Rocky Reach Dam National Pollutant Discharge Elimination System (NPDES) Permit

CHELAN COUNTY P.U.D.

DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE
RECEIVED
January 14, 2025
Received via: crowqpermitcoordinator

Operations and Maintenance Manual

Table of Contents

1.0 Overview

1.1 Description- The Washington Department of Ecology (Ecology) issued National Pollutant Discharge Elimination System (NPDES) permit WA0991033 (Permit) to Chelan PUD for discharges from Rocky Reach Dam, effective March 1, 2024. The Permit includes discharge limits and monitoring and reporting requirements for oil and grease, pH, and heat at all sump outfalls and for heat at all noncontact cooling water outfalls. In addition, the Permit requires flow monitoring at all outfalls.

Chelan PUD uses resistance temperature detectors (RTDs), flow meters, and pump runtime meters to continuously monitor noncontact cooling water and sump discharges. Chelan PUD takes monthly manual grab samples to monitor sump discharges for oil and grease and pH.

This Rocky Reach Operations and Maintenance Manual is intended to fulfill the requirements of the Permit, including Permit Conditions S5.A (O&M Manual), S6.C (Solid Waste Control Plan), S12 (Effluent Flow and Temperature Monitoring Plan), and S14 (PCB Management Plan).

1.2 Outfalls- (see Table 1)

Outfalls	Discharge Description
RR01 to RR07	Cooling water from Units C1-C7
RR08 to RR11	Cooling water from Units C8-C11
RR12 to RR17	Plant HVAC cooling water
RR18 & RR19	Unwatering sumps
RR20	Station sump unwatering pumps
RR21	Office HVAC cooling water

Table 1- Discharge outfalls for the Rocky Reach NPDES permit

The 21 discharge outfalls are visually represented on drawing 0220-50GA-0027 in Appendix C.

2.0 Operations

2.1 Rocky Reach Dam Contacts

- **Operations Superintendent**: Justin Fletcher
  - Working Hours Phone Number: 509-661-4386
  - After Hours Phone Number: 509-264-1162
- **Maintenance Superintendent**: Alan Eastridge
  - Working Hours Phone Number: 509-661-4063
  - After Hours Phone Number: 509-322-4647
- **Environmental Program Manager**: Jennifer Burns
  - Working Hours Phone Number: 509-661-4474
- **Environmental Coordinator**: Don Wheeler
  - Working Hours Phone Number: 509-661-4918

2.2 Operations Overview- General information for each of the four effluent discharge types at Rocky Reach Dam is provided below. For specific components used to monitor each discharge identified in **Section 2.2.1** thru **Section 2.2.4** reference the Instrumentation List in **Appendix D**.

2.2.1 Generator Cooling Water (RR01-RR11)- The cooling system for each generator unit is designed to maintain stable generator stator temperatures. River water delivered from the raw water header is circulated through a series of two sets of cooling coils (north and south) installed around the stator.

The degree of cooling supplied by the system depends on the temperature of the river water and the flow rate of the water through the cooling coils. Water flow rate is regulated by the position of automatically controlled discharge valves. The unit PLC continuously monitors the stator outlet air temperature. The outlet temperature is compared to the target setpoint. Programming logic (a Proportional Integral Derivative Loop) determines the proper positions for the discharge valves to maintain the target temperature.

The thrust bearing for each unit is also cooled by river water. Raw (river) water is circulated to cool the thrust bearing oil. The water is circulated continuously at normal head pressure whenever the unit is operating. Water passed through the coolers is collected in a discharge pipe that later joins the south generator cooling water discharge pipe and empties into the unit's draft tube.

2.2.2 Plant HVAC (RR12-RR17)- The Plant HVAC System includes six main air supply systems. Either cool water from the Raw Water System or warm water from the Generator Cooling System is used to cool or heat the circulating air.

Control valves in the Raw Water System headers are opened and closed depending upon the season. In the winter months, the heated water from the generator cooling system is routed to the piping for the HVAC heat exchangers. Water from the HVAC systems drains into the "Heat Return" header and from there it flows into the draft tubes.

In the summer months the valve positions are changed. The "Heat Supply" header is used to transport cool raw water to the HVAC system heat exchangers. Water from the HVAC systems does not flow to the "Heat Return" header but flows directly into the draft tubes.

2.2.3 Sumps (RR18/ RR19 and RR20)- The powerhouse is equipped with two unwatering sumps. Both sumps are located at the south end of the powerhouse and are connected via an intertie valve. Dedicated sump pumps automatically empty the contents of the sumps into the tailrace.

The larger unwatering sump is used primarily for draft tube, scroll case, and fishway unwatering. Water from these processes enter the large sump and is then discharged to the tailrace via two large unwatering pumps (R18/R19).

A smaller station unwatering sump is located within the large sump and has two smaller unwatering pumps whose discharge combines prior to outfall to the tailrace. The water that is collected and subsequently discharged from the station unwatering sump comes from the unwatering channel. Water from trenches and floor drains from elevation 648' and below as well as water from turbine shaft packing, governor compressors and turbine guide bearing cooling enters the dirty side of the unwatering channel and passes through an oil water separator. The clean water then flows into the station unwatering sump for discharge into the tailrace (R20).

2.2.4 Office HVAC (RR21)- The Office HVAC System includes two air supply systems that are both fed by a common closed-loop water system consisting of heat pumps, chillers and condensers located at elevation 630' of the powerhouse. The water temperature is moderated by a pair of heat pumps located at elevation 630'. Either cool water from the Raw Water System or warm water from the Generator Cooling System is used to help cool or heat the closed loop water.

2.3 Design Criteria- This section of the document outlines how instrumentation monitors the temperature and flow of the 21 effluent discharge locations. For specific components used to monitor each system identified in **Section 2.3.1** thru **Section 2.3.4** reference the Instrumentation List in **Appendix D**. Sump discharge monitoring for pH and oil and grease is discussed in Section 2.4.

2.3.1 Generator Cooling Water (RR01-RR11)- The generator cooling system is designed to maintain generator stator temperatures with as small a differential as possible under varying load conditions. Each generating unit has three cooling water discharges that flow into the draft tube prior to being discharged to the tailrace; Generator Thrust Bearing Cooling Water Flow, Generator South Cooling Water Flow, and Generator North Cooling Water Flow. Each of these flows is monitored with a flow meter and a temperature sensor. These instruments directly measure the temperatures and flowrates to calculate discharges, RR1 through RR11.

