STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Region Office
PO Box 330316, Shoreline, WA 98133-9716 • 206-594-0000

June 8, 2022

Ron Roberts
Vice President, Energy Supply
Puget Sound Energy
355 110th Ave NE,
Bellevue, WA 98004

Order Docket #	21187
Site Location	Lower Baker Dam Seepage Reduction Project 6754 Baker River Road Concrete, WA 98237

Re: Administrative Order

Dear Ron Roberts:

The Department of Ecology (Ecology) has issued the enclosed Administrative Order (Order) requiring Puget Sound Energy to comply with:

- **Chapter 90.48 Revised Code of Washington (RCW) - State of Washington Water Pollution Control Act.**
- **Chapter 173-201A Washington Administrative Code (WAC) - Water Quality Standards for Surface Waters of the State of Washington.**

If you have questions, please contact Monika Kannadaguli at (206) 594-0144 or mkan461@ecy.wa.gov.

Sincerely,

Rachel McCrea

Rachel McCrea
Water Quality Section Manager
Northwest Regional Office

Enclosures: Administrative Order Docket #21187

By certified mail 9171 9690 0935 0233 1611 17

ecc: Monika Kannadaguli, Ecology
Gretchen Onstad, Ecology
Sylvia Graham, Ecology
Ben Curry, Lower Baker Constructors, LLC, bcurry@lbconstructors.com

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF AN ADMINISTRATIVE ORDER AGAINST Puget Sound Energy Ron Roberts	)))))	ADMINISTRATIVE ORDER DOCKET #21187

To: Ron Roberts
Puget Sound Energy
355 110th Ave NE,
Bellevue, WA 98004

Order Docket #	21187
Site Location	Lower Baker Dam Seepage Reduction Project 6754 Baker River Road Concrete, WA 98237

The Department of Ecology (Ecology) has issued this Administrative Order (Order) requiring Puget Sound Energy (PSE) to comply with:

- **Chapter 90.48 Revised Code of Washington (RCW) - State of Washington Water Pollution Control Act.**
- **Chapter 173-201A Washington Administrative Code (WAC) - Water Quality Standards for Surface Waters of the State of Washington.**

Chapter 90.48.120(2) RCW gives Ecology the authority to issue Administrative Orders requiring compliance whenever it determines that a person is about to violate Chapter 90.48 RCW.

SUMMARY OF FINDINGS

This Order is based on the following findings:

Lower Baker Dam (LBD) is owned and operated by Puget Sound Energy (PSE). It is located at the lower end of Lake Shannon, approximately ¾ mile north of the Town of Concrete, within Skagit County, Washington. PSE is carrying out a Seepage Reduction Project at the LBD to reduce seepage through the dam foundation and along the contact of the dam structure with the foundation bedrock; if unabated, the seepage and resulting bedrock erosion may pose a long-term safety risk for the LBD and the downstream population on the Baker River and Skagit River.

PSE has obtained coverage under NPDES Construction Stormwater General Permit (CSWGP #WAR310649), issued in September 2021, to authorize discharges of stormwater to surface waters during construction. The CSWGP requires compliance with the Water Quality Standards for Surface Waters of the State of Washington (Water Quality Standards – 173-201A WAC). The CSWGP does not authorize discharge of process water.

An individual NPDES Permit is required to authorize discharge of treated process water from LBD. PSE submitted the application for the individual permit on January 21, 2022. Typically, it takes six months to develop an individual permit. Ecology is currently in the process of developing the individual NPDES permit which will be finalized and issued following a public comment period.

PSE is installing an on-site process wastewater treatment system to treat the process water generated during the grouting process (see Appendix A). The individual NPDES permit will require that process water be treated prior to discharge to Lake Shannon in order to control turbidity and pH. On January 21, 2022, PSE submitted an engineering report to Ecology for review and approval of the wastewater treatment system design. In response to Ecology comments, PSE electronically submitted a revised report on May 23, 2022. Ecology approved this report on June 7, 2022. Appendix A of the Order summarizes the process water treatment system.

As per the LBD repair schedule, grouting activity for seepage reduction is planned to start in the third quarter of 2023. Prior to that, drilling and grouting of a tunnel is urgently needed to carry out the dam stabilization work in 2023. This preparatory work will begin in the second week of June 2022 and it will generate process water. Discharge of this process water to Lake Shannon has the potential to violate RCW 90.48.080.

IMMEDIATE ACTION(S) REQUIRED

Based on the above findings Ecology determines that there is potential for violation under RCW 90.48.080. Therefore Ecology is issuing this Immediate Action Order (Order) to Puget Sound Energy to prevent the discharge of untreated process wastewater to Lake Shannon and downstream Baker River during the preparations for repair work at Lower Baker Dam.

