Fact Sheet for NPDES Permit WA0991028

Wanapum Dam

October 5, 2021

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Wanapum Dam.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Wanapum Dam, NPDES permit WA0991028, are available for public review and comment from December 8, 2020 until January 8, 2021. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement** Information.

Public Utility District No. 2 of Grant County (Grant PUD) reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as **Appendix E** - **Response to Comments**, and publish it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

Summary

Construction of Wanapum Dam, located on the Columbia River at river mile 415.8 near Beverly, WA, was completed in 1964. It is owned and operated by Grant County PUD. The facility discharges sump water and noncontact cooling water (point sources) to the Columbia River as part of its daily operations. The permit does not regulate non-point sources of pollution.

The permit sets effluent limits for oil and grease, pH and temperature (heat load). The permit requires compliance with EPA's August 13, 2021, Temperature TMDL for the Columbia and Lower Snake Rivers. The permit requires the use of Environmentally Acceptable Lubricants (EALs) unless technically infeasible.

Ecology lists the Columbia River as impaired for high temperatures, as required by the Clean Water Act Section 303(d). When water quality is impaired, TMDLs are required by Section 303(d) of the Clean Water Act (CWA) and its implementing regulations at Title 40 of the Code of Federal Regulations (CFR) Section 130.7. The EPA's August 13, 2021,

Temperature TMDL for the Columbia and Lower Snake Rivers. proposes Waste Load Allocation (WLA) for the process water discharged from the facility.

Hydroelectric generating water may be exposed to turbine oil and other oil and grease used to operate and lubricate turbines, wicket gates, lubricated wire rope, and other related equipment. Added pollutants have potential to discharge to the tailrace.

Additionally, the dam is part of the Priest Rapids Hydroelectric Project, and is subject to Federal Energy Regulatory Commission (FERC) License No. P-2114. Non-point sources of pollution are addressed under this license.

The dam's operations are also subject to the following requirements:

- The Biological Opinion (BiOp) issued by the National Marine Fisheries Service (NMFS, NMFS 2008).
- The BiOp issued by the United States Fish and Wildlife (USFWS) regarding the effect of the Project on bull trout (USFWS 2007).
- The Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) issued by the Washington State Department of Ecology (WDOE 2007). The WQC was amended on March 6, 2008.
- The Priest Rapids Hydroelectric Project (P-2114) 2019-2023 (5-Year) Total Dissolved Gas Abatement Plan.

Grant PUD operates the Project through agreements with fishery agencies, tribal representatives, and other operators to provide protection and improvement for a range of fisheries and other natural resources, both upstream and downstream. These agreements include the Hanford Reach Fall Chinook Protection Program Agreement (Grant PUD 2004) and the Priest Rapids Project Salmon and Steelhead Settlement Agreement (SSSA; Grant PUD 2006).

The facility’s 401 WQC document addresses non-point sources of pollution and includes designated uses (aquatic life, recreation, wildlife habitat, harvest, aesthetics, commerce and navigation), numeric criteria (TDG, pH, DO, temperature), antidegradation policies, and Water Quality Attainment Plan. Ecology, by issuing the 401 WQC, determined that the facility meets the Best Technology Available standards set forth 40 CFR 125.94.

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I. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC)
- Water quality criteria for ground waters (chapter 173-200 WAC)
- Whole effluent toxicity testing and limits (chapter 173-205 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

II. Background Information

Table 1 - Facility Information

Applicant	Grant County PUD
Facility Name and Address	Wanapum Dam 14353 HWY 243 S Beverly, WA 99321
Contact at Facility	Ross Hendrick (509)-793-1468
Responsible Official	Ross Hendrick Senior Manager of Environmental Affairs PO Box 878, Ephrata, WA 98823 (509)-793-1468 rhendr1@gcpud.org
Industry Type	Hydroelectric Power Generation
Type of Treatment	None
SIC Codes	4911
NAIC Codes	2211
Facility Location (NAD83/WGS84 reference datum)	Latitude: 46.875000 Longitude: -119.970979
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Columbia River W001-46.87680556, -119.97055556 W002-46.87658333, -119.97055556 W003-46.87638889, -119.97083333 W004-46.87613889, -119.97055556 W005-46.87586111, -119.97055556 W006-46.87561111, -119.97055556 W007-46.87533333, -119.97055556 W008-46.87522222, -119.97055556 W009-46.87488889, -119.97055556 W010-46.87461111, -119.97055556 W011-46.87436111, -119.97055556 W012-46.87086111, -119.97361111

Cooling Water Intake Structures	W002-46.87658333, -119.97111111 W003-46.87633333, -119.97111111 W004-46.87608611, -119.97111111 W005-46.87583611, -119.97111111 W006-46.87559167, -119.97111111 W007-46.87536666, -119.97111111 W008-46.87509722, -119.97111111 W009-46.87485278, -119.97111111 W010-46.87460278, -119.97111111 W011-46.87436667, -119.97111111

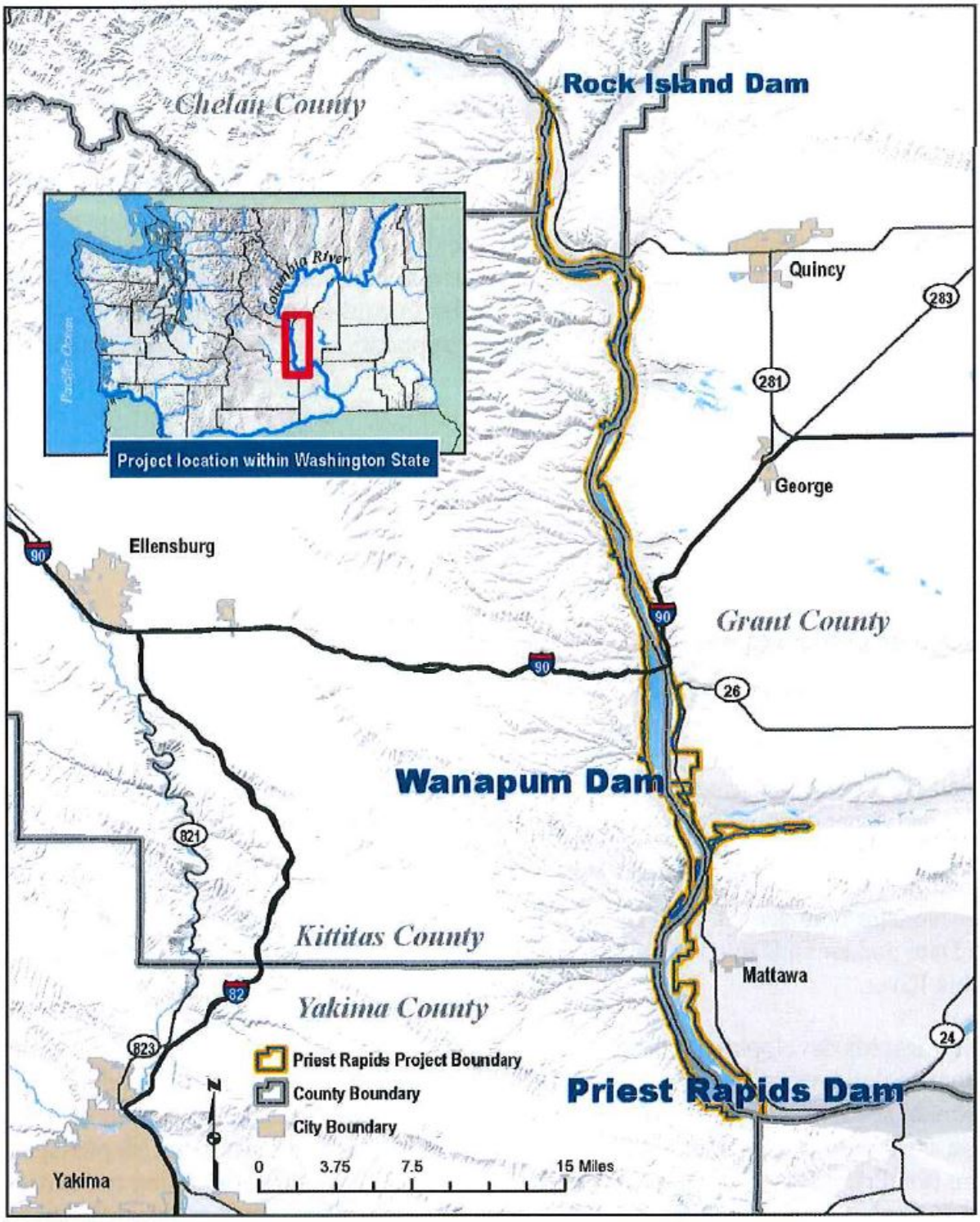
Table 2 - Permit Status

Date of Ecology Acceptance of Application	10/16/2019

Table 3- Inspection Status

Date of Last Non-sampling Inspection Date	Site Visit -03/26/2019

Figure 1 - Facility Location Map



A. Facility description

History

Construction of Wanapum Dam began in 1959 with beneficial operation in 1963. The initial license expired in 2005. In 2008, the FERC issued a new 44-year license for continued operation of the Project. The new license was conditioned upon programs to modernize the power generation capability of the dam, protect and enhance fish, wildlife, and water quality resources, project and preserve cultural resources, maintain and enhance shoreline and recreation sites, and protect, preserve and perpetuate the Wanapum relationship.

Wanapum Dam is located on the Columbia River downstream (south) from Vantage, Washington where Interstate 90 crosses the Columbia from Grant County into Kittitas County.

The dam was named Wanapum in honor of the band of Native Americans who live along a stretch of the Columbia River from Vantage south toward Pasco, WA. The rated capacity is 1,226 megawatts and annually generates over 4 million megawatt-hours.

Cooling Water Intakes

CWA § 316(b) requires the location, design, construction, and capacity of cooling water intake structures (CWIS) to reflect the best technology available for minimizing adverse environmental impact. Since July 2013, Ecology has required all applicants using a CWIS to submit a supplemental application (EPA Form 2-C).

Wanapum Dam has ten hydroelectric generators requiring non-contact cooling water for operation. There are ten Alstom Generators having a total design intake flow (DIF) based on the nameplate nominal cooling water flowrate of 1,000 gallons per minute (gpm). Total Design Intake Flow (DIF) from the application is 17,827,200 gallons per day of NCCW.

The CWIS's are located approximate to each hydroelectric generator, with each intake located in the forebay and discharges to the tailrace. The cooling water is gravity-fed. The CWIS's represent Best Technology Available (BTA) for through-screen velocity. The maximum design velocities of the Wanapum Dam CWIS are 0.5 feet per second and the actual velocities are below 0.5 feet per second.

Impingement and entrainment concerns for this facility are fully addressed by the FERC License issued for the Priest Rapids Hydroelectric Project, which includes the 401 WQC and Biological Opinion. The Project is subject to a No-Net Impact (NNI) requirement. NNI is the condition whereby the facility operation does not produce unmitigated project related mortality of a covered species.

Wanapum Dam was designed and constructed, and is now being operated, in a manner that meets or exceeds the statutory requirement of using "the best technology available for minimizing adverse environmental impact." the design and operation of the CWIS meet the requirement of CWA Section 316(b) to minimize adverse environmental impacts.

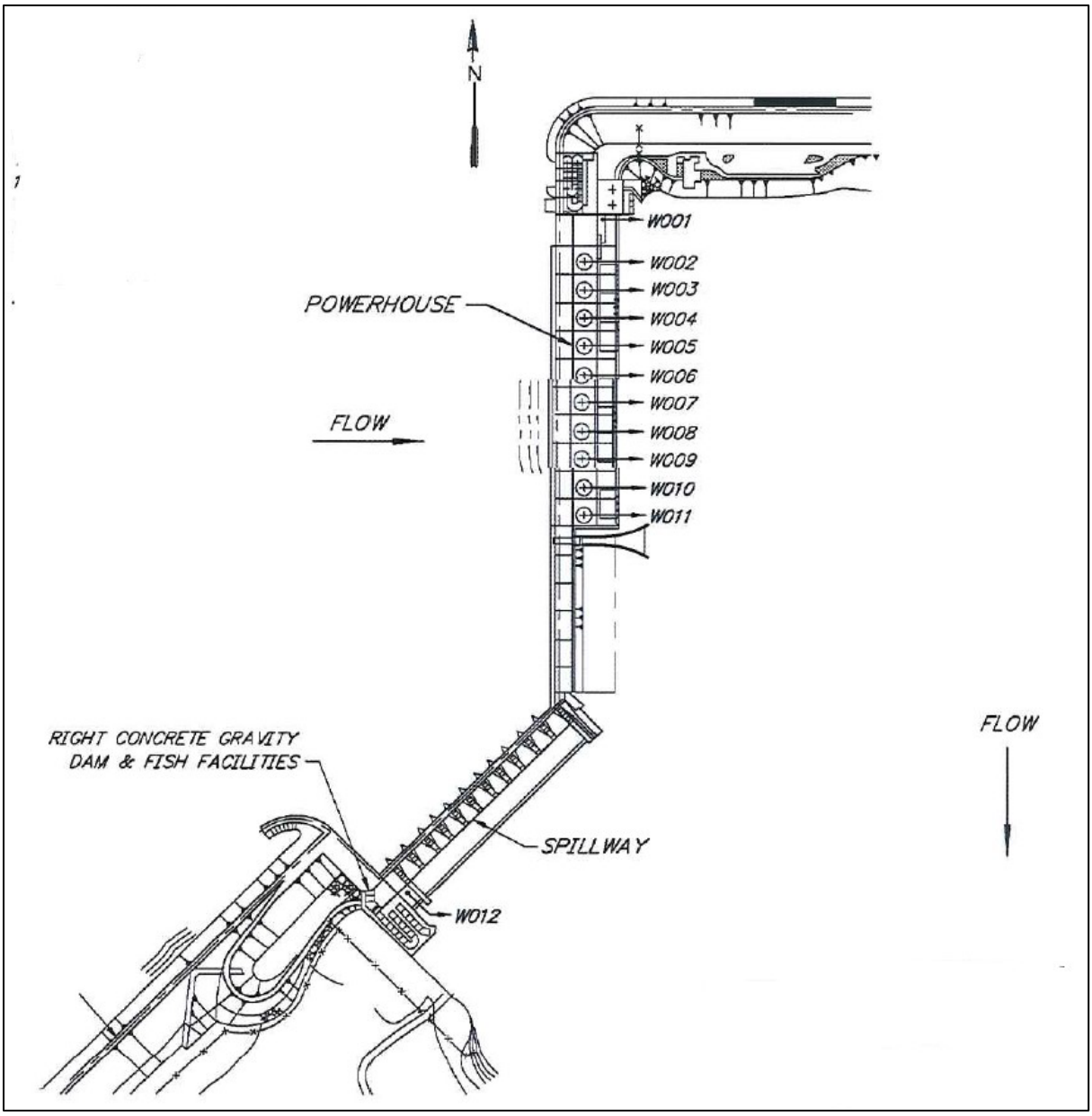
Industrial Processes

Grant PUD is seeking coverage under a NPDES Permit addressing potential discharges of pollutants at Wanapum Dam. Machinery, drainage sumps, unwatering sumps, drains, turbines, wicket gate bearings, lubricant contact points, and discharges of cooling water systems are potential point sources of pollution.

Wanapum Dam is 8,637-foot-long by 186.5-foot-high concrete structure, spanning the Columbia River. The dam consists of left and right embankment sections; left and right concrete gravity dam sections; a left and right fish passage structure, each with an upstream fish ladder; a gated spillway; a downstream fish passage structure; and a powerhouse containing ten vertical shaft integrated Kaplan turbine/generator sets with a total authorized installed capacity of 1226 MW. The dam forms a 14,680-acre reservoir.

Figure 2 - Wanapum Dam Aerial

Figure 3 - Outfall Locations: W001 - W012



Wastewater Treatment processes

The facility does not treat wastewater. Wastewater handling appurtenances are described as follows:

The facility has a Left Bank Sump (W001) and Right Bank Sump (W012).

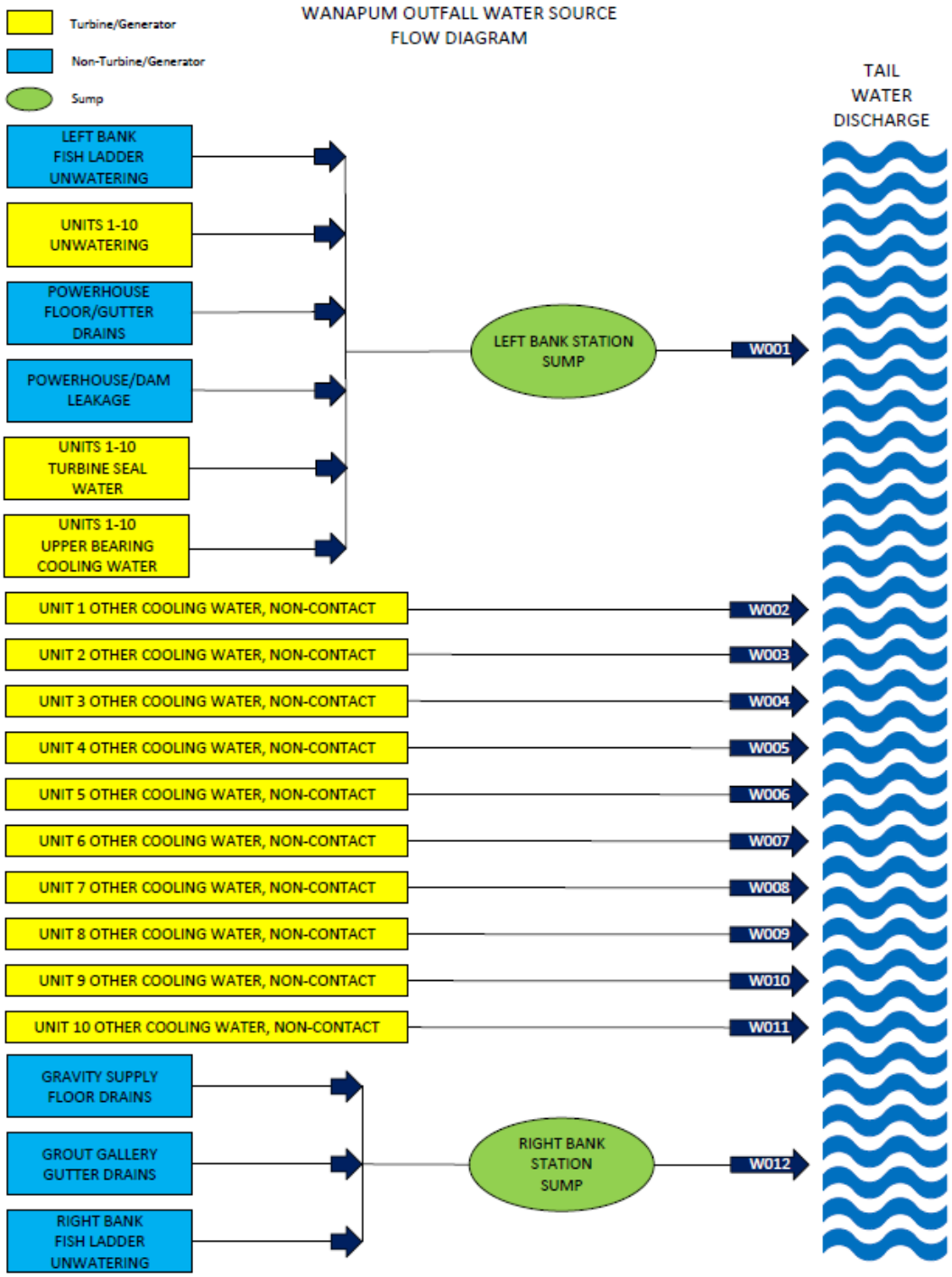
The Left Bank Sump receives water from Left Bank Fish Ladder unwatering, Unit 1-10 unwatering, Powerhouse Floor/Gutter drains, Powerhouse/Dam leakage, Units 1-10 Turbine Seal Water, and Units 1-10 Upper Guide Bearing Cooling Water. The sump has a maximum capacity of 151,593 gallons, discharges intermittently 44 feet above the river bottom, and parallel to the bank. The sump has oil detection equipment that alarms at 10 parts per million (ppm). If the alarm sounds, the sump goes into Oil Mode. This raises the pump setpoints to a much higher level so any oil or grease, which would float at the top of the sump, are not pumped to the tailrace. The facility will deploy oil control and countermeasures in accordance with established SPCC procedures when oil is detected in the sump.

