting requirements presented below.
  - a. The TMP shall include the following minimum components:
    - i. Identification of temperature monitoring locations. Locations shall be proposed that are representative of the Columbia River flowing into the Reservoir, within the Reservoir, and downstream of the Dam. Locations within the reservoir shall be located to describe any layers of temperature stratification.
    - ii. USACE shall measure temperature in the Project at monitoring locations described under 1.) a.) i.
    - iii. The TMP shall describe the equipment, calibration procedures, monitoring methods, and frequency of monitoring necessary to quantify the effects of project operation on the temperature in the Columbia River.

- iv. USACE shall submit annual water quality monitoring reports to DEQ by January 31 of each year. Each report shall include an analysis of temperature monitoring data from each station including graphical representation of seven-day moving average of the daily maximum temperature.
    - b. USACE shall implement the TMP in accordance with DEQ's approval.
  2. If DEQ determines monitoring indicates the project not attaining the TMDL load allocation, USACE shall develop and propose measures to address the exceedance as part of an adaptive management plan. USACE shall develop and submit to DEQ an adaptive management plan to ensure that project attains the TMDL load allocation. Following DEQ approval, USACE shall implement the plan in accordance with DEQ's approval.
  3. USACE shall develop a plan to protect identified cold water refugia locations from impingement by thermal plumes from the dam operations. Following DEQ approval, USACE shall implement the plan in accordance with DEQ's approval.

**Total Dissolved Gas:**

USACE shall take the following actions regarding involuntary spill, which are further detailed in the conditions set out below, in order to comply the TDG Criteria (OAR 340-041-0031(1)(2)) and the Columbia River TDG TMDL.

1. USACE shall submit a TDG Monitoring Plan to DEQ, which addresses the TDG monitoring and reporting requirements presented below. USACE shall measure TDG in the Columbia River during involuntary spill to the Columbia River.
  - a. The TDG monitoring plan shall include the following minimum components:
    - i. Frequency of data collection;
    - ii. Proposed data collection procedures including description of equipment and methods;
    - iii. Identification of monitoring locations; and
    - iv. Proposed evaluation procedures.
  - b. USACE shall implement the TDG monitoring plan in accordance with DEQ's approval.
2. USACE shall submit annual water quality monitoring reports to DEQ by January 31 of each year summarizing the frequency of involuntary spill events at the dam and the TDG levels.
3. TDG Adaptive Management Plan: if DEQ determines monitoring indicates the TDG criteria and TMDL allocation are not met during involuntary spill, USACE shall develop and propose measures to address the exceedance as part of an adaptive management plan. USACE shall develop and submit to DEQ an adaptive management plan to ensure that project does not cause or contribute to a violation of the TDG criteria and TDG

TMDL allocation. Following DEQ approval, USACE shall implement the plan in accordance with DEQ's approval.

**Biocriteria and Statewide Narrative Criteria:**

USACE shall take the following actions, which are further detailed in the conditions set out below, in order to comply with the Biocriteria (OAR 340-041-0011) and the Statewide Narrative Criteria (OAR 340-041-0007(10) and (11)):

1. USACE shall submit a CWIS annual report to DEQ by January 31 of each year. The annual report must include information on all cooling water intake structures, including screen design. The annual report must also document implementation, operations, and maintenance of best technology available.
2. USACE shall develop an operation and maintenance manual that includes procedures for evaluating both impingement and entrainment related to the CWIS.
3. CWIS Adaptive Management Plan: if, following DEQ review of the CWIS annual report, DEQ determines, in consultation with ODFW, that DEQ does not agree with EPA's BTA determination, USACE shall develop and submit to DEQ an adaptive management plan to minimize fish entrainment and impingement. Following DEQ approval, USACE shall implement the plan in accordance with DEQ's approval.

**PCBs:**

USACE shall take the following actions, which are further detailed in the conditions set out below, in order to comply the Toxics Substances Criteria (OAR 340-041-0033 and OAR 340-041-8033 (Table 40))

1. USACE shall develop a PCB Plan that must describe PCB monitoring that has been completed and the PCB sources that could come into contact with water and be discharged. The PCB Plan must also identify the actions USACE is taking to prevent, track, and address PCB releases.
2. USACE shall submit a PCB Annual Report to DEQ by January 31 of each year which describes how it is implementing the PCB Plan, evaluate the effectiveness of actions, and propose any new steps that must be taken to optimize effectiveness.
3. PCBs Adaptive Management Plan: if, following DEQ review of the PCB annual report, DEQ determines that the actions are not effective in addressing PCB releases, USACE shall develop and submit to DEQ an adaptive management plan to ensure the hydroelectric project does not discharge PCBs. Following DEQ approval, USACE shall implement the plan in accordance with DEQ's approval.

Oregon DEQ expects protections to ensure safe and healthy water in the Columbia River. EPA must holistically incorporate protections within the NPDES permits to ensure Oregon's Water

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Quality Standards will be protected. DEQ looks forward to hearing from EPA on the 401(a)(2) objection. If you have questions, or would like more information, please contact Jennifer Wigal at [Wigal.Jennifer@deq.state.or.us](mailto:Wigal.Jennifer@deq.state.or.us).

Sincerely,



Richard Whitman  
Director

Cc: Dan Opalski, Director, EPA Region 10 – [opalski.dan@epa.gov](mailto:opalski.dan@epa.gov)  
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