These cooling water flows not discharge continuously so there may be periods of non-existent data (there is no discharge when a unit is not operating).

2.3.2 Plant HVAC (RR12-RR17)- Temperature probes and flow meters were installed for each discharge associated with the Plant HVAC system. These instruments directly measure the temperature and flowrate for each discharge, RR12 through RR17.

Data from these discharges is relevant only when the system is configured for cooling mode. When the system is configured for warming mode, water from the HVAC system is not discharged, but flows to the "Heat Return" header.

2.3.3 Sump (RR18/ RR19 and RR20)- Submersible temperature probes and pump run time are used to measure sump discharge temperatures and flows. The temperature probe continuously measures the temperature. Pump run time and the nominal operating capacity is used to calculate discharge flow from the pumps.

A submersible pump is used to take monthly water samples for oil, grease, and pH from the sump. Refer to section 2.4 for more details.

2.3.4 Office HVAC (RR21)- A temperature probe and a flow meter were installed for the discharge of the Office HVAC system. These instruments directly measure the temperature and flowrate for discharge RR21.

This system does not discharge continuously so there may be periods of non-existent data (for example, air conditioning does not regularly run in the winter).

2.4 Procedure for Manual Grab Samples- Manual grab samples are collected for outfalls RR18/RR19 (unwatering sump pumps) and RR20 (station sump pumps). The unwatering pumps (RR18/RR19) pull from a common sump so only one pump is used to collect samples – data from this outfall is used to represent both RR18 and RR19.

Oil and grease is tested by a third party, Eurofins, using Environmental Protection Agency Method 1664 Revision A.

Temperature and pH are tested directly by the District's Environmental Coordinator. This data is processed with a portable temperature and pH meter, with an example provided in **Figures 1 and 2.**

Figure 1- Example instrument, Hannah instruments Portable pH/EC/TDS Temperature meter nameplate

Figure 2- Example instrument, Hannah instruments Portable pH/EC/TDS Temperature device

2.4.1 Collect Samples from RR18/ RR19 and RR20

Tools and Materials (brought by Environmental Coordinator)

- Test kit for pH and temperature
- Quantity four Method 1664A test bottles for oil and grease

Procedure

NOTE: Sample collection is performed during the first week of the month by the Environmental Coordinator and Plant Mechanic.

Figure 3- Unwatering sump pumps 1 and 2 for discharges RR18 and RR19

1. (Plant Mechanic) **TURN** unwatering sump pump 1 for RR18 **'ON' (see Figure 3).**
2. (Plant Mechanic) **TURN** unwatering station sump pump 3 for RR20 **'ON' (see Figure 4 on page 8).**
3. (Plant Mechanic) **CONNECT** hose to RR18 and run so it will discharge into the sump.
4. (Plant Mechanic) **OPEN** sample port discharge valve for RR18 **(see Figure 5).**
5. (Plant Mechanic) **CONNECT** hose to RR20 and run so it will discharge into the sump.
6. (Plant Mechanic) **OPEN** sample port discharge valve for RR20 **(see Figure 6).**
7. **RUN** pumps for 90 seconds or until there is a steady flow of water (this ensures the sample is representative of the fluids in the sump).
8. (Environmental Coordinator) **FILL** Hanna test cylinder with water.
9. (Environmental Coordinator) **TEST** sample for pH and temperature. **RECORD** data.
10. (Environmental Coordinator) **FILL** four Method 1664A test bottles (2 from RR18 and 2 from RR20).
11. (Plant Mechanic) **CLOSE** RR18 and RR20 discharge valves.
12. (Plant Mechanic) **TURN** unwatering sump pump and station sump pumps **'OFF'.**
13. (Environmental Coordinator) **FILL** out Eurofins Chain of Custody Record.

Figure 4- Station sump pumps 1 and 2 for discharge RR20

Figure 5- Oil and grease sample port for discharge RR18/RR19

14. (Environmental Coordinator) **SHIP** Method 1664A test bottles to Eurofins Seattle, with a request for the lab to perform a **'1664A Local Method Test for nonpolar oil and grease'.**

    NOTE: Eurofins will provide a test report with polar and nonpolar results for oil and grease to the Environmental Coordinator.

15. (Environmental Coordinator) **PROVIDE** test results for pH, temperature, and oil and grease PPM to the Environmental Program Manager.
16. (Environmental Program Manager) **UPLOAD** test results to the monthly Discharge Monitoring Report (DMR) on the Department of Ecology website.

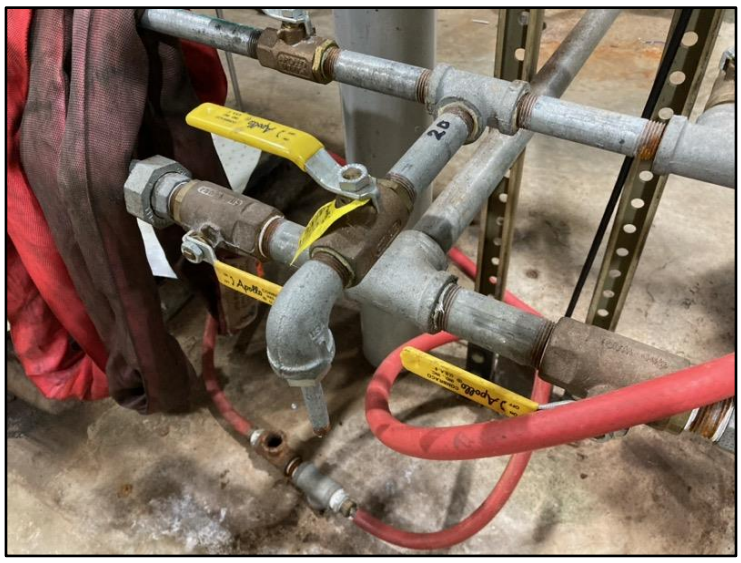


Figure 6- Oil and grease sample port for discharge RR20

2.5 Recordkeeping Procedures and Forms

2.5.1 Department of Ecology Website- The Environmental Program Manager uploads data for the monthly Discharge Monitoring Reports (DMRs) into the Department of Ecology's website. A screenshot of this website is provided in Appendix A.

Temperature and flow data for discharges RR01-RR17 and RR21 is downloaded from the Chelan PUD PI Vision database into a spreadsheet.

Temperature data for the three sump discharges (RR18 – RR20) is taken via the grab sample as outlined in section 2.4. The flow data is calculated using pump run-time hour meters and pump nominal flow.

