

FACT SHEET FOR NPDES PERMIT WA0000922

Port Townsend Paper Corporation

Date of Public Notice: 10/30/2024

Permit Effective Date: 06/01/2025

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 Port Townsend Paper Corporation.

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 Port Townsend Paper Corporation, NPDES permit WA 0000922, are available for public review and comment from October 30, 2024 until December 12, 2024. For more details on preparing and filing comments about these documents, please see Appendix A - Public Involvement Information.

Port Townsend Paper Corporation 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 N - 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

PTPC operates an unbleached pulp and paper mill in Port Townsend, Washington. Pulp is produced by both the chemical kraft process and from the repulping of old corrugated cardboard (OCC). The pulp is sold or used on-site to make paper products, such as linerboard for cardboard boxes.

PTPC operates a large industrial wastewater treatment plant and a small sanitary wastewater treatment plant that discharge treated wastewater into Port Townsend Bay. Ecology issued the existing NPDES permit on September 16, 2013. The existing NPDES permit expired on October 1, 2018 and was administratively extended via letter from Ecology dated April 6, 2018.

Since the issuance of the previous NPDES permit, PTPC has shut down the Messing-Durkee (M&D) digester which generated kraft pulp from sawdust. PTPC also upgraded the OCC plant from a batch process to a continuous process. This upgrade has increased the maximum capacity of the OCC plant from 480 oven-dried tons of pulp (ODTP) per day to 720 ODTP per day.

Effluent limits in the draft proposed permit for biochemical oxygen demand (BOD₅) are about 7% greater than in the currently effective permit. Effluent limits in the draft proposed permit for total suspended solids (TSS) are about 2% greater than in the currently effective permit. The permit includes new water-quality based limits for benzo(a)anthracene, chlordane, and pentachlorophenol. The permit gives PTPC until four years from the effective date of the draft permit to be able to comply with the new limits. Interim performance-based limits for these pollutants are effective on the day the permit is effective. PTPC must provide Ecology annual progress reports throughout the permit cycle as they reduce amounts of these pollutants discharged. Limits at the sanitary plant are the same in the currently effective permit and the proposed draft permit. For a comparison of limits in the currently effective permit and the proposed draft permit, see Table 34 and Table 35 in this fact sheet.

The draft proposed permit includes a number of new requirements including:

- A receiving water study to better characterize pollutants in Port Townsend Bay.
- Sediment monitoring near PTPC's dock which receives wood chips to evaluate the impact of spills of wood chips to sediments.
- Requirements regarding PTPC's cooling water intake structure, which requires them to comply with rules EPA passed in 2014 to protect aquatic life from impingement and entrainment.
- Requirements to minimize spills of pulping liquors, and turpentine to the wastewater treatment plant.
- A study to evaluate if PTPC is sending PFAS to the wastewater treatment plant.
- Nutrient monitoring which Ecology will use to better understand dissolved oxygen deficiency in the Puget Sound.
- The addition of new internal monitoring points to assess wastewater treatment plant performance throughout the permit term.
- An odor minimization study, focused on reducing odors from the wastewater treatment plant.

See Appendix N of this fact sheet for a summary of changes in the draft proposed permit as compared to the currently effective permit.

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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 RCW¹ (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC²)
- Water quality criteria for surface waters (chapter 173-201A WAC³)
- Water quality criteria for ground waters (chapter 173-200 WAC⁴)
- Whole effluent toxicity testing and limits (chapter 173-205 WAC⁵)
- Sediment management standards (chapter 173-204 WAC⁶)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC⁷)

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 173-220-050⁸). (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 N.

¹ <https://app.leg.wa.gov/RCW/default.aspx?cite=90.48>

² <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220>

³ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

⁴ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200>

⁵ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-205>

⁶ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-204>

⁷ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-240>

⁸ <https://app.leg.wa.gov/WAC/default.aspx?cite=173-220-050>

II. Background Information**Table 1 — Facility Information**

Applicant	Port Townsend Paper Corporation
Facility Name and Address	Port Townsend Paper Corporation 100 Mill Road Port Townsend, Washington 98368
Contact at Facility	Micheal Clea, Environmental Manager
Responsible Official	Bert Brown Mill Manager 100 Mill Road Port Townsend, Washington 98368
Industry Type	Unbleached Kraft Pulp and Paper Mill
Categorical Industry	40 CFR Part 430, Subparts C and J
Type of Treatment	Industrial: Screening, Primary Clarification, Secondary Aeration and Settling (Aerated Stabilization Basin) Sanitary: Secondary Treatment via an activated sludge plant followed by disinfection
Fee Category	Pulp, Paper, and Paper Board (Subcategory d., Chemical Pulp Mills without Chlorine Bleaching)
SIC Codes	2621 – Paper Mill 2611 – Pulp Mill
NAIC Codes	322120 – Paper Mills 322110 – Pulp Mills
Facility Location (NAD83/WGS84 reference datum)	Latitude: 48.09467 Longitude: -122.79646
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Port Townsend Bay Outfall 001 Latitude: 48.08856 Longitude: -122.79466 Outfall 003 Latitude: 48.09233 Longitude: -122.79598
Cooling Water Intake Structure	Latitude: 48.09306 Longitude: -122.79528

Permit Status

Renewal Date of Previous Permit: September 16, 2013

Application for Permit Renewal Submittal Date: September 29, 2017

Date of Ecology Acceptance of Application: April 6, 2018

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Inspection Status

Date of Last Sampling Inspection: May 10, 2023

Date of Last Non-sampling Inspection: June 12, 2024

II.A. Facility description

1. History of Facility

Port Townsend Paper Corporation (PTPC) is an integrated pulp and paper mill located in Port Townsend, Washington. Figure 1 identifies the location of PTPC.

Construction of the kraft pulp and paper mill began in 1927, originally owned and operated by the National Paper Products Company. Crown Zellerbach was the owner and operator of the mill from 1940 until 1983 when a West German company, Haindl Papier GmbH acquired it. Haindl Papier GmbH renamed the mill "Port Townsend Paper Corporation" and later sold the mill in 1997 to Northwest Capital Appreciation. In 2007 the mill filed for bankruptcy and emerged under the new ownership of GoldenTree Asset Management. In 2015, the holding company Crown Paper Group purchased the mill. In 2022, Atlas Holdings purchased Crown Paper Group, including the Port Townsend Paper Corporation mill.

PTPC employs approximately 300 people and operates 24 hours a day, 7 days a week.

The first NPDES permit for the facility was issued in August 1974. EPA has designated the facility as a major facility.

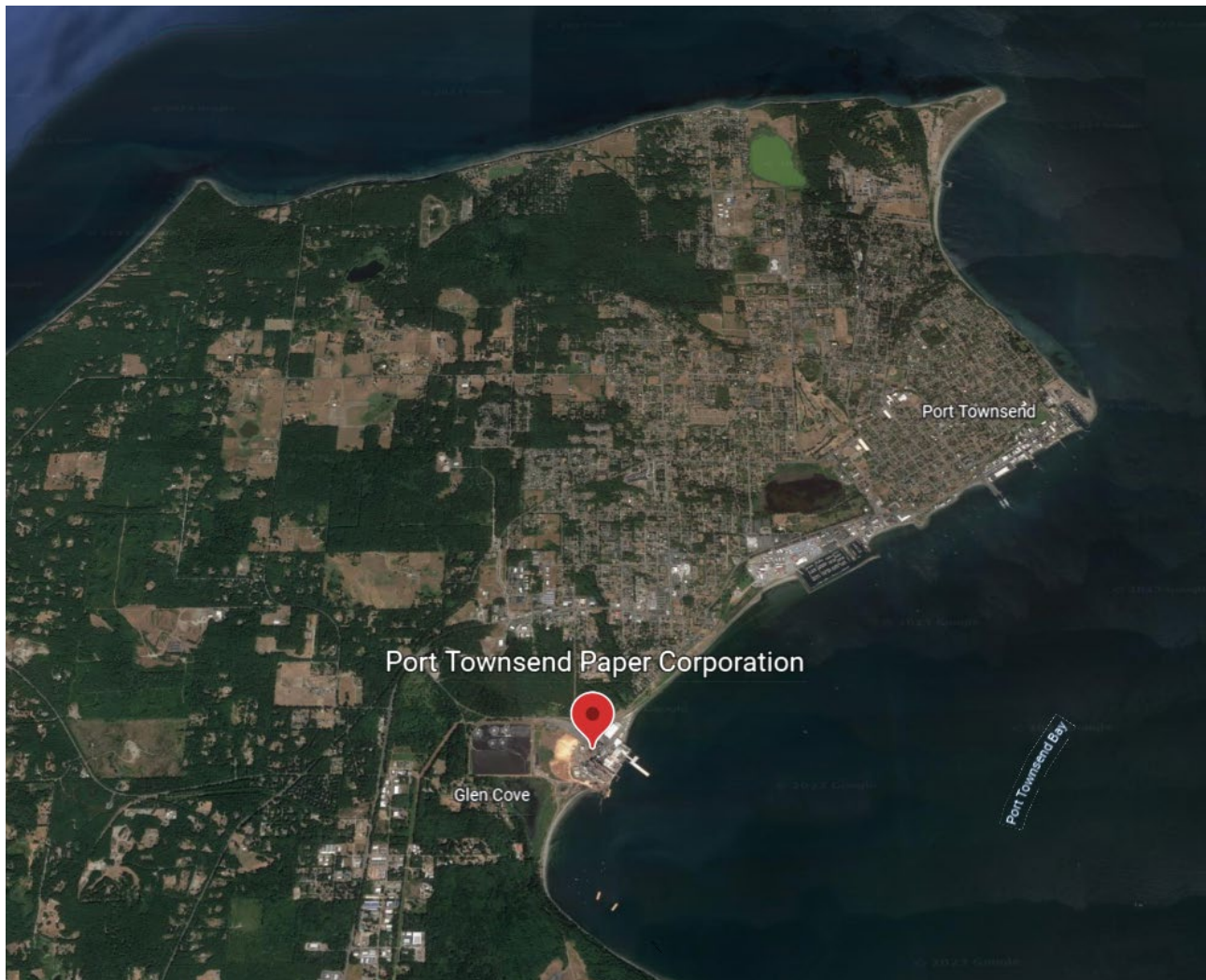


Figure 1 — Facility Location Map

2. Industrial Processes

PTPC operates an integrated pulp and paper mill in Port Townsend, Washington, just north of Glen Cove. The mill operates continuously except for infrequent down periods for maintenance. PTPC uses two different processes to make pulp and paper products. One process recycles bales of old corrugated cardboard (OCC). Another process, referred to as the kraft process, chemically pulps wood chips. The kraft mill contains equipment designated as “B side pulping” and “C side pulping”.

On an annual average basis, PTPC produces approximately 900 - 1,000 air dried tons of product a day, of which approximately 350-475 air dried tons comes from the OCC plant. PTPC does not anticipate making significant changes in production rate. Figure 2 below is a simple flow diagram of the process created by PTPC.

The kraft process uses chemicals to convert wood chips to pulp. The solution of chemicals, called “white liquor”, consists of sodium hydroxide (NaOH) and sodium sulfide (Na₂S) in water. “White liquor” is mixed with the wood chips in a digester to extract the pulp fibers from the raw materials. This mixture is then washed and processed to separate the used chemicals from the pulp fibers. The pulp fibers are further processed into pulp and paper products, while the used chemicals are sent through the recovery process to recover the sodium hydroxide and sodium sulfide for re-use.

To recycle the OCC, PTPC combines bales of OCC with water in a mechanical pulper to create a pulp slurry. The OCC pulp is combined with kraft pulp to create paper products, primarily corrugated cardboard liner.

PTPC operates two paper machines. Paper Machine 1 produces market pulp using pulp from the kraft process (C-side). Paper Machine 2 uses both kraft (B-side and C-side) and OCC pulp to produce kraft paper, containerboard/linerboard, and other specialty products such as gumming kraft and laminating kraft.

PTPC operates a hogged fuel boiler (Power Boiler No.10) which generates steam for PTPC’s processes. A portion of the steam is used in conjunction with a 7.5 MW turbine which produces electricity for on-site use.

Major processes which produce process wastewater include OCC pulping, pulp washing, production of paper from the paper machines, chemical recovery, power generation, and the use of wet air pollution control technology. In addition to process wastewater, other sources of wastewater at the site include stormwater, non-contact cooling water, and sanitary wastewater. PTPC treats the process (non-sanitary) wastewater and stormwater in the process wastewater treatment system. PTPC treats sanitary wastewater in a separate sanitary wastewater treatment system. The effluent of both systems combine prior to discharging through Outfall 001. Figure 3 below shows a water balance for the facility.

Between April 1, 2018 and March 31, 2023, PTPC’s processes produced an average of 9.6 million gallons per day (MGD) of process wastewater.

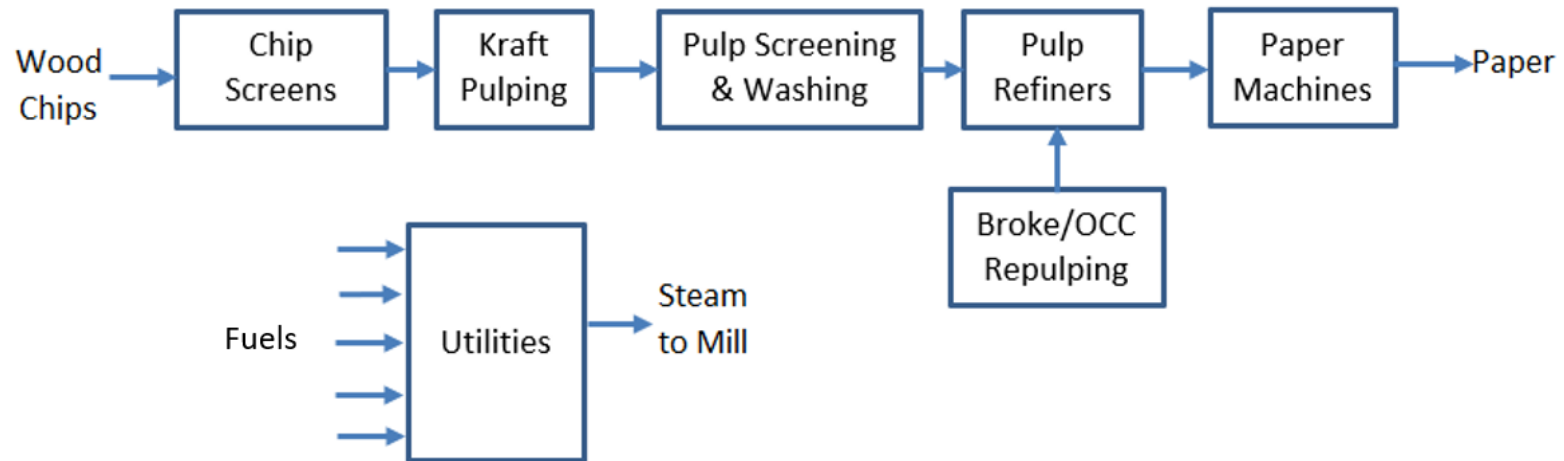


Figure 2 — A simple process flow diagram for PTPC. This diagram was prepared by PTPC.

2023 PTPC Mill Water Balance (units in mgd)

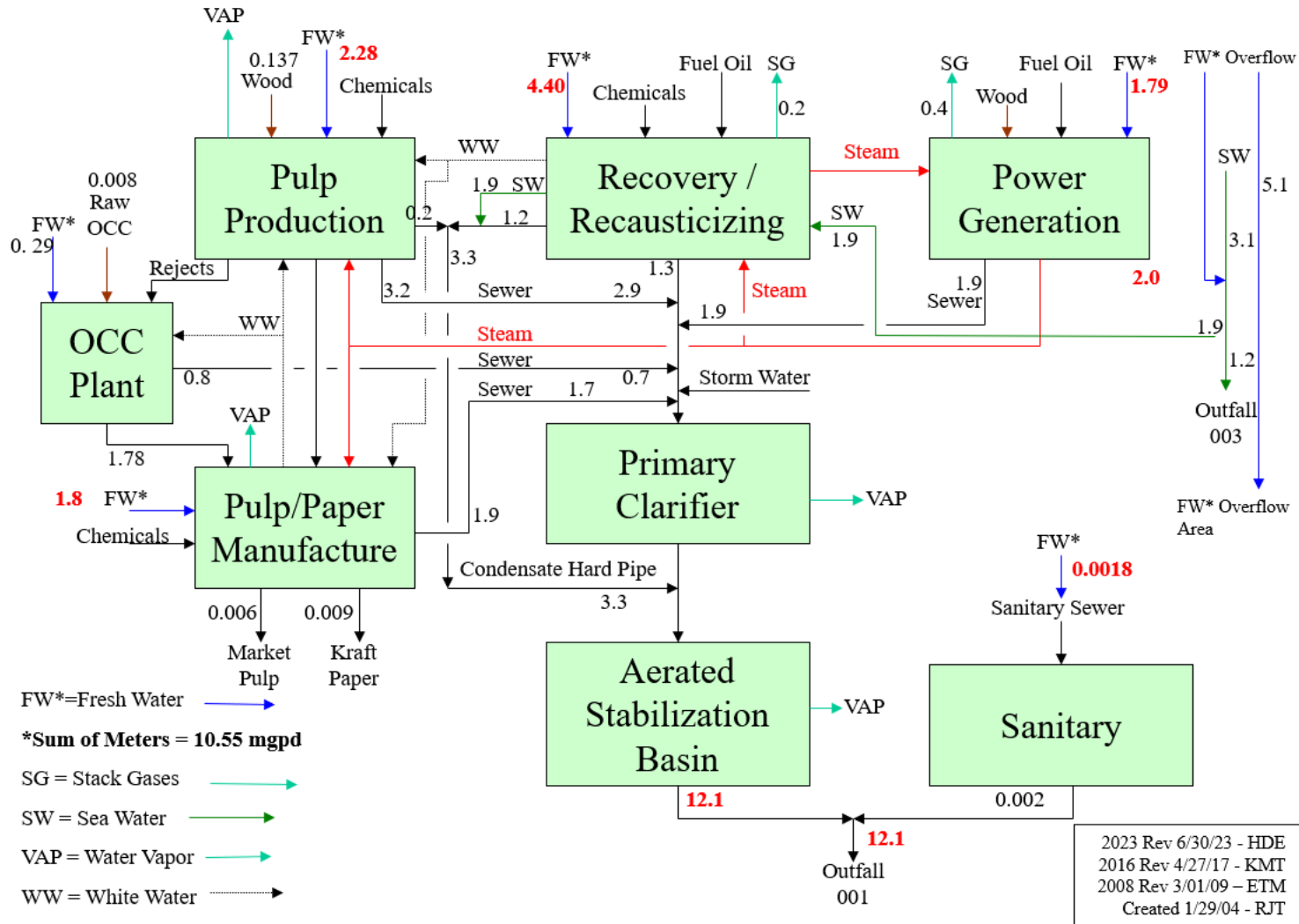


Figure 3 — A water balance for PTPC. This diagram was prepared by PTPC.

3. Changes to Industrial Processes Since Last Permit Issuance

Major changes to PTPC's process since the issuance of the previous NPDES permit on September 16, 2013 include the following:

- In 2014, Ecology issued Order 10453 which approved PTPC to add two new refiners prior to Paper Machine No.2. The refiners improve the strength of the fibers used in the paper making process, which allows for the paper machine to process specific grades of paper at a faster speed than Paper Machine No.2 was previously capable of. The change allowed for an increased rate of paper production at Paper Machine No.2 by about 5,000 tons per year.
- In 2015, Ecology issued Order 11025 which approved the replacement of an existing scrubber, used as an air pollution control device at Power Boiler No.10. Order 11025 also approved the installation of a wet electrostatic precipitator, also used as an air pollution control device at Power Boiler No.10.
- In 2016, Ecology issued a revised Prevention of Significant Deterioration Permit No 96-01A and Order DE 97AQ-I030. PTPC's package boiler previously burned liquid fuel. With the issuance of the revised permits, PTPC's package boiler may only burn natural gas.
- PTPC no longer discharges water through Outfall 002, and Ecology has removed this outfall from the draft proposed permit. This outfall previously discharged non-contact cooling water from a turbine condenser. PTPC notified Ecology that they decommissioned the outfall via a letter dated March 12, 2019. PTPC no longer uses the turbine in its process per an email communication from PTPC dated July 27, 2022.
- In 2019, Ecology issued Notice of Construction Permit No. 16293 which approved PTPC's installation of a new OCC pulper. This increased PTPC's capacity to process OCC from 480 to 720 tons per day.
- In late 2019, PTPC permanently shutdown their "M&D" digester, which produced a portion of their kraft pulp.
- With the two changes above, PTPC's total production rates (combined kraft and recycled) are generally unchanged. However, recycled production has increased from approximately 30% to 50% of PTPC's production.

None of the above changes significantly altered the quality or quantity of PTPC's wastewater. There have been no significant changes to PTPC's wastewater treatment system.

4. Wastewater Treatment Processes

Process Wastewater and Stormwater Treatment

PTPC collects process wastewater and stormwater generated by the facility in various places throughout the site and sends it to two main pump stations. PTPC refers to the pump stations as the no. 9 pump station and main pump station. PTPC collects wastewater at both pump

stations, but then pumps all wastewater from the no.9 pump station to the main pump station before PTPC sends it to the primary clarifier. There is a screening system at the main pump station that removes large solids.

After the main pump station, the primary clarifier performs solids removal by significantly reducing the velocity of the wastewater to promote settling. According to PTPC's Treatment System Operating Plan (TSOP), most recently revised November 12, 2023⁹, the primary clarifier has a diameter of 186 feet and a volume of 2.3 million gallons. At a flow rate of 12.0 MGD, the retention time is 4.6 hours. The TSOP states that approximately 90% of the TSS sent to the primary clarifier is captured in the sludge bed that forms at the bottom of the clarifier. The clarifier's rake scrapes settled sludge to a center sump, which includes a pump that sends the sludge to the dewatering system. While PTPC's current practice is to dispose of dewatered sludge in a landfill, PTPC has historically burned the sludge from the primary clarifier in their hogged fuel boiler for energy recovery.

Due to the nature of the kraft pulping process, the pH of PTPC's wastewater prior to treatment may exceed the maximum pH limits in their permit. PTPC adds sulfuric acid as needed to the effluent of the primary clarifier to bring down the pH of their wastewater.

After the primary clarifier, wastewater flows to PTPC's aerated stabilization basin (ASB). PTPC's ASB uses activated sludge, or microbes, to reduce pollutants in their wastewater. PTPC adds nutrients (ammonia polyphosphate and urea ammonia nitrate) to their wastewater prior to the ASB inlet to support the health of the microbes in the ASB. Aeration systems at the ASB promote the microbial activity and the effectiveness of the system to reduce five-day biochemical oxygen demand (BOD₅) from the wastewater. The aeration system consists of a fine-bubble diffuser system and a series of 75-HP floating aerators. Three 250-HP blowers supply air to the fine bubble diffusers, which consists of thirteen lateral tubes with 369 diffuser heads. The ASB consists of four "runs" separated by baffles to direct flow as shown in Figure 4. Runs 1, 2, and 3 include the components of the aeration system. The remainder of the ASB has no aeration components in order to allow for settling of activated sludge out of the wastewater before discharge (secondary clarification). PTPC may use flocculants, or chemical coagulants, which facilitate the settling of the activated sludge. PTPC must periodically perform dredging events to remove settled sludge from the ASB.

One portion of PTPC's wastewater, called "foul condensates", bypasses the primary clarifier and is instead directly piped below the surface of the first run of the ASB. Foul condensates are certain wastewaters from the kraft pulping process that contain reduced sulfur compounds and organic compounds. As these compounds may volatilize from the wastewater stream and escape into the air, federal air regulations require PTPC to manage their foul condensates in this way to reduce air emissions¹⁰.

⁹ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=462125>

¹⁰ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-63/subpart-S>

According to the “Wastewater Treatment System Efficiency Study and Engineering Report” dated February 2009, the ASB constructed in 1978 included fifteen aerators (and no fine bubble diffuser).¹¹ PTPC modified the ASB in 2005 to comply with federal air regulations. To comply with the regulations, PTPC needed to increase treatment at the wastewater plant to reduce air emissions from foul condensates piped to the ASB. PTPC removed two aerators to make room for the installation of the fine bubble diffuser at the inlet of the ASB. PTPC submitted their most recent design report, titled, “Treatment System Engineering Report” to Ecology on September 28, 2017. The report documented via five sampling events that PTPC’s ASB was removing about 93% of the total BOD₅ sent to the system with eleven aerators operating (See Table 13). As of the writing of this fact sheet, PTPC removed one additional aerator due to sludge management issues and currently has ten functional aerators. The draft proposed permit includes a requirement for PTPC to reinstall this aerator, as discussed in Section V.D of this fact sheet.

Figure 4 below is a flow diagram of PTPC’s wastewater treatment plant. Figure 5 is a satellite image showing the location of the major parts of the wastewater treatment plant.

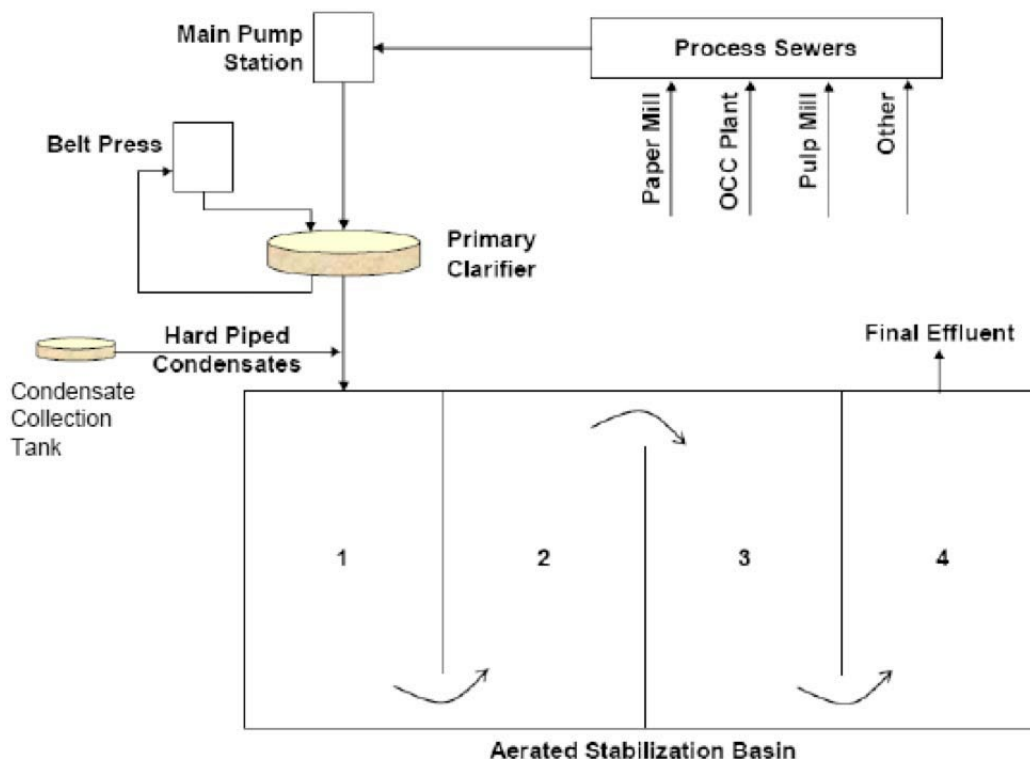


Figure 4 — Wastewater Treatment System Flow Diagram

¹¹ February 2009 “Wastewater Treatment System Efficiency Study and Engineering Report” states PTPC removed two aerators after 2005 upgrades, leaving 13 aerators.

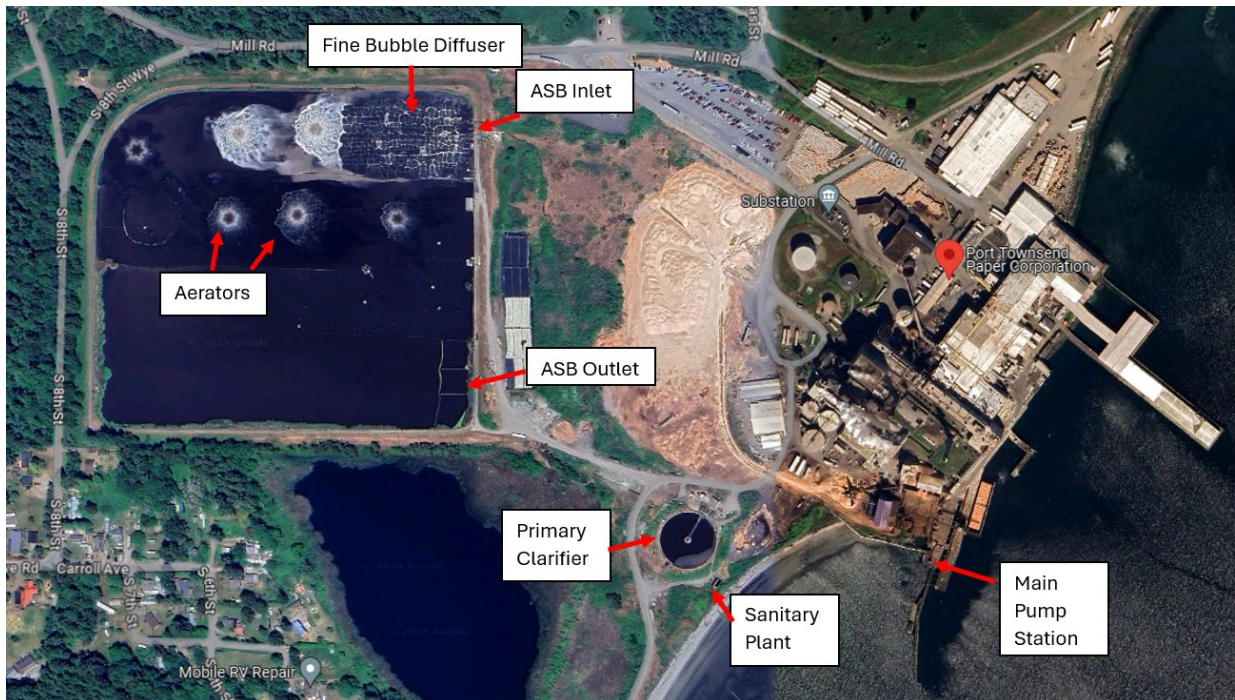


Figure 5 — Wastewater treatment facilities map

Sanitary Wastewater Treatment

The sanitary wastewater treatment system is a 50,000 gallon per day (design capacity) activated sludge package plant followed by disinfection. The activated sludge plant consists of three units – an aeration basin, a settling basin, and a chlorine contact chamber. PTPC uses calcium hypochlorite tablets to disinfect the effluent before it is mixed with the process wastewater treatment plant effluent.

Actual flow to the sanitary wastewater treatment system is far below design. Average flow rate was about 6,000 gallons per day from March 2018 through April 2023.

PTPC sends the waste activated sludge removed from the activated sludge package plant to the city of Port Townsend's wastewater treatment plant.



Figure 6 — Sanitary wastewater treatment plant with aerator on. Photo from February 6, 2020 water quality inspection performed by Ecology.

5. Cooling Water Intake Structure and Outfall 003

PTPC's cooling water intake structure (CWIS) consists of three pumps which withdraw water from Port Townsend Bay. See Figure 7 for location. The CWIS originally consisted of four pumps, but PTPC currently only owns and operates three pumps. The three pumps can pull up to 3,500 gpm each (5.04 MGD). The system is designed to pull 15.12 MGD of water.

With their permit application¹², PTPC reported that there is a screening system over the intake piping of the pumps, as indicated by engineering drawings, but they are unsure of its condition as there has been no recent inspection of the cooling water intake structure. The draft proposed permit includes a requirement for PTPC to inspect the cooling water intake structure, as discussed in Section V.K of this document.

PTPC operates the cooling water intake pumps 24 hours a day, 7 days a week. However, PTPC typically does not use the water in its process. When PTPC does not use the water, PTPC returns it to Port Townsend Bay through Outfall 003. Because the water discharged through Outfall 003 does not come into contact with any pollutants, the draft proposed permit does not require any monitoring for Outfall 003. There is no flow rate monitoring at Outfall 003.

Per an email communication from PTPC dated November 21, 2023, PTPC only uses this water at the D-set evaporators. The D-set evaporators are an auxiliary unit and PTPC uses them seldomly (typically less than 5% of operating time annually). PTPC uses the water to pull a vacuum to collect non-condensable gases and uses the water for contact cooling at the D-set evaporators.

6. Wastewater Treatment Plant and Sanitary Plant Outfalls

Outfall 001A is located at the ASB effluent, which is the treated process wastewater and stormwater. Outfall 005 is the effluent of the sanitary wastewater treatment plant.

7. Discharge Outfall (Outfall 001)

The discharges from Outfall 001A and Outfall 005 combine before discharging through Outfall 001 in Port Townsend Bay.

Outfall 001 extends about 1200 feet from the shore and discharges at a depth of 45 feet below the surface of the water through 29 diffuser ports at the end of the discharge pipe. Diffuser ports facilitate rapid mixing of the effluent. On average, approximately 10 MGD discharged from this outfall from March 2018 through April 2023. Most of this flow is process wastewater and stormwater. Treated sanitary wastewater was on average about 0.06% of the total flow through Outfall 001 during the same timeframe. See Figure 7 for location for the location of Outfall 001.

Previous versions of this permit and iterations of the fact sheet used "Outfall 001" to mean both the ASB effluent and the final discharge location into Port Townsend Bay. To avoid

¹² <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=456629>

confusion, the draft proposed permit refers to the ASB effluent as “Outfall 001A” and the discharge point of the combined effluent from the ASB and the sanitary plant as “Outfall 001”.

The NPDES permit effective during the drafting of this fact sheet requires PTPC to perform an outfall evaluation every three years. PTPC submitted the most recent outfall evaluation via a report dated December 30, 2021. The report identified the need for several repairs. PTPC performed the necessary repairs and submitted a report dated March 24, 2022 documenting the repairs. The March 24, 2022 report documented good flow through all diffusers¹³.



Figure 7 — Facility Outfall and Cooling Water Intake Structure Map

8. Solid wastes

PTPC’s wastewater treatment plants generate solid wastes via screening at the main pump station and solids removed from wastewater via the primary clarifier, ASB, and sanitary wastewater treatment.

PTPC collects the solids captured via the screening system at the main pump station and disposes of them off-site.

¹³ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=406396>

PTPC pumps the solids from the primary clarifier to a coil filter and then to a Rietz press for dewatering. PTPC's current practice is to dispose the dewatered sludge from the primary clarifier in an off-site landfill. Historically, PTPC had burned the primary clarifier sludge in their hogged fuel boiler for energy recovery.

PTPC periodically performs sludge inventory to determine the amount of solids accumulation in the ASB. Solids accumulate in the ASB at an approximate rate of 1-5 dry tons per day (PTPC Treatment System Operating Plan, November 2023). PTPC periodically removes solids from the ASB via dredging and dewateres the sludge. PTPC sends water PTPC generates from the dewatering process back to the ASB for treatment. PTPC historically has sent the dewatered ASB solids to an off-site landfill for disposal.

PTPC's currently effective permit and draft proposed permit require PTPC to maintain a solid waste control plan which describes how they properly manage wastes generated by their process.

II.B. Description of the receiving water

PTPC discharges to Glen Cove in Port Townsend Bay. Other nearby point source outfalls include Port of Port Townsend Boat Haven (Permit No. WAG031006) and Sea Marine (Permit No. WAG031003) which discharge under the coverage of the Boatyard General Permit. Significant nearby non-point sources of pollutants include local agriculture and farming, boat moorage (and other boating activities), and untreated stormwater runoff. Section III.G of this fact sheet describes any receiving waterbody impairments.

The ambient background data in the table below is from PTPC's *Receiving Water Sampling Report* (submitted April 5, 2017) and a nearby ambient monitoring station managed by Ecology (PTH005).

Table 2 — Ambient Background Data

Parameter	Value	Data Set
Temperature, maximum ¹⁴	14.0°C	Ecology Environmental Assessment Program (EAP) Marine Water Column Data ¹⁵
Temperature, maximum ¹⁴ ,	13.1°C	PTPC Receiving Water Study ¹⁶

¹⁴ Temperature data considered only readings taken at plume trapping depth of 2 meters per Ecology guidance for temperature (See also Appendix F).

¹⁵ <https://ecology.wa.gov/Research-Data/Monitoring-assessment/Puget-Sound-and-marine-monitoring> ; Location PTH005, 1997-2017

¹⁶ <https://apps.ecology.wa.gov/eim/search/Detail/Detail.aspx?DetailType=Study&SystemProjectId=99971262>, <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=274765> ; 2015-2019. Some results only available in PDF and not in Environmental Information Management System (see Appendix C of PDF).

Parameter	Value	Data Set
Temperature, 50 th percentile ¹⁴	10.3°C	Ecology Environmental Assessment Program (EAP) Marine Water Column Data ¹⁵
Temperature, 50 th percentile ¹⁴	11.0°C	PTPC Receiving Water Study ¹⁶
Dissolved Oxygen, 10 th Percentile ¹⁷	6.7 ppm	EAP Marine Water Column Data ¹⁵
Dissolved Oxygen, 10 th Percentile ¹⁷	6.5 ppm	PTPC Receiving Water Study ¹⁶
pH, 10 th percentile ¹⁷	7.5 standard units	EAP Marine Water Column Data ¹⁵
pH, minimum ¹⁸	7.7 standard units	PTPC Receiving Water Study ¹⁶
pH, 90 th percentile ¹⁷	8.0 standard units	EAP Marine Water Column Data ¹⁵
pH, maximum ¹⁸	8.3 standard units	PTPC Receiving Water Study ¹⁶
Salinity, 10 th percentile ¹⁷	29.8 practical salinity units (PSU)	EAP Marine Water Column Data ¹⁵
Salinity, minimum ^{17, 19}	29.4 PSU	PTPC Receiving Water Study ¹⁶
Salinity, 50 th percentile ¹⁷	30.5 PSU	EAP Marine Water Column Data ¹⁵
Salinity, 50 th percentile ^{17, 19}	30.5 PSU	PTPC Receiving Water Study ¹⁶
Turbidity, 50 th percentile ¹⁷	0.60 NTU	EAP Marine Water Column Data ¹⁵

¹⁷ Data between 2 and 12 meters considered. PTPC's outfall pipe is at a depth of approximately 12 meters with a plume trapping depth of 2 meters.

¹⁸ pH was only sampled for 5 days during this study. Although Ecology's Permit Writer's Manual calls for 10th percentile data for pH to evaluate the impact of the discharge on receiving waters, Ecology instead considered the minimum pH value due to the limited data set.

¹⁹ Salinity was only sampled for 5 days during this study. Although Ecology's Permit Writer's Manual calls for 10th percentile data for Salinity to evaluate the impact of the discharge on receiving waters, Ecology instead considered the minimum Salinity value due to the limited data set.

Parameter	Value	Data Set
Ammonia as NH ₃ , total (geometric mean)	0.026 mg/L ²⁰	PTPC Receiving Water Study ¹⁶
Ammonia as NH ₃ , total (90 th percentile) ²¹	0.045 mg/L ²⁰	PTPC Receiving Water Study ¹⁶
Antimony, dissolved (geometric mean)	0.30 µg/L	PTPC Receiving Water Study ¹⁶
Antimony, dissolved (90 th percentile) ²¹	0.53 µg/L	PTPC Receiving Water Study ¹⁶
Arsenic, dissolved (geometric mean)	1.11 µg/L	PTPC Receiving Water Study ¹⁶
Arsenic, dissolved (90 th percentile) ²¹	1.93 µg/L	PTPC Receiving Water Study ¹⁶
Cadmium, dissolved (geometric mean)	0.056 µg/L	PTPC Receiving Water Study ¹⁶
Cadmium, dissolved (90 th percentile) ²¹	0.098 µg/L	PTPC Receiving Water Study ¹⁶
Chromium, dissolved (geometric mean)	0.17 µg/L	PTPC Receiving Water Study
Chromium, dissolved (90 th percentile) ²¹	0.30 µg/L	PTPC Receiving Water Study
Copper, dissolved (geometric mean)	0.36 µg/L	PTPC Receiving Water Study
Copper, dissolved (90 th percentile) ²¹	0.62 µg/L	PTPC Receiving Water Study
Lead, dissolved (geometric mean)	0.025 µg/L	PTPC Receiving Water Study

²⁰ The study originally reported these concentrations in terms of total ammonia as N. Ecology converted to total ammonia as NH₃ by multiplying by 1.21.

²¹ The 90th percentile value was estimated by multiplying the geometric mean by 1.74. Ecology's Permit Writer's Manual specifies to use this value to estimate the 90th percentile when there are less than 21 samples.

Parameter	Value	Data Set
Lead, dissolved (90 th percentile) ²¹	0.043 µg/L	PTPC Receiving Water Study
Manganese, dissolved (geometric mean)	1.92 µg/L	PTPC Receiving Water Study
Manganese, dissolved (90 th percentile) ²¹	3.34 µg/L	PTPC Receiving Water Study
Mercury, total (geometric mean)	0.36 ng/L	PTPC Receiving Water Study
Mercury, total (90 th percentile) ²¹	0.62 ng/L	PTPC Receiving Water Study
Mercury, dissolved (geometric mean)	0.080 ng/L	PTPC Receiving Water Study
Mercury, dissolved (90 th percentile) ²¹	0.14 ng/L	PTPC Receiving Water Study
Nickel, dissolved (geometric mean)	0.41 µg/L	PTPC Receiving Water Study
Nickel, dissolved (90 th percentile) ²¹	0.71 µg/L	PTPC Receiving Water Study
Silver, dissolved (geometric mean)	0.0042 µg/L	PTPC Receiving Water Study
Silver, dissolved (90 th percentile) ²¹	0.0074 µg/L	PTPC Receiving Water Study
Zinc, dissolved (geometric mean)	0.724 µg/L	PTPC Receiving Water Study
Zinc, dissolved (90 th percentile) ²¹	1.26 µg/L	PTPC Receiving Water Study

II.C. Wastewater characterization

PTPC reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent

discharged from the beginning of the permit term (October 1, 2013) through calendar year 2023, unless otherwise noted. The currently effective permit required PTPC to monitor for several pollutants, but not all pollutants were detected in PTPC's effluent. The table below summarizes the results of the sampling and only includes pollutants detected in the effluent. For the purposes of averaging, if a sample was below the detection limit for a given parameter and sampling event, Ecology assumed a value of one half the detection limit for that parameter and sampling event. The tables below summarize the detected characteristics in the wastewater effluent.

Table 3 — Outfall 001A Wastewater Characterization, Conventional Pollutants and Nutrients, Except pH and Temperature

Parameter	Units	# of Samples	Average Value	Maximum Value
Flow ²² , daily average	million gallons per day (MGD)	1826	9.6	14.4
Biochemical Oxygen Demand (BOD ₅) ²²	mg/L (milligrams/liter)	1306	29	209
Chemical Oxygen Demand (COD) ²³	mg/L	1	328	328
Total Organic Carbon (TOC) ²³	mg/L	1	31	31
Total Suspended Solids (TSS) ²²	mg/L	1821	66	212
Oil & Grease	mg/L	9	3.16	6.20
Ammonia ²³	mg/L	12	6	9
Nitrate-Nitrite (as N) ²³	mg/L	38	0.07	0.41
Nitrogen, Total Organic (as N) ²³	mg/L	38	6.54	12.43

²² Includes data PTPC reported in DMRs to Ecology for April 1, 2018 through March 31, 2023

²³ Values shown are those reported in PTPC's permit application:

<https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=219645>

Parameter	Units	# of Samples	Average Value	Maximum Value
Phosphorus (as P) ²³	mg/L	38	1.40	5.74
Sulfate (as SO ₄) ²³	mg/L	1	495	495

Table 4 — Outfall 001A Wastewater Characterization, pH

Parameter	Units	# of Samples	Instantaneous Minimum	Instantaneous Maximum
pH ²²	SU	Continuous Monitoring for 5 years	6.1	8.7

Table 5 — Outfall 001A Wastewater Characterization, Temperature²⁴

Parameter	Units	# of Samples	Average Daily	Maximum Daily Average
Daily Average Temperature (December 15 -March 15) ²²	°F	Continuous Monitoring for 5 years	60	88
Daily Average Temperature (June 15 -September 15) ²²	°F	Continuous Monitoring for 5 years	79	90
50 th Percentile Value, Daily Average	°F	Continuous Monitoring for 5 years	N/A	71

²⁴ Currently effective permit required PTPC to report daily maximum temperatures. Per correspondence with PTPC, PTPC inadvertently reported daily averages.

Table 6 — Outfall 001A Wastewater Characterization, all Other Detected Pollutants

Pollutant	Units	# of Samples	Average Value	Maximum Value
2,3,7,8-TCDD (dioxin)(tetrachloro-dibenzo- p-dioxin)	pg/L (picograms/liter)	10	1.14	0.81 ²⁵
2-Nitrophenol	ug/L (micrograms/liter)	10	0.41	1.60
Acrolein	ug/L	10	0.63	0.61 ^{25, 26}
Aluminum ²³	mg/L	1	0.12	0.12
Antimony	ug/L	10	1.43	3.08
Arsenic	ug/L	10	21.12	50.10
Barium ²³	mg/L	1	0.07	0.07
Benzene	ug/L	10	0.08	0.70
Benzo(a)anthracene	ug/L	11	0.06	0.14 ²⁶
Beryllium	ug/L	10	0.01	0.02 ²⁶
Bis(2-Ethylhexyl) Phthalate	ug/L	11	1.69	6.60 ²⁶
Boron ²³	mg/L	1	0.95	0.95

²⁵ Detection levels can vary between sampling events. For one or more samples which were below detection during a sampling event, one-half of the minimum detection limit was higher than the maximum value measured above detection during a later sampling event. Because one-half of the minimum detection limits are included in averages as discussed above, the average value shown is greater than the maximum value.

²⁶ The analyte was positively identified, but below the quantitation level. The associated numerical result is an estimate.

Pollutant	Units	# of Samples	Average Value	Maximum Value
Bromomethane (methyl bromide)	ug/L	10	0.03	0.16 ²⁶
Cadmium	ug/L	10	0.35	0.61
Chlordane	ug/L	11	0.03	0.18 ²⁶
Chloroform	ug/L	10	0.06	0.28 ²⁶
Chloromethane (methyl chloride)	ug/L	10	0.05	0.24 ²⁶
Chromium	ug/L	10	5.43	9.73
Chromium, Hexavalent	ug/L	10	0.20	0.44
Copper	ug/L	10	5.99	10.60
Cyanide, Total	ug/L	10	1.52	8.00 ²⁶
Cyanide, free amenable to chlorination	ug/L	10	3.42	27.00
Cyanide, weak acid dissociable	ug/L	10	2.38	6.00 ²⁶
Dibutyl phthalate (Di-n-butyl phthalate)	ug/L	10	0.23	0.36 ²⁶
Dieldrin	ug/L	10	0.001	0.01 ^{26,27}
Diethyl phthalate	ug/L	10	0.12	0.53 ²⁶

²⁷ The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results. See Appendix D for a discussion of the quality of this data in relation to reasonable potential analysis.

Pollutant	Units	# of Samples	Average Value	Maximum Value
Dimethyl phthalate	ug/L	10	0.11	0.15 ²⁶
Di-N-Octyl Phthalate	ug/L	10	0.08	0.12 ²⁶
Endosulfan I (alpha endosulfan)	ug/L	10	0.01	0.005 ^{25, 26}
Ethylbenzene	ug/L	10	0.01	0.03 ²⁶
Fluoranthene	ug/L	10	0.07	0.10 ²⁶
Fluorene	ug/L	10	0.053	0.047 ²⁵
Iron ²³	mg/L	1	0.42	0.42
Isophorone	ug/L	10	0.13	0.46 ²⁶
Lead	ug/L	10	5.26	16.90
Manganese ²³	mg/L	1	0.16	0.16
Magnesium ²³	mg/L	1	128	128
Mercury	ng/L (nanograms/liter)	10	6.31	15.10
Naphthalene	ug/L	10	0.07	0.12 ²⁶
Nickel	ug/L	10	4.94	6.57
Pentachlorophenol	ug/L	11	0.69	3.50 ²⁶
Phenanthrene	ug/L	10	0.07	0.15 ²⁶

Pollutant	Units	# of Samples	Average Value	Maximum Value
Phenol	ug/L	10	0.17	0.74
Phenolics (Total Phenols)	ug/L	10	21.60	73.00
Pyrene	ug/L	10	0.08	0.10 ²⁶
Selenium	ug/L	10	0.86	3.50 ²⁶
Silver	ug/L	10	0.04	0.10
Surfactants ²³	mg/L	6	0.07	0.07
Thallium	ug/L	10	0.01	0.02
Toluene	ug/L	10	0.27	1.40
Turbidity ²⁸	Nephelometric Turbidity Unit (NTU)	1	100	100
Vinyl Chloride	ug/L	10	0.02	0.10 ²⁶
Zinc	ug/L	10	61.13	115

II.D. Summary of compliance with previous permit issued September 16, 2013

While PTPC generally complied with the discharge limits and permit conditions throughout the duration of the permit cycle for the permit issued on September 16, 2013, there were a number of numeric effluent limit and other violations that required corrective actions. Non-compliance events have been tabulated which occurred between April 1, 2018 through March 31, 2023 (the most recent 5-year period at the time of compiling the data for this fact sheet) are tabulated below. Numeric limit violations are in Table 7. All other types of violations are in Table 8. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), including discharge monitoring reports (DMRs), and on inspections. The two tables below specify the numerical effluent limit violations and all other violations. Additional violations that occurred during the permit cycle before and after the 5-year period for

²⁸ Sample collected by Ecology on May 9, 2023 sampling inspection.

which Ecology pulled data are available online on Ecology's Water Quality Permitting and Reporting Information System²⁹.

²⁹ <https://apps.ecology.wa.gov/paris/ComplianceAndViolations/ViolationsAndPermitTriggers.aspx>

Table 7 — Numeric Limit Violations

Date	Outfall	Parameter	Limit	Value	Additional Information
7/9/2022	001A	Daily maximum BOD ₅ , lbs/day	8850	9583	Ecology issued Penalty 21412 for \$3,000 on January 17, 2023
4/26/2022	005	pH	6.0 (minimum)	5.7	Outfall 005 effluent pH was below the pH minimum for 1 hour and 45 minutes. Ecology issued a warning letter on July 25, 2022.
3/13/2022	001A	Daily maximum BOD ₅ , lbs/day	8850	9840	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
3/1/2022	001A	Monthly average BOD ₅ , lbs/day	4578	4745	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
3/1/2022	005	Monthly average TSS concentration, mg/L	30	33	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
3/1/2022	005	Monthly average TSS removal	85% (minimum)	81%	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
2/1/2022	005	Monthly average TSS removal	85% (minimum)	80%	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/3/2022	001A	Daily maximum BOD ₅ , lbs/day	8850	13626	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/2/2022	001A	Daily maximum BOD ₅ , lbs/day	8850	10497	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/1/2022, 1/2/2022, 1/3/2022	001A	pH maximum	9 (maximum)	9.2	Outfall 001A exceeded the pH maximum limit for 35.4 hours. Maximum reported pH was 9.2. Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/1/2022	001A	Daily maximum BOD ₅ , lbs/day	8850	9622	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/1/2022	001A	Monthly Average TSS, lbs/day	8243	8317	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/1/2022	005	Monthly Average TSS Removal	85% (minimum)	81%	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
12/1/2021	005	Monthly Average TSS Removal	85% (minimum)	82%	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
11/1/2021	005	Monthly Average TSS Removal	85% (minimum)	83%	Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
3/4/2019	001A	Maximum Daily TSS, lbs/day	16212	16900	Ecology issued a warning letter on April 30, 2019.

