# FACT SHEET

**The United States Environmental Protection Agency (EPA) proposes to issue an National Pollutant Discharge Elimination System (NPDES) Permit to discharge pollutants pursuant to the provisions of the Clean Water Act, 33 USC §1251 et seq to:**

## Grand Coulee Dam

Public Comment Start Date: October, XX 2018
Public Comment Expiration Date: November, XX 2018

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1-800-424-4372 ext 6328 (within Alaska, Idaho, Oregon and Washington)

**The EPA Proposes to Issue an NPDES Permit**
The EPA proposes to issue an NPDES permit for the Grand Coulee Dam in Grand Coulee, Washington. The draft permit places conditions on the discharge of pollutants from the Grand Coulee Dam to waters of the United States (U.S.). To ensure the protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- descriptions of the discharge locations
- technical material supporting the conditions in the permit

**State Certification**
Upon the EPA's request, The Confederated Tribes of the Colville Reservation (Colville Tribes) and the Washington Department of Ecology (Ecology) have provided draft certifications of the permit for this facility under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

**Insert State Agency Address**

**Public Comment**
Persons wishing to comment on, or request a Public Hearing for the draft permit for the Grand Coulee Dam may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to the EPA as described in the Public Comments Section of the attached Public Notice. Comments must include the commenter's name, address, telephone number, permit name, and permit number. Comments must include a concise statement of the basis and any relevant facts the commenter believes the EPA should consider in making its decision regarding the conditions and limitations in the final permit.

After the comment period closes, and all comments have been considered, the EPA will review and address all submitted comments. The EPA's Regional Director for the Office of Water and Watersheds will then make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, the EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days pursuant to 40 CFR 124.19.

**Documents are Available for Review**
The draft NPDES permit, fact sheet, and related documents can be reviewed or obtained by visiting or contacting the EPA Region 10 Operations Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permit, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at: 'http://EPA.gov/r10earth/waterpermits.htm'

US EPA Region 10
Suite 155
1200 Sixth Avenue, OWW-191
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372, ext 0523 (within Alaska, Idaho, Oregon and Washington)

The draft permit and fact sheet also are available at the following state offices:

*The Confederated Tribes of the Colville Reservation*
**Insert State Agency Address**

*Washington Department of Ecology*
*Attn: 401 Program*
*State Office*
**Insert State Agency Address**
*Lacey, Washington*
*(208) 373-0502*

*Washington Department of Ecology*
**Insert State Agency Address**
**Insert Phone Number**

The draft permit, fact sheet, and other information also can be found by visiting the Region 10 website at: **Insert URL**

For technical questions regarding the permit or fact sheet, contact Jenny Wu at the phone number or email listed above. Services can be made available to persons with disabilities by contacting Audrey Washington at (206) 553-0523.

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**ACRONYMS**

| | |
|---|---|
| AML | Average Monthly limit |
| APA | Administrative Procedures Act |
| BAT | Best Available Technology Economically Achievable |
| BCT | Best Conventional Pollutant Control Technology |
| BE | Biological Evaluation |
| BMPs | Best Management Practices |
| BO | Biological Opinion |
| BOD | Biological Oxygen Demand |
| BPJ | Best Professional Judgment |
| BPT | Best Practicable Control Technology Currently Available |
| CFR | Code of Federal Regulations |
| COC | Contaminant of Concern |
| cfs | Cubic feet per second |
| CWA | Clean Water Act |
| DF | Dilution Factor |
| DMR | Discharge Monitoring Report |
| DWS | Domestic Water Supply – use designation in Idaho Water Quality Standards |
| EA | Environmental Assessment |
| EAL | Environmentally Acceptable Lubricant |
| EFH | Essential Fish Habitat |
| EIS | Environmental Impact Statement |
| ELG | Effluent Limitation Guidelines |
| EPA | United States Environmental Protection Agency |
| ESA | Endangered Species Act |
| GPD | Gallons per Day |
| GPM | Gallons per Minute |
| ICIS | Integrated Compliance Information System |
| LA | Load Allocation |
| LTA | Long Term Average |
| MCL | Maximum Contaminant Level |
| MDL | Maximum Daily Limit or Method Detection Limit |
| µg/L | Micrograms per Liter |
| mg/L | Milligrams per Liter |
| MGD | Million Gallons per Day |
| ML | Minimum Level |
| NEPA | National Environmental Policy Act |
| NOAA-NMFS | National Oceanic and Atmospheric Administration- National Marine Fisheries Service |
| NOI | Notice of Intent |
| NPDES | National Pollutant Discharge Elimination System |
| NPDWR | National Primary Drinking Water Regulations |
| NSPS | New Source Performance Standards |
| O&M | Operation and Maintenance (of a treatment facility) |
| OMB | White House Office of Management and Budget |
| OWW | EPA Office of Water and Watersheds |
| QAP | Quality Assurance Plan |
| QA/QC | Quality Assurance/Quality Control |
| RFA | Regulatory Flexibility Act |

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| | |
|---|---|
| SDWA | Safe Drinking Water Act |
| TAS | Treatment in a Manner Similar to a State (EPA-Tribal Government Process) |
| TBEL | Technology-Based Effluent Limitation |
| TMDL | Total Maximum Daily Load |
| TR | Total Recoverable (Metal Concentration) |
| TSD | EPA Technical Support Document for Water Quality-based Toxics Control |
| TSS | Total Suspended Solids |
| UMRA | Unfunded Mandates Reform Act |
| US | United States |
| USC | United States Code |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| WET | Whole Effluent Toxicity |
| WLA | Wasteload Allocation |
| WQBEL | Water Quality-Based Effluent Limitation |
| WQS | Water Quality Standards |

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**DEFINITIONS**

*7Q10 flow (seven-day, ten-year low flow)* means the lowest seven-day consecutive mean daily stream flow with a recurrence interval of ten years.

*Administrator* means the Administrator of the United States Environmental Protection Agency, or an authorized representative [40 CFR 122.2].

*Average monthly limits* means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. It may also be referred to as the "monthly average limits"[40 CFR 122.2].

*Best Available Technology Economically Achievable* (BAT) means the technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. BAT effluent limitations guidelines (ELGs), in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

*Best Conventional Pollutant Control Technology* (BCT) means the technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease.

*Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

*CAS registration number* means the number assigned by the Chemical Abstract Service (CAS) to uniquely identify a chemical.

*CFR* means the Code of Federal Regulations, which is the official annual compilation of all regulations and rules promulgated during the previous year by the agencies of the United States government, combined with all the previously issued regulations and rules of those agencies that are still in effect.

*Composite sample* means a flow-proportioned mixture of not less than four discrete representative samples collected at the same discharge point within the same 24 hours.

*Conventional pollutant* means biological oxygen demand (BOD), total suspended solids (TSS), bacteria, oil and grease, and pH as defined in 40 CFR 401.16.

*Continuous Discharge* means a discharge which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities [40 CFR 122.2].

*CWA* means the Clean Water Act in the United States Code (USC) (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, 33 USC 1251 et seq. [40 CFR 122.2].

*Daily discharge* means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limits expressed as mass "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day [40 CFR 122.2].

*The Director* means the Regional Administrator of the EPA Region 10, or the Director of the EPA Region 10 Office of Water and Watersheds, the State of Idaho Department of Environmental Quality, or an authorized representative thereof.

*Discharge* when used without qualification means the "discharge of a pollutant."

*Discharge Monitoring Report* (DMR) means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees [40 CFR 122.2].

*Discharge of a pollutant* means any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger" [40 CFR 122.2].

*Draft permit* means a document prepared under 40 CFR 124.6 indicating the Director's tentative decision to issue or deny, modify, revoke and reissue, terminate, or reissue a "permit" [40 CFR 122.2].

*Effluent limitation* means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean [40 CFR 122.2].

*Effluent limitations guidelines* (ELG) means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise "effluent limitations' [40 CFR 122.2].

*Environmentally Acceptable Lubricant* means lubricants that are "biodegradable" and "minimally-toxic" and are "not bioaccumulative" as defined in this permit. For purposes of the permit, products meeting this permit's definitions of being an "Environmentally Acceptable Lubricant" include those labeled by the following labeling programs: Blue Angel, European Ecolabel, Nordic Swan, the Swedish Standards SS 155434 and 155470, and EPA's Design for the Environment (DfE)

*Excluded Waters, or prohibited waters,* means water bodies not authorized as receiving waters to be covered under this general NPDES permit.

*Facility* means any NPDES point source or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

*Grab sample* means a single water sample or measurement of water quality taken at a specific time.

*Hazardous Material* means a material or combination of materials which may present a substantial present or potential hazard to human health, the public health, or the environment. It is also defined at 40 CFR 122.2 to mean any substance designated in 40 CFR 116, pursuant to Section 311 of the CWA.

*Indian Country* as indicated by 18 USC §1151 means: (a) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and, (c) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

*Indian Tribe* means any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation [40 CFR 122.2].

*Influent* means the water from upstream that enters the facility.

*Maximum* means the highest measured discharge or pollutant in a waste stream during the time period of interest.

*Maximum Daily Discharge limitation* means the highest allowable "daily discharge" [40 CFR 122.2].

*Monthly Average Limit* means the average of "daily discharges" over a monitoring month, calculated as the sum of all "daily discharges" measured during a monitoring month divided by the number of "daily discharges" measured during that month [40 CFR 122.2].

*National Pollutant Discharge Elimination System* (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA [40 CFR 122.2].

*Nonconventional Pollutants* means all pollutants that are not included in the list of conventional or toxic pollutants in 40 CFR 401. This includes pollutants such as chlorine, ammonia, COD, nitrogen, and phosphorous.

*Notice of Intent* (NOI) means a request, or application, to be authorized to discharge under a general NPDES permit.

*Pollutant* means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials [except those regulated under the Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)], heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water [40 CFR 122.2].