Under the authority granted by RCW 90.48.120(2), IT IS ORDERED that Puget Sound Energy shall take the following action(s). These actions are required at the location known as Lower Baker Dam located at 6754 Baker River Road, Concrete, WA, 98237.

1. Within 30 days of receiving this Order, complete the installation and testing of the process wastewater treatment system at LBD in accordance with the Ecology-approved Engineering Report (Water Treatment System Engineering Report, Lower Baker Dam Seepage Reduction Project, revised May 23, 2022). Ecology must be notified in advance if any changes in the treatment system are made, with the exception of routine maintenance.

2. Capture, contain, treat and monitor each batch of process wastewater prior to discharging to Lake Shannon. Monitor each batch discharge for the parameters specified in Table 1 below.

3. Maintain a site log book to document treatment prior to discharge. Submit a monthly report to Ecology no later than the 15th day of the following month via e-mail to monika.kannadaguli@ecy.wa.gov. Each monthly report must contain the information specified below for all process water discharges occurring in the subject month.
   a) date of discharge,
   b) time period of discharge,
   c) pH of the effluent in standard units,
   d) turbidity of the discharge in NTU,
   e) background turbidity of the surface water in NTU,
   f) flow volume of discharge in cubic feet per second (cfs)
   g) Figure or map showing the locations of turbidity grab samples (discharge and background)

   If monitoring is conducted more frequently than required by this Order, the results of the monitoring must be included in the monthly report.

4. Capture the solids from the treatment system on as needed basis and transport them off-site to an authorized solid waste disposal facility.

Table 1: Monitoring requirements for each batch of treated process wastewater

Parameter	Units	Laboratory Method	Minimum Sampling Frequency	Sampling Location	Sample Type	Water Quality Criteria
pH [a]	Standard Units	pH meter SM 4500-H+ B.	Every batch Discharge	At the point of discharge	Grab [b,c]	6.5 - 8.5 (with a human-caused variation within the above range of less than 0.2 units)
Turbidity [d] (Discharge)	NTU	EPA 180.1 or equivalent	Every batch Discharge	150 feet from the point of discharge	Grab [c,e]	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

Parameter	Units	Laboratory Method	Minimum Sampling Frequency	Sampling Location	Sample Type	Water Quality Criteria
Turbidity [d] (Background)	NTU	EPA 180.1 or equivalent	Every batch Discharge	Upstream of the discharge location	Grab [c,f]	NA

Footnotes for Table 1	
a	pH must be measured using meter in the field. The calibration frequency specifications and method must be followed in accordance with the manufacturer's recommendations.
b	Grab samples for pH must be collected at the point of discharge.
c	Grab means an individual sample collected over a fifteen (15) minute, or less, period.
d	The method detection level (MDL) for turbidity is 1 NTU using a turbidimeter and EPA Method Number 180.1 from 40 CFR Part 136.
e	Grab samples for turbidity (discharge) must be collected at a radius of 150 feet from the point of discharge. [WAC 173-201A-200(1)(e)(iv)].
f	Grab samples for turbidity (background) must be collected at a location upstream of the discharge location that is not impacted by the discharge. Collect the background turbidity sample at the same time as the discharge turbidity sample.

This Order does not exempt Puget Sound Energy from any Construction Stormwater General Permit (# WAR310649) requirements. This Order may be terminated if its conditions are violated. This Order will remain in effect until the individual NPDES permit No. WA0991043 is issued and effective.

ELIGIBILITY FOR PAPERWORK VIOLATION WAIVER AND OPPORTUNITY TO CORRECT

Under RCW 34.05.110, small businesses are eligible for a waiver of a first-time paperwork violation and an opportunity to correct other violations. Ecology has determined the requirements of RCW 34.05.110 do not apply to the potential violation(s) described in this Order because Puget Sound Energy is not a small business as defined in RCW 34.05.110 (9).

FAILURE TO COMPLY WITH THIS ORDER

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. 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).

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

- File your appeal and a copy of this Order 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 Order 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.

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320.

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 Road 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

CONTACT INFORMATION

Please direct all questions about this Order to:

Monika Kannadaguli
Department of Ecology
Northwest Regional Office
PO Box 330316
Shoreline, WA 98133-9716

Phone: 206-594-0144
Email: monika.kannadaguli@ecy.wa.gov

MORE INFORMATION

- **Pollution Control Hearings Board Website**
  http://www.eluho.wa.gov/Board/PCHB
- **Chapter 43.21B RCW - Environmental and Land Use Hearings Office – Pollution Control Hearings Board**
  http://app.leg.wa.gov/RCW/default.aspx?cite=43.21B
- **Chapter 371-08 WAC – Practice And Procedure**
  http://app.leg.wa.gov/WAC/default.aspx?cite=371-08
- **Chapter 34.05 RCW – Administrative Procedure Act**
  http://app.leg.wa.gov/RCW/default.aspx?cite=34.05
- **Ecology's Laws, rules, & rulemaking website**
  https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking

SIGNATURE

Rachel McCrea

Rachel McCrea
Water Quality Section Manager
Northwest Region Office

June 8, 2022

Date

APPENDIX A

Wastewater Treatment System Overview

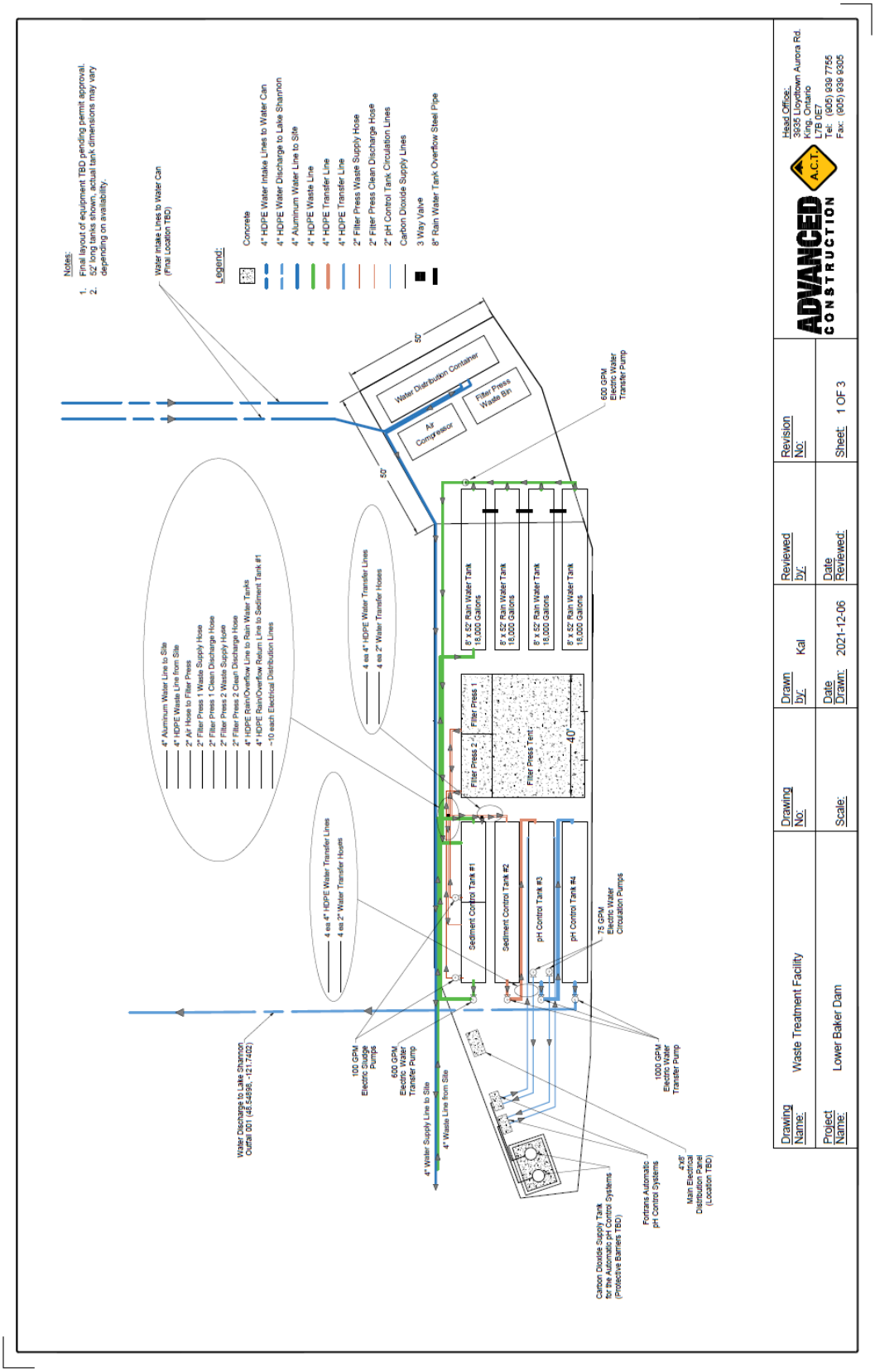
The treatment system is designed to treat process water generated during the Lower Baker Dam (LBD) Seepage Reduction Project. Process water associated with cementitious grout materials is typically high in pH and turbidity, however, water quality will vary depending on the work occurring at any given time. The treatment includes pH neutralization (carbon dioxide injection) and solids removal systems (gravity settling, filtration) which are standard technologies used for construction projects of this type. An estimated maximum flow of 130,500 gallons per day (GPD) of process water may be generated and conveyed to the treatment system.