Table 8 — Other Violations

Date	Violation Type	Additional Information
12/31/2022	Spill	PTPC spilled approximately 7,500 - 10,000 gallons of untreated wastewater to Port Townsend Bay. Ecology issued Penalty 21561 on May 1, 2023 for \$6,000.
11/5/2022	Analysis not Conducted	PTPC failed to collect a sample for TSS analysis from Outfall 001A on November 5, 2022. Ecology issued a warning letter on January 4, 2023.
6/5/2022	Spill	A spill of approximately 1600 gallons of untreated process wastewater and untreated stormwater to Port Townsend Bay. Warning letter issued August 16, 2022.
1/17/2022	Spill	A spill of approximately 500 gallons of untreated wastewater to Port Townsend Bay. Ecology issued Penalty 20921 for \$27,000 on May 16, 2022.
1/14/2022, 1/15/2022	Analysis not Conducted	PTPC failed to collect a sample for TSS analysis from Outfall 001A on January 14 and 15, 2022. Ecology issued a warning letter on July 25, 2022.
1/2/2022	Spill	A spill of approximately 10 gallons of untreated wastewater to Port Townsend Bay. Penalty 20921 issued for \$27,000 on May 16, 2022.
12/31/2021	Spill	A spill of approximately 20 gallons of untreated wastewater to Port Townsend Bay. Penalty 20921 issued for \$27,000 on May 16, 2022.
12/30/2021	Spill	A spill of approximately 5 gallons of untreated wastewater to Port Townsend Bay. Penalty 20921 issued for \$27,000 on May 16, 2022.
11/15/2021	Spill	A spill of approximately 300 gallons of untreated wastewater to Port Townsend Bay. Penalty 20921 issued for \$27,000 on May 16, 2022.
8/4/2021	Improper Operation and Maintenance	Ecology’s inspection report for an inspection performed on August 4, 2021 identified improper operation and maintenance at the Primary Clarifier. PTPC submitted a report of corrective action on October 15, 2021 which included a temporary solution. PTPC made a permanent repair at a later date. Ecology took no further action.
8/4/2021	Invalid/Unrepresentative Sample	Ecology observed PTPC storing their ASB effluent sample at 6.7°C (sample storage required at <6°C). PTPC submitted a report of corrective action on October 15, 2021. Ecology took no further action.
1/30/2021	Spill	Spill of 37,500 gallons of untreated wastewater to Port Townsend Bay. Penalty 19610 issued for \$6,000 on March 4, 2021.
1/28/2021	Spill	Spill of 150 gallons of untreated effluent to Port Townsend Bay. Penalty 19610 issued for \$6,000 on March 4, 2021.
1/22/2021 through 1/27/2021	Analysis not Conducted	PTPC failed to collect pH data at the final effluent. Warning letter issued February 23, 2021.
5/26/2020	Spill	A break in the process wastewater line resulted in an unpermitted discharge to Port Townsend Bay. Penalty 18249 for \$2,000 and Compliance Order 18251 issued on September 4, 2020.
10/21/2019	Spill	Partially treated wastewater effluent spill of approximately 165,000 gallons to the ground between the primary clarifier and the ASB. Penalty 16932 issued for \$6,000 on December 20, 2019.
2/6/2019	Spill	A break in an underground portion of the process wastewater line between the primary clarifier and the ASB caused a spill of process wastewater to ground. PTPC identified the leak on February 6, 2019 and completed repairs on March 2, 2019. Process wastewater was diverted around the leak (through a bypass line to the ASB) for the majority of the time. Ecology took no further action.
1/31/2019	Improper Operations and Maintenance	Approximately 200 gallons of whitewater and cleanup water was discharged to Port Townsend Bay when wastewater lines became clogged and overflowed. Notice of Violation 16236 issued on March 21, 2019. Ecology took no further action.

Date	Violation Type	Additional Information
12/23/2018, 12/24/2018	Spill	PTPC discovered process water leaks to Port Townsend Bay believed to be the result of damage caused by a recent storm. PTPC shut down operations and repaired the leaks within one day. Ecology took no further action.
12/23/2018	Spill	Process water leaked from the main line between the #9 pump station and the main pump station. Repair completed and tested on December 24, 2018. Ecology took no action.
11/2/2018	Spill	On November 2, 2018, approximately 8,542 gallons of process wastewater spilled to Port Townsend Bay when the Main Pump Station overflowed. The overflow occurred because of an externally caused power outage. The backup diesel pump did not start when the mill lost power, allowing for the Main Pump Station to overflow. Ecology issued Penalty 16122 for \$2,000 on December 28, 2018.
10/26/2018	Spill	On October 26, 2018, approximately 18,157 gallons of stormwater and firewater that PTPC was using to clean equipment was discharged to Port Townsend Bay. Ecology issued Penalty 16122 for \$2,000 on December 28, 2018.
10/17/2018	Failure to submit required report	Late submittal of Stormwater Inspection Report. Due September 1, 2018, submitted October 17, 2018. Ecology took no further action.

The following table summarizes compliance with report submittal requirements over the permit term.

Table 9 — Permit Submittals

Submittal Name	Permit Condition	Due Date	Received Date
Plan for the replacement of main process sewer line	Order 18251	10/1/20	10/1/20
Sediment Chemistry Analyses	S11.B	9/30/18	3/31/15, 3/1/16
Ground Water Impact Study Results	S10.2	9/30/18	12/15/16
Receiving Water Study Results	S9.10	9/3/18	4/5/17
Application for Permit Renewal	S19	10/1/17	9/29/17
Treatment System Engineering Report	S16.4	10/1/17	9/28/17
Toxicity – Acute Testing Effluent Test Results – Last Winter	S14	6/1/17	3/22/17, 4/26/17
Toxicity – Chronic Testing Effluent Test Results – Last Winter	S14	6/1/17	3/22/17, 4/26/17
Toxicity – Acute Testing Effluent Test Results – Last Summer	S14	11/1/16	8/2/16
Toxicity – Chronic Testing Effluent Test Results – Last Summer	S14	11/1/16	8/2/16
Stormwater Inspection Results	S17.3	9/1/15 and annually	9/1/15, 9/2/16, 8/30/17, 10/17/18, 8/27/19, 8/31/20, 8/27/21, 8/10/22, 8/25/23
Ground Water Impact Study Sampling and Quality Assurance Plan	S10.1	7/1/15	6/30/15, 9/11/15

Submittal Name	Permit Condition	Due Date	Received Date
Treatment System Engineering Report – Quarterly Progress	S16.3	One per quarter between 5/15 and 04/17	7/1/15, 9/28/15, 11/11/15, 2/8/16, 4/13/16, 6/15/16, 11/12/16, 3/26/17
Complete Sludge Removal to Acceptable Sludge Inventory – Status Report	S6	4/1/15	3/31/15, 6/1/15
Complete repairs on the ASB outlet weir and ASB curtains – Status report	S6	10/1/14	10/1/14
Receiving Water and Effluent Study Sampling and Quality Assurance Plan	S9.1	10/1/14	10/1/14, 1/29/15
Treatment System Engineering Report – Study Plan	S16.1	10/1/14	10/1/14
Stormwater Pollution Prevention Plan	S17.2	10/1/14 and as needed	10/1/14, 1/5/15
Complete removal of the geobags – Status Report	S6	10/1/14	8/15/14
Spill Control Plan Update	S8.A	10/1/14 and as needed	10/1/14, 1/15/15, 12/4/15, 2/4/19, 9/29/22
Outfall Evaluation Report	S12.B	5/30/14, 5/30/17, 5/30/20, 5/30/23	11/14/13, 4/26/17, 11/13/19, 1/12/2022, 5/9/2022
O&M Manual Update	S4.A	4/1/14 and as needed	4/1/14, 3/26/17, 5/7/18, 11/22/21

Submittal Name	Permit Condition	Due Date	Received Date
Treatment System Operating Plan Update	S4.A	4/1/14 and as needed	4/1/14, 1/17/17, 11/15/23
Initiate sludge removal from ASB – Status Report	S6	4/1/14	3/30/14, 4/14/15
Mixing Zone Update Report	S18.B	4/1/14	12/11/13, 6/13/14
Sediment Baseline Sampling and Analysis Plan	S11.A	1/31/14	1/31/14, 6/13/14
Reporting Bypasses	S4.B	As needed	1/19/16, 9/12/16, 8/24/22, 8/25/22, 10/10/23, 10/25/23
Notice of Change in Authorization	G1	As needed	5/16/14, 3/31/15, 11/19/18, 10/13/21, 10/6/2022, 10/13/2022
Report Permit Violations – Written Report	S3.E	As needed	Multiple throughout permit cycle

II.E. State environmental policy act (SEPA) compliance

State law exempts the issuance, reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations (RCW 43.21C.0383³⁰). The exemption applies only to existing discharges, not to new discharges. Therefore, Ecology does not need to issue a SEPA determination for the proposed renewal of this permit.

³⁰ <http://app.leg.wa.gov/RCW/default.aspx?cite=43.21C.0383>

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 125.3³¹, and chapter 173-220 WAC³²).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC³³), Ground Water Standards (chapter 173-200 WAC³⁴), Sediment Quality Standards (chapter 173-204 WAC³⁵), or the Federal Water Quality Criteria Applicable to Washington (40 CFR 131.45³⁶).
- 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)]³⁷. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

III.A. Design criteria

Under WAC 173-220-150 (1)(g)³⁸, flows and waste loadings must not exceed design criteria. *The Port Townsend Paper Corporation Treatment System Efficiency Study and Engineering*

³¹ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-125#125.3>

³² <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220>

³³ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

³⁴ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200>

³⁵ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-204>

³⁶ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-131#131.45>

³⁷ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.42>

³⁸ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-150>

Report dated February 2009 and prepared by Todd Williams documents design criteria for PTPC.

The currently effective permit required PTPC to submit a similar study during the permit cycle. PTPC submitted a “Treatment System Engineering Report” to Ecology through the water quality permitting portal on September 28, 2017. This report evaluated the performance of the wastewater treatment system. While the report presented certain information as “design criteria”, Ecology has determined that the “design criteria” identified in the 2017 report do not meet the intent of “design criteria” under the related permit condition. Therefore, Ecology is retaining the design criteria from the February 2009 submittal in the proposed draft permit. The “design criteria” in the 2017 submittal was primarily focused on flow rates. While treatment efficiencies were discussed, the report did not focus on loading.

Based on the discussion above, Ecology is retaining the design criteria from the 2013 permit cycle. However, these criteria are outdated and reflect operations at the ASB when more aeration was available. Because of this, Ecology is requiring PTPC to establish new criteria based on current operations in Special Condition S8. Special Condition S8 also requires PTPC to establish design criteria for TSS loading.

Table 10 — Design Criteria for the ASB

Parameter	Design Quantity
ASB Maximum Monthly Design Flow Rate	14.5 MGD
ASB Design Loading: Inlet BOD (maximum monthly average)	27,000 lbs/day

The graph below shows monthly average wastewater flow rates from March 2018 through March 2023. PTPC operated below the design flow rate of the system as identified in the 2009 report.

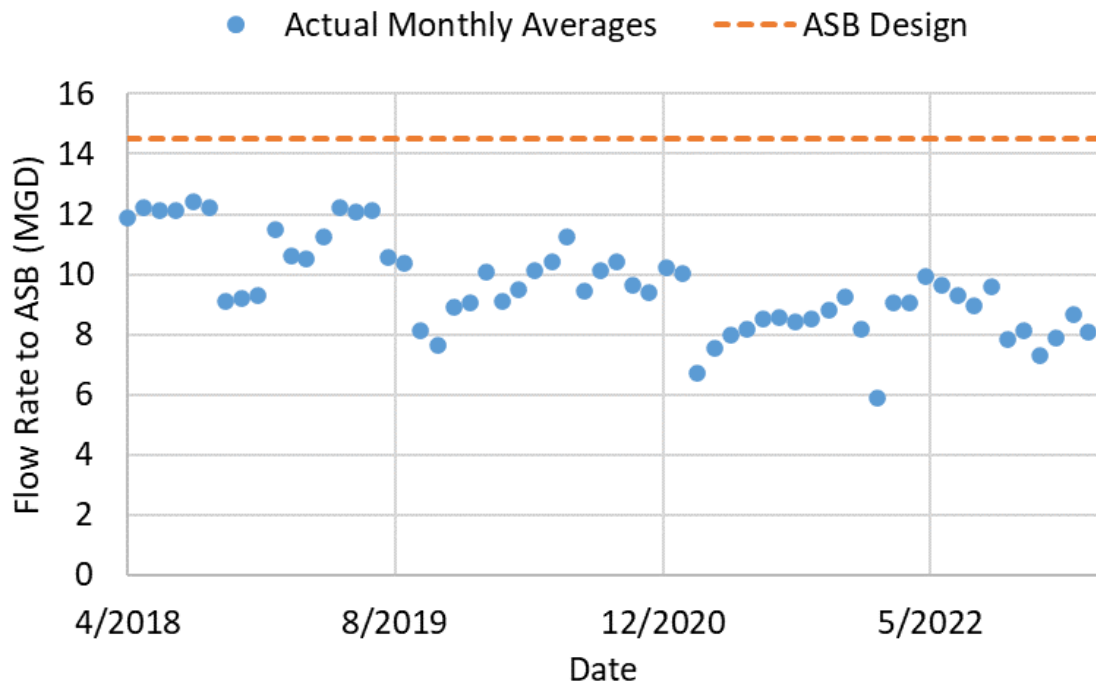


Figure 8 — Comparison of PTPC Wastewater Average Monthly Flow Rates to Design Criteria, April 2018 through March 2023

The graph below shows monthly average waste loadings from March 2018 through March 2023 to the ASB. PTPC operated below the design loading of the system as determined by the 2009 report.

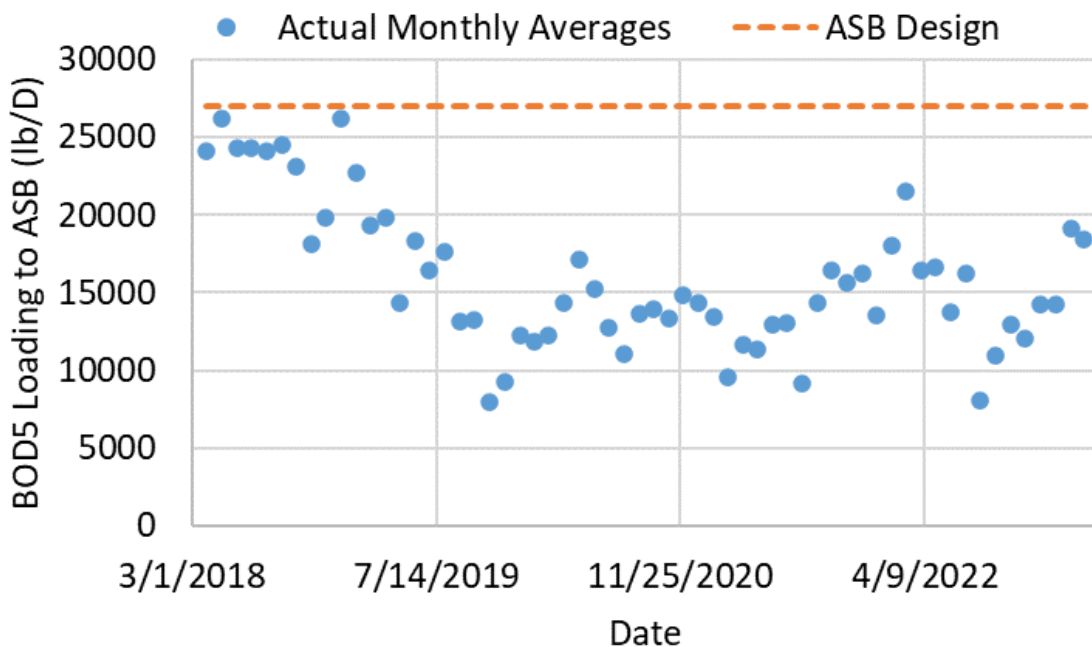


Figure 9 — Comparison of PTPC Wastewater Average Monthly BOD5 Loading to ASB Design Criteria, April 2018 through March 2023

III.B. Technology-based effluent limits – Outfall 001A

Ecology sets technology-based limits using federal regulations. Technology-based effluent limits establish a minimum level of effluent treatment that is based on an analysis of demonstrated treatment technologies. EPA has established technology-based effluent limits, referred to as the federal effluent guidelines, for 56 industrial categories, including pulp and paper mills.

EPA and Ecology group pollutants regulated in the NPDES program into three categories: conventional, toxic, and nonconventional. Conventional pollutants are those generally found in sanitary waste from households, business, and industries. EPA defines toxic or priority pollutants in CWA section 307(a)(1) via a list of 126 metals and manmade organic compounds. Nonconventional pollutants are those that do not fall under either the conventional or toxic categories.

Note that in the calculations presented in this section, Ecology carried all digits through the entire calculation and rounded to the correct number of significant figures to determine the final effluent limits.

For brevity, any intermediate values in tables are displayed in a rounded form. Attempting to reproduce calculations with rounded intermediate values may result in final limits slightly different than those calculated.

1. Production Basis for Technology-Based Effluent Limits for Outfall 001A

Conventional Pollutants

PTPC is subject to the federal effluent guidelines codified in 40 CFR Part 430 (Pulp, Paper, and Paperboard Point Source Category). PTPC operates a kraft pulp mill and a recycled (also called “secondary”) fiber mill. Based on these operations, PTPC is subject to the specific applicable effluent guidelines contained in Subpart C of 40 CFR Part 430 (Unbleached Kraft Subcategory) and Subpart J of 40 CFR Part 430 (Secondary Fiber Non-Deink Subcategory). The federal effluent guidelines in Subparts C and J limit discharges of BOD₅, TSS, and pH. Limits on BOD₅ and TSS established in the federal effluent guidelines are mass-based rather than concentration based and are based on the production at the facility. Ecology calculated the facility limits for TSS and BOD₅ by multiplying the federal effluent limit in terms of mass per production by a production rate. The production basis for the TSS and BOD₅ limits in this permit are shown in Table 11 below.

The effluent guidelines are based on the *long-term average production* expected at the facility during the permit duration. Ecology’s Permit Writer’s Manual³⁹ suggests using production rates from the previous year or the highest yearly production of the last five years as the production basis⁴⁰. Ecology reviewed production data from April 2018 through March 2023 (the most recent production data available at the time of calculation of the production-based limits) when choosing a production basis and calculated annual production for the five 12-month periods running from April through March. Ecology decided not to consider the data from April 2018 through March 2019 and April 2019 through March 2020 to be representative of expected long-term average production at the facility during the permit duration. PTPC’s processes went through two significant changes in 2019. PTPC shut down their M&D digester, which they used to produce pulp using the kraft process. PTPC also replaced their OCC pulper in late 2019, which expanded their ability to produce pulp using recycled cardboard. As a result, PTPC now produces less kraft paper (40 CFR Part 430 Subpart C) and more recycled paper (40 CFR Part 430 Subpart J) than they did in the 12-month periods from April 2018 through March 2019 and April 2019 through March 2020. Ecology selected April 2020 through March 2021 as the production basis for this permit because it had the highest total production rate (990 air-dry tons per day (ADT/D)) compared to the subsequent 12-month periods of April 2021 – March 2022 (897 ADT/D) and April 2022 – March 2023 (891 ADT/D).

³⁹ <https://fortress.wa.gov/ecy/publications/documents/92109.pdf>

⁴⁰ Chapter 4, Section 1.2 of version revised July 2018.

<https://apps.ecology.wa.gov/publications/documents/92109.pdf>

Table 11 — Production Basis per Subpart

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Further Subcategory	Production Basis	Production Units
Unbleached Kraft	C	Unbleached Kraft	553	Air-dry tons per day (ADT/D)
Secondary Fiber Non-Deink	J	Paperboard	437	ADT/D

The pulp and paper industry can measure production in several different ways, including machine-dry tons (production weight including actual off-machine moisture content), air dry tons (production weight adjusted to 10% moisture content), or bone-dry tons (production weight adjusted to 0% moisture content). While many of the pulp and paper categories require production as off-machine production, 40 CFR 430.01(n) specifies that production for Subparts C and J shall be measured in air-dry tons.

2. Applicable Level of Control for Technology-Based Limits of Conventional Pollutants at Outfall 001A

There are three different levels of control established in the federal effluent guidelines for conventional pollutants discharged by the pulp and paper industry. The lowest level of control for conventional pollutants is the Best Practicable Control Technology Currently Available (BPT). This was the first set of guidelines created. BPT limitations are based on the average of the best performance of facilities within the industry at the time that EPA established the limits. The next level of control is the Best Conventional Pollutant Control Technology (BCT). EPA established these guidelines by applying a “cost-reasonableness” test which evaluates the relationship between the costs of attaining a reduction in effluent pollutants and the reduction in pollutants achieved.

The regulations required that all facilities permitted by the NPDES program comply with BCT limits by July 1, 1984. The most stringent level of control for conventional pollutants is New Source Performance Standards (NSPS) which are based on the “best available demonstrated control technology”, since new sources can install the best and most efficient production processes and wastewater treatment technologies. Generally, a facility is considered a new source and must comply with the NSPS if it begins construction after the promulgation of the NSPS. The promulgation of the NSPS for the unbleached kraft category (originally under Subpart D) and the secondary fiber non-deink category (originally under Subpart E and called the “paperboard from waste paper category”) was May 29, 1974⁴¹.

⁴¹ https://www.epa.gov/sites/default/files/2016-07/documents/pulp-paper_final_39-fr-18742_05-29-1974.pdf

While the kraft process at PTPC operated prior to May 29, 1974, PTPC significantly modified the kraft pulping process in 1984. While PTPC's modification of the kraft process did not "totally replace the process or production equipment that causes the discharge of pollutants at an existing source" and subject the whole process to NSPS standards, Ecology used AKART to require PTPC to comply with NSPS for the portion of PTPC's kraft pulping production that increased following the process modification. The production prior to 1984 was 450 tons per day. BCT standards in Subpart C (Unbleached Kraft Subcategory) of 40 CFR Part 430 are applicable to this initial 450 tons of production. Any additional production above 450 tons per day is subject to NSPS.

PTPC initially installed the OCC plant in the fall of 1996, after the NSPS promulgation date of May 29, 1974. PTPC modified the OCC plant in 2019 by replacing the batch pulper with a continuous pulper. NSPS standards in Subpart J of 40 CFR Part 430 are applicable to the entire production from the OCC plant.

Table 12 below provides a summary of the applicable level of control per production category. The total kraft production was 553 ADT/D as shown in Table 11. With 450 ADT/D assigned to the BCT level of control, the remaining 103 ADT/D of production requires the NSPS level of control.

Table 12 — Production Basis and Applicable Level of Control per Production Category

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Applicable Level of Control	Production Basis	Production Units
Unbleached Kraft	C	BCT	450	ADT/D
Unbleached Kraft	C	NSPS	103	ADT/D
Secondary Fiber Non-Deink	J	NSPS	437	ADT/D

3. AKART– Outfall 001A

Per Washington State law, Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) to their discharge. For individual permits, AKART may be equivalent or more stringent than the federal effluent guidelines.

Ecology considers federal effluent guidelines that are 5 years old or newer as meeting the AKART requirements. As described in Ecology's Permit Writer's Manual⁴², "For effluent guidelines between 5 and 10 years old, the permit manager should compare production processes, pollutants generated and treatment efficiencies at the facility with those in the development document and in the treatability database. For effluent guidelines older than 10 years, the permit writer should do the previous analysis and review unit processes design if time allows."

⁴² <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

EPA Review of Effluent Guidelines

The most recent revision to the federal effluent guidelines for the effluent guidelines applicable to PTPC was in the 1980's. As these federal effluent guidelines in 40 CFR Part 430 are older than 10 years, Ecology has performed an additional AKART analysis with this NPDES permit renewal.

EPA has more recently reviewed guidelines applicable to other types of pulp and paper production. The 1998 revision to the effluent guidelines were known as the "Cluster Rule" and they revised effluent guideline limits for certain subparts under 40 CFR Part 430 (Subpart B and Subpart E, bleached papergrade kraft and soda and papergrade sulfite, respectively). The technical support document for the 1998 "Cluster Rule" is available in EPA's "Supplemental Technical Development Document for Effluent Limitations Guidelines and Standards for the Pulp, Paper, and Paperboard Category"⁴³. While this revision did not affect effluent guidelines directly applicable to PTPC, the evaluation that EPA performed for conventional pollutants is generally still applicable to PTPC's process. The EPA evaluated the Best Conventional Pollutant Control Technology (BCT) effluent limitations guidelines for BOD₅ and TSS. The existing BCT effluent limitation guidelines are equivalent to secondary treatment, in conjunction with good water conservation practices.

EPA considered whether technologies were available, beyond secondary treatment in conjunction with good water conservation practices, and whether the cost of those technologies were reasonable according to the BCT cost test. The EPA concluded that none of the options evaluated passed the BCT cost test. PTPC currently employs secondary treatment in conjunction with water conservation.

It's also notable that EPA must periodically review their effluent guidelines to determine if updates are warranted. The EPA also periodically reviews existing effluent guideline regulations and updates them as appropriate. EPA publishes this information every two years as an "Effluent Guidelines Program Plan". The most recent version of this document is "Effluent Guidelines Program Plan 15"⁴⁴, published January 2023. While EPA continues to study other types of pollutants discharged by the pulp and paper industry in the 2023 plan and earlier plans, the EPA has not pursued additional reductions of conventional pollutants discharged by the pulp and paper industry.

⁴³ [Suppl Tech Devel Doc - Subparts B & E \(epa.gov\)](#)

⁴⁴ https://www.epa.gov/system/files/documents/2023-01/11143_EL%20Plan%2015_508.pdf

Wastewater Treatment Plant Performance

In addition to reviewing the above information, Ecology also evaluated the performance of PTPC's wastewater treatment plant in the removal of BOD₅ and TSS.

According to the EPA *Wastewater Technology Fact Sheet for Aerated, Partial Mix Lagoons*, BOD removal from the treatment system can range up to 95% and the effluent concentration of TSS can range from 20 to 60 mg/L. In the currently effective permit, Ecology required PTPC to perform a study to determine the level of treatment achieved by PTPC's primary clarifier and ASB. PTPC took six samples of the inlet of the primary clarifier, outlet of the primary clarifier, and outlet of the ASB. Table 13 below summarizes the results of the study.

Table 13 — Summary of Wastewater Treatment Plant TSS and BOD₅ Removal Study

Sample Date	Primary Clarifier TSS Removal	ASB BOD ₅ Removal	Overall System TSS Removal	Overall System BOD ₅ Removal
June 2015	92%	96%	99%	96%
July 2015	97%	93%	99%	94%
December 2015	71%	94%	99%	96%
February 2016	78%	95%	98%	97%
May 2016	97%	86%	95%	92%
November 2016	94%	95%	99%	98%
Average	88%	93%	98%	96%

EPA's treatability database⁴⁵ contains about 54 entries for TSS removal using various wastewater treatment technologies. Excluding two results in the 30% range, the results range from 63% to nearly 100% removal, with the average being 92%. PTPC's overall TSS removal in the table above is comparable to the ranges within the treatability database.

EPA's treatability database contains about 19 entries for BOD₅ removal using various wastewater treatment technologies. Excluding three results at 50% and below, the results range from 73% to nearly 100% removal, with average

⁴⁵ <https://watersgeo.epa.gov/iwtt/guided-search>

removal around 91%. PTPC's overall BOD₅ removal in the table above is comparable to the ranges within the treatability database.

PTPC also collected inlet BOD₅ loading for the ASB throughout the permit term. Monthly average percent removals from April 1, 2018 through March 31, 2023 are shown below. It is normal for a low percent removal when loading to the ASB is very low. Data during which there was no pulp and paper production or when loading to the ASB was in the lowest fifth percentile is not included below.

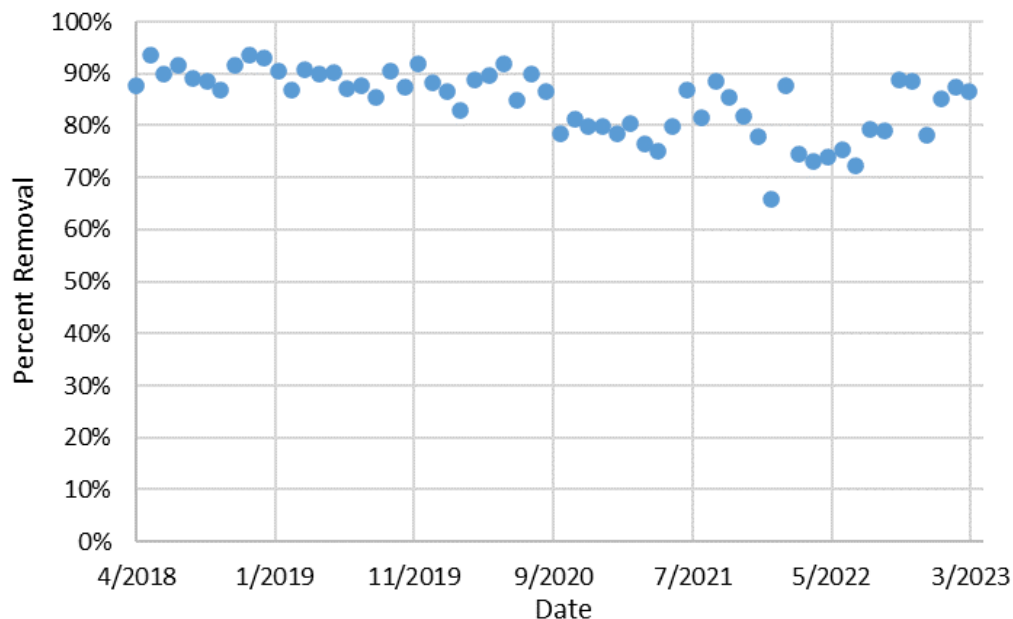


Figure 10 — Removal of BOD₅ Across ASB, Monthly Averages

Of the data considered in Figure 10, on average, PTPC removed 85% of the BOD₅ loading discharged to the ASB. Actual total BOD₅ removal across PTPC's entire WWTP is likely higher than 85%. The primary clarifier's purpose is not to treat BOD₅, but the primary clarifier would remove some amount of BOD₅ via the removal of solids.

Ecology does not have long-term data to evaluate percent removals of TSS across the primary clarifier, or percent removals of TSS or BOD₅ through the entire wastewater treatment plant on a long-term basis, outside of what is available in Table 13. Ecology is requiring PTPC to collect this data in the next permit cycle to better understand the wastewater treatment system performance.

Ecology notes there does appear to be some degradation of PTPC's ASB's ability to remove BOD₅ beginning in fall 2020. Ecology believes this may be due to poor sludge management in the ASB, which reduces the treatment capacity of the

system. PTPC began a significant sludge removal project in December 2023. Ecology expects to see an improvement in ASB performance once the sludge removal project is complete. Ecology is requiring PTPC to review and update their sludge management practices, for Ecology approval, in this permit cycle as part of the submission of their operation and maintenance manual (Special Condition S4). PTPC must maintain the ASB capacity through the periodic dredging of ASB solids to ensure they continue to meet AKART requirements.

Technology-based Effluent Limits Under AKART

Based on the information above, Ecology considers the technologies that PTPC uses to treat their wastewater as AKART. Ecology has also determined that the technology-based effluent limits under the federal effluent guidelines are AKART, with the following two modifications which are more stringent than the federal effluent guidelines.

1. While not required under the federal effluent guidelines, Ecology applies NSPS to portions of PTPC's production that increased due to a major expansion in 1984 (see further discussion under Section III.B.2 of this document).
2. 40 CFR Part 430 establishes technology-based standards for the pH of the treated effluent from pulp and paper mills; pH must be within a certain range at all times. 40 CFR Part 401.17 (pH effluent limitation under continuous monitoring) allows for discharges which are continuously monitored for pH to receive an exclusion from the federal technology-based permit limits for a period of 1 hour per excursion and a maximum monthly excursion period of 7 hours and 26 minutes. The federal excursion language does not establish bounds on the magnitude of the pH excursion. Ecology has used AKART to establish outside limits on allowable pH excursions as 1 standard unit below the minimum pH limit and 1 standard unit above the maximum pH limit. This practice began around 1986, after a prehearing conference before the Pollution Control Hearing Board for the appeal of an NPDES permit issued by the Industrial Section.

4. Technology-Based Limits for Conventional Pollutants at Outfall 001A

To calculate the applicable technology based limits, Ecology first multiplied the average production rates from Table 12 by the applicable federal effluent guideline and summed the results from each type of production to get a final limit. The federal effluent guidelines limit pollutants on both a daily maximum and monthly average maximum time period. Table 14 through Table 17 below provide the results of these calculations.

Note that for each subcategory there are multiple sets of federal effluent guidelines depending on the specific process utilized (identified as "further subcategory" in Table 14 through Table 17).

Under Subpart C, the unbleached kraft subcategory, BCT level of control options are “unbleached kraft facilities” and “unbleached kraft-neutral sulfite semi-chemical (cross recovery) process and/or a combined unbleached kraft and semi-chemical process, wherein the spent semi-chemical cooking liquor is burned within the unbleached kraft chemical recovery system”. PTPC falls under the “unbleached kraft facilities” and those are the values Ecology populated in the “effluent guideline” column in Table 14 through Table 17.

Under Subpart C, the unbleached kraft subcategory, NSPS level of control options are: “unbleached kraft facilities where linerboard is produced”, “unbleached kraft facilities where bag paper and other mixed products are produced”, and “unbleached kraft facilities where pulp and paper are produced using the unbleached kraft-neutral sulfite semi-chemical (cross recovery) process and/or a combined unbleached kraft and semi-chemical process, wherein the spent semi-chemical cooking liquor is burned within the unbleached kraft chemical recovery system”. PTPC does not use a neutral sulfite semi-chemical process so the final option does not apply.

PTPC makes a variety of products, including unbleached kraft market pulp, kraft paper, containerboard/linerboard, gumming kraft, and laminating kraft. EPA’s 1982 development document defines “bag paper” as paper used in making grocery bags or sacks⁴⁶. This may include the type of kraft paper produced by PTPC. Since PTPC produces both linerboard, bag paper, and other products, it is initially unclear if PTPC falls under the category of unbleached kraft facilities where “linerboard is produced” or where “bag paper and other mixed products are produced”. The below language from EPA’s 1982 development document suggests that the “linerboard” category is for facilities which **only** produce linerboard. Based on this information, Ecology selected “bag paper and other mixed products” as the applicable effluent limit guideline for PTPC’s Subpart C NSPS production.

“In the unbleached kraft subcategory, EPA determined that higher raw waste loads occur at mills where bag and other products are manufactured than at mills where **only** (emphasis added) linerboard is produced”⁴⁷

For Subpart J, the secondary fiber non de-ink subcategory, NSPS level of control options are secondary fiber non-deink facilities “where paperboard from wastepaper is produced—non-corrugating medium furnish subdivision”, “where paperboard from wastepaper is produced—corrugating medium finish subdivision” (this appears to be a typo in the code of federal regulations and “finish” is meant to be “furnish”), “where builders’ paper and roofing felt from wastepaper are produced”, “where tissue from wastepaper is produced without deinking”, or “where molded products from

⁴⁶ <https://www.epa.gov/sites/default/files/2016-07/documents/pulp-paper-dd-1982.pdf>, page 638/684

⁴⁷ <https://www.epa.gov/sites/default/files/2016-07/documents/pulp-paper-dd-1982.pdf>, page 33/684

wastepaper are produced without deinking”. PTPC’s process falls under the “where paperboard from wastepaper is produced—corrugating medium furnish subdivision”. 40 CFR 430.101 contains specialized definitions for non-corrugating medium furnish and corrugating medium furnish: Non-corrugating medium furnish subdivision mills are mills where recycled corrugating medium is not used in the production of paperboard and Corrugating medium furnish subdivision mills are mills where only recycled corrugating medium is used in the production of paperboard. PTPC only recycles corrugated cardboard containers in their recycling process.

Table 14 — Technology-based Limits for BOD₅ – Outfall 001A, Daily Maximum Limit

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Further Subcategory	Applicable Level of Control	Production Basis (ADT/D)	Effluent Guideline (lb BOD ₅ / 1000 lb product)	Effluent Guideline (lb BOD ₅ /ton product)	Maximum Discharge (lb/day)
Unbleached Kraft	C	Unbleached Kraft	BCT	450	5.6	11.2	5040
Unbleached Kraft	C	Unbleached kraft facilities where bag paper and other mixed products are produced	NSPS	103	5	10	1029
Secondary Fiber Non-Deink	J	Secondary Fiber Non-Deink Facilities where paperboard from wastepaper is produced - corrugating medium furnish subdivision	NSPS	437	3.9	7.8	3409
Total	N/A	N/A	N/A	990	N/A	N/A	9477

Table 15 — Technology-based Limits for BOD₅ - Outfall 001A, Monthly Average Limit

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Further Subcategory	Applicable Level of Control	Production Basis (ADT/D)	Effluent Guideline (lb BOD ₅ / 1000 lb product)	Effluent Guideline (lb BOD ₅ /ton product)	Maximum Discharge (lb/month)
Unbleached Kraft	C	Unbleached Kraft	BCT	450	2.8	5.6	2520
Unbleached Kraft	C	Unbleached kraft facilities where bag paper and other mixed products are produced	NSPS	103	2.71	5.42	558
Secondary Fiber Non-Deink	J	Secondary Fiber Non-Deink Facilities where paperboard from wastepaper is produced - corrugating medium furnish subdivision	NSPS	437	2.1	4.2	1835
Total	N/A	N/A	N/A	990	N/A	N/A	4913

Table 16 — Technology-based Limits for TSS - Outfall 001A, Daily Maximum Limit

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Further Subcategory	Applicable Level of Control	Production Basis (ADT/D)	Effluent Guideline (lb TSS/ 1000 lb product)	Effluent Guideline (lb TSS/ton product)	Maximum Discharge (lb/day)
Unbleached Kraft	C	Unbleached Kraft	BCT	450	12	24	10800
Unbleached Kraft	C	Unbleached kraft facilities where bag paper and other mixed products are produced	NSPS	103	9.1	18.2	1872
Secondary Fiber Non-Deink	J	Secondary Fiber Non-Deink Facilities where paperboard from wastepaper is produced - corrugating medium furnish subdivision	NSPS	437	4.4	8.8	3846
Total	N/A	N/A	N/A	990	N/A	N/A	16518

Table 17 — Technology-based Limits for TSS - Outfall 001A, Monthly Average Limit

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Further Subcategory	Applicable Level of Control	Production Basis (ADT/D)	Effluent Guideline (lb TSS/ 1000 lb product)	Effluent Guideline (lb TSS /ton product)	Maximum Discharge (lb/month)
Unbleached Kraft	C	Unbleached Kraft	BCT	450	6	12	5400
Unbleached Kraft	C	Unbleached kraft facilities where bag paper and other mixed products are produced	NSPS	103	4.8	9.6	988
Secondary Fiber Non-Deink	J	Secondary Fiber Non-Deink Facilities where paperboard from wastepaper is produced - corrugating medium furnish subdivision	NSPS	437	2.3	4.6	2010
Total	N/A	N/A	N/A	990	N/A	N/A	8398

A different approach must be used to calculate the technology-based effluent limitations for pH. While BOD₅ and TSS are limits on the total mass of pollutant, pH limits are based on the concentration of hydrogen ions in solution. The EPA previously provided guidance to Ecology during the renewal process for NPDES permit No. 000007-8 (Longview Fibre Company) which was issued on September 30, 1987. In a letter from the EPA dated August 15, 1986, the EPA advised Ecology to calculate the pH limit in a way that accounts for both the production of each subpart, but also the wastewater produced from each subpart. The EPA advised Ecology to use wastewater flows from the development documents for the effluent guidelines and perform the calculation described below. The effluent flow per ton of production for each subpart is presented in Table 18. Table 18 also shows what percent of PTPC's production is assigned to each subpart, and the daily minimum and daily maximum pH limit for each subpart from EPA's effluent guidelines.

Table 18 — Information for pH Limit Calculation

40 CFR Part 430 Subcategory	40 CFR Part 430 Subpart	Further Subcategory	Applicable Level of Control	Gallons of Effluent Flow/Ton	Production Basis (ADT/D)	Percent of Production	pH minimum	pH maximum
Unbleached Kraft	C	Unbleached Kraft	BCT	12,300 ⁴⁸	450	45%	6.0	9.0
Unbleached Kraft	C	Unbleached kraft facilities where bag paper and other mixed products are produced	NSPS	11,400 ⁴⁹	103	10%	5.0	9.0
Secondary Fiber Non-Deink	J	Secondary Fiber Non-Deink Facilities where paperboard from wastepaper is produced - corrugating medium furnish subdivision	NSPS	3,200 ⁴⁹	437	44%	5.0	9.0

⁴⁸ EPA 440/1-74-025a, Table 61, “Best Performers, Mill Data, Unbleached Kraft”
⁴⁹ EPA 440/I-82/025, Table VIII-38, “Summary of NSPS Option 2, Raw Waste Loads”

Note that the daily maximum pH limit for subcategories is 9.0 standard units. Therefore, PTPC's technology-based limit for maximum pH is 9.0 standard units.

The technology-based minimum pH limit is calculated using Equation 1 below:

Equation 1 — Equation to Calculate pH Minimum Limit

$$pH = -\log_{10} \left[\frac{([H^+]_{C,BCT} \cdot q_{C,BCT} \cdot \%_{C,BCT}) + ([H^+]_{C,NSPS} \cdot q_{C,NSPS} \cdot \%_{C,BCT}) + ([H^+]_{J,NSPS} \cdot q_{J,NSPS} \cdot \%_{J,NSPS})}{(q_{C,BCT} \cdot \%_{C,BCT}) + (q_{C,NSPS} \cdot \%_{C,BCT}) + (q_{J,NSPS} \cdot \%_{J,NSPS})} \right]$$

Where:

The subscripts "C, BCT", "C, NSPS", and "J, NSPS" indicate the values associated with the respective subpart and applicable level of control for each of PTPC's production categories. The "C" or "J" correspond to the letter under the column titled "40 CFR Part 430 Subpart" in Table 18. The "BCT" or "NSPS" corresponds to the entry under the column titled "Applicable Level of Control" in Table 18.

$[H^+]$ is the hydrogen ion concentration associated with the minimum pH limit in the effluent guidelines for each subpart and level of control. The minimum pH limit in the effluent guidelines for each subpart and level of control is under the "pH minimum" column in Table 18. The hydrogen ion concentration associated with a pH of 5 is 1×10^{-5} Molar. The hydrogen concentration associated with a pH of 6 is 1×10^{-6} Molar.

% is the percent of Port Townsend's production assigned to each subpart and level of control. This value is under the "Percent of Production" column in Table 18.

q is the gallons of effluent flow produced per ton of production as calculated in the effluent guidelines.

Substituting the values from Table 18 into Equation 1 yields a result of 5.4 standard units. This substitution is presented in Equation 2.

Equation 2 — Equation to Calculate pH Minimum Limit With Values

$$pH = -\log_{10} \left[\frac{(10^{-6} \cdot 12,300 \cdot 45\%) + (10^{-5} \cdot 11,400 \cdot 10\%) + (10^{-5} \cdot 3,200 \cdot 44\%)}{(12,300 \cdot 45\%) + (11,400 \cdot 10\%) + (3,200 \cdot 44\%)} \right]$$

Therefore technology-based limits for pH are as shown in Table 19.

Table 19 — Technology-based Limits for pH - Outfall 001A

Parameter	Minimum	Maximum
pH	5.4	9.0

Per 40 CFR Part 401.17 (pH effluent limitation under continuous monitoring), when a permittee continuously monitors pH, excursions are allowed. An excursion is not considered a violation if any single excursion does not exceed 60 minutes and the total time period of all excursions in a calendar month does not exceed 7 hours and 26 minutes. Ecology uses AKART to cap the minimum and maximum pH allowable in an excursion. This is further discussed in section III.B.3 of this fact sheet.

5. Technology-Based Limits for Non-Conventional Pollutants at Outfall 001A

Applicable BAT and NSPS federal effluent guidelines in 40 CFR Part 430, Subparts C and J establish effluent limits for pentachlorophenol and trichlorophenol OR require that permittees not use chlorophenolic-containing biocides and must certify to the permit-issuing authority that they are not using these biocides. PTPC certified in a letter to Ecology dated April 16, 1999 that the biocides that they use do not contain pentachlorophenol or trichlorophenol which are the applicable pollutants of concern. Ecology has included a requirement in this NPDES permit issuance that PTPC submit an updated biocide certification to comply with the BAT and NSPS requirements.

III.C. Technology-based effluent limits – Outfall 005

1. Technology-Based Limits for Outfall 005

Outfall 005 is the internal discharge point for treated wastewater from the sanitary wastewater treatment plant at PTPC. The outfall ties into the treated process wastewater line after PTPC's aerated stabilization basin effluent (Outfall 001A). The two discharge streams mix together prior to discharge through PTPC's diffuser in Port Townsend Bay (Outfall 001). The EPA has not established specific technology-based guidelines for privately owned sanitary wastewater treatment plants. However, WAC 173-221 contains discharge standards for all domestic wastewater facilities, including privately owned facilities. The effluent from the sanitary wastewater treatment plant at PTPC must meet the effluent requirements specified in WAC 173-221-040. The rule also requires minimum removal efficiency for both BOD₅ and TSS of 85% of the influent concentrations. It is notable that the requirements under WAC 173-221-040 are equivalent to those under 40 CFR Part 133, the federal rules for publicly owned treatment works. Limits under WAC 173-221-040 applicable to PTPC are in the table below.

Table 20 – Outfall 005 Technology-Based Effluent Limits, BOD₅ and TSS

Parameter	Average Monthly	Maximum Daily	Minimum Average Monthly Removal
BOD ₅	30 mg/L	45 mg/L	85%
TSS	30 mg/L	45 mg/L	85%

Table 21 – Outfall 005 Technology-Based Effluent Limits, Bacteria

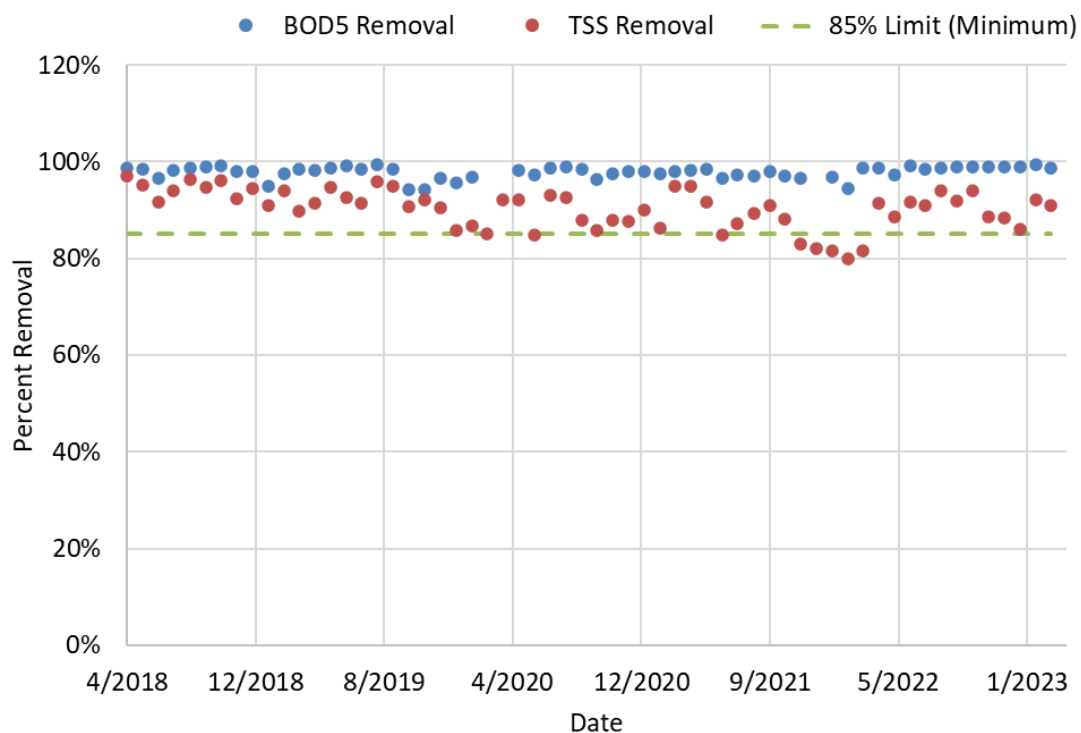
Parameter	Monthly Geometric Mean	Weekly Geometric Mean
Fecal Coliform	200 / 100 mL	400 / 100 mL

Table 22 – Outfall 005 Technology-Based Effluent Limits, pH

Parameter	Minimum	Maximum
pH	6.0 standard units	9.0 standard units

2. AKART– Outfall 005

The limits of 85% removal for BOD₅ and TSS under WAC 173-221-040 are comparable to the treatment efficiencies from the EPA treatability database discussed under Section III.B.3 of this document. PTPC has generally been able to comply with this limit over the permit term. Removals from April 2018 through March 2023 are displayed below. The TSS removals below the minimum were addressed under Notice of Penalty 20921.

**Figure 11 — BOD5 and TSS Removals at the Sanitary Treatment Plant**

Technology-Based Effluent Limits Under AKART

Based on the above discussion, PTPC's technologies employed and the limits under WAC 173-221-040 constitute AKART.

Ecology has historically applied one additional requirement for Outfall 005 using AKART. This is a maximum and minimum total residual chlorine concentration at the outlet of Outfall 005, shown in the table below. Some level of detectable total residual chlorine indicates that the wastewater is being properly disinfected. However, PTPC is expected to be able to control their chlorine residual to a level that minimizes the amount of unnecessary chlorine being discharged.

Table 23 – Additional Technology-Based Effluent Limits for Outfall 005 pH (Applied using AKART)

Parameter	Minimum	Maximum
Total Residual Chlorine	0.1 mg/L	5.0 mg/L

III.D. Surface water quality-based effluent limits

The Washington State surface water quality standards (chapter 173-201A WAC⁵⁰) 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). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

1. Numeric criteria for the protection of aquatic life and recreation

Numeric 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.

2. Numeric criteria for the protection of human health

Numeric criteria for the protection of human health are promulgated in Chapter 173-201A WAC and 40 CFR 131.45⁵¹. These criteria are designed to protect human health 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.

At the time of writing this fact sheet, a complete list of the human health water quality criteria that are legally enforceable are not located under Chapter 173-201A WAC. On November 14, 2022, EPA finalized an updated set of human health criteria for

⁵⁰ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

⁵¹ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-131#131.45>

Washington state waters. For more information visit EPA's website: Federal Human Health Criteria for Washington State Waters⁵² and view the updated list on the Federal Register⁵³.

3. Narrative criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1)) 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) and of all marine waters (WAC 173-201A-210) in the state of Washington.

4. Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330) 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 pollution.

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.

⁵² <https://www.epa.gov/wqs-tech/federal-human-health-criteria-washington-state-waters>

⁵³ <https://www.federalregister.gov/documents/2022/11/18/2022-25150/restoring-protective-human-health-criteria-in-washington>

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.

Ecology has established guidance as to what defines a “new or expanded action” in a document titled *Water Quality Program Guidance Manual: Supplemental Guidance on Implementing Tier II Antidegradation* (available at the following link: [Water Quality Program Guidance Manual: Supplemental Guidance on Implementing Tier II Antidegradation](#)). Ecology must evaluate whether issuing PTPC’s renewed NPDES permit constitutes a new or “expanded” action. The guidance document says a facility may be considered “expanded” if any of the following three criteria are met:

- A physical expansion of the facility (production or wastewater system expansions with a potential to allow an increase the volume of wastewater or the amount of pollution) or activity.
- An increase (either monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a water body greater than 10%.
- The act of re-rating the capacity of an existing plant greater than 10%.

According to Ecology guidance, “[u]sing 10% as a trigger for defining what is considered an expanded facility for antidegradation is consistent with the current Ecology practice of applying new source performance standards to dischargers who increase production by more than 10%. Where a permit limit is not based on a facility’s design capacity, it is necessary to track the changes that occur in effluent mass loading over successive permit cycles, in order to implement the 10% rule for an existing facility. Provisions must be established in the permit or fact sheet to determine and set the initial base line effluent mass loading rate (typically expressed as pounds per day and calculated using flow and pollutant concentrations). Starting with this base-line value, subsequent permits or fact sheets must track any cumulative increase in loading rate. Once the cumulative increase over the initial base line exceeds 10% the facility becomes eligible for a Tier II antidegradation analysis.”