*Services* means the United States Fish and Wildlife Service and/or the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA Fisheries or NMFS)

*Technology-based effluent limitation* (TBEL) means treatment requirements under Section 301(b) of the Clean Water Act that represent the minimum level of control that must be imposed in a permit issued under section 402 of the Clean Water Act. EPA is required to promulgate technology-based limitations and standards that reflect pollutant reductions that can be achieved by categories, or subcategories of industrial point sources using specific technologies that EPA identifies as meeting the statutorily prescribed level of control under the authority of CWA sections 301, 304, 306, 307, 308, 402, and 501 [33 USC § 1311, 1314,1316,1318,1342, and 1361].

*Total Maximum Daily Load* (TMDL) means the sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for non-point sources, and natural background when allocating pollutant loading to a particular waterbody. The TMDL establishes loads at levels that meet applicable water quality standards.

*Upset* means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [40 CFR 122.41(n)].

*Waters of the United States or waters of the U.S. means:*
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands;"
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce;
(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition [40 CFR 122.2].

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# I. Background Information

## A. General Information

This fact sheet provides information on the draft National Pollutant Discharge Elimination System (NPDES) permit for Grand Coulee Dam:

**Table 1. General Facility Information for Grand Coulee Dam**

| | |
|---|---|
| NPDES Permit #: | WA0026876 |
| Applicant: | Grand Coulee Dam, United States Bureau of Reclamation (BOR) |
| Type of Ownership | Federal |
| Physical Address: | Highway 155, Industrial Road Warehouse<br>Grand Coulee, Washington 99133 |
| Mailing Address: | P.O. Box 620<br>Grand Coulee, Washington 99133 |
| Facility Contact: | Jeffery DeWinkler<br>(509) 633-9321 |
| Facility Location: | Latitude: 47° 57' 22" N<br>Longitude: 118° 59' 17" W |
| Receiving Water | Columbia River, Washington |
| Facility Outfalls | 001 Latitude: 47° 57' 22" N Longitude: 118° 59' 17" W<br>002 Latitude: 47° 57' 22" N Longitude: 118° 59' 17" W<br>003 Latitude: 47° 57' 22" N Longitude: 118° 59' 17" W<br>004a Latitude: 47° 57' 24" N Longitude: 118° 59' 9" W<br>004b Latitude: 47° 57' 24" N Longitude: 118° 59' 10" W<br>004c Latitude: 47° 57' 24" N Longitude: 118° 59' 11" W<br>004d Latitude: 47° 57' 23" N Longitude: 118° 59' 12" W<br>004e Latitude: 47° 57' 23" N Longitude: 118° 59' 13" W<br>004f Latitude: 47° 57' 23" N Longitude: 118° 59' 14" W<br>005 Latitude: 47° 57' 26" N Longitude: 118° 58' 43" W<br>006 Latitude: 47° 57' 28" N Longitude: 118° 58' 35" W<br>007 Latitude: 47° 57' 28" N Longitude: 118° 58' 35" W<br>008a Latitude: 47° 57' 28" N Longitude: 118° 58' 37" W<br>008b Latitude: 47° 57' 28" N Longitude: 118° 58' 37" W<br>008c Latitude: 47° 57' 28" N Longitude: 118° 58' 37" W<br>008d Latitude: 47° 57' 28" N Longitude: 118° 58' 38" W<br>008e Latitude: 47° 57' 28" N Longitude: 118° 58' 38" W<br>008f Latitude: 47° 57' 28" N Longitude: 118° 58' 38" W<br>009 Latitude: 47° 57' 30" N Longitude: 118° 58' 35" W<br>010 Latitude: 47° 57' 39" N Longitude: 118° 58' 32" W<br>011a Latitude: 47° 57' 35" N Longitude: 118° 58' 33" W<br>011b Latitude: 47° 57' 35" N Longitude: 118° 58' 33" W<br>011c Latitude: 47° 57' 35" N Longitude: 118° 58' 33" W<br>011d Latitude: 47° 57' 35" N Longitude: 118° 58' 33" W<br>011e Latitude: 47° 57' 35" N Longitude: 118° 58' 33" W<br>011f Latitude: 47° 57' 35" N Longitude: 118° 58' 33" W |

### B. Permit History

This is the first NPDES permit issued for Grand Coulee Dam. On June 29, 2016, Columbia Riverkeeper filed a complaint against the BOR for discharges of oil and grease without NPDES permits. On January 19, 2017, the BOR and Columbia Riverkeeper reached a Settlement Agreement where, among other things, the BOR agreed to submit a NPDES permit application for the discharge of pollutants from the Grand Coulee Dam.

The BOR submitted NPDES an application to the U.S. Environmental Protection Agency Region 10 (EPA) for permit issuance on September 26, 2017 and provided supplemental information on [**insert date**].

The EPA determined that the applications were complete.

### C. Tribal Consultation

The EPA contacted tribal staff of the Colville Tribes, Spokane Tribe of Indians, and Kalispel Tribe of Indians by electronic mail on August 8, 2018. On September 19, 2018, the EPA presented information on the permit to tribes, the Columbia River Inter-Tribal Fish Commission, Upper Columbia United Tribes, and the Upper Snake River Tribes Foundation. The EPA mailed letters to each tribe on October 9, 2018 to inform them of the status of the NPDES permit for the Grand Coulee Dam and invite them to tribal consultation. The EPA continues to provide regular updates on permit progress to interested tribes and tribal organizations.

## II. Facility Information

### A. Geographic Area

The BOR owns and operates the Grand Coulee Dam on the Lower Columbia River. The jurisdictional line between the Colville Tribes and Washington is in the middle of the Columbia River, and thus, the facility discharges in both Washington and Colville tribal waters. As a result, jurisdiction for NPDES permitting in the Columbia River is divided between Colville Tribes and Washington. The EPA is the permitting authority for tribal waters and federal facilities in Washington[1]. The Grand Coulee Dam is located in Grand Coulee, Washington.

### B. Facility Operations and Types of Discharges

Grand Coulee Dam includes the generating stations, dam, reservoir, tunnel system, and associated equipment and structures used in the generation of hydroelectric power. This hydroelectric generating facility generates electricity using falling or flowing water to drive turbines and generators. The types of discharges from this facility are: cooling water; equipment and floor drain-related water; and equipment and facility maintenance-related water. Hydroelectric generating water may also be exposed to lubricants on hydroelectric generating equipment, such as wicket gates and lubricated wire rope, and other in-water equipment.

*Cooling Water Discharges*

Grand Coulee Dam uses river water to cool equipment resulting in discharges of non-contact cooling water and direct cooling water to the river. Non-contact cooling water is defined as "water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product or finished product" (40 CFR 401.11(n)). Non-contact cooling water is used in cooling the turbine bearings, guide bearings, air compressors, generators, HVAC chillers, and power

[1] NPDES Memorandum of Agreement Between the State of Washington and United States Environmental Protection Agency Region 10, July 2018.

transformers. At pump storage projects, non-contact cooling water is used in cooling additional equipment which includes the air compressors, air handlers, air conditioners, and rheostats. Direct cooling water is used to directly cool the bearings. Grand Coulee Dam may divert certain equipment-related cooling waters to the equipment and floor drain water drainage system. A separate equipment operation is the strainer operation on the cooling water intake line. These strainers remove debris and silt which are manually removed and cleaned.

Related to cooling water discharges are the cooling water intake structures. Cooling water intake structures in other industrial sectors typically remove water directly from the river. These structures may have screens to remove debris, which fish can become impinged on. Cooling water intake structures can also harm organisms that are entrained into the facility and unable to pass through. The Grand Coulee Dam extracts river water for hydroelectric generating purposes. This water is considered pass through water, where an NPDES permit is not required (See Part II.C.). Therefore, the hydroelectric generating water intake is not considered the point of cooling water intake. However, at the point that water is extracted for cooling water, its status moves from pass through water where an NPDES permit is not required, to cooling water where an NPDES permit is required. The cooling water intake structure in these hydroelectric generating facilities is the point where water is diverted from the scroll case to be used for cooling.

*Equipment Drainage and Floor Drain Discharges*
Equipment drainage and floor drain discharges are the collection of various points of internal station drainage discharges. Drainage is collected by floor drains, trench drains, wheel pit drains, station sumps, and spillway sumps. These drainage collection systems drain water from compressor blowdowns, leakage from turbines and penstocks, grout gallery leakage, navigation lock leakage, housing leakage, packing boxes leakage, lower guide bearing and other bearing-related discharges, equipment and seal leakage, gate stems, turbine and scroll case access doors, tunnel pumpage, and water from ground water infiltration and surface water seepage. The station drainage system includes treatment units such as oil/water separators at station sumps. These discharges can be intermittent and seasonal, and the outfalls in certain stations can be inaccessible for sampling purposes. Drainage sumps and dewatering sumps are the primary sources of potential oil and grease discharges at Grand Coulee Dam. At some facilities, cooling water discharges may enter into equipment and floor drains, resulting in a commingled discharge.

*Equipment and Facility Maintenance-Related Water Discharges*
The equipment and facility maintenance-related water discharges include river water pumped from the facility during periods of equipment, station, and facility maintenance. For Grand Coulee Dam, maintenance operations are generally continuous, and maintenance-related waters from unwatering sumps are discharged on a regular basis. During equipment maintenance operation, discharges occur from the dewatering of equipment containing river water such as the turbine, penstock, navigation locks, and dewatering sumps, which may contain residual oil and grease, detritus, or silt.

*Equipment Using Lubricants*
Various equipment in the hydroelectric generating facilities use equipment that are lubricated with grease. These include wicket gates, which control the amount of flow entering the scroll case to the turbine, and other equipment such as bearings, blocks, trucks and guides. Through the greasing process, water may enter the river. Lubricated water rope may also come into contact with water during rainfall.

### C. Types of Pollutants Associated with Facilities

The propose permit addresses wastewater discharged from outfalls (*i.e.,* discharges that result in an addition of pollutants to the Columbia River). The permit does not address waters that flow over the spillway or pass through the turbines. *See National Wildlife Federation v. Consumers Power Company*, 862 F.2d 580 (6th Cir. 1988); *National Wildlife Federation v. Gorsuch,* 693 F.2d 156 (D.C. Cir. 1982). The pollutants associated with wastewaters from the above discharges are oil, grease, excess heat (temperature), pH, and debris and silt from the strainer's screens.