Temperature and flow data from all discharges (RR01-RR21) is then used to obtain values for monthly average, daily maximum, daily average and the 7DADMax and heat load. Results are reviewed by Rocky Reach Plant Mechanical Engineer and emailed to the Environmental Program Manager.

Oil and grease and pH data from the three sump discharges are pulled from the monthly Eurofins test report, then emailed from the Environmental Coordinator to the Environmental Program Manager.

The Environmental Program Manager also uploads annual reports to the Department of Ecology's website on an as needed basis.

2.5.2 Maximo- The Chelan PUD preventative maintenance procedures are tracked in Maximo. Preventative Maintenance reminders are turned into Work Orders for the

maintenance crews during the required inspection and calibration period based on established Job Plans.

2.6 Solid Waste Control Procedure- This Solid Waste Control Plan (SWCP) is intended to satisfy Section S6.C.2. of the NPDES permit.

Solid waste generated by Chelan PUD for the operation of Rocky Reach Dam is managed in accordance with both federal Resource Conservation and Recovery Act (RCRA) regulations under 40 CFR part 261 and Washington State Dangerous Waste regulations under WAC 173-303. Because Chelan PUD is not a wastewater treatment facility that generates, as part of a treatment process, solid waste, Chelan PUD does not have any permits for the on-site management of solid waste. However, Chelan PUD does have dedicated waste management facilities designed and managed to meet requirements under RCRA and Washington Dangerous Waste regulations with an EPA/WA State Identification Number (WAD980984785). These facilities are used to designate waste, store dangerous waste in accordance with RCRA and Washington Dangerous Waste regulations with eventual off-site disposal and/or treatment by permitted disposal and/or treatment contractors. Annual dangerous waste reports from this facility are filed with Ecology annually. Oversight of the Rocky Reach facility is provided by the Environmental/Cultural Program Manager and day to day management by the Environmental Coordinator.

In accordance with Section S.6.C.2. of the NPDES permit, the following information is provided below related to the management of general solid waste, river debris, and spill cleanup materials.

2.6.1 General Solid Waste- General solid waste, such as office refuse, lunchroom refuse, general debris, i.e., garbage, is transported by vehicle/hand and placed within dumpsters around the facilities. The waste is transported via contracted garbage company and transported to the Greater Wenatchee Regional Landfill in East Wenatchee, WA. Generation rates vary and are not tracked, but transport from the Rocky Reach facility occurs weekly.

2.6.2 General (River) Debris- Debris within the river that may interact with the spillway, boom structures, and/or screen entrainment at the Rocky Reach facility typically consists of natural vegetation (woody debris, aquatic weeds, etc.). There is occasionally some man-made debris (i.e., garbage) that collects at these locations as well. When debris is removed from the spillway, boom structures, and/or screen entrainments, it is sorted via an excavator. The general solid waste is placed in 30-yard tipper trucks and transported to the Greater Wenatchee Regional Landfill, the tires are recycled, and the natural waste is placed in 30-yard tipper trucks and transported to the upper yard at Central Maintenance. The yard is fully fenced, flat, and located away from the shoreline of the Columbia River.

The natural waste is chipped and made available to local orchardists who utilize the chipped material for dust/weed control and moisture retention. Although the

generation rate is strongly dependent on river flows/elevation an estimate of the amount of natural waste generated from off-site is approximately 750-800 cubic yards/year.

2.6.3 Spill Cleanup Materials- In accordance with Chelan PUD's Spill Prevention, Control, and Countermeasure (SPCC) Plan for Rocky Reach, any materials used to clean up oil or grease are collected and stored in leak-proof bags, bins, and/or 55-gallon drums. When the material is ready for disposal, all free liquids are removed from the container, and it is transported to the Greater Wenatchee Regional Landfill. The free liquids are transferred to an oily water drum and recycled. The generation rate for spill cleanup material is strongly dependent on how many spill events occur on an annual basis.

2.7 Polychlorinated Biphenyls (PCB) Procedure- This PCB Management Procedure is intended to satisfy Section S14 of the NPDES permit.

PCB waste generated by Chelan PUD for the operation of Rocky Reach Dam is managed in accordance with 40 CFR Part 761 and the Washington Dangerous Waste Regulations (WAC 173-303). In addition, all clean-up operations will meet the requirements of 40 CFR Part 761 and the Washington State Model Toxics Cleanup Act (WAC 173-340).

2.7.1 Source of PCBs- Residual grout in the expansion joints throughout the forebay deck is the single source of PCBs at Rocky Reach Dam with a potential pathway to interact with discharge water associated with the small drainage sump. In the early 1990s Rocky Reach Dam was evaluated for PCB's, lead, and asbestos and all identified PCB containing materials were remediated. Regardless, as a part of the District's on-going work flow, materials are regularly tested to ensure PCBs are absent.

2.7.2 Actions to prevent/track/contain releases of PCBs- Currently, drainage of stormwater/snow or deluge water flows from the forebay and transformer containment via gravity to a series of three activated carbon drums. A test port exists at the start of the first drum and exists at the end of the following two. Water is tested quarterly from each of the three activated carbon filters. The water is labeled and packaged for lab analysis of PCBs. Laboratory results must indicate water is absent any PCBs before it is allowed to flow into the powerhouse tunnel, through the oil water separator, then into the small sump.

2.7.3 Procedure for Disposal of Activated Carbon Filters-

1. **IF** laboratory results show any effluent liquid from the three (3) activated carbon filters **THEN DRAIN** and **REPLACE** identified filter.
2. **TRANSFER** removed activated carbon filter to the Hazwaste storage building at Central Maintenance for proper disposal through Transformer Technologies.

2.8 <u>Oil Drainage and Discharge Control</u>- In general, tank and equipment installations at the Rocky Reach Project are fail-safe engineered and maintained and used in such a fashion that uncontrolled discharges should generally be prevented. However, in the case of an uncontrolled discharge, the facility has been designed to incorporate secondary containment systems in the form of curbs or sumps, or to channel the oil to a separator and subsequently to storage for removal. Any visible discharges which result in a loss of oil from a container and with any potential for reaching the environment, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts will promptly be assessed and corrected, and oil in diked areas promptly removed. The only exception to this is the runner hubs and portions of the JFB.

There are two (2) main systems in the Powerhouse designed to capture oil. They include the *Powerhouse used oil containment system* and the *transformer liquid containment system*. Additionally, the Powerhouse sumps may be used to contain any oil that overwhelms its secondary containment.

