

## FACT SHEET FOR NPDES PERMIT WA0029262

Date of Public Notice: September 28, 2023

Permit Effective Date: December 1, 2023

### **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 Penn Cove Shellfish Samish Bay Plant.

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 Penn Cove Shellfish Samish Bay Plant, NPDES permit WA0029262 were available for public review and comment from September 28, 2023 to October 30, 2023. For more details on preparing and filing comments about these documents, please see Appendix A - Public Involvement Information.

Penn Cove Shellfish Samish Bay Plant reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

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

### **Summary**

Penn Cove Shellfish Samish Bay Plant is operating as a shellfish processing facility pursuant to a lease with Blau Oyster Company on Samish Island. Harvested whole shellfish will be washed and packaged for shipping to retail facilities. In the previous permit there were two monitoring points (MP001 and MP002). Monitoring Point 002 was from the processing facility and flowed into MP 001, which was the outdoor washing facility. Monitoring Point 002 has been eliminated in this permit.

Effluent limits for maximum and minimum pH are unchanged from the permit issued in 2007. The parameters flow, fecal coliform, Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) are required to continue to be monitored and reported to Ecology. No effluent limits are proposed for these parameters.

## TABLE OF CONTENTS

Fact Sheet for NPDES Permit WA0029262 .....	1
<b>I. Introduction .....</b>	<b>4</b>
<b>II. Background Information.....</b>	<b>5</b>
II.A. Facility description.....	7
II.B. Description of the receiving water .....	10
II.C. Wastewater characterization .....	11
II.D. Summary of previous permit compliance .....	11
II.E. State environmental policy act (SEPA) compliance.....	12
<b>III. Proposed Permit Limits.....</b>	<b>13</b>
III.A. Design criteria .....	14
III.B. Technology-based effluent limits .....	14
III.C. Surface water quality-based effluent limits.....	14
III.D. Designated uses and surface water quality criteria .....	18
III.E. Water quality impairments.....	19
III.F. Evaluation of surface water quality-based effluent limits for narrative criteria....	19
III.G. Evaluation of surface water quality-based effluent limits for numeric criteria .....	19
III.H. Human health .....	21
III.I. Sediment quality.....	22
III.J. Groundwater quality limits.....	22
III.K. Whole effluent toxicity .....	22
III.L. Comparison of effluent limits with the previous permit issued on June 28, 2007	23
<b>IV. Monitoring Requirements.....</b>	<b>23</b>
IV.A. Wastewater monitoring.....	23
IV.B. Lab accreditation .....	24
IV.C. Effluent limits which are near detection or quantitation levels.....	24
<b>V. Other Permit Conditions.....</b>	<b>24</b>
V.A. Reporting and record keeping.....	24
V.B. General conditions.....	24
<b>VI. Permit Issuance Procedures .....</b>	<b>24</b>

VI.A. Permit modifications.....	24
VI.B. Proposed permit Issuance .....	25
<b>VII. References for Text and Appendices .....</b>	<b>25</b>
<b>Appendix A – Public Involvement Information .....</b>	<b>27</b>
<b>Appendix B – Your Right to Appeal.....</b>	<b>28</b>
<b>Appendix C – Glossary .....</b>	<b>29</b>
<b>Appendix D – Technical Calculations.....</b>	<b>39</b>
<b>Appendix E – Response to Comments .....</b>	<b>40</b>
Table 1 - Facility Information.....	5
Table 2 - Ambient Background Data .....	10
Table 3 - Wastewater Characterization .....	11
Table 4 - Numeric Effluent Violations July 2007 to June 2022 .....	12
Table 5 - Permit Submittals.....	12
Table 7 - Technology-based Limits.....	14
Table 19 - Excellent Quality Criteria.....	18
Table 23 - Comparison of Previous and Proposed Effluent Limits – Outfall 001.....	23
Figure 1 - Facility Location Map.....	6

## I. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in [90.48 RCW](#)<sup>1</sup> (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits ([chapter 173-220 WAC](#)<sup>2</sup>)
- Water quality criteria for surface waters ([chapter 173-201A WAC](#)<sup>3</sup>)
- Water quality criteria for ground waters ([chapter 173-200 WAC](#)<sup>4</sup>)
- Whole effluent toxicity testing and limits ([chapter 173-205 WAC](#)<sup>5</sup>)
- Sediment management standards ([chapter 173-204 WAC](#)<sup>6</sup>)
- Submission of plans and reports for construction of wastewater facilities ([chapter 173-240 WAC](#)<sup>7</sup>)

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

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days ([WAC 173-220-050](#)<sup>8</sup>). (See *Appendix A-Public Involvement Information* for more detail about the public notice and comment procedures).