Most discharges that affect water quality are ancillary to the direct process of generating electricity at a hydroelectric generating facility and result mostly from oil spills, equipment leaks, and improper waste storage. The NPDES permit proposes permit limits for oil and grease and pH and temperature monitoring for cooling water discharges. It also requires development and implementation of a Best Management Practices (BMP) Plan, Environmentally Acceptable Lubricants (EAL) Annual Report, and 316(b) Annual Report. The BMP Plan establishes practices and procedures to prevent, minimize or eliminate the discharge of oil and grease and an annual self-certification report demonstrating compliance with the BMP Plan.

EALs are biodegradable lubricants. For equipment that use non-EAL lubricants, have an oil-water interface, or have a high likelihood that lubricants would enter water, the permit requires the use of EALs, unless technically infeasible. The permit also requires an EAL Annual Report, which is an inventory of equipment that should be considered for EALs, a technical feasibility evaluation of the equipment, and annual updates of EAL implementation on equipment. (See IV.C.)

Section 316(b) of the Clean Water Act seeks to minimize adverse effects from cooling water intake structures on fish. The permit requires best technology available (BTA) to be used to ensure that these effects are minimized. The permit also requires a 316(b) Annual Report, a status report of the BTA and any studies and optimization related to the use and effectiveness of the BTA on fish mortality.

### D. Type of Treatment

Grand Coulee Dam uses oil/water separators on their sumps. These oil/water separators use the force of gravity to separate the lower density oils as a layer on top of the oil/water interface and the heavier particulate matter (sludge) as a layer on the bottom of the oil/water separator. The design of oil/water separators is based on the following parameters: water flow rate, density of oil to be separated, desired oil removal capacity, and operating temperature range.

### E. Outfall Description

Below is a brief description of outfalls that discharge to the Columbia River.

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**Table 2. Grand Coulee Dam Outfall Description**

| Outfall | Outfall Description | Type of Discharge | Maximum Daily Discharge | Discharge into Colville Tribes or Washington Waters? |
|---|---|---|---|---|
| 001 | Pump/Generating Plant Sump | Equipment and floor drain discharges, cooling water | 17 MGD | Washington |
| 002 | Left Power House Transformer Deck Sump | Cooling water | 7.8 MGD | Washington |
| 003 | Left Power House Sump | Equipment and floor drain discharges, cooling water | 2.8 MGD | Washington |
| 004a | Left Power House Generator Three (G-3) | Cooling water | 3.6 MGD | Washington |
| 004b | Left Power House Generator Three (G-4) | Cooling water | 3.6 MGD | Washington |
| 004c | Left Power House Generator Three (G-5) | Cooling water | 3.6 MGD | Washington |
| 004d | Left Power House Generator Three (G-6) | Cooling water | 3.6 MGD | Washington |
| 004e | Left Power House Generator Three (G-7) | Cooling water | 3.6 MGD | Washington |
| 004f | Left Power House Generator Three (G-8) | Cooling water | 3.6 MGD | Washington |
| 005 | Main Dam Galleries | Equipment and floor drain discharges, cooling water | 0.4 MGD | Colville Tribes |
| 006 | Right Power House Transformer Deck Sump | Equipment and floor drain discharges, cooling water | 0.9 MGD | Colville Tribes |
| 007 | Right Power House Sump | Equipment and floor drain discharges, cooling water | 2.9 MGD | Colville Tribes |
| 008a | Right Power House Generator Three (G-11) | Cooling water | 3.6 MGD | Colville Tribes |
| 008b | Right Power House Generator Three (G-12) | Cooling water | 3.6 MGD | Colville Tribes |
| 008c | Right Power House Generator Three (G-13) | Cooling water | 3.6 MGD | Colville Tribes |
| 008d | Right Power House Generator Three (G-14) | Cooling water | 3.6 MGD | Colville Tribes |
| 008e | Right Power House Generator Three (G-15) | Cooling water | 3.6 MGD | Colville Tribes |
| 008f | Right Power House Generator Three (G-16) | Cooling water | 3.6 MGD | Colville Tribes |

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| | | | | |
|---|---|---|---|---|
| 009 | Third Power Plant Transformer Deck Sump | Equipment and floor drain discharges, cooling water | 9.4 MGD | Colville Tribes |
| 010 | Third Power Plant Sump | Equipment and floor drain discharges, cooling water | 0.1 MGD | Colville Tribes |
| 011a | Third Power House Generator Three (G-19) | Cooling water | 10 MGD | Colville Tribes |
| 011b | Third Power House Generator Three (G-19) | Cooling water | 10 MGD | Colville Tribes |
| 011c | Third Power House Generator Three (G-19) | Cooling water | 10 MGD | Colville Tribes |
| 011d | Third Power House Generator Three (G-19) | Cooling water | 10 MGD | Colville Tribes |
| 011e | Third Power House Generator Three (G-19) | Cooling water | 10 MGD | Colville Tribes |
| 011f | Third Power House Generator Three (G-19) | Cooling water | 10 MGD | Colville Tribes |

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### F. Effluent Characterization

To characterize the effluent, the EPA evaluated the facility's application form and additional data provided by ODEQ and the facilities. The table below summarizes information from the permit application. Data are limited, and in all but a few outfalls, there is one sample point per outfall. The Grand Coulee Dam also conducted influent temperature monitoring. All data are provided in Appendix D.

**Table 3. Summary of Pollutants Detected in Outfalls**

| Grand Coulee Dam | |
|---|---|
| **Pollutant** | **Concentration range** |
| Oil and grease | 531 mg/L |
| Fecal coliform | 4.1 mg/L - 51 mg/L |
| Total organic carbon (TOC) | 0 mg/L – 9.4 mg/L |
| Chemical oxygen demand | 20 mg/L - 149 mg/L |
| Biochemical oxygen demand | 0 mg/L - 31 mg/L |
| Temperature (summer) | 11-18°C |
| pH | 6.5 – 7.7 s.u. |

### G. Compliance History

The proposed permit is new so there are no past permit violations. However, the facilities are currently discharging without a permit. As previously explained, on January 19, 2017, the BOR and Columbia Riverkeeper reached a Settlement Agreement where, among other things, the BOR agreed to submit an NPDES permit application for Grand Coulee Dam.

## III. Receiving Water

In drafting permit conditions, the EPA must analyze the effect of the facility's discharge on the receiving water. The details of that analyses are provided in this Fact Sheet. This section summarizes characteristics of the receiving water that impact that analysis.

### A. Receiving Water

These facilities discharge to the Columbia River. The Grand Coulee Dam discharges near river mile 596.6 of the Columbia River in Grand Coulee, Washington.

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. 40 CFR 122.4(d) requires that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States and Tribes. A State's or Tribe's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria and an anti-degradation policy.

The use classification system designates the beneficial uses that each water body is expected to achieve, such as drinking water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

### B. Designated Beneficial Uses

The Grand Coulee Dam discharges to the Columbia River at river mile 596.6. The Columbia River is protected for the following designated uses in Washington (WAC 173-201A-602, Table 602): spawning and rearing, primary contact, domestic water, industrial water, agricultural water, stock water, wildlife habitat, harvesting, commerce/navigation, and aesthetics. Washington water quality

standards include a special fish passage exemption at WAC 173-201A-200(1)(f) for total dissolved gases.

On May 2, 2018, the EPA approved the Colville Tribes' application for treatment in a similar manner as a state (TAS) which allows the tribe to administer the water quality standards and water quality certification programs under Clean Water Act (CWA) sections 303(c) and 401. The Colville Tribes adopted tribally promulgated water quality standards on August 6, 1984 and amended them on January 18, 1985 (Colville Tribal Law and Order Code, Section 4-8). The EPA promulgated water quality standards for the Colville Tribes on July 6, 1989 (40 CFR 131.35). The water quality standards at 40 CFR 131.35 are in effect for Clean Water Act purposes for waters of the Colville Tribes, including the northern side of the Columbia River, where the Grand Coulee Dam discharges. The EPA also considered the Colville Tribes tribally promulgated water quality standards in developing the permit conditions.

The Columbia River where Grand Coulee Dam discharges into waters of the Colville Tribes is undesignated under 40 CFR 131.35, and therefore, defaults to a Class II designation. The Columbia River is protected for the following designated uses on the Colville Tribes waters: water supply: domestic, industrial, agricultural; stock watering; fish and shellfish: salmonid migration, rearing, spawning, and harvesting; other fish migration: rearing, spawning, and harvesting; crayfish rearing, spawning, and harvesting; wildlife habitat; ceremonial and religious water use; recreation: primary contact recreation, sport fishing, boating, and aesthetic enjoyment; and commerce and navigation.

The Colville Tribes' tribally promulgated water quality standards designate the Columbia River where Grand Coulee discharges as Class I waters (Colville Tribal Law and Order Code, Section 4-8-8). The designated uses that are protected under tribally promulgated water quality standards are: water supply: domestic, industrial, and agricultural; stock watering; fish and shellfish: salmonid migration, rearing, spawning, and harvesting; other fish migration, migration, rearing, spawning, and harvesting; ceremonial and religious water use; recreation: primary contact recreation, sport fishing, boating and aesthetic enjoyment; and commerce and navigation.

The EPA has established effluent limitations and other requirements in the permit to maintain the most stringent possible water quality criteria. In this manner, the permit will be protective of all receiving water uses in waters of the Colville Tribes and Washington.

### C. Surface Water Quality Criteria

The criteria are found in the following sections of the Washington water quality standards and Colville Tribes federally promulgated and tribally promulgated water quality standards:

- The numeric and narrative criteria applicable to all fresh waters of the State are found in WAC 173-201A-200 (Fresh water designated uses and criteria) and WAC 173-201A-260 (Natural conditions and other water quality criteria and applications). The federally promulgated water quality standards for the Colville Tribes where Grand Coulee Dam discharges can be found at 40 CFR 131.35(2). The tribally promulgated water quality standards for the Colville Tribes where Grand Coulee Dam discharges can be found at Colville Tribal Law and Order Code, Section 4-8-6(a)(2).
- The numeric and narrative criteria for toxic substances for the protection of aquatic life and primary contact recreation are found at WAC 173-201A-240, 40 CFR 131.35(e)(ii)(G), and Colville Tribal Law and Order Code, Section 4-8-6(a)(3)(I).
- Water quality criteria for agricultural water supply can be found in the EPA's Water Quality Criteria 1972, also referred to as the "Blue Book" (EPA R3-73-033)

The permit contains language for the following narrative criteria:

Toxic Substances. Toxic substances shall not be introduced above natural background levels in waters of the state which have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department (WAC 173-201A-240).