The antidegradation regulations in [WAC 173-201A-320](#) which addresses Tier II analyses became effective in 2003. The effluent limits developed for the NPDES permit effective in 2004 were established based on pulp production over the 2002 – 2003 year timeframe; the effluents limits from the 2004 NPDES permit are therefore used as baseline for the antidegradation analysis. A comparison of the permitted

monthly average mass limits effective in 2004 and the proposed limits shown in Table 21 below shows that the proposed limits do not exceed 10% of the baseline limits. Therefore, a Tier II analysis is not necessary for this permit.

Table 24 — Antidegradation base line effluent limit comparison

Permit Issuance Date	BOD ₅ Monthly Average lb/day	TSS Monthly Average lb/day
2004 (baseline)	4,793	8,539
Proposed Limits	4,913	8,398
% Difference from Baseline	+2.5%	-1.7%

A Tier-III analysis is not required because PTPC does not discharge to receiving waters that have been designated as “outstanding resource waters”.

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.

5. 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. 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 authorizes a small acute mixing zone, surrounded by a chronic mixing zone around the point of discharge (WAC 173-201A-400). The water quality standards impose certain conditions before allowing the discharger a mixing zone:

- a. Ecology must specify both the allowed size and location in a permit.

The proposed permit specifies the size and location of the allowed mixing zone (as specified below).

- b. The facility must fully apply “all known, available, and reasonable methods of prevention, control and treatment” (AKART) to its discharge.

Ecology has determined that the treatment provided at PTPC meets the requirements of AKART (see “Technology-based Limits”).

- c. Ecology must consider critical discharge conditions.

Surface water quality-based limits are derived for the water body’s critical condition (the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or designated waterbody uses). The critical discharge condition is often pollutant-specific or waterbody-specific.

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents, and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology uses the water depth at mean lower low water (MLLW) for marine waters. Ecology’s Permit Writer’s Manual⁵⁴ describes additional guidance on criteria/design conditions for determining dilution factors.

The currently effective NPDES required PTPC to submit a “Mixing Study Update” to Ecology. The study would:

- Update acute and chronic mixing zone boundaries;

⁵⁴ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

- Perform a sensitivity analysis of Ecology conductivity, temperature, and depth data to establish the critical ambient density profile for the mixing zone model;
- Query effluent flow records to determine maximum day and month flows and critical effluent temperature and salinity;
- Perform a sensitivity analysis over the range of effluent flows, temperatures, and salinities to establish critical conditions;
- Model a series of diffuser configurations using the dilution model UM3 to assess the value of restoring or modifying diffuser ports, and furnish a matrix of model runs and dilution options to PTPC for selection of the final models runs when submitted to Ecology; and
- Update the reasonable potential tables from the April 2013 Draft NPDES Permit Fact Sheet.

PTPC submitted the “Mixing Study Update” to Ecology on December 11, 2013⁵⁵. PTPC submitted an additional memorandum⁵⁶ to Ecology regarding the study on June 13, 2014. Critical condition information from the 2013/2014 mixing zone study used to calculate dilution factors for PTPC’s discharge is in Table 25 below.

Table 25 — Critical Conditions Used to Model the Discharge

Critical Condition	Value
Water depth at MLLW	37 feet
Density profile difference between 37 feet MLLW and the surface	0.51 practical salinity units ⁵⁷
10th percentile current speeds for acute mixing zone	0.022 meters per second (m/s) at 1 m depth, 0.20 m/s at 4 m depth
50th percentile current speeds for chronic and human health mixing zones	0.067 m/s at 1 m depth, 0.043 m/s at 4 m depth
Maximum average monthly effluent flow for chronic and human health non-carcinogen	15.9 MGD
Maximum daily flow for acute mixing zone	18 MGD

⁵⁵ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=125810>

⁵⁶ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=125807>

⁵⁷ Mixing Study Update states that July 31, 2012 density profile data from Ecology’s monitoring station PTH 005 yielded most conservative dilution factors

Critical Condition	Value
Effluent temperature	29.0 °C

The flow rate used in the modeling is the piece of data that most affects the results of the modeling. Ecology reviewed PTPC's actual flow rate data to compare to the flow rates used in the modeling. PTPC's current flow rates are lower than those used in the modeling. Therefore, the dilution factor calculated is conservative. Ecology reviewed actual flow rate data from April 2018 through March 2023 to calculate the flow rates below.

Table 26 — Comparison of Flow Rates Used in Modeling and Actual Data

Critical Condition	Used in Modeling	Actual
Maximum average monthly effluent flow for chronic and human health non-carcinogen	15.9 MGD	12.4 MGD
Maximum daily flow for acute mixing zone	18 MGD	14.4 MGD

d. Supporting information must clearly indicate the mixing zone would not:

- Have a reasonable potential to cause the loss of sensitive or important habitat.
- Substantially interfere with the existing or characteristic uses.
- Result in damage to the ecosystem.
- Adversely affect public health.

Ecology established Washington State water quality criteria for toxic chemicals using EPA criteria. EPA developed the criteria using toxicity tests with numerous organisms and set the criteria to generally protect the species tested and to fully protect all commercially and recreationally important species.

EPA sets acute criteria for toxic chemicals assuming organisms are exposed to the pollutant at the criteria concentration for one hour. They set chronic standards assuming organisms are exposed to the pollutant at the criteria concentration for four days. Dilution modeling under critical conditions generally shows that both acute and chronic criteria concentrations are reached within minutes of discharge.

The discharge plume does not impact drifting and non-strong swimming organisms because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could maintain a position within the plume, but they can also avoid the discharge by swimming away. Mixing zones generally do not affect benthic organisms (bottom dwellers) because the buoyant plume rises in the

water column. Ecology has additionally determined that the effluent will not exceed 33 degrees C for more than two seconds after discharge; and that the temperature of the water will not create lethal conditions or blockages to fish migration.

Ecology evaluates the cumulative toxicity of an effluent by testing the discharge with whole effluent toxicity (WET) testing.

Ecology reviewed the above information, the specific information on the characteristics of the discharge, the receiving water characteristics and the discharge location. Based on this review, Ecology concluded that the discharge does not have a reasonable potential to cause the loss of sensitive or important habitat, substantially interfere with existing or characteristics uses, result in damage to the ecosystem, or adversely affect public health if the permit limits are met.

- e. The discharge/receiving water mixture must not exceed water quality criteria outside the boundary of a mixing zone.

Ecology conducted a reasonable potential analysis, using procedures established by the EPA and by Ecology, for each pollutant and concluded the discharge/receiving water mixture will not violate water quality criteria outside the boundary of the mixing zone if permit limits are met.

- f. The size of the mixing zone and the concentrations of the pollutants must be minimized.

At any given time, the effluent plume uses only a portion of the acute and chronic mixing zone, which minimizes the volume of water involved in mixing. Because tidal currents change direction, the plume orientation within the mixing zone changes. The plume mixes as it rises through the water column therefore much of the receiving water volume at lower depths in the mixing zone is not mixed with discharge. Similarly, because the discharge may stop rising at some depth due to density stratification, waters above that depth will not mix with the discharge. Ecology determined it is impractical to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises and moves with the current.

Ecology minimizes the size of mixing zones by requiring dischargers to install diffusers when they are appropriate to the discharge and the specific receiving waterbody. When a diffuser is installed, the discharge is more completely mixed with the receiving water in a shorter time. Ecology also minimizes the size of the mixing zone (in the form of the dilution factor) using design criteria with a low probability of occurrence. For example, Ecology uses the expected 95th percentile pollutant concentration and the 90th percentile background concentration to perform the reasonable potential analysis.

Because of the above reasons, Ecology has effectively minimized the size of the mixing zone authorized in the proposed permit.

g. Maximum size of mixing zone.

The authorized mixing zone does not exceed the maximum size restriction.

h. Acute mixing zone.

- The discharge/receiving water mixture must comply with acute criteria as near to the point of discharge as practicably attainable.

Ecology determined the acute criteria will be met at 10% of the distance (or volume fraction) of the chronic mixing zone.

- The pollutant concentration, duration, and frequency of exposure to the discharge will not create a barrier to migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.

As described above, the toxicity of any pollutant depends upon the exposure, the pollutant concentration, and the time the organism is exposed to that concentration. Authorizing a limited acute mixing zone for this discharge assures that it will not create a barrier to migration. The effluent from this discharge will rise as it enters the receiving water, assuring that the rising effluent will not cause translocation of indigenous organisms near the point of discharge (below the rising effluent).

- Comply with size restrictions.

The mixing zone authorized for this discharge complies with the size restrictions published in chapter 173-201A WAC. Ecology notes that per WAC 173-201A-400(7)(b)(ii), the size limitations for estuarine discharges apply to PTPC's discharge.

i. Overlap of Mixing Zones.

This mixing zone does not overlap another mixing zone.

III.E. Limits for Outfall 003

Outfall 003 is the overflow of unused salt water from the sea chest associated with the cooling water system. PTPC does not add any pollutants to this stream. PTPC pulls water from the Port Townsend Bay and then returns it to Port Townsend Bay. Because there is no addition of pollutants to the wastewater stream, no technology-based or water quality based-effluent limits are included in the draft permit for this wastewater stream.

III.F. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC⁵⁸. The table included below summarizes the criteria applicable to this facility's discharge.

1. Marine Water Aquatic Life Uses and Associated Criteria

The Aquatic Life Uses and the associated criteria for this receiving water are identified below. All indigenous fish and non-fish aquatic species must be protected in waters of the state.

Excellent quality

The waterbody to which PTPC discharges has been designated as "excellent quality". This waterbody has been designated under WAC 173-201A-612. The designated area is "Port Townsend west of a line between Point Hudson and Kala Point".

Aquatic life uses: salmonid and other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

Table 27 — Excellent Quality Criteria

Criteria	Value
Temperature Criteria – Highest 1D MAX	16°C (60.8°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	6.0 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.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

2. Shellfish harvesting use and criteria

To protect shellfish harvesting, fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, and not have 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 43 colonies/100 mL.

3. Recreational use and criteria

The recreational use is primary contact recreation. Enterococci organism levels within an averaging period must not exceed a geometric mean of 30 CFR or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ten

⁵⁸ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

sample values exist) obtained within the averaging period exceeding 110 CFU or MPN per 100 mL.

4. Miscellaneous marine water uses

The miscellaneous marine water uses are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

III.G. Water quality impairments

Ecology has not documented any water quality impairments directly in the receiving water in the vicinity of the outfall.

Some areas of Port Townsend Bay are impaired. Towards the North end of Indian Island, waters are impaired for fecal coliform bacteria. Sediments are impaired for benzoic acid. Fish tissue sampling has resulted in Ecology listing the waters in the areas near the Boat Haven Marina as impaired for several polycyclic aromatic hydrocarbons and polychlorinated biphenyls (PCBs). Impaired waters mean that Ecology must conduct a total maximum daily load (TMDL) analysis to address the impairment. Sediment impairment can be addressed through sediment impact zones or through the model toxics control act.

Ecology has not concluded that PTPC's discharge is causing or contributing to any of these impairments. Per Ecology's Permit Writer's Manual⁵⁹, a water body listed on the 303(d) list is not a presumption of impairment unless the listed section is at the point of discharge (Section 3.3.11).

The proposed permit includes sediment monitoring, during which PTPC will evaluate if their discharge is causing any sediment impairment. PTPC's currently effective and draft proposed permit include monitoring for many of the pollutants of concern shown in the diagram below.

⁵⁹ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

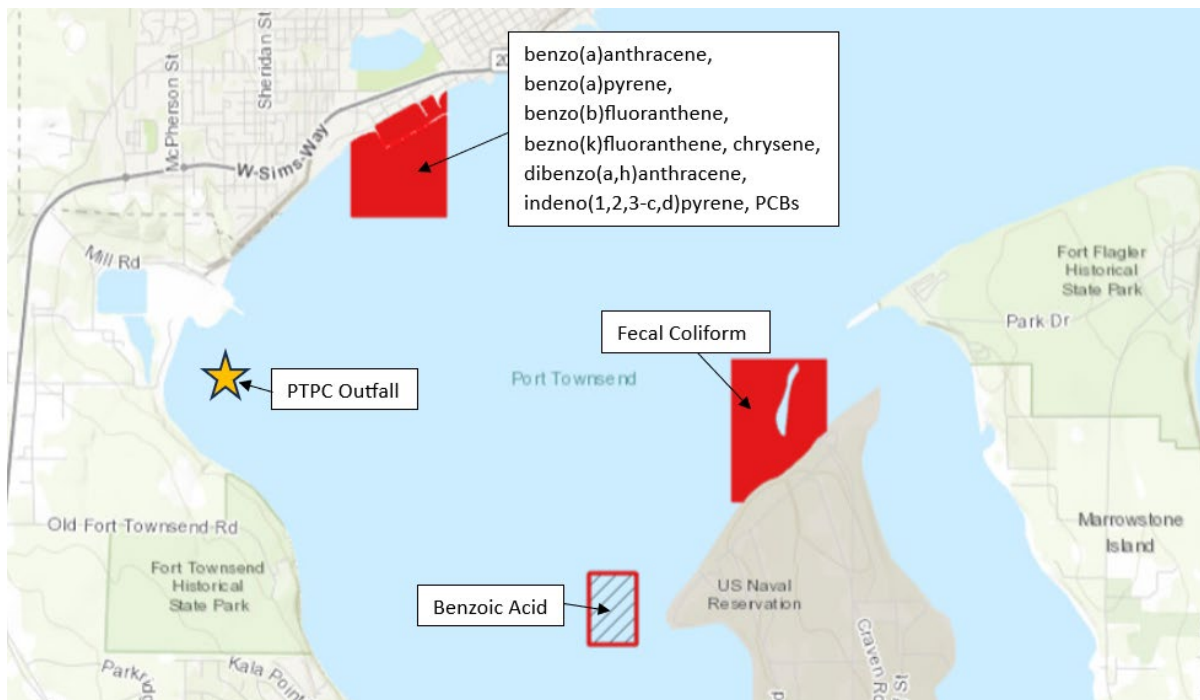


Figure 12 — Port Townsend Bay 303(d)-Listed Waters

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

Ecology must consider the narrative criteria described in WAC 173-201A-260⁶⁰ 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.

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.

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 in Section III.M.

⁶⁰ <https://apps.leg.wa.gov/wac/default.aspx?cite=173-201A-260>

III.I. Evaluation of surface water quality and human health-based effluent limits for numeric criteria

1. Mixing zones and dilution factors

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants; their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality based effluent limits varies with the point at which the pollutant has its maximum effect.

With technology-based controls (AKART), predicted pollutant concentrations in the discharge exceed water quality criteria. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones by chapter 173-201A WAC⁶¹.

PTPC most recently submitted information to Ecology regarding mixing zone modeling in the PTPC Mixing Zone Study Update Report⁶² dated December 11, 2013 and an additional memorandum dated June 13, 2014⁶³. The diffuser at Outfall 001 extends 1,200 feet from shore with a diameter of approximately 36 inches. The mean lower low water (MLLW) depth is 37 feet. Original design documents indicate the diffuser had twenty 5-inch diameter ports, eight 6-inch diameter ports, and one 8-inch diameter port. However, based on inspections, the diffuser has 26 ports. One of the ports is blanked off. The distance between ports is 10 feet. PTPC's report performed the modeling assuming 25 ports. The resulting dilution factors calculated by the study are in Table 28.

Chronic Mixing Zone – WAC 173-201A-400(7)(b) specifies that mixing zones must not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports as measured during MLLW. Ecology notes that per WAC 173-201A-400(7)(b)(ii), the size limitations for estuarine discharges apply to PTPC's discharge.

The horizontal distance (radius) of the chronic mixing zone is 237 feet. The mixing zone extends from the bottom to the top of the water column.

Acute Mixing Zone – WAC 173-201A-400(8)(b) specifies that in oceanic waters a zone where acute criteria may be exceeded must not extend beyond 10% of the distance established for the chronic zone. The horizontal distance (radius) of the acute mixing

⁶¹ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

⁶² <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=125810>

⁶³ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=125807>

zone is 23.7 feet. The mixing zone extends from the bottom to the top of the water column.

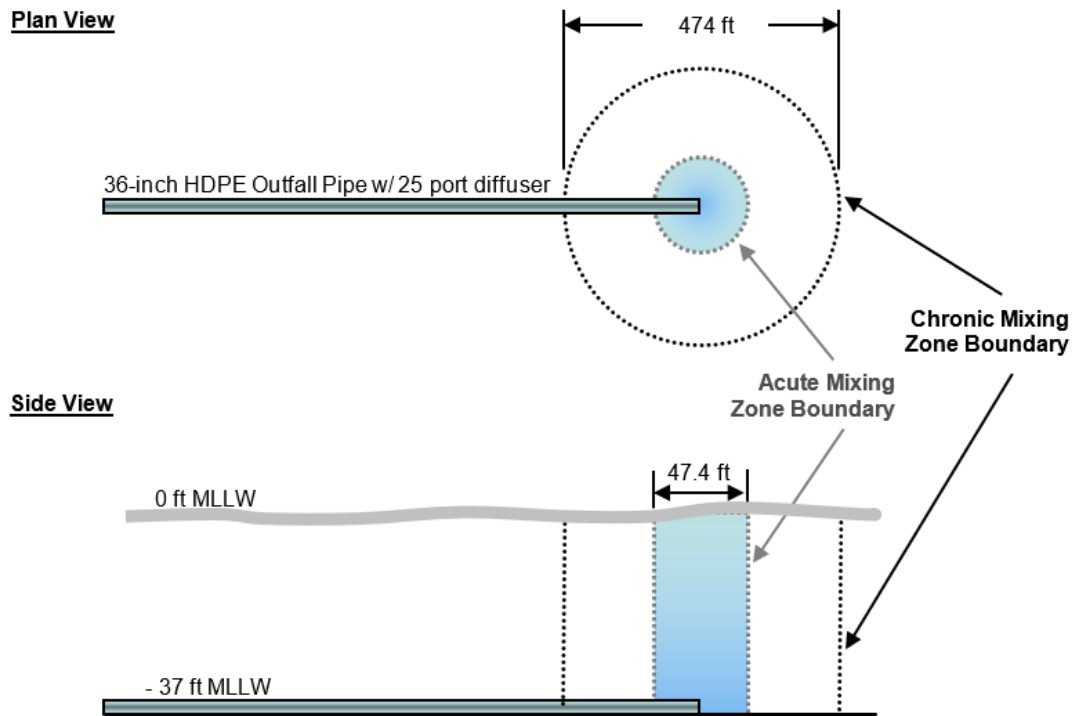


Figure 13. Diagram of Acute and Chronic Mixing Zone Boundaries

Table 28 — Dilution Factors (DF)

Criteria	Acute	Chronic
Aquatic Life	45.7	52.6
Human Health, Carcinogen	N/A	52.6
Human Health, Non-carcinogen	N/A	52.6

Ecology determined the impacts of dissolved oxygen, pH, bacteria, ammonia, metals, other toxics, and temperature, as described below, using the dilution factors in the above table. 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. More documentation regarding these evaluations are available in Appendix D through J of this document.

2. Dissolved Oxygen: BOD₅ and Ammonia Effects

Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The

5-day Biochemical Oxygen Demand (BOD₅) of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. The amount of ammonia-based nitrogen in the wastewater also provides an indication of oxygen demand in the receiving water.

Ecology modeled the impact of BOD₅ on the receiving water at critical conditions. The calculations to determine dissolved oxygen impacts are shown in Appendix G of this document.

Ecology predicted no violation of the surface water quality standards for dissolved oxygen due to the impacts of biochemical oxygen demand (BOD₅) under critical conditions. Therefore, the proposed permit contains the technology-based effluent limit for BOD₅. The permit also does not contain a limit on ammonia based on dissolved oxygen impacts (ammonia toxicity is examined elsewhere in this fact sheet).

3. pH

Ecology determined that compliance with limits for pH from applicable Federal effluent guidelines as calculated in Section III.B of this fact sheet (5.4 to 9.0) will not assure compliance with the water quality standards for surface waters. Ecology performed additional reasonable potential analyses to ensure compliance (Appendix G).

Based on the analysis in Appendix G, the draft proposed permit includes a pH limit of 6.0 to 9.0 to ensure compliance with the applicable pH criteria for surface water.

4. Bacteria

There are two bacterial water quality-criteria applicable to PTPC's discharge: criteria for shellfish harvesting and criteria for primary contact (recreation).

The indicator bacteria for the shellfish harvesting criterion are fecal coliform. Ecology modeled the number of fecal coliform by simple mixing analysis using the technology-based limit of 400 organisms per 100 mL in PTPC's sanitary effluent and an assumed amount of dilution that occurs when PTPC's sanitary effluent (Outfall 005) mixes with effluent from the ASB (Outfall 001A). Ecology assumed Outfall 001A contains no fecal coliform as it contains no sanitary wastewater. Under critical conditions, modeling predicts no violation of the shellfish harvesting criterion for fecal coliform. Therefore, the proposed permit includes the technology-based effluent limit for fecal coliform bacteria at Outfall 005. This analysis is documented in Appendix I of this document.

The bacteria indicator for primary contact recreation is enterococci as of January 1, 2021. It previously was fecal coliform. Ecology has no enterococci data for PTPC's treated sanitary wastewater. Assuming that PTPC's Outfall 001A contains no enterococci (as it contains no sanitary wastewater) and given that PTPC's sanitary wastewater makes up less than 1% of PTPC's final effluent (mixture of wastewaters from Outfall

001A and Outfall 005), there is no reasonable potential for PTPC's discharge to cause a violation of the primary contact water quality criteria.

The proposed draft permit includes monitoring for enterococci that Ecology will use in the next permit cycle to evaluate the potential for PTPC's effluent to cause an exceedance of water quality criteria for primary contact recreation.

5. Turbidity

Ecology evaluated the impact of turbidity based on the single turbidity sample of the effluent and the turbidity of the receiving water. Based on the data available, Ecology expects no violations of the turbidity criteria outside the designated mixing zone. This evaluation is in Appendix J of this document. Ecology included additional turbidity monitoring in the proposed draft permit to provide more information for this evaluation in the subsequent permit cycle.

6. Temperature

The state temperature standards for marine waters (WAC 173-201A-210) include multiple elements:

- a. Annual 1-Day maximum criteria
- b. Incremental warming restrictions
- c. Guidelines on preventing acute lethality and barriers to migration of salmonids

Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.

- a. Annual 1-Day maximum criteria

Each marine water body has an annual maximum temperature criterion [WAC 173-201A-210(1)(c)(i)-(ii) and WAC 173-201A-612]. These threshold criteria (e.g., 13, 16, 19, 22°C) protect specific categories of aquatic life by controlling the effect of human actions on water column temperatures. The threshold criteria apply at the edge of the chronic mixing zone. Criteria for marine waters and some fresh waters are expressed at the highest 1-Day annual maximum temperature (1-DMax). Ecology concludes that there is no reasonable potential to exceed the temperature standard when the mixture of ambient water and effluent at the edge of the chronic mixing zone is less than the criteria of 16°C applicable to Port Townsend Bay.

- b. Incremental warming criteria

The water quality standards limit the amount of warming human sources can cause under specific situations [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 (T_i), calculated as:

$$T_i = 12 / (T_{\text{amb}} - 2)$$

This increment is permitted only to the extent doing so does not cause temperatures to exceed the annual maximum criteria.

- c. Guidelines to prevent acute mortality or barriers to migration of salmonids. These site-level considerations do not override the temperature criteria listed above.
 - i. 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 2-seconds after discharge.
 - ii. 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. When adjacent downstream temperatures are 3°C or more cooler, the 1DMax at the edge of the chronic mixing zone must not exceed 22°C.
 - iii. 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.

Reasonable Potential Analysis

Annual summer maximum and incremental warming criteria: Ecology calculated the reasonable potential for the discharge to exceed the maximum and the incremental warming criteria (See temperature calculations in Appendix F).

The discharge is allowed to warm the water by a defined increment only when the background (ambient) temperature is cooler than the assigned threshold criterion. Ecology allows warming increments only when they do not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

The incremental increase for this discharge is within the allowable amount. Therefore, the proposed permit does not include a temperature limit.

7. Toxic Pollutants – Human Health & Aquatic Life Criteria

The numeric criteria for toxic pollutants consists of criteria based on the protection of human-health and the protection of aquatic life.

Federal regulations (40 CFR 122.44⁶⁴) 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 evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d)⁶⁵ by following the procedures published in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001)⁶⁶ and Ecology's Permit Writer's

⁶⁴ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122#122.44>

⁶⁵ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122#122.44>

⁶⁶ <https://www3.epa.gov/npdes/pubs/owm0264.pdf>

Manual⁶⁷ to make a reasonable potential determination. This evaluation is in Appendix D of this fact sheet.

Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants with water quality criteria are present in the discharge: 2,3,7,8-TCDD (dioxin), ammonia, acrolein, antimony, arsenic, benzene, benzo(a)anthracene, bis(2-ethylhexyl)phthalate, cadmium, chlordane, chlorine, chloroform, hexavalent chromium, copper, cyanide, diethyl phthalate, dimethyl phthalate, di-n-butyl phthalate, endosulfan, ethylbenzene, fluoranthene, fluorene, isophorone, lead, mercury, methyl bromide, nickel, pentachlorophenol, phenol, pyrene, selenium, silver, thallium, toluene, vinyl chloride, and zinc. Ecology conducted a reasonable potential analysis (See Appendix D) on these parameters to determine whether it would require effluent limits in this permit. Data collected for dieldrin during the permit cycle was ambiguous; Ecology was unable to confirm if dieldrin is present in PTPC's discharge. Ecology did not perform a reasonable potential analysis for dieldrin. This is further discussed in Appendix D.

Ammonia's toxicity depends on that portion which is available in the unionized form. The amount of unionized ammonia depends on the temperature, pH, and salinity of the receiving marine water. To evaluate ammonia toxicity, Ecology used the available receiving water information from ambient monitoring stations. The ammonia analysis is also documented in Appendix D of this fact sheet.

Ambient background data were available for ammonia, arsenic, cadmium, hexavalent chromium, copper, lead, mercury, nickel, silver, and zinc. Ecology used all applicable data to evaluate reasonable potential for this discharge to cause a violation of water quality standards.

Ambient background data were not available for 2,3,7,8-TCDD (dioxin), acrolein, antimony, benzene, benzo(a)anthracene, bis(2-ethylhexyl)phthalate, chlordane, chlorine, chloroform, hexavalent chromium, cyanide, diethyl phthalate, dimethyl phthalate, di-n-butyl phthalate, endosulfan, ethylbenzene, fluoranthene, fluorene, isophorone, methyl bromide, pentachlorophenol, phenol, pyrene, selenium, thallium, toluene, or vinyl chloride. Ecology used zero for background in these instances. A receiving water study is required in the draft proposed permit for some of these pollutants. This is discussed in Section V.L of this fact sheet.

Ecology determined that 2,3,7,8-TCDD (dioxin), ammonia, acrolein, antimony, arsenic, benzene, bis(2-ethylhexyl)phthalate, cadmium, chlorine, chloroform, hexavalent chromium, copper, cyanide, diethyl phthalate, dimethyl phthalate, di-n-butyl phthalate,

⁶⁷ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

endosulfan, ethylbenzene, fluoranthene, fluorene, isooxanthrone, lead, mercury, methyl bromide, nickel, phenol, pyrene, selenium, silver, thallium, toluene, vinyl chloride, and zinc pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (also discussed in Appendix D) and as described above.

Ecology determined that detected levels of benzo(a)anthracene, chlordane, and pentachlorophenol in PTPC's effluent have a reasonable potential to exceed water quality criteria. Ecology is unable to determine if levels of inorganic arsenic in PTPC's effluent have a reasonable potential to exceed human health-based water quality criteria. These four pollutants are further discussed below.

Inorganic Arsenic (Human Health Criteria)

The EPA disapproved Ecology's proposed total arsenic criteria in November 2016 and retained the inorganic arsenic human health criteria set in the 1992 National Toxics Rule (NTR; 40 CFR 131.36). The existing marine and freshwater inorganic arsenic human health criteria remain in effect. There is currently no 40 CFR 136-approved analytical method for arsenic that measures only inorganic arsenic. Because of this, generally total arsenic data must be used to evaluate the potential of a facility's discharge to cause an exceedance of the human health criteria. Inorganic arsenic is a sub-set of total arsenic. Using total arsenic data is conservative, but often results in the conclusion that there may be a reasonable potential to exceed the water quality criteria.

Natural background concentrations of total arsenic in both marine and freshwaters in Washington often exceed the inorganic arsenic criteria. The public utility supplies most of the water used by PTPC. Per the Jefferson County Public Utility District⁶⁸, naturally occurring total arsenic in the county's water supply ranges from 1 µg/L to 8 µg/L.

The human health criterion for inorganic arsenic in marine waters is 0.14 µg/L. In this situation, no implementation tool exists to account for the naturally occurring element in the intake water source. Intake credits (WAC 173-201A-460) do not apply in this situation because the source water and the receiving water must be the same body of water or proven to be hydraulically connected.

The estimated geometric mean of the total arsenic concentration for the receiving water, calculated from 10 samples taken during PTPC's 2015-2016 receiving water study was 1.93 µg/L.

As stated above, there is currently no 40 CFR 136-approved analytical method for inorganic arsenic. Evaluation of point source discharges for effluent limit

⁶⁸ <https://www.jeffpud.org/water-safety/> Accessed November 27, 2023.

compliance must use 40 CFR 136 methods. The current 40 CFR 136-approved method for arsenic measures the total recoverable portion of the metal and does not differentiate the inorganic portion. No federally approved translator for inorganic-to-total recoverable arsenic in discharges exists.

Because of these issues, it is not feasible to determine reasonable potential or to apply numeric effluent limits for inorganic arsenic. The proposed permit requires PTPC to continue to monitor for total arsenic annually.

Benzo(a)anthracene (Human Health-Based Criteria)

Benzo(a)anthracene is a polycyclic aromatic hydrocarbon. Benzo(a)anthracene is produced during incomplete combustion of organic matter. Benzo(a)anthracene is part of a larger group of compounds called polycyclic organic matter (POM). For more information about POM, see EPA's factsheet⁶⁹. Benzo(a)anthracene was only detected once during the current permit cycle (in 2019), but it was detected at a level high enough that there is a reasonable potential for PTPC's discharge to cause an exceedance of the human-health based criteria.

Chlordane (Human Health and Aquatic Life-Based Criteria)

Chlordane is a manufactured chemical that was used as a pesticide in the United States from 1948 to 1988. EPA banned all uses of chlordane except to control termites in 1983. In 1988, EPA banned all uses of chlordane. Chlordane was only detected once during the current permit cycle (in 2022), but it was detected at a level high enough that there is a reasonable potential for PTPC's discharge to cause an exceedance of both human health and aquatic life-based water quality criteria for chlordane. Ecology notes that the detection of chlordane in PTPC's discharge does not indicate that PTPC is currently using chlordane on-site. Chlordane can stay in the environment for many years after it is used. For more information about Chlordane, view EPA's factsheet⁷⁰.

The proposed limit in the draft proposed permit is based on the human health-based criteria for chlordane rather than the aquatic life criteria. This is because the human health-based criterion is more protective than the aquatic life-based criteria, as shown below.

⁶⁹ <https://www.epa.gov/sites/default/files/2016-09/documents/polycyclic-organic-matter.pdf>

⁷⁰ <https://www.epa.gov/sites/default/files/2016-09/documents/chlordane.pdf>

Table 29 — Comparison of Marine Water Quality Criteria for Chlordane

Type of WQ Criteria	Acute Criteria (ug/L)	Chronic Criteria (ug/L)
Human Health	N/A	0.000022
Aquatic Life	0.09	0.004

Pentachlorophenol (Human Health-Based Criteria)

Pentachlorophenol is a manufactured chemical. Pentachlorophenol was previously widely used as a biocide in the United States. In 1984, it was no longer legally available to the general public and its use was restricted to certified applicators. Today, it is generally used as a wood preservative. EPA recently passed legislation to phase out the use of pentachlorophenol beginning in 2022. Until February 2024, registrants may continue to produce, sell and distribute wood preservatives containing pentachlorophenol while wood treatment facilities transition to alternatives. For more information about pentachlorophenol, view EPA's [factsheet](#).⁷¹ Pentachlorophenol was detected in PTPC's effluent in 2016 and 2019 at levels indicating that there is a reasonable potential for PTPC's effluent to cause an exceedance of human health-based criteria for pentachlorophenol.

Ecology calculated limits for benzo(a)anthracene, chlordane, and pentachlorophenol using procedures specified in Appendix D of this fact sheet. The water quality-based effluent limits in the proposed draft permit for these pollutants are below.

Table 30 — Proposed Water Quality-Based Limits for Toxics

Parameter	Average Monthly (µg/L)	Maximum Daily (µg/L)
Benzo(a)anthracene	0.0084	0.014
Chlordane	0.0012	0.0025
Pentachlorophenol	0.11	0.22

III.J. Interim Performance-Based Limits

It appears that PTPC might not be able to comply with water-quality based limits immediately as shown in Table 31 and Table 32. Actual performance shows concentrations greater than the proposed limits.

⁷¹ <https://www.epa.gov/sites/default/files/2016-09/documents/pentachlorophenol.pdf>

Table 31 — Proposed Average Monthly Limits for Toxics v. Actual Performance

Parameter	Proposed Average Monthly Limit (µg/L)	Long Term Average (µg/L) ⁷²
Benzo(a)anthracene	0.0084	0.054
Chlordane	0.0012	0.032
Pentachlorophenol	0.11	0.66

Table 32 — Proposed Maximum Daily Limits for Toxics v. Actual Performance

Parameter	Proposed Maximum Daily Limit (µg/L)	Maximum Detected Value (µg/L)
Benzo(a)anthracene	0.014	0.14 ⁷³
Chlordane	0.0025	0.18 ⁷³
Pentachlorophenol	0.22	3.5 ⁷³

Because of this, the proposed draft permit includes interim limits. The interim limits are based on current concentrations of a benzo(a)anthracene, chlordane and pentachlorophenol in PTPC's effluent. The interim limits are in effect until four years from the effective date of the draft proposed permit. The interim limits hold PTPC to their current level of performance while giving them time to comply with the final limits. Ecology calculated the interim limits using statistical methods and sampling data collected during the permit cycle. Derivation of the interim limits is discussed in Appendix E of this fact sheet. The interim limits in the proposed draft permit are below.

Table 33 — Proposed Interim Limits for Toxics

Parameter	Average Monthly (µg/L)	Maximum Daily (µg/L)
Benzo(a)anthracene	0.19	0.39
Chlordane	0.086	0.17
Pentachlorophenol	1.82	3.54

III.K. Sediment quality

The aquatic sediment standards (chapter 173-204 WAC⁷⁴) 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 website⁷⁵.

⁷² Includes all samples taken over the permit term. Ecology used ½ the detect limit when a value was reported as non-detect.

⁷³ Value is estimated. Measured value is between the detection limit and quantitation limit.

⁷⁴ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-204>

⁷⁵ <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups>

1. Outfall 001

Industrial Section sent the results of the 2014 sediment sampling near Outfall 001 to Ecology's Toxic Cleanup Program (TCP), Aquatics Lands Cleanup Unit (ALCU) for review. The ALCU reviewed the sediment sampling results and prepared a recommendation memo dated June 17, 2021. The TCP/ALCU review showed that the 2014 sediment sampling results passed the criteria for marine Sediment Management Standards (SMS). Ecology has determined that this discharge has no reasonable potential to violate the sediment management standards. TCP/ALCU recommended in their memo that sediment sampling in the vicinity of Outfall 001 should be reassessed during the permit cycle expected to begin in 2026. Due to the delays in the renewal of PTPC's permit last issued September 16, 2013, and that the draft proposed permit cycle will include calendar year 2026, Ecology has included sediment sampling in the draft proposed NPDES permit.

2. PECO Dock and Nearshore Wood Chips

PTPC receives wood chips by truck and barge. PTPC unloads wood chips received via barge overwater by a clamshell bucket on a crane at a receiving dock ("PECO dock"). Wood chip spillage and wood chip accumulation in the sediments have been historically observed at the PECO dock and the surrounding area. The ecological impacts of wood waste accumulation in sediments have been well documented throughout the Puget Sound. When wood waste accumulates in large volumes, it can smother native sediments/benthic organisms, chemically alter sediments, and introduce new toxic chemical by-products from wood decomposition.

Ecology is concerned that the discharge of fugitive wood debris into Port Townsend Bay may have accumulated to levels which may cause adverse effects to biological resources per the SMS [WAC 173-204-320(5)]. For this reason, the draft proposed permit requires sediment sampling and analysis in the area of the PECO dock to characterize the nature and extent of wood waste contamination.

III.L. Groundwater quality limits

The groundwater quality standards (chapter 173-200 WAC⁷⁶) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

PTPC does not discharge wastewater directly to the ground. However, due to the unknown construction and design standards utilized at the time of installation of the wastewater lagoon (ASB) and the unknown condition of the earthen lagoon liner, Ecology required PTPC to evaluate potential impacts of the ASB to groundwater.

⁷⁶ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200>

As required by the NPDES permit issued in 2013, PTPC submitted a *Ground Water Impact Study Work Plan*⁷⁷ (dated September 9, 2015) to Ecology for review and approval.

PTPC submitted a *Ground Water Impact Study* (dated November 8, 2016) containing an assessment of the hydrogeologic conditions, groundwater flow conditions, and ASB design information. Based on the information provided in the study, Ecology has determined that groundwater quality standards are not applicable to PTPC's operations⁷⁸.

III.M. 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.

- Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.
- Chronic toxicity tests measure various sublethal toxic responses, such as reduced growth or reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure organism survival.

Laboratories accredited by Ecology for WET testing must use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format according to the procedures in the most recent version of Ecology's Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria (Publication 95-80)⁷⁹. Ecology recommends that each regulated facility send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

WET testing conducted during effluent characterization showed no reasonable potential for PTPC's effluent discharges to cause receiving water acute toxicity. The proposed permit will not include an acute WET limit. PTPC must retest the effluent before submitting an application for permit renewal.

- If PTPC makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by

⁷⁷ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=156913>

⁷⁸ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=193688>

⁷⁹ <https://apps.ecology.wa.gov/publications/SummaryPages/9580.html>

permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization. PTPC may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing and/or chemical analyses after the process or material changes have been made. Ecology recommends that the Permittee check with Ecology first to ensure that Ecology will consider the demonstration adequate to support a decision to not require an additional effluent characterization.

- If the WET testing conducted for submittal with the permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water chronic toxicity. The proposed permit will not include a chronic WET limit. PTPC must retest the effluent before submitting an application for permit renewal.

- If PTPC makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization.
- If the WET testing conducted for submittal with the permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. PTPC may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing after the process or material changes have been made.

Acute Test Species

In historical WET testing (1999 – 2000), Ecology required PTPC to test their effluent for acute toxicity using freshwater species (fathead minnow, Pimephales promelas and daphnid, *Daphnia pulex*). Although PTPC discharges to marine waters, using freshwater species for discharges that are freshwater is in accordance with Ecology guidelines regarding WET testing. Page 27 of Ecology's Whole Effluent Toxicity Testing Guidance and Test Review Criteria⁸⁰ document states the following: "If the effluent itself is freshwater, freshwater species will typically be used for acute WET testing regardless of receiving water criteria". Section 5.1.1 of Ecology's Permit Writer's Manual⁸¹ states: "If the effluent itself is freshwater, freshwater species are generally used for acute WET testing. Freshwater WET tests are more readily available and more convenient for [toxicity identification/reduction evaluation]. The saltwater and freshwater acute WET tests do not usually differ in sensitivity".

⁸⁰ <https://apps.ecology.wa.gov/publications/documents/9580.pdf>

⁸¹ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

In the early 2000's, PTPC began using some salt water for cooling and took on freshwater conservation measures. These operational changes raised the salinity of the wastewater effluent to near (or above) lethal concentrations that would kill 50% of test populations for the freshwater acute WET test species (fathead minnow and daphnid). It was determined that the freshwater species for the acute WET test were no longer appropriate and saltwater species were selected for the acute WET tests in 2004 version of the NPDES permit issued on September 1, 2004. Additional discussion is in the fact sheet for the 2004 permit renewal. Ecology also required saltwater species for the acute WET test in the NPDES permit issued on September 16, 2013.

In 2018, PTPC discontinued the use of saltwater for contact cooling for most of their processes. Under current operations, PTPC only introduces salt water into their final effluent when they use salt water for cooling in the D-set evaporators. This generally only occurs a few days out of the year.

Because PTPC's effluent now typically does not contain salt water, to be consistent with Ecology guidance for species selection for acute tests, the proposed draft permit requires PTPC to use freshwater species for acute tests.

Chronic Test Species

Chronic toxicity in the NPDES permit Ecology issued on September 16, 2023 required saltwater species (top smelt, *Atherinops affinis*; mysid shrimp, *Mysidopsis bahai*; and common mussel, *Mytilus edulis*). This is consistent with Ecology guidance for discharges to saltwater. The proposed draft permit continues to require these species for WET testing.

III.N. Comparison of effluent limits with the previous permit issued on September 16, 2013

The below table is a summary of the limits in the draft proposed permit compared to limits in the existing permit. The table below also shows interim limits for benzo(a)anthracene, chlordane, and pentachlorophenol. The interim limits are in effect for approximately five years. The final limits become effective on the final day of the draft proposed permit cycle. The interim limits are performance-based limits which hold PTPC to their previous level of performance while giving them time to comply with the final limits.

Table 34 — Comparison of Previous and Proposed Effluent Limits – Outfall 001A

Limit	Basis of Limit	Existing permit limit	Proposed permit limit
Biochemical Oxygen Demand (5-day) – Average Monthly	Technology	4,578 lbs/day	4,913 lbs/day
Biochemical Oxygen Demand (5-day) – Maximum Daily	Technology	8,850 lbs/day	9,477 lbs/day
Total Suspended Solids – Average Monthly	Technology	8,243 lbs/day	8,398 lb/day
Total Suspended Solids – Maximum Daily	Technology	16,212 lbs/day	16,518 lbs/day
pH – Daily Minimum	Technology (Existing Permit) / Water Quality (Proposed Permit)	6.0 standard units	6.0 standard units
pH – Daily Maximum	Technology	9.0 standard units	9.0 standard units
Benzo(a)anthracene – Average Monthly	Water Quality	None	Interim Limit: 0.19 µg/L Final Limit: 0.0084 µg/L
Benzo(a)anthracene – Maximum Daily	Water Quality	None	Interim Limit: 0.39 µg/L Final Limit: 0.014 µg/L
Chlordane – Average Monthly	Water Quality	None	Interim Limit: 0.086 µg/L Final Limit: 0.0012 µg/L
Chlordane – Maximum Daily	Water Quality	None	Interim Limit: 0.17 µg/L Final Limit: 0.0025 µg/L

Limit	Basis of Limit	Existing permit limit	Proposed permit limit
Pentachlorophenol – Average Monthly	Water Quality	None	Interim Limit: 1.82 µg/L Final Limit: 0.11 µg/L
Pentachlorophenol– Maximum Daily	Water Quality	None	Interim Limit: 3.54 µg/L Final Limit: 0.22 µg/L

Table 35 — Comparison of Previous and Proposed Effluent Limits – Outfall 005

Limit	Basis of Limit	Existing permit limit	Proposed permit limit
Biochemical Oxygen Demand (5-day) – Average Monthly	Technology	30 mg/L	30 mg/L
Biochemical Oxygen Demand (5-day) – Maximum Weekly Average	Technology	45 mg/L	45 mg/L
Total Suspended Solids – Average Monthly	Technology	30 mg/L	30 mg/L
Total Suspended Solids – Maximum Weekly Average	Technology	45 mg/L	45 mg/L
Fecal Coliform Bacteria – Monthly Geometric Mean	Technology	200/100mL	200/100mL
Fecal Coliform Bacteria – Weekly Geometric Mean	Technology	400/100mL	400/100mL
pH – Daily Minimum	Technology	6.0 standard units	6.0 standard units
pH – Daily Maximum	Technology	9.0 standard units	9.0 standard units
Total Residual Chlorine	Technology	0.1 mg/L	0.1 mg/L
Total Residual Chlorine	Technology	5.0 mg/L	5.0 mg/L
Removal of Influent Biochemical Oxygen Demand (5-Day) -Minimum Monthly Average	Technology	85%	85%
Removal of Total Suspended Solids – Minimum Monthly Average	Technology	85%	85%

III.O. Anti-backsliding

The limits in the proposed draft permit for TSS and BOD₅ at Outfall 001A are 2-7% higher than in the permit issued in 2013. This is not considered backsliding. Ecology used the same federal effluent limitations to calculate limits in the permit issued in 2013 and in the proposed draft permit. The federal effluent limitations are in terms of mass of pollutant per unit of production. The change in limits in the proposed draft permit is based on a change in production rate, not a change in the federal effluent limitations Ecology applied. The proposed limits are in accordance with the following guidelines in Chapter 2, Section 15 of Ecology's Permit Writer's Manual⁸² regarding anti-backsliding. The proposed limits are:

- Not less stringent than required by federal effluent guidelines.
- Do not violate applicable water quality standards (including antidegradation requirements, discussed in Section III.D.4 of this document).
- Do not violate state technology-based treatment requirements.

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210⁸³ and 40 CFR 122.41⁸⁴) 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.

IV.A. Wastewater monitoring

The permit requires monitoring for the pollutants listed in Special Condition S1 to demonstrate compliance with the effluent limits. Special Condition S2 of the proposed permit also includes monitoring for additional pollutants which are not limited by the permit. The proposed draft permit requires additional monitoring to further characterize the effluent. The following sections provide more details around new or changed monitoring requirements in the draft proposed permit.

1. TSS and BOD₅ monitoring frequency at Outfall 001A

The proposed permit includes a change in the monitoring frequency of TSS and BOD₅ sampling at Outfall 001A. The draft proposed permit requires monitoring of BOD₅ and TSS four times per week. The permit Ecology issued in 2013 required BOD₅ monitoring 2

⁸² <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

⁸³ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-210>

⁸⁴ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.41>

times per week and TSS monitoring three times per week. However, a “tiered monitoring” provision in the 2013 permit triggered BOD₅ monitoring 5 times per week and TSS monitoring seven days per week after PTPC had two violations for a given parameter in a 12-month period.

The monitoring frequency of the draft proposed permit requires that PTPC sample both of these parameters 4 times per week. This is based on guidance from Appendix D⁸⁵ of Ecology’s Permit Writer’s Manual⁸⁶. Table D-4 in Appendix D contains recommended monthly sample sizes for estimating the true mean of a pollutant. The sample size depends on the desired confidence level and relative error, as well as the coefficient of variation for the data set. The coefficient of variation of PTPC’s BOD₅ sampling results for April 1, 2018 through March 31, 2023 in lbs/D is 0.6. The coefficient of variation of PTPC’s TSS data during the same time frame in lbs/D is 0.5. Ecology used the dataset in Table D-4 of Appendix D of the Permit Writer’s Manual corresponding to a coefficient of variation of 0.6 to approximate the required number of samples for PTPC to determine monthly TSS and BOD₅ loading. Based on Appendix D’s recommendation of using a confidence level of 90% and a relative error (d_r) of no larger than 20%, 15 samples per month is required, or approximately 4 samples per week.

Table 36 — Reproduction of Table D-4 from Appendix D of Ecology's Permit Writer's Manual

Confidence level (1- α)	Relative Error d_r	Coefficient of Variation (η)	
		0.60	1.00
.80 ($Z_{0.80} = .846$)	.10	26	72
	.20	6	18
	.30	3	8
	.50	1	3
.85 ($Z_{0.85} = 1.062$)	.10	41	113
	.20	10	28
	.30	5	13
	.50	2	5
.90 ($Z_{0.90} = 1.282$)	.10	59	164
	.20	15	41
	.30	7	18
	.50	2	7
.95 ($Z_{0.95} = 1.645$)	.10	97	271
	.20	24	68
	.30	11	30
	.50	4	11
.99 ($Z_{0.99} = 2.326$)	.10	195	541
	.20	49	135
	.30	22	60
	.50	8	22

⁸⁵ <https://apps.ecology.wa.gov/publications/parts/92109part1.pdf>

⁸⁶ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

2. Production Monitoring

The proposed permit requires PTPC to monitor and report total production and the OCC plant product. Ecology will use this information to establish technology-based limits from the federal effluent guidelines during the next permit renewal. Ecology can also use the information to verify that the facility is operating in accordance with their permit renewal application. The proposed permit requires that PTPC report the production in units of air dried tons, which are the units specified in the regulations when calculating the technology-based effluent limits.

3. Internal Monitoring Points

The draft proposed permit includes additional TSS and BOD₅ monitoring at primary clarifier effluent. The draft proposed permit requires this sampling twice per month. In the previous permit cycle, PTPC reported TSS and BOD₅ concentrations at the inlet to the ASB. The draft proposed permit also requires PTPC to continue this monitoring.

Ecology is requiring this monitoring to evaluate the performance of PTPC's water quality treatment plant over the permit term. The data will allow Ecology to calculate PTPC's removal of TSS and BOD₅ across the entire wastewater treatment plant (main pump station to ASB effluent), as well as allow Ecology to calculate the amount of TSS removed at the primary clarifier and the amount of BOD₅ removed across the ASB. This data allows Ecology to ensure that PTPC continues to meet AKART by properly operating and maintaining the treatment system.

4. Temperature

The draft proposed permit requires PTPC to monitor the temperature of their final effluent. Ecology will use this data to determine if PTPC's discharge has a reasonable potential to exceed water quality criteria for temperature during the next permit renewal.

5. Enterococci (Bacteria) Monitoring

Ecology updated the water contact recreation bacteria criteria in January 2019. This change became effective on January 1, 2021 and eliminated all recreational uses except for primary contact criteria in both fresh and marine waters. The indicator for the primary contact criteria also changed from fecal coliform to enterococci for marine water. The draft proposed permit includes monthly monitoring for the first three years of the permit cycle for enterococci to ensure compliance with the updated water quality standard.

6. Puget Sound Nutrient Reduction Project – Nutrient Monitoring

The draft proposed permit includes monitoring for nutrients (particulate organic carbon, total organic carbon, dissolved organic carbon, ammonia as N, nitrate as N, nitrite as N, total Kjeldahl nitrogen filtered and unfiltered, total phosphorus filtered and unfiltered, soluble reactive phosphorus, carbonaceous biochemical oxygen demand five-day, and

alkalinity) at Outfall 001A to accurately quantify the nutrients in the discharge for this facility. The draft permit requires monthly monitoring of these pollutants for the first three years of the permit cycle. This data supports the work of the Puget Sound Nutrient Reduction Project to evaluate dissolved oxygen impacts in the receiving water. Excess nutrients in the form of nitrogen and carbon can lead to low dissolved oxygen in Puget Sound which negatively affects aquatic life. Monitoring data is necessary to evaluate individual sources of anthropogenic nutrients for both near field and far field effects. Ecology intends to use this discharge data in both the Salish Sea Model and in future reasonable potential evaluations.

7. Dissolved Oxygen

The draft proposed permit includes monitoring for dissolved oxygen in Special Condition S2. The dissolved oxygen concentration can be used to calculate the effects of PTPC's discharge on the receiving water's dissolved oxygen concentrations, and is also an indicator of proper aeration and odor control within the treatment system.

8. Turbidity

The draft proposed permit includes monitoring for turbidity once per year in Special Condition S2 to ensure compliance with the water quality standard for turbidity.

9. Oil and Grease

The draft proposed permit includes monitoring once per year for oil and grease in Special Condition S2 to ensure compliance with water quality standards.

IV.B. Lab accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC⁸⁷, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters). Ecology accredited the laboratory at this facility for the parameters in the table below.