The Right Bank Sump receives Gravity Supply Floor Drains, Grout Gallery Gutter Drains, and Right Bank Fish Ladder unwatering. See Figure #3. This sump does not have an alarm, as there is no oil containing equipment. It discharges intermittently eleven feet above river bottom, flush to the dam, and parallel to the bank. Biosolids do not accumulate in either sump.

Discharge outfalls

The facility discharge consists of the Left Bank Sump (W001), Right Bank Sump (W012), and NCCW (W002-W011). Outfall W001 is located in the tailrace. It discharges flush to the dam and parallel to the bank 44 feet above river bottom. Outfall W012 is located in the tailrace. It discharges flush to the dam and parallel to the bank 11 feet above river bottom. The discharge of the NCCW (W002-W011) occurs approximate to the location of each generator along the tailrace. See Figure #4 below for a schematic of the outfalls.

Figure 4 - Water Source Diagram



Solid wastes

This facility generates solid waste from the debris removal in the spillway and forebay, and spill cleanup/recovery materials. The permit will require an accounting of these solid wastes disposed from the site.

B. Description of the receiving water

Wanapum Dam discharges to the Columbia River at river mile 415.8 near Beverly, WA. Under the existing 401 Certification, the facility monitors river water for Total Dissolved Gas (TDG), Temperature, Dissolved Oxygen (DO), and pH, at two Fixed Site Monitoring Stations (FSMS). Grant PUD also monitors turbidity, water depth, and barometric pressure as part of its Ecology-approved QAPP.

The Forebay FSMS is located near Turbine Unit 10 and is affixed to the catwalk about mid-channel. The Tailrace FSMS is located about 3.2 miles downstream and is attached to the downstream side of Beverly Bridge.

Table 4 - 401 WQ Monitoring

Parameter	Location	Metric
Total Dissolved Gas	Forebay and Tailrace	Mm Hg; converted to % SAT
Water Temperature	Forebay and Tailrace	Degrees C
Turbidity	Forebay and Tailrace	Nephelometric turbidity unit (NTU)
pH	Forebay and Tailrace	Standard units 6.5-8.5
Dissolved Oxygen	Forebay and Tailrace	mg/L

The ambient background data reviewed in the development of this permit includes the following from the facility Fixed Site Monitoring Program Water Quality Report 2018 (Keeler; 03/2019). Considering the temporal and spatial variation of temperature in the impounded (forebay) and free-flowing (tailrace) river, FSMS data from the tailrace was used as representative of ambient background data. River flow data is taken from streamflow USGS gauge #12472800 located 2.6 river miles downstream of Priest Rapids Dam. Monitoring methods and quality assurance/ quality control (QA/QC) procedures follow methods outlined in the Quality Assurance Project Plan for Monitoring Selected Water Quality Parameters within the Priest Rapids Hydroelectric Project (QAPP 2018).

Table 5 - Ambient Background Data – Columbia River 2018

Parameter	Value Used
Flow (7Q10 Low Flow)[a]	47,787 cfs
Temperature (highest annual 1-DMax)	20.8 °C
Temperature (highest annual 7-DADMax)	20.3 °C
pH (Maximum / Minimum)	8.2/ 7.8 standard units
Dissolved Oxygen (Maximum)	12.4 mg/L
Turbidity (Maximum)	4.8 NTU
Total Dissolved Gas[b] (non-fish spill) (Maximum)	125.3 % Saturation
Total Dissolved Gas (fish spill) (Maximum)	142.7 % Saturation
[a] Lowest 7-day average flow that occurs (on average) once every 10 years. https://water-quality.shinyapps.io/D-Flow-Update/ Additional information in Appendix D.	
[b] Section 5.0(b) of the 401 WQC and WAC 73-201A-200(f)(i) provide that the TDG standard for Wanapum dam shall be waived if flows exceed the 7Q10 Flood Flow (highest seven consecutive day average flow with a ten-year recurrence frequency), calculated to be 264,000 cubic feet per second (170,628 mgd).	

C. Wastewater characterization

Wanapum Dam reported the concentration of pollutants in the discharge in the permit application. Characterization of the discharge is limited to data reported in the permit application.

NCCW outfalls W002-W010 are observed by Ecology to be substantively similar. Wastewater characterization data in Table 9 is considered representative of all NCCW at this time. The wastewater effluent is characterized as follows:

Table 6 - Wastewater Characterization Left Bank Sump W001

Parameter	Units	Value
Flow	GPM	800
Temperature (Intake)	Degrees C	11.2
Temperature	Degrees C	12.7
pH	standard units	7.16

Parameter	Units	Value
Biochemical Oxygen Demand (BOD_5) (Intake)	mg/L	<2
Biochemical Oxygen Demand (BOD_5)	mg/L	2.0
Chemical Oxygen Demand (COD)	mg/L	<10
Total Organic Carbon (TOC) (Intake)	mg/L	1.7
Total Organic Carbon (TOC)	mg/L	15
Total Suspended Solids (TSS)	mg/L	<1
Ammonia	mg/L	0.062
Chlorine	mg/L	<0.1
Oil and Grease (Intake)	mg/L	3.9
Oil and Grease	mg/L	2.2
Surfactants	mg/L	0.029
Antimony	µg/L	<0.3
Arsenic	µg/L	0.584
Beryllium	µg/L	<0.05
Cadmium	µg/L	<0.05
Chromium	µg/L	0.45
Copper (Intake)	µg/L	0.69
Copper	µg/L	1.44
Lead	µg/L	0.139
Mercury	µg/L	<0.0005
Nickel	µg/L	0.46
Selenium	µg/L	0.40
Silver	µg/L	<0.1
Thallium	µg/L	<0.05
Zinc (Intake)	µg/L	3.59
Zinc	µg/L	5.56

Parameter	Units	Value
PCB-1242	µg/L	<0.48
PCB-1254	µg/L	<0.48
PCB-1221	µg/L	<0.48
PCB-1232	µg/L	<0.48
PCB-1248	µg/L	<0.48
PCB-1260	µg/L	<0.48
PCB-1016	µg/L	<0.48
Toxaphene	µg/L	<0.238
Dioxin	NA	Not detected at or above the reporting limit

Table 7 - Wastewater Characterization Right Bank Sump W012

Parameter	Units	Value
Flow	GPM	800
Temperature (Intake)	Degrees C	11.2
Temperature	Degrees C	12.5
pH	standard units	6.85
Biochemical Oxygen Demand (BOD_5) (Intake)	mg/L	<2
Biochemical Oxygen Demand (BOD_5)	mg/L	4.2
Chemical Oxygen Demand (COD)	mg/L	<10
Total Organic Carbon (TOC)	mg/L	0.99
Total Suspended Solids (TSS)	mg/L	2.0
Ammonia	mg/L	<0.02
Chlorine	mg/L	<0.1
Oil and Grease(Intake)	mg/L	3.9
Oil and Grease	mg/L	3.8

Parameter	Units	Value
Surfactants	mg/L	0.025
Antimony	µg/L	<0.3
Arsenic	µg/L	0.567
Beryllium	µg/L	<0.05
Cadmium	µg/L	<0.05
Chromium	µg/L	0.45
Copper	µg/L	0.79
Lead	µg/L	0.161
Mercury	µg/L	<0.0005
Nickel	µg/L	0.31
Selenium	µg/L	0.36
Silver	µg/L	<0.1
Thallium	µg/L	<0.05
Zinc (Intake)	µg/L	3.59
Zinc	µg/L	6.86
PCB-1242	µg/L	<0.48
PCB-1254	µg/L	<0.48
PCB-1221	µg/L	<0.48
PCB-1232	µg/L	<0.48
PCB-1248	µg/L	<0.48
PCB-1260	µg/L	<0.48
PCB-1016	µg/L	<0.48
Toxaphene	µg/L	<0.238
Dioxin	NA	Not detected at or above the reporting limit

Table 8 - Wastewater Characterization NCCW W010

Parameter	Units	Value
Flow	GPM	600
Temperature (Intake)	Degrees C	13.68
Temperature	Degrees C	18.13

III. Proposed Permit Limits

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the Federal Water Quality Criteria Applicable to Washington (40 CFR 131.45).
- Chapter 90.56 RCW Oil And Hazardous Substance Spill Prevention And Response
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology

modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Technology-based effluent limits

Effluent limitation guidelines have not yet been developed by the EPA for hydroelectric generating facility discharges. The facility does not treat wastewater.

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit.

B. Surface water quality-based effluent limits

Water Quality-Based Effluent Limits for Wanapum Dam include Oil and Grease, pH, Temperature and, Total Dissolved Gas.

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510).

Numerical criteria for the protection of aquatic life and recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical criteria for the protection of human health

In 1992, U.S. EPA published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State in its National Toxics Rule 40 CFR 131.36 (EPA, 1992). Ecology submitted a standards revision for 192 new human health criteria for 97 pollutants to EPA on August 1, 2016. In accordance with requirements of CWA section 303(c) (2) (B), EPA finalized 144 new and revised Washington specific human health criteria for priority pollutants, to apply to waters under Washington's jurisdiction. EPA approved 45 human health criteria as submitted by Washington. The EPA took no action on Ecology submitted criteria for

arsenic, dioxin, and thallium. The existing criteria for these three pollutants remain in effect and were included in 40 CFR 131.45, Revision of certain Federal Water quality criteria applicable to Washington.

These newly adopted criteria, located in WAC 173-201A-240, are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2016) and of all marine waters (WAC 173-201A-210, 2016) in the state of Washington.

Antidegradation

Description – The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2016) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I: ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions.

Tier II: ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.

Tier III: prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Facility Specific Requirements — This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Mixing zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones, the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a

specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [WAC 173-201A-400 (7)(a)(ii-iii)].

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling, Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's Permit Writer's Manual). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 4 means the effluent is 25% and the receiving water is 75% of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life *acute* criterion is based on the assumption that organisms are not exposed to that concentration for more than one hour and more often than one exposure in three years. Each aquatic life *chronic* criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two and four tenths (2.4) liters/day for drinking water (increased from two liters/day in the 2016 Water Quality Standards update).
- A one-in-one-million cancer risk for carcinogenic chemicals.

This permit does not authorize a mixing zone. The Permittee may submit a Mixing Zone Study, for Ecology's consideration, to evaluate whether or not a mixing zone is warranted for the discharge. If considering conducting and submitting a study the Permittee should discuss the applicable requirements with Ecology.

C. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

IV. Freshwater Aquatic Life Uses and Associated Criteria

Table 9 - Salmonid Spawning, Rearing, and Migration

Criteria	Value
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection. Higher saturation levels are allowed for dams on the Columbia and Snake rivers when spilling water to aid fish passage.
pH Criteria	The pH must measure 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 *recreational uses* for this receiving water are identified below.

Table 10 - Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL.

- The water supply uses are domestic, agricultural, industrial, and stock watering.
- The miscellaneous freshwater uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

A. Water quality impairments

The Columbia River, near and downstream from the Wanapum Dam, is listed on the current 303(d) for impairment. The river is impaired (Category 5) for the following parameters: temperature. 4,4'-DDD, 4,4'-DDE, and PCBs.

The Columbia River has a TMDL for Total Dissolved Gas, which is a Category 4a listing. A category 4a listing means an EPA-approved TMDL plan is in place and implemented.

Table 11 - Water Quality Impairments

Listing ID	Parameter	Medium	Category
40945	Temperature	Water	5
51661	4,4'-DDD	Tissue	5
51722	4,4'-DDE	Tissue	5
52658	Polychlorinated Biphenyls (PCBs)	Tissue	5
36391	Total Dissolved Gas	Water	4a

B. Total Maximum Daily Load (TMDL)

The Columbia River is on the State's current 303(d) list as impaired for temperature.

The Federal Clean Water Act specifies that when a water body is impaired, a Total Maximum Daily Load (TMDL) study must be conducted to restore the waterbody's function. A Total Maximum Daily Load specifies the maximum amount of a pollutant that a waterbody can receive and still meet applicable Water Quality Standards.

On August 13, 2021, the EPA issued the final Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load. The TMDL assigns a WLA (expressed as a heat load in kcal/day) to all point source discharges to the Columbia River, including this facility (3.38E+09 kcal/day). This heat load is included in the permit as a limit, applying facility-wide from the months June to October. The heat load for each outfall is calculated as the product of the monthly average temperature and average monthly flow, times a conversion factor of 3.78E+06 kcals/day/(°C x MGD). The facility-wide monthly average heat load is the summation of the average monthly heat load of all outfalls. Thus, for permit compliance, heat load is calculated as follows:

$$Facility\ Heat\ Load\ (\frac{\text{kcal}}{\text{day}}) = \sum Q_x * T_x * 3.78 * 10^6 \frac{kcals}{MGD * ℃ * day}$$

Where:

- Q_x = The monthly average flow of an outfall in MGD.
- T_x = The monthly average temperature of an outfall in °C.

While the heat load limit will apply at permit issuance, the permittee may initially calculate heat loads with grab temperature samples and their best available flow estimates. However, the proposed permit includes a 2-year compliance schedule, giving GCPUD time to install the equipment and controls necessary to sufficiently report their heat load. As detailed in section S11of the permit, CGPUD must submit a plan to determine flows and temperatures at each outfall, using continuous monitoring where feasible. This plan must be approved by Ecology, and all necessary monitoring equipment must be installed within two years permit issuance. For temperature, continuous monitoring instruments must measure at least once every half hour, achieve an accuracy of 0.2 degrees C. The permittee must verify accuracy annually. If continuous monitoring is unfeasible at a given outfall, another methodology may be approved by Ecology.

The Mid-Columbia River and Lake Roosevelt also have a Total Dissolved Gas (TDG) TMDL, (https://fortress.wa.gov/ecy/publications/documents/0403002.pdf). The facility currently implements a 401 Water Quality Certification (WQC) approved 2019-2023 Gas Abatement Plan. According to section 6.4.1(f) of the 401 WQC, Grant PUD complies with the TDG TMDL if it conforms to the 401 WQC requirements. The Certification lists requirements to remain in compliance.

C. Evaluation of surface water quality-based effluent limits for narrative criteria

Ecology must consider the narrative criteria described in WAC 173-201A-160 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

"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)."

Oil discharges are limited by the following State laws: *RCW 90.56.320 Unlawful for oil to enter waters* (formerly RCW 90.48.320) and *RCW 90.48.200 Waste disposal permits*.

RCW 90.56.320

Unlawful for oil to enter waters—Exceptions.

It shall be unlawful, except under the circumstances hereafter described in this section, for oil to enter the waters of the state from any ship or any fixed or mobile facility or installation located offshore or onshore whether publicly or privately operated, regardless of the cause of the entry or fault of the person having control over the oil, or regardless of whether it be the result of intentional or negligent conduct, accident or other cause. This section shall not apply to discharges of oil in the following circumstances:

(1) The person discharging was expressly authorized to do so by the department prior to the entry of the oil into state waters; or

(2) The person discharging was authorized to do so by operation of law as provided in ***RCW 90.48.200****.*

RCW 90.48.200 Waste disposal permits required of counties, municipalities and public corporations — Nonaction upon application — Temporary permit — Duration*.*

Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the

pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

The proposed permit addresses and limits oil and grease discharges from the dam based on narrative criteria.

Appendix A states EPA Method 1664A is the only approved method for Oil and Grease detection in wastewater. The detection limit is 1.4 mg/L. The quantitation limit is 5 mg/L. A daily maximum effluent limit of 5 mg/L ensures narrative criteria for are met for no visible oil sheen.

In addition, Ecology considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when there is a reasonable potential for the discharge to contain toxics. Ecology's analysis of the need for WET testing for this discharge is described later in the fact sheet.

D. Evaluation of surface water quality-based effluent limits for numeric criteria

Ecology has not authorized a mixing zone in the permit.

The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

Temperature --The state temperature standards (WAC 173-201A, WAC 173-201A-200, WAC 173-201A-600, and WAC 173-201A-602) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (September 15 to June 15)
- Incremental warming restrictions
- Protections against acute effects
- Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.
- Annual summer maximum and supplementary spawning/rearing criteria

  Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1)(c), WAC 173-201A-210(1)(c), and WAC 173-201A-602, Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- Incremental warming criteria

  The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), WAC 173-201A-210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

  At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

  At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

  When a TMDL is not completed, Ecology policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a standard mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25% or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- Protections for temperature acute effects

  Instantaneous lethality to passing fish: The upper 99th percentile daily maximum effluent temperature must not exceed 33°C, unless a dilution analysis indicates ambient temperatures will not exceed 33°C two seconds after discharge.

General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Toxic Pollutants -- Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

- Reasonable Potential Analysis

Data Collection Required: Ecology does not have sufficient information on the temperature of the effluent or the receiving water to determine compliance with water quality criteria for temperature. The proposed permit requires Wanapum Dam to monitor effluent and report the results to Ecology.

A reasonable potential analysis was conducted using zero dilution and with the limited data provided in the application. Using this data, the facility does not exhibit reasonable potential to pollute.

The permit includes additional requirements for determining the concentrations of their discharges.

E. Human health

Washington's water quality standards include numeric human health-based criteria for 97 priority pollutants that Ecology must consider when writing NPDES permits.

Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and Ecology's Permit Writer's Manual to make a reasonable potential determination. The evaluation showed that the discharge has no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed.

F. Sediment quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit available at: https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups

Through a review of the discharger characteristics and of the effluent characteristics, Ecology determined that this discharge has no reasonable potential to violate the sediment management standards.