Toxic, radioactive, nonconventional or deleterious material concentrations shall be less than those of public health significance, or which may cause acute or chronic conditions to the aquatic biota, or which may adversely affect designated uses (40 CFR 131.35(e)(ii)(G); Colville Tribal Law and Order Code, Section 4-8-6(a)(3)(I)).

Deleterious, floating, suspended, submerged matter, aesthetics, visible oil sheen. Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health (WAC 173-201A-260(2)(a)).

All waters within the Reservation, including those within mixing zones shall be free from substances, attributable to wastewater discharges or other pollutant sources, that:

(i) Settle to form objectionable deposits;

(ii) Float as debris, scum, oil, or other matter forming nuisances;

(iii) Produce objectionable color, odor, taste, or turbidity;

(iv) Cause injury to, are toxic to, or produce adverse physiological responses in humans, animals, or plants; or

(v) Produce undesirable or nuisance aquatic life.

(40 CFR 131.35(e)(3))

Aesthetic values shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste. (Colville Tribal Law and Order Code, Section 4-8-6(a)(3)(J)).

## D. Impaired Waters/TMDLs

Section 303(d) of the CWA requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations by point sources. For all 303(d)-listed water bodies and pollutants, states must develop and adopt total maximum daily loads (TMDLs) that will specify wasteload allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, as appropriate. WLAs for point sources are implemented through limitations incorporated into NPDES permits that are consistent with the assumptions of the WLAs in the TMDL (40 CFR 122.44(d)(1)(vii)(B)).

*Dioxins*

In 1991, Ecology issued a TMDL for dioxins in the Columbia River. The TMDL identified the major sources of dioxin as pulp mills that were operating during the development of the TMDL. Dioxins are usually a result of chemical processes at high temperatures. Since no chemical processes at high temperatures occur at the hydroelectric generating facilities, dioxins are not expected to be present in the discharges from the facilities. In addition, the EPA has taken a conservative approach and has included Part I.B.2 of the permit, which prohibits the discharge of toxic substances in concentrations that impair beneficial uses.

*Total Dissolved Gas*

In 2004, Ecology and the EPA issued a TMDL for total dissolved gas in the Mid-Columbia River and Lake Roosevelt. Elevated total dissolved gas is caused by spill events, when quickly flowing water entrains total dissolved gas at high levels. In the case of hydroelectric generating facilities, these spill events are "pass through" water, which are not regulated by NPDES permits (*See National Wildlife Federation v. Consumers Power Company*, 862 F.2d 580 (6th Cir. 1988); *National Wildlife Federation v. Gorsuch,* 693 F.2d 156 (D.C. Cir. 1982). Total dissolved gas is not a pollutant found in the discharges covered under the permit. Therefore, total dissolved gas is not a pollutant of concern for the discharges authorized by the permit.

*PCBs*

The Columbia River is listed as impaired for PCBs on Ecology's CWA Section 303(d) list. PCBs may be present in turbine fluid, lubricants, paint, and caulk though exact sources of PCBs are unknown at the hydroelectric generating facilities. Therefore, the EPA has taken a conservative approach and included provisions in the permit that prohibit the discharge of PCBs and the discharge of toxic substances in concentrations that impair the beneficial uses of the receiving water (see Part I.B.2). The permit also requires the hydroelectric projects to use lubricants, paint and caulk that do not contain PCBs, unless technically infeasible.

*Temperature*

The Columbia River is listed as impaired for temperature on Ecology's CWA Section 303(d) list. The EPA is conducting studies on temperature in the Columbia River and working to develop a temperature TMDL. Cooling water discharges from the hydroelectric generating facilities may affect temperature. However, the effects may be small, since these discharges combine with water passed over spillways. The water over spillways tends to have a much larger effect because the amount of water is much greater, and the temperatures behind reservoirs can rise much higher when air temperatures are high. The Biological Evaluation for the draft Idaho Hydroelectric Facility General Permit issued by the EPA in 2018 analyzed the potential temperature impacts from cooling water using information from the Oxbow and Hells Canyon hydroelectric generating facilities. The study found a maximum temperature increase of 0.02°C with 25% mixing, and 0.004°C with 100% mixing. Thus, the temperature increase is predicted to be low. The hydroelectric generating facilities have limited temperature data on their cooling water discharges, in most cases, one sample per outfall. Therefore, the permit requires continuous temperature monitoring for cooling water discharges and monthly temperature monitoring where a similar cooling water discharge requires continuous temperature monitoring. Information from this permit will inform the TMDL studies and the next permit cycle.

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# IV. Effluent Limitations and Monitoring

The tables below show the effluent limits for Grand Coulee Dam:

**Table 4. Effluent Limitations and Monitoring Requirements for Outfalls 001, 002, 003, 005, 006, 007, 009: Pump/Generating Plant Sump, Left Power House Transformer Deck Sump, Left Power House Sump, Main Dam Galleries, Right Power House Transformer Deck Sump, Right Powerhouse Sump, Third Powerplant Transformer Deck Sump**

| Parameter | Units | Effluent Limitations | Monitoring Requirements | | |
|---|---|---|---|---|---|
| | | | Sample Location | Sample Frequency | Sample Type |
| **Parameters With Effluent Limits** | | | | | |
| pH | std units | Between 6.5 – 8.5 | Effluent | 1/month | Grab |
| Oil and grease | mg/L | 5 (daily maximum) | Effluent | 1/month | Grab |
| **Report Parameters** | | | | | |
| Flow | mgd | Report | Effluent | 1/month | Measurement |
| Temperature | 7DADM°C[1] | Report | Effluent | Continuous[2] | Measurement/ Calculation |
| Visible Oil Sheen, Floating, Suspended, or Submerged Matter | -- | See Paragraph I.B.4 of this permit. | | | Visual Observation |

Notes
1. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures.
2. See Paragraph I.B.11.

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**Table 5. Effluent Limitations and Monitoring Requirements for Outfalls 004a, 004b, 004c, 004d, 004e, 008a, 008b, 008c, 008d, 008e, 011a, 011b, 011c, 011d, 011e: Left Power House Generator Three (G-3), G-4, G-5, G-6, G-7, G-8, Right Power House Generator Eleven (G11), G-12, G-13, G-14, G-15, G-16, and Third Power Plant Generator Nineteen (G-19), G-20, G-21, G-22, G-23, G-24**

| Parameter | Units | Effluent Limitations | Monitoring Requirements | | |
|---|---|---|---|---|---|
| | | | Sample Location | Sample Frequency | Sample Type |
| **Parameters With Effluent Limits** | | | | | |
| pH | std units | Between 6.5 – 8.5 | Effluent | 1/month | Grab |
| Oil and grease | mg/L | 5 (daily maximum) | Effluent | 1/month | Grab |
| **Report Parameters** | | | | | |
| Flow | mgd | Report | Effluent | 1/month | Measurement |
| Temperature | 7DADM°C[1] | Report | See Paragraph I.B.10. | Continuous or 1/month [2] | Measurement/ Calculation |
| Visible Oil Sheen, Floating, Suspended, or Submerged Matter | -- | See Paragraph I.B.4 of this permit. | | | Visual Observation |

Notes
1. 7-day average daily maximum. This is a rolling 7-day average calculated by taking the average of the daily maximum temperatures.
2. See Paragraphs I.B.10 and I.B.11.

**Table 6. Effluent Limitation and Monitoring Requirements for Outfall 010: Third Power Plant Sump**

| Parameter | Units | Effluent Limitations | Monitoring Requirements | | |
|---|---|---|---|---|---|
| | | | Sample Location | Sample Frequency | Sample Type |
| **Parameters With Effluent Limits** | | | | | |
| pH | std units | Between 6.5 – 8.5 | Effluent | 1/month | Grab |
| Oil and grease | mg/L | 5 (daily maximum) | Effluent | 1/month | Grab |
| **Report Parameters** | | | | | |
| Flow | mgd | Report | Effluent | 1/month | Measurement |
| Chemical Oxygen Demand | mg/L | Report | Influent and Effluent | 1/quarter | Grab |
| Visible Oil Sheen, Floating, Suspended, or Submerged Matter | -- | See Paragraph I.B.4 of this permit. | | | Visual Observation |

### A. Statutory Requirements for Determining Effluent Limitations

Section 301(a) of the CWA, 33 USC § 1311(a), prohibits the discharge of pollutants to waters of the United States unless the discharge is authorized pursuant to an NPDES permit. Section 402 of the CWA, 33 USC § 1342, authorizes the EPA, or an approved state NPDES program, to issue NPDES permits that authorize discharges subject to limitations and requirements imposed pursuant to CWA Sections 301, 304, 306, 401 and 403, 33 USC §§ 1311, 1314, 1316, 1341 and 1343. Accordingly,

NPDES permits typically include effluent limits and requirements that require the permittee to (1) meet national standards that reflect levels of currently available treatment technologies; (2) comply with the EPA-approved state water quality standards in state waters; and (3) prevent unreasonable degradation of the surface water quality.