2.8.1 Powerhouse Used Oil Containment System- The generator thrust pots, governor system, servomotors, turbine guide bearings, and dirty oil room are piped to drain directly to the oily water channel unwatering and drainage gallery of the Used Oil Containment System. In addition, all Powerhouse drains that are not located in the service bay and have the possibility of being contaminated with oil also flow into the oily water channel of this system. The Used Oil Containment System consists of the dirty water/oily channel of the drainage and unwatering gallery, the oil water separator, and the used oil transfer and storage equipment. A LeakWise oil sheen detector, an oil skimmer, a weir, and an oil separator are installed in the oily water channel at the south end of the Powerhouse to collect the oils from the oily channel. There are alarms to alert when a sheen is detected, as well as high level. The high-level alarm associated with the oil water separator is tested on a quarterly basis as per work orders that are automatically generated via the Computerized Maintenance Management System. Reference **Figure 7** for an overview of this system.

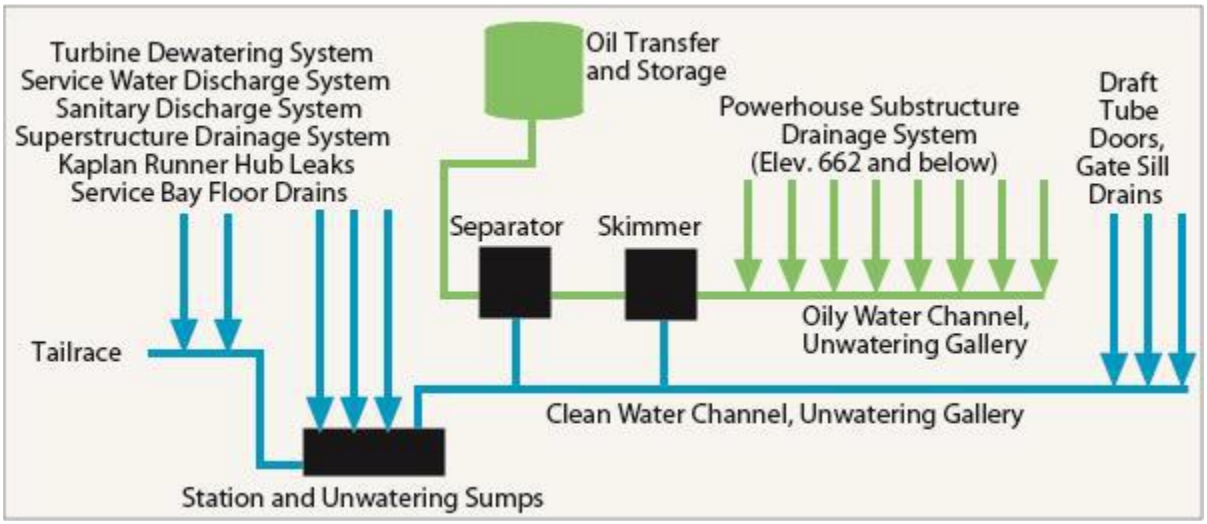


Figure 7- Powerhouse used oil recover system

2.8.2 Transformer Liquid Containment System- The transformers at Rocky Reach contain insulating oil. The transformer oil containment system is designed to prevent release of oil into the river in the event of a transformer rupture or oil spill. Most transformer oil is used in the main generator transformers and switchyard station service transformer, which are located outside the powerhouse on the transformer deck (elev. 717 ft.) These transformers are protected by the liquid containment system. Five smaller indoor transformers are surrounded by independent containment dikes which do not have drainage valves. Reference **Figure 8** for an overview of this system

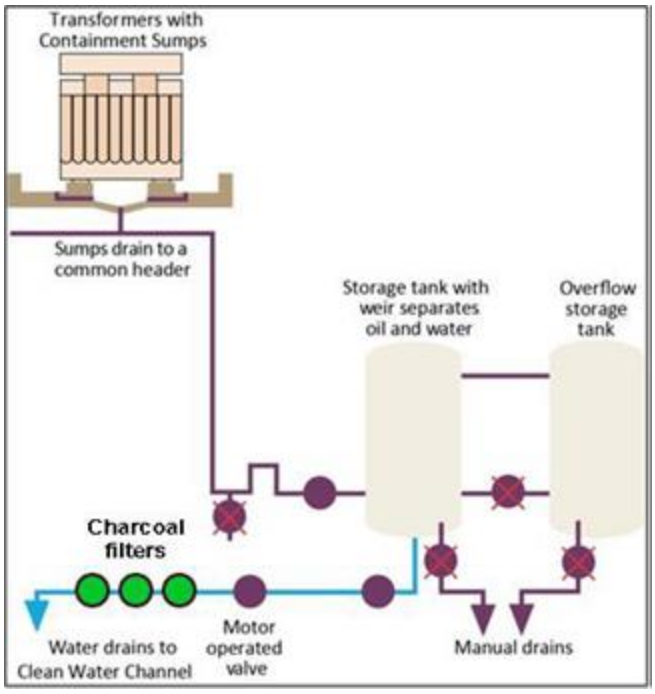


Figure 8 Transformer liquid containment system

2.8.3 Powerhouse Sumps- All water in the powerhouse present at elevations on or below the generator floor drain into two sumps, the unwatering sump, and the station sump. Both sumps are located at the south end of the powerhouse and are connected. Dedicated sump pumps automatically empty the contents of the sumps into the tailrace. Reference **Figure 9** for an overview of this system

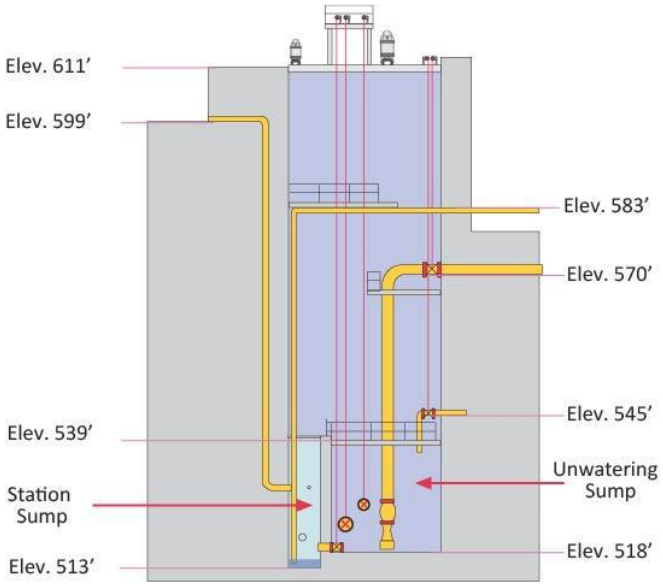


Figure 9- Powerhouse Sumps

2.9 Oil Spill Response- In the event of an oil spill around the Rocky Reach project, refer to the procedure outlined in **Appendix E**.