G. Groundwater quality limits

The groundwater quality standards (chapter 173-200 WAC) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Wanapum Dam does not discharge wastewater to the ground. No permit limits are required to protect groundwater.

H. Whole effluent toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in chapter 173-205-040 WAC, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

V. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the methods and meets or exceeds the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, detection level (DL), and quantitation level (QL) on the discharge monitoring report or in the required report.

A. Wastewater monitoring

Wanapum Dam will monitor for pH, flow, Oil and Grease, and Temperature to characterize the effluent. These pollutant(s) could have an impact on the quality of the surface water.

Special Condition S.2 details the monitoring schedule in the proposed permit. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

B. Lab accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters).

Amtest Laboratories (accreditation # C554-18a) performed analysis for parameters in Table #'s 5 and 6. Sampling was conducted in accordance with the facility "Sampling Plan for a NPDES Permit Application" (Grant County PUD, May 2019).

VI. Other Permit Conditions

A. Reporting and record keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

Permit Condition S3.F.b requires reporting several conditions to Ecology including Turbine Runner Hub leakage, failure, or emergency maintenance

Leakage is determined by the visual confirmation of the pressure tank and sump sight glasses at the beginning of each shift (SPCC pg. 400-4).

B. Non routine and unanticipated wastewater

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

The permit authorizes the discharge of non-routine and unanticipated wastewater under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

C. Spill plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

As required by the facility 401 WQC, Wanapum Dam developed a Spill Prevention, Control, and Countermeasures Plan (SPCC- Revised 02/2019) for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The SPCC was signed and stamped by a Professional Engineer (PE). The proposed permit requires the facility to follow the SPCC Plan and to submit any revised SPCC Plan to Ecology.

D. Solid waste control plan

Wanapum Dam could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to develop a solid waste control plan to prevent solid waste from causing pollution of waters of the state. The facility must submit the plan to Ecology for approval (RCW 90.48.080). You can obtain an Ecology guidance document, which describes how to develop a Solid Waste Control Plan, at: https://fortress.wa.gov/ecy/publications/documents/0710024.pdf

E. Operation and maintenance manual

Ecology requires industries to take all reasonable steps to properly operate and maintain their system in accordance with state and federal regulations [40 CFR 122.41(e) and WAC 173-220-150 (1)(g)]. The facility will prepare and submit an operation and maintenance manual as required by state regulation for industrial wastewater treatment facilities (WAC 173-240-150). Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit.

F. Oil, Grease, and Lubricant Management

Permit Condition S.10 details requirements for Oil, Grease and Lubricant management. It requires submission of an EAL Evaluation Report, Oil and Grease Accountability Plan, and Oil and Grease Annual Report.

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 oil-less turbines. EALs prevent or minimize the generation and potential release of pollutants from the facility to the waters of the United States.

The permit requires the use of EALs for all equipment with oil to water grease interfaces, unless technically infeasible. EPA's 2011 Environmentally Acceptable Lubricants report defines EALs as "lubricants that have been demonstrated to meet standards for biodegradability, toxicity, and bioaccumulation potential that minimize their likely adverse consequences in the aquatic environment, compared to conventional lubricants." The permit requires that EALs used are consistent with the definition of EALs in EPA's 2011 Environmentally Acceptable Lubricants report.

G. Monitoring

Continuous Monitoring and Temperature TMDL WLA

A Total Maximum Daily Load (TMDL) specifies the maximum amount of a pollutant that a waterbody can receive and still meet applicable Water Quality Standards. The facility will be required to meet the Wasteload Allocation set by the EPA Columbia River Temperature TMDL.

Ecology understands implementing and installing monitoring technology sufficient to demonstrate compliance with the proposed permit limits will take both detailed planning and possibly significant expenditures.

1. Permit Condition S11. requires submission of a Monitoring Plan. The facility must adequately sample and analyze effluent for flow and temperature. The monitoring plan presented to Ecology must be sufficiently robust so as to determine compliance with the WLA. The monitoring plan must be presented to Ecology **December 1, 2022**. The WLA will be effective during the critical season **June 1- October 31**. Continuous temperature monitoring is required for cooling water effluent. Monthly temperature monitoring may be applied where a similar discharge requires continuous temperature monitoring. The facility will have to determine if continuous flow monitoring at all appurtenances is feasible. The proposed permit requires the facility to submit a Monitoring Equipment Installation Report 2 years after issuance of this permit.

H. Cooling Water Intake Structure Requirements to Minimize Adverse Impacts from Impingement and Entrainment

Permit Condition S12. requires the facility maintain Best Technology Available standards to minimize Adverse Impacts from impingement and entrainment. The design, location, construction, and capacity of the permittee's cooling water intake structures (CWISs) shall reflect the best technology available (BTA) for minimizing adverse environmental impacts from the impingement and entrainment of various life stages of fish (e.g., eggs, larvae, juveniles, adults) by the CWISs.

I. PCB Management

The permits do not allow for the addition of toxic materials or chemicals and prohibit the discharge of PCBs. PCBs may be present in transformers and other equipment at hydroelectric generating facilities. Grant PUD attests the facility does not use PCB's. PCB's were not detected during permit application sampling.

J. General conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VII. Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwaters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

VIII. References for Text and Appendices

Environmental Protection Agency (EPA)

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1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.

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September 2011. *Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation*. Publication Number 11-10-073 (https://fortress.wa.gov/ecy/publications/summarypages/1110073.html)

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February 2007. *Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees*, Publication Number 07-10-024. (https://fortress.wa.gov/ecy/publications/documents/0710024.pdf) Wright, R.M., and A.J. McDonnell.

Laws and Regulations (http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx)

Permit and Wastewater Related Information (https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance)

Permit Literature Resources

April 2004. Hanford Reach Fall Chinook Protection Plan.

June 2004. Total Maximum Daily Load for Total Dissolved Gas in the Mid-Columbia River and Lake Roosevelt Submittal Report. Ecology Publication Number 04-03-002. USEPA, WADOE, Spokane Tribe of Indians.

April 2008. 123 FERC 61049 United States of America Federal Energy Regulatory Commission Project No. 2114-116. Order Issuing New License.

April 2008. 401 Certification Priest Rapids Hydropower Project. Order No. 4219 Relicensing of the Priest Rapids Hydroelectric Project (FERC No. 2114).

2011. Clean Water Act_Federal Water Pollution Control Act_Title 33-Navigation_Navigable Waters_Chap. 26-Water Pollution Prevention_Control

February 2018. DRAFT Temperature Water Quality Standards for the Columbia, Lower Columbia, and Lower Snake Rivers.

December 2018. Quality Assurance Project Plan for Monitoring Selected Water Quality Parameters within the Priest Rapids Hydroelectric Project: 2018 Update. Public Utility District No. 2 of Grant County.

January 2019. 2019-2023 (5-Year) Total Dissolved Gas Abatement Plan. Public Utility District No. 2 of Grant County.

February 2019. Spill Prevention, Control and Countermeasures Plan (SPCC). Wanapum Development. Priest Rapids Hydroelectric Project. Public Utility District No. 2 of Grant County.

May 2019. Sampling Plan for a National Pollutant Discharge Elimination System Permit Application. Public Utility District No. 2 of Grant County.

March 2019. 2018 Summary Results of the Water Quality Fixed-Site Monitoring Program Within the Priest Rapids Hydroelectric Project. Keeler, Carson.

November 2019. RE: Public Comment on Grant County Public Utility District's National Pollution Discharge Elimination System Permit Application for the Wanapum Dam. Anter, Simone.

Alkalinity Budget of the Columbia River. Park, P. Kilho. Webster, George. Yamamoto, Roy.

U.S. Army Corps of Engineers. 2015. Memorandum for Walla Walla District Projects, Subject: Oil Accountability Program. CENWW-OD-T, SOP 200-1-1. April 21, 2015.

Appendix A — Public Involvement Information

Ecology proposes to issue a permit to Grant PUD – Wanapum Dam. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on October 25, 2019 in the Columbia Basin Herald to inform the public about the submitted application and to invite comment on the issuance of this permit.

Ecology will place a Public Notice of Draft on December 8, 2020 in the Columbia Basin Herald to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period
- Tells how to request a public hearing of comments about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

NOTICE: ANNOUNCEMENT OF AVAILABILITY OF DRAFT PERMIT
PERMIT NO.: WA0991028
APPLICANT: Public Utility District No. 2 of Grant County
FACILITY: Wanapum Dam

Public Utility District No. 2 of Grant County has applied for a National Pollutant Discharge Elimination System (NPDES) permit in accordance with the provisions of Chapter 90.48 Revised Code of Washington (RCW) and Chapter 173-220 Washington Administrative Code (WAC), and the Federal Clean Water Act.

Following evaluation of the application and other available information, a draft permit has been developed which would allow the discharge of non-contact cooling water from Wanapum Dam, 14353 Hwy 243 S, Beverly, WA to the Columbia River. All discharges to be in compliance with the Department of Ecology's Water Quality Standards for a permit to be issued.

A tentative determination has been made on the effluent limitations and special permit conditions that will prevent and control pollution. A final determination will not be made until all timely comments received in response to this notice have been evaluated.

PUBLIC COMMENT AND INFORMATION

The draft permit and fact sheet may be viewed at the Department of Ecology (Department) website: https://apps.ecology.wa.gov/paris/DocumentSearch.aspx?PermitNumber=WA0991028&FacilityName=&City=&County=&Region=0&PermitType=0&DocumentType=0. The application, fact sheet, proposed permit, and other related documents are also available at the Department's Central Regional Office for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m., weekdays. To obtain a copy or to arrange to view copies at the Central Regional Office, please e-mail publicrecordsofficer@ecy.wa.gov or write to Public Records Officer, Department of Ecology, PO Box 47600, Olympia, WA 98504.

Interested persons are invited to submit written comments regarding the proposed permit. All comments must be submitted within 30 days after publication of this notice to be considered for the final determination.

Submit comments online at: http://wq.ecology.commentinput.com/?id=V3YfW . Email and written comments should be sent to: cynthia.huwe@ecy.wa.gov or Cynthia Huwe, WQ Permit Coordinator, Department of Ecology, Central Regional Office, 1250 West Alder Street, Union Gap, WA 98903-0009.

Any interested party may request a public hearing on the proposed permit within 30 days of the publication date of this notice. The request for a hearing shall state the interest of the party and the reasons why a hearing is necessary. The request should be sent to the above address. The Department will hold a hearing if it determines that there is significant public interest. If a hearing is to be held, public notice will be published at least 30 days in advance of the hearing date. Any party responding to this notice with comments will be mailed a copy of a hearing public notice.

Please bring this public notice to the attention of persons who you know would be interested in this matter. The Department is an equal opportunity agency. If you need this publication in an alternate format, please contact us at (509) 575-2490 or TTY (for the speech and hearing impaired) at 711 or 1-800-833-6388.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html .

You may obtain further information from Ecology by telephone, 509-457-7105, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Central Regional Office
1250 West Alder Street
Union Gap, WA 98903

The primary author of this permit and fact sheet is Keith Primm.

Appendix B — Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Table 12 - Address and Location Information

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel RD SW STE 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Appendix C — Glossary

1-DMax or 1-day maximum temperature – The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures – The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity – The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART – The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and RCW 90.48.520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate point of compliance – An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient water quality – The existing environmental condition of the water in a receiving water body.

Ammonia – Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF) – average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly (intermittent) discharge limit – The average of the measured values obtained over a calendar months' time taking into account zero discharge days.

Average monthly discharge limit – The average of the measured values obtained over a calendar months' time.

Background water quality – The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in

time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD5 – Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass – The intentional diversion of waste streams from any portion of a treatment facility.

Categorical pretreatment standards – National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine – A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic toxicity – The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean water act (CWA) – The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling – A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling – A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for

municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample – A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity – Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring – Uninterrupted, unless otherwise noted in the permit.

Critical condition – The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of receipt – This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit – The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution factor (DF) – A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Distribution uniformity – The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early warning value – The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit – The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report – A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or WAC 173-240-130.

Fecal coliform bacteria – Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab sample – A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater – Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial user – A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial wastewater – Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

Interference – A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local limits – Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Major facility – A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum daily discharge limit – The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum day design flow (MDDF) – The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum month design flow (MMDF) – The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum week design flow (MWDF) – The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method detection level (MDL) – See Detection Limit.

Minor facility – A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing zone – An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations (chapter 173-201A WAC).

National pollutant discharge elimination system (NPDES) – The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH – The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-through – A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak hour design flow (PHDF) – The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak instantaneous design flow (PIDF) – The maximum anticipated instantaneous flow.

Point of compliance – The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Potential significant industrial user (PSIU) – A potential significant industrial user is defined as an Industrial User that does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation level (QL) – Also known as **Minimum Level of Quantitation (ML)** – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1, 2, or 5) x 10^n, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

Reasonable potential – A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible corporate officer – A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sample Maximum – No sample may exceed this value.

Significant industrial user (SIU) –

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge – Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

Soil scientist – An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5, 3, or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid waste – All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

Soluble BOD_5 – Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD_5 test is not specifically

described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD_5 test is sufficient to remove the particulate organic fraction.

State waters – Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater – That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Technically Infeasible – 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.

Technology-based effluent limit – A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria – A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids – That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) – A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

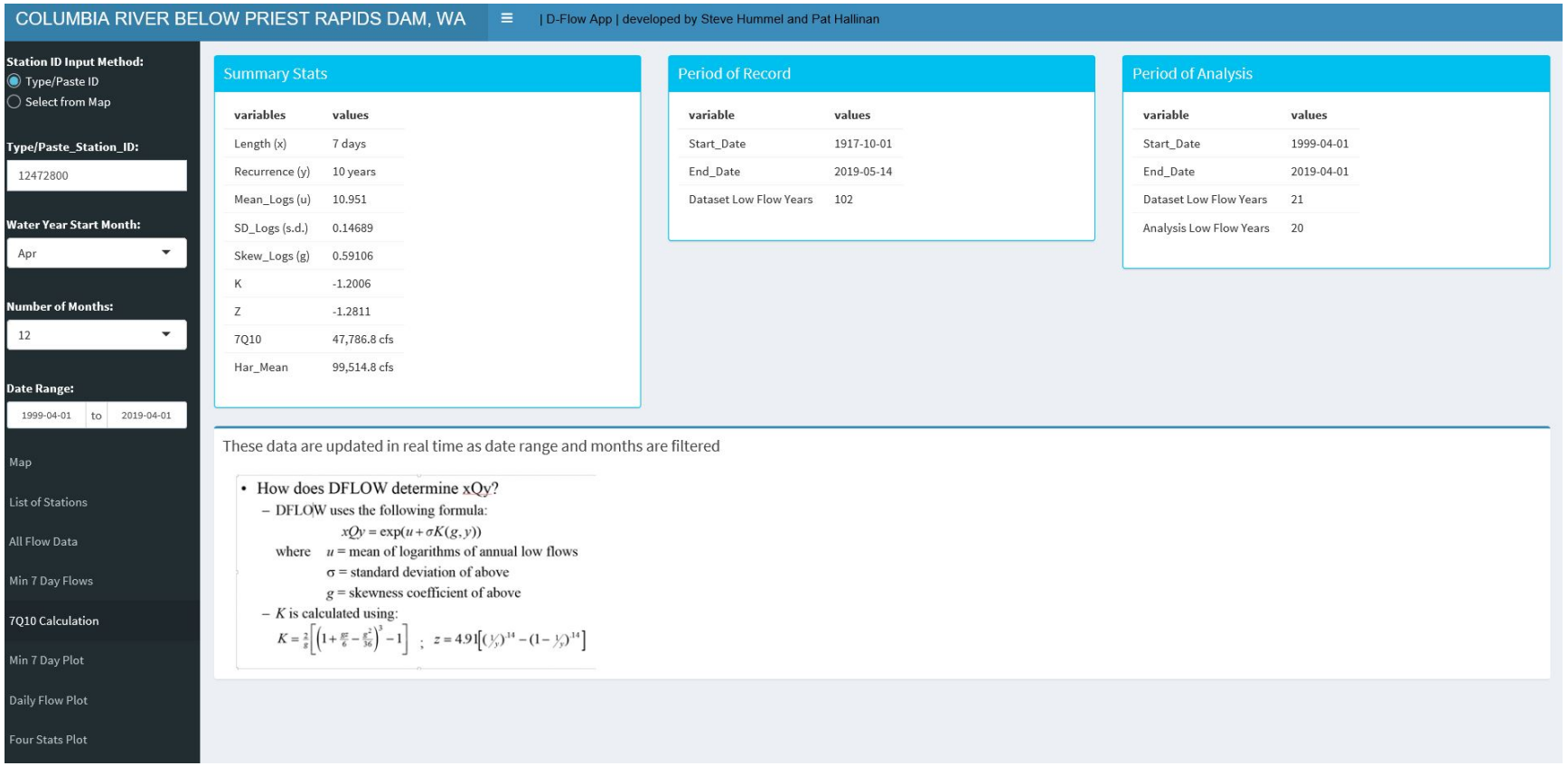
Total suspended solids (TSS) – Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset – An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits 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, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit – A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

Appendix D — Technical Calculations

D-Flow 7Q10



Reasonable Potential Calculation

Facility	Wanapum Dam
Water Body Type	Freshwater
Rec. Water Hardness	45 mg/L

Dilution Factors:	Acute	Chronic
Aquatic Life	43.9	430.0
Human Health Carcinogenic		601.6
Human Health Non-Carcinogenic		601.6

Pollutant, CAS No. & NPDES Application Ref. No.			OIL AND GREASE	COPPER - 744058 6M Hardness dependent	ZINC - 7440666 13M hardness dependent							
Effluent Data	# of Samples (n)		1	1	1							
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		3.8	1.44	6.86							
	Calculated 50th percentile Effluent Conc. (when n>10)											
Receiving Water Data	90th Percentile Conc., ug/L		3.42	1.3	6.17							
	Geo Mean, ug/L			0.69	3.59							
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	-	8.019	58.18							
		Chronic	9-76-023	5.7372	53.127							
	WQ Criteria for Protection of Human Health, ug/L		-	1300	1000							
	Metal Criteria Translator, decimal	Acute	-	0.996	0.996							
		Chronic	-	0.996	0.996							
	Carcinogen?		N	N	N							

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950	0.950							
s	$s^2=\ln(CV^2+1)$		0.555	0.555	0.555							
Pn	$Pn=(1-\text{confidence level})^{1/n}$		0.050	0.050	0.050							
Multiplier			6.20	6.20	6.20							
Max concentration (ug/L) at edge of...		Acute	3.879	1.473	6.994							
		Chronic	3.467	1.318	6.254							
Reasonable Potential? Limit Required?			**#VALUE!**	**NO**	**NO**							

Dilution Factor Calculations and Receiving Water Critical Conditions

Step 1: Enter Waterbody Type

Water Body Type	Freshwater

Facility Name	Wanapum Dam
Receiving Water	Columbia River

Step 2: Enter Dilution Factors -OR- Calculate DFs by entering Facility/Receiving Water Flow Data

Do you want to enter dilution factors -or- flow data?	Flow Data

	Annual Average	Max Monthly Average	Daily Max
Facility Flow, MGD	18	18	18
Facility Flow, cfs (calculated)	27.85	27.85	27.85

	Condition	Receiving Water Flow, cfs	Allowable % of river flow	Max Dilution Factor Allowed
Aquatic Life - Acute	7Q10	47786.8	0.025	**43.9**
Aquatic Life - Chronic	7Q10	47786.8	0.25	**430.0**
HH-Non-Carcinogen	30Q5	66901.5	0.25	**601.6**
HH-Carcinogen	Harmonic Mean	66901.5	0.25	**601.6**
Whole river at 7Q10	7Q10	47786.8	1	**1717.1**

Step 3: Enter Critical Data

	Effluent	Receiving Water
Temp, °C	18.13	20.3
pH, s.u.	6.9	8
Alkalinity, mg/L as CaCO3	1.5	1.5
Hardness, mg/L CaCO3	45	45
Salinity, psu		
Receiving water TSS, mg/L (leave blank if unknown		
If TSS is annual data, enter 'A'; if from critical period, enter 'S'; If no TSS, leave blank		

Reasonable Potential Analysis:

Technical Support Document for Water Quality-based Toxics Control, (EPA 505/2-90-001).
The adjustment for autocorrelation is from EPA (1996a), and EPA (1996b).