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based effluent limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

The EPA first determines which technology-based effluent limits apply to a discharge in accordance with applicable national effluent limitation guidelines and standards (ELGs). Where ELGs have not been promulgated for a specific category of discharge, case-by-case technology-based effluent limits based on best professional judgment (BPJ) are developed. The EPA further determines which water quality-based effluent limits apply to a discharge based upon an assessment of the pollutants discharged and a review of state water quality standards. Monitoring requirements must also be included in the permit to determine compliance with effluent limitations. Effluent and ambient monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

### B. Pollutants of Concern

Pollutants of concern are those that either have technology-based effluent limits or may need water quality-based limits. The EPA identifies pollutants of concern for the discharge based on those which:

- Have a technology-based limit
- Have an assigned WLA from a TMDL
- Had an effluent limit in the previous permit
- Are present in the effluent monitoring. Monitoring data are reported in the application and DMR and any special studies
- Are expected to be in the discharge based on the nature of the discharge

A review of the discharges of hydroelectric generating facilities permitted by other states and information gathered from the permit application, facilities, and other sources reveal that the pollutants of concern are as follows:

- pH
- oxygen demanding pollutants (BOD and COD)
- oil and grease
- temperature
- total suspended solids (TSS)

### C. Technology-based Effluent Limitations

Section 301(b) of the CWA, 33 USC § 1311(b), requires technology-based controls on effluents. All NPDES permits must contain effluent limitations which: (a) control toxic pollutants and nonconventional pollutants using "best available technology economically achievable" (BAT), and (b) control conventional pollutants through the use of "best conventional pollutant control technology" (BCT). In no case may BAT or BCT be less stringent than the "best practical control

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technology currently achievable" (BPT), which is the minimum level of control required by Section 301(b)(1)(A) of the CWA, 33 USC § 1311(b)(1)(A).

ELGs have not yet been developed by the EPA for hydroelectric generating facility discharges.

## D. Water Quality-based Effluent Limitations

### *Statutory and Regulatory Basis*

Section 301(b)(1)(C) of the CWA, 33 USC § 1311(b)(1)(C), requires the development of limitations in permits necessary to meet water quality standards. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA, 33 USC §1341. 40 CFR 122.44(d)(1) requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal water quality standard, including narrative criteria for water quality. Effluent limits must also meet the applicable water quality requirements of affected States other than the State in which the discharge originates, which may include downstream States (40 CFR 122.4(d), 122.44(d)(4), see also CWA Section 401(a)(2)).

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available WLA for the discharge in an approved TMDL. If there are no approved TMDLs that specify WLAs for this discharge, all the water quality-based effluent limits are calculated directly from the applicable water quality standards.

### *Reasonable Potential Analysis and Need for Water Quality-Based Effluent Limits*

The EPA uses the process described in the *Technical Support Document for Water Quality-based Toxics Control* (*TSD*) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit.

In some cases, a dilution allowance or mixing zone is permitted. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain water quality criteria may be exceeded (EPA, 2014). While the criteria may be exceeded within the mixing zone, the use and size of the mixing zone must be limited such that the waterbody as a whole will not be impaired, all designated uses are maintained and acutely toxic conditions are prevented.

The Washington Water Quality Standards at WAC 173-201A-400, federally promulgated water quality standards for the Colville Tribes at 40 CFR 131.35(c)(2), and Colville Tribal Law and Order Code 4-8-9(d) provide mixing zone policies for point source discharges. This permit does not authorize a mixing zone.

### *pH*

The effluent limitation for Hydrogen Ion (pH) proposed in the draft permit for cooling water, sumps, drainage, and dewatering discharges is established to meet the Colville Tribes and State of Washington's water quality standards for the protection of aquatic life. The water quality criterion for pH is found in WAC 173-201A-200 1(g) and states that for 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. The federally promulgated and tribally promulgated water quality standards for the Colville Tribes are also that pH shall be within the range of 6.5 to 8.5 with a human-caused variation of less than 0.5 units (40 CFR 131.35(f)(2)(ii)(E), Colville Tribal Law and Order Code 4-8-6(a)(3)(G)).

Grand Coulee Dam effluent values for pH ranged from 6.5 to 7.7. The permit proposes pH limits not less than 6.5 and not more than 8.5 standard units to ensure that surface waters do not exceed this range from discharges from the hydroelectric generating facilities. This limit meets pH water quality criteria of Washington and Colville Tribes.

***Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD)***

BOD and COD are measures of the amount of degradable material that may deplete oxygen. The federally promulgated water quality standards for Colville Tribes, and the Washington water quality standard for dissolved oxygen for salmon spawning, rearing and migration is 8.0 mg/L (40 CFR 131.35(f)(2)(ii)(B), WAC 173-201A-200 1(d)). The tribally promulgated water quality standard for dissolved oxygen is 9.5 mg/L (Colville Tribal Law and Order Code, 4-8-6(a)(3)(C)). There are no water quality standards for BOD or COD for waters of Washington or Colville Tribes. Oil and grease are oxygen-demanding substances. Sumps may also concentrate oxygen-demanding substances that may be present in pass through water. Therefore, BOD and COD could be present in sump discharges, and to a lesser degree, dewatering and cooling water discharges. BOD and COD is also present in influent water, so may be part of the pass through and leakage water. The permit does not address the pass through water. (See II.C.)

BOD and COD concentrations at Grand Coulee Dam are relatively low. Grand Coulee Dam had one detection of BOD of 31 mg/L at Outfall 010 (Third Power Plant Sump). The other outfalls had no detections or concentrations that were nearly zero. There were two detections of COD, one of 20 mg/L at Outfall 001 (Pump/Generating Plant Sump) and one of 149 mg/L at Outfall 010 (Third Power Plant Sump).

The EPA has determined there is no reasonable potential for oxygen-demanding substances in the Grand Coulee Dam discharges to impact dissolved oxygen in the Columbia River. Concentrations of BOD and COD are relatively low, except for Outfall 010, where the oil and grease concentration was also high. The permit requires the permittee to monitor COD discharges quarterly at Outfall 010 to inform the next permit cycle. For the remining outfalls, operations from the facility are not expected to add significant amounts of oxygen-demanding substances that would require permit effluent limitations. The Columbia River receiving water has significantly higher flows compared to discharges from outfalls. In addition, Grand Coulee Dam generates oxygen over their spillways and tailrace, which then combines with discharge waters. Oxygen-demanding substances from the operations may arise from oil and grease, for which the permit has effluent limitations, monitoring, tracking, and minimization requirements. The permit also requires total suspended solids or detritus, to be minimized.

As a result, the EPA has determined there is no reasonable potential and is not proposing limits for oxygen-demanding substances.

***Oil and Grease***

The oil and grease limits are derived from the narrative water quality criteria in the state water quality standards, which states that "toxic, radioactive or deleterious material concentrations must be

below those which have the potential either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent on the waters, or adversely affect public health (WAC 173-201A-260-2(a));" "Aesthetic values must not be impaired by the presence of materials of their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste (WAC 173-201A-260-2(b);" "All waters within the Reservation, including those within mixing zones, shall be free from substances, attributable to wastewater discharges or other pollutant sources that: (i) Settle to form objectionable deposits; (ii) Float as debris, scum, oil, or other matter forming nuisances; (iii) Produce objectionable color, odor, taste, or turbidity; (iv) Cause injury to, are toxic to, or produce adverse physiological responses in humans, animals or plants; or (v) produce undesirable or nuisance aquatic life (40 CFR 131.35(e)(3)."

"Toxic, radioactive, or deleterious material concentrations shall be below those of public health significance, or which may cause acute or chronic conditions to the aquatic biota, or which may adversely affect any water use; Aesthetic values shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste (Colville Tribal Law and Order Code, 4-8-6(a)(3)(I-J)."

The EPA interprets these narrative criteria as prohibiting a discharge to these waters that would cause an oil sheen. Although effluent concentrations are low for oil and grease, these are the primary pollutants introduced by facility operations and could be present in discharges from sumps, dewatering, and cooling water. The one exception is Outfall 010 (Third Power Plant Sump) with a concentration of 531 mg/L. The EPA has established daily maximum oil and grease limitations of 5 mg/L to represent the concentration at which there is an oil sheen on surface waters. This limit is consistent with several NPDES permits issued in Washington at shipyards[2] where a 5 mg/L was established to control for no visible oil sheen. This concentration was based on best professional judgment and on the detection limit for oil and grease, which is 5 mg/L. A daily maximum effluent limit of 5 mg/L will ensure the narrative water quality standards for deleterious, aesthetic, and no visible oil sheen are met. The EPA believes that this limit is a reasonable standard for facilities that have a reasonable potential for oil and grease discharges.

In addition, the permit requires the permittee to develop and implement a BMP Plan, which includes tracking and accountability of oil use in the facility, minimization of any oil spills, proper operation and maintenance of all equipment that may release oil, and identification of and contingency planning for site-specific vulnerabilities for oil spills such as lack of secondary containment. For lubricants such as oil and grease, the permit requires the use of EALs to replace oil and grease, unless technically infeasible, to reduce the potential of oil and grease entering the river and an EAL Annual Report tracking implementation progress.

***Toxics***

Washington and Colville Tribes have narrative criteria in their water quality standards at WAC 173-201A-240, 40 CFR 131.35(f)(ii)(G), and Colville Tribal Law and Order Code, 4-8-6(a)(3)(I) that prohibit toxic discharges in concentrations that impair designated beneficial uses. Noncontact cooling water discharges do not contain or come into contact with raw materials, intermediate

[2] Barnacle Point Shipyards WA-003099-6, Dakota Creek Industries WA-003141-1, Vigor Shipyards, Incorporated WA-000261-5, Everett Shipyard, Piers 1, 3 and Adjacent Areas WA-003200-0.

products, finished products, or process wastes. There is no information on whether discharges from the hydroelectric projects contain toxic or hazardous pollutants other than oil and grease.

To ensure that discharges do not occur, the permit establishes narrative effluent limitations for toxic pollutants in Part I.B.2 of the permit. The permit does not allow for the addition of toxic materials or chemicals and prohibit the discharge of PCBs. They also require the use of paints, caulk, and lubricants free of PCBs, unless technically infeasible. Further, additives used to control biological growth in such cooling systems are prohibited due to their inherent toxicity to aquatic life.

***Total Suspended Solids (TSS)***

Water quality standards for waters of the Colville Tribes and Washington have narrative criteria that apply to TSS and are the same as those described above in the oil and grease section. These can be found at WAC 173-201A-260, 40 CFR 131.35(e)(3), and Colville Tribal Law and Order Code, 4-8-6(a)(3)(I).