Table 37 — Accredited Parameters

Parameter Name	Category	Method Name	Matrix Description
Dissolved Oxygen	General Chemistry	Hach 10360 rev 1.2	Non-Potable Water
Total Suspended Solids	General Chemistry	SM 2540 D-2011	Non-Potable Water
Total Residual Chlorine	General Chemistry	SM 4500-Cl G-2011	Non-Potable Water
pH	General Chemistry	SM 4500-H+ B-2011	Non-Potable Water
Biochemical Oxygen Demand (5-Day)	General Chemistry	SM 5210 B-2011	Non-Potable Water

⁸⁷ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-50>

IV.C. Effluent limits which are near detection or quantitation levels

The water quality-based effluent concentration limits for benzo(a)anthracene, chlordane, and pentachlorophenol are near the required method detection levels (MDLs) and quantitation levels (QLs) that permittees or their contract laboratories must achieve for the allowed analytical method. The MDL, also known as the detection level (DL), is the minimum concentration of a pollutant that a laboratory can measure and report with a 99 percent confidence that its concentration is greater than zero (as determined by a specific laboratory method). The quantitation level (QL) is the level at which a laboratory can reliably report concentrations with a specified level of error. The required MDLs and QLs PTPC must achieve are in Appendix A of the draft proposed permit. Estimated concentrations are the values between the DL and the QL. These values are typically reported with a “J” data qualifier flag. Ecology requires permitted facilities to report estimated concentrations. When reporting maximum daily effluent concentrations, Ecology requires the facility to report “less than X” where X is the required detection level if the measured effluent concentration falls below the detection level.

A comparison of the limits for toxic pollutants in the draft proposed permit with the required quantitation limits in Appendix A is provided in the table below. Ecology notes that although the values in Appendix A seem relatively high in some cases, PTPC’s contract laboratory was able to achieve lower detection limits for benzo(a)anthracene and pentachlorophenol than those specified in the draft proposed permit. Detection limits for benzo(a)anthracene varied from approximately 0.02-0.25 ug/L. Detection limits for pentachlorophenol varied from 0.04-1.9 ug/L.

Table 38 — Comparison of Proposed Water Quality-Based Limits and Required Detection and Quantitation Limits, toxics

Pollutant	Average Monthly Limit, µg/L	Daily Maximum Limit, µg/L	Appendix A Detection Limit, µg/L	Appendix A Quantitation Limit, µg/L
Benzo(a)anthracene	Interim: 0.19 Final: 0.0084	Interim: 0.39 Final: 0.014	7.8	23.4
Chlordane	Interim: 0.086 Final: 0.0012	Interim: 0.17 Final: 0.0025	0.014	0.042
Pentachlorophenol	Interim: 1.82 Final: 0.11	Interim: 3.54 Final: 0.22	3.6	10.8

For evaluating compliance against daily maximum limits, when the sample-specific DL for a given analysis is above the daily maximum limit, a sample result below the DL demonstrates compliance with the daily maximum limit. When for a given analysis, the sample-specific DL falls below the daily maximum limit, and the sample-specific QL falls above the daily maximum limit, an estimated concentration in the sample falling between the sample-

specific DL and sample-specific QL shall not be considered a violation of the maximum daily limit.

Instructions for calculating monthly averages where there are samples taken throughout the month are provided in Special Condition S3.A of the draft proposed permit. The Permittee must calculate average values using:

1. The reported numeric value for all parameters measured between the detection value and the quantitation value for the sample analysis.
2. One-half (1/2) the detection value (for values reported below detection) if the lab detected the parameter in another sample from the same monitoring point for the reporting period.
3. Zero (for values reported below detection) if the lab did not detect the parameter in another sample for reporting period.

Because sampling for these pollutants is required monthly, if only one sample is taken per month, a single sample will be used to determine compliance with the monthly average maximum limit. When a single sample is collected and the sample-specific DL for a given analysis is above the monthly average limit, a sample result below the DL demonstrates compliance with the monthly average limit. When only one sample is collected during a month, when the sample-specific DL falls below monthly average limit, and the sample-specific QL falls above the monthly average limit, an estimated concentration in the sample falling between the sample-specific DL and the sample-specific QL shall not be considered a violation of the monthly average limit.

V. Other Permit Conditions

V.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 173-220-210⁸⁸).

V.B. Operation and Maintenance Manual

Special Condition S4 requires PTPC to submit an updated operation and maintenance manual to Ecology and review the manual every year to determine if additional updates are needed. Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [40 CFR 122.41(e)⁸⁹ and WAC 173-220-150 (1)(g)⁹⁰]. The facility has prepared

⁸⁸ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-210>

⁸⁹ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.41>

⁹⁰ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-150>

and submitted an operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150⁹¹). Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit.

V.C. Solid Waste Control Plan

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

Special Condition S5 of the proposed permit requires the facility to update the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state. The facility must submit the updated plan to Ecology for approval (RCW 90.48.080⁹²). Refer to the Ecology guidance document, Developing a Solid Waste Control Plan⁹³.

V.D. Aerator Installation

The most recent engineering report PTPC submitted to Ecology under Chapter 173-240 WAC is titled "Treatment System Engineering Report". PTPC submitted the report to the water quality permitting portal on September 28, 2017. In this report, PTPC documented that their current design included eleven aerators. PTPC subsequently removed aerators to help with sludge management. PTPC did not submit a report to Ecology under General Condition G5. of their 2013 permit (Plan Review Required), which requires PTPC to submit planned changes of their wastewater control facilities to Ecology 180 days prior to such changes. The draft proposed permit requires PTPC to restore their ASB operations back to those documented in the 2017 Treatment System Engineering Report. However, the draft proposed permit also includes an alternative path under which, PTPC may propose a modification to their wastewater treatment plant for Ecology approval in accordance with condition G.5 of their permit so long as changes also constitute AKART.

V.E. Facility Loading and Design Engineering Report

The proposed draft permit includes a requirement for PTPC to prepare a report to document updated design criteria for the current wastewater treatment plant configuration. Ecology may use the updated design criteria to revise design limits in Section S7.A of PTPC's NPDES permit during a subsequent permit renewal.

The currently effective permit required PTPC to submit a similar study during the permit cycle. PTPC submitted a "Treatment System Engineering Report" to Ecology through the water quality permitting portal on September 28, 2017. This report evaluated the performance of the wastewater treatment system. While the report presented certain information as "design criteria", Ecology has determined that the "design criteria" identified

⁹¹ <https://app.leg.wa.gov/wac/default.aspx?cite=173-240-150>

⁹² <http://app.leg.wa.gov/RCW/default.aspx?cite=90.48.080>

⁹³ <https://apps.ecology.wa.gov/publications/documents/0710024.pdf>

in the 2017 do not meet the intent of “design criteria” under the related permit condition. Therefore, Ecology is including the submittal under Section S8 of the draft proposed permit.

V.F. 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.

Special Condition S9 of the draft proposed 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.

V.G. Spill Control 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)]⁹⁴ and RCW 90.48.080⁹⁵.

PTPC developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. Special Condition S10 of the proposed draft permit requires the facility to update this plan and submit it to Ecology.

V.H. Stormwater Pollution Prevention Plan

A stormwater analysis plan for the PTPC industrial site was completed and approved in 1991. The plan indicated that all the stormwater generated at the site is directed to the process wastewater treatment system. In accordance with 40 CFR 122.44(k)⁹⁶ and 40 CFR 122.44 (s), Special Condition S11 of the proposed permit includes requirements for the development and implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to the wastewater treatment plant which PTPC may ultimately discharge to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that PTPC must develop a SWPPP and implement adequate BMPs in order to meet the requirements of “all known, available, and

⁹⁴ <https://www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system>

⁹⁵ <http://app.leg.wa.gov/RCW/default.aspx?cite=90.48.080>

⁹⁶ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.44>

reasonable methods of prevention, control, and treatment” (AKART). A SWPPP requires a facility to implement actions necessary to manage stormwater to comply with the state’s requirement under chapter 90.48 RCW⁹⁷ to protect the beneficial uses of waters of the state.

The SWPPP must identify potential sources of stormwater contamination from industrial activities and identify how it plans to manage those sources of contamination to prevent or minimize contamination of stormwater. PTPC must continuously review and revise the SWPPP as necessary to assure that stormwater discharges do not degrade water quality. It must retain the SWPPP on-site or within reasonable access to the site and available for review by Ecology.

1. Best Management Practices (BMPs)

BMPs are the actions identified in the SWPPP to manage, prevent contamination of, and treat stormwater. BMPs include 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 also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. PTPC must ensure that its SWPPP includes the operational and structural source control BMPs listed as “applicable” in Ecology’s stormwater management manuals. Many of these “applicable” BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

2. Ecology-Approved Stormwater Management Manuals

Consistent with RCW 90.48.555 (5) and (6), the proposed permit requires the facility to implement BMPs contained in the Stormwater Management Manual for Western Washington (most recent edition), or any revisions thereof, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology. This should ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under 40 CFR part 125.3. The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including: The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected.

3. Operational Source Control BMPs

Operational source control BMPs include a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. These

⁹⁷ <https://app.leg.wa.gov/RCW/default.aspx?cite=90.48>

activities do not require construction of pollution control devices but are very important components of a successful SWPPP. Employee training, for instance, is critical to achieving timely and consistent spill response. Pollution prevention is likely to fail if the employees do not understand the importance and objectives of BMPs. Prohibitions might include eliminating outdoor repair work on equipment and certainly would include the elimination of intentional draining of crankcase oil on the ground. Good housekeeping and maintenance schedules help prevent incidents that could result in the release of pollutants. Operational BMPs represent a cost-effective way to control pollutants and protect the environment. The SWPPP must identify all the operational BMPs and how and where they are implemented. For example, the SWPPP must identify what training will consist of, when training will take place, and who is responsible to assure that employee training happens.

4. Structural Source Control BMPs

Structural source control BMPs include physical, structural, or mechanical devices or facilities intended to prevent pollutants from entering stormwater. Examples of source control BMPs include erosion control practices, maintenance of stormwater facilities (e.g., cleaning out sediment traps), construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or a dead end sump. Structural source control BMPs likely include a capital investment but are cost effective compared to cleaning up pollutants after they have entered stormwater.

5. Treatment BMPs

Operational and structural source control BMPs are designed to prevent pollutants from entering stormwater. However, even with an aggressive and successful program, stormwater may still require treatment to achieve compliance with water quality standards. Treatment BMPs remove pollutants from stormwater. Examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

6. Volume/Flow Control BMPs

Ecology recognizes the need to include specific BMP requirements for stormwater runoff quantity control to protect beneficial water uses, including fish habitat. New facilities and existing facilities undergoing redevelopment must implement the requirements for peak runoff rate and volume control identified in the Western Washington SWMM or the Eastern Washington SWMM as applicable to their development. Controlling the rate and volume of stormwater discharge maintains the health of the watershed. Existing facilities should identify control measures that they can implement over time to reduce the impact of uncontrolled release of stormwater.

V.I. Outfall 001 Evaluation

The proposed draft permit requires PTPC to conduct an outfall inspection every three years and submit a report detailing the findings of that inspection (Special Condition S14). The inspection must evaluate the physical condition of the discharge pipe and diffusers and evaluate the extent of sediment accumulation in the vicinity of the outfall.

V.J. Certified Operator

WAC 173-230-330 requires that facilities that treat domestic wastewaters to have operators that are certified by the state of Washington. WAC 173-230-330 contains the criteria for the wastewater treatment plant classification. PTPC operates an activated sludge sanitary treatment plant with a flow rate of less than 1 MGD. Therefore, PTPC's sanitary plant is a Class II treatment plant according to WAC 173-230-330. WAC 173-230-340 requires the operator in responsible charge of the day-to-day operation of the wastewater treatment plant to hold a Class II certification. The lead operator on each shift must be certified at a Class I level. This requirement is in Special Condition S15 of the draft proposed permit. More information about Ecology's wastewater operator certification program is available online.⁹⁸

V.K. Cooling Water Intake Structure

CWA § 316(b) requires that the location, design, construction, and capacity of cooling water intake structures meeting certain criteria reflect the best technology available for minimizing adverse environmental impact. Since July 2013, Ecology has required a supplemental application for all applicants using EPA Form 2-C. Port Townsend Paper Corporation indicated that a cooling water intake structure (CWIS) is associated with the facility with their application for permit renewal. On September 11, 2023⁹⁹ Port Townsend Paper Corporation submitted to Ecology additional information required by 40 CFR 122.21(r). This included information about aquatic wildlife suspected to be in the vicinity of the cooling water intake structure, summarized below.

Information PTPC submitted to Ecology regarding their cooling water intake structure on September 11, 2023 stated that the CWIS is within or near the following areas designated by the federal endangered species act: final nearshore rockfish critical habitat, the marine critical habitat for Puget Sound chinook salmon, marine critical habitat for hood canal summer-run chum salmon, and southern resident killer whale critical habitat.

The information PTPC submitted to Ecology on September 11, 2023 regarding their cooling water intake structure states that the CWIS is also within the habitat of the Dungeness Crab, which Washington State Department of Fish and Wildlife has designated as a "priority species".

⁹⁸ <https://ecology.wa.gov/regulations-permits/permits-certifications/wastewater-operator-certification>

⁹⁹ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=456629>

The information PTPC submitted also states that the Washington State Department of Fish and Wildlife has documented forage fish spawning habitat one mile to the south of the site (surf smelt, sand lance, herring) and less than one mile to the north (sand lance). There is no documented forage fish spawning habitat at the location of the cooling water intake structure. The report states that the saltwater intake area sits at too low of an elevation for surf smelt or sand lance spawning, and that there is not suitable vegetation to support herring spawning.

Facilities with cooling water intake design flows greater than 2 million gallons per day, of which greater than 25 percent of the water withdrawn is used exclusively for cooling purposes, must comply with specific application requirements and BTA standards in 40 CFR Part 125 Subpart J¹⁰⁰. PTPC has a cooling water intake with a maximum design flow of 15.2 MGD, based on the operation of three pumps at 3,500 gpm (5.04 MGD) each. PTPC's saltwater pumps withdraw salt water at all times. However, typically none of the water withdrawn is used. The unused water flows through Outfall 003. The pumps are running at all times so that PTPC can provide water to the D-set evaporators on short notice or in the event of an emergency. The actual flow rate through the CWIS is unknown as PTPC does not measure it. Flow is only measured when it is used in the D-set evaporators. PTPC reported that in 2022, the D-set evaporators ran a total of 37 days, during which the average amount of saltwater used for cooling was 1.17 MGD. Based on this information, it is reasonable to assume that PTPC uses less than 25 percent of the water withdrawn exclusively for cooling purposes.

PTPC's CWIS does not meet the applicability requirements described above. However, 40 CFR 125.90(b) states that even if a CWIS does not meet the applicability criteria described above, permit writers may apply the requirements under 40 CFR Part 125 Subpart J on a case-by-case basis. Ecology finds it reasonable to apply the requirements under 40 CFR Part 125 to PTPC's CWIS for the reasons below.

- PTPC installed their CWIS in 1936. Due to this early date of installation, PTPC believes that their CWIS was never subject to permitting by the Washington State Department of Fish and Wildlife, which currently has a permitting program that includes an evaluation of an intake structures' effect on wildlife.
- While PTPC has documentation that indicates that the CWIS includes a screening system, there is some uncertainty in the condition of screening system that warrants additional investigation.
- PTPC's CWIS withdraws a significant amount of water. Ecology interprets "significant" to mean above 2 MGD, which meets part of the applicability criteria for 40 CFR Part 125 Subpart J.

¹⁰⁰ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-125/subpart-J>

Impingement BTA Determination: The owner or operator of an existing facility must comply with one of the alternatives listed in 40 CFR 125.94(c). Port Townsend Paper Corporation is required to comply with this requirement by operating a CWIS with a maximum through-screen design velocity of 0.5 feet per second. Due to uncertainty regarding PTPC's CWIS design due to its early date of installation, the draft proposed permit requires PTPC to inspect the CWIS and submit calculations to Ecology that demonstrate they meet this requirement. If they do not meet this requirement, the draft proposed NPDES permit requires them to modify their CWIS to meet this requirement.

Entrainment BTA Determination: EPA has not promulgated specific compliance options for the entrainment standard. Ecology must establish BTA standards for entrainment on a site-specific basis. 40 CFR 125.98(f) includes various factors for consideration in the entrainment determination. Based on the information PTPC submitted with their permit application, it is unlikely that spawning would occur in the vicinity of PTPC's cooling water intake structure. Ecology has determined that PTPC's cooling water intake structure location, in conjunction with minimization of cooling water intake flow, is BTA for entrainment. The draft proposed permit requires PTPC to evaluate if it is possible to reduce the amount of water they withdraw from Port Townsend Bay.

Operation and Maintenance: The permit includes general operation and maintenance requirements as well as reporting requirements to ensure that the cooling water intake structure continues to be operated as designed.

Port Townsend Paper Corporation must submit an annual certification and report to Ecology that describes any modifications that affect cooling water withdrawals or operation of the cooling water intake structures. Any significant impingement or entrainment must be reported to Ecology within 24 hours.

V.L. Receiving Water Study

PTPC submitted the results of the most recent receiving water study to Ecology on April 5, 2017. The receiving water study performed under the previous permit cycle primarily focused on metals. During the permit cycle, there were several additional pollutants detected in PTPC's effluent for which there was no valid background data (Appendix D of this fact sheet). In these situations, Ecology assumed the concentration of the receiving water was zero for the reasonable potential analysis. There is a need to collect additional receiving water data so Ecology can use actual receiving water concentrations rather than zero. Ecology included a receiving water study in the draft proposed permit requiring PTPC to collect receiving water samples for several pollutants.

However, note that not all pollutants in Figure 14 through 17 (in Appendix D of this fact sheet) are included in the study. For several of the pollutants, PTPC meets the water quality criteria at the "end-of-pipe", or without dilution. For those pollutants, it is not necessary to know the actual receiving water concentration to demonstrate that PTPC is not causing an

exceedance of the water quality criteria. Ecology compared the maximum detected value in PTPC's effluent to water quality criteria in the table below. Ecology did not include most pollutants with a "yes" in the "Compliance at End-of Pipe" column in the receiving water study. Ecology did add Acrolein, Benzene, Endosulfan I (alpha endosulfan), Nickel, Mercury, and Vinyl Chloride to the study because measured values are comparable to the water quality criteria (as shown by the calculated end-of-pipe calculation as a percentage of the minimum water quality criteria), and it is possible that higher concentrations could be measured in the future. Enterococci and alkalinity were also added to the receiving water study because there is no valid background data for either of these parameters.

While total residual chlorine was included in the reasonable potential analysis in Appendix D, it was not considered below, as total residual chlorine rapidly dissipates in marine waters.

Table 39 — Comparison of Maximum Measured Concentration to Water Quality Criteria

Pollutant	Units	Maximum Detected Value	WQ Criteria - Aquatic Life, Acute	WQ Criteria - Aquatic Life, Chronic	WQ Criteria - Human Health	Compliance at End-of-Pipe?	End-of-Pipe Concentration as Percent of Lowest Water Quality Criteria
Chlordane	ug/L	0.18	0.09	0.004	0.000022	no	818182%
Pentachlorophenol	ug/L	3.5	13	7.9	0.002	no	175000%
Benzo(a)anthracene	ug/L	0.14	None	None	0.00016	no	87500%
Bis(2-Ethylhexyl) Phthalate	ug/L	6.6	None	None	0.46	no	1435%
Ammonia	ug/L	9000	4650	698	None	no	1288%
2,3,7,8-TCDD (dioxin)	ug/L	0.00000081	None	None	0.000000064	no	1266%
Cyanide	ug/L	8	1	1	100	no	800%
Copper	ug/L	10.6	4.8	3.1	None	no	342%
Lead	ug/L	16.9	210	8.1	None	no	209%
Zinc	ug/L	115	91	81	1000	no	142%
Arsenic (dissolved)	ug/L	50.1	69	36	None	no	139%
Nickel	ug/L	6.57	74	8.2	100	yes	80%
Mercury	ug/L	0.0151	1.8	0.025	0.15	yes	60%
Endosulfan I (alpha endosulfan)	ug/L	0.005	0.034	0.0087	None	yes	57%
Vinyl Chloride	ug/L	0.1	None	None	0.18	yes	56%
Acrolein	ug/L	0.61	None	None	1.1	yes	55%
Benzene	ug/L	0.7	None	None	1.6	yes	44%
Thallium	ug/L	0.02	None	None	0.27	yes	7%
Cadmium	ug/L	0.61	42	9.3	None	yes	7%
Silver	ug/L	0.1	1.9	None	None	yes	5%
Selenium	ug/L	3.5	290	71	200	yes	5%

Pollutant	Units	Maximum Detected Value	WQ Criteria - Aquatic Life, Acute	WQ Criteria - Aquatic Life, Chronic	WQ Criteria - Human Health	Compliance at End-of-Pipe?	End-of-Pipe Concentration as Percent of Lowest Water Quality Criteria
Dibutyl phthalate (Di-n-butyl phthalate)	ug/L	0.36	None	None	8	yes	5%
Antimony	ug/L	3.08	None	None	90	yes	3%
Fluoranthene	ug/L	0.1	None	None	6	yes	2%
Pyrene	ug/L	0.1	None	None	8	yes	1%
Chromium, Hexavalent	ug/L	0.44	1100	50	None	yes	1%
Fluorene	ug/L	0.047	None	None	10	yes	0%
Isophorone	ug/L	0.46	None	None	110	yes	0%
Diethyl phthalate	ug/L	0.53	None	None	200	yes	0%
Ethylbenzene	ug/L	0.03	None	None	31	yes	0%
Chloroform	ug/L	0.28	None	None	600	yes	0%
Dimethyl phthalate	ug/L	0.15	None	None	600	yes	0%
Methyl Bromide	ug/L	0.16	None	None	2400	yes	0%
Phenol	ug/L	0.74	None	None	70000	yes	0%

V.M. Best Management Practices (BMPs) for Spent Pulping Liquor Management, Spill Prevention, and Control

Ecology has incorporated requirements similar to those specified by 40 CFR Part 430.03 as Special Condition S20 of the proposed draft permit. The goal of the requirements under 40 CFR Part 430 is to limit discharges of pulping liquors, soaps, and turpentine to the wastewater treatment plant. 40 CFR Part 430.03 is only applicable to bleached mill and sulfite mills. PTPC is neither a bleached mill nor a sulfite mill. However, PTPC's process still generates pulping liquors and turpentine. PTPC's process does not generate soaps.

EPA promulgated 40 CFR Part 430.03 while performing rulemaking specific to bleached and sulfite mills in 1998. It appears that EPA intended to apply the BMPs to other subcategories in the pulp and paper effluent guidelines at a later date. EPA included the below information in the federal register¹⁰¹ when the rule was promulgated:

In December 1993, EPA proposed BMPs for seven subcategories of the pulp, paper, and paperboard industry (58 FR at 66078), all of which chemically pulp wood and non-wood fibers. EPA still believes BMPs are appropriate for each of these chemical pulping subcategories; however, to be consistent with the effluent limitations guidelines and standards promulgated in this final rule, the BMPs promulgated today are applicable only to the Bleached Papergrade Kraft and Soda and Papergrade Sulfite subcategories. EPA expects to promulgate BMPs for the remaining five chemical pulping subcategories [(Subparts A (Dissolving Kraft), C (Unbleached Kraft), D (Dissolving Sulfite), F (Semi-chemical), and H (Non-wood Chemical Pulp))] as it promulgates new effluent limitations guidelines and standards for these subcategories. Until new regulations for Subparts A, C, D, F, and H are promulgated, permit writers may wish to use the BMP regulations in this rule as a guide to issuing permits containing BMPs based on best professional judgment for mills with production covered by these other subparts.

EPA has not applied the BMPs to other pulp and paper subcategories in the effluent guidelines at this time. However, Ecology is using Best Professional Judgement to apply the BMPs to PTPC as suggested by the above text. See 40 CFR 123.25(a)(15) which incorporates 40 CFR 122.44(k) into state permitting programs.

V.N. PFAS Study

Special Condition S21 of the draft proposed permit requires PTPC to identify internal wastewater streams that may contain per- and polyfluoroalkyl substances (PFAS) and perform sampling and analysis. If PTPC confirms the presence of PFAS through sampling, PTPC must identify potential sources and ways to reduce the presence of PFAS in their process.

¹⁰¹ <https://www.federalregister.gov/documents/1998/04/15/98-9613/national-emission-standards-for-hazardous-air-pollutants-for-source-category-pulp-and-paper>

1. PFAS

Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products because of their resistance to water, oil, grease, and heat. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. PFAS above certain levels may cause adverse effects to human health or aquatic life.

Ecology began work in 2016 in collaboration with the Department of Health to develop a Chemical Action Plan (CAP) to prevent potential exposure to people and the environment from PFAS. Ecology issued an interim CAP in 2018 and a final version in 2021. In September 2022, Ecology published a revised PFAS CAP that included recommendations related to wastewater treatment. In a separate action, EPA issued guidance in December 2022 that recommended strategies permitting authorities should use to monitor and control discharges of PFAS at their sources. Consistent with the 2022 revised CAP recommendations and EPA guidance, the proposed permit includes the following requirements:

- Develop a sampling and analysis plan
- Monitoring wastewater
- PFAS source identification

The purpose of these monitoring and reporting requirements is to better understand potential discharges of PFAS from this facility and to inform future permitting decisions, including the potential development of effluent limits and source reduction opportunities.

2. Monitoring Requirements

The permit requires that the permittee conduct quarterly sampling in wastewater streams that may contain PFAS chemicals for one year.

There is currently not an analytical method approved in 40 CFR Part 136 for PFAS. As stated in 40 CFR 122.44(i)(1)(iv)(B), in the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR Part 136 or methods are not otherwise required under 40 CFR chapter I, subchapter N or O, monitoring must be conducted according to a test procedure specified in the permit for such pollutants or pollutant parameters. Therefore, the permit specifies that until there is an analytical method approved in 40 CFR Part 136 for PFAS, monitoring must be conducted using Method 1633. This requirement is in alignment with EPA's guidance on how to address PFAS in NPDES and pretreatment permitting. At the time of the writing of this draft proposed permit, there are no surface water criteria for PFAS in Washington state.

V.O. Bis(2-ethylhexyl)phthalate -Free Sampling Certification

Special Condition S22 of the draft proposed permit requires PTPC to certify that bis(2-ethylhexyl)phthalate is not present in their wastewater sampling equipment annually. PTPC's annual sampling in the previous permit cycle regularly detected levels of bis(2-ethylhexyl) phthalate in their effluent. It is known that bis(2-ethylhexyl) phthalate-containing sampling equipment (i.e., tubing to collect 24-hour composite samples) can contaminate wastewater samples with bis(2-ethylhexyl) phthalate.

V.P. Compliance Schedule & Progress Reports

Special Condition S23 of the draft proposed permit requires PTPC to investigate sources of benzo(a)anthracene, pentachlorophenol, and chlordane and evaluate ways to reduce the amounts of the pollutants sent to the wastewater treatment plant. Special Condition S23 requires PTPC to submit the progress report of their investigations to Ecology annually. The goal of the investigation is for PTPC to be able to comply with the final effluent limits.

V.Q. Odor Minimization Study

Special Condition S24 of the proposed draft permit requires PTPC to identify how they currently minimize odors from their wastewater treatment plant, evaluate the effectiveness of odor minimization strategies established under an Odor Minimization Study that PTPC previously submitted to Ecology in 2017, and evaluate if additional odor minimization procedures or technologies are feasible. After PTPC submits the initial study, the permit requires an annual report summarizing PTPC's odor minimization efforts.

V.R. 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.

VI. Permit Issuance Procedures and Permit modifications

VI.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.

VI.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 five years.

VII. References for Text and Appendices

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. **Technical Support Document for Water Quality-based Toxics Control**. EPA/505/2-90-001.

1988. **Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling**. USEPA Office of Water, Washington, D.C.

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

1983. **Water Quality Standards Handbook**. USEPA Office of Water, Washington, D.C. Tsivoglou, E.C., and J.R. Wallace.

1972. **Characterization of Stream Reaeration Capacity**. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

1979. **In-stream Deoxygenation Rate Prediction**. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology

July 2018. **Permit Writer's Manual**. Publication 92-109¹⁰²

September 2011. **Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation**. Publication 11-10-073¹⁰³

October 2010 (revised). **Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits**. Publication 06-10-100¹⁰⁴

February 2007. **Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees**, Publication 07-10-024¹⁰⁵.

Laws and Regulations¹⁰⁶

Permit and Wastewater Related Information¹⁰⁷

¹⁰² <https://apps.ecology.wa.gov/publications/summarypages/92109.html>

¹⁰³ <https://apps.ecology.wa.gov/publications/summarypages/1110073.html>

¹⁰⁴ <https://apps.ecology.wa.gov/publications/summarypages/0610100.html>

¹⁰⁵ <https://apps.ecology.wa.gov/publications/SummaryPages/0710024.html>

¹⁰⁶ <http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx>

¹⁰⁷ <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance>

Appendix A – Public Involvement Information

Ecology proposes to reissue a permit to Port Townsend Paper Corporation. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice of Draft on October 30, 2024 in The Port Townsend Leader 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.
- Provides the date, time, and location of the public meeting and hearing to accept oral comment on the draft permit and fact sheet.
- Explains the next step(s) in the permitting process.

Frequently Asked Questions about Effective Public Commenting¹⁰⁸

You may obtain further information from Ecology by contacting Emily Toffol at 360-790-8363, or by writing to the address listed below.

Emily Toffol
Industrial Section
PO Box 47600
Olympia, WA 98504-7600

The primary author of this permit and fact sheet is Emily Toffol.

¹⁰⁸ <https://apps.ecology.wa.gov/publications/SummaryPages/0307023.html>

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 as defined in WAC 371-08-305 and -335. “Notice of appeal” is defined in WAC 371-08-340.
- Serve a copy of your appeal and this permit on Ecology on the Department of Ecology mail, in person, or by email (see addresses below).
- You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Filing with the PCHB

For the most current information regarding filing with the PCHB: visit <https://elaho.wa.gov/>¹⁰⁹ or call 360-664-9160.

Service on Ecology

Street Address:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Mailing Address:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

E-Mail Address:

ecologyappeals@ecy.wa.gov

¹⁰⁹ <https://elaho.wa.gov/>

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 90.48.010¹¹⁰ and RCW 90.48.520¹¹¹, WAC 173-200-030(2)(c)(ii)¹¹², 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)¹¹³.

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.

¹¹⁰ <http://app.leg.wa.gov/RCW/default.aspx?cite=90.48.010>

¹¹¹ <http://app.leg.wa.gov/RCW/default.aspx?cite=90.48.520>

¹¹² <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-030>

¹¹³ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-060>

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)¹¹⁴]. 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 BOD₅ 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.

¹¹⁴ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-020>

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)¹¹⁵ 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 level – or method detection limit means the minimum concentration of an analyte (substance) that can be reported with 99% confidence that the measured concentration is

¹¹⁵ <http://app.leg.wa.gov/RCW/default.aspx?cite=43.21B.001>

distinguishable from method blank results as determined by the procedure given in 40 CFR part 136, Appendix B¹¹⁶.

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 173-200-070¹¹⁷ 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)]¹¹⁸. 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 173-240-060¹¹⁹ or WAC 173-240-130¹²⁰.

Enterococci – A subgroup of fecal streptococci that includes *S. faecalis*, *S. faecium*, *S. gallinarum*, and *S. avium*. The enterococci are differentiated from other streptococci by their ability to grow in 6.5% sodium chloride, at pH 9.6, and at 10°C and 45°C.

E. coli – A bacterium in the family Enterobacteriaceae named Escherichia coli and is a common inhabitant of the intestinal tract of warm-blooded animals, and its presence in water samples is an indication of fecal pollution and the possible presence of enteric pathogens.

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

¹¹⁶ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-136/appendix-Appendix%20B%20to%20Part%20136>

¹¹⁷ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-070>

¹¹⁸ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-020>

¹¹⁹ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-240-060>

¹²⁰ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-240-130>

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 limit (MDL) – See Detection level.

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 WAC¹²¹).

National pollutant discharge elimination system (NPDES) – Section 402 of the Clean Water Act¹²², 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 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,

¹²¹ <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

¹²² <https://www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system>

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:

- Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- 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 (ML) – The term “minimum level” refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (DL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the DL in a method, or the DL determined by a laboratory, by a factor of 3. For the purposes of NPDES compliance monitoring, EPA considers the following terms to be synonymous: “quantitation limit,” “reporting limit,” and “minimum level”.

Reasonable potential – A reasonable potential to cause or contribute to 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 122.22¹²³).

Sample Maximum – No sample may exceed this value.

Significant industrial user (SIU) –

- All industrial users subject to Categorical Pretreatment Standards under 40 CFR Chapter I, Subchapter N¹²⁴ and 40 CFR 403.6¹²⁵ and;

¹²³ https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-121#se40.24.121_122

¹²⁴ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N>

¹²⁵ <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N/part-403>

- 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 the second paragraph 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 BOD₅ – 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 BOD₅ 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 BOD₅ 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.

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 for Surface Water Quality Criteria Reasonable Potential, Toxic Substances

Reasonable Potential Analysis

Ecology uses spreadsheet tools to determine reasonable potential (to cause or contribute to violations of the aquatic life and human health water quality numeric standards) and to calculate effluent limits. The process and formulas for determining reasonable potential and effluent limits in these spreadsheets come from the Technical Support Document for Water Quality-based Toxics Control, (EPA 505/2-90-001)¹²⁶ (TSD). The adjustment for autocorrelation is from EPA (1996a), and EPA (1996b).

The results from the spreadsheet tool are displayed in this Appendix in Figure 14 through Figure 17.

Note that this fact sheet includes more pollutants evaluated as part of reasonable potential analysis than were in the fact sheet for the permit issued September 16, 2013. Ecology performed the reasonable potential analysis in the 2013 fact sheet using data PTPC collected during the permit cycle beginning in 2004. Many of the required detection or quantitation levels in the 2013 permit were higher than those required by the permit issued in 2004; Ecology required a higher level of sensitivity in the 2013 permit cycle. Therefore, many of the pollutants detected in the 2013 permit cycle were not detected in the 2004 cycle.

Also note that not all pollutants identified in section II.C of this document are discussed in this Appendix, or subsequent appendices. Only pollutants for which there are established water quality criteria are discussed.

Comments regarding specific pollutants are included below.

Chromium

Criteria for chromium applicable to marine water is specifically for hexavalent chromium. Ecology conservatively assumed that total chromium measured in the receiving water is equivalent to levels of hexavalent chromium for reasonable potential calculations.

Cyanide

The aquatic life criteria applicable to marine water for cyanide is based on concentrations of weak acid dissociable cyanide. The human health criteria applicable to marine water for cyanide is based on concentrations of total cyanide. Ecology conservatively used total cyanide for both analyses. Total cyanide is inclusive of weak acid dissociable cyanide.

¹²⁶ <https://www3.epa.gov/npdes/pubs/owm0264.pdf>

Mercury

The receiving water study performed in the previous permit cycle required PTPC to analyze samples for total mercury. PTPC inadvertently analyzed 2 of the 10 samples for only the dissolved fraction of total mercury. The applicable chronic water quality criteria for mercury is in terms of total mercury. The applicable acute water quality criteria for mercury is in terms of the dissolved fraction of mercury. Ecology used the total mercury values in Table 2 for both criteria. Using total mercury is conservative because it includes dissolved mercury.

Dieldrin

Table 6 of this fact sheet includes reported concentrations for dieldrin. Although there are applicable water quality criteria for dieldrin, a reasonable potential analysis was not included in Figure 14 through Figure 17 of this Appendix. PTPC reported the maximum concentration of dieldrin in Table 6 with a qualifier which does not allow Ecology to be confident that the pollutant is present in PTPC's discharge.

Dieldrin was detected in one out of ten priority pollutant samples, in 2016. PTPC collected the sample on June 28, 2016. ALS Group laboratory analyzed the sample on July 25, 2016. The dieldrin result from that sampling event did not meet the quality assurance/quality control criteria (QA/QC) requirements (as reported by the laboratory conducting the analysis). ALS Group performed the dieldrin analysis using EPA Method 608. The results showed a value of 0.00072 ug/L. However, these results were reported with a "P" flag data qualifier. The lab report included with the samples includes the definition for the "P" data qualifier: "The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results."

The method requires running the analysis on two different pieces of equipment to confirm the presence of a chemical. The P-flag indicates that the concentrations measured by the two different pieces of equipment were different by 40% or more.

This is an indication that the analysis has not been confirmed with certainty that the chemical is present. EPA Method 608 supports this in Section 15.7.1: "In general, if the percent difference of the two results is less than 50% (e.g., a factor of 2), then the pesticide is present". The method also states that laboratories may employ metrics less than 50%.

Other factors also indicate that it is unlikely that dieldrin is present in the effluent. Dieldrin has not been in use since 1987 when EPA banned it. Dieldrin was also not detected in any of the other nine annual priority pollutant sampling events during the permit cycle.

Based on the above discussion, Ecology has not included Dieldrin in the reasonable potential analysis in this fact sheet. PTPC will continue to test for dieldrin annually as part of required priority pollutant scans.

Inorganic Arsenic

As discussed in section III.I.7 of this fact sheet, in 1992 EPA adopted an inorganic arsenic human health criteria for the State of Washington. However, there is no approved analytical method for inorganic arsenic. The criteria for marine surface waters is 0.14 µg/L inorganic arsenic. The estimated geometric mean of the total arsenic concentration for the receiving water, calculated from 10 samples taken during PTPC's 2015-2016 receiving water study, was 1.93 µg/L. Only a portion of this value is inorganic arsenic. However, because there is no approved method for inorganic arsenic, if Ecology conservatively assumes it is all inorganic arsenic, the human health criteria of 0.14 µg/L is exceeded.

Natural background concentrations of total arsenic in both marine and freshwaters in Washington often exceed the inorganic arsenic criteria. The public utility supplies most of the water used by PTPC. Per the Jefferson County Public Utility District¹²⁷, naturally occurring total arsenic in the county's water supply ranges from 1 µg/L to 8 µg/L.

Because the 1.93 µg/L total arsenic value is well above the 0.14 µg/L inorganic arsenic human health criteria, and levels of arsenic were detected in PTPC's discharge, there is a reasonable potential for PTPC to exceed the human health criteria for inorganic arsenic if Ecology assumes that all measured arsenic is inorganic arsenic. However, no limit has been incorporated into the draft permit due to the infeasibility of testing for only the inorganic portion of arsenic. Although no specific source of arsenic from PTPC's process has been identified, Ecology notes that the facility is required to implement stormwater BMPs designed to minimize the addition of pollutants, such as arsenic to stormwater collected and treated in PTPC's wastewater treatment system. The stormwater BMPs include provisions to reduce erosion of soils; soils are known to contain inorganic arsenic. Refer to Section III.I.7 of this fact sheet for more information.

Ammonia

Ammonia criteria is dependent upon ambient conditions, and therefore must be calculated for each permit. The ammonia criteria in Table 40 was calculated using a tool in Ecology's PermitCalc workbook. Washington State's ammonia criteria are based off of EPA Document 440/5-88-004, Ambient Water Quality Criteria for Ammonia (Saltwater) - 1989¹²⁸.

The appropriate ambient data from Table 2 of this fact sheet were used for the calculations and entered into Table 40. Ecology considered ambient data from both PTPC's Receiving Water Study and the Ecology EAP Marine Water Column Data collected from a station near PTPC's discharge. Values from both studies are in Table 2 of this fact sheet. Ecology selected the value between the two data sets that would result in the most conservative calculated ammonia criteria. Ecology used the maximum receiving water temperature for this calculation, which is more conservative than using the 90th percentile called for in Ecology's PermitCalc workbook.

¹²⁷ <https://www.jeffpud.org/water-safety/> Accessed November 27, 2023.

¹²⁸ <https://www.epa.gov/sites/production/files/2019-02/documents/ambient-wqc-ammonia-saltwater-1989.pdf>

The calculated Ammonia Criteria is 4.65 mg/L and 0.70 mg/L, for the acute and chronic mixing zones, respectively.

Table 40 — Marine Un-ionized Ammonia Criteria Calculation

INPUT	
1. Receiving Water Temperature, deg C (90th percentile):	14.0
2. Receiving Water pH, (90th percentile):	8.3
3. Receiving Water Salinity, g/kg (10th percentile):	29.4
4. Pressure, atm (EPA criteria assumes 1 atm):	1.0
5. Unionized ammonia criteria (mg un-ionized NH ₃ per liter) from EPA 440/5-88-004:	
Acute:	0.233
Chronic:	0.035
OUTPUT	
Using mixed temp and pH at mixing zone boundaries?	No
1. Molal Ionic Strength (not valid if >0.85):	0.604
2. pKa8 at 25 deg C (Whitfield model "B"):	9.315
3. Percent of Total Ammonia Present as Unionized:	4.1%
4. Total Ammonia Criteria (mg/L as <u>NH₃</u>):	
Acute:	5.65
Chronic:	0.85
RESULTS	
Total Ammonia Criteria (mg/L as <u>N</u>)	
Acute:	4.65
Chronic:	0.70

Total Free Chlorine

PTPC was required to monitor the amount of total residual chlorine in the effluent of their sanitary plant (Outfall 005) during the previous permit cycle. To perform a reasonable potential analysis for PTPC's discharge to cause an exceedance of the water quality criteria for total free chlorine, Ecology estimated the maximum amount of total free chlorine at Outfall 001 using flow rate data from Outfall 001A and Outfall 005.

Ecology considered daily average flow rates from Outfall 001A and Outfall 005 from April 1, 2018 through March 31, 2023 to determine the day in which the largest percentage of sanitary effluent was present in PTPC's final discharge. The day in which the largest percentage of sanitary effluent was present in PTPC's final discharge was March 2, 2019. PTPC's sanitary effluent made up about 0.75% of their final discharge on this day. Ecology assumed the effluent

of PTPC's sanitary plant contained 5 ppm total residual chlorine, the technology-based effluent limit applied to Outfall 005. Ecology assumed that the effluent of the ASB contained 0 ppm total residual chlorine. This would result in a final effluent concentration of 0.037 ppm total residual chlorine in PTPC's final discharge, or 37 µg/L. Ecology used this value in the total free chlorine reasonable potential analysis presented in Figure 15 below.

Evaluation for Human Health Criteria With More Than Ten Samples

Over the permit term, PTPC took eleven samples of benzo(a)anthracene, bis(2-ethylhexyl) phthalate, chlordane, and pentachlorophenol. Ten samples were taken via the required annual sampling in their NPDES permit, and one additional sample was taken on November 29, 2023. PTPC submitted the results of the additional sample to Ecology via email on January 19, 2024. Per Chapter 7, Section 4.2 of Ecology's Permit Writer's Manual¹²⁹, when over 10 samples are available, permit writers use the 50th percentile value for health-based water quality criteria. Ecology also used a calculated coefficient of variation for the human health criteria analysis rather than the default value of 0.6 as directed by Ecology's PermitCalc tool when there are more than 10 samples.

The data considered below when calculating the 50th percentile values and coefficients of variation are shown below. Data qualified with "ND", or non-detect, are shown as ½ the laboratory-reported detection limit. This value is the assumed actual concentration value for calculating the 50th percentile and coefficients of variation. Assume that a non-detect value is ½ the detection limit is in accordance with Ecology direction for calculating average concentrations per Special Condition S3.A of the proposed draft permit. Values with a "J" qualifier indicate that the pollutant was detected, but the result is an estimate as it is below the quantitation limit. Ecology uses the J-qualified value, as reported by the laboratory, in the calculations below.

¹²⁹ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

Table 41 — Calculation of 50th Percentiles and Coefficients of Variation for Human Health Criteria, Select Pollutants

Results	Benzo(a)anthracene, Micrograms/L (ug/L)	Qualifier	Bis(2-Ethylhexyl) Phthalate, ug/L	Qualifier	Chlordane, ug/L	Qualifier	Pentachlorophenol, ug/L	Qualifier
2014 Permit-Required Sampling	0.125	ND ¹³⁰	0.17	ND ¹³⁰	0.0105	ND ¹³⁰	0.19	ND ¹³⁰
2015 Permit-Required Sampling	0.009	ND ¹³⁰	2.1	-	0.0105	ND ¹³⁰	0.17	ND ¹³⁰
2016 Permit-Required Sampling	0.009	ND ¹³⁰	0.28	-	0.011	ND ¹³⁰	1.1	-
2017 Permit-Required Sampling	0.009	ND ¹³⁰	0.49	-	0.011	ND ¹³⁰	0.17	ND ¹³⁰
2018 Permit-Required Sampling	0.045	ND ¹³⁰	2.2	J ¹³¹	0.0105	ND ¹³⁰	0.85	ND ¹³⁰
2019 Permit-Required Sampling	0.14	J ¹³¹	0.35	ND ¹³⁰	0.011	ND ¹³⁰	3.5	J ¹³¹
2020 Permit-Required Sampling	0.125	ND ¹³⁰	6.6	J ¹³¹	0.0105	ND ¹³⁰	0.19	ND ¹³⁰
2021 Permit-Required Sampling	0.03	ND ¹³⁰	0.99	-	0.075	ND ¹³⁰	0.245	ND ¹³⁰
2022 Permit-Required Sampling	0.034	ND ¹³⁰	1.8	-	0.18	J ¹³¹	0.245	ND ¹³⁰
2023 Permit-Required Sampling	0.034	ND ¹³⁰	1.5	-	0.0145	ND ¹³⁰	0.27	ND ¹³⁰
2023 Voluntary Sampling	0.034	ND ¹³⁰	2.1	-	0.0155	ND ¹³⁰	0.28	ND ¹³⁰
50th Percentile of Data	0.034	-	1.5	-	0.011	-	0.25	-
Average of Data	0.054	-	1.69	-	0.033	-	0.66	-
Standard Deviation of Data	0.050	-	1.81	-	0.052	-	0.99	-
Coefficient of Variation of Data	0.93	-	1.07	-	1.60	-	1.51	-

¹³⁰ Below detection limit. Value shown for all samples labelled “ND” is ½ of the laboratory-reported detection limit. See discussion preceding table.
¹³¹ “J” indicates that the pollutant was detected, but below the quantitation limit. The value shown is an estimate.

Figure 14 — Reasonable Potential Calculation Spreadsheet, Page 1 of 4

Reasonable Potential Calculation - Page 1/4

Facility		Port Townsend Paper Corporation				Dilution Factors:				Acute	Chronic	
						Aquatic Life				45.7	52.6	
Water Body Type		Marine				Human Health Carcinogenic					52.6	
						Human Health Non-Carcinogenic					52.6	
Pollutant, CAS No. & NPDES Application Ref. No.		AMMONIA, Criteria as Total NH3	2,3,7,8-TCDD (DIOXIN) 1746016	ACROLEIN 107028 1V	ANTIMONY (INORGANIC) 7440360 1M	ARSENIC (dissolved) 7440382 2M	BENZENE 71432 3V	BENZO(a)ANTHRACENE 56553 5B	BIS(2-ETHYLHEXYL) PHTHALATE 117817 13B	CADMIUM - 7440439 4M Hardness dependent	CHLORDANE 57749 6P	
Effluent Data	# of Samples (n)		12	10	10	10	10	10	11	11	10	11
	Coeff of Variation (Cv) AL		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Coeff of Variation (Cv) HHC		0.6	0.6	0.6	0.6	0.6	0.6	0.93	1.07	0.6	1.66
	Effluent Concentration, ug/L (Max. or 95th Percentile)		9000	8.1E-07	0.61	3.08	50.1	0.7	0.14	6.6	0.611	0.18
	Calculated 50th percentile Effluent Conc. (when n>10)								0.034	1.5		0.011
Receiving Water Data	90th Percentile Conc., ug/L		0.045	0	0	0.530	1.927	0	0	0	0.098	0
	Geo Mean, ug/L		0.026	0	0	0.305	1.107	0	0	0	0.056	0
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	4,650	-	-	-	69	-	-	-	42	0.09
		Chronic	698	-	-	-	36	-	-	-	9.3	0.004
	WQ Criteria for Protection of Human Health, ug/L			6.4E-08	1.1	90	-	1.6	1.60E-04	0.046	-	2.20E-05
	Metal Criteria Translator, decimal	Acute		-	-	-	1	-	-	-	0.994	-
		Chronic		-	-	-	-	-	-	-	0.994	-
	Carcinogen?		N	Y	N	N	Y	Y	Y	Y	N	Y

Aquatic Life Reasonable Potential											
Effluent percentile value			0.95				0.95			0.95	0.95
s	s ² =ln(CV ² +1)		0.55				0.55			0.55	0.55
Pn	Pn=(1-confidence level) ^{1/n}		0.78				0.74			0.74	0.76
Multiplier			1.63				1.74			1.74	1.68
Max concentration (ug/L) at edge of...	Acute		320				3.79			0.12	0.007
	Chronic		278				3.55			0.12	0.006
Reasonable Potential? Limit Required?			NO				NO			NO	YES

Aquatic Life Limit Calculation											
# of Compliance Samples Expected per month											1
LTA Coeff. Var. (CV), decimal											0.6
Permit Limit Coeff. Var. (CV), decimal											0.6
Waste Load Allocations, ug/L	Acute										4.11
	Chronic										0.21
Long Term Averages, ug/L	Acute										1.32
	Chronic										0.11
Limiting LTA, ug/L											0.11
Metal Translator or 1?											1.00
Average Monthly Limit (AML), ug/L											0.2
Maximum Daily Limit (MDL), ug/L											0.3

Human Health Reasonable Potential											
s	s ² =ln(CV ² +1)		0.55	0.55	0.55		0.55	0.79	0.87		1.15
Pn	Pn=(1-confidence level)1/n		0.74	0.74	0.74		0.74	0.76	0.76		0.76
Multiplier			0.70	0.70	0.70		0.70	0.57	0.54		0.44
Dilution Factor			52.6	52.6	52.6		52.6	52.6	52.6		52.6
Max Conc. at edge of Chronic Zone, ug/L			1.1E-08	8.1E-03	0.34		9.3E-03	6.46E-04	0.03		2.09E-04
Reasonable Potential? Limit Required?			NO	NO	NO		NO	YES	NO		YES

Human Health Limit Calculation											
# of Compliance Samples Expected per month								1			1
Average Monthly Effluent Limit, ug/L								0.0084			0.0012
Maximum Daily Effluent Limit, ug/L								0.014			0.0025

Figure 16 — Reasonable Potential Calculation Spreadsheet, Page 3 of 4

Reasonable Potential Calculation - Page 3/4

Facility		Port Townsend Paper Corporation					Dilution Factors:					Acute	Chronic
							Aquatic Life					45.7	52.6
							Human Health Carcinogenic						52.6
							Human Health Non-Carcinogenic						52.6
Water Body Type		Marine											
Pollutant, CAS No. & NPDES Application Ref. No.		FLUORANTHENE 206440 31B	FLUORENE 86737 32B	ISOPHORONE 78591 38B	LEAD - 7439921 7M Dependent on hardness	MERCURY 7439976 8M	METHYL BROMIDE 74839 20V	NICKEL - 7440020 9M - Dependent on hardness	PENTACHLOROPHENOL 87865 9A (pH dependent in freshwater)	PHENOL 108952 10A	PYRENE 129000 45B	SELENIUM 7782492 10M	
Effluent Data	# of Samples (n)	10	10	10	10	10	10	10	11	10	10	10	
	Coeff of Variation (Cv) AL	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
	Coeff of Variation (Cv) HHC	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.51	0.6	0.6	0.6	
	Effluent Concentration, ug/L (Max. or 95th Percentile)	0.1	0.047	0.46	16.9	0.0151	0.16	6.57	3.5	0.74	0.1	3.5	
	Calculated 50th percentile Effluent Conc. (when n>10)								0.25				
Receiving Water Data	90th Percentile Conc., ug/L	0	0	0	0	0	0.000	1	0	0	0	0	
	Geo Mean, ug/L	0	0	0	0	0	0.000	0	0	0	0	0	
Water Quality Criteria	Aquatic Life	Acute	-	-	-	210	1.8	-	74	13	-	-	290
	Criteria, ug/L	Chronic	-	-	-	8.1	0.025	-	8.2	7.9	-	-	71
	WQ Criteria for Protection of Human Health, ug/L		6	10	110	-	0.15	2400	100	0.002	70000	8	200
	Metal Criteria	Acute	-	-	-	0.951	0.85	-	0.99	-	-	-	-
	Translator, decimal	Chronic	-	-	-	0.951	-	-	0.99	-	-	-	-
Carcinogen?		N	N	Y	N	N	N	N	Y	N	N	N	

Aquatic Life Reasonable Potential												
Effluent percentile value						0.95	0.95		0.95	0.95		0.950
s	s ² =ln(CV ² +1)					0.55	0.55		0.55	0.55		0.555
Pn	Pn=(1-confidence level) ^{1/n}					0.74	0.74		0.74	0.76		0.741
Multiplier						1.74	1.74		1.74	1.68		1.74
Max concentration (ug/L) at edge of...	Acute					0.654	0.001		0.95	0.13		0.133
	Chronic					0.573	0.001		0.92	0.11		0.116
Reasonable Potential? Limit Required?						NO	NO		NO	NO		NO

Aquatic Life Limit Calculation												
# of Compliance Samples Expected per month												
LTA Coeff. Var. (CV), decimal												
Permit Limit Coeff. Var. (CV), decimal												
Waste Load Allocations, ug/L	Acute											
	Chronic											
Long Term Averages, ug/L	Acute											
	Chronic											
Limiting LTA, ug/L												
Metal Translator or 1?												
Average Monthly Limit (AML), ug/L												
Maximum Daily Limit (MDL), ug/L												

Human Health Reasonable Potential												
s	s ² =ln(CV ² +1)	0.55	0.55	0.55		0.55	0.55	0.55	1.09	0.55	0.55	0.55
Pn	Pn=(1-confidence level)1/n	0.74	0.74	0.74		0.74	0.74	0.74	0.76	0.74	0.74	0.74
Multiplier		0.70	0.70	0.70		0.70	0.70	0.70	0.46	0.70	0.70	0.70
Dilution Factor		52.6	52.6	52.6		52.6	52.6	52.6	52.6	52.6	52.6	52.6
Max Conc. at edge of Chronic Zone, ug/L		1.33E-03	0.0006242	6.11E-03		5.52E-04	2.1E-03	4.9E-01	4.8E-03	0.00983	1.33E-03	4.65E-02
Reasonable Potential? Limit Required?		NO	NO	NO		NO	NO	NO	YES	NO	NO	NO

Human Health Limit Calculation												
# of Compliance Samples Expected per month									1			
Average Monthly Effluent Limit, ug/L									0.11			
Maximum Daily Effluent Limit, ug/L									0.22			

Figure 17 — Reasonable Potential Calculation Spreadsheet, Page 4 of 4
Reasonable Potential Calculation - Page 4/4

Facility	Port Townsend Paper Corporation
Water Body Type	Marine

Dilution Factors:	Acute	Chronic
Aquatic Life	45.7	52.6
Human Health Carcinogenic		52.6
Human Health Non-Carcinogenic		52.6

Pollutant, CAS No. & NPDES Application Ref. No.			SILVER - 7740224 11M dependent on hardness.	THALLIUM 7440280 12M	TOLUENE 108883 25V	VINYL CHLORIDE 75014 31V	ZINC- 7440666 13M hardness dependent
Effluent Data	# of Samples (n)		10	10	10	10	10
	Coeff of Variation (Cv) AL		0.6	0.6	0.6	0.6	0.6
	Coeff of Variation (Cv) HHC		0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		0.10	0.02	1.4	0.1	115
	Calculated 50th percentile Effluent Conc. (when n>10)						
Receiving Water Data	90th Percentile Conc., ug/L		0	0	0	0.000	1
	Geo Mean, ug/L		0	0	0	0.000	1
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	1.9	-	-	-	90
		Chronic	-	-	-	-	81
	WQ Criteria for Protection of Human Health, ug/L		-	0.27	130	0.18	1000
	Metal Criteria Translator, decimal	Acute	0.85	-	-	-	0.946
		Chronic	-	-	-	-	0.946
	Carcinogen?		N	N	N	Y	N

Aquatic Life Reasonable Potential					
Effluent percentile value		0.950			0.95
s	s ² =ln(CV ² +1)	0.555			0.55
Pn	Pn=(1-confidence level) ^{1/n}	0.741			0.74
Multiplier		1.74			1.74
Max concentration (ug/L) at edge of...	Acute	0.010			5.373
	Chronic	0.011			4.834
Reasonable Potential? Limit Required?		NO			NO

Aquatic Life Limit Calculation					
# of Compliance Samples Expected per month					
LTA Coeff. Var. (CV), decimal					
Permit Limit Coeff. Var. (CV), decimal					
Waste Load Allocations, ug/L	Acute				
	Chronic				
Long Term Averages, ug/L	Acute				
	Chronic				
Limiting LTA, ug/L					
Metal Translator or 1?					
Average Monthly Limit (AML), ug/L					
Maximum Daily Limit (MDL), ug/L					

Human Health Reasonable Potential						
s	$s^2=\ln(CV^2+1)$		0.55	0.55	0.55	0.55
Pn	$Pn=(1-\text{confidence level})1/n$		0.74	0.74	0.74	0.74
Multiplier			0.70	0.70	0.70	0.70
Dilution Factor			52.6	52.6	52.6	52.6
Max Conc. at edge of Chronic Zone, ug/L			3.19E-04	1.86E-02	1.33E-03	2.24E+00
Reasonable Potential? Limit Required?			NO	NO	NO	NO

Human Health Limit Calculation					
# of Compliance Samples Expected per month					
Average Monthly Effluent Limit, ug/L					
Maximum Daily Effluent Limit, ug/L					

Discussion of Reasonable Potential Analysis Results

The above tables show that PTPC's discharge has a reasonable potential to cause exceedances of human-health based water quality criteria for benzo(a)anthracene, chlordane, and pentachlorophenol. This indicates that a limit is necessary. The bottom of Figure 14 shows the calculated limit for benzo(a)anthracene and chlordane. The bottom of Figure 16 shows the calculated limit for pentachlorophenol.