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

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

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

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

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

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

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

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

After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in Appendix E.

## II. Background Information

**Table 1 - Facility Information**

<b>Applicant:</b>	
Facility Name and Address	<b>Error! Reference source not found.</b> <b>Error! Reference source not found.</b> P.O Box 148 Coupeville, WA 98239 Physical Address 11272 Blue Heron Road, Bow WA 98235
Contact at Facility	Aaron Schmidt <b>Title: Farm Manager</b> <b>Telephone #:</b> (360) 915-3662
Responsible Official	Daryl Beerbower Title: General Manager P.O Box 148 Coupeville, WA 98239 <b>Telephone #:</b> (360) 678-4803
Industry Type	Shellfish Processing
Type of Treatment	Screening
Fee Category	Seafood processing 1,000-10,000 gpd
SIC Codes	2092 - <a href="#">Fresh or Frozen Packaged Fish</a>
NAIC Codes	311701 - Seafood Product Preparation and Packaging
Facility Location (NAD83/WGS84 reference datum)	Latitude: 48.57627 Longitude: -122.5046
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Samish Bay Latitude: 48.57648 Longitude: -122.5046

### Permit Status

The previous permit was issued to Blau Oyster Co. on June 28, 2007 with an effective date of July 1, 2007. The permit expired on June 28, 2012.

Application for Permit Renewal Submittal Date: March 2, 2012, and March 24, 2017, updated 3/23/2023.

Date of Ecology Acceptance of Application: June 28, 2012

## Inspection Status

Date of Last Non-sampling Inspection: March 11, 2020

**Figure 1 - Facility Location Map**



## II.A. Facility description

### 1. History

Until April 2020, Blau Oyster Company Inc. operated a small oyster shucking facility on Samish Bay in Skagit County. Operations included farming, harvest, and packing of fresh shellfish for market. Production amount varied year-to-year depending on the market, shellfish closures, and availability of oysters. The facility was first permitted under a State Waste Discharge permit in 1966, and then under a National Pollutant Discharge Elimination System (NPDES) permit in 1973. The most recent permit was issued in June 28, 2002, which expired June 28, 2007.

In June 2022, Penn Cove Shellfish LLC, leased shellfish growing grounds and the facility from Blau Oyster Company. Penn Cove Shellfish notified Ecology for a Transfer of Permit to New Owner/Operator on August 17, 2022. Other than a change in the permittee and eliminating shucking operations, no changes are proposed for the facility as compared to the operations previously approved by Ecology.

### 2. Industrial Processes

Penn Cove Shellfish LLC is a commercial shellfish farm based in Penn Cove on Whidbey Island and in the tidelands of Samish Bay. The company farms, washes, grades, packs, sells, and distributes marine shellfish, primarily Pacific oysters, Manila clams and mussels. The facility continues to wash, grade, and pack live oysters and clams that are harvested from Penn Cove's Samish Bay leases.

The facility receives live oysters and clams delivered in insulated totes. The totes of oysters are dumped into a bin with a tote dumper from where they travel onto a conveyor belt where recirculated freshwater (potable source) and/or saltwater (Samish bay water) spray dislodges sediment and seaweed. The cleaned oysters then travel on to an inspection belt where empty or broken shells are removed and placed in a bin after which the empty and broken shell along with the solids screened from the wash water are loaded on a truck for land disposal. After inspection the oysters are mechanically graded and packed, then loaded and iced into totes for further distribution.

Totes of clams are brought ashore and are washed and graded in a mechanical clam washer utilizing recirculating fresh water. The clams pass over an inspection belt where broken or empty shells are removed from the product before they continue on for packing and weighing.

The oyster and clam production volume is directly influenced by uncontrollable factors such as weather, economy, availability of product, and shellfish closures. Industry

production levels may be very inconsistent from month-to-month and year-to-year. Peak production and discharge values usually occur only several weeks per year.