Suspended solids in water can cause turbidity and interfere with salmonid migration and growth. At the Grand Coulee Dam, water originates from the upstream river which may contain solids that pass through the operation. TSS is most likely present in sumps and floor drains, where they may accumulate. Cooling water intakes have strainers which help to remove most sediment. TSS was not detected in any effluent samples at the Grand Coulee Dam.

The BMP Plan requires facilities to clean intake screens and racks to reduce sediment in the influent. The EPA has determined that TSS limits and monitoring are not needed for TSS because TSS was not detected and because of permit requirements that will minimize sediment intake from influent to maintain low TSS.

***Temperature***

The Washington water quality standards for temperature where Grand Coulee Dam discharges in the Columbia River is 17.5°C (WAC 183-201A-602.) The federally promulgated water quality standards for Colville Tribes is 18°C (40 CFR 131.35(f)(ii)(2)(D)). The tribally promulgated water quality standards for Colville Tribes is 16°C (Colville Tribal Law and Order Code, 4-8-6(a)(3)(F)). Cooling water receives heat from equipment that is being cooled, and through this exchange, heat is added to cooling water from hydroelectric generating facilities. Heat from cooling water may also be present in drainage sumps that receive cooling water, though temperature effects are likely to be minimal given the amount of cooling water compared to drainage water.

Temperatures ranged from 11-18°C at the Grand Coulee Dam. As previously explained, the Columbia River is impaired for temperature, and the EPA is conducting studies to develop a temperature TMDL. Temperature data are limited for cooling water discharges. However, at the Grand Coulee Dam, the pass through water in spills over the dam is generally a much higher volume and may have much warmer temperatures during hot periods, which have the greatest effect on temperatures. The pass through water, however, does not require an NPDES permit. As a result, the EPA is proposing a continuous monitoring requirement for any discharges with cooling water and monthly monitoring for a subset of outfalls where similar discharges already have continuous monitoring. The EPA is also proposing continuous influent monitoring on cooling water for main units with continuous effluent monitoring. This requirement is to assess the heat that may be added to cooling water with greater than 1 MGD design flows. The EPA believes this additional information is necessary to inform the next permit renewal cycle on whether temperature limits should be included.

**Table 7. Proposed Water Quality Based Effluent Limitations**

| Parameter | Units | Effluent Limits | Designated Uses in Washington WQS and Colville Tribes WQS Linked to Specific Water Quality Criteria Used as Basis for Limits |
|---|---|---|---|
| pH | standard units | Not less than 6.5 or greater than 8.5 standard units (s.u.) | Aquatic Life |
| Oil and Grease | mg/L | 5 (daily maximum) | Aquatic Life, Aesthetic Enjoyment, Primary Contact Recreation |

E. **Minimum Levels**

All water samples must be analyzed using EPA approved analytical methods, and must be analyzed using a sufficiently sensitive method that can achieve a minimum level listed in Table 8.

**Table 8. Minimum Levels Applicable in the Grand Coulee Dam**

| Parameter | ML/Interim ML |
|---|---|
| COD | 10 mg/L |
| pH | N/A |
| Temperature | 0.2°C |
| Oil and Grease | 5 mg/L |

F. **Anti-degradation and Clean Water Act Section 401 Certification**

The WQS contain an anti-degradation policy providing three levels of protection to water bodies in Washington (WAC 173-201A-300).

Tier 1 Protection. The first level of protection applies to all water bodies subject to Clean Water Act jurisdiction and ensures that existing and designated uses of a water body must be maintained and protected (WAC 173-201A-310).

Tier 2 Protection. The second level of protection applies to those water bodies considered high quality and ensures that no lowering of water quality will be allowed unless deemed necessary to accommodate important economic or social development (WAC 173-201A-320).

Tier 3 Protection. The third level of protection applies to water bodies that have been designated outstanding resource waters (ORWs) and requires that activities not cause a lowering of water quality (WAC 173-201A-330).

The federally promulgated standards for the Colville Tribes at 40 CFR 131.35(e)(2) also establishes three tiers of waters, similar to Washington's, which must be protected.

- Existing in-stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

- Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation … that quality shall be maintained and protected unless the Regional Administrator finds, after full satisfaction of the inter-governmental coordination and public participation provisions of the Tribes' continuing planning process, that allowing lower water

quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the Regional Administrator shall assure water quality adequate to protect existing uses fully. Further, the Regional Administrator shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

- Where high quality waters are identified as constituting an outstanding national or reservation resource, such as waters within areas designated as unique water quality management areas and waters otherwise of exceptional recreational or ecological significance, and are designated as special resource waters, that water quality shall be maintained and protected.

- Where water quality impairment associated with thermal discharge is involved, the antidegradation policy's method shall be consistent with section 316 of the Clean Water Act.

The Colville Tribal Law and Order Code at 4-8-5(g) includes, among other parts of their antidegradation policy that:

- Existing beneficial uses shall be maintained and protected and no further degradation which would interfere with or become injurious to existing beneficial uses shall be allowed.

- No further degradation of any surface or ground water lying within areas designated as unique water quality management areas shall be allowed.

- Whenever surface or ground water are in fact of a higher quality than provided for by applicable Water Quality Standards, the existing higher water quality shall be protected. Wastes, other materials, and substances which may reduce the existing quality of such surface or ground waters shall not be allowed to enter such waters. Except that the Department may allow such wastes, other materials, and substances to be placed in such waters in those instances where: (a) It is clear that overriding considerations of the public interest will be served thereby, and (B) All wastes and other materials and substances proposed for discharge into the said waters shall have first been subject to all known, available, and reasonable methods of treatment prior to such discharge.

The EPA is required under Section 301(b)(1)(C) of the Clean Water Act (CWA) and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure compliance with state and tribal water quality standards. A facility must meet antidegradation requirements to ensure that all existing and designated uses are maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in Chapter 173-201A WAC.

The effluent limits in the proposed draft permit contain limits for oil and grease and pH. The draft permit also prohibits discharges of toxic substances, including PCBs, in toxic amounts that may cause or contribute to an impairment of designated uses in violation of the State of Washington water quality standards. The draft permit requires additional monitoring for flow and temperature in the effluent.

The effluent limitations and monitoring requirements contained in the draft permit ensure compliance with the narrative and numeric criteria in the water quality standards. Therefore, it was

determined that the permit will protect and maintain existing and designated beneficial uses in compliance with the Tier I provisions for all pollutants.

**Insert language after receiving 401 cert. Potential language below.**

*[The EPA has reviewed Colville Tribes' and Washington's anti-degradation analysis in the 401 certification and finds that it is consistent with anti-degradation implementation procedures. Comments on the 401 certification, including the anti-degradation analysis, can be submitted to the Colville Tribes and Washington Department of Ecology as set forth above (see the Certification Section at the beginning of this document). See Appendix A for the State's draft 401 water quality certification.]*

### G. Anti-backsliding

Section 402(o)(2) of the Clean Water Act and federal regulations at 40 CFR 122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. This is a new permit; therefore, backsliding is not an issue.

## V. Monitoring and Reporting Requirements

### A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA, 33 USC § 1318, and 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

The permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to the EPA. The permittee must analyze water samples using sufficiently sensitive EPA-approved analytical methods.

### B. Monitoring Locations

Discharges authorized by this permit must be monitored at each outfall identified in the permit. All facilities are required to monitor for applicable parameters and pollutants at the last point in the treatment train before the treated effluent leaves the facility for compliance with the permit limitations described in Section IV of this fact sheet.

### C. Monitoring Frequencies

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. The permittee has the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

The measurement frequency is established for flow, oil and grease, and pH at once per month. This frequency for these discharges is to provide representative data on the monthly variability of each parameter.

The monitoring frequency for temperature for cooling water influent and effluent is hourly using a continuous monitoring probe or once per month for discharges that are similar to other discharges with continuous monitoring. For example, a subset of cooling water discharges from main units require continuous temperature monitoring, while the remaining discharges require a monthly grab sample for temperature. The EPA has determined this to be an appropriate way for representative

samples for temperature to be collected where the influent and operations are the same. Where wastestreams are different, the permit requires continuous temperature monitoring. Continuous monitoring captures variability of water temperature.

### D. Submission of Discharge Monitoring Reports

The draft permit requires that the permittee submit DMR data electronically using NetDMR. NetDMR is a national web-based tool that allows DMR data to be submitted electronically via a secure Internet application.

The EPA currently conducts free training on the use of NetDMR. Further information about NetDMR, including upcoming trainings and contacts, is provided on the following website: https://netdmr.epa.gov. The permittee may use NetDMR after requesting and receiving permission from EPA Region 10.

## VI. Special Conditions

### A. Quality Assurance Plan (QAP)

40 CFR 122.41(e) requires the permittee to develop a QAP to ensure that the monitoring data submitted are accurate and to explain data anomalies if they occur. The draft permit proposes that hydroelectric generating facilities complete and implement a QAP within 180 days of their authorization to discharge from the EPA.

The permittee is required to follow specific sampling procedures [i.e., the EPA approved quality assurance, quality control, and chain-of-custody procedures described in Requirements for Quality Assurance Project Plans (EPA/QA/R-5)]; and Guidance for Quality Assurance Project Plans (EPA/QA/G-5) throughout all sample collection and analysis activities to ensure that quality data are collected.

The QAP must consist of standard operating procedures that the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. It must be available on-site for inspection at the request of the EPA.

40 CFR §122.41(e) requires the permittee to properly operate and maintain their facilities, including "adequate laboratory controls and appropriate quality assurance procedures." To implement this requirement, the draft permit requires that the permittee develop or update a QAP that ensures that the monitoring data submitted to the EPA is complete, accurate, and representative of the environmental or effluent conditions.