The analysis for chlordane also showed that PTPC's discharge has a reasonable potential to cause an exceedance of aquatic-life based water quality criteria. The limit in the permit is based on the human-health based criteria because it is more conservative (results in a lower limit) than the aquatic-life based criteria. This is also discussed in Section III.I.7 of this fact sheet.

Calculation of Water Quality-Based Effluent Limits

Ecology's spreadsheet tool calculates water quality-based effluent limits by the two-value wasteload allocation process as described on page 100 of the TSD (EPA, 1991) and shown below.

1. Calculate the acute wasteload allocation WLA_a by multiplying the acute criteria by the acute dilution factor and subtracting the background factor. Calculate the chronic wasteload allocation (WLA_c) by multiplying the chronic criteria by the chronic dilution factor and subtracting the background factor.

$$WLA_a = (\text{acute criterion} \times DF_a) - (\text{background concentration} \times (DF_a - 1))$$

$$WLA_c = (\text{chronic criterion} \times DF_c) - (\text{background concentration} \times (DF_c - 1))$$

Where:

DF_a = acute dilution factor

DF_c = chronic dilution factor

2. Calculate the long-term averages (LTA_a and LTA_c) which will comply with the wasteload allocations WLA_a and WLA_c .

$$LTA_a = WLA_a \times e^{(0.5\sigma^2 - z\sigma)}$$

Where:

$$\sigma^2 = \ln(CV^2 + 1)$$

$$z = 2.326$$

CV = coefficient of variation = standard deviation/mean

$$LTA_c = WLA_c \times e^{(0.5\sigma^2 - z\sigma)}$$

Where:

$$\sigma^2 = \ln(CV^2/4 + 1)$$

$$z = 2.326$$

3. Use the smallest LTA of the LTA_a or LTA_c to calculate the maximum daily effluent limit (MDL) and the monthly average effluent limit (AML).

$$MDL = LTA \times e^{(z\sigma - 0.5\sigma^2)}$$

Where:

$$\sigma^2 = \ln(CV^2 + 1)$$

$$z = 2.326 \text{ (99}^{\text{th}} \text{ percentile)}$$

LTA = limiting long-term average

$$AML = LTA \times e^{(z\sigma - 0.5\sigma^2)}$$

Where:

$$\sigma^2 = \ln(CV^2/n + 1)$$

n = number of samples per month

$$z = 1.645 \text{ (95}^{\text{th}} \text{ percentile)}$$

LTA = limiting long-term average

Appendix E – Calculations for Interim Effluent Limits

As discussed in Section III.J of this document, the draft proposed permits includes interim limits for benzo(a)anthracene, chlordane, and pentachlorophenol. Ecology uses spreadsheet tools to determine the interim, performance-based limits. The process and formulas for determining effluent limits comes from Appendix E of the Technical Support Document for Water Quality-based Toxics Control, (EPA 505/2-90-001)¹³² (TSD). The calculations did not account for autocorrelation. To calculate the effluent limits, data is transformed into a log-normal distribution. Then, limits are calculated taking into account the mean and variance of the data, and the expected number of compliance samples to be taken per month.

Ecology used the PermitCalc spreadsheet tool to calculate the interim limits. The transformation of the data into a log-normal distribution, as displayed in the spreadsheet tool, is provided in Figure 18 through Figure 20 below. The first column is the results of the sampling performed during the permit cycle. Where data was reported as non-detect, $\frac{1}{2}$ of the detection limit is used. When data was between the detection limit and the quantitation limit, the reported, estimated value was used. The data is the same as that displayed in Table 41 of this fact sheet. The second column is the natural log of each value in the “data” column.

The mean and variance of the log-normally transformed data is then used to calculate effluent limits, which are shown in the “results” section of Figure 21 through Figure 23.

¹³² <https://www3.epa.gov/npdes/pubs/owm0264.pdf>

Figure 18 — Calculation of Log-Normal Mean and Variance, Benzo(a)anthracene

Data	Ln()
0.125	-2.079
0.009	-4.711
0.009	-4.711
0.009	-4.711
0.045	-3.101
0.14	-1.966
0.125	-2.079
0.03	-3.507
0.034	-3.381
0.0335	-3.396
0.034	-3.381
Mean	-3.366
Variance	1.078

Figure 19 — Calculation of Log-Normal Mean and Variance, Chlordane

Data	Ln()
0.0105	-4.556
0.0105	-4.556
0.011	-4.510
0.011	-4.510
0.0105	-4.556
0.011	-4.510
0.0105	-4.556
0.075	-2.590
0.18	-1.715
0.0145	-4.234
0.0155	-4.167
Mean	-4.042
Variance	0.929

Figure 20 — Calculation of Log-Normal Mean and Variance, Pentachlorophenol

Data	Ln()
0.19	-1.661
0.17	-1.772
1.1	0.095
0.17	-1.772
0.85	-0.163
3.5	1.253
0.19	-1.661
0.245	-1.406
0.245	-1.406
0.27	-1.309
0.28	-1.273
Mean	-1.007
Variance	0.954

Figure 21 — Calculation of Performance-Based limits, Benzo(a)anthracene

INPUT	
LogNormal Transformed Mean:	-3.3657
LogNormal Transformed Variance:	1.0785
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
$E(X) =$	0.0592
$V(X) =$	0.007
VAR_n	1.0785
$MEAN_n =$	-3.3657
$VAR(X_n) =$	0.007
RESULTS	
Maximum Daily Effluent Limit:	0.39
Average Monthly Effluent Limit:	0.19

Figure 22 — Calculation of Performance-Based Limits, Chlordane

INPUT	
LogNormal Transformed Mean:	-4.0419
LogNormal Transformed Variance:	0.9291
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
$E(X) =$	0.0279
$V(X) =$	0.001
$VARn$	0.9291
$MEANn=$	-4.0419
$VAR(Xn)=$	0.001
RESULTS	
Maximum Daily Effluent Limit:	0.17
Average Monthly Effluent Limit:	0.086

Figure 23 — Calculation of Performance-Based Limits, Pentachlorophenol

INPUT	
LogNormal Transformed Mean:	-1.0068
LogNormal Transformed Variance:	0.9541
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
$E(X) =$	0.5887
$V(X) =$	0.553
$VARn$	0.9541
$MEANn=$	-1.0068
$VAR(Xn)=$	0.553
RESULTS	
Maximum Daily Effluent Limit:	3.54
Average Monthly Effluent Limit:	1.82

Appendix F – Calculations for Surface Water Quality Criteria Reasonable Potential Analysis, Temperature

Ecology followed the Water Quality Program's guidance manual titled "Procedures to Implement the State's Temperature Standards through NPDES Permits" to evaluate the facility's potential for causing an exceedance of the water quality criteria for temperature. The document can be found at the following link: [Procedures to Implement the State's Temperature Standards through NPDES Permits](#).

Ambient Temperature

Section 3.B.3, "Selecting background temperatures", of the guidance manual referenced above states that ambient background temperatures for discharges to marine waters should be the 90th percentile annual maximum. To reasonably find the 90th percentile annual maximum, continuous monitoring data is needed over several years. While several years of data is available from Ecology monitoring station PTH005 (1999-2017), samples were only taken once per month, making it difficult to determine or estimate the 90th percentile annual maximum. The "Procedures to Implement the State's Temperature Standards through NPDES Permits" recommends that the highest annual temperature observed be used instead to represent the 90th percentile background temperature (Section 3.B.3). This instruction is also given in footnote 1 of Table 11 of the Permit Writer's Manual¹³³.

PTH005 is located at 48.08334, -122.763315078905 and is centrally located in the Port Townsend Bay. Data from PTH005 contains data up to a depth of 30 meters. Section 5.A. of "Procedures to Implement the State's Temperature Standards through NPDES Permits" recommends that ambient temperatures used in the reasonable potential calculation are measured at the plume trapping depth. Per page 6 of PTPC's "Outfall Mixing Zone Study Addendum"¹³⁴ dated May 29, 2014, the trapping depth of PTPC's plume is 2 m. The highest temperature measured at PTH005 at a depth of 2 meters was 14.0°C, measured on August 11, 2014.

Ecology also considered data that PTPC collected during a receiving water study¹³⁵. PTPC collected two temperature profiles for 5 days. The temperature profiles PTPC collected were not at distinct 0.5 m depths like the data collection at PTH005. Ecology considered temperature data that fell between 1.5 and 2.5 m. The highest temperature measured at these depths was 13.1 °C at a depth of 2.3 m, on July 14, 2016.

Ecology used the value of 14.0°C to represent ambient conditions because it is the more conservative value among the two data sets (PTH005 and the PTPC Receiving Water Study).

¹³³ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

¹³⁴ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=125807>

¹³⁵ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=274765>

Effluent Temperature

PTPC reported daily average temperature measurements to Ecology. Considering data from April 1, 2018 through March 21, 2023, the highest reported temperature value was 90°F, or 32.2°C.

Ecology used 32.2°C to estimate the 95th percentile effluent temperature. Ecology selected this value per Footnote 2 of Table 11 in the Permit Writer's Manual¹³⁶.

Reasonable Potential to Exceed Aquatic Life Water Quality Temperature Criterion

Table 42 below shows the table in the PermitCalc tool used for the reasonable potential analysis for an exceedance of the applicable aquatic life temperature criteria of a maximum temperature of 16.0°C.

Table 42 — Marine Temperature Reasonable Potential

INPUT	
1. Chronic Dilution Factor at Mixing Zone Boundary	52.6
2. Annual max 1DADMax Ambient Temperature (Background 90th percentile)	14.0 °C
3. 1DADMax Effluent Temperature (95th percentile)	32.2 °C
4. Aquatic Life Temperature WQ Criterion	16.0 °C
OUTPUT	
5. Temperature at Chronic Mixing Zone Boundary:	14.30 °C
6. Incremental Temperature Increase or decrease:	0.35 °C
7. Maximum Incremental Temperature Increase $12/(T-2)$	1.00 °C
8. Maximum Allowable Temperature at Mixing Zone Boundary:	14.96 °C
A. If ambient temp is warmer than WQ criterion	
9. Does temp fall within this warmer temp range?	NO
10. If YES - Use TMDL-based or performance-based limit - Do Not use this spreadsheet	---
B. If ambient temp is cooler than WQ criterion but within $12/(T_{amb}-2)$ of the criterion	
11. Does temp fall within this Incremental temp. range?	NO
12. Temp increase allowed at mixing zone boundary, if required:	---
C. If ambient temp is cooler than (WQ criterion - $12/(T_{amb}-2)$)	
13. Does temp fall within this Incremental temp. range?	YES
14. Temp increase allowed at mixing zone boundary, if required:	NO LIMIT
RESULTS	
15. Do any of the above cells show a temp increase?	NO
16. Temperature Limit if Required?	NO LIMIT

¹³⁶ <https://apps.ecology.wa.gov/publications/documents/92109.pdf>

No.5 in Table 42 is calculated using the following equation:

Equation 3 — Temperature at Chronic Mixing Zone Boundary

$$T_{\text{chronic}} = T_{\text{ambient90}} + (T_{\text{effluent95}} - T_{\text{ambient90}})/DF$$

Where

$T_{\text{ambient90}}$ = the 90th percentile annual maximum daily temperature of receiving temperature = 14.0°C

$T_{\text{effluent95}}$ = the 95th percentile annual maximum daily temperature of effluent = 32.2°C

DF = the chronic dilution factor = 52.6

Substituting the values above into Equation 3 will yield T_{chronic} , or the receiving water temperature at the chronic mixing zone boundary. In this case, T_{chronic} is 14.3°C, below the aquatic life temperature criterion of 16.0°C. Therefore, no limit is required to meet these criteria.

Incremental Temperature Increase

When the natural condition of the water is cooler than the aquatic life temperature criterion, as is the case here, the incremental temperature increase resulting from a single point source must not exceed the incremental temperature t defined in Equation 4 below, given in WAC 173-201A-210(c)(ii)(A).

Equation 4 — Incremental Temperature Increase

$$t = 12 / (T_{\text{ambient}} - 2)$$

Equation 4 yields an allowable incremental temperature increase t of 1.00°C (Number 7 in Table 42).

The incremental temperature increase is the difference between the chronic and ambient temperatures, or 14.3°C – 14.0°C, which is 0.3°C (Number 6 in Table 42). The incremental temperature increase is below the allowable incremental temperature increase. Therefore, no limit is required to meet these criteria.

Acute Temperature Effects

Instantaneous Lethality to Passing Fish

Acute lethality criteria to protect passing fish from instantaneous lethality due to temperature requires the plume to not be above 33°C two seconds after discharge. The maximum effluent temperature PTPC reported to Ecology is 32.2°C, below the 33°C limit. Even without accounting for dilution, there is no reasonable potential for PTPC's effluent to cause instantaneous lethality to passing fish.

General Lethality and Migration Blockage

Acute criteria to protect fish from general lethality and migration blockage prohibit a measurable increase in temperature at the edge of the chronic mixing zone when receiving water temperatures exceed a daily max of 23°C or a seven day average of 22°C. As shown in Table 2, maximum daily temperature of the receiving water is 14.0°C, therefore there is no reasonable potential for PTPC to cause an exceedance of this criteria.

Lethality to Incubating Fish

To protect developing fish embryos from lethality, the 1-DMax of the receiving water must not be greater than 17.5°C. Ecology is not aware of incubating fish in the vicinity of PTPC's discharge, so it is likely that this criteria is inapplicable to PTPC's discharge. However, Ecology notes that there is no reasonable for PTPC's discharge to cause an exceedance of this criteria as there is no reasonable potential for PTPC to cause an exceedance of the water quality criteria of 16.0°C for excellent quality marine water.

Appendix G – Calculations for Surface Water Quality Criteria Reasonable Potential Analysis, Dissolved Oxygen

Table 43 below shows the data that Ecology used to perform reasonable potential analysis for dissolved oxygen criteria. Ecology calculated the dissolved oxygen concentration at the boundary of the chronic mixing zone to compare to the criteria.

Ambient Conditions

The receiving water dissolved oxygen value was taken from PTPC's receiving water study data. Ecology's Permit Writer's Manual¹³⁷, section 3.2.1: Dissolved Oxygen, states that the 10th percentile dissolved oxygen concentration of the receiving water should be used for reasonable potential analysis. WAC 173-201A-210, which contains the aquatic life dissolved oxygen criteria for marine water, stipulates in WAC 173-201A-210(d)(iii) that dissolved oxygen should not be measured at the surface of the water body as this is not representative of the dominant aquatic habitat of the monitoring site. Ecology considered dissolved oxygen concentrations from EAP monitoring station PTH005 and the PTPC Receiving Water Study. Ecology considered data between the depths of 2 and 12 meters, which is between the depth of PTPC's diffuser and the plume's trapping depth. The 10th percentile dissolved oxygen value from the PTPC receiving water study was 6.5 ppm. The 10th percentile value from the PTH005 dataset is 6.7 ppm. Ecology selected the 6.5 ppm value for this analysis because it is the most conservative.

Effluent Conditions

Effluent BOD₅ concentration was based on the highest concentration of BOD₅ that PTPC reported to Ecology from April 2018 through March 2023. The highest concentration PTPC reported to Ecology was 209 mg/L, as documented in Table 3 of this fact sheet. Ecology conservatively assumed the dissolved oxygen concentration in PTPC's effluent was zero.

Ecology used the maximum effluent temperature PTPC has reported to Ecology, 32.2°C, for these calculations. The temperature is used to calculate the amount of BOD₅ that decays as the effluent travels to the boundary of the chronic mixing zone. Ecology recognizes that the effluent temperature will change as it discharges into the cooler receiving water. However, using the effluent temperature is a conservative assumption. A higher temperature used for the calculations will result in more BOD₅ decay.

The time for effluent to travel from the outfall to the chronic mixing zone boundary was taken from Page 9 of the 2014 PTPC Mixing Zone Study Report Memorandum, which indicates that it takes 0.443 hours (0.018 days) for effluent to reach the chronic mixing zone boundary.

The effluent oxidation rate of BOD at 20°C is assumed to be 0.23 day⁻¹. This is from the 2003 edition of "Metcalf and Eddy Wastewater Engineering Treatment and Reuse", which estimates an oxidation rate of 0.12 day⁻¹ – 0.23 day⁻¹. The larger value will result in a more conservative dissolved oxygen level.

¹³⁷ <https://fortress.wa.gov/ecy/publications/documents/92109.pdf>

Table 43 — Reasonable Potential Analysis for Aquatic Life Water Quality Dissolved Oxygen Criterion

INPUT	
Effluent BOD ₅ (mg/L)	209
Effluent Dissolved Oxygen (DO) (mg/L)	0
Effluent Temperature (deg C)	32.2
Receiving Water DO (mg/L)	6.5
DO WQ Standards (mg/L)	6
Chronic Mixing Dilution Factor	52.6
Time for effluent to travel from outfall to chronic mixing boundary (days)	0.018
Oxidation rate of BOD, base e at 20 deg C, k ₁ (day ⁻¹)*	0.23
OUTPUT	
Effluent Ultimate BOD (mg/L)	305.84
Oxidation rate of BOD at ambient temperature, base e (day ⁻¹)	0.40
BOD oxidized between outfall and chronic mixing zone (mg/L)	2.27
RESULTS	
DO at chronic mixing zone	6.33
Difference between ambient DO and DO at chronic mixing boundary	0.17
There is no reasonable potential of not meeting the DO criteria under these conditions.	

Ultimate BOD, BOD_u, was calculated using the below equation.

Equation 5 — Ultimate BOD

$$BOD_u = BOD_5 / (1 - e^{-5k})$$

Where BOD₅ = Effluent BOD₅ = 209 mg/L

k = oxidation rate of BOD at 20°C = 0.23 day⁻¹

Substituting these values into the above equation results in an ultimate BOD of 305.84 mg/L

The oxidation rate of BOD was adjusted for temperature using the following equation.

Equation 6 — Temperature-Adjusted Oxidation Rate

$$k_T = k * 1.047^{(T-20)}$$

Where k_T = the temperature adjusted oxidation rate at desired temperature T

T = Temperature to which the oxidation rate is being adjusted = 32.2°C

k = oxidation rate of BOD at 20°C = 0.23 day⁻¹

Substituting these values into the above equation results in a new BOD oxidation rate at 41.8°C of 0.40 day⁻¹.

The amount of BOD oxidized between the outfall and the chronic mixing zone (Δ_{BOD}) was calculated using the following equation.

Equation 7 — BOD Oxidized Between Outfall and Chronic Mixing Zone

$$\Delta_{BOD} = BOD_u (1 - e^{-k_T t})$$

Where BOD_u = ultimate BOD = 305.84 mg/L

k_T = oxidation rate of BOD at 32.2°C = 0.40 day⁻¹.

t = time for effluent to travel from the outfall to chronic mixing boundary = 0.018 days.

Substituting the values into the equation results in a Δ_{BOD} of 2.27 mg/L.

Finally, the amount of dissolved oxygen at the chronic mixing boundary, $DO_{chronic}$, is calculated as below.

Equation 8 — Amount of Dissolved Oxygen at Chronic Mixing Boundary

$$DO_{chronic} = DO_{receiving\ water} + (DO_{effluent} - \Delta_{BOD} - DO_{receiving\ water})/DF$$

Where $DO_{receiving\ water}$ = dissolved oxygen concentration of receiving water = 6.5 mg/L

$DO_{effluent}$ = dissolved oxygen concentration of effluent = 0 mg/L

Δ_{BOD} = the amount of BOD oxidized between the outfall and the chronic mixing zone = 2.27 mg/L

DF = chronic mixing dilution factor = 52.6, per Table 28 of this fact sheet.

Substituting the values into the above equation results in a concentration of 6.33 mg/L at the chronic mixing boundary. The result of 6.33 mg/L is above the minimum aquatic life criteria for “good quality” marine water of 6.0 mg/L.

Ecology also notes that the 209 mg/L BOD₅ value represents a day when PTPC was not able to comply with their technology-based limit. On the day that the BOD₅ concentrations in PTPC’s effluent were 209 mg/L, the total mass of BOD₅ discharges was 13,626 lb. The proposed daily maximum limit for BOD₅ is 8,398 lbs/day. Therefore, no additional limit for BOD₅ is needed beyond the technology-based limit.

Appendix H – Calculations for Water Quality Criteria Reasonable Potential Analysis, pH

Minimum pH Water Quality Criteria Reasonable Potential Analysis

Ecology's PermitCalc tool contains calculations for the pH of a mixture that accounts for differences in temperature, alkalinity, and salinity of the receiving water and effluent. The equations used in the tool come from a program called "CO2SYS" built by the Carbon Dioxide Information Analysis Center at the Oak Ridge National Laboratory.

A summary of the data used is presented in Table 44. A further discussion of the values selected is included below.

Table 44 — Conditions for Low pH Reasonable Potential Analysis

Parameter	Value	Source
Dilution factor at mixing zone boundary	52.6	Chronic mixing zone dilution factor
Depth at plume trapping level	2.0 m	Page 6 of PTPC Outfall Mixing zone Study Addendum ¹³⁸
Receiving Water Temperature	11.0 °C	PTPC receiving water study 50 th percentile temperature, as shown in Table 2 of this fact sheet
Receiving Water pH	7.5 SU	10 th percentile pH value, EAP Marine Water Column Monitoring Data, as shown in Table 2 of this document
Receiving Water Salinity	30.5 PSU	PTPC receiving water study and EAP Marine Water Column Monitoring Data, 50 th percentile salinity value, as shown in Table 2 of this document
Receiving Water Total Alkalinity	2.14 meq/L	Calculated as explained below (Equation 9)
Effluent Temperature	21.7°C	50 th percentile value, as shown in Table 5 of this document (Equivalent to 71°F)
Effluent pH	5.4 SU	Technology-based effluent limit, minimum, as calculated in Section III.B.4 of this document
Effluent Salinity	0 PSU	PTPC's discharge typically contains no salt water
Effluent Total Alkalinity	7.26 meq/L	Assumed value (see further discussion below)

¹³⁸ <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=125807>

Receiving Water Alkalinity

No data was available for the receiving water alkalinity. Ecology's PermitCalc tool states that that in the absence of data, permit writers should calculate alkalinity using the below equation.

Equation 9 — Estimated Receiving Water Total Alkalinity

$$\text{Alk} = 0.45 + 0.0554 * S$$

Where Alk is total alkalinity of the receiving water (meq/L)

S is salinity (in PSU)

Ecology used the value of 30.5 for salinity, which yields an estimated receiving water total alkalinity value of 2.14 meq/L

Receiving Water Temperature, Salinity, and pH

Ecology used values for salinity, temperature, and pH for the receiving water from either PTPC's receiving water study or the Ecology-collected data from monitoring station PTH005. This data is available in Table 2 of this document. When values between the two data sets were different, Ecology chose the most conservative value.

Ecology's PermitCalc recommends using 10th or 90th percentile data for background characteristics as a reasonable worst case estimate from DMR data. Ecology used tenth percentile data for the receiving water pH value. For salinity and temperature, Ecology used 50th percentile values for receiving water conditions. Ecology feels that using 10th percentile data for pH and 50th percentile values for the other parameters is a reasonable worst-case scenario.

Effluent Temperature, Salinity, Total Alkalinity, and pH

Ecology used the 50th percentile daily average temperature value that PTPC reported to Ecology between April 1, 2018 and March 21, 2023.

Ecology assumed that PTPC's discharge contains zero salinity. PTPC may occasionally use salt water in their processes. However, Ecology understands that this only occurs less than 3% of their total operating time.

No alkalinity data was available for PTPC's discharge. Ecology instead used alkalinity data reported by WestRock Tacoma (WA000850) between the months of July 2022 and August 2023. WestRock Tacoma is also a kraft pulp and paper mill, which may have similar levels of alkalinity in their discharge. The 50th percentile alkalinity value that WestRock Tacoma reported was 366 mg/L as CaCO₃. Ecology converted this to meq/L by dividing by 50.044 per Ecology's PermitCalc tool. The draft proposed permit will require PTPC to collect and submit alkalinity data as part of the nutrient monitoring requirement discussed under Section IV.A.6 of this fact sheet.

Ecology used the minimum technology-based pH value calculated in Section III.B.4 of this document.

Table 210(1)(f) of WAC 173-201A-210 states that “excellent quality” marine water criteria for pH is: pH must be within the range of 7.0 to 8.5 with human-caused variation within the range of less than 0.5 units.

Entering the data discussed above and the technology-based effluent limit of 5.4 results in a calculated pH of 6.5, as shown in Table 45. This also results in a pH difference between the receiving water and mixing zone boundary of 1.0. Because this is below the limit of 7.0 and is causing a variation greater than 0.5 SU, PTPC’s effluent has a reasonable potential to violate the water quality standards for minimum pH if only technology-based limits were imposed. Therefore, a limit is needed that is more protective than the technology-based effluent limit.

Table 45 — Reasonable Potential Analysis - Low pH With Technology-Based Limit

INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	52.6
Depth at plume trapping level (m)	2
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	11.00
pH:	7.50
Salinity (psu):	30.50
Total alkalinity (meq/L)	2.14
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	21.70
pH:	5.40
Salinity (psu)	0.00
Total alkalinity (meq/L):	7.26
OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	11.20
Salinity (psu)	29.92
Density (kg/m ³)	1023
Alkalinity (mmol/kg-SW):	2.19
Total Inorganic Carbon (mmol/kg-SW):	3
pH at Mixing Zone Boundary:	6.5
pH Difference	1.0

The water quality-based effluent limit for pH was determined to be 6.0 minimum. This was determined by plugging in pH values larger than 5.4 until the pH at the mixing zone boundary was calculated to be at least 7.0 SU, with a pH difference between the mixing zone boundary and receiving less than 0.5 SU. This is shown below in Table 46.

Table 46 — Reasonable Potential Analysis – Calculation of Low pH with Surface Water Quality-Based Limit

INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	52.6
Depth at plume trapping level (m)	2
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	11.00
pH:	7.50
Salinity (psu):	30.50
Total alkalinity (meq/L)	2.14
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	21.70
pH:	6.00
Salinity (psu)	0.00
Total alkalinity (meq/L):	7.26
OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	11.20
Salinity (psu)	29.92
Density (kg/m ³)	1023
Alkalinity (mmol/kg-SW):	2.19
Total Inorganic Carbon (mmol/kg-SW):	2
pH at Mixing Zone Boundary:	7.0
pH Difference	0.49

Maximum pH Water Quality Criteria Reasonable Potential Analysis

PTPC's maximum technology-based limit for pH is 9.0. There is no reasonable potential for PTPC's effluent to violate the aquatic life maximum pH criteria with the technology-based limit in place. This is demonstrated in Table 47. The same values for temperature, total alkalinity, and salinity were used for the low-pH and high-pH analysis. The 90th percentile value was used for the pH at monitoring site CMB003. The calculated pH at the mixing zone boundary is below the maximum limit of 8.5 for

“excellent quality” marine water. The difference in pH between the mixing zone boundary and the receiving water is less than 0.5.

Table 47 — Reasonable Potential Analysis – High pH With Technology-Based Limit

INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	52.6
Depth at plume trapping level (m)	2
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	11.00
pH:	8.30
Salinity (psu):	30.50
Total alkalinity (meq/L)	2.14
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	21.70
pH:	9.00
Salinity (psu)	0.00
Total alkalinity (meq/L):	7.26
OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	11.20
Salinity (psu)	29.92
Density (kg/m ³)	1023
Alkalinity (mmol/kg-SW):	2.19
Total Inorganic Carbon (mmol/kg-SW):	2
pH at Mixing Zone Boundary:	8.3
pH Difference	0.03

Appendix I – Calculations for Water Quality Criteria Reasonable Potential Analysis, Shellfish Harvesting

Ecology limits the level of fecal coliform organisms to protect shellfish harvesting. Criteria are expressed as colony forming units (CFU) or most probable number (MPN). Fecal coliform must not exceed a geometric mean value of 14 CFU or MPN per 100 mL and not have 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 exceed 43 CFU or MPN per 100 mL.

The currently active permit requires PTPC to monitor amounts of fecal coliform in the effluent of their sanitary plant (Outfall 005). Outfall 005 mixes with Outfall 001A and is discharged through Outfall 001. To perform a reasonable potential analysis for PTPC's discharge to cause an exceedance of the water quality criteria for fecal coliform, Ecology estimated the maximum amount of fecal coliform at Outfall 001 using flow rate data from Outfall 001A and Outfall 005.

Ecology considered daily average flow rates from Outfall 001A and Outfall 005 from April 1, 2018 through March 31, 2023 to determine the day in which the largest percentage of sanitary effluent was present in PTPC's final discharge. The day in which the largest percentage of sanitary effluent was present in PTPC's final discharge was March 2, 2019. PTPC's sanitary effluent made up about 0.75% of their final discharge on this day. Ecology assumed that Outfall 005 contains 400 CFU of fecal coliform, which is the technology-based weekly average effluent limit applied to Outfall 005. Ecology assumed that Outfall 001A contains no fecal coliform, as it contains no sanitary wastewater. This would result in a final fecal coliform concentration of 3 CFU at Outfall 001. As 3 CFU is less than the water quality criteria of 14 CFU and 43 CFU, there is no reasonable potential for PTPC's discharge to exceed the fecal coliform criteria. Ecology notes that the point of compliance is the edge of the mixing zone, and not the end of pipe. However, there is no need to account for the additional dilution based on the concentration at the end of the pipe.

Appendix J – Calculations for Water Quality Criteria, Turbidity

Per Table 210(1)(e) of WAC 173-201A, the applicable water quality criteria for turbidity (excellent quality) is that turbidity must not exceed:

- 5 NTU over background when the background is 50 NTU or less; or
- A 10% increase in turbidity when the background turbidity is more than 50 NTU.

Port Townsend Bay has a background turbidity less than 50 NTU. Therefore, the first bullet point above applies to PTPC's discharge.

Ecology used simple mixing calculations to assess the impacts of PTPC's discharge on receiving water turbidity. The predicted turbidity at the edge of the mixing zone (T_{mz}) is based on the following calculation:

Equation 10 — Turbidity at Chronic Mixing Boundary

$$T_{mz} = C_a + [(C_e - C_a)/DF]$$

Where

C_a = ambient turbidity. Ecology used the 50th percentile turbidity from Table 2 of this fact sheet which is 0.60 NTUs.

C_e = effluent turbidity. Ecology used 100 NTU per Table 6. Only one sample of turbidity data is available for PTPC's discharge.

DF = chronic dilution factor, 52.6

Entering in these values into the above equation yields a turbidity of 2.5 NTU. This is an increase in turbidity of 1.9 NTU, less than the 5 NTU maximum increase specified by the applicable water quality criteria. Therefore, there is no reasonable potential for PTPC to cause an exceedance of the water quality criteria for turbidity. The draft proposed permit requires PTPC to sample for turbidity annually to allow Ecology to use more data in the next reasonable potential analysis for turbidity.

Appendix K- WET Test Summary and Reasonable Potential Analysis Discussion

Please refer to the following definitions for terms used in the tables below.

No observed effect concentration is the highest concentration in a series of concentrations showing no statistically significant reduction in survival or a sublethal response relative to the control.

Lowest observed effect concentration is the lowest concentration in a series of concentrations having a statistically significant reduction in survival or a sublethal response relative to the control.

Percent minimum significant difference is the smallest reduction in response relative to the control which would be determined to be statistically significant expressed as a percent reduction from the control.

Effluent survival is the percent of organisms which survived in 100% effluent.

Acute Toxicity Criteria

To determine if the discharge has a reasonable potential to violate acute WET criteria, Ecology uses a “whole effluent toxicity performance standard”. WAC 173-205-020 defines this term for acute toxicity as the median survival in one hundred percent effluent being equal to or greater than eighty percent and no individual test result showing less than sixty-five percent survival in one hundred percent effluent. As shown in the seventh column in Table 48, the survival rate in 100% effluent for all tests exceeded 65%. This means that PTPC’s effluent met the performance standard for each test (as indicated in column eight). Therefore, PTPC’s discharge has no reasonable to exceed acute toxicity criteria and an acute WET limit is not required.

Chronic Toxicity Criteria

For chronic toxicity, the performance standard defined in WAC 173-205-020 is no chronic toxicity test demonstrating a statistically significant difference in response between the control and a test concentration equal to the acute critical effluent concentration. Table 49 includes the “No observed effect concentration”, which WAC 173-205-020 defines as “the highest concentration of effluent in a toxicity test to have no statistically significant adverse effects when compared to an appropriate control”. The acute critical effluent concentration is 2.2% (1 divided by the acute dilution factor of 45.7). All no observed effect concentrations in Table 49 are greater than 2.2%. Therefore, the performance standard has been met and no chronic limit is needed.

Table 48 — Acute WET Test Results Summary

Collected	Organism	Endpoint	No Observed Effect Concentration	Lowest Observed Effect Concentration	Percent Minimum Significant Difference	Effluent Survival (100%)	Meets Standard?
6/22/16	Silverside Minnow	96-Hour Survival	100%	>100%	NA	97.5%	YES
6/22/16	Mysid Shrimp	48-Hour Survival	100%	>100%	5.0%	100.0%	YES
1/25/17	Mysid Shrimp	48-Hour Survival	100%	>100%	NA	100.0%	YES
1/25/17	Silverside Minnow	96-Hour Survival	100%	>100%	NA	97.5%	YES

Table 49 — Chronic WET Test Results Summary

Collected	Organism	Endpoint	No Observed Effect Concentration	Lowest Observed Effect Concentration	Percent Minimum Significant Difference	Meets Standard?
6/22/16	Mysid Shrimp	7-Day Survival	100%	>100%	11.2%	YES
6/22/16	Mysid Shrimp	7-Day Biomass	30.0%	100.0%	13.40%	YES
6/22/16	Mysid Shrimp	7- Day Weight	30.0%	100.0%	11.90%	YES
6/22/16	Topsmelt	7-Day Survival	100%	100%	13.6%	YES
6/22/16	Topsmelt	7-Day Biomass	100%	>100%	28.30%	YES
6/22/16	Topsmelt	7- Day Weight	100%	>100%	NA	YES
7/6/16	Common Mussel	Development	10.0%	30.0%	NA	YES
1/25/17	Mysid Shrimp	7-Day Survival	100.0%	100.0%	8.4%	YES
1/25/17	Mysid Shrimp	7-Day Biomass	30.0%	100.0%	12.40%	YES
1/25/17	Mysid Shrimp	7- Day Weight	30.0%	100.0%	9.63%	YES
1/30/17	Common Mussel	Development	10%	30%	1.6%	YES
1/25/17	Topsmelt	7-Day Survival	100%	100%	7.3%	YES
1/25/17	Topsmelt	7-Day Biomass	100%	>100%	25.1%	YES
1/25/17	Topsmelt	7- Day Weight	100%	>100%	NA	YES

Appendix L – Annual Sampling Summary

The table below is a summary of all the parameters PTPC performed annual sampling for during the previous permit cycle and that were detected at least once. A dash in a “value” column indicates that the pollutant was not tested during a given sampling period. A dash in the “qualifier” column indicates that the reported value did not include any QA/QC notes. “ND” indicates that the sample was not detected during the sampling event and a value of ½ the detection level is shown in the “value” column. A “J” in the qualifier column indicates that the measured concentration was between the detection and quantitation limits and the value shown in is an estimate. The “P” flag data qualifier shown on the 2016 dieldrin sample is further discussed in Appendix D.

Note that the ammonia value used in the RPA in Appendix D is higher than those shown in the table below. The ammonia value in the RPA is based off of a reported maximum value in PTPC’s permit application, which was higher than that PTPC measured during the annual sampling events.

Table 50 — Summary of Results from Annual Outfall 001A Sampling Events

Parameter	Fraction	Units	2014 Value	Qualifier	2015 Value	Qualifier	2016 Value	Qualifier	2017 Value	Qualifier	2018 Value	Qualifier	2019 Value	Qualifier	2020 Value	Qualifier	2021 Value	Qualifier	2022 Value	Qualifier	2023 Value	Qualifier	2023 (additional sampling) Value	Qualifier
2,3,7,8-TCDD (dioxin)(tetrachloro-dibenzo-p-dioxin)	-	Picograms/L	2.41	ND	1.625	ND	1.475	ND	0.795	ND	0.52	ND	1.545	ND	0.44	ND	1.15	ND	0.65	ND	0.81	-	-	-
2-Nitrophenol	-	µg/L	0.175	ND	0.0315	ND	1.6	-	0.0315	ND	0.16	ND	0.017	ND	0.175	ND	0.043	ND	0.77	J	1.1	ND	-	-
Acrolein	-	µg/L	1.85	ND	1.85	ND	0.49	ND	0.049	ND	0.49	ND	0.49	ND	0.49	ND	0.61	J	0.005	ND	0.005	ND	-	-
Ammonia	Total	µg/L	7.55	-	3.93	-	5.94	-	4.49	-	7.12	-	7.39	-	2.24	-	3.8	-	6.64	-	2.31	-	-	-
Antimony	Total	µg/L	1.08	-	0.51	-	2.19	-	0.148	-	1.01	-	0.998	-	1.11	-	1.72	-	2.43	-	3.08	-	-	-
Arsenic	Total	µg/L	25	-	17.9	-	14.5	-	14.1	-	12.4	-	7.83	-	12.3	-	22.7	-	34.4	-	50.1	-	-	-
Benzene	-	µg/L	0.0155	ND	0.0155	ND	0.0155	ND	0.0155	ND	0.0155	ND	0.7	-	0.0155	ND	0.01	J	0.005	ND	0.005	ND	-	-
Benzo(a)anthracene	-	µg/L	0.125	ND	0.009	ND	0.009	ND	0.009	ND	0.045	ND	0.14	J	0.125	ND	0.03	ND	0.034	ND	0.0335	ND	0.034	ND
Beryllium	Total	µg/L	0.019	J	0.006	ND	0.004	ND	0.01	J	0.005	ND	0.0025	ND	0.016	J	0.007	J	0.011	J	0.017	J	-	-
Bis(2-Ethylhexyl) Phthalate	-	µg/L	0.17	ND	2.1	-	0.28	-	0.49	-	2.2	J	0.35	ND	6.6	J	0.99	-	1.8	-	1.5	-	2.1	-
Bromomethane (methyl bromide)	-	µg/L	0.036	ND	0.036	ND	0.017	ND	0.017	ND	0.017	ND	0.017	ND	0.017	ND	0.16	J	0.005	ND	0.005	ND	-	-
Cadmium	Total	µg/L	0.611	-	0.307	-	0.106	-	0.208	-	0.21	-	0.343	-	0.457	-	0.266	-	0.413	-	0.595	-	-	-
Chlordane	-	µg/L	0.0105	ND	0.0105	ND	0.011	ND	0.011	ND	0.0105	ND	0.011	ND	0.0105	ND	0.075	ND	0.18	J	0.0145	ND	0.0155	ND
Chloroform	-	µg/L	0.08	J	0.031	ND	0.05	J	0.1	J	0.018	ND	0.018	ND	0.018	ND	0.28	J	0.005	ND	0.005	ND	-	-
Chloromethane (methyl chloride)	-	µg/L	0.015	ND	0.04	J	0.015	ND	0.015	-	0.15	J	0.015	ND	0.015	ND	0.24	J	0.005	ND	0.005	ND	-	-
Chromium	Total	µg/L	9.73	-	4.07	-	3.2	-	4.51	ND	4.6	-	5.23	-	6.16	-	4.79	-	6.5	-	5.55	-	-	-
Chromium, Hexavalent	Hexavalent	µg/L	0.01	ND	0.00015	ND	0.242	-	0.00025	ND	0.416	-	0.238	-	0.279	J	0.18	-	0.436	-	0.18	-	-	-
Copper	Total	µg/L	8.39	-	4.97	-	3.59	-	5.38	-	2.94	-	4.32	-	8.24	-	4.58	-	6.87	-	10.6	-	-	-
Cyanide	Total	µg/L	8	J	2	J	0.45	ND	2	J	0.45	ND	0.45	ND	0.45	ND	0.45	ND	0.45	ND	0.45	ND	-	-
Cyanide	Free amenable to chlorination	µg/L	27	-	2	J	0.45	ND	2	J	0.45	ND	0.45	ND	0.45	ND	0.45	ND	0.45	ND	0.45	ND	-	-
Cyanide	Weak Acid Dissociable	µg/L	3	J	4	J	0.45	ND	6	J	1	J	2	J	1	J	3	J	0.3	J	3	J	-	-

Parameter	Fraction	Units	2014 Value	Qualifier	2015 Value	Qualifier	2016 Value	Qualifier	2017 Value	Qualifier	2018 Value	Qualifier	2019 Value	Qualifier	2020 Value	Qualifier	2021 Value	Qualifier	2022 Value	Qualifier	2023 Value	Qualifier	2023 (additional sampling) Value	Qualifier
Dibutyl phthalate (Di-n-butyl phthalate)	-	µg/L	0.355	ND	0.006	ND	0.15	J	0.0115	ND	0.06	ND	0.36	J	0.23	ND	0.365	ND	0.41	ND	0.4	ND	-	-
Dieldrin	-	µg/L	0.000425	ND	0.000425	ND	0.0072	JP	0.0013	ND	0.000425	ND	0.000445	ND	0.000425	ND	0.0013	ND	0.00027	ND	0.000	ND	-	-
Diethyl phthalate	-	µg/L	0.53	J	0.006	ND	0.006	ND	0.006	ND	0.03	ND	0.25	J	0.165	ND	0.11	J	0.037	ND	0.036	ND	-	-
Dimethyl phthalate	-	µg/L	0.355	ND	0.0105	ND	0.0105	ND	0.0105	ND	0.055	ND	0.13	J	0.355	ND	0.034	ND	0.15	J	0.0375	ND	-	-
Di-N-Octyl Phthalate	-	µg/L	0.19	ND	0.009	ND	0.009	ND	0.009	ND	0.045	ND	0.12	J	0.19	ND	0.07	ND	0.07	ND	0.075	ND	-	-
Endosulfan I (alpha endosulfan)	-	µg/L	0.00065	ND	0.00065	ND	0.0007	ND	0.0007	ND	0.00065	ND	0.0007	ND	0.00065	ND	0.08	ND	0.0049	J	0	ND	-	-
Ethylbenzene	-	µg/L	0.0015	ND	0.015	ND	0.015	ND	0.0065	ND	0.015	ND	0.03	J	0.015	ND	0.005	ND	0.005	ND	0.005	ND	-	-
Fluoranthene	-	µg/L	0.225	ND	0.01	ND	0.01	ND	0.01	ND	0.05	ND	0.1	J	0.225	ND	0.0345	ND	0.0395	ND	0.0385	ND	-	-
Fluorene	-	µg/L	0.115	ND	0.0135	ND	0.0135	ND	0.0135	ND	0.07	ND	0.075	ND	0.115	ND	0.0175	ND	0.047	J	0.0195	ND	-	-
Isophorone	-	µg/L	0.175	ND	0.008	ND	0.008	ND	0.008	ND	0.46	J	0.175	ND	0.175	ND	0.085	ND	0.095	ND	0.09	ND	-	-
Lead	Total	µg/L	16.9	-	6.24	-	3.74	-	5.03	-	2.03	-	2.18	-	3.79	-	2.73	-	4.48	-	5.47	-	-	-
Mercury	Total	µg/L	11	-	1.72	-	6.9	-	3.33	-	2.35	-	2.32	-	15.1	-	4.58	-	7.08	-	8.75	-	-	-
Naphthalene	-	µg/L	0.155	ND	0.011	ND	0.1	J	0.011	ND	0.055	ND	0.12	J	0.155	ND	0.0195	ND	0.0195	ND	0.092	J	-	-
Nickel	Total	µg/L	5.46	-	5.96	-	5.14	-	4.4	-	4.6	-	3.6	J	3.26	-	6.57	-	4.42	-	5.97	-	-	-
Oil & Grease	Total recoverable	µg/L	-	-	0.4	ND	0.35	ND	2.7	J	5.7	-	3.6	J	3.3	J	6.2	-	2.5	J	3.7	-	-	-
Pentachlorophenol	-	µg/L	0.19	ND	0.17	ND	1.1	-	0.17	ND	0.85	ND	3.5	J	0.19	ND	0.245	ND	0.245	ND	0.27	ND	0.28	ND
Phenanthrene	-	µg/L	0.12	ND	0.011	ND	0.055	J	0.011	ND	0.055	ND	0.15	J	0.12	ND	0.017	ND	0.065	J	0.094	J	-	-
Phenol	-	µg/L	0.225	ND	0.0315	ND	0.0315	ND	0.74	-	0.16	ND	0.17	ND	0.225	ND	0.011	ND	0.072	J	0.012	ND	-	-
Phenolics (Total Phenols)	Total	µg/L	24	-	11	-	55	-	10	-	2	ND	2	ND	2	ND	18	-	73	-	19	-	-	-
Pyrene	-	µg/L	0.235	ND	0.0095	ND	0.0095	ND	0.0095	ND	0.0475	ND	0.1	J	0.235	ND	0.045	ND	0.055	ND	0.05	ND	-	-
Selenium	Total	µg/L	1.4	-	3.5	J	1.4	-	0.1	-	1.5	J	0.1	ND	0.3	J	0.1	ND	0.1	ND	0.1	ND	-	-
Silver	Total	µg/L	0.017	J	0.101	-	0.027	-	0.041	-	0.03	J	0.038	-	0.054	-	0.028	-	0.042	-	0.063	-	-	-
Thallium	Total	µg/L	0.008	J	0.018	J	0.001	ND	0.007	J	0.02	ND	0.0045	ND	0.021	-	0.012	J	0.017	J	0.024	-	-	-
Toluene	Total	µg/L	0.1	J	0.11	J	0.24	J	0.11	J	0.12	J	1.4	-	0.06	J	0.44	J	0.09	J	0.06	J	-	-
Vinyl Chloride	-	µg/L	0.0155	ND	0.0155	ND	0.0155	ND	0.0155	ND	0.0155	ND	0.1	J	0.0155	ND	0.005	ND	0.005	ND	0.005	ND	-	-
Zinc	Total	µg/L	76.5	-	76	-	35.8	-	45.7	-	30	-	38.7	-	71	-	54.5	-	68.1	-	115	-	-	-

Appendix M – Summary of Changes to Permit

This section goes over significant changes to the permit that are not changes in effluent limits. For changes to effluent limits, see Section III.N of this fact sheet. Ecology considers the changes detailed below significant because they affect how the Permittee must comply. Changes to standard Ecology permit template language which occurred between the issuance of the May 1st, 2014 permit and the drafting of this proposed permit is not included here.