Appendix E — Response to Comments

Ecology received comments from **Grant County PUD** on October 14, 2020 commenting on the draft Wanapum Hydropower permit. The comment letter is inserted below, followed by Ecology's response. Public comments are available online using the following link:

Grant County
PUBLIC UTILITY DISTRICT

Connecting Generations
Since 1938

Submitted via email

January 8, 2021

Cynthia Huwe
WQ Permit Coordinator
Department of Ecology
Central Regional Office
1250 West Alder Street
Union Gap, WA 98903-0009

RE: Draft NPDES Permit No. WA0991028 and Fact Sheet for Wanapum Dam

Dear Ms. Huwe,

Public Utility District No. 2 of Grant County, Washington (Grant PUD) appreciates Ecology's efforts in preparing this draft Permit. We believe Ecology has drafted a permit that satisfies all applicable requirements of the Clean Water Act and RCW 90.48, and that, in combination with other requirements that apply to Wanapum Dam – including its FERC License; Section 401 Water Quality Certification; two Biological Opinions, one issued by the National Marine Fisheries Service and the other by the U.S. Fish and Wildlife Service; and the Total Dissolved Gas Abatement Plan – comprehensively protects water quality.

We also appreciate the opportunity to comment on the draft Permit and Fact Sheet. Our comments on the two documents, including our suggested revisions, appear below.

Comments on NPDES Permit

1. Submittal Deadline:
Table 1 summarizes the deadlines for submitting reports and plans required by the draft Permit. The deadline for submitting the first update to the Operations and Maintenance Manual (or Review Confirmation Letter) is incorrect.

> **Suggested Revision**: Change the First Submittal Date for the Operations and Maintenance Manual Update or Review Confirmation Letter to read as follows:
>
> *JANUARY 15, ~~2021~~ 2022 and subsequent January 15*

2. Authorized Discharges:
Condition S1.A authorizes Grant PUD to discharge from two sumps, the Left Bank Sump (W001) and the Right Bank Sump (W012), and from ten units that discharge non-contact cooling water (W002-W011). As noted in Grant PUD's permit application and in the draft Fact Sheet, there also may be incidental de minimis discharges of oil and grease from water passing through the dam that has come in contact with

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grantpud.org

lubricated equipment. *See* draft Fact Sheet at 12 (turbines, wicket gate bearings, and lubricant contact points are potential point sources of pollution) and Permit Application / Additional Information for Form 2C, Part V-D (noting incidental or inadvertent de minimis discharges of oil and grease from facilities such as wicket gates). The Permit should expressly authorize these discharges, subject to complying with the oil, grease, and lubricant management requirements in Condition S10. Among other provisions, Condition S10 requires Grant PUD to use environmentally acceptable lubricants (EALs) unless technically infeasible. In addition, we suggest a clarifying edit in Condition S1.A to authorize the discharge of process wastewater, subject to permit limits, rather than the discharge of named pollutants.

> **Suggested Revision**: Change the third paragraph of Condition S1.A to read as follows:
>
> *Beginning on the effective date of this permit, the Permittee is authorized to discharge ~~temperature, Oil/Grease, and pH~~ process wastewater to the Columbia River from Outfalls W001-W012 subject to complying with the limits in Table 2. In addition, the Permittee is authorized to discharge process wastewater to the Columbia River from lubricated equipment subject to complying with Special Condition S10.~~*

3. pH Monitoring:
Condition S2.A / Table 5 of the draft Permit would require Grant PUD to monitor Outfalls W001 and W012 monthly for pH. Grant PUD does not believe this monitoring is necessary. Wanapum Dam's operation does not affect pH in point source discharges from the dam. The pH in water entering and discharging from the dam is the same. Furthermore, as noted in Tables 6 and 7 of the draft Fact Sheet, pH values in samples collected from W001 and W012 were 7.16 and 6.85, respectively, within the range allowed under the draft Permit. And additional pH monitoring is unnecessary since Grant PUD already monitors pH at all four of the fixed site monitoring stations around the dam, as required by its Section 401 Water Quality Certification.

Ecology should revise the draft Permit to require monthly pH sampling during the first year the permit is in effect, but if all samples collected in that year meet the pH limit in Table 2, to require annual pH sampling thereafter. This suggestion is consistent with Ecology's Permit Writer's Manual, which states that it is a permit program goal to avoid excessive monitoring. *See* Water Quality Permit Writer's Manual, Chapter 13, §1.3.2 (2018). The Manual further states that tiered monitoring – which would reduce monitoring frequency "if initial (baseline) sampling discloses no problems" – should be considered for all permits.

> **Suggested Revision**: In the pH row and the Minimum Sampling Frequency column of Table 5, include a footnote after "Monthly" that reads as follows:
>
> *Monthly sampling required for one year after effective date of permit. If all samples during the first year meet the pH effluent limit in Table 2, sampling frequency will be reduced to once a year.*

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4. Temperature Monitoring:
We have three comments related to temperature monitoring requirements in the draft Permit.

a) Footnote d in Table 5 states that temperature grab sampling must occur when the effluent is at or near its daily maximum, "which usually occurs in the late afternoon." Grant PUD has no objection to collecting grab samples when temperatures are at or near the daily maximum, but does not believe this usually occurs in the late afternoon on the mid-Columbia River. Water would be at its maximum temperature in late afternoon only in free-flowing rivers. Deleting the phrase regarding late afternoon also would make this footnote consistent with footnote h in Table 6.

Suggested Revision: Change the first sentence in footnote d of Table 5 to read as follows:

Temperature grab sampling must occur when the effluent is at or near its daily maximum temperature~~, which usually occurs in the late afternoon~~.

b) Table 6 would require monthly grab samples to monitor temperature in non-contact cooling water discharging through Outfalls W002 through W011. In the first two years after the Permit takes effect, Grant PUD must install continuous monitoring equipment on at least one of the cooling water outfalls to measure temperature. As provided in footnote g of Table 6, monthly grab samples could continue at the other outfalls after continuous monitoring equipment is installed on one cooling water outfall.

We believe the temperature of the cooling water discharging through all of these outfalls is the same. If monitoring during the first two years of the Permit confirms this, we suggest reducing the frequency of temperature monitoring from once a month to once a year at the cooling water outfalls without a continuous monitoring device.

Suggested Revision: Change the last sentence and add a new sentence in footnote g of Table 6 to read as follows:

The Permittee may continue to collect grab samples for ~~Monthly~~ temperature monitoring ~~may be applied continue where~~ after continuous temperature monitoring begins for a similar cooling water discharge~~ requires continuous temperature monitoring~~. If the first two years of grab samples show that effluent temperatures at the outfall where the continuous monitoring device is installed are representative of effluent temperatures at the other cooling water outfalls, the frequency of grab samples at the other cooling water outfalls may be reduced from monthly to annual.

c) Footnotes b and c of Table 7 provide a formula for calculating heat load. The formula is taken from the Total Maximum Daily Load (TMDL) that Environmental Protection Agency (EPA) issued for public review and comment on May 18, 2020. The formula does not account for heat load in the dam's intake water. Grant PUD submitted comments on the draft TMDL to EPA, pointing out that the proposed waste load allocation for Wanapum Dam did not represent the "highest known or estimated temperature of the facility effluent," as described in the TMDL. *See* Letter from Ross Hendrick (Grant PUD) to Andrew Wheeler (EPA) regarding EPA's Total Maximum Daily Load for Temperature in the Columbia and lower Snake Rivers (August 17, 2020). We expect EPA to revise the waste load allocation for Wanapum Dam

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based on these comments. However, if no change is made, we believe the daily heat load calculation in Table 7 should be revised to account for ambient temperatures in intake water.

5. Operation and Maintenance:
The second paragraph of Condition S4 states that the Permittee must "schedule and carry out any facility maintenance during non-critical water quality periods." We have three comments related to this paragraph.

a) As drafted, this provision could be interpreted to prohibit Grant PUD from carrying out maintenance that was not planned, but is needed on an emergency basis. For example, if the alarm in the Left Bank Sump unexpectedly quit working during a critical water quality period, we assume Ecology would want Grant PUD to repair it immediately, without waiting for the critical water quality period to end.

b) We assume Ecology intends for this paragraph to apply only to facilities and systems that are "installed to achieve compliance with the terms and conditions of this permit," as stated in the first paragraph of Condition S4 – for example, the alarm in the Left Bank Sump, devices for monitoring required by the Permit, and oil/water separators. In other words, this paragraph would not set any limits on when Grant PUD could carry out maintenance of equipment that is unrelated to compliance with the Permit.

c) It would be helpful to identify the non-critical water quality period to avoid any misunderstandings. We believe this period runs from November through June.

Suggested Revision: Change the second paragraph of Condition S4 to read as follows:

The Permitee must schedule and carry out any planned ~~facility~~ maintenance of facilities and systems installed to achieve compliance with the terms and condition of this permit during non-critical water quality periods (November – June) and carry this maintenance out according to the approved O&M manual or as otherwise approved by Ecology.

6. Calibration Frequency:
a) Condition S2.C.3 would require Grant PUD to calibrate continuous monitoring instruments weekly unless it can demonstrate a longer period is sufficient based on "monitoring records." However, Condition S2.C.2, S2.C.4, and S2.C.6 would require calibration in accordance with the manufacturer's recommendations, and we believe those recommendations are the best indicator of appropriate calibration frequency. In addition, while Condition S2.C.3.a. refers to "continuous" pH measurement instruments, the draft Permit does not require continuous pH monitoring.

Suggested Revision: Delete Condition S2.C.3 and Condition S2.C.3.a. Calibration of pH monitoring devices would then be addressed by the general calibration provisions in Conditions S2.C.2 and S2.C.6.

b) Condition S2.C.7 would require Grant PUD to calibrate flow-monitoring devices at least once a year. This is potentially inconsistent with Condition S2.C.6, which requires that all devices be calibrated as often as the manufacturer recommends.

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Suggested Revision: Delete Condition S2.C.7. Calibration of flow-monitoring devices would then be addressed by the general calibration provisions in Conditions S2.C.2 and S2.C.6.

7. Spill Control Plan:

a) Grant PUD has already prepared a Spill Prevention Control and Counter Measure (SPCC) Plan, as required by federal law. Condition S9.A requires Grant PUD to comply with the SPCC Plan, and to submit updated versions of the Plan to Ecology. This requirement is identical to a requirement in the Section 401 water quality certification applicable to Wanapum Dam, and Grant PUD has no objection to it. However, Condition S9.B lists mandatory components of the Plan, including information regarding dangerous waste at the dam. To comply with this condition, Grant PUD would have to revise its existing SPCC Plan. Instead of revising the Plan, which was drafted to meet federal requirements, Grant PUD proposes to submit its annual Dangerous Waste Report to Ecology's Water Quality Program.

b) The last sentence in Condition S9.B states that "Approval of the Spill Control Plan with respect to this requirement does not constitute approval of the plans and manuals with respect to the underlying requirement." The draft Permit requires Grant PUD to submit its SPCC Plan to Ecology, but does not require Ecology to approve the plan. The reference to "approval" in the last sentence of Condition S9.B is inaccurate.

Suggested Revision: Delete Condition S9.B and add a new sentence at the end of Condition S9.A that reads as follows:

In addition, the Permittee shall submit a copy of its Dangerous Waste Annual Report to Ecology's Water Quality Program at the same time it submits the report to Ecology's Hazardous Waste & Toxics Reduction Program.

If Ecology decides not to delete Condition S9.B, change the last sentence in Condition S9.B to read as follows:

~~Approval~~Submittal of the Spill Control Plan with respect to this requirement does not constitute ~~approval of the plans and manuals with respect to~~ compliance with the underlying requirement.

8. Environmentally Acceptable Lubricants:

Condition S10.B requires Grant PUD to use Environmentally Acceptable Lubricants (EALs) unless technically infeasible. The requirement to use EALs should apply only to in-water components of the dam, since those are the only components that could adversely affect water quality.

Suggested Revision: Change the second sentence of Condition S10.B to read as follows:

The permittee will utilize Environmentally Acceptable Lubricants (EAL) for in-water components of the dam unless technically infeasible and submit an Annual EAL Report:

9. Mixing Zone Study:
As noted in the draft Fact Sheet, Grant PUD may submit a Mixing Zone Study for Ecology's consideration. We suggest including a permit condition that sets a deadline for the Study, if Grant PUD decides to submit one. Knowing when a Mixing Zone Study might be submitted will help Ecology plan for review of the Study. In addition, we suggest the Permit set out the required elements of the Study.

Suggestion Revision: Add a new special condition to the Permit to read as follows:

S__. MIXING STUDY

S_A. Option to conduct effluent mixing study

No later than 30 months after the effective date of this permit, the Permittee will notify Ecology of its intent to conduct the effluent mixing study described under this condition. Ecology may extend this deadline at the Permittee's request. If the Permittee does not so notify the Department, then it need not comply with this special condition and Ecology will not consider setting revised effluent limitations. If the Permittee does so notify Ecology, the Permittee will comply with this special condition and Ecology may propose revised effluent limits if it approves the Plan of Study and Final Effluent Mixing Report described below:

S_B. General requirements
If the Permittee notifies Ecology as described in Special Condition S_.A, above, the Permittee must:
1. Submit a Plan of Study to Ecology for review by Insert date, prior to initiation of the effluent mixing study.
2. Use the Guidance for Conducting Mixing Zone Analyses (Appendix C of Ecology's Permit Writer's Manual, 2018) and the protocols identified in S_.C.
3. Include the results of the effluent mixing study in the Effluent Mixing Report and submit it to Ecology for approval by Insert date.
4. If the results of the mixing study, toxicity tests, and chemical analysis indicate that the concentration of any pollutant(s) exceeds or has a reasonable potential to exceed the state water quality standards, chapter 173-201A WAC, Ecology may issue an administrative order to require a reduction of pollutants or modify this permit to impose effluent limits to meet the water quality standards.

S_.C. Reporting requirements
The mixing zone study must include:
1. A statement confirming that AKART has been applied to the discharge.
2. A description of the size of the mixing zone allowed under chapter 173-201A WAC.
3. An analysis showing how mixing zones have been minimized using the lowest dilution from hydraulic limitations, width limitations, distance limitations and those predicted by the model.
4. A clear description of the critical conditions used for dilution factors:
a. For ambient freshwater (unidirectional flow) use 7Q10 flows for temperature, oil and grease, and pH.

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b. Generally, use depth of outfall at 7Q10 flows (rivers). For assessing human health in freshwater, depths of outfall should be established at the applicable flow (e.g. harmonic mean flow or 30Q5 flows).
c. Use density profile that gives the lowest dilution. Evaluate both maximum and minimum stratification. For human health, use average density profiles to estimate dilution.
d. For unidirectional flow use centerline dilution factor for acute and chronic conditions, while flux average for human health dilution factors.
5. Discharge characteristics:
a. Existing and projected maximum daily, maximum monthly average, and annual average flows.
b. Discharge density (temperature and salinity).
6. Ambient water characteristics:
a. Critical stream flow statistics (7Q10, 30Q5, harmonic flow).
b. Velocity profile in the vicinity of the outfall.
c. Temporal density (temperature and salinity) profiles near the outfall. May need to consider seasonal variability.
d. Manning's roughness coefficient, if used.
e. Available information regarding background concentrations of chemical substances in the receiving water for which there are criteria in chapter 173-201A WAC.
7. Model selection and results:
a. Model selection and application discussion. Consider model applicability to single or multiport diffuser, opposing port configuration, submerged, surface or above-surface discharge, buoyant or non-buoyant discharge, and potential plume attachment to boundaries.
b. Description of mixing and plume dynamics (nearfield, farfield).
c. Sensitivity analysis.
d. Calibration to empirical data (tracer studies), if applicable.
8. Provide model output and summary table of results.

10. Typographical Errors:
We noted the following typographical errors in Table 6 (S2.A) the draft Permit:

- Footnotes a and b are repeated at the top of page 11 and should be deleted.
- The last sentence in footnote b appears to contain extra words.

  Suggested Revision: Change the last sentence in footnote b to read as follows:

  The Permittee must ~~sample insert or~~ describe Frequency when continuous monitoring is not possible.

- Footnote f references the wrong condition.

  Suggested Revision: *Influent temperature for all outfalls to be measured at Forebay Fixed Site Monitoring Station, pending QAPP review under Condition ~~S12.B~~S11.B.*

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- The last sentence in footnote g appears to contain extra words.

  Suggested Revision: Unless Ecology makes the revisions to this footnote suggested above under the heading "Temperature Monitoring," change the last sentence in footnote g to read as follows:

  Monthly temperature monitoring may ~~be applied~~ continue where a similar cooling water discharge requires continuous temperature monitoring.

Comments on Fact Sheet

1. Cooling Water Intakes:
The draft Fact Sheet discusses cooling water intake structures at Wanapum Dam in the context of §316(b) of the Clean Water Act, which requires some structures to reflect best technology available for minimizing adverse environmental impacts. This suggests that the requirements of §316(b) apply to the dam. For the reasons stated in its permit application (see Additional Information attachment, Form 2C Supplement (Cooling Water Intake Structures), Section A(10)), Grant PUD continues to believe that §316(b) does not apply to Wanapum Dam.

Suggested Revision: Delete the entire discussion of Cooling Water Intakes on pages 11-12 of the draft Fact Sheet.