### B. Best Management Practices (BMP) Plan

Pursuant to Section 402(a)(1) of the Clean Water Act, development and implementation of a BMP Plan may be included as a condition in NPDES permits. Section 402(a)(1) authorizes the EPA to include miscellaneous requirements in permits on a case-by-case basis, which are deemed necessary to carry out the provisions of the Act. BMPs, in addition to effluent limitations, are required to control or abate the discharge of pollutants in accordance with 40 CFR 122.44(k). The BMP Plan requirement has also been incorporated into the permit in accordance with EPA BMP guidance (EPA, 1993).

The permit requires the development and implementation of a site-specific BMP Plan, which prevents or minimizes the generation and potential release of pollutants from the facility to the waters of the United States through BMPs. This includes, but is not limited to, oil accountability tracking; site-specific measures to prevent the escape of grease and heavy oils used for lubrication and hydraulics; identification of site-specific vulnerabilities, ways to address these vulnerabilities,

and contingency planning for potential oil releases from these vulnerabilities; and measures to reduce the need for lubricants for all facility equipment that come in contact with river water.

The BMP Plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of discharges associated with day-to-day work activity at the facility from equipment and floor drain-related water, maintenance-related water (collectively referred to as the "internal facility drainage water"), and any other facility-related water. The BMP Plan shall describe and ensure the implementation of practices which are to be used to eliminate or reduce the pollutants in internal facility drainage water discharges and facility-related water associated with operations at the facility and to assure compliance with the terms and conditions of this permit. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990 (42 U.S.C. § 13101).

The permittee must develop a BMP Plan within 180 days of the effective date of the permit and certify to the EPA, Colville Tribes, and Ecology in writing, the development and implementation of the BMP Plan. The certification must be signed in accordance with the Signatory Requirements in the permit. The permit also requires a BMP Annual Review that describes the implementation of the BMP Plan. The Annual Review must also be certified and signed in accordance with the Signatory Requirements. The BMP Plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants.

### C. Use of EALs

Pursuant to Section 402(a)(1) of the Clean Water Act, development and implementation of an EAL Annual Report may be included as a condition in NPDES permits. Section 402(a)(1) authorizes the EPA to include miscellaneous requirements in permits on a case-by-case basis, which are deemed necessary to carry out the provisions of the Act. EALs, in addition to effluent limitations, are required to control or abate the discharge of pollutants in accordance with 40 CFR 122.44(k).

The permit requires the use of EALs for all equipment with oil to water grease interfaces, unless technically infeasible. The permit defines technically infeasible for EALs as follows: no EAL products are approved for use in a given application that meet manufacturer specifications for that equipment; products which come pre-lubricated (e.g., wire ropes) and have no available alternatives manufactured with EALs; or products meeting a manufacturer's specifications are not available. The permittee must also develop an EAL Annual Report, which will require an evaluation of equipment that are candidates for EAL use, whether EALs are technically feasible, and a timeline for which EALs will be implemented. It also requires the report to be updated annually.

Wicket gates, in-line equipment, lubricated wire ropes, and Kaplan runners all use lubricants which may come into contact with water. This may result in release of lubricants into water. Currently, oil and grease are the primary lubricants used for equipment. However, EALs are an alternative lubricant that are biodegradable and less harmful to aquatic life species. EALs also offer a reasonable alternative to longer-term, but costly solutions such as oilless turbines. EALs prevent or minimize the generation and potential release of pollutants from the facility to the waters of the United States.

The USACE has completed several reports evaluating EALs, comparing cost and feasibility with oil and grease lubricants, or mineral oils. An August 2015 study conducted by the USACE by Medina found that while EALs may be more costly in the short-term compared to mineral oils, EALs may last longer and need to be applied less. In addition, some EALs may be more effective than conventional mineral oil-based lubricants. Therefore, EALs in the long-term may be more cost effective. However, there are still some cases where EALs or other equivalent alternatives may be

technically infeasible or are unknown. The information from the EAL Annual Report will help to inform the next permit cycle on the feasibility of using EALs to address potential releases from oil and grease lubricants.

### D. Cooling Water Intake Structure (CWIS)

Section 316(b) of the CWA, 33 USC § 1316(b), requires that facilities with CWIS ensure that the location, design, construction, and capacity of the structure reflect the best technology available (BTA) to minimize adverse impacts on the environment. The rule establishes BTA standards to reduce impingement and entrainment of aquatic organisms at existing power generating and manufacturing facilities. Impingement occurs when fish or shellfish become entrapped on the outer part of intake screens and entrainment occurs when fish or shellfish pass through the screens and into the cooling water system.

On August 15, 2014, the EPA promulgated regulations (40 CFR 125.90) to implement CWA Section 316(b) at existing facilities with CWIS with a design intake flow greater than 2 MGD and that use at least 25% of the withdrawn water for cooling purposes. These regulations establish requirements for minimizing adverse environmental impacts associated with CWIS and procedures, including permit application requirements, for establishing the appropriate technology requirements. Together these requirements represent BTA for minimizing adverse environmental impacts associated with the use of CWIS. If a facility with a CWIS falls below the thresholds set forth in 40 CFR 125.90, then BTA is established on a case-by-case basis using best professional judgment.

At the Grand Coulee Dam, the total amount of cooling water taken in is more than 2 MGD and more than 25% of the withdrawn water is used for cooling purposes. The cooling water intakes for the Grand Coulee Dam are the points where water is diverted for cooling water purposes. For example, where cooling water is drawn off the scroll case, the intake is the point where the water is diverted from the scroll case. The cooling water intake is *not* the gravity intake where water from the river is taken in for hydroelectric purposes. That intake is for pass through water for hydroelectric purposes, which do not require an NPDES permit (*See National Wildlife Federation v. Consumers Power Company*, 862 F.2d 580 (6th Cir. 1988); *National Wildlife Federation v. Gorsuch,* 693 F.2d 156 (D.C. Cir. 1982). However, at the point that water is diverted for cooling water and pollutants are added, such as heat, those waters require an NPDES permit.

To evaluate the 2 MGD threshold for design intake flows, the EPA used the amount of cooling water discharged as a proxy for the amount of cooling water taken in. Table 9 provides the total amount of cooling water discharged if every unit were operating at its maximum flow rate and all of the discharge was cooling water. While Grand Coulee Dam is unlikely to discharge these high volumes at all times, the EPA assessed discharge flows that could occur to determine whether the 2 MGD threshold was met. The EPA did not include cooling water which might be present in drainage sumps and unwatering sumps, since this is likely to be small compared to leakage water.

The EPA then assessed whether the 25% threshold was met for water withdrawn for cooling water purposes. In the case of most cooling water inputs in hydroelectric generating facilities, the intake is at the location where water is extracted for cooling water from the scroll case or from where water is used for hydroelectric generating purposes. Thus, the percentage of water extracted at this location for cooling is nearly always 100%. Therefore, both thresholds are met. Table 9 summarizes the results.

**Table 9. Summary of Maximum Daily Average Cooling Water Discharges from Lower Columbia River Hydroelectric Projects**

| | **Grand Coulee Dam** |
|---|---|
| **Cooling Water Discharges (MGD)** | 124 MGD |
| **Greater than 25% Water Used for Cooling Water** | Yes |

Since the 2014 Rule applies to the Grand Coulee Dam, the permittee is required to meet 1 of 7 best technologies available (BTA) to minimize impingement mortality at 125.94(c) and to minimize adverse effects from entrainment at 125.94(f).

The EPA has selected systems of technologies under 125.94(c)(6) for the BTA for impingement mortality and entrainment requirements. Intakes for hydroelectric generating water (which lead to cooling water intakes) may not be at a depth or angle attractive for fish. The EPA is aware that Grand Coulee Dam is collecting information to evaluate whether fish may be impinged on strainers at the cooling water intakes off scroll cases.

125.94(b)(1) and 125.94(b)(2) require that the permittee comply with the impingement mortality standard in 125.94(c) and the entrainment requirements under 125.94(d) as soon as practicable. The Director may also establish interim compliance milestones and schedule of requirements to meet the impingement and entrainment requirements.

Therefore, the EPA is requiring a two-phase compliance schedule. In year one, Grand Coulee Dam must complete a CWIS Evaluation Report that describes the locations of the cooling water intake structures, an evaluation of strainers and fish presence, and how and whether fish are being impinged and entrained on CWIS. The CWIS Evaluation Report must also evaluate if there are other operations or technologies to minimize fish impingement. The purpose of allowing one year for the CWIS Evaluation Report is to provide time for Grand Coulee Dam to collect information on fish presence and impacts from CWIS on fish over different seasons. In year two, the permittee must determine whether other technologies should be implemented to optimize the systems of technology BTA for impingement mortality and entrainment requirements at 125.94(d). The permittee must include this information in a BTA Optimization Report. The permittee must comply with any underlying requirements of that technology in 125.94(c). The CWIS Evaluation and CWIS Optimization Report comprise the impingement technology performance optimization study at 122.21(r)(6)(ii) required for the system of technologies BTA. If at the end of the second year, the BTA are implemented and optimized, the compliance schedule ends. The facility must then submit 316(b) Annual Reports each year that describe the status of the technologies selected and any fish studies completed showing the effectiveness of the technology.

If the technology selected in the CWIS Technology Report has not been implemented, then in year 3, the permittee must obtain funding for installing the CWIS technology. In year 4, the permittee must go out for bid on a contract. In year 5, the permittee must complete construction of any additional CWIS technology needed to optimize operations. The permittee must still submit 316(b) Annual Reports each year starting at the end of the third year even if optimization technologies are being installed in the second phase of the compliance schedule.

The EPA will use information from the compliance schedule tasks and 316(b) Annual Reports to inform the next permit cycle. Tables 10 and 11 include Compliance Schedules Part A and B. If the permittee must implement additional BTA, Part B comes into effect after two years of the effective date of the permit.