3.0 Maintenance

3.1 Maintenance Overview- Chelan PUD uses Maximo as it's maintenance management software for work performed at each dam and other Chelan PUD facilities. This includes preventative maintenance on the monitoring equipment implemented for the NPDES permit to achieve compliance with the terms and conditions of the NPDES permit.

3.2 Preventative Maintenance- Preventative maintenance is focused on calibration for the Rocky Reach NPDSE permit. Calibration ensures compliance according to the requirements of the permit. For preventative maintenance details **see Table 2.**

Discharges	Description	Frequency	Scope
RR01 to RR19, RR20 & RR21	RR NPDES Calibration Verification for all RTDs	Annual	• 22 generator cooler RTDs (North and South) • 6 plant HVAC RTDs (S1, S2, S3, S4, S15, & S16) • 1 office HVAC RTD (S54) • 2 sump RTDs, 1 unwatering and 1 station drainage
RR01 to RR11, RR12 to RR17 & RR21	RR NPDES Calibration Verification for Flow Meters	Annual	• 33 generator cooler flow meter (North and South) • 6 plant HVAC flow meters (S1, S2, S3, S4, S15, & S16) • 1 office HVAC flow meter (S54)
RR18 to RR20	RR NPDES Calibration Verification for Sump Pump Runtime	Annual	• 2 unwatering pumps • 2 station drainage pumps

Table 2- Maximo preventative maintenance activities for NPDES equipment

3.3 RTD Calibration Verification- RTD to be checked for proper function using a three-point verification compared to a known temperature sensor. RTDs not functioning correctly will be replaced.

3.4 Flow Meter Calibration Verification- Flow meters are monitored for deviations from normal operation and if deficiencies are discovered the flow meter will be replaced with a spare calibrated flow meter.

3.5 Sump System Calibration Verification- Sump pump discharge is monitored for deviations from normal and if deficiencies are discovered then a system test will be performed to establish a new baseline.

4.0 Safety

4.1 Emergency Plans and Procedures- The monitoring equipment for the Rocky Reach NPDES permit is installed at an active hydro generation facility. Personnel shall prepare and follow a pre-task plan before performing any work on the equipment. Specific focus should be placed on the energy isolation protocols for piping and wiring, and awareness that the Rocky Reach unwatering sump is a confined space.

5.0 References

5.1 Plans- The following plans and procedures are required submittals for the NPDES permit with a frequency of once per permit cycle.

- Solid Waste Control Plan – details provided in **Section 2.6**
- Polychlorinated Biphenyl Management Plan – details provided **Section 2.7**
- Oil and Grease Accountability Plan (separate submittal)
- Monitoring Plan for Flow and Temperature (included as part of this document)

5.2 Reports- The following REPORTS are required submittals for the NPDES permit. The frequency varies for each report, as defined in parenthesis at the end of each item.

- Discharge Monitoring Report (Monthly)
- Environmentally Acceptable Lubricants Report (Annually)
- Oil and Grease Report (Annually)
- Polychlorinated Biphenyl Annual Report (Annually)
- Monitoring Equipment Installation Report for Flow and Temperature (1/permit cycle)

6.0 Appendices

Appendix A Record of Change

Appendix B Discharge Monitoring Reports

Appendix C Water Discharge Locations Drawing

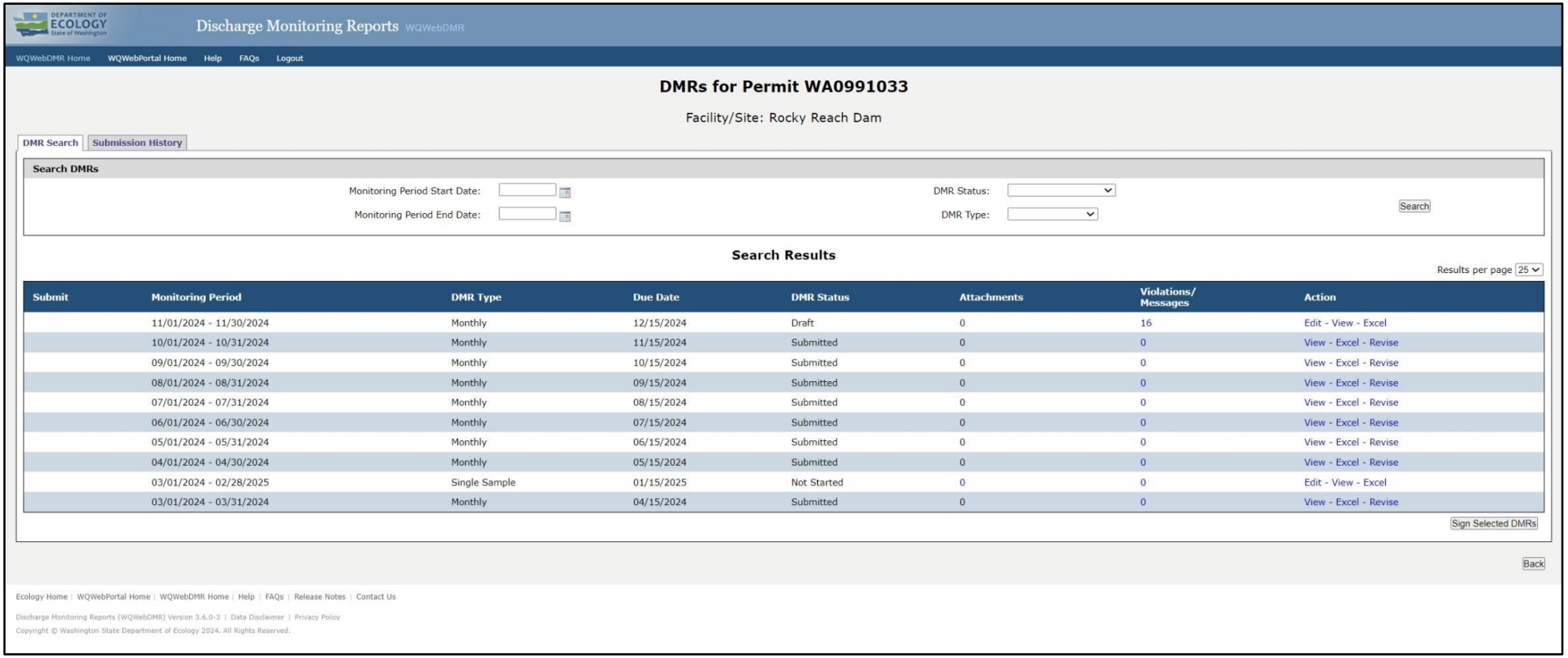
Appendix D Instrumentation List

Appendix E Oil Spill Response Procedure

Appendix A- Record of Change

Record of Change			
Reviewed/Approved by:	Description	Date	Version/ Revision number
Jennifer Burns, Penny Hulbert, Tim Scheumann, Stan DeHerrera, Gwen Crabtree	Initial release for WA DOE submittal	1/14/2025	Ver 1, Rev. 0