1. The previous permit used the term “Outfall 001” to refer to the internal monitoring point after the ASB and also the diffuser which discharges the mixture of wastewaters from the ASB effluent and the sanitary plant effluent. To provide more clarity regarding the two different discharge points, the proposed draft permit refers to the internal monitoring point for the ASB effluent as “Outfall 001A” and the monitoring point that includes both the ASB effluent and sanitary plant effluent after the two streams combine as “Outfall 001”.
2. The dilution factors in the proposed draft permit have been updated based on a mixing zone study that was performed under the May 1st, 2014 permit cycle. This is discussed in Section III.D.5 of this document.
3. The previously issued permit only required the reporting of total production. The new permit requires PTPC to report total production (both kraft and recycled production) and the amount of recycled-only production. PTPC must report both production categories to Ecology because the effluent guidelines are production based and requires both values to calculate the applicable technology based effluent limits in the permit renewal process.
4. Ecology included additional internal monitoring requirements under Special Condition S2 which Ecology will use to evaluate treatment system performance during the next permit renewal, as discussed in Section IV.A.3 of this document.
5. The current effective permit includes a requirement for PTPC to report pounds of sludge dredged from the ASB, pounds of sludge recycled to the ASB, and pounds of sludge disposed of offsite. The draft proposed permit only requires PTPC to report pounds of sludge dredged from the ASB.
6. The current effective permit only requires PTPC to report daily maximum temperature of their effluent. The proposed draft permit requires PTPC to report both the daily average and daily maximum temperature of their effluent.
7. A footnote in Special Condition S2 of the draft proposed permit documents how PTPC is currently monitoring wastewater flow at Outfall 001A. This language is not in the currently effective permit. Due to tidal influence at the ASB outfall weir, PTPC uses flowmeters at the inlet of the ASB rather than the outlet of the ASB to represent flow rate at Outfall 001A.

8. A footnote in Special Condition S2 of the draft proposed permit defines that 1/week or 4/week sampling means sampling 1 or four times per calendar week, respectively, except weekends and Washington state holidays. The currently effective permit only describes a week as a “calendar week”.
9. A footnote in Special Condition S2 of the draft proposed permit requires annual samples to alternate between dry (May through September) and wet seasons (October through April).
10. Ecology added additional monitoring requirements in the draft proposed permit under Special Condition S2 for: enterococci, nutrients, and turbidity. These requirements are discussed under Sections IV.A.5, IV.A.6, and IV.A.8 of this fact sheet.
11. The requirement to perform sediment monitoring at the PECO Dock is new. While Ecology historically included sediment monitoring at PTPC’s outfall in PTPC’s NPDES permits, PTPC has not yet performed sediment monitoring at the PECO dock. This requirement is discussed in Section III.K.2 of this fact sheet.
12. Special Condition S3 of the currently effective permit contains requirements for immediate reporting to Ecology, the Department of Health, and the Shellfish Program for failures of the disinfection system at the sanitary wastewater treatment plant, sanitary collection system overflows, and unpermitted sanitary plant bypasses. Condition S3 in the draft proposed permit has been updated with an additional requirement for PTPC to report collection system overflows of process wastewater, stormwater, or unpermitted bypasses of process wastewater or stormwater to Ecology.
13. The monitoring frequency of TSS and BOD₅ sampling at Outfall 001A has changed. The draft proposed permit requires monitoring of BOD₅ and TSS four times per week. The permit Ecology issued in 2013 requires BOD₅ monitoring 2 times per week and TSS monitoring three times per week. However, the 2013 permit also includes a “tiered monitoring” provision which triggers BOD₅ monitoring 5 times per week and TSS monitoring seven days per week after PTPC has two violations for a given parameter in a 12 month period. See additional discussion regarding this change under section IV.A of this fact sheet.
14. The currently effective permit required two separate submittals for the Operation and Maintenance Manual and the Treatment System Operating Plan. The proposed draft permit treats them as a single submittal.
15. The “Stormwater Analysis Plan” in the currently effective permit is called a “Stormwater Pollution Prevention Plan” in the draft proposed permit.
16. The “Solids Management Plan” in the currently effective permit is called a “Solid Waste Control Plan” in the draft proposed permit.

17. The species used for acute WET testing in the draft proposed permit is different than in the currently effective permit. This change is discussed under Section III.M of this fact sheet.
18. Under the currently effective permit, PTPC monitored for total cyanide, weak-acid dissociable cyanide, and free cyanide amenable to chlorination. The draft proposed permit only requires PTPC to monitor for weak-acid dissociable cyanide and total cyanide. The aquatic life criteria applicable to marine water for cyanide is based on concentrations of weak acid dissociable cyanide. The human health criteria applicable to marine water for cyanide is based on concentrations of total cyanide. The proposed permit does not include free cyanide amenable to chlorination because there is no water quality criteria that uses this for a standard.
19. The currently effective permit requires PTPC to monitor temperature every four hours if continuous temperature monitoring is not possible. The currently effective permit requires PTPC to monitor pH hourly if continuous pH monitoring is not possible. The draft proposed permit requires that if any continuous monitoring is not possible (flow, pH, dissolved oxygen, temperature), PTPC must sample every six hours.
20. The draft proposed permit does not require a ground water impact study or a mixing study update, which are in the currently effective permit. Ecology considered the ground-water impact study a one-time requirement. A mixing study update does not need to be included in every permit unless there are significant changes in flow rates of wastewater the permittee discharges.
21. The requirement for PTPC to submit results of aerated stabilization basin sludge surveys to Ecology is new (Special Condition S4.B).
22. The currently effective permit did not include the "Non-Routine and Unanticipated Discharge" condition. This is standard language in all individual NPDES permits Ecology issues to industrial facilities. This permit condition is in the draft proposed permit under Special Condition S9.
23. The draft proposed permit also includes the following new requirements:
 - a. Special Condition S8, "Facility Loading and Design Engineering Report", further discussed under Section V.D of this fact sheet.
 - b. Special Condition S18, "Cooling Water Intake Structure", further discussed under Section V.K of this fact sheet.
 - c. Special Condition S19, "Annual Biocide Certification", further discussed under Section III.B.5 of this fact sheet.
 - d. Special Condition S20, "Best Management Practices for Spent Pulping Liquor Management, Spill Prevention, and Control", further discussed under Section V.M of this fact sheet.

- e. Special Condition S21, "PFAS Study", further discussed under Section V.N of this fact sheet.
- f. Special Condition S22, "Annual Bis(2—ethyl hexyl)phthalate-free Sampling Certification", further discussed under Section V.O of this fact sheet.
- g. Special Condition S24, "Odor Minimization Study", further discussed under Section V.Q of this fact sheet.

Appendix N — Response to Comments and Changes to Permit After Comment Period

Ecology held a public comment period for the draft proposed permit and associated fact sheet from October 30, 2024 through December 12, 2024. Ecology held an informational meeting and public hearing for the draft documents on December 4, 2024 at Fort Worden Historical State Park. Ecology advertised the draft proposed permit and associated fact sheet in the Port Townsend Leader, on Ecology's website, and via email or mail to Ecology's interested parties list for Port Townsend Paper Corporation.

Ecology received written and oral comments from approximately twenty-six individuals and entities during the public comment period.

This appendix identifies changes Ecology made to the permit after the public comment period and provides a written response to all comments received.

Changes to Permit

- 1. Delay of primary clarifier influent monitoring.** The draft proposed permit required the Permittee to perform influent monitoring at the Primary Clarifier beginning on the effective date of the NPDES permit (Special Condition S2). Ecology has delayed this requirement in the final permit by six months to give the Permittee additional time to install sampling facilities, if needed. For more information, see response to Comment 53.
- 2. Delay of enterococci monitoring.** The draft proposed permit required the Permittee to perform enterococci monitoring monthly for the first 36 months of the permit (Special Condition S2). Ecology has delayed this requirement by 12 months to give the Permittee's on-site laboratory time to become accredited to perform the monitoring, if they so choose. For more information, see response to Comment 54.
- 3. Removal of outdated phone number for Department of Health Shellfish Programs.** The draft proposed NPDES permit included two different phone numbers for reports to the Department of Health Shellfish programs under Special Condition S3.F. One phone number was to be used during business hours, and another phone number was to be used after business hours. This was not consistent with the most recent version of Ecology boilerplates, which only lists one phone number. The final issued permit contains one phone number which Permittees may call during business hours or after business hours
- 4. Requirement to provide information on biocides used in Cooling Water Intake Structure.** Ecology has added a requirement to the final permit that requires PTPC to provide information to Ecology on any biocides used in their Cooling Water Intake Structure, including safety data sheets and a description of procedures in place that minimize the amount of biocide used, if any (Special Condition S4.A.2.k). For more information, see response to Comment 9.

- 5. Correction to Special Condition S8.** Special Condition S8.4 requires PTPC to calculate the design maximum monthly TSS loading to the wastewater treatment plant. Ecology erroneously stated that this should be as measured at the primary clarifier effluent. The primary clarifier effluent is not representative of loading to the wastewater treatment plant. Ecology corrected this location to primary clarifier influent in the final issued permit.
- 6. Modification of Special Condition S13.** Ecology has added the following statement to Special Condition S13 regarding the sediment monitoring requirement under the PECO dock: "The sediment sampling shall occur "as is" and include debris recovered at the designated sampling locations. A description of the sample substrate (i.e., lack of native sediment, wood chips present) at any designated sampling location must be documented in the final data report". For more information, see response to Comment 58.
- 7. Allowance to operate additional saltwater intake pumps at cooling water intake structure.** Ecology has added language to Special Condition S18.A.1 that allows PTPC to operate an additional saltwater pump if approved in writing by Ecology. PTPC must still maintain a design through-screen velocity of 0.5 feet per second or less in order to make this change. For more information, see response to Comment 62.
- 8. Modification of requirement to report impingement and entrainment events to Ecology.** Special Condition S18.C in the draft proposed permit required PTPC to report any significant impingement or entrainment events to Ecology with 24 hours. In the final issued permit, Ecology modified the language to require PTPC to report these events to Ecology within 24 hours of becoming aware that they had occurred. For more information, see response to Comment 63.
- 9. Additional specificity added to through-screen velocity calculation at cooling water intake structure.** Ecology has updated the language under Special Condition S18.A to specify that the percent open area of the screening system at the cooling water intake structure must be considered when calculating the through-screen velocity. For more information, see response to Comment 61.
- 10. Modification of Special Condition S22.** Special Condition S22 in the proposed draft permit required PTPC to certify that equipment used to collect composite samples do not contain bis(2-ethylhexyl)phthalate. Ecology has modified this language to require PTPC to certify that they have "made a reasonable effort" to ensure that the equipment does not contain bis(2-ethylhexyl)phthalate. For more information, see response to Comment 65.
- 11. Other minor changes.** Minor changes were made to address inconsistencies between the "Summary of Permit Submittals" section of this permit and the Special Conditions to which they refer, or logistical issues.

- a.** Special Condition S14 of the draft permit specified a date by which PTPC must submit the first outfall inspection report to Ecology. The “Summary of Permit Submittals” instead specified a date by which PTPC must perform the inspection. Ecology revised Special Condition S14 of the final permit to specify the date by which PTPC must perform the first inspection to correct the inconsistency in the two areas of the permit.
- b.** Special Condition S.16 and S.17 of the draft permit specified that the acute and chronic toxicity testing needed to be performed in “summer” or “winter”. The “Summary of Permit Submittals” instead specified specific months that the sampling was required to be conducted. Ecology revised the “Summary of Permit Submittals” in the final permit to instead specify the season that the sampling is required to address the inconsistency. The specific dates of the given season are also now included under Special Condition S.16 and S.17 in the final permit.
- c.** Special Condition S.16 and S.17 of the draft permit specified that acute and chronic toxicity reports must be submitted no later than 60 days from sampling. The “Summary of Permit Submittals” instead specified a specific day the reports must be submitted. The “Summary of Permit Submittals” has been revised in the final permit to require the Permittee to submit the reports no later than 60 days from sampling.
- d.** Special Condition S.12 requires the final receiving water study report to be submitted within 12 months of approval of the sampling and analysis plan. The “Summary of Permit Submittals” table required the report to be submitted within 15 months of approval of the sampling and analysis plan. Ecology updated Special Condition S.12 in the final permit to reflect the 15-month timeline in the “Summary of Permit Submittals” table.
- e.** Footnote “o” to Section S2.A of the draft permit required annual sampling to be performed during alternating dry and wet seasons of the year. It required sampling between May and September during even numbered years (“dry season”) and sampling between October and April during odd numbered years (“wet season”). The timeframe specified regarding sampling during odd numbered years was unclear or infeasible to implement as the October through April time period spans two years. Ecology updated the final permit to require sampling during odd numbered years to occur either between January through April or October through December to provide clarity.

These changes do not constitute significant revisions and does not result in less stringent effluent limits as compared to the proposed draft permit. These changes do not require a second comment period prior to the issuance of the final permit.

Responses to Frequent Comments

A. Visible Steam from the Mill

Some commenters asked Ecology to reduce the steam coming from PTPC. The mill's Air Operating Permit (AOP), a permit that is separate from this wastewater permit, limits air pollution from the mill. PTPC uses water to remove pollutants from the exhaust streams of certain emission units to meet limits or other requirements in their AOP. When the water mixes with hot exhaust gases from PTPC's process, a portion of the water turns into steam. PTPC's AOP legally requires them to operate these emissions controls when their equipment is operating. NPDES permits regulate the direct discharge of potentially contaminated waters to a waterbody, which does not include steam from emissions controls. Therefore, Ecology does not have the ability to limit visible steam from PTPC as part of the NPDES permit renewal process.

B. Carcinogenic Chemicals in Wastewater

Ecology received comments expressing concern regarding the new permit limits for the chemicals benzo(a)anthracene, chlordane, and pentachlorophenol. As discussed in more detail below, the limits were included in the permit as a result of sampling during the previous permit cycle. The inclusion of these new requirements is a limit – not an allowance.

Ecology has established water quality criteria for dozens of pollutants that are known to be toxic, carcinogenic, or otherwise harmful to human health and the environment. The water quality criteria are levels of pollution in a water body that, if not exceeded, are protective of human health and the environment. Ecology is aware that benzo(a)anthracene, chlordane, and pentachlorophenol are potential carcinogens. This is why Ecology has established water quality criteria for beno(a)anthracene, chlordane, and pentachlorophenol.

Ecology included limits for these pollutants in the permit because data collected during the previous permit cycle indicated that there is a reasonable potential for PTPC's discharge to cause an exceedance of the water quality criteria for benzo(a)anthracene, chlordane, and pentachlorophenol. Ecology put the limits in PTPC's permit to ensure that PTPC's discharge does not cause an exceedance of the water quality criteria for these pollutants in Port Townsend Bay, and to protect human health and the environment. While data collected during the previous permit cycle shows a reasonable potential for PTPC's discharge to cause an exceedance of a water quality criteria for benzo(a)anthracene, chlordane, and pentachlorophenol, Ecology does not have enough evidence to conclude that PTPC's discharge is currently causing an exceedance of the water quality criteria.

If there is no technology-based limit associated with a given pollutant, facilities are legally able to discharge trace amounts of pollutants associated with their process for which there is an associated water quality criterion. Ecology only has the authority to impose a limit if data show there is a reasonable potential for a discharge to cause an exceedance of a water quality criteria.

Finally, Ecology notes that this was a conservative decision. PTPC only detected these pollutants once or twice over the ten years of annual sampling that PTPC performed under the previous permit. We will gain additional information about the concentrations of these pollutants in PTPC's discharge through the sampling that the renewed wastewater permit requires.

C. Water Use and Reuse

Ecology received comments stating that the NPDES permit should limit the amount of water that PTPC is allowed to use or require them to recycle water.

PTPC receives the water used in their process from the city of Port Townsend. The NPDES permit program generally regulates the wastewater discharged from a facility, not the source of water used in the facility's process. There is no provision that allows Ecology to impose limits of water use at the facility. However, PTPC does reuse and recycle water in their process. Recycling within the kraft pulp and paper industry is a recognized best practice. EPA's effluent limit guidelines were revised in the 1990s to reflect water reuse and water recycling in the industry.

One way that water use is indirectly limited is under the Special Condition "Design Criteria" under Section S7 of the permit. The maximum design flow rate to the aerated stabilization basin is 14.5 million gallons per day (MGD). PTPC is required to report exceedances of the design criteria to Ecology to ensure that the facility is not consistently overloading their wastewater treatment system. Generally, there are no existing regulations that give Ecology the authority to limit amounts of water used at the mill below the design capacity of the wastewater treatment plant. It's possible the 14.5 MGD flow rate does not reflect the current configuration of the wastewater treatment plant. This design criteria may be updated after PTPC submits the report required under Special Condition S8 of the draft proposed permit.

D. Increase in Limits

Ecology received comments asking that Ecology not increase the limits for five-day biochemical oxygen demand (BOD₅) and total suspended solids (TSS) in the permit. Ecology established the limits in the permit using federal rules that EPA established for the pulp and paper industry. The detailed calculations are available in Section III.B of this fact sheet. For the pulp and paper industry, EPA's rules are in terms of total mass discharged (pounds per day) and are based on actual long-term average production

rates achieved during the previous permit cycle. The higher the production rate, the higher the effluent limits. While NPDES permit considers production rates in the calculation of the limits, the NPDES permit does not directly regulate production rates.

As shown in the table below, production rates at PTPC have increased. The production basis for this permit renewal is 990 air dry tons per day (ADT/D). This was PTPC's actual production rate from April 2020 through March 2021. The production basis for the 2013 permit was 893 ADT/D, PTPC's average production rate from June 2010 to May 2012.

Table 51. Comparison of Production Basis in Current Permit and Proposed Permit

Production Category	2013 Permit	2025 Permit
Kraft	611 air dry tons per day (ADT/D)	553 ADT/D
Recycling	282 ADT/D	437 ADT/D
TOTAL	893 ADT/D	990 ADT/D

Production rates have increased at PTPC due to changes at the facility. Since the issuance of the previous NPDES permit, PTPC has shut down the Messing-Durkee (M&D) digester which generated kraft pulp from sawdust. The shutdown of the M&D digester did not have a significant effect on actual kraft pulping rates at the facility, as shown in the table above. Since the issuance of the previous NPDES permit, PTPC also upgraded the OCC plant from a batch process to a continuous process and increased the capacity of the OCC. This change had a more significant effect on actual pulping rates at the facility. Because production rates at the facility have increased, Ecology has incorporated effluent limits in the permit based on these new, higher production rates.

There are other provisions that could prohibit Ecology from raising limits for TSS and BOD₅. Anti-degradation rules require an additional study prior to Ecology raising TSS and BOD₅ limits 10% above a 2004 baseline level. Ecology is not proposing to raise limits 10% above PTPC's 2004 baseline level. This is discussed under Section III.D.4 of this fact sheet.

Ecology generally may not raise water-quality based limits or limits not otherwise based on the effluent limit guidelines in accordance with our anti-backsliding rules. Ecology is not proposing to raise water-quality based limits or other limits not based on effluent limit guidelines. However, page 30 of Ecology's Water Quality Program's Permit Writer's Manual states that Ecology may increase technology-based limits based on applicable EPA effluent guidelines if material and substantial alterations to the permitted facility occurred after permit issuance. The changes at PTPC discussed above constitute a material and substantial change at the facility.

Based on the above discussion, Ecology has retained the proposed limits for TSS and BOD₅ in the issued permit.

E. Denial of Permit or Shutdown of Facility

Ecology received comments requesting that Ecology deny PTPC's NPDES permit or require them to shut down.

Ecology is proposing to renew this permit because it is required by the Clean Water Act. NPDES permit terms are five years. The permit renewal process is an opportunity for Ecology to make sure the NPDES permit includes any regulatory requirements that have changed since the previous permit renewal. It also gives Ecology an opportunity to review data collected during the previous permit cycle to decide if Ecology must make any changes to the permit based on that data.

Generally, the permit renewal process is not considered a decision-making point for Ecology to decide whether a facility should continue to operate. General Permit Condition G3 and G17 of the permit defines the reasons and the procedures for terminating a permit or denial of a permit renewal. For example, if a facility is an egregious violator and it refuses to come into compliance despite escalating enforcement from Ecology, this may be grounds for denying a permit renewal or terminating a permit. Terminating the permit could occur at any time during the permit cycle.

PTPC has generally been in compliance with their AOP and NPDES permits. The fact that a facility has violated an air or water permit is not grounds to terminate a permit. Occasional violations are expected under both the Clean Air Act and Clean Water Act. Violations that have occurred under the NPDES and AOP permits are generally short in duration. Ecology is not aware of any current on-going violations at the facility.

Finally, Ecology notes that Ecology reports all violations and associated enforcement actions to EPA. EPA provides a level of oversight over Ecology's enforcement work and is able to provide assistance if EPA believes Ecology needs to perform additional or more severe enforcement action at a facility. EPA has quarterly meetings with Ecology to discuss NPDES-permitted facilities that are considered "significant non-compliers" according to EPA criteria. Although PTPC has occasionally violated their NPDES permit, their performance does not constitute significant non-compliance.

F. Expired Permit/Administrative Extension

Several commenters expressed concern that PTPC was operating under an expired permit. When PTPC's NPDES permit expired in 2018, Ecology administratively extended the permit. An administrative extension of a NPDES permit is a way for Ecology to allow an existing, expired permit to remain effective while Ecology is drafting a permit renewal. Ecology will administratively extend a permit so long as the permittee submits a complete and timely application for renewal, which PTPC did.

It can sometimes be difficult for Ecology to renew a permit prior to its expiration date, especially for large, complex NPDES permits like PTPC's. Ecology acknowledges that PTPC's NPDES permit was significantly expired. This was largely due to competing priorities and staff turnover.

G. Odors, Health Concerns Related to Air Emissions

The kraft pulping process utilized by PTPC uses sulfur-containing compounds. This can result in emissions of sulfurous compounds that can cause odors. Some of these compounds have very low odor thresholds, which means that the human nose can detect them at very low concentrations. This threshold can be different for each person. The body's response to these odors can also be different for each person. While the NPDES program is intended to regulate the discharge of pollutants to surface waters and does not regulate emissions of air pollution, Ecology has included an Odor Minimization Study in the permit to require the facility to assess measures that they can take associated with the operation of the wastewater treatment system to minimize odors from the system.

Concerns related to air emissions are more appropriate to address with PTPC's Air Operating Permit (AOP), which is a separate permit from this wastewater permit. The current AOP is effective until August 31, 2027. The following information is related solely to the AOP and provided for informational purposes only.

The AOP is a tool to display all applicable air quality regulations a facility must follow. There are no applicable numerical limits for odors; however, PTPC's AOP does have numerical limits for certain sulfur-containing pollutants at some of the emission units. In certain cases, PTPC is required to continuously monitor emissions of sulfur-containing pollutants at an emission unit. Even when PTPC is in compliance with these limits, it is possible that odors can still be present.

EPA does not classify the typical compounds (sulfur dioxide, total reduced sulfur) associated with odors from the kraft pulp and paper as carcinogens. However, EPA's Hazardous Air Pollutant (HAP) regulations, which apply to PTPC, do limit emissions of carcinogenic emissions. EPA's website on HAPs reads: "Hazardous air pollutants, also known as toxic air pollutants or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects".

Commenters expressed concern about thresholds used to determine what amount of carcinogenic emissions is acceptable. EPA's HAP regulation was originally based on levels of control technology available. Later, EPA performed a "residual risk assessment" to determine if EPA should implement changes to these regulations to mitigate an unacceptable level of risk. EPA's website may have additional information regarding

what level of risk they considered acceptable. The relevant categories on the website below are “Pulp and Paper I and II” and “Pulp and Paper Combustion Sources”.

<https://www.epa.gov/stationary-sources-air-pollution/risk-and-technology-review-national-emissions-standards-hazardous>

EPA also periodically performs an Air Toxics Screening Assessment to provide communities with information about health risks from air toxics. Emissions from PTPC are included in this assessment. A link to EPA’s Air Toxics Screening Assessment is below.

<https://www.epa.gov/AirToxScreen>

H. Harm to Aquatic Life

Ecology received comments concerned that PTPC’s wastewater discharge would be harmful to aquatic life. The NPDES permitting program is designed to be protective of aquatic life.

When writing this permit, Ecology considered if PTPC’s discharge has a reasonable potential to cause an exceedance of state water quality criteria. Water quality criteria are concentrations of pollutants in surface waters that should not be exceeded. A given pollutant can have two different applicable numerical water quality criteria. One criteria is designed to be protective of human health. The other criteria is designed to be protective of aquatic life. The aquatic life water quality criteria are derived using data from studies evaluating the effects of toxics on aquatic life. Ecology only found that one of the pollutants detected in PTPC’s effluent, chlordane, has a reasonable potential to cause an exceedance aquatic life water quality criteria. Ecology placed a water-quality based limit for chlordane in the permit to protect aquatic life.

PTPC’s NPDES permit also includes testing called Whole Effluent Toxicity testing. To perform such a test, specific aquatic species, grown in a laboratory environment, are exposed to different concentrations of PTPC’s effluent. Data collected during the tests is used to determine if PTPC’s effluent is toxic to aquatic life. Results from the testing in previous permit cycles have shown there is no reasonable potential for PTPC’s discharge to be toxic to aquatic life. Should Ecology obtain results during the next permit cycle that indicate there is a reasonable potential for PTPC’s discharge to be toxic to aquatic life, Ecology would impose additional limits and testing.

Responses to All Comments

Comment 1. Gretchen Brewer (Oral Comment)

Okay. And first, I’d like to say thanks to everybody for being here. And. okay, we’ll start with water usage down to from 14, 15 million gallons per day down to 9.6 million gallons per day is a significant improvement. I hope that is an actual improvement, and I hope that the permit is

structured to maintain that and that the mill will maintain their efforts to reduce water use. A few quick notes, I'll try, I'll try also to write. I see a lot that falls through the cracks and I call on Ecology to find a place to address issues such as the amount of steam that is put out into the air, the creosote, the creosoted pilings that much of the mill is built upon, what happens to the sludge that, well I understand that is the health department, but also more robust monitoring of TDLs and solid discharges, also odor from the ponds, I know odor is subjective, but it should be addressed somewhere, and also the problem with grandfathering in limits due to grandfathered in equipment. There to be a way to require bringing the equipment up to modern standards so they can further help reduce the pollution in our community, which I know they are eager to do. And let's see, I think that is pretty much it. Oh, and then the other is production, on the production-based limits, I can see a way that it could be gamed, not that they are, but that it could be gamed, so that they put in higher production amounts and really only work to the lower capacities thus allowing higher pollution limits, so I would like to see a way that ratchets down the limits and holds them to the production amounts that they are saying to match this. Does that make sense? So, okay. I will, I will further clarify this in writing, given time availability. Thank you very much. Thank you.

Ecology Response to Comment

Similar comments were made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See "Responses to Frequent Comments, Item C for a response to the comment regarding water usage at PTPC.

See "Responses to Frequent Comments", Item A for a response to the comment regarding steam from PTPC.

Creosote Pilings: The proposed draft wastewater permit regulates wastewater discharges from PTPC. Ecology does not have authority to require PTPC to remove creosote pilings under this permit renewal. It is possible that the removal of creosote piling may be required in the future as part of the Model Toxics Control Act (MTCA).

Monitoring: It's unclear to Ecology what is meant by "TDLs" in the comment. Monitoring of total suspended solids is required in the proposed draft permit four times per week. Information on how Ecology selected this monitoring frequency is under Section IV.A of this fact sheet.

Sludge: Sludge from wastewater treatment plant operation is typically disposed of in a third-party landfill. PTPC also operates a limited purpose landfill that is permitted to accept limited types of waste. The limited purpose landfill is regulated by the Jefferson County Health Department. Please contact the Jefferson County Health Department if you have concerns about PTPC's landfill.

Odors: The final permit includes an odor minimization study, focused on proper operation and maintenance of the wastewater treatment plant.

Grandfathered equipment: Technology-based limits can vary depending on when a given process started operation. Ecology calculates technology-based limits in accordance with the federal effluent guidelines. The most stringent level of control is called a “new source performance standard”. PTPC’s OCC recycling process is subject to these standards. Ecology also has applied this stricter level of performance to parts of the kraft pulping process, although it is not required by the federal regulations. See further discussion of this under Section III.B.2 of this fact sheet. Ecology may also apply stricter requirements if PTPC is not using “all known, available, and reasonable treatment” to their discharge. Ecology has not determined that there are additional known, available, or reasonable methods of treatment available at this time. This is further discussed in Section III.B.3 of this fact sheet.

Production-based limits: The production basis used to calculate the technology-based limits in the draft proposed permit are based on a long-term average production rate. This is further discussed in Section III.B.1 of this document. The Clean Water Act does not give Ecology the authority to limit production rates at the mill. PTPC may increase production rates above those used to calculate limits in the draft proposed permit so long as they are still able to comply with the limits in the draft proposed permit.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 2. Tom Connelly

We live in the most gorgeous part of the US, but you can't enjoy a summer breeze or listen to the rain at night. The Mill odor requires people to close their windows in hot and cold weather, it requires vents and windows closed in cars as you drive in and out of town. The mill closed in Pt. Angeles, if we're lucky it will also close in PT. They put ads in the local paper saying what a great neighbor they are, and how responsible they are to the environment. Anything that smells that bad can't be healthy, especially if it wakes you up at night coughing. It's polluting the water and air we breathe.

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See response to the frequent comments section of this Appendix, Item G– “Odors, Health Concerns Related to Air Emissions”.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 3. Michael Connor (Comment 1 of 10)

My comments begin with a summary list of the key comments followed by a deeper discussion of each.

1. The Port Townsend Paper Mill's (PTPM) odor plumes have a negative impact on real estate values of at least \$100 million and call for strict regulation.
2. It is important to tie odor control to the NPDES permit because the odors come from wetland treatment processes that will change wastewater quality.
3. The permit should require monitoring the sulfur stench plume location 24-7 so we can determine whether its impact is getting better or worse and hold Atlas to a 10% improvement each year.
4. This biggest discharger of wastewater in northern Jefferson County should be required to improve its treatment facilities to the level provided by the second biggest discharger of water in the region, the PT wastewater treatment plant. The permit should require 24-7 monitoring for TSS.
5. The permit should require that the paper mill reuse more of its water to reduce the amount of flow diverted from the Big and Little Quilcene Rivers, which support important chum and coho salmon runs.
6. The permit should improve the cooling water requirements to minimize impingement of marine organisms and toxicity from pipe cleaning biocides. In addition, cooling water flows should be decreased or stopped it when they are not needed.
7. The permit should propose quantitative upper and lower limits for BMP events based on industry averages. One set of spillage BMPs should include specific actions to prevent wood chip spillage at the PECO dock.
8. The permit should require the use of caged mussels to monitor the permit compliance of pentachlorophenol, chlordane, and benzo(a)anthracene.
9. The permit should require monthly reporting on the amount of primary sludge and ASB secondary sludge removed.

Ecology Response to Comment

Ecology has responded to each comment summarized above in the response to Comment 4 through Comment 12.

Comment 4. Michael Connor (Comment 2 of 10)

The Port Townsend Paper Mill's (PTPM) odor plumes have a negative impact on real estate values of at least \$100 million and call for strict regulation.

The PT Air Watchers in their comments on the recent air permit produced a series of maps showing the plume of the pulp mill reaching Fort Worden, North Beach, Cape George, Point Hadlock, southern Indian Island, and Marrowstone Island. I have personally smelled it in all those places in the last two years. I now live in Kala Point, about three miles south of the plant, and smell it every morning when the wind is very low with some elements from the north.

While there may not be documentable acute health impacts, the odor does reduce the value of my property. As I was looking for houses, some realtors nearer the mill said they reduced the price by as much as \$100,000 (Zillow listings maps certainly bear this out). If there are 1,000 lots for homes and businesses in the region affected by \$100,000 price reduction, that yields a \$100 million reduction in property values.

What if we make this estimate another way? The total assessed property value of Port Townsend, Washington is \$2.9 billion, which is usually a 10-20% underestimate. A property value loss of only 3% of \$3.3 billion for the region's foul odors would reduce real estate value by \$100 million. Besides the losses to property owners, it also reduces property taxes annually by about \$1 million.

The PT paper mill does provide community benefits in the form of good, working class jobs and cardboard recycling, but paper mills with up-to-date equipment accomplish these goals without producing foul odor plumes affecting a significant portion of eastern Jefferson County.

Ecology Response to Comment

Comment noted. The permitting framework established under the Clean Water Act contains no provisions to account for real estate values while creating permit limits, monitoring requirements, or studies.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 5. Michael Connor (Comment 3 of 10)

It is important to tie odor control to the NPDES permit because the odors come from Aerated Stabilization Basin (ASB) secondary treatment processes that will change wastewater quality.

Most of the odors created by the plant are associated with the aerated sludge basins, which have been filling up over the years. Dredging the basins or most other treatment processes will re-suspend solids that could be discharged through the outfall. A joint strategy tying odor control plans to wastewater discharge outcomes is crucial.

Ecology Response to Comment

The final permit includes an Odor Minimization Study. The final permit requires PTPC to evaluate potential options to reduce odors associated with the wastewater treatment plant.

PTPC is currently engaged in a long-term dredging process for the ASB. While it is true that dredging could re-suspend solids, this is normal maintenance that PTPC is able to perform, and is encouraged to regularly do, under their wastewater permit. Any temporary re-suspension of solids would not be environmentally significant compared

to the additional capacity, performance, and odor control gained from dredging of the ASB.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 6. Michael Connor (Comment 4 of 10)

The permit should require monitoring the sulfur stench plume location 24-7 so we can determine whether its impact is getting better or worse and hold Atlas to a 10% improvement each year.

The difficulty in accurately assessing the level of treatment necessary to address the odor problem is the lack of adequate monitoring data to characterize the amount of pollution leaving the mill's boundaries. As a result, it is impossible to calculate a mass loading within an order of magnitude. Besides, the difficulty in predicting plume concentrations in Port Townsend, it is impossible to determine if the problem is getting better or worse. Ideally, the pulp mill would commit to a small reduction in odor releases, such as 10% per year.

Remote sensing technology has improved dramatically over the last decade so it should be quite cost effective to monitor for some plume surrogates like sulfur or methane.

Ecology Response to Comment

Ecology accepted comments on the draft wastewater permit renewal for PTPC. Ecology is unable to implement air quality requirements, such as ambient air monitoring, in a wastewater permit. Odors cannot be measured directly, and they can be perceived differently by different people. There are no standards related to odors in either the Clean Water Act or Clean Air Act. As you are aware, ATSDR recently published results from a 2018 ambient air monitoring study that measured concentrations of sulfur dioxide and total reduced sulfur compounds in the Port Townsend community¹³⁹. As no regulatory levels were exceeded in the ambient air based on the ATSDR sampling, Ecology has not decided to pursue additional ambient air monitoring at this time.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 7. Michael Connor (Comment 5 of 10)

This biggest discharger of wastewater in northern Jefferson County should be required to improve its treatment facilities to the level provided by the second biggest discharger of water in the region, the Port Townsend wastewater treatment plant. The permit should require 24-7 monitoring for TSS.

¹³⁹ <https://www.atsdr.cdc.gov/HAC/pha/PortTownsendPaperCorp/Port-Townsend-HC-508.pdf>

PTPM is the biggest discharger of wastewater to the coastal waters off Port Townsend by about a factor of ten, compared to the Port Townsend wastewater treatment plant (POTW). A comparison of permit inspection photos from the two facilities shows a gleaming well-run facility (POTW) compared to a decrepit, barely functioning, rusty leftover (PTPM). The PTPM facility reminds me of failing wastewater treatment facilities I inspected 40 years ago when I worked for EPA Boston. Their different appearance is further reflected in their permit data (sources from their respective fact sheets)

Table 52. Wastewater Effluent Data Comparison: PTPM and POTW (Table Caption Not Submitted with Original Comment; Table Caption Written by Ecology)

Parameter	PTPM Avg.	PTPM Max.	POTW Avg.	POTW Max
Flow (MGD)	9.6	14.4	0.82	2.03
BOD (ppm)	29	209	4.3	7.8
BOD (lbs/d)	4913	9497	28.4	73
TSS (ppm)	6.6	212	3.3	4.46
Tot. Ammonia (ppm)	6	9	0.37	1.4

Despite their 10-fold difference in flows, the PTPM can discharge 50-130 times more BOD and TSS to the coastal waters. The large multiplier between TSS average and maximum suggests that 24-7 monitoring is warranted for TSS. Cheap, real-time sensors are quite common to accomplish this need. DO monitoring should also be required 24-7 since it is a crucial measure of the effectiveness of the ASB basin.

Ecology Response to Comment

It is difficult to directly compare PTPC's wastewater treatment plant performance to the performance of a POTW. In order to compare the performance of the two types of plants, the influent concentrations would also need to be included in the comparison. The technology-based limits EPA has established for pulp and paper mills are different from the technology-based limits established for POTWs because the two types of dischargers are expected to discharge different concentrations and amounts of pollutants. There is no technology-based limit for ammonia applicable to PTPC's discharge. PTPC's discharge showed no reasonable potential to exceed ammonia water quality criteria. It is possible Ecology may determine that PTPC must reduce ammonia discharges in the future after completing the study of dissolved oxygen in levels in the Puget Sound¹⁴⁰.

Effluent limits are generally technology-based or water quality based. Technology-based effluent limits for TSS are generally based on EPA's effluent limit guidelines and have monthly average or daily maximum averaging periods. There are no water quality criteria for total suspended solids. As there is no applicable TSS limit with a short-term

¹⁴⁰ <https://ecology.wa.gov/research-data/data-resources/models-spreadsheets/modeling-the-environment/salish-sea-modeling>

averaging period, the permit does not require continuous TSS monitoring. The permit requires composite sampling for TSS four times per week.

The final permit and the currently effective permit include continuous monitoring for dissolved oxygen in the effluent of the ASB. PTPC reports the daily average DO value in their monthly discharge monitoring reports.

Ecology did not make any changes to final permit as a result of this comment.

Comment 8. Michael Connor (Comment 6 of 10)

The permit should require that the paper mill reuse more of its water to reduce the amount of flow diverted from the Big and Little Quilcene Rivers, which support important chum and coho salmon runs.

Given that the pulp mill is the largest water user on the peninsula, its impact on flow diversions from the Big and Little Quilcene Rivers, should be considered as climate change causes more variance in the hydrological cycles. The 15 CFS diversion to Port Townsend is a significant proportion of the 27 CFS average flows of the Quilcene. In drought years, particularly in the early fall season when chum and coho start their runs, water reuse will become a bigger response to variations caused by climate change.

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of the Appendix. Please refer to the response to frequent comments, Item C.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 9. Michael Connor (Comment 7 of 10)

The permit should improve the cooling water requirements to minimize impingement of marine organisms and toxicity from pipe cleaning biocides. In addition, cooling water flows should be decreased or stopped when they are not needed.

The fact sheet indicates that approximately 1.5 MGD of seawater used for cooling is discharged even though it is rarely used for cooling. It seems to have a separate outfall 003 that is not monitored for flow or contents. Most water intake pipes clog unless they are regularly cleaned with biocides. It's hard to believe that is not the case here—all you need to do is look at the nearby intertidal rocks encrusted with barnacles and mussels. In addition, it is not clear that process water cannot leak into cooling water given the age of the pipes—salinity would be a

simple way to check this. Cooling water discharges could also be a major impact of the PTPM due to their impingement of marine plankton at the influent pipes.

Ecology Response to Comment

The permit contains a requirement for PTPC to evaluate reducing the amount of saltwater they use under Special Condition S18.B.

PTPC does not use the water they discharge back into Port Townsend Bay through Outfall 003 for cooling or otherwise. Therefore, there is no risk of process wastewater leaking into Outfall 003. When PTPC does use the water from the cooling water intake in the process, PTPC treats it in their wastewater treatment system.

Ecology is unsure if PTPC uses biocides in the CWIS. Ecology has updated Special Condition S4.A.2.k in the final permit to require PTPC to provide information on any biocides they use, how frequently they are used, and a description of procedures in place that minimize the amounts of biocide used. PTPC must also provide SDS sheets for the biocide.

Regarding the concerns regarding impingement, PTPC is required to maintain the through-screen velocity of their cooling water intake structure at less than 0.5 feet per second. EPA has established this standard as the best technology available to reduce significant impingement.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 10. Michael Connor (Comment 8 of 10)

The permit should propose quantitative upper and lower limits for BMP events based on industry averages. One set of spillage BMPs should include specific actions to prevent wood chip spillage at the PECO dock.

The draft permit has an extensive discussion of BMPs for spill prevention in Section S20. These issues are commonplace at the plant. Again, instead of setting special goals for an already decrepit plant, the permit should set standards based on well-functioning plants. The permit notes frequent spillage of wood chip loading at the PECO dock. The permit simply calls for sampling. There is no clear acceptable amount of spilled wood chips, and sampling won't help determine anything. BMPs are a practical alternative.

Ecology Response to Comment

Ecology based the BMPs under Condition S20 on EPA regulations. The EPA regulations require facilities to establish BMPs based on data collected from their site. See section V.M of this document for additional information. These BMP requirements can be found under 40 CFR Part 430.03.

Condition S5 of the permit includes a solid waste control plan. The solid waste control plan requires PTPC to document all best management practices and facilities in place to prevent the loss of wood chips to surface waters. Sediment sampling results will be compared to Ecology's sediment management standards (WAC 1730-204).

Ecology did not make any changes to the final permit as a result of this comment.

Comment 11. Michael Connor (Comment 9 of 10)

The permit should require the use of caged mussels to monitor the permit compliance of pentachlorophenol, chlordane, and benzo(a)anthracene.

There is not a good match between regulatory water quality monitoring practices and the very low limits required by human health criteria. It is not clear from the fact sheet data that the permit requirement is not totally driven by a sampling artifact. Other discharge permits solve this problem by requiring the use of caged mussels. There are ample protocols and consultants with this capability. The data will be a much more reliable indicator if there is truly a problem. This strategy might be the most reliable way to evaluate the PFAS issues.

Ecology Response to Comment

Ecology is not aware of any permits that perform biological tests to determine compliance with numerical effluent limits. The permit does contain Whole Effluent Toxicity (WET) testing, which studies the effects of PTPC's effluent on aquatic species by exposing them to various concentrations of effluent.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 12. Michael Connor (Comment 10 of 10)

The permit should require monthly reporting on the amount of primary sludge and ASB secondary sludge removed.

As the fact sheet notes, the data presented do not meet the requirements of convincing regulators that the ASB basin design is sufficient. The water balance is very clear, but no solids balance is presented. The biggest drivers of the solids balance are the removal of primary and ASB secondary sludge. In fact, some of the odor control strategies center on dredging of the ASB because it has not been reliably conducted over the years. Regular reporting of these activities would go a long way in improving community understanding of the facility. As mentioned earlier, it is also crucial to have 24-7 TSS monitoring. The big variation in TSS data suggest that unusual spill events could drive the overall solids balance during the year. It's rare that spill events are adequately monitored in any NPDES permit.

Michael Connor is a Ph.D. Biological Oceanographer trained at the Woods Hole Oceanographic Institution and Harvard School of Public Health. He has worked for regulatory agencies, NGOs, and regional discharge agencies on coastal pollution for 40 years, mostly in Massachusetts Bay and San Francisco Bay. He has lived in the paper mill plume zone since 2022.

Ecology Response to Comment

The final permit requires PTPC to report amounts of sludge removed from the ASB. See Table 9 under Special Condition S2 of the final issued permit. The 2013 permit renewal also required PTPC to report amounts of sludge removed from the ASB. This information is publicly available. Sludge removal from the ASB is especially challenging for PTPC because they must remove the sludge manually during planned dredging events. Primary clarifier sludge removal is automated. PTPC continuously pumps sludge from the primary clarifier to a dewatering system. Because of this, Ecology has not included any reporting requirements for sludge removed from the primary clarifier.

Condition S4.B of the proposed and final permit require PTPC to submit to Ecology the results of their sludge depth surveys they perform at the ASB. These submittals will also be publicly available.

See response to Comment 7 for a response to the request for 24-7 TSS monitoring.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 13. Kathleen Dowd

I request that the Department of Ecology not allow more chemicals into their waste water stream. The situation at the Port Townsend mill needs to be remedied, not studied for four more years.

It is time that DOE require the mill to mitigate their environmental impacts, not increase their impact and then study what happens. There is already a great detrimental impact taking place in the local environment. Isn't DOE there to protect the environment and stop this from happening.

The chemicals from the mill are known to be hazardous to human health, wildlife, and the environment. They have been classified as possible carcinogens.

It is imperative that the mill change its operations to minimize or eliminate its release of carcinogenic materials into the environment. This can be done by cleaning up operations, not taking jobs away.

With regards to air pollution and effluent from the mill (a separate issue) - I personally suffer directly when this odor is present.

Overall it is high time for the DOE and the community to do something to reduce the effluent and emissions from the mill, not allow them to increase and just study them.

Thank you, Kathleen Dowd

Ecology Response to Comment

Ecology wrote this permit by applying state rules and regulations used to implement the Clean Water Act. Ecology does not anticipate that the increase in permitted limits for TSS and BOD5 will cause a water quality exceedance in Port Townsend Bay. There is no evidence that PTPC's discharge is currently causing a water quality exceedance in Port Townsend Bay.

The remaining comments were similar ones made by other commenters. Ecology included a response to such comments at the beginning of the Appendix. Regarding carcinogenic chemicals, please see the response to frequent comments, Item B.

Regarding odors, please see the response to frequent comments, Item G.

Regarding the increase in limits, see the response to frequent comments, Item D.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 14. Don Ehnebuske

I'm part of a group of locals concerned about both the all too frequent emission of odors from the mill that blanket different areas in the community and also about the sustainability of the paper mill. In fact, we see these issues as linked – if the mill expects to remain in the community for the long term it will need to get the odors under control.

We're not just complaining, we want to be part of the solution. For the last four months we've been gathering to research just what it is that creates the odors, as well as to brainstorm ways in which we could aid any efforts to help mitigate the odors. This group's members include an emeritus professor of chemistry from a prestigious university, a former environmental manager from an industrial company in western Washington, a former president of a major global technology academy, and a former director of a regional economic development commission among others. We were able to access pulp and paper industry sources of information about the chemical processes involved and the best practices that can limit the production of odors.

We were hoping to meet with mill officials to find out more about the issues specific to this nearly 100 year old mill and what the owners were planning in this third year of their ownership. When we contacted the mill to request a one hour meeting our request was denied, and then denied a second time. One hour.

What we are most concerned about is the priority of odor mitigation by the mill. There are definitely methods available to achieve significant reductions in odors released into the basins that are not in effect at the Port Townsend Paper Company. Basic maintenance of the basins has been lacking from long before the new ownership took over, aeration efforts are hampered by heavy sedimentation in the basins, ineffective aerators, and low pH levels. The waste stream from the pulping system and wood chip digesters, known as “Foul Condensate”, feeds directly into the basins basically untreated instead of using methods such as “steam stripping” to reduce concentrations of sulfur compounds which are the source of the majority of the odors.

We recognize that these steps are not always easy to achieve but they will never be achieved if the mill does not prioritize them. The permit application is one place to encourage the mill to prioritize odor minimization.

This permit application calls for an Odor Minimization Study to be submitted within 18 months from the date of the permit but does not describe how this study is evaluated. The previous 2017 Odor Minimization Study does not describe any other options for odor control beyond maintenance of current systems, despite the requirement that it includes a discussion and engineering report on the feasibility of other options. My requests to the Department of Ecology are:

- The timeline for preparing the Odor Minimization Study be reduced to 12 months.
- That the Department of Ecology evaluation of the permit application be made public, including the evaluation of the Odor Minimization Study, and that public comments on the quality of the entirety of the permit application be included in the final document.
- That the Odor Minimization Study include a complete evaluation of alternative methods of odor minimization, including engineering studies and timelines, as described in the permit application.

Ecology Response to Comment

Ecology notes that there are multiple options for foul condensate management in the federal air quality rules applicable to kraft pulp and paper operations. Managing foul condensates by hard-piping them beneath the surface of the ASB is an option allowed under the rules. Treating the foul condensates in a steam stripper is another option.

Regarding the first bullet point, Ecology understands the desire to expedite odor minimization at PTPC. However, Ecology is retaining the 18-month due date for the

Odor Minimization Study. Ecology must provide PTPC an adequate amount of time so they can produce a quality study.

Regarding the second bullet point, all submittals required by this NPDES permit, including the Odor Minimization Study, will be available to the public. Documents can be accessed on this website: <https://apps.ecology.wa.gov/paris/PermitLookup.aspx> . Ecology reviews the submittals as they are received. Submittals are not considered part of the permit application. If Ecology provides formal comments on a submittal via letter, the letter will also be available on the same website. Ecology is not required to hold public comment periods on submittals. However, if you have questions or comments on the submittals posted online, you may reach out to Ecology.

The permit application, when received, will also be available on the linked website. The permit application will not contain information related to the Odor Minimization Study. Ecology is generally not required to perform a public notice for most permit renewal applications. Members of the public are still able to review the application when it is submitted and send questions or comments to Ecology.

The Odor Minimization Study will include the items identified in Special Condition S24.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 15. Tom Ehrlichman (Comment 1 of 4)

Dear Ms. Toffol , Mr. DeMay, and Ecology Decision Makers:

Please consider and distribute the following comment during Ecology's review of the above-referenced NPDES permit. I am not an expert on NPDES statutory or regulatory requirements, and reserve the right to comment further once information disseminated to the public for this draft permit is corrected to allow meaningful public comment. My general comment at this time is that that the draft permit involves an increase in pollutant discharges to the Salish Sea that exceeds current permit limits and therefore may violate the Clean Water Act, 33 U.S.C. §1432, et seq. The applicant apparently has advertised to the public and local media inaccurately, that its draft permit effluent levels will not pollute the Salish Sea. The draft permit, compared to the existing permit, demonstrates that this draft permit will elevate not decrease permit effluent limits.

The public information distributed by the applicant undermines the transparency of the permit action you are about to take. I am requesting that inaccurate public information be corrected and reissued and that the comment period and public outreach be restarted to ensure a transparent and meaningful public process.

Inaccurate Statements

Prior to holding its public meeting on this draft permit, the applicant initiated a public relations blitz in the Port Townsend Leader, purchasing full page ads claiming that its wastewater effluent was as clean as the water received onto its site. See Attachment 1. The Leader reciprocated with a Page 1 headline suggesting inaccurately that the mill was in fact limiting rather than increasing its current levels of discharges.

The fact sheet from Ecology shows that effluent limits for BOD are 7% greater than the current permit and total suspended solids will increase by 2%.

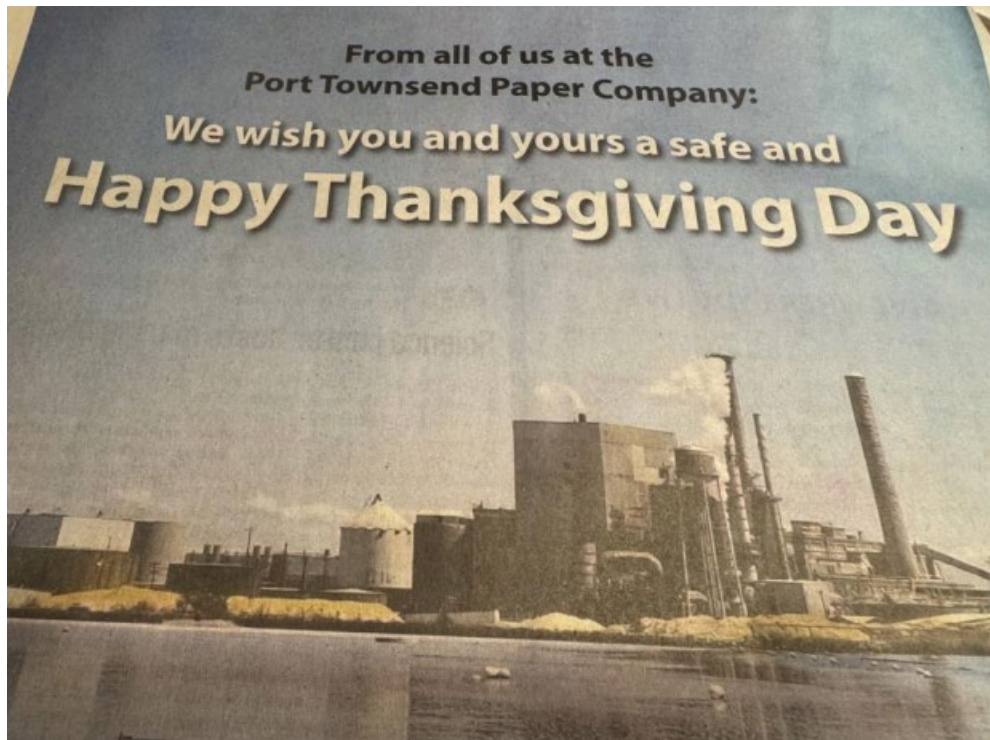


Photo 1. The commenter submitted this photo with their comment as Attachment 1. The commenter notes that this full-page ad was placed in the Port Townsend Leader on November 20, 2024. There was also a headline for an article on the same date titled "Mill's draft permit would limit chemical discharges, boost testing". The commenter noted that the photo shows no air discharges from the mill. This caption was written by Ecology.