**Table 10. Tasks Required Under Compliance Schedule Part A for CWIS Requirements to Minimize Adverse Impacts from Impingement and Entrainment**

| Task No. | Due By | Task Activity |
|---|---|---|
| 1 | Within 1 year of the effective date of the permit | **CWIS Evaluation Report**<br>By one (1) year from the effective date of the final permit, the permittee must provide the EPA, Colville Tribes, and Ecology with a CWIS Evaluation Report including the locations of the cooling water intake structures, an evaluation of strainers and fish presence, information on current fish impingement and entrainment, and an evaluation of additional operations or technologies to minimize fish impingement and entrainment under 125.94(c).<br>Deliverable: The permittee must submit the report to the EPA, Colville Tribes, and Ecology. The permittee may submit the report as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ WA0026867_PartA_CWIS_Evaluation_CS010, where YYYY_MM_DD is the date that the permittee submits the written notification. |
| 2 | Within two years of the effective date of the permit | **BTA Optimization Report**<br>By two (2) years from the effective date of the final permit, the permittee must provide the EPA, Colville Tribes, and Ecology with a BTA Optimization Report. The report must describe whether other technologies should be implemented to optimize the systems of technology BTA for impingement mortality and entrainment requirements at 125.94(d).<br>Deliverable: The permittee must submit the report to the EPA, Colville Tribes, and Ecology. The permittee may submit the report as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ WA0026867_PartA_BTA_Optimization_CS010, where YYYY_MM_DD is the date that the permittee submits the written notification. |

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**Table 11. Tasks Required Under Compliance Schedule Part A for CWIS Requirements to Minimize Adverse Impacts from Impingement and Entrainment**

| Task No. | Due By | Task Activity |
|---|---|---|
| 3 | Within 3 years of the effective date of the permit | **Facility Funding Progress Report**<br>By three (3) years from the effective date of the final permit, the permittee must provide the EPA, Colville Tribes, and Ecology with a Facility Funding Progress Report. The report must include a progress report on funding for the installation of additional technologies to optimize the systems of technologies BTA. Copy of notice of bond approval or notice of judicial confirmation is acceptable.<br>Deliverable: The permittee must submit the report to EPA, Colville Tribes, and Ecology. The permittee may submit the report as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ WA0026867_PartB_Funding_90408, where YYYY_MM_DD is the date that the permittee submits the written notification. |
| 4 | Within 4 years of the effective date of the permit | **BTA Construction Bid Awarded**<br>By four (4) years from the effective date of the final permit, the permittee must provide EPA, Colville Tribes, and Ecology with written notice that bids for construction have been awarded to achieve the selected optimization technologies.<br>Deliverable: The permittee must submit the report to EPA, Colville Tribes, and Ecology. The permittee may submit the report as an electronic attachment to the DMR. The file name of the electronic attachment for facility design must be as follows: YYYY_MM_DD_ WA0026867_PartB_Construction_Bid_90408, where YYYY_MM_DD is the date that the permittee submits the written notification. |
| 5 | Within 5 years of the effective date of the permit | **Construction Complete**<br>By five (5) years after the effective date of the final permit, the permittee must provide EPA, Colville Tribes, and Ecology with written notice that construction on the portions of the facility required to achieve the selected optimization technologies has reached substantial completion.<br>Deliverable: The permittee must provide written notice to EPA Colville Tribes, and Ecology that construction is substantially complete. The permittee may submit the written notification as an electronic attachment to the DMR. The file name of the electronic attachment must be as follows: YYYY_MM_DD_ WA0026867_PartB_Construction_Complete_43699, where YYYY_MM_DD is the date that the permittee submits the written notification. |

40 CFR 125.98(f) also requires the EPA to describe how specific factors were considered in assessing the adequacy of BTA entrainment technology. These factors are: numbers and types of organisms, impact from changes in particulate emissions from technologies, land availability, remaining useful plant life, and quantified and qualified social benefits and costs. The EPA considered the effectiveness of the entrainment technology in protecting numbers and types of organisms most heavily in determining the BTA for entrainment. The BTA for entrainment rely heavily on preventing entrainment of organisms in the intake, which provides the most benefits for potentially affected organisms. There are no particulate emission considerations from the proposed BTA entrainment technologies. The EPA weighed land availability less because of the impracticability of significantly changing the cooling water intake from the scroll case, which would require significant construction in the internal hydroelectric generating operations. In addition, preventing fish from entering into the cooling water intake, the current entrainment BTA, is more effective in reducing harmful impacts to organisms. Similarly, the EPA weighed remaining useful plant life less, since the current entrainment BTA provides more benefits to organisms. The EPA

considered the entrainment BTA to have quantified and qualitative social benefits regarding protection of fish and the economic benefits to communities with fishing recreation.

## VII. Environmental Justice Considerations

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." The EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including the NPDES permit. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities. For more information, please visit http://www.epa.gov/compliance/ej/plan-ej/.

As a part of the permit development process, the EPA Region 10 conducted screening analyses to determine whether the permit actions could affect overburdened communities. The EPA used a nationally consistent geospatial tool that contains demographic and environmental data for which enhanced outreach may be warranted. As part of the screening process, it was determined that Grand Coulee Dam is near an overburdened community.

To ensure that individuals near the facility can participate meaningfully in the permit process, the EPA is conducting the following enhanced outreach activities **[Insert here]**.

Regardless of whether a facility is located near a potentially overburdened community, the EPA encourages permittees to review (and to consider adopting, where appropriate) "Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways to Engage Neighboring Communities" (see https://www.federalregister.gov/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the- permit-application-process#p-104. Examples of promising practices include thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, and other activities.

## VIII. Other Legal Requirements

### A. State Certification

Section 401 of the CWA, 33 USC §1341, requires the EPA to seek a certification from the state that the conditions of the permit are stringent enough to comply with Washington water quality standards, including the state antidegradation policy, before issuing the final permit. Federal regulations at 40 CFR §124.53 allows for the state to stipulate more stringent conditions in the permit, if the certification cites the CWA or state law upon which that condition is based.

The regulations require a certification to include statements of the extent to which each condition of the permit can be made less stringent without violating the requirements of state law.

The EPA previously requested that Colville Tribes and Ecology review the draft permit and provide a preliminary certification pursuant to 40 CFR 124.53. Colville Tribes and Ecology provided EPA with their draft CWA § 401 Certifications for the draft permit on October **Insert Date, 2018**. See Appendix A.

After the public comments have been evaluated and addressed, a preliminary final permit will be sent to the State to begin the final certification process. If the state authorizes different or additional conditions as part of the certification, the permit may be changed to reflect these conditions.

B. **Endangered Species Act [16 USC § 1531 et al.] [Will be updating species in this section]**
Section 7 of the Endangered Species Act (ESA) requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species. The EPA developed a Biological Evaluation (BE) [see Appendix C] to evaluate potential impacts to ESA species. The EPA believes that the proposed permit is ***not likely to adversely affect*** **[Insert species]**, and ***no effect*** for the remaining ESA species listed below. Table 20 lists the threatened or endangered species in the Lower Columbia River and the EPA's determinations.

**Table 12.** List of Threatened/Endangered Species near Grand Coulee Dam and EPA's Determination **[Insert updated species list, conclusions and determinations.]**

C. **Essential Fish Habitat**
Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH).

The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. The EPA has prepared an EFH assessment as part of the Biological Evaluation which appears in Appendix C.

The EPA has determined that issuance of this permit is not likely to adversely affect EFH within waters of Washington and Colville Tribes. The EPA has provided NOAA Fisheries with copies of the draft permit and fact sheet during the public notice period. Any comments received from NOAA Fisheries regarding EFH will be considered prior to reissuance of this permit.

D. **National Environmental Policy Act (NEPA) [42 USC § 4321 et.seq.]**
Regulations at 40 CFR 122.49, list the federal laws that may apply to the issuance of permits i.e., ESA, National Historic Preservation Act, the Coastal Zone Act Reauthorization Amendments (CZARA), NEPA, and Executive Orders, among others. The NEPA compliance program requires analysis of information regarding potential impacts, development and analysis of options to avoid or minimize impacts; and development and analysis of measures to mitigate adverse impacts.

Since Grand Coulee Dam is not a new source (i.e., they do not have any EPA-promulgated ELGs or new source performance standards (NSPS) specific to their operation), the EPA determined that no Environmental Assessments (EAs) or Environmental Impact Statements (EISs) are required under NEPA.

E. **Historic Preservation Act**
This permit will not authorize the construction of any water resources facility or the impoundment of any water body or have any effect on historical property.

F. **Paperwork Reduction Act [44 USC § 3501 et seq.]**
The information collection required by this permit has been approved by OMB under the provisions of the Paperwork Reduction Act, 44 U.S.C.3501 et seq., in submission made for the NPDES permit program and assigned OMB control numbers 2040-0086 (NPDES permit application) and 2040-0004 (discharge monitoring reports). Additionally, this proposed permit requires electronic reporting for discharge monitoring reports to reduce reporting time and paper mailing costs.

G. **Standard Permit Provisions**
Specific regulatory management requirements for NPDES permits are contained in 40 CFR 122.41. These conditions are included in the permit as standard regulatory language that must be included in all NPDES permits. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and other general requirements.

## REFERENCES

EPA. 1991. Technical Support Document for Water Quality-Based Toxics Control. U.S. Environmental Protection Agency, Office of Water, EPA/505/2-90-001, March 1991. http://www.epa.gov/npdes/pubs/owm0264.pdf

EPA. 2010. U.S. EPA NPDES Permit Writers' Manual. U.S. Environmental Protection Agency, Office of Water, EPA-833-K-10-001, September 2010. http://cfpub.epa.gov/npdes/writermanual.cfm?program_id=45

Washington Department of Ecology. 2013. Washington Water Quality Standards web site. http://adminrules.idaho.gov/rules/current/58/0102.pdf. Accessed July 18, 2018.

Colville Tribal Standards

[**Insert references.**]

DRAFT

## APPENDIX A. COLVILLE TRIBES AND WASHINGTON PRELIMINARY CWA SECTION 401 CERTIFICATIONS

## APPENDIX B. EPA, WASHINGTON AND TRIBAL OFFICE CONTACT INFORMATION

U.S. Environmental Protection Agency Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101
206/553-0523 or
1-800-424-4EPA (within Alaska, Idaho, Oregon and Washington)

## APPENDIX C: BIOLOGICAL EVALUATION

A copy of the Biological Evaluation will be available upon request or from EPA Region 10 Website at:

## APPENDIX D: SUMMARY OF WATER QUALITY DATA