<u>Appendix B</u>- Discharge Monitoring Reports- Data for the monthly Discharge Monitoring Reports (DMRs) is uploaded to the Washington Department of Ecology website through their online portal. An image of this portal is provided below.



Discharge Monitoring Reports WQWebDMR

WQWebDMR Home | WQWebPortal Home | Help | FAQs | Logout

DMRs for Permit WA0991033

Facility/Site: Rocky Reach Dam

DMR Search | Submission History

Search DMRs

Monitoring Period Start Date: | DMR Status: | Search

Monitoring Period End Date: | DMR Type:

Search Results

Results per page 25

Submit	Monitoring Period	DMR Type	Due Date	DMR Status	Attachments	Violations/ Messages	Action
	11/01/2024 - 11/30/2024	Monthly	12/15/2024	Draft	0	16	Edit - View - Excel
	10/01/2024 - 10/31/2024	Monthly	11/15/2024	Submitted	0	0	View - Excel - Revise
	09/01/2024 - 09/30/2024	Monthly	10/15/2024	Submitted	0	0	View - Excel - Revise
	08/01/2024 - 08/31/2024	Monthly	09/15/2024	Submitted	0	0	View - Excel - Revise
	07/01/2024 - 07/31/2024	Monthly	08/15/2024	Submitted	0	0	View - Excel - Revise
	06/01/2024 - 06/30/2024	Monthly	07/15/2024	Submitted	0	0	View - Excel - Revise
	05/01/2024 - 05/31/2024	Monthly	06/15/2024	Submitted	0	0	View - Excel - Revise
	04/01/2024 - 04/30/2024	Monthly	05/15/2024	Submitted	0	0	View - Excel - Revise
	03/01/2024 - 02/28/2025	Single Sample	01/15/2025	Not Started	0	0	Edit - View - Excel
	03/01/2024 - 03/31/2024	Monthly	04/15/2024	Submitted	0	0	View - Excel - Revise

Sign Selected DMRs

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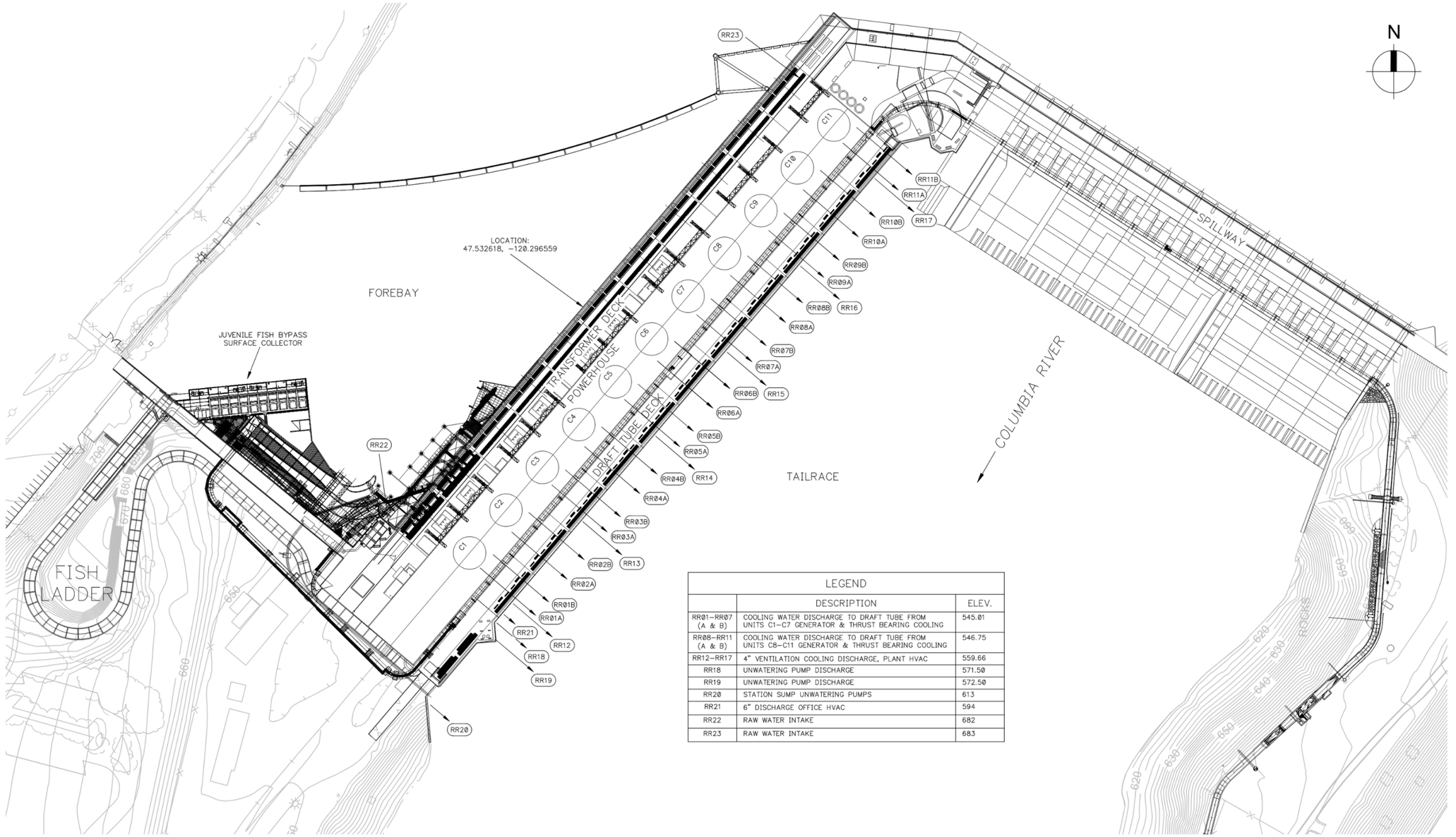
Discharge Monitoring Reports (WQWebDMR) Version 3.6.0-3 | Data Disclaimer | Privacy Policy