2. Figure 4:
Figure 4 is a water source diagram showing the sources contributing to each of the permitted outfalls. While the diagram is accurate, additional text would clarify some of the sources. Specifically:

- In the bottom box that points to the Left Bank Station Sump, the word "Upper" should be inserted before "Bearing Cooling Water." There are four bearing cooling water streams at the dam, but only the Upper Guide Bearing Cooling Water is piped to the Left Bank Station Sump.

- In the ten boxes labelled "Unit _ Generator Cooling Water, Non-Contact," the word "Generator" should be changed to "Other." The three bearing cooling water streams that are not piped to the Left Bank Station Sump discharge through the non-contact cooling water outfalls (Outfalls W002-W011). These three streams are made up entirely of non-contact cooling water.

Suggested Revision: Replace Figure 4 with the revised Figure 4, attached.

3. Total Dissolved Gas:
Section III.C of the draft Fact Sheet states that the draft Permit includes a water quality-based effluent limit for total dissolved gas. In fact, the draft Permit does not include an effluent limit for total dissolved gas, which is appropriate. Grant PUD agrees with the following explanation that EPA gave in the fact sheet for the draft NPDES permits it issued for federal dams on the lower Columbia River:

"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*

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> *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 this permit."
>
> **Suggested Revision**: Change the first sentence in Section III.C to read as follows:
>
> *Water Quality-Based Effluent Limits for Wanapum Dam include Oil and Grease, pH, and Temperature ~~and, Total Dissolved Gas~~.*

Grant PUD appreciates Ecology's consideration of these comments, and we look forward to the issuance of the final permit. Please contact me at 509-793-1468 or rhendr1@gcpud.org with any questions.

Sincerely,

Ross Hendrick

Ross Hendrick
Senior Manager – Environmental Affairs

Cc: Keith Primm (Ecology)

Attachment: Revised Figure 4

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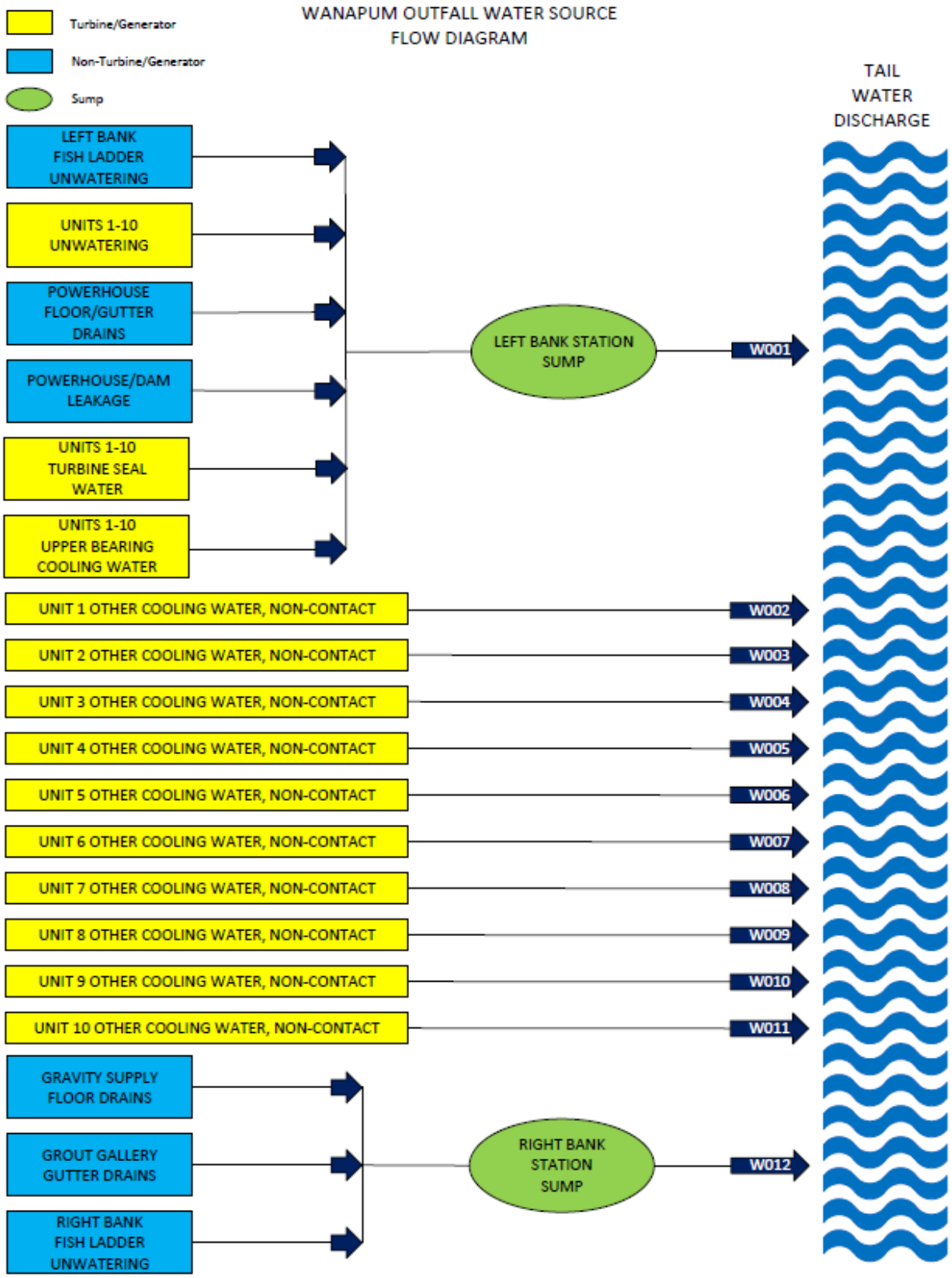
WANAPUM OUTFALL WATER SOURCE
FLOW DIAGRAM
Turbine/Generator
Non-Turbine/Generator
Sump
TAIL
WATER
DISCHARGE
LEFT BANK
FISH LADDER
UNWATERING
UNITS 1-10
UNWATERING
POWERHOUSE
FLOOR/GUTTER
DRAINS
POWERHOUSE/DAM
LEAKAGE
UNITS 1-10
TURBINE SEAL
WATER
UNITS 1-10
UPPER BEARING
COOLING WATER
LEFT BANK STATION
SUMP
W001
UNIT 1 OTHER COOLING WATER, NON-CONTACT
W002
UNIT 2 OTHER COOLING WATER, NON-CONTACT
W003
UNIT 3 OTHER COOLING WATER, NON-CONTACT
W004
UNIT 4 OTHER COOLING WATER, NON-CONTACT
W005
UNIT 5 OTHER COOLING WATER, NON-CONTACT
W006
UNIT 6 OTHER COOLING WATER, NON-CONTACT
W007
UNIT 7 OTHER COOLING WATER, NON-CONTACT
W008
UNIT 8 OTHER COOLING WATER, NON-CONTACT
W009
UNIT 9 OTHER COOLING WATER, NON-CONTACT
W010
UNIT 10 OTHER COOLING WATER, NON-CONTACT
W011
GRAVITY SUPPLY
FLOOR DRAINS
GROUT GALLERY
GUTTER DRAINS
RIGHT BANK
FISH LADDER
UNWATERING
RIGHT BANK
STATION
SUMP
W012

Ecology Responses to Grant County PUD Permit Comments:

1. Submittal Deadline-Ecology revised the Submittal. The submittal is due 1 year after permit issuance.

2. Authorized Discharge S1.A-Ecology revised this section to include “contact” water subject to S.10. Ecology will assess the need for additional management practices for lubricated water contact equipment. During the next permitting cycle.

3. pH-Ecology recognizes pH as a baseline testing parameter for river and wastewater health. The facility will monitor its discharge for pH.

4. Temperature-Ecology revised the DRAFT Permit to reflect the requested changes.

    a. Ecology updated the language in this section as requested.
    b. Reductions in monitoring frequency may be requested in accordance with Special Condition S2.E.
    c. EPA updated WLA’s since the DRAFT and the heat load calculation will be implemented in accordance with Ecology Guidance.

5. Operations and Maintenance-

    a. Ecology revised the language as it pertains more-so to WWTP operations and maintenance.
    b. Ecology does not intend to regulate maintenance or non-permitted appurtenances.
    c. Ecology revised the language to address facility concerns.

6. Calibration-

    a. Ecology revised the language to reflect “when installed”.
    b. Ecology appreciates the comment and will evaluate for permit updates if conflicts arise. This is boilerplate language included in all permits.

7. Spill Control Plan-

    a. The Spill Control Plan may use other reports and studies that have been completed or will be completed to satisfy all or part of the requirement so long as the items required are included. If other reports satisfy part of the items listed, the permittee must supplement these reports with additional information to satisfy the Spill Control Plan requirement.
    b. Ecology revised as requested.

8. Ecology updated language, “The permittee must select Environmentally Acceptable Lubricants (EALs) for all oil to water interfaces including wicket gates, bearings, lubricated wire ropes, generators and other in-line equipment, unless “technically infeasible.” The condition applies to appurtenances with nexus to the Columbia River or those with a high likelihood of discharge to the Columbia River (turbines). I want to look at the EPA language one more time and maybe adopt it directly.

9. Per the Fact Sheet Grant PUD can submit a mixing zone study any time following the effective date of the permit.

10. Typographical revisions were made as necessary.

    a. Duplicate Footnotes A and B removed.
    b. Frequency updated to “once daily”.
    c. Footnote F revised to cite the correct condition.
    d. Footnote G revised for clarity.

Ecology Responses to Grant County PUD Fact Sheet Comments:

1. Ecology’s position is that 316b applies and it’s conditions have been met by your facility.

2. Ecology revised Figure 4 as requested.

3. Ecology revised Section IIIC as requested.

Ecology received comments from **Chelan County PUD** for the draft Wanapum Hydropower permit. The comment letter is inserted below, followed by Ecology's response. Public comments are available online using the following link:



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January 8, 2021

Ms. Cynthia Huwe
WQ Permit Coordinator
Department of Ecology
Central Regional Office
1250 West Alder Street
Union Gap, WA 98903-0009

Re: Washington State Department of Ecology's Draft National Pollutant Discharge Elimination (NPDES) Permit No. WA0991028 for Public Utility District No. 2 of Grant County's Wanapum Dam

Dear Ms. Huwe:

Chelan County Public Utility District (Chelan PUD) appreciates this opportunity to comment on the Washington State Department of Ecology's draft National Pollutant Discharge Elimination (NPDES) permit for Grant County Public Utility District (Grant PUD). Chelan PUD is the owner of Rocky Reach and Rock Island hydroelectric projects, which are upstream of the Wanapum Dam. We currently have applications for NPDES permits pending before Ecology, and therefore have an interest in this draft permit. In general, these comments seek clarification of certain proposed permit conditions to 1) better understand Ecology's intent; or 2) to offer efficient or practicable alternatives or options.

Chelan PUD recognizes that all hydropower projects are different. Where we have offered alternatives to a proposed permit condition, they reflect operational realities at our Mid-Columbia dams. We respectfully request Ecology consider these suggestions as they develop their Columbia River NPDES permits for non-federal hydropower projects.

Comments on Special Conditions

S1.A. Discharge limits

a) Coverage. The discharges authorized by the draft permit are unclear. The cover page states that Grant PUD is authorized to discharge from Wanapum Dam to the Columbia River but does not describe the discharges. Condition S1.A of the draft permit expressly authorizes the discharge of temperature, Oil/Grease, and pH to the Columbia River and establishes certain discharge limits for these pollutants at Outfalls 001 through 012. However, as reflected in the draft fact sheet, these outfalls discharge many other pollutants, including pollutants that may be present in the intake water for the discharges. Moreover, the draft fact sheet identifies several other "potential point sources of pollution," including "turbines, wicket gate bearings, lubricant

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contact points." Chelan PUD assumes that Ecology intends the permit to authorize the discharge of pollutants other than temperature, oil and grease, and pH, as well as these other point sources of pollutants, but this is not clear. In particular, page 22 of the draft fact sheet states, "The permit does not authorize discharge of the non-reported pollutants." Although this suggests that the authorization is not limited to temperature, oil and grease, and pH, it creates uncertainty regarding pollutants that were not reported for a specific discharge point. Because there are hundreds and perhaps thousands of pollutants present in small concentrations in the dam and in the Columbia River (and thus in the source water for the dam's discharges), it would be impossible to analyze for and report *every* pollutant in every point source discharge. Nor is there any reason to do so. EPA's regulations and condition G4 of the draft require advance notice to Ecology of alterations or additions that will result in significant change in the quality or quantity of pollutants discharged, so that Ecology may determine whether permit modifications are warranted. Chelan PUD asks that Ecology clarify the scope of the discharges authorized by the permit and suggests that the permit expressly authorize all point source additions of pollutants to the Columbia River from the dam.

b) Representative sampling. Footnote d to Table 2 states that the flow measured at Outfall 001 "[r]epresent[s] flows at Outfalls 001 and 012 when all pumps operate at maximum capacity." Because many discharge points at dams are difficult to monitor or sample, but are similar to other discharge points, Chelan PUD strongly supports the use of representative sampling. Chelan PUD, however, recommends clarifying this language and other references to representative sampling in the permit so that the circumstances under which representative sampling may be used and the requirements for that sampling are clear.

S2.A Table 5 Wastewater Effluent Outfall W001 and W012 (Left and Right Bank Sumps)

a) pH sampling. The table describing the monitoring schedule for wastewater effluent outfall for left and right bank sumps includes a parameter for pH. Chelan PUD is seeking clarification on why Ecology would require monitoring for pH as there is no indication that pH would change based on this type of discharge or have a reasonable potential for causing or contributing to a pH exceedance in the river.

b) Temperature effluent sampling. In the same table, Ecology calls for continuous monitoring of effluent temperature for two years. Chelan PUD is seeking clarification regarding the purpose of this condition. Sump discharge is a result of leakage inside the powerhouse. Potential for temperature change would only occur during transit from the powerhouse to the sump/sample point and would not result in significant heat load. Continuous monitoring can present operational challenges due to project configuration. As an alternative, if information is needed about potential temperature effects, a grab sample would provide sufficient representation.

S2.A Table 6 Cooling Water Outfall W002 through W011

a) Continuous flow monitoring. Ecology is requiring continuous flow monitoring of the cooling water outfall during the first two years after the effective date of the permit. From Chelan PUD's perspective, this condition may be difficult to meet. At our hydroelectric projects, continuous flow monitoring "within two years of permit issuance" may be difficult because

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piping is not configured for an accurate install of a portable or a permanent flow meter. Installation would require special unit outages to modify equipment. If the condition for continuous monitoring cannot be removed, we respectfully suggest that Ecology bear this challenge in mind and consider modifying the timing for this and future permits from "within 2 years" to "to be completed during planned unit outages."

b) Typographical error. The portion of the table on page 11 of the draft permit appears to be redundant.

S2.A Table 7 TMDL heat Load (July-October) Outfalls W001 through W012

a) Heat load calculation methodology. The specific provisions related to heat loading may unnecessarily constrain implementation of the Columbia River and Lower Snake River Temperature Total Maximum Daily Load (TMDL). Since EPA is presently considering revisions to the TMDL based on public comments, the detailed calculation of heat load in the permit could conflict with the methodology in the final TMDL. The condition could provide that, when the TMDL has become final and effective, Ecology may modify the permit as necessary to be consistent with the assumptions and requirements of any wasteload allocation in the TMDL applicable to dam.

b) Heat load calculation compliance timeframe. Condition S11.C. of the draft permit requires the Permittee to achieve and maintain compliance with the wasteload allocation two years after the permit effective date or 30 days after the final temperature TMDL is issued, whichever is later. This language is problematic because 30 days is an insufficient length of time to implement compliance measures. As an alternative, Chelan PUD suggest Ecology consider requiring compliance two years after the later of the permit effective date or issuance of the revised TMDL. In addition, the draft permit does not appear to contemplate the potential of a court challenge to the TMDL. If it is stayed by court challenge, the permit should recognize explicitly that this condition is also be suspended pending the outcome of the court proceeding. Coming into compliance with a measure that is later revised is inefficient and costly. For clarity, we recommend that a clause be added that automatically suspends the heat load condition during such times as the TMDL may be suspended by court order.

S2.C.1-8 Flow measurement, field measurement, and continuous monitoring devices

Chelan PUD found this section confusing due to 1) the interchangeable use of terms relating to the installation and calibration of monitoring instruments and 2) the frequency of calibration. For example, bullet 1 describes using methods consistent with "accepted scientific practices" while bullet 2 requires that installation and calibration be done by "accepted industry standards." We suggest using the term "accepted industry standards" rather than "accepted scientific practices" for consistency. Bullet 3 requires that monitoring instruments be calibrated weekly, while bullet 6 requires that calibration frequency for each device be conducted as recommended by manufacturer and bullet 7 requires that calibration of flow-monitoring devises be done at least one time per year. We suggest this language be clarified.

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S3.F.2.a.4 Reporting permit violations

The draft permit requires the Permittee to report several occurrences by telephone to Ecology within 24 hours from the time the Permittee becomes aware of the circumstance. Circumstance 4 is a "turbine runner hub leakage, failure or emergency maintenance." Chelan PUD has concerns about the breadth of the requirement. Emergency maintenance is not necessarily limited to a release of oil. In addition, not all oil releases constitute emergency spills. Oil losses that are not associated with a sudden equipment failure and that do not result in a sheen should be accounted for in the annual oil accountability report rather than reported under this provision. Chelan PUD suggests that Ecology clarify item S3.F.2.a.4. to read, "Turbine Runner Hub leakage, failure, or emergency maintenance or repair work on oil seals that results in the violation of any terms of this permit or requires reporting under the Permittee's SPCC Plan."

S4.A. Operations and Maintenance (O&M) manual

The section on O&M manual components states that it must include a "review of system components installed to achieve compliance with the terms and components of this permit which if failed could pollute surface water or could impact human health." Further, it requires the Permittee to "[p]rovide a procedure for a routine schedule of checking the function of these components." Chelan PUD is concerned that this section is not only broad, but vague. To better meet Ecology's information needs, we suggest a clarification regarding the specific equipment included in this condition. Chelan PUD recommends that Ecology refer specifically to oil/water separators and station drainage sumps.

S5.C.a and b Solid Waste Control Plan

Condition S5.a requires the Permittee to submit a solid waste control plan to Ecology. It is unclear to Chelan PUD what the purpose of the Solid Waste Control Plan is, and why it is included in a permit designed to cover oil and grease from a point source. S5.C.b requires the solid waste control plan include information about debris removed from the spillway, boom structures, and screen entrainment. Chelan PUD currently removes large woody debris from the project and chips it for disposal/reuse. While reporting this information may illustrate the benefit that hydropower operators provide by reducing and controlling pollution in the Columbia River, it presents an additional layer of compliance and reporting responsibilities that is unrelated to the purpose of the NPDES. We respectfully request this provision be made voluntary or that it be replaced by a condition that simply prohibits discharging to the river any debris that has been removed from the river.