Photo 2. The commenter submitted this photo with their comment as Attachment 1. The commenter noted that this is a full-page ad in the Port Townsend Leader Working Waterfront Booklet, Winter 2024. The commenter notes that the ad claims that the “effluent water is as clean as when it came into the plant”.

Ecology Response to Comment

Other commenters provided a similar comment regarding the increase in limits. Ecology included a response to frequent comments at the beginning of the Appendix. For more information about the increase in limits, See response to frequent comments, Item D.

Photo 1 appears to be unrelated to this NPDES permit. Ecology acknowledges that PTPC’s language in Photo 2 is misleading. Ecology has no oversight over any

advertisement campaigns that PTPC creates. Ecology is not required to hold a new comment period based on information that a permittee provides to the public.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 16. Tom Ehrlichman (Comment 2 of 4)

Odors From Wastewater and Steam Emissions.

As noted on Ecology's website for Port Townsend Paper:

PTPC uses the kraft process to create wood pulp from wood chips. This process uses sulfur compounds to break the wood fibers down so that it can be used to make paper. The sulfur used in the process can be released into the air and can often be detected by the human nose at very low concentrations.

And as noted in your email to me dated September 17, 2023 and a correlative phone conversation we had, PTPC has acknowledged practices involving operation and maintenance of its wastewater settling ponds that result in substantial discharges of odors affecting the adjacent community, including our residence some twelve miles to the south of the mill:

They did note one unusual condition – they re-started a certain piece of equipment on the afternoon of the 7th and noted that winds would have been blowing south during this time. During start-up, it's possible that there was a temporary increase in emissions. However, this does not necessarily indicate that they were in violation of any permitting requirements, even if odors are present.

The draft permit requirements (P. 59) for the study of odors and annual reports only require a discussion regarding the reasonableness and economic feasibility of implementing identified available strategies, procedures, work practices or technologies "as determined by the engineering economic analysis." The permit should also require the permittee to hold public meetings and review public comments on odor issues in order to ensure transparency with the public as to why the odor discharges regularly occur. The permit should require a third party study on an bi-annual basis that examines the frequency and intensity of odor discharges within close, near and distant communities adversely affected by the discharges, with recommendations on technologies that would better meet odor discharge requirements. The permit should require a five year plan to eliminate odors within that time period. The current approach merely requires study of economic feasibility, without evaluation of community impacts and frequency and intensity of occurrences.

The draft permit (P. 59) says the study has to discuss the projects listed in the Sept. 28, 2017 PTPC Odor Minimization Study Report. Ecology's draft report only requires submittal of an updated report 18 months from the new permit issuance date, with annual reports not starting

until 30 months after the permit. The study requirements do not include any requirement to review odor complaints submitted to Ecology or to provide explanations of any odor plumes that have occurred since the last study.

Ecology Response to Comment

All submittals required by this NPDES permit, including the Odor Minimization Study, will be available to the public. Documents can be accessed on this website: <https://apps.ecology.wa.gov/paris/PermitLookup.aspx> . Ecology is not required to hold public comment periods on submittals. However, if you have questions or comments on the submittals posted online, you may reach out to Ecology.

Due to the nature of the kraft process, some amount of odor is somewhat expected. The process uses sulfurous chemicals to break down wood chips. This results in sulfurous emissions, which can be cause odors. Ecology is unaware of any recognized best practices to completely eliminate odors from the kraft process. The projects in the previous odor minimization study were not expected to completely eliminate odors.

Ecology acknowledges that odors from PTPC can be disruptive to the Port Townsend community. PTPC's Air Operating Permit requires them to investigate potential sources of odors at the mill when Ecology receives odor complaints. A summary of the investigation of their complaints is publicly available to anyone who submits a public records request to Ecology.

The request for bi-annual studies that examine the frequency and intensity of odors would be difficult to achieve. There is no standard method to quantify odors under air or water regulations. Odors cannot be measured directly, and the intensity of an odor can be experienced differently by different people. Ecology notes that PTPC's Air Operating Permit contains limits on some odor-causing compounds like total reduced sulfur and sulfur dioxides. For certain pieces of equipment, PTPC is required to monitor emissions continuously. Furthermore, odors can come from multiple sources at the mill. A community- wide odor study would not be reasonable under the NPDES permit. The NPDES permit is focused only on minimizing odors from the wastewater treatment plant.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 17. Tom Ehrlichman (Comment 3 of 4)

Water Recycling.

Based on a review of the draft permit, there is no mention of water recycling. The mill known to utilize water from the region in the ballpark of 13 Million gallons per day. The permit should require development of a plan over the next three years to identify and phase in known

recycling measures used in other mills of this general type. With instream flow restrictions in nearby basins on the Peninsula, water conservation should be one of Ecology's top priorities when reviewing heavy industrial uses like this. Ecology staff, working with legislative staff, can identify existing and proposed rules and regulations authorizing Ecology to require mandatory water recycling for Washington industries.

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of the Appendix. See Response to Frequent Comments, Item C, "Water Use and Reuse".

Ecology did not make any changes to the final permit as a result of this comment.

Comment 18. Tom Ehrlichman (Comment 4 of 4)

Temperature

There is no mention in the draft permit of the temperature of the water discharges when they reach the Salish Sea. On a tour for public officials in 2022, a plant employee stated to them that the temperature of the effluent can reach 78 degrees upon discharge to the Salish Sea. The draft permit and public outreach should provide current and proposed discharge temperatures for effluent. Temperatures that are higher than ambient Salish Sea waters have negative effects on aquatic habitat.

Ecology Response to Comment

Information regarding the temperature of PTPC's discharge is available under "Table 5 — Outfall 001A Wastewater Characterization, Temperature" of this Fact Sheet.

Ecology has established water quality criteria for surface waters in the state of Washington. Permit writers perform an analysis to determine if a wastewater discharge has a reasonable potential to cause an exceedance of the water quality criteria. If a discharge has a reasonable potential to cause an exceedance of a water quality criteria, Ecology implements a limit.

Ecology performed an analysis to determine if the temperature of PTPC's discharge would cause an exceedance of water quality criteria for temperature. This analysis is available in Appendix F of this document. Ecology determined that there is no reasonable potential for PTPC's discharge to cause an exceedance of the water quality criteria for temperature. Therefore, no limit is included in the final permit.

The proposed draft permit continues to include temperature monitoring that is required in the currently effective permit. The temperature of PTPC's discharge is not expected to change as a result of this permit renewal.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 19. Debra Ellers

As a full time Port Townsend resident, I am vitally concerned with the health of our air, lands and waters. Our critically endangered Southern Resident Orcas in our local Salish Sea number just 72, and face the dire threats of declining salmon for food, and toxic pollutants in the water. The lack of oxygen in our local waters is a huge concern. I urge you to restrict to the fullest extent legally allowed for the amount of pollution that the mill is allowed to discharge into our shared waters, for the health of people, sea life and the ecosystem. This includes chemicals from the production process but also other substances like wood chips. I have observed wood chips in the water and on the beach, which blow from the mill's storage areas, especially the moored barges near Fort Townsend State Park. These wood chips alter the growing conditions for vital seagrasses in Port Townsend Bay, and also detrimentally impact beaches for nearshore marine life like crabs. The wood chips qualify as a "discharge" into the waters, and should be regulated. The mill should be required to secure these loads of chips so that they don't so readily go into the water.

In summary, please do everything possible to limit further pollution from this industrial facility into our local waters. Thank you.

Ecology Response to Comment

Ecology wrote this permit, and has imposed limits, in accordance with state and federal regulations.

Ecology performed a reasonable potential analysis to determine if PTPC's discharge has a reasonable potential to cause Port Townsend Bay dissolved oxygen levels to fall below water quality criteria for dissolved oxygen. This analysis is available under Appendix G of this document. The final permit includes nutrient monitoring, which will be used for a wider study Ecology is performing to understand the cause of low dissolved oxygen levels in the Puget Sound. Additional information is available in under Section IV.A.6 of this document.

Ecology has established water quality criteria to protect human health and the environment. Water quality criteria are maximum allowable concentrations of a given pollutant that can be present in a water body. Ecology performed this analysis for all pollutants with an applicable water quality criteria that were detected in PTPC's discharge. Where the analysis determined that there is a reasonable potential for PTPC's discharge to cause an exceedance of a criteria, a limit was included in the draft proposed permit. This analysis is available in Appendix D of this document.

The final permit includes whole effluent toxicity monitoring, which is a direct way to assess if a discharge has the potential to negatively affect aquatic life. More information is available in Section III.M and Appendix K of this document.

Ecology agrees that wood waste in waterways can be harmful to the environment and aquatic life. Wood chips, when discarded into waters become solid waste material. PTPC must handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water (see draft proposed and final permit Special Condition S5.A).

The final permit requires a sediment study in the area where PTPC receives wood chips. This will provide information to Ecology of the extent of any contamination present. The final permit also requires PTPC to provide information to Ecology regarding best management practices for wood chip handling as part of the Solid Waste Control Plan (Special Condition S5.C).

Ecology did not make any changes to the final permit as a result of this comment.

Comment 20. Wendy Feltham

Dear Emily,

I am writing regarding the DOE's review of the Port Townsend paper mill Draft National Pollutant Discharge Elimination System. Thank you for conducting this review.

The mill is an important employer of hundreds of people in Port Townsend. I am writing to urge you to hold them to a high standard, as I'm concerned about the discharge into Port Townsend Bay. I've heard that the mill is seeking to discharge about 7% more effluent and 2% greater suspended solids. That is significant, at a time when the need to care for the marine habitat is so important. The permit includes new water-quality based limits for benzo(a)anthracene, chlordane and pentachlorophenol. I have no idea what these are, but I'm sure you do, and I hope you will not allow any harmful chemicals into the bay, which is, of course, connected to the Salish Sea.

My greatest concern is the marine ecosystem, its invertebrates, fish, and seabirds. Given the threats of climate change, we must do everything possible to minimize any further damage, and to improve and restore the health of this marine environment.

Sincerely,

Wendy Feltham

Port Townsend, WA

Ecology Response to Comment

Other commenters made comments similar to these. Ecology included a response to such comments at the beginning of the Appendix. For more information on the increased limits for BOD₅ and TSS, see the response to frequent comments, Item D.

For concerns regarding aquatic life, see response to frequent comments, Item H.

Information on benzo(a)anthracene, chlordane, and pentachlorophenol is available in Section III.I.7 of this fact sheet. See additional information regarding how Ecology established these limits under the response frequent comments, Item B.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 21. Kari Johnson

A huge part of the local economy is tied tourism and particularly maritime-related tourism. As such, continually increasing the limits on pollutants every permit cycle is in direct conflict with the economy and livelihood of the local community. The proximity of the mill to a main tourism district is quite unique. Some days, the smell from the mill is so bad in downtown Port Townsend that I have heard visitors comment on it in disgust. I am interested in pausing these pollutant increases until we can mitigate the risk to the other local industries. Rather than a generic odor impact study (which will result in no changes), it would be more useful to see a cost analysis of what would be required to switch the mill over to existing low-impact mitigation processes (like this one from Ecosorb (https://www.paper360-digital.com/ppis/0424_july_august_2024/MobilePagedArticle.action?app=false&cmsId=4208975) to reduce harm to the local economy and environment. This would allow community members to work with the mill to raise the necessary funds to make impactful changes. The long term impact on the wildlife is unknown, and I expect that many local individuals and businesses would be willing to raise money to protect local wildlife and ensure ecological health. If the mill and the town can't work together, changes would have to come through stricter legislation and fines which would be slower to enact and potentially damaging to all the local people who work for the mill. It would be much better to coordinate efforts and take a proactive approach to eco-friendly processes. Please make the expectations for the "odor impact study" more concrete, far-reaching, and require a public presentation of the proposals if possible.

Ecology Response to Comment

Odors are not expected to increase due to wastewater permit changes. Odors might increase if limits on kraft pulping increase. Increases in permitted limits are based off actual achieved production rates during the previous permit cycle, not a projected pulping rate. The NPDES permit does not directly regulate production rates at the facility.

As Ecology has not identified any recognized best practices and procedures to mitigate odors that are commonly used throughout the kraft pulp and paper industry, Ecology is unable to recommend or require such a technology or specific name brand. PTPC may choose to evaluate such a technology as part of the study.

Ecology regulates air emissions and water discharges from PTPC using the authority of the Clean Air Act and the Clean Water Act. These regulations are designed to be protective of human health and the environment.

All submittals required by this NPDES permit, including the Odor Minimization Study, will be available to the public. Documents can be accessed on this website: <https://apps.ecology.wa.gov/paris/PermitLookup.aspx> . Ecology is not required to hold public comment periods on submittals. However, if you have questions or comments on the submittals posted online, you may reach out to Ecology.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 22. Kathy Kirsch (Comment 1 of 8)

The permit should not allow for increased water pollution from the paper mill.

Why increase the limits except to placate the mill to produce more product with more pollution? How much have nearby property values declined because of the mill's pollution?

Ecology Response to Comment

Other commenters provided a similar comment regarding the increase in limits. Ecology included a response to frequent comments at the beginning of the Appendix. See response to frequent comments, Item D.

There is no provision in the Clean Water Act that allows Ecology to take into account property values when calculating limits for a NPDES permit.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 23. Kathy Kirsch (Comment 2 of 8)

How many salmon have died because of the mill's water pollution? How many are expected to die in the next ten years? What is mill water pollution correlation with salmon deaths?

Ecology Response to Comment

Ecology is not aware of any evidence that wastewater from PTPC is causing salmon deaths. See Responses to Frequent Comments, Item H, "Harm to Aquatic Life" for additional information on how the NPDES permit is protective of aquatic life.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 24. Kathy Kirsch (Comment 3 of 8)

What is being done to monitor the dump slag site? What is the plan for its cleanup?

Ecology Response to Comment

Jefferson County Public Health regulates Port Townsend Paper's limited purpose landfill. Please contact Jefferson County Public Health if you have concerns regarding their limited purpose landfill. Ecology has no regulatory authority over PTPC's limited purpose landfill.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 25. Kathy Kirsch (Comment 4 of 8)

The air and water pollution is intimately tied together and should thus be monitored and overseen by one agency. Why is this done by separate jurisdictions?

Ecology Response to Comment

Ecology regulates both air discharges and wastewater discharges from PTPC. Air permit information for PTPC is available on this website: <https://ecology.wa.gov/regulations-permits/permits-certifications/industrial-facilities-permits/port-townsend-paper>.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 26. Kathy Kirsch (Comment 5 of 8)

What are non-polluting ways to produce paper? What is the state not pushing to permit non-polluting mill production?

Ecology Response to Comment

Ecology is not aware of any pulp and paper making processes that do not have associated air or water discharges. Ecology has no authority to require PTPC to switch to alternative pulping technologies or feedstocks. The kraft pulp and paper making process is a legal process to produce pulp and paper, so long as PTPC meets all applicable regulatory requirements.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 27. Kathy Kirsch (Comment 6 of 8)

How do you know mill water samples are accurate and/or honest? How do you know water samples are not watered down? Who trains the mill to take water samples with accurate methods? How often does the state take its own water samples?

Ecology Response to Comment

The Clean Water Act is set up to require permittees to do their own monitoring. With this framework, facilities are financially responsible for paying for sampling rather than the state. For Ecology to be legally responsible for all monitoring, Ecology would need significantly more employees and changes to state and federal regulations.

Ecology will periodically perform their own sampling of wastewater at PTPC. We will compare our results to PTPC's results. We will do this about once per year as time and resources allow.

Laboratories that NPDES permittees in the state of Washington use for sample analysis must be accredited by Ecology's laboratory accreditation group. Before laboratories are accredited, Ecology's laboratory accreditation group reviews a lab's procedures to ensure that they are properly following the required methods. Accreditations are good for one year.

PTPC's laboratory holds accreditations for select pollutants. PTPC contracts out analysis to third-party labs for pollutants that they do not hold accreditation for.

Fabricating sampling results is a serious violation. Submitting false information can result in fines or imprisonment.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 28. Kathy Kirsch (comment 7 of 8)

What is done about violations? How much do they cost? Are they meaningful to the mill's bottomline economics?

Ecology Response to Comment

Ecology's response to violations that occurred during the previous permit cycle is available in Section II.D of this fact sheet. Ecology does not assess a penalty for every violation. Ecology assesses penalties using a standard matrix for all NPDES permit holders. When it is obvious that a facility financially benefitted from non-compliance, this can be taken into account when assessing a penalty. You can find information about enforcement actions that Ecology has taken online at this website:

<https://apps.ecology.wa.gov/paris/Inspection/FacilityEnforcement.aspx> .

Ecology did not make any changes to the final permit as a result of this comment.

Comment 29. Kathy Kirsch (Comment 8 of 8)

What is being done to reduce steam from the mill?

Ecology Response to Comment

Other commenters provided a similar comment regarding steam at the mill. Ecology included a response to frequent comments at the beginning of the Appendix. See response to frequent comments, item A for a response to the comment regarding steam from PTPC.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 30. Keith Hitchcock

Dear Department of Ecology,

I approve of the proposed studies in the permit, however I have concerns about how they are presented.

1. Having the Permittee study its own practices/output/etc. seems weak. The Permittee would be disinclined to produce findings that would be disadvantageous for them.
2. In general the studies, as written, lack rigor and urgency. For example: "Permittee must submit a source identification report to Ecology by including all information below." Four years is a long time. If there are adverse findings, we owe it to the health of everyone in the region to act quicker. Also, I don't see a strong sense of consequences or action steps in the case of adverse findings from the study.

For the health of my family, my neighbors and my community, I ask that you rewrite the proposed studies with a greater sense of rigor, urgency, responsibility and oversight.

Thank you, Keith Hitchcock

Ecology Response to Comment

Generally, having a facility perform the studies required in an NPDES permit is common practice. Ecology does not have the capacity to complete the studies for the hundreds of individual Permittees in the state. The Permittee has the best understanding of their own processes and is best suited to take into consideration these site-specific factors. Ecology is able to review submittals and require facilities to revise or correct submittals that do not meet the requirements of the NPDES permit.

Ecology understands that the community is interested in the results of these studies and would like to have more information as soon as possible. However, in order for PTPC to

submit reports to Ecology that are of value, Ecology must provide them with a reasonable amount of time to perform the studies. There are many studies, submittals, and reports required by the NPDES permit. Ecology attempted to spread out the requirements as appropriate.

In regards to the specific study quoted (the PFAS study), this source identification report comes later in the permit cycle due to requirements that come prior. Before the source identification study, PTPC must submit a sampling and analysis plan to Ecology, Ecology must approve the plan, and PTPC must perform one year of sampling. If PFAS are detected, PTPC needs time to identify potential sources prior to submitted the source identification report.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 31. Pete Langly (Oral Comment)

I am here in support of the discharge permit for the Port Townsend Paper Mill. I'm also concerned about our environment, but I also believe that we need to stay within our jurisdictional laws, and I also want to commend the paper mill for supporting the three hundred plus jobs that they have, and I believe they are recycling one-third of all of Washington State's OCC. Also, the fact that, I believe, now in their process, they are recycling their water 8 to 12 times before it is discharged. So they are taking advantage of the water and the usage of it as best as possible. So I would like to see this permit issued as written and we'll carry on with the monitoring and doing that for our community's welfare. Thank you.

Ecology Response to Comment

Comment Noted. Ecology did not make any changes to the final permit as a result of this comment.

Comment 32. Leslie Lincoln (Oral Comment)

Hi, my name is Leslie Lincoln, and I really appreciate both the paper mill for being here and providing good union jobs. I wanted to say I was 23 years as a union job, and it makes a stronger community to have good union jobs. So, what I am here for is the quality of the Salish Sea and the Puget Sound, and I'm working with a fellow with an oxygenation start-up company for dissolved oxygen, and I believe we have an opportunity and I'd like to see the permit to encourage the possibility that the pulp mill could put dissolved oxygen at a higher rate into their discharge and it would actually heal the bay. Be good energy. It would make a more robust biodiversity by the outflow if they could have higher dissolved oxygen content.

We all know we have a problem with the acidification and the dead zones in the Salish Sea and the rising temperatures. So I am concerned about this 16 degrees Celsius which is 60.1, 60.8 degrees Fahrenheit - 9.8 millions a day is a lot of water. So if it could be more oxygenated that would make a healthier bay not a less healthier, warmer bay, and I will also submit a written comment to say you know, maybe there is a way in this biochemical oxygen demand limits to actively reoxygenate the wastewater effluent so that the mill can contribute to a higher level of dissolved oxygen to heal our base and to create a more thriving biodiversity and healthy micronism here in Port Townsend, and it would be a positive force. I think it would be good for the mill and for the bay.

And I'd also personally recommend at least once or twice a year to have another outside source, it could create another job somehow, outside source to monitor the dissolved oxygen, especially if they were going to be able to do a dissolved oxygen level. I think that is pretty much what I wanted to say. Thank you very much everyone for being here.

Ecology Response to Comment

Ecology performed an analysis in the fact sheet to determine if PTPC's discharge has a reasonable potential to cause an exceedance of the water quality criteria in Port Townsend Bay for dissolved oxygen or temperature. This analysis is available in Appendix G and Appendix F, respectively.

Ecology notes that PTPC continuously monitors the temperature and dissolved oxygen content in their discharge. Ambient monitoring (monitoring in Port Townsend Bay) for temperature and dissolved oxygen is performed periodically in Port Townsend Bay at monitoring station PTH005, as discussed in the fact sheet.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 33. Leslie Lincoln (Written Comment)

FOR A HEALTHIER OCEAN FUTURE~

CC: Port Townsend Paper Corporation contact: communications@ptpc.com attn: Laurie Pls forward as appropriate Dear Department of Ecology Industrial Section Emily Tolfol, Permit writer & James De Mae, DoFE Section Manager as well as all concerned individuals,

Pls forward as well all these Questions/ Comments & associated Power Point file to the PS Nutrient Study Group Advisory Committee – Thank you very much.

GOALS FOR NEW PTPC NPDES Draft Renewal Permit:

~Work with new SOLUTIONS BASED Technology: OCEAN OXYGENATION CO.

~Initiate a "Phased Time" in near future for PTPC to mitigate their outflow effluent to improve control of TIN (total Nitrogen) to improve Dissolved O2 levels in Port Townsend Bay with increased DO (Dissolved Oxygen) supplied into their outflow. This recommended implementation of increased dissolved oxygen in both wastewater outflow and in chemical manufacturing processes will cause significant improvements.

~ This Permit Goal complies with required Optimization for all plants as per the Nutrient Study Advisory Committee

~ Implement "ACTIONS beyond important monitoring" with PILOT PROGRAM to supply:

- A) Dissolved Oxygen into the COB Chemical PTPC Manufacturing process which will improve manufacturing efficiency as per newly available technology.
- B) Dissolved Oxygen into the CBOD Discharge pipeline of effluent outflow such that the oxygen can help breakdown effluent discharge and improve water quality at the very outflow site 003.
- C) Honor Tribal Nations concerns that: "Capacity of Puget Sound/ Salish Sea to absorb waste water nutrients has already been surpassed " Thus needed reductions in nitrogen is of utmost importance to health of Salish Sea.
- D) Set new standards of excellence for Dissolved Oxygen levels in Waste Water Discharge for Washington State industries as well as the wider industrial community. Please note that this is a WIN-WIN for companies who can use higher levels of economical Oxygen in their manufacturing process. To re-iterate: increasing DO (Dissolved Oxygen) supply could provide highly effective cost savings for paper production-- as Dissolved O2 needed in the KRAFT Paper making process.
- E) Pls note that the Advisory Committee for Department of Ecology Nutrient Study said Pilot Trials should be encouraged in their official report.
- F) Encourage PTPC to look into both BLUEWAVE initiatives to help fund system upgrades; as well as Dept of Ecology WasteWater Grants

MORE QUESTIONS AND COMMENTS FOR PTPC NPDES PERMIT RENEWAL:

Please note to start with that the current permit is highly out of date, expired in 2018; thus there is even more catch up work to do to mitigate ongoing outflows. The health of Puget Sound water is already at risk with situations like documented fish die offs in our Salish Sea; thus is is not advisable to further increase any types of effluent, rather to more efficiently work with PTPC to process their outflow with higher levels of Dissolved Oxygen (DO). And to help them process their waste with increased inflows of DO.

PTPC could set new excellent business standards with help from BLUE WAVE initiative. Also, we know warmer salt water holds LESS OXYGEN, so higher temperature outflows further degrade Port Townsend Bay's O2 levels.

PLEASE ALSO NOTE: I am a Proud Retired Union Member (23 years of work on US Merchant Ships) so I absolutely want to support local PT Union jobs and the success of PTPC. Yet responsible outflows are critical and with increased Dissolved Oxygen at the plant they can continue to operate, even improve their financial efficiency-bottom line in the big picture.

QUESTIONS:

Specifically: Where is the 16 degree Celsius (approx. 60.8 Degree F) 9.6 million gallons/ per day of PTPC Wastewater measured? i.e. is it hotter coming out of the plant and cools in the bay running in a pipeline to Outflow 003- where the outflow water temperature may be measured? Or is it 16 Degrees Celsius as it leaves the plant? Is the outflow effluent wastewater flowing under pressure?

Will the Nutrient Sediment group be monitoring the PT Bay outflow site – especially if the Permit (temporarily) allows an increase in effluent flow?

If possible, I highly recommend a chance for Industrial Waste personnel to read the attached pages from a power point presentation from Ocean Oxygenation Company with newly patented technology to help both the required optimization at all plants with increased levels of supply DO. Also, it may be appropriate to schedule an Ocean Oxygenation presentation with scaled MOXYTANK to the Puget Sound Nutrient General Permit advisory committee when next available — to further make known this new technology to increase availability of Dissolved O2 into our public sphere so it becomes part of the AKART: "All Known, Available, Reasonable Methods of Technology. "

My comments have been aided with information from your:

- a. Nutrient pollution studies - Washington State Department of Ecology
- b. <https://ecology.wa.gov/Water-Shorelines/Puget-Sound/Helping-Puget-Sound/Reducing-Puget-Sound-nutrients/Nutrient-pollution-studies>

Pls See attached OCEAN OXYGENATION power point presentation. [note: since I can't upload a power point, I've made 5 jpg screens of his 5 page presentation for you. Jim Matei, President-Engineer of Ocean Oxygenation would like to schedule a phone call to discuss the above.

Thank you for your serious consideration and responses



MOXYTANK

Efficient economical method of dissolving oxygen into water

Photo 3. An image submitted by the commenter (image 1 of 5).

The MOXYTANK

The MOXYTANK story

The concept for a MOXYTANK was first developed due to a growing concern over the decreasing amounts of oxygen in our waters.

Alarmed to learn of the increasing number of Ocean Dead Zones and rising sea water temperatures; Jim Matei looked for causes and active solutions. He discovered that in the greater ocean and our Salish Sea; both rising water temperatures as well as municipal and industrial wastewater have been associated with lower amounts Dissolved Oxygen present in seawater. The decay of dead marine life further contributes to the loss of available oxygen. Thus he worked to design a system to efficiently and economically dissolve oxygen into water.

Experienced as a fisherman, marine engineer and solutions-based inventor/manufacturer; Matei has designed and built a system to increase the amount of oxygen saturation that water can hold.

While working independently in association with the salmon aquaculture industry; he tested saltwater oxygen pressure systems and then constructed a working scale model which he has patented as the MOXITANK. This tank supplies high concentrations of **dissolved oxygen** within fresh or saltwater.

Photo 4. An image submitted by the commenter (image 2 of 5).

The MOXYTANK Operation

- The MOXYTANK uses pressure to increase the amount of dissolved oxygen within a tank.
- The inlet pressure entering the MOXYTANK is provided by a regulated water pump. Under ambient conditions water supplied at 45 to 60 PSI has the ability to hold up to 45 ppm (Parts Per Million) of dissolved oxygen. Factors such as salinity, temperature and barometric pressure are variables which effect the ppm of output dissolved oxygen from the MOXYTANK.
- Filtered water enters into the tank on the upper level of the tank and 95% pure oxygen is applied at a slightly higher pressure than the tank water pressure.
- The water must pass through a micro screen which creates micro water droplets like a rain storm within the MOXYTANK which is under pressure.
- The micro droplets are surrounded by 95% pure oxygen under 1 to 4 Bar pressure. These droplets then begin to absorb the oxygen and settle at the base, near the outlet of the tank.
- This water with highly saturated dissolved oxygen can be sent out through a manifold for use; or depending on application, the water can be recirculated through a unique manifold to further increase the desired level of dissolved oxygen.
- The MOXYTANK can be scaled to produce the desired dissolved oxygen levels and water volume.

Photo 5. An image submitted by the commenter (image 3 of 5).

MOXYTANK

Why use a MOXYTANK?

- The MOXYTANK has been tested in various water conditions to achieve the maximum efficiency of the oxygen dissolving into the water. The cost of oxygen such as in bubbling systems and/or passing large volumes of water through areas surrounded by oxygen will dissolve some oxygen into the water, however it is inefficient as the amount of oxygen used makes it uneconomical on large industrial or municipality discharge systems.
- The MOXYTANK's unique recirculating and micro water droplet system is a highly efficient method of dissolving higher concentrations of oxygen into the water which lowers the cost of supply oxygen. This reduces the operational cost of large oxygen concentrators.
- The dissolved oxygen in the water will remain at higher levels under pressure. For example, when the dissolved oxygen is released at the surface, much of the oxygen will be lost like opening up a canned soft drink; however if the dissolved oxygen is released under pressure, for example several fathoms below the surface, much more of the dissolved oxygen will remain in the water. Designing each system which uses the MOXYTANK will require careful calculations of the specific applicable pressures. Again the needed pressure calculations are critical to successful application of the MOXYTANK to achieve the desired amount of dissolved oxygen into the water.
- Directing dissolved oxygen into outflow head pressures or pumping systems is another effective use of the Moxitank. Please note also enhanced O2 supply increases the efficiency of industrial manufacturing COD (Chemical Oxygen Demand) and/or BOD (Biological Oxygen Demand). This is why the MOXITANK provides many economical opportunities for industries such as paper mills and can more efficiently process municipality discharge.
- Processes that use COD or BOD systems will be more cost efficient with an inline MOXITANK.
- MOXITANK effectively and economically provides increased dissolved oxygen levels in marine habitat waters to enhance the growth of marine life.

Photo 6. An image submitted by the commenter (image 4 of 5).

FUTURE OF INCREASED DISSOLVED OXYGEN OUTFLOWS

Near Term Future:

Ocean Oxygenation Co. to look forward to cooperating with Potential Agencies or Partners such as:

1. BLUEWAVE Initiative to help support Win-Win Ecology- Manufacturing Opportunities
2. Dept of Ecology's PUGET SOUND NUTRIENT REDUCTION –Find a Grant or Loan
3. U.W. Puget Sound Institute
4. PNNL's Dissolved Oxygen Modeling Study (Salish Sea Model)
5. Dept of Ecology's PS Nutrient General Permit Advisory Committee
6. Northwest Indian Fisheries Commission and participant Sovereign Tribal Nations
7. Conduct TANK TESTS with appropriate agencies to ascertain successes, any associated risks or unintended consequences for PROOF OF CONCEPT and as an ACTIVE PILOT PROGRAM.

Mid Term Future:

1. Work directly with Industrial partners such as PT Paper Corporation for "Pilot Trial Program."
2. Possibly work with Tribal Nations to oxygenate anoxic sediments for marine rehabilitation.
3. Contribute to the Nutrient Sediment study to monitor and document improved Water Quality and Sediment changes with observed increased DO (Dissolved Oxygen) Outflows
4. Ocean Oxygenation can become a new AKART: "All Known, Available, Reasonable Methods & Technology."

Long Term Future:

-Mitigated and improved health of our Salish Sea with increased levels of Dissolved Oxygen Supply



The Ocean Oxygenation Company Inc.

MOXYTANK

For further information, please contact Jim Matei

jmatei@oceanoxygenation.ca

250 886 5333

Photo 7. An image submitted by the commenter (image 5 of 5)

Ecology Response to Comment

Although Ecology staff may use data collected by PTPC under this permit as part of the Puget Sound Nutrient Reduction Project and Salish Sea modeling, please note that this permitting action is largely unrelated to the Puget Sound Nutrient Reduction Project. Please find contact information for Ecology staff working on the Puget Sound Nutrient Reduction Project at this website: <https://ecology.wa.gov/water-shorelines/puget-sound/helping-puget-sound/reducing-puget-sound-nutrients/puget-sound-nutrient-reduction-project>.

Ecology is unable to endorse or require PTPC to use or consider using specific brand-name technologies. In regards to PTPC's expired NPDES permit, see the response to frequent comments, Item F.

Ecology is not aware of any evidence that PTPC's discharge is linked to fish kill events. See the responses to frequent comments, Item H, "Harm to Aquatic Life" for additional information on how the NPDES permit is protective of aquatic life.

Ecology performed an analysis in the fact sheet to determine if PTPC's discharge has a reasonable potential to cause an exceedance of the water quality criteria in Port Townsend Bay for dissolved oxygen or temperature. This analysis is available in Appendix G and Appendix F, respectively. See also response to previous comment (Comment 32).

The work that the Nutrient Reduction Project is conducting is complex. They are trying to understand how the many dischargers to the Puget Sound cumulatively impact dissolved oxygen levels. This work is still ongoing. If, in the future, the Puget Sound Nutrient Reduction Project indicates that reductions in nutrient discharges from PTPC are required, such requirements will be incorporated into future renewals or modifications of this permit.

Ecology has provided answers to your specific questions below.

“Where is the 16 degree Celsius (approx. 60.8 Degree F) 9.6 million gallons/ per day of PTPC Wastewater measured? i.e. is it hotter coming out of the plant and cools in the bay running in a pipeline to Outfall 003- where the outflow water temperature may be measured? Or is it 16 Degrees Celsius as it leaves the plant?”

PTPC does not use the water they discharge through Outfall 003 in the process or for cooling. PTPC pumps the water out of Port Townsend Bay and, if it PTPC does not need it for their process, they discharge it back into Port Townsend Bay through Outfall 003. There is no flow or temperature monitoring required for Outfall 003. For more information on Outfall 003, please see Section II.A.5 of this fact sheet. If PTPC uses water from Port Townsend Bay for cooling, it is mixed with other wastewaters and will eventually flow out of Outfall 001. PTPC's Outfall 001 consists of treated process wastewater, stormwater, and sanitary water.

The 16°C number cited is the applicable water quality criteria for Port Townsend Bay. The 16°C number is not a measured temperature or limit at Outfall 001. Ecology performed a reasonable potential analysis to determine if PTPC's discharge has a reasonable potential to cause waters on the edge of PTPC's mixing zone (i.e., after some amount of dilution) to exceed 16°C. The edge of the mixing zone is the point of compliance for assessing if there is a reasonable potential for PTPC's discharge to cause an exceedance of the water quality criteria. This analysis is available under Appendix F of the document. Ecology determined that there is no reasonable potential for PTPC's discharge to cause an exceedance of the water quality criteria for temperature. For this analysis, Ecology assumed a temperature at Outfall 001 of 32.2°C. This was the highest daily average PTPC reported in the dataset Ecology used to write the permit.

PTPC measures wastewater flow and temperature as it leaves the aerated stabilization basin. Occasionally, due to tidal influence affecting flowmeter location, they will measure wastewater flow as it enters the aerated stabilization basin.

“Is the outflow effluent wastewater flowing under pressure?”

Treated process wastewater, stormwater, and sanitary wastewater flows through Outfall 001 by gravity.

“Will the Nutrient Sediment group be monitoring the PT Bay outflow site – especially if the Permit (temporarily) allows an increase in effluent flow?”

The Nutrient Reduction Project is unrelated to sediment monitoring. The renewed NPDES permit requires PTPC to perform sediment monitoring in the vicinity of their outfall. These will be compared to the Washington state sediment standards. Information about sediment monitoring is available in Section III.K of this document. PTPC is required to monitor for certain nutrients (forms of carbon, nitrogen, and phosphorous) in their discharge as part of this NPDES permit. The results of this sampling will be made available to the Ecology staff working on the Nutrient Reduction Process. They may use this data for modeling purposes, which may ultimately be used to put additional restrictions in place around nutrient discharges at a later date.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 34. Christine Mantell

I am alarmed that the mill is functioning with an expired permit. I have kayaked from the water side and biked from the land side near the mill many times. The contaminated water is not contained.

The air stinks of sulfur and whatever the chemical mix is, many days when the wind blows toward our home. I request they clean up to current environmental standards or shut down, definitely not be allowed to increase output. I am a retired family nurse practitioner(40 years experience), with master level degrees from Univ of Va and UC San Francisco, so have some knowledge base about health issues. I would like to serve on a committee re cleaning up the mill contaminants if that is an option. Thank you

Ecology Response to Comment

Regarding PTPC’s expired NPDES permit, see Responses to Frequent Comments, Item F, at the beginning of this Appendix. PTPC’s NPDES permit allows them to discharge treated wastewater to Port Townsend Bay through Outfall 001. The NPDES permit does not require them to contain their wastewater.

Regarding odors, see the response to frequent comments, Item G.

Although there are occasionally violations, PTPC is currently in compliance with the requirements of the Air Operating Permit and NPDES Permit (meeting “current environmental standards”). For more information regarding your request that they shutdown, see response to frequent comments, Item E.

While the NPDES permit does increase limits on certain pollutants, Ecology clarifies that the NPDES permit does not regulate production rates at PTPC. The calculated limits in the NPDES permit for TSS and BOD₅ are based on actual production rates achieved during the previous permit cycle. The renewed NPDES permit does not raise any limits on pulping rates.

Ecology is currently unable to facilitate the creation of committee regarding PTPC. This does not prohibit any community groups to organize independently in order to participate in a public input opportunities for permitting actions at PTPC.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 35. James Mantell (Comment 1 of 3)

Comments are as follows: 1) The Port Townsend Paper Corporation (PTPC) National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-0000922 expiration date was October 1, 2018, how is it possible that PTPC was operational with an expired Permit for over six years?

Ecology Response to Comment

Other commenters provided a similar comment. Ecology included a response to frequent comments at the beginning of the Appendix. Regarding PTPC’s expired NPDES permit, see the response to frequent comments, Item F.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 36. James Mantell (Comment 2 of 3)

2) There is concern regarding toxic pollution and the impact on the marine ecosystem as well as health concerns with human (and marine) consumption of shellfish and saltwater fish from the surrounding waterways.

Ecology Response to Comment

When writing this permit, Ecology considered if PTPC’s discharge has a reasonable potential to cause an exceedance of state water quality criteria. Water quality criteria are concentrations of pollutants in surface waters that should not be exceeded to

protect human health and the environment. These concentrations are derived using data from studies evaluating the effects of toxics on aquatic life and human health. This includes considerations for the human consumption of aquatic life. When results showed that there was a reasonable potential for PTPC's discharge to cause an exceedance of water quality criteria, a limit was put into place.

This permit also includes Whole Effluent Toxicity (WET) testing. WET testing evaluates if PTPC's discharge is toxic to aquatic life by studying the effects of PTPC's discharge on aquatic life in a laboratory setting. See also Responses to Frequent Comments, Item H at the beginning of this Appendix for additional information.

Please consult the WA Department of Health's website for up-to-date shellfish safety information and fish consumption advisories. Generally, the WA Department of Health designates areas in the vicinity of wastewater discharges, including PTPC's, as closed for shellfish harvesting.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 37. James Mantell (Comment 3 of 3)

3) The PTPC "smell" is significant, especially in certain areas of the community and under specific weather conditions; is there 100% certainty that the smell is not an indication of air-borne toxins and how should residents be compensated for potential increased smell in the surrounding community?

Ecology Response to Comment

Other commenters provided a similar comment regarding odors. Ecology included a response to frequent comments at the beginning of the Appendix. See responses to frequent comments, Item G. There is no provision in the Clean Water Act that allows Ecology to provide compensation or require Permittees to provide compensation due to odors.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 38. Douglas Milholland

I value the employment, I no longer live in a part of Port Townsend that often experiences heavy mill smoke. Its unclear to me if the draft pollutant discharge permit includes analysis of the pollutants entering the Port Townsend Bay. The .0005 per ton release of mercury is very concerning, given its easily travelling for miles in the air, possibly the water. I was unable to review other local citizens depositions, which I would have no doubt benefitted from reading.

I am glad that the new owners are investing in necessary improvements at the mill. I quote a friend Alea Waters who wrote to the Leader "In the end, and as a result of months and months of citizen's hard work, the mill was required by the State of Washington to mitigate its intense pollution of our air and water and land. The stink was gone most of the time, groundwater began to be monitored and recorded, essential inspections and receipts for the ingredients of imported materials to be burned were strictly required, monitored and regulated. Our lives as citizens became healthier and far more pleasant."

Ecology Response to Comment

The final wastewater permit includes a characterization of the pollutants PTPC discharges through their wastewater outfall, and an analysis to determine if PTPC's discharge has a reasonable potential to cause an exceedance of state water quality criteria. Ecology refers to this exercise as a "reasonable potential analysis". Water quality criteria are concentrations of pollutants in surface waters that should not be exceeded to protect human health and the environment. Ecology derives these concentrations using data from studies evaluating the effects of toxics on aquatic life and human health.

A characterization of the pollutants in PTPC's discharge is available in Section II.C of this fact sheet. The reasonable potential analysis is available in Appendix D of this fact sheet. Additional information is available in Section III.I of this document. Where the analysis showed there is a reasonable potential for PTPC's discharge to cause an exceedance of water quality criteria, Ecology included a limit in the permit.

Ecology is unsure where the "0.0005 per ton" release of mercury value cited in the comment is from. In terms of air emissions, mercury is regulated by federal rules as a hazardous air pollutant. There are requirements in the mill's air operating permit that limit emissions of hazardous air pollutants. The permit Ecology is proposing to renew is a wastewater permit that regulates wastewater discharges from the mill. Ecology performed a reasonable potential analysis to determine if mercury in PTPC's discharge had a reasonable potential to cause an exceedance of state water quality criteria for mercury. Ecology found there was no reasonable potential for PTPC's discharge to cause an exceedance of state water quality criteria for mercury. Therefore, no limits on mercury are included in the permit.

All comments received during the comment period are available in this fact sheet.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 39. Anna Moore

Dear Emily Toffol,

I am writing to encourage you to deny the new five year permit for the Port Townsend Paper Corporation that increases their allowed pollutant levels, and instead maintain or further increase the restrictions on their pollutant levels. We do not want chemicals put in our waters that will restrict oxygen in our aquatic environments and fill it with particulate debris.

Thank you for your time and consideration, Anna Moore

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. Please see response to frequent comments, Item D for response.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 40. Liz Moore

As a resident of Port Townsend and concerned citizen, I am opposed to the new permit allowing more pollution and toxins into port townsend bay. As my children were growing up here we spent many , many hours, days and years cleaning our beaches, picking up trash and planting trees. After reading this report I wondered why bother. Thank you for the opportunity to oppose the new permit allowing. Sincerely yours, Liz Moore

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. Please see response to frequent comments, Item D for response.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 41. Port Townsend Paper Corporation (Comment 1 of 25)

Dear Ms. Toffol:

The Port Townsend Paper Corporation (PTPC) submits the following comments on the Department of Ecology's (Ecology) draft NPDES Permit No. WA0000922 (Draft Permit) for PTPC's Port Townsend paper mill.

PTPC appreciates Ecology's transparency and engagement throughout the permit renewal process. PTPC is committed to achieving the standards set forth in the Draft NPDES Permit and

believes it has demonstrated a commitment to responsible environmental stewardship under current management.

These comments follow PTPC's prior comments provided in the permit document and fact sheet during the technical review period. To the extent PTPC's prior comments were not adopted, PTPC renews those comments for Ecology's consideration below enclosed as Table 1, Attachment A, identifying each permit term that PTPC would like to provide comments on, as. This table serves to provide a more detailed explanation of PTPC comments on the draft NPDES permit regarding the proposed additional discharge limits, non-routine discharges, Facility Loading, Cooling Water Intake Structure (CWIS), Receiving Water Study and odor minimization study. The original permit documents are enclosed for reference as Attachment B.

In addition to the detailed comments enclosed in Attachment B, PTPC has three overarching comments on the rule.

Ecology Response to Comment

Where PTPC's comments in Attachment A were related to comments in the main body of the comment letter, Ecology has grouped these related comments together in this document. Ecology has not reproduced PTPC's comments in Attachment A that only reference the cover letter or other items in PTPC's Attachment A.

Appendix B to PTPC's comment, referenced above, is not reproduced here and is available by requesting a copy from Ecology. Appendix B is a mark-up of a previous version of the fact sheet for this permit. PTPC performed this mark-up during the factual review that occurred prior to the public comment period. Ecology made changes as appropriate prior to the public comment period. As the comments PTPC provided in Appendix B of PTPC's comment are of a previous draft of the fact sheet, and not of the draft provided for public comment, Ecology is not providing a written response to each individual comment on the fact sheet. Ecology notes that Appendix B of PTPC's comment only included a mark-up of the fact sheet and not the permit, although the comment above suggests that PTPC also submitted a mark-up of the permit.

Comment 42. Port Townsend Paper Corporation (Comment 2 of 25)

Define the term "discharge" consistent with the federal Clean Water Act. The Draft Permit references "discharges" when discussing inputs to PTPC's wastewater treatment plant (WWTP). However, under the federal Clean Water Act, a "discharge" only refers to, "Any addition of any 'pollutant' or combination of pollutants to 'waters of the United States' from any 'point source.'" 40 C.F.R. § 122.2. PTPC requests the Permit adopt this definition to clarify the Permit terms. PTPC also requests Ecology revise those sections that characterize inputs to the WWTP as "discharges" subject to NPDES regulation, as these references are outside of Ecology's

authority and create ambiguity as to PTPC's requirements. The input of water to a WWTP is not a "discharge" because the WWTP is not a water of the state. The sections where clarification is needed include but are not limited to S.4.A.d and S21. Such a definition would also clarify the scope of S9, as Ecology can only require approval for non-routine and unanticipated discharges to jurisdictional waters but cannot require prior approval for the transfer of non-routine wastewater to the WWTP under S9.

Additional Comment Submitted in Appendix A:

Permit Section: S9

Submittal/Requirement: Non-Routine and Unanticipated Discharge Request

Issue: Approval Request

Comment: Ecology should Properly Define "Discharge" "Effluent" "non-routine or unanticipated" wastewater discharge as requested in the review of the permit application.

Ecology Response to Comment

No changes have been made to the final permit based on this comment. The requirements regarding PTPC needing Ecology approval for non-routine discharge (i.e., non-routine wastewaters sent to the wastewater treatment plant) are retained. This is standard language that is in all individual industrial NPDES Permits.

PTPC's comment fails to acknowledge that wastewaters sent to their wastewater treatment plant are subsequently released to surface waters. As discussed in Section III of this Fact Sheet, Ecology has developed the conditions of this permit based on the information provided in the permit renewal application and monitoring conducted during the previous permit cycle. PTPC's NPDES permit does not require regular monitoring for all potential pollutants that could be discharged to the wastewater treatment plant. The limits in PTPC's permit are not designed to address pollutants associated with discharges other than those in their permit application and pollutant concentrations measured during priority pollutant scans.

The intent of this condition is to allow the discharge of wastewater that was not identified or characterized by the application, and therefore is not allowed to be discharged by the permit. Ecology approval is required to prevent exceedances of water quality criteria, address any new pollutants associated with the new wastewater stream, and prevent the discharge of untreatable pollutants into PTPC's wastewater treatment plant. PTPC's wastewater treatment plant is not capable of treating all pollutants.

See also below additional text under the definition of "discharge of a pollutant" under 40 CFR Part 122.2.

“This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channelled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and **discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.** This term does not include an addition of pollutants by any “indirect discharger.”

Ecology did not make any changes to the final permit as a result of this comment.

Comment 43. Port Townsend Paper Corporation (Comment 3 of 25)

BMPs should be specific to PTPC. The Draft Permit incorporates BMPs that are identified in federal law as applicable only to “mills with pulp production in subparts B (Bleached Papergrade Kraft and Soda) and E (Papergrade Sulfite).” 40 CFR § 430.03(a). This designation does not apply to PTPC because PTPC is an unbleached kraft mill subject to Subpart C of the federal regulation. PTPC recognizes that Ecology will exercise its professional judgment to develop BMPs as stated in the Fact Sheet. However, PTPC’s operations are fundamentally different from a bleach mill. Adopting bleach mill BMPs in full is not based on PTPC’s specific operations.

Additional Comment submitted in Appendix A:

The EPA promulgated BMPs at 40 CFR 430.03 are currently only applicable to Papergrade Sulfite and Bleached Papergrade Kraft and Soda mills. The fact sheet associated with this permit acknowledges that PTPC is of neither type and explains that Ecology used Best Professional Judgement to apply this permit condition.

It has been 25 years since EPA promulgation of the rule. PTPC has had NPDES permit since 1974 without this requirement. PTPC is unaware of any relative event or need that would cause Ecology to make such a large shift in the Departments Professional Judgement.

Ecology Response to Comment

Please reference Section V.M of this document for why this requirement was included in the permit. The intent of the BMPs is to address discharges of black liquor to the wastewater treatment plant. The black liquor that PTPC produces is no different than the black liquor produced by a bleached kraft paper mill. EPA appears to have intended that these BMPs apply to unbleached kraft dischargers, but has not yet updated the rules, likely due to time and resource constraints. See again this quote from the federal register that is included in Section V.M of this document:

“In December 1993, EPA proposed BMPs for seven subcategories of the pulp, paper, and paperboard industry (58 FR at 66078), all of which chemically pulp wood and non-wood fibers. EPA still believes BMPs are appropriate for each of these chemical pulping subcategories; however, to be consistent with the effluent limitations guidelines and standards promulgated in this final rule, the BMPs promulgated today are applicable only to the Bleached Papergrade Kraft and Soda and Papergrade Sulfite subcategories. EPA expects to promulgate BMPs for the remaining five chemical pulping subcategories [(Subparts A (Dissolving Kraft), C (Unbleached Kraft), D (Dissolving Sulfite), F (Semi-chemical), and H (Non-wood Chemical Pulp)] as it promulgates new effluent limitations guidelines and standards for these subcategories. Until new regulations for Subparts A, C, D, F, and H are promulgated, permit writers may wish to use the BMP regulations in this rule as a guide to issuing permits containing BMPs based on best professional judgment for mills with production covered by these other subparts.”

Section 402(a)(1) and (3) of the Clean Water Act gives the permitting authority the ability to include BMPs in permits on a case-by-case basis to carry out the provision of the Clean Water Act.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 44. Port Townsend Paper Corporation (Comment 4 of 25)

Consider alternatives to secondary containment. While PTPC requests that it not be considered equivalent to a bleach mill, it nonetheless agrees with several BMPs proposed by Ecology, including S.20.D.1-2 and 4-6. However, S.20.D.7 requires PTPC to construct secondary containment tanks for spent pulping liquors. BMPs must be economically and technically feasible under the Clean Water Act. However, this requirement is not feasible because PTPC does not have available areas at the facility for the required tanks and reconfiguring the facility is not economically possible. Moreover, the requirement is not necessary because PTPC's WWTP is designed to handle spent pulping liquor. To the extent Ecology seeks assurance that pulping liquor can be safely managed, this is addressed by BMP S.20.D.1. As an alternative, PTPC is open to discussions with Ecology to ensure adequate alarm systems are in place, which EPA has indicated can be an alternative to secondary containment. See EPA, Technical Support Document for BMPs for Spent Pulping Liquor (Oct. 1997).

Ecology Response to Comment

While Ecology understands that the mill's treatment standard may be able to handle small discharges of spent black liquor, a significant release of spent black liquor is anticipated to have a negative impact on the wastewater treatment system.

Additionally, black liquor, if handled improperly, may potentially be considered dangerous waste and regulated under WAC 173-303. It is important for the facility to

take measures to prevent significant discharges of spent black liquor to the wastewater treatment system. Ecology disagrees with PTPC's reading that EPA has indicated that alarm systems can be an alternative to secondary containment. EPA's study survey of kraft mills during the development of the BMPs lists "secondary containment and/or high-level alarms on weak and strong spent pulping liquor tanks" as an example of a proactive control already existing at facilities prior to implementing the BMPs.