A treatment process flow diagram is provided below. All process water from the construction activities will be pumped from various low-point sumps and settlement areas and transferred to 18,000 gallon capacity settling tank #1 or #2. Water from the tank will then be pumped through a MW Watermark filter press for turbidity reduction and subsequently to tank #3 or #4 where carbon dioxide gas will be applied for pH neutralization using a Fortrans 5000 pH control system prior to manual batch discharge to Lake Shannon. In-Situ, Inc. Aqua Troll 500 multi-parameter monitors equipped with pH and turbidity sensors will monitor pH and turbidity prior to opening the effluent line discharge valve. The treatment system will result in the discharge of treated water meeting applicable surface water quality criteria for pH (i.e., pH 6.5 to 8.5 std. units). The Fortrans pH control system uses programmable logic control to regulate the injection of carbon dioxide gas into the water. The closed system will continuously recirculate and treat the water until the pH reaches applicable surface water quality criteria.

At the peak of construction operations, the maximum amount of process water generated will range between 1,000 and 12,000 gallons per hour; an hourly average of 5,400 gallons per hour. The treatment system is designed to treat 6,000 gallons of process water per hour. Two (18,000 gal each) settling tanks (#1 and #2) will allow temporary storage at peak times while the system treats the water at a rate of 6,000 gallons per hour.

Under normal (max) construction operations, only the 4 tanks on the left side of the filter press tent will be used. In the event of a mechanical failure or rain event, any overflow from tanks #1 or #2 will be transferred to the four additional tanks on the right side of the filter press tent; allowing for an additional (18,000 each) 72,000 gallons of storage.

Precipitation over impervious areas associated with the grout batch plant, work platform, dam abutment, and water treatment plant (≈40,900 square feet), will be collected in sumps and managed as construction stormwater. This water will be conveyed to rain event tanks located in the water treatment plant area. These tanks will provide for flow attenuation, if needed, prior to treatment.


Notes:
1. Final layout of equipment TBD pending permit approval.
2. 52' long tanks shown, actual tank dimensions may vary depending on availability.
Legend:
Concrete
4" HDPE Water Intakes Lines to Water Can
4" HDPE Water Discharge to Lake Shannon
4" Aluminum Water Line to Site
4" HDPE Waste Line
4" HDPE Transfer Line
4" HDPE Transfer Line
2" Filter Press Waste Supply Hose
2" Filter Press Clean Discharge Hose
2" pH Control Tank Circulation Lines
Carbon Dioxide Supply Lines
3 Way Valve
8" Rain Water Tank Overflow Steel Pipe
Water Intake Lines to Water Can (Final Location TBD)
Water Distribution Container
Air Compressor
Filter Press Waste Bin
50'
50'
600 GPM Electric Water Transfer Pump
4" Aluminum Water Line to Site
4" HDPE Waste Line from Site
2" Air Hose to Filter Press
2" Filter Press 1 Waste Supply Hose
2" Filter Press 1 Clean Discharge Hose
2" Filter Press 2 Waste Supply Hose
2" Filter Press 2 Clean Discharge Hose
4" HDPE Rain/Overflow Line to Rain Water Tanks
4" HDPE Rain/Overflow Return Line to Sediment Tank #1
~10 each Electrical Distribution Lines
4 ea 4" HDPE Water Transfer Lines
4 ea 2" Water Transfer Hoses
8' x 52' Rain Water Tank 18,000 Gallons
8' x 52' Rain Water Tank 18,000 Gallons
8' x 52' Rain Water Tank 18,000 Gallons
8' x 52' Rain Water Tank 18,000 Gallons
Filter Press 1
Filter Press 2
Filter Press Tents
40'
4 ea 4" HDPE Water Transfer Lines
4 ea 2" Water Transfer Hoses
Sediment Control Tank #1
Sediment Control Tank #2
pH Control Tank #3
pH Control Tank #4
75 GPM Electric Water Circulation Pumps
Water Discharge to Lake Shannon Outfall 001 (45.84858, -121.7402)
100 GPM Electric Sludge Pumps
600 GPM Electric Water Transfer Pump
4" Water Supply Line to Site
4" Waste Line from Site
1000 GPM Electric Water Transfer Pump
Carbon Dioxide Supply Tank for Automatic pH Control Systems (Protective Barriers TBD)
Fortrans Automatic pH Control Systems
4'x8' Main Electrical Distribution Panel (Location TBD)
Drawing Name: Waste Treatment Facility
Project Name: Lower Baker Dam
Drawing No:
Scale:
Drawn by: Kal
Date Drawn: 2021-12-06
Reviewed by:
Date Reviewed:
Revision No:
Sheet: 1 OF 3
ADVANCED CONSTRUCTION
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