S9. Spill Control Plan

a) Spill control plan submittal. This condition requires the Permittee to comply with its most recent approved version of its federal SPCC Plan. However, Chelan PUD's concern is mainly minimizing duplicative reporting requirements. Chelan PUD currently complies with EPA's 40 CFR Part 112 (SPCC Rule) and WAC 173-303 and is regularly inspected by Ecology's Hazardous Waste/Toxics program. We respectfully request that this section be removed as unnecessarily duplicative.

b) Spill control plan requirements. Condition S9.B.1 would require a Permittee to include, in a

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spill control plan, "other materials used and/or stored on-site which may become pollutants or cause pollution upon reaching state's waters." This statement is unclear and could be potentially onerous to a Permittee attempting to meet Ecology's needs. A clarification regarding Ecology's specific concerns here, with examples, would be helpful to concentrate reporting efforts.

S10. Oil and Grease Accountability.

a) Oil and Grease Accountability. This condition appears overly broad in that it arguably covers all lubricants with, at most, a remote risk of discharge into the river, such as cars and grease guns. To avoid requirements that add complexity and costs without commensurate environmental protection, we suggest limiting the scope of the requirement to lubricant uses that have been identified, based on an evaluation of volume, risk of spill to the river, and toxicity, as posing a substantial risk of adversely affecting aquatic life in the river. Chelan PUD recommends allowing the permittee to propose the scope, subject to Ecology approval. In addition, Chelan PUD recommends that condition S.10. A.2. be removed because contractor training and Hazmat Accountability are not associated with grease accountability and are covered under other regulations.

b) Environmentally Acceptable Lubricants. Like the oil and grease accountability plan discussed above, this condition appears overly broad in that it arguably covers all lubricants with, at most, a remote risk of discharge into the river, such as cars and grease guns. To avoid requirements that add complexity and costs without commensurate environmental protection, we suggest limiting the scope of the requirement to lubricant uses that have been identified, based on an evaluation of volume, risk of spill to the river, and toxicity, as posing a substantial risk of adversely affecting aquatic life in the river. Chelan PUD recommends allowing the permittee to propose the scope, subject to Ecology approval.

Conclusion

Chelan PUD appreciates this opportunity to comment on Ecology's draft NPDES for Grant PUD. We look forward to responding to any questions and providing further input to Ecology as the department refines its conditions for the final permit and future permits for Mid-Columbia hydroelectric projects. Please contact Jennifer Burns at (509) 421-6749 with questions.

Sincerely,

Michelle Smith

Michelle Smith
Director, Hydro Licensing and Compliance

cc. Justin Erickson, Managing Director District Services, Chelan PUD
Erik Wahlquist, General Counsel, Chelan PUD
Steve Wright, General Manager, Chelan PUD

Ecology Responses to Chelan County PUD Permit Comments:

1. S1.A Discharge limits

    a. The department intends the facility monitor all operational discharges that are quantifiable and that present environmental risk to the Columbia River.
    b. Special Conditions will be evaluated for each facility. Ecology will seek congruence with the facility about what seems appropriate for determining representative readings.

2. S2.A Table 5-

    a. Ecology recognizes pH as a baseline testing parameter for river and wastewater health. The facility will monitor its discharge for pH.
    b. The facility will monitor its sumps for temperature to determine heat load discharged to the Columbia River. The facility may determine the location, frequency, and technology best suited for discharge sampling with Ecology concurrence.

3. S2.A Table 6-

    a. AKART may determine the location, frequency, and technology best suited for discharge sampling at each facility and outfall. Temperature is a WQBEL and is not subject to AKART.
    b. Duplicate Footnotes A and B removed.

4. S2.A Table 7-

    a. The Permit reflects the methods for calculating heat load as determined by Ecology's TMDL implementation team.
    b. Condition S11.C has been removed as it is inappropriate to consider Compliance Schedules without demonstrated non-compliance. The EPA TMDL was calculated and updated to consider maximum flows. Should the facility not meet the WLA then a Compliance Schedule may be considered.

5. Ecology will evaluate the language and seek to clarify it during your Permit DRAFT process. This is the recommended language from the Ecology boilerplate and is included in all permits.

6. Ecology will evaluate the language and seek to clarify it during your Permit DRAFT process as it pertains specifically to your facility.

7. WAC 173-240-150 determines the requirements for Operations and Maintenance Manuals.

8. The requirement for the Solid Waste Control Plan is determined on a case-by-case basis and is well within the context of the NPDES permitting.

9. S9.-

    a. The requirement is necessary NPDES permitting requirement and will remain.
    b. This is the recommended language from the Ecology boilerplate and is included in all permits.

10. S10.-

    a. Ecology revised the language to address Oil/Grease and removed Hazmat language.
    b. Ecology will work with the facility during the DRAFT permitting process to determine the scope.

Ecology received comments from **Douglas County PUD** for the draft Wanapum Hydropower permit. The comment letter is inserted below, followed by Ecology's response.

Public Utility District No. 1 of Douglas County

1151 Valley Mall Parkway • East Wenatchee, Washington 98802-4497 • 509/884-7191 • FAX 509/884-0553 • www.douglaspud.org

Via Electronic Filing - cynthia.huwe@ecy.wa.gov January 8, 2021

Cynthia Huwe
Permit Coordinator
Washington Department of Ecology
1250 W. Alder Street
Union Gap, WA 98903

Subject: **Draft Permit No. WA0991028 for Wanapum Dam's National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge Permit**

Dear Ms. Huwe,

Public Utility District No. 1 of Douglas County, Washington (Douglas PUD), licensee for the Wells Hydroelectric Project No. 2149 (Wells Project) respectfully submits comments on Washington Department of Ecology's (Ecology) Draft Permit No. WA0991028 for Wanapum Dam's National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge Permit (draft permit). Ecology made this draft permit available for public review on December 8, 2020. Ecology has made available a public comment period ending January 9, 2021. Douglas PUD and its counsel, JDSA Law, have reviewed the draft permit and permit fact sheet. After review, Douglas PUD welcomes the opportunity to provide comments on the draft permit.

A. Introduction

In connection with the Douglas PUD's Federal Energy Regulatory Commission (FERC) license renewal in 2012, Ecology issued Douglas PUD a Clean Water Act (CWA) Section 401 Water Quality Certification (401 Certification) pursuant to Order No. 8981. Douglas PUD is in good standing with Ecology under the terms of its 401 Certification. Douglas PUD has been and remains committed to meeting its FERC license and Washington (WA) state issued 401 Certification obligations to protect the Columbia River in accordance with the CWA, and to conserve, protect, mitigate and enhance various aquatic resources including the protection and restoration of Endangered Species Act (ESA) listed spring Chinook, summer steelhead and bull trout and the water quality that these species depend upon when interacting with the Wells Project.

Douglas PUD has a long history of meeting the WA State Water Quality Standards and requirements. Each year, Douglas PUD spends millions of dollars and thousands of hours working with regional stakeholders

to achieve those standards. As a result of these efforts, the Wells Project has one of the highest rates of survival for adult and juvenile salmonids. We take pride in our environmental stewardship.

Like Grant PUD, Douglas PUD has submitted to Ecology an application for a NPDES permit for the Wells Project, and Ecology is currently reviewing the Douglas PUD's NPDES permit application. Douglas PUD therefore has a very keen interest in the terms and conditions contained in the Grant PUD's Wanapum draft permit, as Douglas PUD anticipates that Ecology will issue a draft NPDES permit to Douglas PUD that may have similar conditions compared to the final Wanapum NPDES permit.

Grant PUD's Wanapum Dam (Priest Rapids Project) also received a Section 401 Certification in 2003 as part of its renewal of its FERC license (No. 2114) for the Priest Rapids Project. While there are many similarities in the two Ecology Water Quality certifications, each certification is unique to the respective projects.

Grant PUD's Wanapum Dam (operated under the Priest Rapids Project), and Douglas PUD's Wells Project are different projects with very different facilities, operating conditions and point sources. Therefore, Douglas PUD believes that permit conditions incorporated into the Grant PUD's draft permit should be specifically tailored to the Wanapum Dam point sources, and should not create precedent for conditions to be imposed on Douglas PUD's Wells Project NPDES permit.

B. General Comments on Wanapum Dam Draft NPDES Permit

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating water quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972. The "Clean Water Act" became the Act's common name with amendments in 1972.

Both Sections 401 and 402 are intended to address the discharge of pollutants and there are many overlapping requirements. However, it is clear based upon our research that a section 402 NPDES permit should not be used by Ecology to re-write the terms and conditions of a Section 401 Certification, including the existing and valid 401 Certification for the Wanapum or Wells Projects. Rather, NPDES permit conditions should be narrowly tailored to address specific point sources at each project.

1. Purpose of CWA Section 401

Section 401 of the CWA requires that any federally licensed or permitted projects that may result in a discharge of pollutants into waters of the United States, obtain a Water Quality Certification that certifies that the licensee has taken measures to ensure that any discharges comply with the CWA and applicable state water quality requirements. Both the Grant and Douglas PUD's Section 401 Certifications include very detailed requirements intended to ensure that the hydroelectric projects comply with the CWA and state water quality standards.

2. Purpose of CWA Section 402

Section 402 of the CWA requires NPDES permits for the discharge of any pollutant into navigable waters from a point source. "Point source" is defined as "any discernible, confined and discrete conveyance… from which pollutants are or may be discharged." The most common point sources are pipes and drainage ditches. "Discharge of a pollutant" is defined as "any addition of any pollutant *to* navigable waters *from* any point source." The NPDES permit system has primarily been focused on wastewater discharge, not point sources of hydroelectric operations. With hydroelectric projects just now joining the NPDES permitting system, Ecology needs to carefully analyze what scope of permit conditions should be

required, as many such projects already hold CWA water quality certifications, and have long demonstrated histories of CWA compliance.

3. Section 402 Permit Conditions Should be Narrowly Tailored to Point Sources

Within the context of a hydroelectric dam, many water quality conditions, such as water temperature are all specifically addressed in the Section 401 Certification and extensive measures are already required related to CWA compliance. Thus, for purposes of Section 402 NPDES permits, Ecology should limit permit conditions to specific point source regulations in Section 402 that are not already covered by the Section 401 Certification. Such permit conditions should not apply to the projects as a whole, as the water quality certifications include conditions to ensure that the projects as a whole comply with water quality standards required by the CWA. By way of example, the Grant PUD's 401 Certification in Section 6.9 contains a requirement that Grant PUD implement a Spill Prevention, Control and Counter Measures Plan and report on the accidental discharge of listed constituents. Likewise, Douglas PUD's 401 Certification includes a similar condition and reads at (6.7)(5)(a):

> "Spill Prevention and Control Requirements
>
> Douglas PUD shall operate the Project in a manner that will minimize spill of hazardous materials and implement effective countermeasures in the event of a hazardous materials spill. Douglas PUD shall update the Project Spill Prevention Control and Countermeasures Plan (SPCC) pursuant to FERC requirements and recommendations provided by Ecology. Douglas PUD shall comply and operate the Project with the updated version(s) of the SPCC."

And in (6.7)(5)(d)(iv), the 401 Certification reads:

> "Spills into state waters, spills onto land where contaminants could potentially drain into state waters, and any other significant water quality impacts, shall be reported immediately to the Washington Emergency Management Division at 1-800-258-5990 and the National Response Center at 1-800-424-8802. Notification shall include a description of the nature and extent of the problem, any actions taken to correct the problem, plus any proposed changes in operations to prevent further problems."

Similar conditions found in Grant PUD's 401 Certification (6.9) would be redundant with requirements found in the Section 402 NPDES Permit for Wanapum Dam. As such, any conditions that are already covered in a Section 401 Certification should be removed from a final NPDES Permit.

C. **Specific Comments on Wanapum Dam Draft NPDES Permit Conditions**

In addition to the general comment listed in the example discussed above, Douglas PUD submits the following technical comments on the draft permit special conditions:

1. Section S1

Section S1 (page 7 of 48) states permitted facility discharge limits and constituents. In this section, pH is listed as a monthly sampling requirement without explanation of how pH is tied to point source discharge of pollutants at the project. Since the requested permit was designed to be focused on oil/grease products and thermal input, the inclusion of a pH monitoring requirement without explanation of how this requirement is intended to addresses specific point source discharges does not seem appropriate in the NPDES permit at any sample frequency. To the extent this condition remains in the Wanapum permit, there should be careful attention to how that condition applies to a future Wells Project NPDES permit because pH levels were specifically addressed in the Wells Project 401 Certification. For example, Section (5.0)(3) of the Wells Project 401 Certification included the following:

> "The Wells project has limited ability to influence DO and pH levels due to the limited storage capacity, high rate of discharge through the reservoir, and a turbulent discharge that tends to increase rather than decrease DO downstream. The great majority of monitoring found that DO and pH levels were within applicable criteria. Sensors added to existing Wells forebay TDG monitoring equipment (2005-2007) showed that a pH values were within the range between 6.5 and 8.5, but within swings within this range, and b) there were periodic excursions of DO below the numeric criteria in August and September."

Likewise, Douglas PUD conducted background composite sampling within the forebay of Wells Dam and point source discharge locations including the sump system and oil water separator on April 23, 2019. This sampling was completed as part of Douglas PUD's application for an NPDES permit (refer to Douglas PUD's NPDES application). Results show that forebay composite pH was 7.89, sump composite pH was 7.75 and oil water separator composite pH was 7.86 further illustrating that the Wells Dam and associated point source discharge locations have no material impact on pH.

Thus, to the extent that Ecology intends to include a pH monitoring requirement, Ecology should explain the specific basis for why a specific point source justifies the monitoring condition when the 401 Certification did not find ongoing monitoring and reporting necessary. Absent such finding, the special condition should be removed. If Ecology has good reason for including this condition, then following the collection of baseline information that confirms that there is no meaningful change in pH associated with a project's point source discharges, we recommend that Ecology write into the Wanapum and Wells permits the criteria necessary to reduce and/or eliminate this sampling requirement from future permits.

2. Section S3

Section S3.F.a. requires 24-hour reporting (page 17 of 48) for permit violations. Reporting permit violations is a reasonable condition, but is also redundant with the Grant PUD and Douglas PUD's Spill Prevention, Control, and Countermeasure (SPCC) Plan requirements. Importantly, however, Section S3.F.a.5 requires reporting of "**any Alarm conditions** in the sump that trigger an obligation for the PUD to report to Ecology….under the terms of the… SPCC."

Inserting this requirement into the CWA Section 402 process is a duplication of regulatory oversight and inserts potential confusion into an already well organized and implemented SPCC process that is governed by both Ecology and the FERC. It was our understanding that the draft CWA 402 NPDES permit is intended to cover the discharge of small, more frequent point source discharges of oil products and heat, up to the permitted limits, rather than covering the infrequent and accidental spills of oil that are already

covered by the SPCC plan. At the Wells Project, an alarm signal indicating oil in a system or sump is not a point source discharge to the river, rather alarms often trigger a change in process flows like routing oily water to the Wells Project's oil water separator for cleaning prior to discharge. A requirement to report any and all alarms will not inform Ecology or the public about point source discharges and is therefore irrelevant and unactionable. Douglas PUD remains committed to the terms and conditions of the SPCC reporting criteria related to infrequent and accidental discharges to the river and therefore recommends that condition S3.F.a.5 be removed from the draft permit and if not removed, not carried forward to the permit for the Wells Project.

3. Section S4

Section S4 (on page 19 of 48) requires the PUD to develop and provide, to Ecology for review and approval, an Operation and Maintenance (O & M) Manual within six months of permit issuance that meets the requirements of WAC 173-240-150. This WAC 173-240-150 requirement appears to be duplicative of other manuals and requirements governing operation at Wanapum Dam (e.g. SPCC plan) and further this requirement is not specifically tailored to the permitted point source discharges within the Project. Rather, this special condition is effectively a regulation of the project as a whole, which is already covered by the Section 401 Certification process.

Undoubtedly the topics covered in the O & M manuals (tailored to wastewater treatment) cover multiple facilities used within a plant, much like the provisions for Section 401 Certifications. The requirements are therefore duplicative of the requirements of the 401 Certification. As an example, Section 6.0 of the Wells Project 401 Certification includes the following:

> "In view of the forgoing, and in accordance with Section 401 of the Clean Water Act (33 USC 1341), RCW 90.48.260 and Chapter 173-201A, Ecology finds reasonable assurance that the operation of the Wells Project pursuant to the proposed new license will comply with state and federal water quality standards and other appropriate requirements of state law provided the following conditions are met."

Given that Grant PUD has already established to Ecology's satisfaction the 401 Certification compliance with water quality standards and has maintained sufficient levels of O & M of Wanapum Dam, the additional O & M Manual requirement is unnecessary. Requiring detailed information on "each unit" including descriptions of controls, recommended settings, failsafe features etc. for this permit likewise seems onerous and unnecessary. To the extent that Ecology has specific concerns related to topics contained in WAC 173-240-150(2), Douglas PUD welcomes the opportunity for further discussion on this topic.

Applicable to the Wells Project, Douglas PUD expects that Ecology will confirm its findings set forth in the Wells Project 401 Certification and specifically tailor this requirement to the specific point sources included in the NPDES permit application (e.g. sump and oil water separator systems exclusively), and should not be broadly applied to the project as a whole.

As written, this requirement appears to go beyond those O & M criteria that relates to the discharge of oil, grease and heated water. Please consider revising this requirement to focus the required O & M Manual on the operation and maintenance activities that have the potential to result in a point source discharge pursuant to WAC 173-240-150. More specifically, please insert the following clarifiers into the requirement:

> "...O & M Manual that is specific to those systems that fit within the scope of WAC 173-240-150 and deals with wastewater facilities and their

> designated point source discharges (e.g. Oil Water Separator and Sump Systems)."

4. Section S5

Section S5 specific to Solid Wastes (page 20 of 48) requires the PUD to submit a Solid Wastes Control Plan. As discussed above, both the Grant PUD and Douglas PUD's 401 Certifications prohibit discharge of solid waste without prior approval from Ecology. Neither the Wanapum nor the Wells NPDES permit applications request an authorization to discharge solid waste from any point source. The blanket prohibition in the water quality certifications should sufficiently cover solid waste discharges and this permit condition should be removed.

Ecology asks for a Waste Control Plan that includes a plan for removal of "solid waste generated by the permittee" during debris removal from the spillway, boom structures and screens. To the extent that such solid waste exists, it is not generated by the project operator, and thus it is not from a "point source" subject to the NPDES permit. The project operator is therefore not generating solid waste, but rather removing solid waste from the Columbia River. Requiring compliance with regulations governing operators who generate solid waste for these tasks is beyond the permit condition authority for point source discharges. Again, the blanket prohibition of solid waste discharges contained in the Water Quality certifications sufficiently covers the PUD solid waste discharge obligations. Given the circumstances outlined above, Douglas PUD suggests that solid waste storage and removal concerns be taken up in a separate venue outside the Section 402 permitting process.