Appendix C- Rocky Reach Water Discharge Locations Drawing 0220-50GA-0027



LEGEND		
	DESCRIPTION	ELEV.
RR01–RR07 (A & B)	COOLING WATER DISCHARGE TO DRAFT TUBE FROM UNITS C1–C7 GENERATOR & THRUST BEARING COOLING	545.01
RR08–RR11 (A & B)	COOLING WATER DISCHARGE TO DRAFT TUBE FROM UNITS C8–C11 GENERATOR & THRUST BEARING COOLING	546.75
RR12–RR17	4" VENTILATION COOLING DISCHARGE, PLANT HVAC	559.66
RR18	UNWATERING PUMP DISCHARGE	571.50
RR19	UNWATERING PUMP DISCHARGE	572.50
RR20	STATION SUMP UNWATERING PUMPS	613
RR21	6" DISCHARGE OFFICE HVAC	594
RR22	RAW WATER INTAKE	682
RR23	RAW WATER INTAKE	683

SUPERSEDES 0220-50SK-0050

CHELAN PUD NO.1	SCALE SEE DWG	BAR IS ONE INCH ON ORIGINAL DRAWING. VERIFY SCALE 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.			PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY WENATCHEE, WASHINGTON	Rocky Reach Hydro ROCKY REACH HYDROELECTRIC FACILITY WATER DISCHARGE LOCATIONS
PRIM. ENG.						SHEET 1 OF 1
2ND ENG.	Ø	1/7/2025	ADDITIONAL COOLING WATER DISCHARGES SHOWN PER UNIT	TMS	DLD	REVISION Ø
PROJ. MGR.	REV	DATE	REVISION	REQ. BY	DRFT	DATE 1/7/2025
						DWG. 0220-50GA-0027

ORIG. DRAWN DLD
ORIG. DATE 7/2/2019

DOCUMENT CLASS: ID: ORIGINAL DWG. #: 0220-50SK-0050

Appendix D- Instrumentation List

The Rocky Reach NPDES permit includes 21 effluent discharges. Eleven are for the generator coolers, six are for the plant HVAC, three are for the sump, and one is for the office HVAC. Temperature probes (resistance temperature detectors (RTDs)), flow meters, and pump runtime meters continuously monitor the discharge temperatures and flowrates. Details about the instrumentation are provided in this appendix.

Oil and grease samples are tested monthly by a third-party lab, thus there are no equipment components to document for this manual.

ID	Description	PI Tag Name	Make	Model
RR01	Generator Thrust Bearing Cooling Water Flow C01	RR_C01_GTB_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C01	RR_C01_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C01	RR_C01_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C01	RR_C01_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C01	RR_C01_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C01	RR_C01_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
RR02	Generator Thrust Bearing Cooling Water Flow C02	RR_C02_GTB_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C02	RR_C02_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C02	RR_C02_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C02	RR_C02_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C02	RR_C02_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C02	RR_C02_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
RR03	Generator Thrust Bearing Cooling Water Flow C03	RR_C03_GTB_CW_FLO	ADMAG	AE208MG

ID	Description	PI Tag Name	Make	Model
	Generator North Cooling Water Flow C02	RR_C03_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C03	RR_C03_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C03	RR_C03_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C03	RR_C03_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C03	RR_C03_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
RR04	Generator Thrust Bearing Cooling Water Flow C04	RR_C04_GTB_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C04	RR_C04_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C04	RR_C04_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C04	RR_C04_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C04	RR_C04_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C04	RR_C04_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
RR05	Generator Thrust Bearing Cooling Water Flow C05	RR_C05_GTB_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C05	RR_C05_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C05	RR_C05_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C05	RR_C05_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C05	RR_C05_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C05	RR_C05_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5

ID	Description	PI Tag Name	Make	Model
RR06	Generator Thrust Bearing Cooling Water Flow C06	RR_C06_GTB_CW_FLO	Yokogawa	210G-AB1
	Generator North Cooling Water Flow C06	RR_C06_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C06	RR_C06_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C05	RR_C06_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C05	RR_C06_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C06	RR_C06_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
RR07	Generator Thrust Bearing Cooling Water Flow C07	RR_C07_GTB_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C07	RR_C07_GEN_N_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator South Cooling Water Flow C07	RR_C07_GEN_S_CW_FLO	Yokogawa	BT200 210G-AB1
	Generator North Cooling Water Temp C07	RR_C07_GEN_N_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C07	RR_C07_GEN_S_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator Thrust Bearing Cooling Water Temp C07	RR_C07_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
RR08	Oil Cooler Unit Cooling Water Flow C08	RR_C08_OCS_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C08	RR_C08_GEN_N_CW_FLO	ADMAG	AE100M/200M AE210MN
	Generator South Cooling Water Flow C08	RR_C08_GEN_S_CW_FLO	ADMAG	AE100M/200M AE210MN
	Generator Thrust Bearing Cooling Water Temp C08	RR_C08_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator North Cooling Water Temp C08	RR_C08_NORTH_COOLING_WATER_TEMP	Thermo-Kinetics	A54J5