EPA does not strictly require secondary containment for spent pulping liquor tanks. An annual tank integrity testing program, if coupled with other containment or diversion structures, may be substituted for secondary containment for spent pulping liquor bulk storage tanks. This alternative is under 40 CFR 430.03(c)(7) and also Special Condition S20.D.7 of the permit.

The referenced technical support document also includes the following information:

"Secondary containment equivalent to the volume of the largest spent pulping liquor storage tank, plus sufficient freeboard for precipitation, must be provided for spent pulping liquor bulk storage tanks. Alternatively, mill operators may substitute an annual tank integrity testing program for hard secondary containment for spent pulping liquor bulk storage tanks, provided that the annual tank integrity testing program is coupled with other containment or diversion structures..... The flexibility to use a tank integrity testing program in lieu of secondary containment for spent pulping liquor bulk storage tanks is provided because the number of spill incidents relating to catastrophic tank failures has been relatively small, and at some mills, the location of process equipment and storage tanks would make installation of full secondary containment facilities difficult and costly in relation to the possible benefits."

Ecology did not make any changes to the final permit as a result of this comment.

Comment 45. Port Townsend Paper Corporation (Comment 5 of 25)

The second part of the letter provides comments to other permit conditions listed in the Draft Permit associated with Receiving Water, and Odor minimization.

Ecology Response to Comment

Ecology has responded to these comments below.

Comment 46. Port Townsend Paper Corporation (Comment 6 of 25)

Permit Page 41, Justification for not requiring the receiving water study in Condition S12.

The permit states that,

“The Permittee must collect receiving water information necessary to determine if the effluent has a reasonable potential to cause a violation of the water quality standards.”

The permit calls for sampling at least ten receiving water samples for parameters including 2,3,7,8-TCDD (1746-01-6), Acrolein (107-02-8), Alkalinity (Total as CaCO₃), Benzene (71-43-2), Enterococci, Ammonia, Total (as N), various metals, arsenic, Cyanide, benzo(a)anthracene, chlordane, and pentachlorophenol and a list of other parameters.

For two reasons, this study is not needed to determine if the effluent has a reasonable potential to cause a violation of the water quality standards. One is that the reasonable potential to exceed demonstration in Appendix D of the Fact Sheet associated with this permit shows that it would take an incredible increase in receiving water concentrations for there to be a problem. The second is that there is a prior PTPC Receiving Water Study and more recent studies by other agencies for the water body that can be used which provide results similar to Ecology's earlier studies.

Ecology Response to Comment

This comment implies that Ecology had valid background data for all pollutants included in the reasonable potential analysis. Ecology did not have any receiving water data for the following pollutants: 2,3,7,8-TCDD (dioxin), acrolein, antimony, benzene, benzo(a)anthracene, bis(2-ethylhexyl)phthalate, chlordane, chlorine, chloroform, hexavalent chromium, cyanide, diethyl phthalate, dimethyl phthalate, di-n-butyl phthalate, endosulfan, ethylbenzene, fluoranthene, fluorene, isophorone, methyl bromide, pentachlorophenol, phenol, pyrene, selenium, thallium, toluene, or vinyl chloride. Ecology assumed a background concentration of zero for these pollutants. This assumption may not be representative.

Ecology recognizes that for some pollutants, it would be unreasonable to expect that PTPC's discharge would cause an exceedance of a water quality criteria. Ecology screened out certain pollutants without background data that were also far below the water quality criteria (as measured at the outfall). This exercise is documented in Table 39 — Comparison of Maximum Measured Concentration to Water Quality Criteria. A discussion of pollutants selected for the receiving water study precedes this table.

Ecology acknowledges that previous sampling work that PTPC performed in 2015 and 2016. This work is included in the draft proposed permit. However, the PTPC receiving water study does not include data for all of the pollutants listed above. It is not unreasonable for Ecology to request additional data ten years later.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 47. Port Townsend Paper Corporation (Comment 7 of 25)

The reasonable potential to exceed demonstration in Appendix D shows that the ambient water concentrations would have to be much greater than the values from prior data sets that were used in order for the effluent to have any potential to cause an exceedance. Furthermore, Appendix D shows that the maximum effluent concentrations for all parameters with the exception of the newly added benzo(a)anthracene, chlordane, and pentachlorophenol met the human health criteria. The exceedance on these parameters, as noted in the fact sheet is due to Ecology assigning a value of zero (0) to the health factor for items not previously tested.

Ecology Response to Comment

See response to previous comment. Ecology is unsure what is meant by the statement “The exceedance on these parameters, as noted in the fact sheet is due to Ecology assigning a value of zero (0) to the health factor for items not previously tested”. Ecology is unable to locate in the fact sheet where the term “health factor” is used. Ecology assumed zero for the receiving water concentration of benzo(a)anthracene, chlordane, and pentachlorophenol. Assuming zero allows for the highest addition of a pollutant possible to a receiving waterbody. This is the least likely scenario for a limit to be imposed.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 48. Port Townsend Paper Corporation (Comment 8 of 25)

Additionally, Ecology has sampled conventional parameters repeatedly at station PTH005 in Port Townsend. Ecology’s data set for this station is quite sufficient to represent ambient conditions for the requested parameters.

It is logical that Port Townsend Bay and Admiralty Inlet would be similar. Admiralty Inlet is a region of very active mixing of marine waters, surface to bottom. Incoming ocean water and outgoing water from Puget Sound combine and mix in Admiralty Inlet. Admiralty Inlet is the source of the marine water to Port Townsend. There are no sources of metals to Port Townsend that are of such a magnitude that the two waters would be significantly different.

There are other sets of marine water metals data that are more recent and could also be used to represent ambient concentrations. Datasets already sampled by Ecology for surface and deep water at a number of stations for metals and other priority pollutants much like their 1988 study. For metals they measured both total recoverable metals and dissolved metals. This is significant because the metals water quality criteria are based on dissolved metals. One station was at the east end of the Strait of Juan de Fuca near the entrance to Admiralty Inlet. Another station was in the main basin of Puget Sound off of West Seattle. The waters at these two stations represent water that has either recently been mixed in Admiralty Inlet, or will be

mixed in Admiralty Inlet. Averaging the results from these two stations produces similar values to results from the 1988 Port Townsend study.

There is also an extensive set of metals data for the main basin of Puget Sound collected by King County DNR that involved monthly sampling for an extended period. The northern most station (POSSESSC14) was between Possession Point (south end of Whidbey Island) and Point Wells (King County – Snohomish County line). The depths sampled at that station were 5, 50 and 190 m.

Collectively, these data sets could be used to characterize the ambient metals concentrations in Admiralty Inlet and Port Townsend. These data sets also illustrate that using the 1988 data would also be representative. The differences are small, and for purposes of use in a reasonable potential to exceed determination, there is no concern that more data would lead to a different conclusion even if the maximum observed values were used.

Ecology Response to Comment

Sampling at PTH005 includes the following parameters: beam attenuation, conductivity, density, depth, dissolved oxygen, fluorescence, light transmission, pH radiation, photosynthetically active radiation, pressure, salinity, temperature, and turbidity. This does not include data for all pollutants needed to perform a reasonable potential analysis. There is no metals sampling at PTH005.

The reasonable potential analysis is generally intended to evaluate the impact of the facility's discharge at the edge of the chronic mixing zone. Ecology does not believe that metals sampling performed at the Strait of Juan de Fuca and Seattle is representative of the receiving waters that PTPC discharges to. Additionally, Ecology needs representative background data for pollutants other than metals. Finally, no specific data or study ID or other identifying information was provided in the comment for the mentioned studies that would allow Ecology to evaluate the assertions made in the comment. A search for Location Name POSSESSC14 yielded no results in Ecology's environmental information management system (EIM). Sufficient information has not been provided for Ecology to concur that the 1988 data is representative.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 49. Port Townsend Paper Corporation (Comment 9 of 25)

In summary, the permit writer for the most part, has used valid, representative ambient data in the reasonable potential to exceed determinations in Appendix D of the PTPC Fact Sheet with the exception of the new parameters. More recent data from nearby marine waters is comparable to the historic Port Townsend data. For the effluent and ambient mix to have a

reasonable potential to exceed water quality criteria, and thus to need water quality-based effluent limits, the ambient concentrations would have to drastically increase, and there is no viable or feasible means by which the ambient concentrations could make such an increase.

Ecology Response to Comment

See response to previous comments. Ecology assumed a background concentration of zero for any parameters where ambient data was not available. Assuming zero allows for the highest possible addition of a pollutant to a receiving waterbody, but is not necessarily representative of the actual ambient concentrations. This is the least likely scenario for a limit to be imposed.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 50. Port Townsend Paper Corporation (Comment 10 of 25)

Permit Page 59, S24 – Odor Minimization Study

Ecology's justification for Condition S24 includes odor complaints it has received during the current permit term. PTPC notes that Ecology attributes odor complaints to the source identified by the complainant, rather than conducting any independent investigation of the source (or existence) of complaint odors. PTPC evaluates all of the odor complaints it receives. Most of the complaints are made by a small number of individuals, and it is not uncommon for complainants to attribute odors to the Mill when wind conditions suggest other sources are more likely. However, PTPC takes all odor complaints seriously and has invested substantial efforts into evaluating potential odor sources at the Mill over a number of years. Throughout that effort, while various improvements have been made, no particular Mill process, including the ASB, has been confirmed as the common source of odors affecting the community.

PTPC is willing to conduct the assessment called for in this proposed condition, which calls for consideration of TRS and sludge management in a broader context of evaluating odor control from the ASB. The Engineering Report called for by this condition can be an appropriate response to the concerns Ecology has heard regarding odors. Implementation of strategies should take into consideration and seek to address actual risk factors, not just subjective unverified complaints.

Ecology Response to Comment

Comment noted.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 51. Port Townsend Paper Corporation (Comment 11 of 25)

Permit Section: S1

Submittal/Requirement: Discharge Limits S1.A

Issue: New interim and final limits for Benzo(a)anthracene, Chlordane and Pentachlorophenol.

Comment:

Analytical results and lab limitations demonstrate the limits are unwarranted and unattainable. The historical results do not warrant additional limits on pollutants that are not a part of the manufacturing process. The prior permit contained annual sampling requirements without limits. For Benzo(a)anthracene only 1 out of 11 historic test results were detected over the proposed final limits. For Chlordane only 1 out of 11 historic test results were detected over proposed interim and final limits. For Pentachlorophenol, only 1 out of 11 historic test results was detected over proposed interim limit and 2 out of 11 detected over final limit. Of these detections, only 1 was above the quantification limit. Results presented between the detection limit (DL) and quantitation limit (QL) are flagged with a J qualifier, which in the analytical report notes that the analyte was detected below the calibrated range of the instrument. These values are estimates and should not be taken into account when setting permit limits.

Ecology Response to Comment

In regards to the comment that the 2013 permit did not contain limits: The 2013 permit considered data collected under the NPDES permit issued in 2004. The fact sheet for the 2013 permit does not indicate that benzo(a)anthracene, chlordane, or pentachlorophenol were detected during the 2004 permit cycle. The permit renewal process gives Ecology the opportunity to review data collected during the previous permit cycle. The data collected under the 2013 permit provided new information for Ecology to consider.

As discussed in Section III.D of this Fact Sheet, Ecology is required to include a limit in the permit for any pollutant that is demonstrated to have a reasonable potential to cause the receiving waterbody to exceed the applicable water quality criteria. Ecology notes that the chemicals used in the manufacturing process are not the only potential source of pollution into the facility's wastewater treatment system. For example, PTPC's permit regulates stormwater as well as process wastewater. Stormwater has the potential to contain pollutants that PTPC does not use in the manufacturing process.

The method detection limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. A value reported with a J flag is estimated, but Ecology can be 99% confident that the value is at least as high as the method detection limit. For this reason, it is reasonable for Ecology consider values

reported between the detection and quantitation limits in the reasonable potential analysis.

Ecology also notes that the values used for the reasonable potential analysis were an order of magnitude lower than the estimated (J-flagged) values. The values used for the reasonable potential analysis are discussed in Appendix D of this document and Table 41 — Calculation of 50th Percentiles and Coefficients of Variation for Human Health Criteria, Select Pollutants. It's also notable that the values used in the reasonable potential analysis were all below the detection limit for the year that the estimated sample was reported. Because water quality criteria for these pollutants are very low, the analysis showed that PTPC's effluent has a reasonable potential to cause a water quality exceedance for these pollutants.

Table 53. Maximum Reported Concentrations, Detection Limits, and Values Used for Reasonable Potential Analysis – Benzo(a)anthracene, Chlordane, Pentachlorophenol

Pollutant	Maximum Reported Value	Detection Limit for Maximum Value	Value Used for Reasonable Potential Analysis
Benzo(a)anthracene	0.14 µg/L (estimate)	0.096 µg/L	0.034 µg/L
Chlordane	0.18 µg/L (estimate)	0.030 µg/L	0.011 µg/L
Pentachlorophenol	3.5 µg/L (estimate) ¹⁴¹	1.9 µg/L	0.25 µg/L

Comment 52. Port Townsend Paper Corporation (Comment 12 of 25)

Final limits of new parameters are significantly lower than current lab reporting limits. The DL/QL capability of the certified multinational lab that has been used is not sufficient for final limits of all three pollutants. Lab DL capability is not below the final limits. If concentrations are estimated detection would not be applicable to footnotes f & g and would be a violation of the proposed limit. Lab DL/QL capability is not sufficient for required DL/QL for Chlordane.

Ecology Response to Comment

The required DL/QL is not based on the value of the limits. The laboratory must achieve the DL/QL in Appendix A. If PTPC cannot meet the DL/QL in Appendix A, they may submit a matrix-specific detection level and quantitation level to Ecology with appropriate laboratory documentation. Appendix A includes the following text:

¹⁴¹ A value of 1.1 µg/L was also reported during a different sampling event. The value of 1.1 µg/L was above both the DL and QL for the sample and was not an estimate.

“If the Permittee is unable to obtain the required DL and QL in its effluent due to matrix effects **and** (emphasis added) the detection levels are too high to provide results near or below water quality criteria (or applicable permit limits), the Permittee must submit a matrix-specific detection level (MDL) and a quantitation level (QL) to Ecology with appropriate laboratory documentation.”

So long as PTPC is able to meet the required DL and QL in Appendix A, PTPC is not required to achieve detection or quantitation limits that are below interim or final limits in the permit.

Ecology is unsure how to interpret the statement “If concentrations are estimated detection would not be applicable to footnotes f & g and would be a violation of the proposed limit”. If concentrations are estimated (reported with a J-flag, between the DL and QL), this means that the pollutant has been detected. An estimated concentration is not a violation of the limit provided that the limit falls between the DL and QL for a given sample.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 53. Port Townsend Paper Corporation (Comment 13 of 25)

Permit Section: S2

Submittal/Requirement: Monitoring Requirements: Table 10 – Primary Clarifier Influent Monitoring

Issue: Required monitoring at Primary Clarifier not associated with permitted levels or limits.

Comment: Additional TSS and BOD monitoring at the Primary clarifier inlet aims to determine treatment efficiency of the treatment system as a whole. Previous NPDES permits identified the ASB inlet as the point at which influent would be assessed. Previous permit writers have considered the ASB inlet as the appropriate sampling location. Additional costs associated with equipment, monitoring and laboratory analysis are expected to be incurred with this requirement. PTPC believes this condition is unwarranted and does not support the intent of the permit.

Ecology Response to Comment

The ASB is only a portion of the wastewater treatment system. The primary clarifier is an important piece of PTPC’s wastewater treatment system and its performance should be monitored appropriately. The currently effective permit requires sampling in accordance with footnote “a” of the on page 14 of the permit, which reads: Wastewater Influent means the raw sewage flow; sample at the headworks of the treatment plant excluding

any side-stream returns from inside the plant. Since the treatment plant includes the primary clarifier, footnote a refers to the influent of the primary clarifier.

Ecology has delayed the requirements for primary clarifier influent monitoring for six months to give the Permittee additional time to install necessary facilities for sampling. Table 10 in Condition S2 of the permit has been modified to reflect this change.

Comment 54. Port Townsend Paper Corporation (Comment 14 of 25)

Permit Section: S2

Submittal/Requirement: Monitoring Requirements: Table 12 - ASB Effluent Monitoring

Issue: Additional monitoring is required at the Aeration Stabilization Basin (ASB) outfall for Enterococci.

Comment: Enterococci are not expected in the pulp and paper process. The aeration stabilization basin is home to various waterfowl and wildlife which would contribute to the amount of bacteria in the ASB effluent. Enterococcus is not a relevant wastewater parameter and would capture natural conditions. Jefferson County BEACH program monitors the water quality at recreational swimming beaches throughout the county. PTPC should not be responsible for monitoring for recreational use for this parameter. There is no recreational swimming off the beaches in the immediate vicinity of PTPC. Additionally, the 8-hour hold time of the method creates additional challenges.

Ecology Response to Comment

Ecology does not agree that levels of enterococcus due to the presence of wildlife in PTPC's ASB would not be subject to regulation. The enterococci criterion is intended to protect against bacteria that is from any warm-blooded animal (See WAC 173-201A-210(3)(b)(iv)). Ecology must ensure that permitted discharges will not cause or contribute to an exceedance of the water quality criteria in the receiving waterbody.

WAC 173-201A-612 defines what use designations apply to marine waters. No marine water in the state is exempt from the primary contact recreation criteria.

Ecology has delayed the start date of this monitoring requirement by one year to allow PTPC to obtain laboratory accreditation for Enterococci testing, if desired. Table 12 in Condition S2 of the permit has been modified to reflect this change.

Comment 55. Port Townsend Paper Corporation (Comment 15 of 25)

Permit Section: S6

Submittal/Requirement: Application for Modification for Facility Changes

Comment: PTPC requests that Ecology clarify what constitutes a "process modification". Current permit language is unclear and open to unnecessary subjectivity.

Ecology Response to Comment

Ecology believes this requirement is already clarified by the existing language in the permit condition. The Permittee is only required to submit an application for permit modification 180 days prior to changes, *which may result in permit violations*, such as process modifications. Ecology is available to answer any questions or discuss whether a process modification would be subject to the condition as such process modifications are being considered by PTPC staff.

Ecology notes this requirement is independent from reporting other changes as required under Conditions G4 or G5.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 56. Port Townsend Paper Corporation (Comment 16 of 25)

Permit Section: S7.B

Submittal/Requirement: Application for Modification for Facility Changes

Issue: New requirement to have at least eleven operable aerators installed at the ASB, unless otherwise approved by Ecology. Alternatively, submit a request to modify the wastewater treatment system consistent with General Condition G5.

Comment:

Ecology cites the Engineering study submitted on 10/1/17. This engineering study also notes that while there were 11 aerators existing in the ASB at the time of the study only eight aerators were typically powered on at the same time, due to power demand from the diffuser blowers. These power constraints still exist at the ASB, and the infrastructure improvements needed for this condition would be considerable.

PTPC has continually demonstrated compliance with its permitted limits with the current operating scenario of 8 or less aerators according to conditions. The requirements of 11 aerators is unwarranted for compliance or proper treatment. According to the Fact Sheet for this permit PTPC generally complied with the permit conditions through the duration of the permit issued 9/16/2013. There were nine ASB effluent (outfall 001A) discharge limit exceedances from 4/1/2018 until 3/31/2023. All exceedances were contributed to unavoidable

or upset conditions such as unusually low atmospheric temperature, unexpected mill-wide shutdowns, and/or process equipment failures. Five of the exceedances were associated with the same unavoidable and upset condition.

There would be a significant expense to install at least eleven operable aerators and additional operational constraints in the wastewater treatment system to remain in compliance with the discharge limits. There would likely be significant consulting expense for the analysis and demonstration that are alternately required under General Condition G5. Ecology could still require at least eleven operable aerators after the alternate request.

Ecology Response to Comment

Water quality rules in the state of Washington do not only require PTPC to meet permitted limits. PTPC must also use all known, available, and reasonable methods of treatment to treat their wastewater.

If PTPC makes changes to their wastewater treatment plant, they must first receive approval from Ecology. PTPC failed to receive approval from Ecology prior to removing the aerators. The final permit requires PTPC to restore the wastewater treatment plant to the previous configuration, or demonstrate to Ecology that the changes continue to meet all known, available, and reasonable methods of treatment. The final permit gives PTPC an opportunity to demonstrate that they are continuing to comply with WAC 173-240 with the modified treatment capacity and define the loading conditions for the modified configuration.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 57. Port Townsend Paper Corporation (Comment 17 of 25)

Permit Section: S8

Submittal/Requirement: Facility Loading and Design Report

Issue: Modified requirement that licensed engineer prepare the report, unless otherwise approved by Ecology in writing.

Comment: PTPC can confirm that system capacity and operational constraints have not changed since the prior study. Additionally, the required bathymetry study of the ASB addresses any evaluation of decreased capacity. This study is an unwarranted costly undertaking that does not serve the intended purpose.

Ecology Response to Comment

As discussed in Section V.E of this fact sheet, the submittal from 2017 appeared to document actual process conditions and did not establish appropriate design data. For example, the report stated that the design criteria of the ASB as of 2016 was 12.1 MGD. This appears to be the annual average actual flow rate to the ASB. In 2017, the annual average flow rate was 13 MGD, exceeding what PTPC stated was “design” criteria as of 2016.

Typically, design criteria included in NPDES permits are monthly averages. Condition S16 of the 2013 permit required PTPC to establish monthly average design criteria. PTPC did not establish maximum monthly design criteria, and instead provided actual data. The maximum monthly flow rate to the ASB was 13.3 in calendar year 2016 according to the 2017 submittal. PTPC exceeded this flow rate during the months of December 2017 through March 2018.

The 2017 report also includes design data from 1978. There have been changes to the wastewater treatment plant since 1978 and these criteria may no longer be applicable to PTPC’s current operations.

It was Ecology’s intention that Ecology would use the 2017 report to establish design criteria for inclusion in renewal of the permit. Ecology has decided to not use the data from the 2017 report, as the design criteria do not appear valid, and Ecology did not want to apply the design criteria improperly if PTPC would exceed them during normal operations. Design criteria are permitted limits under Condition S.7A. of PTPC’s NPDES Permit.

The bathymetry of the ASB does not provide enough information for all design criteria required under Condition S8. PTPC must not only take into account physical capacity of the ASB (bathymetry) but also PTPC’s capacity to remove TSS and BOD₅.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 58. Port Townsend Paper Corporation (Comment 18 of 25)

Permit Section: S13

Submittal/Requirement: Sediment Monitoring

Comment: The sediment monitoring requirement poses the risk of compliance roadblocks. PTPC has been using the PECO dock and surrounding areas for chip conveyance for nearly 100 years. Past testing has been unable to define native soil. PTPC is unclear on how this sampling should take place and the intended application of the data.

Ecology Response to Comment

The sediment sampling shall occur “as is” and include debris recovered at the designated sampling locations. A description of the sample substrate (i.e., lack of native sediment, wood chips present) at any designated sampling location must be documented in the final data report. The intended use of the data from the sediment study is to characterize the sediments and compare results to the Sediment Management Standards for compliance. Please refer to Special Condition S13 of the permit for additional details on Sediment Monitoring Requirements.

The first two sentences of the response to this comment have been added to the Special Condition S13 language for PECO Dock sediment monitoring.

Comment 59. Port Townsend Paper Corporation (Comment 19 of 25)

Permit Section: S16

Submittal/Requirement: Acute Toxicity

Issue: Modified to require freshwater species instead of saltwater species for testing.

Comment: Bioassay lab indicated the change in species should not be an issue and that is it unusual in the permits that they have seen to use freshwater species for acute testing while using marine species for chronic testing.

Ecology Response to Comment

See justification for species selected for WET testing in Section III.M of this document.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 60. Port Townsend Paper Corporation (Comment 20 of 25)

Permit Section: S17

Submittal/Requirement: Chronic Toxicity

Issue: Modified by increasing ACEC and CCEC.

Comment: PTPC believes the data set from prior test shows this increase is unwarranted and will result in similar results as the current sampling protocol.

Ecology Response to Comment

The ACEC stands for acute critical effluent concentration. The CCEC stands for the chronic effluent concentration. These concentrations are based on PTPC's permitted

dilution factors. Dilution factors have been updated in this permit, as discussed in Section III.D.5 of this fact sheet. The acute dilution factor is 45.7. The chronic dilution factor is 52.6. The effluent percentage concentrations are calculated by dividing 1 by the dilution factor and multiplying by 100. The ACCEC is 2.2% of the effluent ($100\% \times 1/45.7 = 2.2\%$). The CCEC is 1.9% of the effluent ($100\% \times 1/52.6 = 1.9\%$).

Ecology did not make any changes to the final permit as a result of this comment.

Comment 61. Port Townsend Paper Corporation (Comment 21 of 25)

Permit Section: S18

Submittal/Requirement: Cooling Water Intake Structure (CWIS)

Issue: New requirements include inspections, flow minimization study, reporting, and development of Compliance Plan (if applicable).

Comment: PTPC uses saltwater withdrawn by the Saltwater Intake Structure to pull a vacuum and collect non-condensable gases at the D-set evaporators. Periodically, PTPC reuses the water as contact cooling water at the D-set evaporators. 40 C.F.R. 125.92 states that “The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility’s premises.” While PTPC once used the water withdrawn by the structure as cooling water on a now defunct turbine generator, this is no longer a use of this saltwater. The use of saltwater as contact cooling water is secondary to the use for the collection of non-condensable gases, thus the reuse of this water is a water saving measure.

PTPC has provided Ecology with the engineering drawings available for the structure, including drawings that outline a screen into the structure via a February 1953 engineering diagram of the structure and surrounding areas. This document details a screen that is 86 and 5/8” wide and 15’ tall. Additional screening is in use at each saltwater pump, a drawing of the pump was also provided to Ecology with this information. PTPC has also provided ecology with information on the flow rate and model of the saltwater pumps.

Ecology Response to Comment

Ecology acknowledges that PTPC informally provided Ecology the referenced 1953 engineering drawing and rough velocity calculations to Ecology via email on March 31, 2023. PTPC later formally submitted information about the CWIS to the WQ Permitting Portal under “Application for Permit Renewal” on September 11, 2023 (“formal submittal”), which references a previously submitted EPA 2C Supplemental form.

Ecology has reviewed submittals and has found conflicting information regarding PTPC's screening system.

Regarding the velocity calculations, As detailed in EPA's document entitled "Technical Development Document for the Final Section 316(b) Existing Facilities Rule", PTPC must account for the percent open area in the screening system when performing the calculations.¹⁴²

Ecology has updated the language under Condition S18 to specify that the precent open area of the screen must be considered in the velocity calculations.

Comment 62. Port Townsend Paper Corporation (Comment 22 of 25)

PTPC believes the requirements in S18 are not only unwarranted, but in some aspects unfeasible. Additionally, the efforts would require significant resources to meet the total requirements that would not produce a result that supports the intent of the permit condition.

S18.A requires PTPC to operate with no more than 3 saltwater pumps at one time. While this is typically PTPC's practice, this is counterintuitive to the rest of this section of the permit. Ecology is concerned with the flow of the cooling water intake structure being less than 0.5 fps, currently. S18.B requires a flow minimization study and additional inspection, thus subjecting PTPC to the requirement of using no more than 3 saltwater pumps is baseless.

This study would come at a significant cost to PTPC.

Ecology Response to Comment

Ecology's goal of the inclusion of Special Condition S18.A. (the requirement to operate no more than three pumps) was to capture how PTPC currently operates their CWIS. Ecology is aware that PTPC has infrastructure to operate four pumps but only operates up to three pumps at one time. The CWIS is regulated under the NPDES permit, so while changes to the number of pumps PTPC operates is permissible, PTPC must submit documentation to Ecology that they will continue to meet the design-through screen velocity of 0.5 fps prior to operating additional pumps. Ecology has updated Special Condition S18.A in the final permit to allow for additional pumps to be operated if PTPC submits appropriate documentation to Ecology for review and approval.

¹⁴² https://www.epa.gov/sites/default/files/2015-04/documents/cooling-water_phase-4_tdd_2014.pdf

Comment 63. Port Townsend Paper Corporation (Comment 23 of 25)

As this structure is underwater, compliance with S18.C, requiring PTPC to report any significant impingement or entrainment events within 24 hours is infeasible. S18.C.4 Requests weekly visual inspections of the structure, which would be unable to be performed without the assistance of a dive team. There is no visibility from land, and weekly dive inspections are not practical.

Ecology Response to Comment

Ecology has revised Special Condition S18.C.2 to state that PTPC must report impingement or entrainment events to Ecology within 24 hours “of becoming aware of such an event”, rather than 24 hours from the occurrence of the event. Ecology agrees that due to the configuration of PTPC’s CWIS, it may be improbable for PTPC to be aware that an impingement or entrainment event has occurred. However, if there is evidence that an impingement or entrainment event is occurring, or has occurred, PTPC must report that event to Ecology.

Ecology understands that PTPC’s cooling water intake structure is not visible from the dock or land. The weekly inspection requirement reads: “Perform weekly visual inspections (or other type of inspection) to ensure that technologies operated to minimize impingement and entrainment are operated to function as designed”. The phrase “or other type of inspections” was meant to lend PTPC flexibility in how they perform the inspections. While visual or remote inspection of the underwater portion of the CWIS is a potential way to comply with this permit requirement, this is not an expectation. PTPC could consider verifying that only three pumps are operating during the weekly inspections. Other facilities subject to this requirement verify that pump discharge or suction pressure are as expected as low pressures could indicate screen plugging.

Comment 64. Port Townsend Paper Corporation (Comment 24 of 25)

Permit Section: S21

Submittal/Requirement: PFAS Study

Issue: New requirement to identify if per- and polyfluoroalkyl substances are present in process wastewaters and submit report including identification of source reduction or elimination opportunities.

Comment: As Ecology has acknowledged, PTPC does not intentionally add PFAs as part of the papermaking process. The trade organization NCASI has studied the fate and transport of PFAs in the pulp and paper industry extensively. While not intentionally added, PFAs may be found in

recyclable materials that PTPC is processing. Since recycling is a preferred strategy within the waste management hierarchy, and a significant portion of PTPCs process, PFAs source reduction opportunities may be counterproductive to environmental health. PFAs may also be found in raw intake water to PTPC.

Expanded PFAs sampling and analysis methods are still currently being developed. Many laboratories are unable to process samples or have not established limits to compare against. With the ever-changing landscape of PFAs analysis, laboratory providers may be unable to quantify small amounts of PFAs.

The industry continues to study PFAs sources, and completing a site specific PFAs study is excessive at this time.

Ecology Response to Comment

Please refer to Section V.N of this Fact Sheet for the reasons why the PFAS study was included in the permit. While source reduction is often the best approach for minimizing pollution, Ecology understands that may not always be the case. Other options may need to be considered if source reduction is not feasible. PTPC can locate a laboratory accredited for EPA Method 1633 with Ecology's search tool (<https://apps.ecology.wa.gov/laboratorysearch/SearchMethod.aspx>). There are currently more than ten laboratories accredited for this method in the country, including one in Washington.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 65. Port Townsend Paper Corporation (Comment 25 of 25)

Permit Section: S22

Submittal/Requirement: Annual Bis(2- ethylhexyl) phthalate - Free Sampling Certification

Issue: New requirement

Comment: PTPC is uncertain if all collection equipment can be sourced to be DEHP free. This condition is unrelated to PTPCs process and may prove unfeasible to follow.

Ecology Response to Comment

Bis(2-ethylhexyl)phthalate was detected multiple times in PTPC's wastewater samples during the previous permit cycle. Sampling collection equipment, such as tubing, is known to be a source of the pollutant bis(2-ethylhexyl)phthalate, which can contaminate wastewater samples. This inadvertent contamination results in a sample

that is not representative of PTPC's discharge. PTPC is required to collect representative samples and it is in PTPC's best interest to prevent the contamination of their wastewater samples. This condition reminds PTPC of their responsibility to ensure that their samples are not contaminated with bis(2-ethylhexyl)phthalate in a way that makes the samples unrepresentative. With this condition in place, Ecology will assume that all detected levels of bis(2-ethylhexyl)phthalate are real and valid.

Ecology has revised Permit Condition S22 to state that PTPC must "make a reasonable effort" to ensure that equipment used to collect composite samples for bis(2-ethylhexyl)phthalate (i.e., tubing, collection equipment, and storage containers) do not contain bis(2-ethylhexyl)phthalate.

Comment 66. Niles Powell

What follows are my comments on the proposed renewal of the Water Quality Permit held by the Port Townsend Paper Corporation.

It is the format of this process with which I disagree, because it cannot, by design, accommodate the wishes of the citizens whom it purports to protect. We the people have the mistaken idea that if something harmful is happening in our community, we need only make our collective concerns known to the correct regulatory agency and those concerns will then be addressed. But in fact, these processes are driven by industry and industry always gets what it wants, with perhaps a few minor limitations.

The mill pollutes our land, air and water, our precious marine ecosystem. And it stinks. Despite all the talk about jobs by local politicians, I suspect that if a vote of the local citizenry were to be taken, we would be in favor of closing the mill altogether. But that vote is never going to happen, because it isn't our best interests that are driving the permitting process.

The proposed permit renewal is about the degree to which the mill is allowed to poison us. I could argue that we should have less of this chemical or more filtering of that air release or better treatment of one of the waste streams. But that legitimizes the entire process, which is a fraud.

In summary, my request is that you deny the mill the right to poison us, at all.

Thank you.

Ecology Response to Comment

Ecology is bound by state and federal law when implementing the NPDES program. This fact sheet describes the applicable rules and regulations that create the framework under which Ecology wrote this NPDES permit.

Regarding denying the permit, a similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See the response to frequent comments Item E.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 67. Mary Purdy (Comment 1 of 2)

I have been a dietitian nutritionist for almost 20 years with a special expertise in environmental nutrition. I am supremely concerned about the waste water from the paper mill and the changes to the permit that allow for more chemicals to be used and then discarded in the system. These chemicals are known to be hazardous to human health, wildlife and the environment. They have been classified as probable or possible carcinogens by the WHO, NIH, And CDC. (Example: <https://www.ncbi.nlm.nih.gov/books/NBK591471/>) You can also look at the other chemicals to see the potential impacts they can have here: <https://www.atsdr.cdc.gov/index.html>

How on earth is it permissible for the mill to be producing waste water that is definitively affecting the surrounding environment and communities? This is irresponsible and a sign of negligence on behalf of the department of ecology which is meant to protect the environment and public.

It is imperative that the mill change its operations so that it minimizes and/or eliminates its release of carcinogenic materials into our environment. This does not mean taking away jobs, it means ensuring that how the mill operates is safer for people, wildlife and the environment.

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. Please see the response to frequent comments, Item B.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 68. Mary Purdy (Comment 2 of 2)

I also suffer greatly when the so called "odor" is present. This is not just an odor, this is the presence of carcinogenic particulate matter in the air. It is not safe despite the statements that it doesn't go beyond a certain threshold. I might ask threshold for whom? Many of us, myself included, experience adverse health effects. My throat tickles (like it does when wildfire smoke is present) My lungs feel heavy. Clearly the particulate matter is acting as an irritant. I feel sick/sense of malaise that prevents me from spending time outside.

This needs to be examined and changed. The odor needs to be reduced, not studied.

You have an opportunity here to be leaders, to do the right thing to ensure the safety of public and environmental health.

Sincerely, Mary Purdy, MS, RDN

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See response to the frequent comments, Item G for concerns related to odors and other health concerns related to PTPC.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 69. Andrew Russel

I am a retired electrician and have lived in Port Townsend, Washington since 2006. During these years I have witnessed increasing environmental degradation locally, regionally, national and around the world.

Port Townsend Paper company, our largest local polluter, is now requesting increased limits on effluents – chemicals and solids – which the corporation discharges into Port Townsend Bay. This request has been incorporated into the Dept. of Ecology’s present draft wastewater permit for the mill. The mill justifies this request because they are now generating more “product” in order to increase their profits. With more product, so comes more degrading pollutants into the bay.

What do we want the most – cleaner water or more corporate profits?

We want cleaner water, and I urge the State Department of Ecology to deny Port Townsend Paper Corporation’s application for increased pollution thresholds.

Ecology Response to Comment

A similar comment was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. Please see response to frequent comments, Item D.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 70. Forest Shomer (Oral Comment)

I want to point out that of the three chemicals that are on the list for the level of concern going forward that two of them have the word “chlor” or “chloro” right in the middle and that is the crux of the issue. It’s the chlorine process of that is no longer practiced in most of Europe or is reduced dramatically and I really became aware of that when the Handle Corporation acquired Port Townsend Paper in the 1980s, because it looked like for them it was a way to continue their product line and profit margin, but do it in an environment where there was less stringent in its regulations. So, I think that the both for the water and for air that in this round of regulation if we could tighten the regulations on chlorine use and release into the environment that’s where we would make great progress because chlorine is hostile to the health of human beings and other organisms. And we’ve developed sort of a tolerance for it in our air for example in the evening fog that prevails this time of year. It shouldn’t be necessary for us to be living in that environment.

I remember going to the city council when that Handle acquisition took place, and we had pretty much the same kind of meeting that we are having tonight. I think it was in 1984, and it is 40 years later and we still have the same kind of issues up. So, I think that means we have not been thorough enough in raising the floor of what environmental health looks like. I just hope going forward that for the sake of my grandchildren who are now young adults that they want to live here. They don’t want to make excuses to their friends who come visiting or people who are looking to move here from you know harsher environments and say, “Yeah this is we do the best of everything here in Port Townsend. Our arts, our community participation, our food supply, so many things are at a high level.” I think we can raise the level of what Port Townsend Paper contributes environmentally to the community. That doesn’t mean that the mill ceases to operate, it just means it does it in a way that we can show the world, you know, we’re leading the way and the way to do that is to get chlorine out of our local environment and in these chemicals of concern. They shouldn’t be released around where we are. Thank you.

Ecology Response to Comment

Chlorinated compounds associated with kraft pulp and paper making are generally associated with bleached pulp and paper products. PTPC does not operate any bleaching processes. For more information on chlordane and pentachlorophenol, see Section III.I.7. of this fact sheet. Ecology does not have reason to believe that PTPC is actively using these chemicals on site. Detected levels of these pollutants may be from historic usage. These chemicals are no longer legal to use.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 71. John Talberth, Center for Sustainable Economy (Comment 1 of 4)

Please accept these brief comments from Center for Sustainable Economy on the draft NPDES permit for the Port Townsend Paper Mill (#WA0000922).

If reissued, the permit should leverage as much contamination clean-up as possible.

If issued, the renewed permit should be used to leverage as much cleanup of the facility before its inevitable closure and possible abandonment by its foreign owners. In too many situations abandonment of industrial facilities comes at an enormous cost to taxpayers in the form of Superfund sites and other industrial areas with high concentrations of toxic or environmentally harmful materials and resource damages that must be cleaned up and restored to make room for beneficial uses in the future.

The direct effects of climate change, such as sea level rise inundating key portions of the property, PTPC's history of effluent and monitoring violations, worker health and safety issues, including exposure to asbestos, and further ageing and dilapidation of infrastructure are likely to hasten the closure of this facility relatively soon.

Added to these factors is the accelerating shift away from wood-based paper and towards wood alternatives like bamboo, hemp, and agricultural waste in order to reduce the carbon intensity of paper and packaging. It should also be noted that PTPC is the single largest source of inventoried greenhouse gas emissions in Jefferson County and that drastic changes at the facility need to be made to reduce these emissions and meet county and state climate action goals.

For all these reasons, permit conditions should be modified to expedite a variety of activities that accomplish two goals simultaneously:

1. Reducing the potential to cause a water quality violation, while;
2. Safeguarding taxpayers from the potential costs associated with decommissioning and clean-up of the facility in the event it is closed and abandoned.

These may include conditions that require clean up of contaminated shoreline or marine habitats damaged by past spills, fugitive wood debris, and chronic violations of effluent standards. For example, Ecology has noted that the discharge of fugitive wood debris into Port Townsend Bay may have accumulated to levels which may cause adverse effects to biological resources. Rather than simply requiring monitoring, Ecology can require clean-up of this wood waste contamination during this permit cycle so as to avoid the need for taxpayer funded remediation once the mill closes.

Ecology Response to Comment

Washington state's cleanup rule is the Model Toxics Control Act (MTCA). Find more information at this website: <https://ecology.wa.gov/spills-cleanup/contamination-cleanup/rules-directing-our-cleanup-work/model-toxics-control-act>. Any MTCA cleanup is outside the scope of a wastewater permit. Should Ecology initiate a MTCA cleanup at PTPC in the future, while it is still operating or whether it shuts down, the cleanup will follow the legal framework under MTCA. Generally, under MTCA, the party liable for cleanup is the current or previous owner and operator, not the state. If a MTCA cleanup of the PTPC site occurs, there will be public outreach and meetings as required by MTCA.

It is possible that clean-up of the wood waste may be required if data collected during the sampling shows exceedances of the state sediment management standards. The sampling is necessary to characterize the extent of any possible contamination.

Responses to concerns about water quality violations are below.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 72. John Talberth, Center for Sustainable Economy (Comment 2 of 4)

Reasons for not denying the permit reissuance should be explained.

According to Ecology's Water Quality Permitting and Reporting Information System PTPC has been cited for at least 81 permit violations or triggers since 2013, including 48 numerical effluent violations and 17 monitoring violations. This chronic pattern of violations should inform Ecology's assessment of whether there is a reasonable potential for water quality violations. With respect to PTPC, there is not only reasonable potential for violations of BOD, TSS removal, and Ph standards, but in fact a statistical certainty based on past performance. There is no evidence that Ecology's reasonable potential analysis has factored in the actual history of violations.

Moreover, at what level of non-compliance does the Clean Water Act require that the EPA, Ecology, or other agencies with delegated authority deny permit renewals? Ecology should explain what criteria is required in order to deny the permit and explain why PTPC's situation does or does not meet that criterion. It would also be useful to compare PTPC to other comparable facilities in order to help identify best practicable control technology, best conventional control technology or best available demonstrated control technologies available to improve performance.

Ecology Response to Comment

A similar comment regarding denial of the permit renewal application was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. Regarding the request to deny permit reissuance, see Responses to Frequent Comments, Item E.

Compliance is something that Ecology considers when drafting the permit but there is no set “criteria” for when violations are significant enough to deny a permit renewal application. Ecology included violations that occurred during the most recent five years of the permit term in this fact sheet. There were a total of 9 numeric effluent violations associated with Outfall 001 and 7 violations associated with the sanitary wastewater treatment system. Ecology did not consider these violations to be an indication of the facility’s inability to generally comply with their permit.

Limits in the permit are established using EPA’s effluent limit guidelines. EPA’s effluent limit guidelines identify the best control technology for the industry and bases the effluent limits off of the expected performance of the technology. The effluent guidelines are intended to somewhat challenge Permittees. Occasional numerical effluent violations are somewhat expected over the permit term.

Comment 73. John Talberth, Center for Sustainable Economy (Comment 3 of 4)

The permit should address the effects of climate change.

There is no evidence that Ecology considered climate change in preparing the draft NPDES permit. Climate change will continue to have a number of predictable local effects that should inform Ecology’s reasonable potential evaluation, including inundation of portions of the facility by sea level rise and more frequent coastal flooding events, more intense precipitation events that exacerbate stormwater runoff from multiple point sources on the property, changes in baseline water temperatures, increases in extreme heat events, and reduced water flow in the Big and Little Quilcene rivers (where PTPC diverts flows) which support important coho and chum salmon runs.

When issuing an NPDES permit, the permitting authority has a duty to consider the potential impacts of climate change, meaning they should factor in all of these anticipated changes when setting permit conditions to protect water quality. The EPA actively encourages the inclusion of climate change adaptation strategies in NPDES permits, providing tools and resources to help permit writers assess potential impacts and develop appropriate mitigation measures. Ecology should be making use of these and consider modifying draft permit conditions to address climate change impacts, such as requiring more stringent monitoring, implementing adaptive management strategies, or setting discharge limits that account for unanticipated fluctuations

in water temperatures, streamflow, stormwater runoff, flooding, extreme heat, and other climate change effects that are likely to worsen during the permit cycle.

Ecology Response to Comment

Ecology has no internal guidance for Ecology permit writers to consider climate change in NPDES permits. This comment may be based off an EPA memorandum dated December 13, 2024 titled “Incorporating Resiliency Considerations in NPDES Permitting”. This guidance was for EPA permit writers only and not for state permit writers.

Some of the concerns above are largely applicable to stormwater discharges only. PTPC collects any stormwater that does not infiltrate into soils for treatment in their wastewater treatment plant. Any discharge of stormwater into surface waters that is not collected and treated in their wastewater treatment plant could be a violation of their NPDES permit. Fluctuations in precipitation would have a small effect on total amounts of wastewater, or the quality of the wastewater PTPC discharges.

A similar comment regarding concerns about reduced water flow in the Big and Little Quilcene rivers was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See Responses to Frequent Comments, Item C, “Water Use and Reuse”.

Ecology regularly monitors ambient conditions in Port Townsend Bay such as pH and temperature. These conditions have the potential to be affected by climate change. Ecology considered the most recent data available for pH and temperature in Port Townsend Bay when considering how PTPC’s discharge may affect receiving waters. Any new data will be considered during future permit renewals.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 74. John Talberth, Center for Sustainable Economy (Comment 4 of 4)

The permit should be modified to require monitoring and reduction of 6PPD-quinone.

The PTPC property has transportation, waste management, and hazardous waste sites that are sources of 6PPD-quinone pollution. This toxic chemical comes from tire wear particles and is lethal to coho salmon and dangerous to other aquatic species. According to Ecology, “[t]he types of activities common at these facilities, such as maneuvering heavy-duty vehicles in tight spaces, means 6PPD-quinone could be more of a concern at these sites.” PTPC’s heavy truck traffic and tight maneuvering spaces for these vehicles make it a priority target for 6PPD-quinone regulation. 6PPD-quinone sampling requirements are due to become mandatory by

2028, which falls within the time frame for this permit renewal. As such, the permit should be modified to reflect this requirement.

Thank you for your time and consideration of the issues we have raised.

Ecology Response to Comment

6PPD-quinone sampling is required after January 1, 2028 for permittees with coverage under the Industrial General Stormwater Permit that belong to specific industry groups. PTPC's NPDES permit is not an Industrial General Stormwater Permit and does not belong to any of the specific industry groups identified in the Industrial General Stormwater Permit. Ecology has not developed any guidance for requiring 6PPD-quinone sampling for individual permits at this time. Sampling for 6PPD-quinone may be incorporated into PTPC's NPDES permit during subsequent permit cycles.

It is also noted that, as mentioned in the previous response, PTPC collects their stormwater and sends it to their wastewater treatment plant. Their wastewater treatment plant provides more treatment than most stormwater discharges covered by the ISGP.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 75. Sandra Taylor

I have been in P.T. for 5 years and have noticed that the mill pervasive odor has worsened. There are many, many articles now supported by studies that due to the climate changing and higher temperatures allergies and sensitivities to air pollution are increasing. I have noted this myself that spring allergies are worse and hardly seasonal any more along with this increase in the mill odor is distressing. The thought that emissions that could have been and could be addressed to mitigate this, decrease vaporous discharges, VOC's and other potentially harmful fumes have been deliberately delayed and postponed since the 2017 revelations after official inspections is actually unforgiveable. It is just another strong armed approach based on people's dependence on jobs that makes the entire small town suffer for it. No better than a small town in the south or ghettos. It needs to stop. The mill should be made accountable and taken to task! Enough of this pussy footing around the huge elephant in our town!

Ecology Response to Comment

The "2017 revelations after official inspections" may be in reference to the air inspection that EPA conducted in 2017. During the inspection, EPA identified that PTPC failed to collect and incinerate emissions from part of their sawdust digester system as required under the applicable federal air quality rules. To come back into compliance, PTPC elected to permanently shut down this piece of equipment. Emissions from this piece of equipment, while potentially a source of odors, were a relatively small portion

of PTPC's overall emissions. This is why there has not been a noticeable change in odors from PTPC after they shut down this piece of equipment.

Similar comments regarding odors and associated health concerns was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See Responses to Frequent Comments, Item G.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 76. Alea Waters and Andrew Russel (Comment 1 of 3)

My family and I live in Port Townsend and have been homeowners here for almost 20 years. We are three of many citizens chronically suffering deleterious health effects from Port Townsend Paper Corporation's environmental pollution.

We were among the approximately 40 people who attended the recent December 4th public hearing on the current draft operating permit for the mill's wastewater disposal into our Port Townsend Bay.

The event was hosted by our local Dept. of Ecology staff. We listened to the presentation and public question period for two hours. We left before the "hearing" began, where public comments were heard and recorded, because we ran out of energy. We are old. So now we write in order to have our comments included in the permit process.

We studied the materials provided by Ecology, and we wish to register our strong objections to the proposed Increases in pollutants that the draft permit would allow to be discharged into the water of our bay. Specifically, increases in biochemical oxygen demand, and increases for suspended solids. The mill wants increased pollutant limits, because they have increased their production of "product," and therefore their profits.

Ecology Response to Comment

Similar comments regarding the increase in limits was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. Please see response to frequent comments, Item D, for response.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 77. Alea Waters and Andrew Russel (Comment 2 of 3)

We love the Orcas that are going extinct due to several prime factors, one of which is water pollution. We love the octopuses, the star fish, the crabs who are in the same situation. We love and adore the salmon! All on the Critical List!

Ecology Response to Comment

Similar concerns regarding the potential for PTPC's discharge to impact aquatic life was made by other commenters. Ecology included a response to such comments at the beginning of this Appendix. See responses to frequent comments, Item H.

Ecology did not make any changes to the final permit as a result of this comment.

Comment 78. Alea Waters and Andrew Russel (Comment 3 of 3)

We are happy our tax money is increasingly being spent on "cleaning up Puget Sound." Increasing pollutant levels allowed to be dumped into these waters completely defeats Washington State environmental goals and efforts! Surely Ecology can see this.

We applaud Ecology's inclusion in the draft permit of the new official limits for three known carcinogenic chemical pollutants; and the additional water- related studies the permit would require. Thank you, to the engineers at the Dept. of Ecology for their hard work on these important changes and additions.

However, we feel very concerned that the mill is operating with an outdated permit -- issued in 2013, eleven years ago — and has not done at least three of the important, mandated studies the outdated permit requires!

We have been told by Ecology that these studies are supposed be done multiple times during each 5 year permit period. In eleven years a minimum of six studies should have been done and analyzed by Ecology, and changes to the mill process implemented as necessary. This has not happened. We do not really know what is coming out of PTPC's pipes into our bay and what effects that effluent is having.

We consider the status of the mill's increased operation -- without an adequate and up-to-date permit and testing -- to be urgent for the waters of our bay, Puget Sound and all the creatures therein. And that this situation demands immediate action and remediation by Ecology.

Here are a few suggestions for initiating a just remedy.

- Shut down mill operation to it's lowest operating capacity now.
- Begin the missing studies.
- Pay temporarily laid-off mill workers and staff full wages while studies, permits, and any necessary mitigation actions are completed.

Ecology Response to Comment

Similar comments regarding the increase in limits was made by other commenters.

Ecology included a response to such comments at the beginning of this Appendix. Please see response to frequent comments, Item D, for response regarding increased limit.

Ecology apologizes for any misunderstanding that arose during a phone conversation with you after the December 4, 2024 event. PTPC has completed all studies required under the NPDES Permit issued in 2013. Ecology only meant to convey that you could submit a comment requesting that the permit require PTPC to complete certain requirements more frequently. See response to frequent comments, Item F, regarding concerns about the expired permit.

Ecology believes that PTPC's discharge has been adequately characterized. See Section II.C of this fact sheet for more information regarding sampling data collected. This information was used to evaluate potential impacts PTPC's discharge may have on receiving waters.

PTPC has generally been able to comply with the requirements under the NPDES program. While a permittee may reduce production to comply with permit requirements such as effluent limits, the NPDES permitting program generally does not give Ecology the authority to cap production at a facility if they have generally been able to comply with permit requirements, as PTPC has.

Ecology did not make any changes to the final permit as a result of this comment.