5. Section S6

S6 of the draft permit references modification of facility changes (page 21 or 48), where it provides,

> "The permittee must submit a new application at least 180 days before commencement of discharges, resulting from activities listed below, which are expected to result in permit violations. These activities include any facility expansions, production increases, or other planned changes, such as process modifications in the permitted facility."

The use of the word "any" when describing what these activities cover creates a significant regulatory burden that is beyond the scope of Section 402 of the CWA, and beyond Ecology's expertise. As the owner and operators of their respective facilities, the PUDs often make modifications and changes to their projects that do not and will not result in changes to permitted discharges or create a situation where the terms of the permit would be violated.

Ecology currently does not have the technical expertise necessary to provide timely review and approval of routine modernization and refurbishment activities at complex hydroelectric facilities. Douglas PUD further believes that the proposed permit language, submitted below, better places the parties in a position to manage and operate their hydroelectric facilities in a safe, reliable and efficient manner without any impact to Ecology's ability to regulate and oversee NPDES permit compliance.

Douglas PUD therefore requests clarification and revision to special condition S6 as follows:

> The Permittee must notify Ecology of planned activities that include facility expansions, production increases, or other planned changes, such as process modifications that are expected to have a material impact on

> those systems responsible for point source discharges that could result in future permit violations.

6. Section S10

Section S10.B. provides language specific to Environmentally Acceptable Lubricants (EAL, page 24 of 48). Requiring a utility to investigate the use of EALs is a reasonable requirement, but requiring their use unless "technically infeasible" is troubling. Who will decide when EALs are technically infeasible, or for example, "technically infeasible…based on…consideration of…cost of conversion"? This requirement is confusing and could open the door for further conflict from NGO's, Ecology, and hydro operators. Further, many hydro operators, including Douglas PUD, are already using EALs where oil and grease products are consumptive. In locations where substances are not consumptive (e.g. turbine runner hub), regular discharges are not expected. Finally, the NPDES permit is designed to allow the discharge of oil and grease products up to a limit, not to control their type.

Douglas PUD therefore propose a revision to Section S10.B. to be written as follows:

> Every five years the permittee shall evaluate and provide to Ecology a report documenting the efficacy of converting conventional oil and grease lubricants to EALs. This evaluation shall take into consideration the requirements to maintain a reliable bulk electric system, costs impact to utility customers and the operation, maintenance and warranty provisions from the mechanical parts manufacturers. While Ecology encourages the adoption of EAL products, to the extent practical and feasible, in the end it is up to the permittee to determine if said adoption is feasible for their specific use and application of lubricants.

Ecology's role is to ensure that the discharge of pollutants are maintained within the thresholds established within the NPDES permits and not to force permittees to prove to ecology that they can or cannot adopt EALs.

7. Section G4

Section G4 (Page 29 of 48) requires the PUD to report planned changes and "give notice to Ecology of planned physical alterations or additions to the permitted facility." Similar to prior comments, Douglas PUD suggests a revision to this requirement that would more clearly state that the permittee report planned changes that are expected to have a material impact on those systems responsible for point source discharges rather than cite, "permitted facility," or, consider tying this section to "the specific systems or processes identified in an O & M Manual," discussed earlier. As written, the section requirements seem overly general and could be needed to cover all systems at a hydro plant, which the applicant has not requested.

For clarification, Douglas PUD suggests that Ecology consider modifying Section G4 to require notification to Ecology only when those systems to be modified are expected to result in a measurable increase in the amount or type of point source discharges or permitted outfalls. A statement like the following would meet this revision recommendation,

> This section would be exclusively specific to those systems that have a material impact or contribution to permitted outfalls or point source discharges at the permitted facility whereby the operator expects the

change to create a measurable increase in constituent quantities discharged or a change in the point of discharge.

D. Conclusion

Douglas PUD appreciates the opportunity to comment on the draft permit for Wanapum Dam. We look forward to continuing to work with Ecology towards the completion of a Section 402 NPDES Permit for the Wells Hydroelectric Project that is tailored to the unique operation, configuration and conditions of the Wells Project. We hope that the above comments assist Ecology in developing a focused permit that will maintain high compliance with WA State Water Quality Standards, that does not duplicate the term and conditions of the 401 Certifications and that will continue to provide a high level of protection, enhancement, and mitigation for all aquatic life in the Columbia River. We appreciate the opportunity to provide input and to comment during this process. If you or your staff have any questions pertinent to our comments, please feel free to contact Andrew Gingerich (509) 881-2323.

Sincerely,

Shane Bickford
Assistant Manager – Natural Resources and Dam Safety

CC:

Gary Ivory – Douglas PUD, General Manager
Bob Siderius – JDSA Law, Council
Evan McCauley – JDSA Law, Council
Andrew Gingerich – Douglas PUD, Senior Aquatic Resource Biologist

Ecology Response to Douglas PUD comments:

1. General comments 1, 2, & 3-Ecology determines NPDES permitting by evaluating the application, on-site conditions of each unique facility, and will consider the applicability of NPDES conditions at each facility on an individual basis.

2. Specific Comments

    a. Section S1-Ecology recognizes pH as a baseline testing parameter for river and wastewater health. The facility will monitor its discharge for pH.
    b. Section S3-Ecology revised this section to remove Condition S3.f.2.a.5.
    c. Section S4-Ecology updated language in this section. Ecology will endeavor to work with the facility in order to determine which appurtenances are appropriate to include in their DRAFT NPDES permit.
    d. Section S5-The requirement for the Solid Waste Control Plan is determined on a case-by-case basis and is well within the context of the Hydropower NPDES permit.
    e. Section S6-Standard language used in all permits. Feel free to update as necessary.
    f. Ecology revised the Fact Sheet to remove, “Whether or not the use of EALs is "technically infeasible" will be based on consideration of applicable legal 0requirements; facility operational requirements; costs of conversion; risk of potential damage to equipment; and maintenance and outage schedules.”, because it redefines EPA’s definition of “technically infeasible”. Ecology will endeavor to work with the facility with regards to whether implementation is reasonable.
    g. G4-The permitting language here is standard to all permits and is meant to focus on NPDES permitted appurtenances.

EPA Comments

1. **Columbia and Snake Rivers temperature TMDL.** (Fact Sheet, pages 2-3, 29-30, 38; Permit, Table 2, footnote c, Table 7, footnote a). The Fact Sheet and draft NPDES permit describe the Columbia and Snake Rivers temperature TMDL as not being a final TMDL, likely because of language on the cover page of the TMDL that describes that EPA will be transmitting the TMDL to states to implement in water quality management plans after public comment. However, EPA did establish the TMDL on May 18, 2020 as in the first paragraph of the cover page and in order to meet a court decree, and as such, the wasteload allocations are currently in effect and must be included per 40 CFR 122.4(d).). Section 11C. of the Permit appears to indicate that the wasteload allocation is final, which is correct.

2. **Compliance Schedule for temperature TMDL**. (Fact Sheet, Section G; Permit, Section S11). Page 9-9 of EPA's 2010 NPDES Permit Writers Manual refers to a May 2007 memo from the Director of EPA's Office of Wastewater Management to EPA Region 9 that clarified the requirements of § 122.47 as they relate to WQBELs. One of the considerations is that the permittee cannot immediately comply with the new effluent limitation on the effective date of the permit. Please elaborate on why the facility is not believed to be able to meet its WLA. The TMDL WLAs assume a maximum temperature discharge with all outfalls operating at the same time at design flow. In addition, compliance with a facility-wide heat load only requires effluent monitoring to assess compliance, since the permit limit is an overall heat load, not the additional heat load the permitted outfalls are adding. This obviates the need for influent monitoring to assess compliance with the permit limit, although influent monitoring may be useful for the next permit cycle. Because there are only two outfalls, determining compliance when the permit becomes effective does not appear to warrant a compliance schedule for temperature.

3. **316(b) conditions.** Pages 11-12 of the Fact Sheet describes the basis for why current technologies are the BTA for 316(b) permit conditions. This should be included as a permit condition that the facility must maintain its current technologies to maintain BTA.

4. **PCB conditions**. Page 29 of the Fact Sheet indicates that the Columbia River is impaired for PCBs. Ecology may want to consider requiring PCB monitoring and minimization plans as EPA proposed in its Lower Columbia and Lower Snake River federal dam permits in addition to the annual PCB monitoring required in the permit renewal application requirements.

5. **Reasonable potential analysis for toxics.** Tables 6 and 7 on pages 18-21 in the Fact Sheet include wastewater characterization of the left and right bank sumps. These show detections of metals and toxics. Page 35 of the Fact Sheet describes screening criteria from the TSD that was used to determine that toxic effects are unlikely. Was reasonable potential analysis completed for these parameters or were detections below criteria? WET

testing examines the cumulative effect of toxics, but not the cumulative effect, so relying on WET testing alone may not be sufficient to determine reasonable potential of individual pollutants.

Ecology responses to EPA Comments:

1. Ecology has made corrections as necessary.

2. Deleted S11.C. since the EPA is correct that the facility likely meets the WLA. If the facility cannot meet the WLA, a compliance schedule may be appropriate.

3. Ecology has added Special Condition S13 as a Permit requirement to maintain BTA.

4. PCB's were not detected as submitted on the facility's application and therefore additional PCB requirements were not included in the permit. The facility will monitor PCB's when reapplying.

5. Currently there is only single sample analysis and screening data in the application which is does not show reasonable potential to pollute. Toxics will be screened again at reapplication and a determination will be made in a future permit.

Ecology received comments from **Riverkeeper** on the draft Wanapum Hydropower permit. The comment letter is inserted below, followed by Ecology's responses.

Columbia Riverkeeper
407 Portway Ave. Suite 301
Hood River, OR 97031

January 8, 2021

Cynthia Huwe
WQ Permit Coordinator
Department of Ecology, Central Regional Office
1250 West Alder Street,
Union Gap, WA 98903-0009.

Submitted online via email to: cynthia.huwe@ecy.wa.gov.

RE: Public Comment on Grant County Public Utility District's National Pollution Discharge Elimination System Draft Permit for the Wanapum Dam.

Dear Ms. Huwe:

Columbia Riverkeeper (Riverkeeper) submits the following comment on Grant County Public Utility District's (Grant PUD) National Pollution Discharge Elimination System (NPDES) draft permit (hereafter draft NPDES) for the Wanapum hydroelectric facility (hereinafter "Dam"), NPDES permit WA0991028.

Riverkeeper represents over 16,000 members and supporters who rely on clean water and healthy aquatic ecosystems throughout the Columbia River Basin. Riverkeeper supports the Washington Department of Ecology's (Ecology) decision to issue the draft NPDES permit for the Dam.

Hydroelectric facilities discharge pollution via point sources to waters of the United States, and in turn the U.S. Environmental Protection Agency (EPA) and states must regulate pollution from hydroelectric facilities pursuant to the Federal Clean Water Act (CWA) Section 402 and its implementation regulations, Chapter 90.48 of the Revised Code of Washington (RCW), and Chapter 173-220 of the Washington Administrative Code (WAC).[1] Academic, government, and industry studies, as well as oil spills reported to the National Response Center, demonstrate that hydroelectric facilities, including the Wanapum Dam, discharge pollutants

[1] EPA delegated authority to Ecology to issue most NPDES permits in Washington state.

through point sources. Yet, to date, EPA and most states have not regulated hydroelectric facilities under Section 402[2]. This must change.

Riverkeeper supports Ecology's decision to regulate the Dam under CWA Section 402, through the issuance of NPDES permits. Issuance of the NPDES permits should result in significant and important reductions in toxic and conventional pollutants. Riverkeeper offers the following comments to ensure that the NPDES permit for the Dam complies with the CWA and protects high-quality waters and healthy aquatic ecosystems.

BACKGROUND

I. Legal Background

Washington's rivers, and the use of rivers by people, fish, and wildlife, are protected by both federal and state law. In 1972, Congress passed the CWA to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[3] The CWA is the cornerstone of surface water quality protection in the United States. In the forty years since its passage, the CWA has dramatically increased the number of waterways that are once again safe for fishing and swimming. Despite the great progress in reducing water pollution, many of the nation's waters still do not meet the water quality goals. In fact, the vast majority of rivers and streams in Washington fail to meet basic state water quality standards for pollutants such as toxics and temperature.[4] These standards are designed to protect designated uses, including aquatic life, fishing, swimming, and drinking water.

The NPDES permitting scheme is the primary means by which discharges of pollutants are controlled. At a minimum, NPDES permits must include technology-based effluent limitations, any more-stringent limitations necessary to meet water quality standards, and monitoring and reporting requirements.[5] EPA and the state of Washington have issued hundreds of permits for pollution discharges into the Columbia and Snake rivers. These include permits that regulate the discharge of toxic pollution, hot water, bacteria, and other pollutants. According to EPA, improvements to water quality are directly linked to the implementation of the NPDES program and the associated control of pollution discharged from both municipal and industrial point sources.[6]

II. The Heavy Toll of Pollution on the Columbia.

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[2] EPA is the process of issuing NPDES permits for eight federal Columbia and Snake River Dams and has issued draft NPDES Permit for: Bonneville Project, The Dalles Lock and Dam, John Day Project, McNary Lock and Dam, Ice Harbor Lock and Dam, Lower Monumental Lock and Dam, Little Goose Lock and Dam, and Lower Granite Lock and Dam.

[3] 33 U.S.C. § 1251(a).

[4] *See* State of Washington 303(d) List, available at https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d; State of Oregon 303(d) List, available at https://www.oregon.gov/deq/wq/Pages/WQ-Assessment.aspx.

[5] *See* 33 U.S.C. §§ 1311, 1342, 1318.

[6] U.S. EPA, *Water Permitting 101* at 11, http://www.epa.gov/npdes/pubs/101pape.pdf.

- People who eat fish from the lower Columbia over a long period of time are exposed to health risks from arsenic, PCBs, dioxins and furans, and DDT and its breakdown products.[11]

Other studies have confirmed and added to the overwhelming scientific evidence on toxic contamination in the Columbia River Basin.[12] Pollution discharges from dams contributes to the pollution crisis on the Columbia River. According to the National Oceanic & Atmospheric Administration (NOAA):

> Spilled oil can harm living things because its chemical constituents are poisonous. This can affect organisms both from internal exposure to oil through ingestion or inhalation and from external exposure through skin and eye irritation. Oil can also smother some small species of fish or invertebrates and coat feathers and fur, reducing birds' and mammals' ability to maintain their body temperatures.[13]

The impacts of oil pollution are sobering. Yet the Grant PUD has discharged oil and other pollution from the Dam without the NPDES permit authorization required by the CWA for decades. In turn, the Grant PUD has failed to monitor and report pollution in a manner that enables the public to fully understand the extent and severity of the problem.

The Dam also adds heat—through cooling water and reservoir heating—to a river system recognized by EPA as too warm to support designated uses, including salmon habitat. Salmon need cool water to survive. Nearly two decades ago, federal scientists declared the Columbia River too hot for healthy salmon runs. Hot water pollution from point sources, including dams, contributes to elevated water temperatures in the Columbia River. In 2019, Grant PUD conducted temperature modeling (below) on the Priest Rapids Hydroelectric Project, including the Wanapum Dam forebay and tailrace. The study concluded that "water temperatures peaked during August/early September, with some daily maximum values greater than 20°C at all FSM stations."[14]

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[11] *Id.*at 5-6.
[12] *Id.* at 6 (citing studies by USGS, the U.S. Army Corps of Engineers, DEQ, and others); *see generally* U.S. EPA, *State of the River Report.*
[13] NOAA, Office of Response and Restoration, *How Oil Effects Fish and Wildlife in Marine Environments, Hydro Review,* http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/how-oil-harms-animals-and-plants-marine-environments.html.
[14] Public Utility District No. 2 of Grant County, *2019 Summary Results of the Water Quality Fixed-Site Monitoring Program within the Priest Rapids Hydroelectric Project* , p. i (February 2020).

The Columbia River is one of the West's greatest river systems. This river supports rich fishing traditions, provides water for communities and agriculture, recreation opportunities, and power for hydroelectric dams. The river is also severely degraded by pollution. Toxic pollution threatens the health of people that eat local fish and jeopardizes the public's right to eat fish caught locally. Rising water temperatures also threaten the health of salmon and other aquatic life that rely on cool water for survival.

In 2006, EPA designated the Columbia River Basin a Critical Large Aquatic Ecosystem because toxic contamination and other pollution is so severe. In 2009, EPA released an in-depth report on toxic pollution in the Columbia, the *Columbia River Basin: State of River Report for Toxics*.[7] EPA's report concluded that harmful pollutants are moving up the food chain, impacting humans, fish, and wildlife. As the report explains, "[i]n 1992, an EPA national survey of contaminants in fish in the United States alerted EPA and others to a potential health threat to tribal and other people who eat fish from the Columbia River Basin." This survey prompted further study on the contaminated fish and the potential impacts on tribal members.

In particular, EPA funded four Columbia River tribes, through the Columbia River Intertribal Fish Commission (CRITFC), to study contaminant levels in fish caught at traditional fishing sites.[8] The study demonstrated the presence of 92 toxic chemicals in fish consumed by tribal members, resulting in a 50-fold increase in cancer risk among tribal members whose diets rely on river-caught fish. Contaminants found in these fish include PCBs, dioxins, furans, arsenic, mercury, and DDE, a toxic breakdown product of DDT.[9]

The CRITFC study is not alone in demonstrating the serious problem of toxic contamination. From 1989 to 1995, the Lower Columbia River Bi-State Water Quality Program ("Bi-State Program") generated substantial evidence demonstrating that water and sediment in the Lower Columbia River and its tributaries have levels of toxic contaminants that are harmful to fish and wildlife.[10] The Bi-State Program concluded that:

- Dioxins and furans, metals, PCBs, PAHs, and pesticides impair the water sediment, and fish and wildlife;
- Arsenic, a human carcinogen, exceeded both EPA ambient water criteria for protection of human health and the EPA human health advisories for drinking water;
- Beneficial uses such as fishing, shellfishing, wildlife, and water sports are impaired;
- Many toxic contaminants are moving up the food chain and accumulating in the bodies of animals and humans that eat fish;

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[7] U.S. EPA, *Columbia River Basin State of River Report for Toxics* (hereafter *State of the River Report*) (January 2009), https://www.epa.gov/columbiariver/2009-state-river-report-toxics).
[8] *Id.*at 3.
[9] *Id.* at 19.
[10] Lower Columbia River Estuary Partnership. 2007. *Lower Columbia River and Estuary Ecosystem Monitoring: Water Quality and Salmon Sampling Report* at 1.