ID	Description	PI Tag Name	Make	Model
	Generator South Cooling Water Temp C08	RR_C08_SOUTH_COOLING_WATER_TEMP	Thermo-Kinetics	A54J5
RR09	Oil Cooler Unit Cooling Water Flow C09	RR_C09_OCS_CW_FLO	ADMAG	AE208MG
	Generator North Cooling Water Flow C09	RR_C09_GEN_N_CW_FLO	ADMAG	AE100M/200M AE210MN
	Generator South Cooling Water Flow C09	RR_C09_GEN_S_CW_FLO	ADMAG	AE100M/200M AE210MN
	Generator Thrust Bearing Cooling Water Temp C09	RR_C09_GTB_CW_OUT_TMP	Thermo-Kinetics	A54J5
	Generator North Cooling Water Temp C09	RR_C09_GEN_N_CW_TMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C09	RR_C09_GEN_S_CW_TMP	Thermo-Kinetics	A54J5
RR10	Oil Cooler Unit Cooling Water Flow C10	RR_C10_OIL_COOLER_WATER_FLOW	ADMAG	AE208MG
	Generator North Cooling Water Flow C10	RR_C10_GEN_N_CW_FLO	ADMAG	AE100M/200M AXF100C
	Generator South Cooling Water Flow C10	RR_C10_GEN_S_CW_FLO	ADMAG	AE100M/200M
	Generator Thrust Bearing Cooling Water Temp C10	RR_C10_GEN_THRUST_BRG_WATER_TEMP	Thermo-Kinetics	A54J5
	Generator North Cooling Water Temp C10	RR_C10_NORTH_COOLING_WATER_TEMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C10	RR_C10_SOUTH_COOLING_WATER_TEMP	Thermo-Kinetics	A54J5
RR11	Oil Cooler Unit Cooling Water Flow C11	RR_C11_OIL_COOLER_WATER_FLOW	Yokogawa	AE208MG
	Generator North Cooling Water Flow C11	RR_C11_GEN_N_CW_FLO	ADMAG	AE100M/200M AE210MN
	Generator South Cooling Water Flow C11	RR_C11_GEN_S_CW_FLO	ADMAG	AE100M/200M AE210MN
	Generator Thrust Bearing Cooling Water Temp C11	RR_C11_GEN_THRUST_BRG_WATER_TEMP	Thermo-Kinetics	A54J5

ID	Description	PI Tag Name	Make	Model
	Generator North Cooling Water Temp C11	RR_C11_NORTH_COOLING_WATER_TEMP	Thermo-Kinetics	A54J5
	Generator South Cooling Water Temp C11	RR_C11_SOUTH_COOLING_WATER_TEMP	Thermo-Kinetics	A54J5
RR12	HVAC S1 Water Flow	HVAC_S1_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S1 Water Temperature	HVAC_S1_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)
RR13	HVAC S2 Water Flow	HVAC_S2_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S2 Water Temperature	HVAC_S2_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)
RR14	HVAC S3 Water Flow	HVAC_S3_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S3 Water Temperature	HVAC_S3_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)
RR15	HVAC S4 Water Flow	HVAC_S4_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S4 Water Temperature	HVAC_S4_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)
RR16	HVAC S15 Water Flow	HVAC_S15_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S15 Water Temperature	HVAC_S15_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)
RR17	HVAC S16 Water Flow	HVAC_S16_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S16 Water Temperature	HVAC_S16_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)
RR18	Pump runtime	UNW_SUMP_PMP_1_SRT	Potter & Brumfield Relay	KUEP-11A15-120
	Temperature	UNW_SUMP_WTR_TMP	PYROMATION	SPEC-529-10-3-T31032-2
RR19	Pump runtime	UNW_SUMP_PMP_2_SRT	Potter & Brumfield Relay	KUEP-11A15-120

ID	Description	PI Tag Name	Make	Model
RR20	Pump runtime	STN_SUMP_PMP_1_SRT	Potter & Brumfield Relay	KUEP-11A15-120
	Pump runtime	STN_SUMP_PMP_2_SRT	Potter & Brumfield Relay	KUEP-11A15-120
	Temperature	STN_SUMP_WTR_TMP	PYROMATION	SPEC-529-10-3-T31116-2
RR21	HVAC S56 Water Flow	HVAC_S56_WTR_FLO	Endress Hauser	Promag W 400 (5W4C1H-268R7/0)
	HVAC S56 Water Temperature	HVAC_S56_WTR_OUT_TMP	Endress Hauser	TH13 RTD (TH13-1A22A1EB34AK)

Appendix E- Oil Spill Response Procedure

1.0 Introduction

1.1 General description- Hydro generation and power transformer systems utilize various oils and fluids to function. At times, close proximity to water resources results in spills when components fail, or reservoirs overflow due to uncommon circumstances.

1.2 Scope- This procedure outlines response actions in the event of an oil or petroleum product spill.

1.3 Preliminary considerations- Identify all affected equipment and report anticipated system isolations to operators.

2.0 Job Requirements

2.1 Staff/ crafts needed

- Operation, Maintenance, and Duty Supervisors
- Hydro Operator
- System Operator (SYSOPs)
- Affected leadership/ personnel

2.2 Skills and qualifications- N/A

2.3 Tools and equipment

- Barrier materials (cones, tape and materials to cordon spill area, spill placards etc.)

2.4 Parts and materials

- Spill response kit (duct seal and duct tape)
- Spill containment equipment includes:
    - Extra sorbent pads
    - (2) oil vacuums
    - 55 gal. collection barrel
    - (18) 17” x 19” sheet sorbent pads
    - (8) 34” x 38” sheet sorbent pads
    - (2) 8” x 10’ sorbent booms
    - (2) pair safety goggles
    - (1) 33 lb. sack of floor dry 85
    - (2) pair safety goggles

3.0 Safety

- Perform pre-task plan (if applicable) prior to responding to spill
- Wear appropriate oil/ fluid handling PPE based on size and nature of spill
- Identify and observe all safety requirements if reacting to a spill inside a confined space

4.0 Procedure

4.1 Detection and Notification

1. (SYSOPs) **IF** spill is detected externally (via public/ customer owners), **THEN** contact RR control room **and PROCEED** to step 2.
2. **IF** spill is detected by District personnel, **THEN NOTIFY** RR/ CHHD Duty Supervisor.
3. (Duty Supervisor) **NOTIFY** the following of spill:
   - (Emergency) Medical, fire or police assistance (as required/ needed)
   - Environmental program manager
4. (Duty Supervisor) **DISPATCH** response personnel (CM or RR) to address spill via Chelan PUD Telephone Contact List.

4.2 Spill Response (plant, CM or emergency service responders)

1. **CLEAR** affected area of personnel.
2. **ATTEND** to all emergency needs (fire, injury, security breach etc.)
3. **IDENTIFY** source of leak/ spill.

   CAUTION: Observe all confined space safety/ rescue measures if responders must enter confined space.

   CAUTION: Use appropriate PPE when working around or with spilled or contaminated materials.

4. **ISOLATE** and **STOP** leak using spill response kit.
5. **CONTAIN** spilled oil/ fluids spill containment equipment.
6. **CLEAN** up spill and all used materials.
7. **DISPOSE** of contaminated materials using proper disposal methods.
8. **FILL OUT** and **SUBMIT** an oil release report form on Chelan PUD/Generation and Transmission Sharepoint Site.

   NOTE: When submitted, the SPCC Oil Release Form is automatically sent to a select group of people in Generation, Fish and Wildlife, Licensing and Compliance as well as the Senior Team.