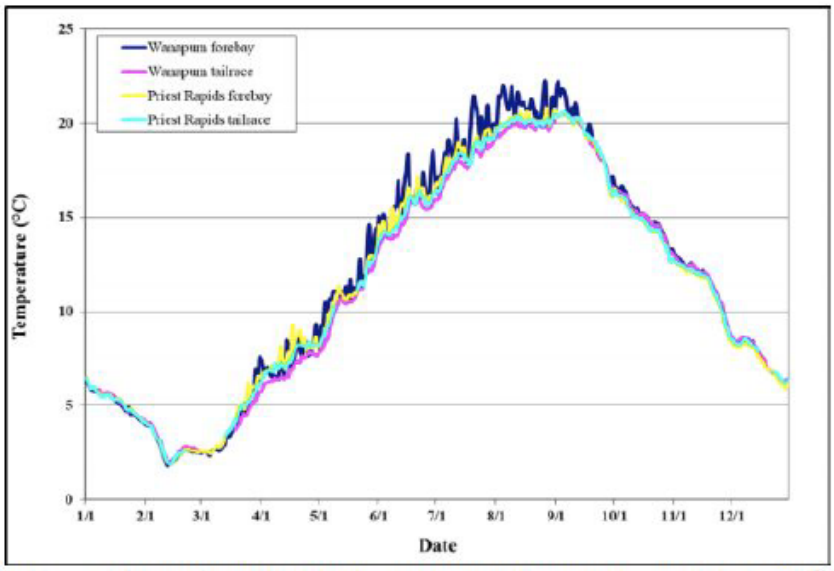


Figure 11 **Daily maximum (1-DMax) water temperature values recorded at each fixed-site monitoring station (FSM station) in 2019, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.**

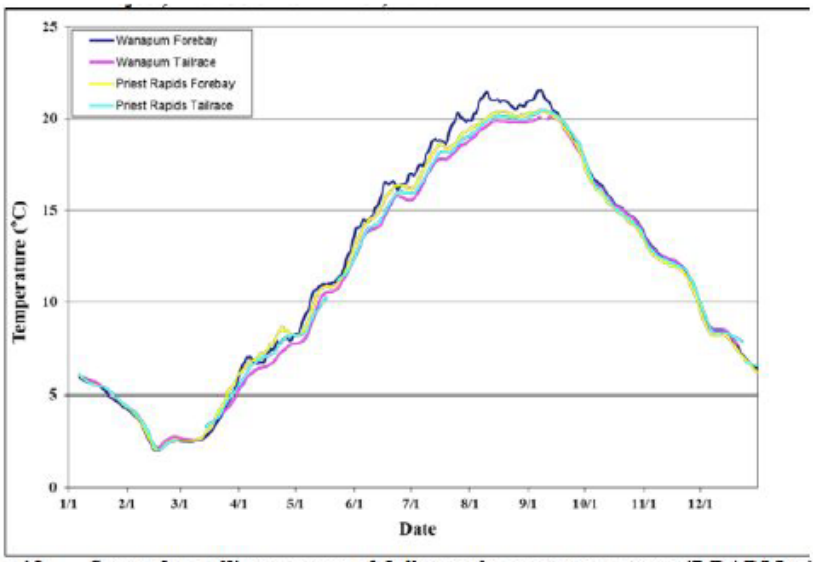
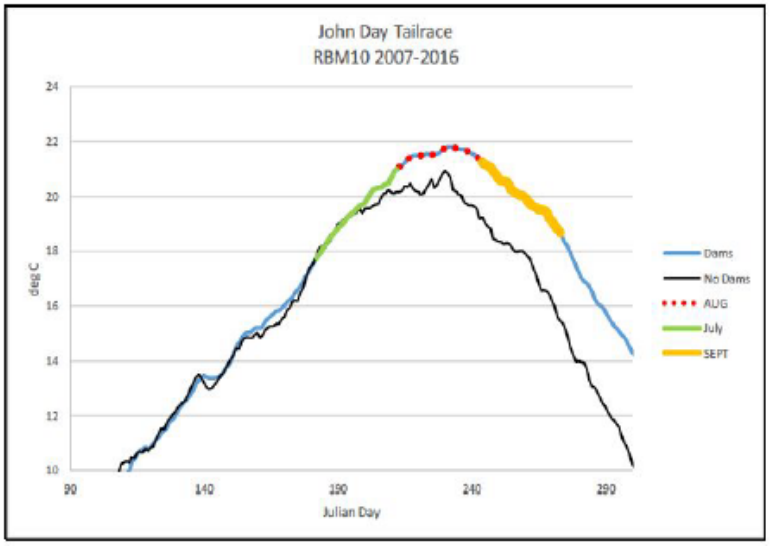


Figure 12 **Seven-day rolling average of daily maximum temperatures (7-DADMax) recorded at each fixed-site monitoring station (FSM station) in 2019, Priest Rapids Hydroelectric Project, mid-Columbia River, WA.**

This conclusion and water temperature results, correspond with more recent modeling done by EPA (below), which shows that the summer water temperatures at John Day dam, for example, are significantly warmer because of the John Day pool and upstream reservoirs.[15]



More EPA modeling also shows that John Day and McNary dams together raise the temperature of the Columbia an average of 0.5 and 0.6 degrees C in August and September, respectively.[16] Similarly, the four Lower Snake River dams impound reservoirs that add heat to the river, as illustrated in the figure below.[17]

[15] EPA, *Columbia River Temperature TMDL: State and Tribal Meetings PowerPoint Presentation*, Slide 33 (January 2020).

[16] *See* EPA, *Draft Assessment of Impacts to Columbia and Snake River Temperatures using the RBM10 Model*, pp. 28–29 (December 19, 2018).

[17] Columbia Riverkeeper, *White Paper: Computer modeling shows that Lower Snake River dams caused dangerously hot water for salmon in 2015*, p. 4 (2017).

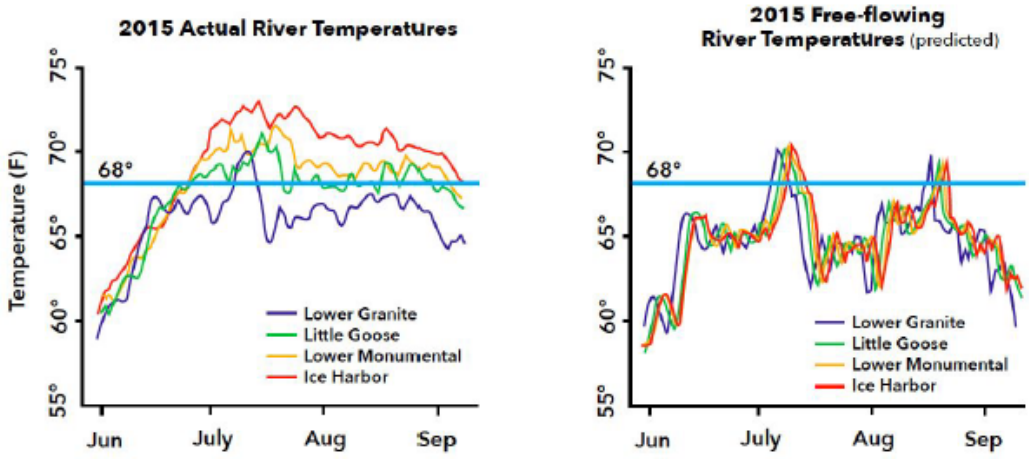


Figure 1. Comparison of 2015 summer water temperatures between the actual, dammed Lower Snake River (left) and a modeled, free-flowing Lower Snake River (right).

While the above modeling focused on the federal dams along the Columbia, the sobering conclusions that the Columbia River is too hot and the dams contribute to the increase in temperature, implicate the Grant PUD Dams, including Wanapum Dam.

Furthermore, the devastating impact of hot water pollution on the Columbia River is not hypothetical. Northwest rivers had unreasonably high temperatures in summer 2015, warm enough to kill more than 277,000 adult sockeye salmon (about 55% of the total run, including 96% of endangered Snake River sockeye) returning to the Columbia and Snake rivers.[18] The Fish Passage Center, which provides technical assistance and information to fish and wildlife agencies, concluded that higher water temperatures in the Columbia are largely due the dams.[19] Unfortunately, subsequent years have shown that adult Snake River sockeye frequently die in significant numbers in the hydrosystem, largely due to warm water conditions created or exacerbated by the dams. In 2017, the National Marine Fisheries Service (NMFS) estimated that passage through the hydrosystem killed 43% of returning adult endangered Snake River sockeye.[20] In 2018, NMFS estimated that 15% of adult Snake River sockeye died between the Bonneville and McNary dams.[21] In 2019, ladder counts suggested 75% mortality for sockeye in the Lower Snake: 320 sockeye were observed at Ice Harbor Dam ladder, but only 81 were observed in the ladder at Lower Granite Dam.[22] Adult Snake River steelhead and Chinook also

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[18] *Columbia Riverkeeper v. Pruitt*, Case No. 2:17-cv-00289-RSM, Defendants' Answer, ¶ 3 (May 15, 2017) (EPA admits that the 2015 fish kill was "attributable primarily to warm water.").
[19] Fish Passage Center, *Memorandum on Water Temperature Issues in The Columbia and Snake Rivers* (Oct. 28, 2015), http://www.fpc.org/documents/memos/159-15.pdf.
[20] NMFS, *"2019 adult survival estimates for distribution" spreadsheet; "SR Sockeye" tab* (2019).
[21] *Id.*
[22] Fish Passage Center, *Adult Returns for Columbia & Snake River Dams Webpage* (queried April 5, 2020).

Grant PUD has reported a number of oil releases from the Dam. Riverkeeper provides the following examples of several oil discharge events from January 2014 to January 2017 to illustrate the need for monitoring, reporting, and pollution controls at the Dam:

- In 2014, Grant PUD reported that an unknown amount of Hydraulic fluid was discharged into the Columbia River.
- In 2015, the Wanapum Dam had a two-ounce hammer oil spill, which released from an air drill compressor line.
- In 2017, a three foot by five foot oil or grease sheen was reported from the Wanapum Dam.
- In 2017, an unknown amount of petroleum fuel oil was reported leaking from the reservoir at the Sluice gate directly into the Columbia River.

This non-exhaustive list of oil discharges at the Dam highlights the need for NPDES permits and the critical role they will play in reducing pollution in the Columbia.

COMMENTS

IV. Effluent Limits

A. Ecology Must Revise the Draft Permit to Include Technology-Based Effluent Limits that Incorporate the Use of Environmentally Acceptable Lubricants.

Ecology must revise the Draft Permit to: (1) explicitly require the use of environmentally acceptable lubricants (EALs) as a technology-based effluent, and (2) ensure Ecology oversight of EAL selection and use at the Dam. Commenters support Ecology's decision to include an EAL Plan in the Draft Permit.[27] However, Ecology must revise the Draft Permit to ensure the agency is not authorizing an illegal self-regulatory scheme. The EAL Plans constitute technology-based effluent limits, yet Ecology fails to comply with the CWA and implementing-rule requirements for technology-based effluent limits.[28] The Draft Permit describes the EAL Plan requirement in Special Condition S10.B, which states:

> EALs are lubricants that have been demonstrated to meet standards for biodegradability, toxicity, and bioaccumulation potential that minimize their likely adverse consequences in the aquatic environment, compared to conventional lubricants. Whether or not the use of EALs is 'technically

[27] Wanapum Dam Draft Permit at 24.
[28] Ecology should revise the Draft Permit to clarify that BMP Plans constitute technology-based effluent limits.

> infeasible' will be based on consideration of applicable legal requirements; facility operational requirements; costs of conversion; risk of potential damage to equipment; and maintenance and outage schedules.
> The permittee will Utilize Environmentally Acceptable Lubricants (EAL) unless technically infeasible and submit an Annual EAL Report:
> 1. Identify which equipment uses Conventional versus Environmentally Acceptable Lubricants. Table 4 of the SPCC identifies the Type of Oil for containers and equipment > 55 gallons.
> 2. Discuss potential for converting to EAL for each process/equipment (AKART).
> 3. Develop a timeline for converting appropriate equipment to EAL usage.[29]

Ecology does not include any approval or disapproval mechanism for EAL Plans, allowing Grant PUD to essentially self-regulate. Special Condition S10.B fails to include any review and approval procedure by Ecology. Ecology must afford the public an opportunity to review and comment on the draft EAL Plans. The EAL Plans constitute "effluent limitations," which the public should be allowed the opportunity to review and offer comment upon. Commenters urge Ecology to revise the Draft Permit to include new terms specifying Ecology's review and approval role, as well as the opportunity for public notice and comment.

V. Monitoring and Reporting

A. Ecology Must Include and Specify Visual Observations

Ecology fails to include a requirement for visual monitoring in the Draft Permit. Condition S10.C of the Draft Permit requires the Dam to produce an Oil and Grease Accountability Plan, however Ecology does not require visual observations for oil sheen, floating, suspended, or submerged matter of any kind to be a part of that Plan or part of the monitoring requirements for oil. As outlined in Section III of this comment, visual observations prove an effective method of monitoring for oil sheen or discharge from the Dam and are one of the ways in which the Dam is informed of an oil leakage issue. The failure to specifically include visual observations, and specify frequency, is an oversight by Ecology that must be corrected.

B. The Draft Permit Must Include Terms that Give Ecology Authority to Authorize when Turbines Return Online After a Spill Incident

Often, when detection of a spill incident of prohibited pollutants occurs at a dam, resulting from the failure of a turbine, the turbine is taken offline for the necessary repairs to prevent continued spill. Once the dam operator finishes repairs that turbine goes back online. However, because of a lack of regulatory oversight, bringing the turbine online often results in an additional spill incident. For example, in June 2019, the Chelan PUD reported that the Rocky Reach Dam C3 Turbine spilled 208 gallons of oil prompting the PUD to take the unit offline until

[29] Wanapum Draft Permit at 24.

suffer significant mortality from the hydrosystem. After eliminating other sources of mortality, the arduous summer and fall migrations through the hydrosystem appear to be killing 10–20% of all pre-spawn adult fish from these populations, which are not meeting recovery objectives mandated by the Endangered Species Act. Moreover, these estimates of out-right fish mortality in hydrosystem do not capture the effects of chronic or cumulative thermal stress that may contribute to additional mortality or reproductive failure upstream. Clearly, the Columbia River is already too warm to support healthy native fish populations.

III. Pollutant Discharges from the Dam

Section 301(a) of the CWA prohibits discharges of oils, greases, lubricants, cooling water, and other pollutants to the Columbia River from the Dam without NPDES permit authorization.[23] WAC 173-220-210 allows Ecology to subject any discharge allowed by an NPDES permit to reasonable monitoring, recording, and reporting requirements. Without NPDES permits, Grant PUD has failed to monitor, report, and reduce pollution discharges pursuant to the CWA and state and federal implementing rules for decades.

The Dam discharges oils, greases, lubricants, and other pollutants collected from various sources through sumps, including powerhouse drainage sumps, unwatering sumps, spillway sumps, and other systems. The Dam also discharges cooling water, and the associated heat, used to cool a variety of components and materials, including turbines, generators, transformers, and lubricating oils.[24]

The Wanapum Dam utilizes ten new advanced designed turbines, installation of which finished in 2015, replacing ten Kaplan turbines.[25] Kaplan turbines have variable pitch blades that can be adjusted to increase efficiency. The shaft and hubs of these turbines are filled with oil or another pollutant. This oil or other pollutant leaks to surface waters from certain locations, including the turbine blade packing/seals. The Wanapum Dam's advanced designed turbines contain smaller hubs. However, the turbines still contain oil or other pollutants.[26]

Wicket gates control the amount of water flowing through the turbines at the Dam. The wicket gate bearings are lubricated with grease or another lubricant. This grease or other lubricant is continuously fed into the bearings and discharged into surface waters.

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[23] 33 U.S.C. § 1311(a).
[24] *See generally* The Rocky Reach Dam NPDES Permit Application for a list of outfalls identified by the PUD which discharge pollutants to the Columbia River.
[25] U.S. DEP'T OF ENERGY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, BIOLOGICAL ASSESSMENT OF THE ADVANCED TURBINE DESIGN AT WANAPUM DAM (2005). See Thomas Stredwick, Balancing Unit Efficiency and Fish Passage, HYDRO REVIEW (May 19, 2015) https://www.hydroworld.com/articles/hr/print/volume-34/issue-4/articles/balancing-unit-efficiency-and-fish-passage.html.
[26] U.S. DEP'T OF ENERGY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, BIOLOGICAL ASSESSMENT OF THE ADVANCED TURBINE DESIGN AT WANAPUM DAM 20 (2005).

September 2019.[30] On October 2, 2019, the PUD discovered that between September and early October, Unit C3 leaked an additional 105 gallons of hydraulic oil into the Columbia.

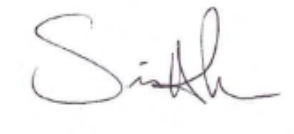
To address spills caused by turbine return-to-service, Ecology should revise the Dam's Draft Permit to include terms that give Ecology authority to authorize when turbines return online after a spill incident, at a minimum this should include:

- Ecology approving permittee's request to bring a unit online after a spill incident; and
- A mandatory checklist that the permittee must complete prior to requesting a unit return online.

VI. Conclusion

Riverkeeper requests that Ecology include the above recommendations in its draft NPDES permit for the Wanapum Dam to ensure compliance with the CWA and protect the Columbia River and designated uses.

Sincerely,



Simone Anter
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Columbia Riverkeeper
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(541) 399-5312

[30] Rocky Reach Spills Over 300 Gallons of Oil into Columbia, Columbia Riverkeeper Press Release (Oct. 21, 2019) available at https://www.columbiariverkeeper.org/news/2019/10/rocky-reach-dam-spills-over-300-gallons-oil-columbia-river.

Ecology response to Riverkeeper Comments:

1. Ecology's fact sheet defines Technology-based effluent limit as a "permit limit based on the ability of a treatment method to reduce the pollutant." EAL's are not part of any Hydropower process involving treatment. Ecology has determined the facility must Submit an EAL Plan that meets the stated Permit requirements. Not doing so is a violation of the Permit. Ecology does not currently have a process for affording Public Review of other required Plans for submission (i.e. Operations and Maintenance, Spills, Solid Waste) and will therefore not require EAL Plans to undergo a Public Notice and Review process. Ecology does not have resources or technological expertise in EAL's to review and approve EAL Plans. Additional Permit requirements for EAL's will be incorporated into future permits as necessary.

2. Visual Observations-The facility SPCC Plan - Contingency Plan was developed in collaboration with the Washington State Department of Ecology as a part of the Columbia-Snake River Spill Response Initiative. This Plan is supported by the Grant County Emergency Support Function 10 (ESF), a portion of the County's Comprehensive Emergency Response Plan, the State of Washington's NW Area Contingency Plan and the National Oil and Hazardous Substances Contingency Plan (40 CFR 300). The facility currently conducts monthly and annual inspections on most oil containing appurtenances. The facility additionally sights for oil loss at shift changes. The facility contains oil detection alarms. The Ecology NPDES Permit specifically forbids the discharge of visible sheen.

3. Turbines-Ecology will not specify provisions for turbine return-to-service as it falls outside of the scope of NPDES permitting. The facility has Spill procedures outlined in their SPCC Plan for preventing and reporting spills including from their turbines.