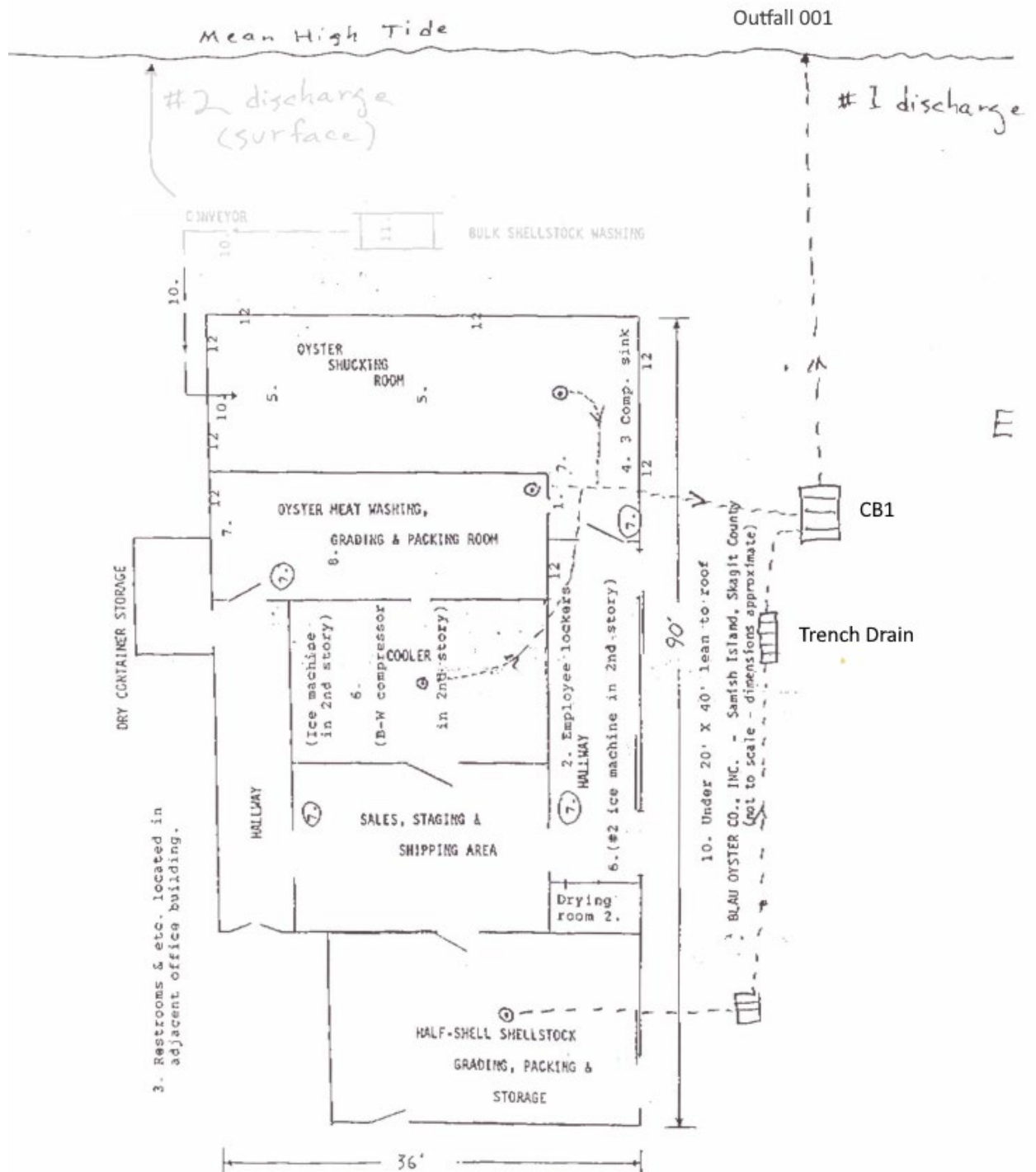
The operation discharges up to 10,000 gpd of process water into Samish Bay (Outfall #001). Sources of process water are recirculated wash tanks and washdown water from all areas including the grading and packing site. Water flows into a trench under the grate which has 4 inches of dead storage. Water flows to Catch Basin 1 (CB1) through a 6-inch pipe to Outfall # 001, located (see figure 1) on the beach. While an additional outfall had been identified for discharge to the beach (Outfall # 002, marked in grey in Figure 2), that discharge has been discontinued. Under the previous permit the shucking operation used potable water inside the building and discharged to Outfall #002. Outfall #002 is not included in this permit.

Chemical storage includes petroleum products used for forklifts and trucks, and disinfection chemicals.

Live oysters are cleaned over a grate under a roofed area on the east side of the facility using sea water, pumped from Samish bay at 40 gallons per minute. The trench under the grate has 4 inches of dead storage. Cleaning and sorting operations maybe moved into the building, but the same outfall (001) will be used.

Sanitary facilities are connected to an on-site septic system and are not covered by this permit.





**Figure 2 - Schematic of Oyster Processing Facility**

**3. Wastewater Treatment processes**

Solids in the form of shell fragments and sand settle out in the dead storage of the trench drain and the catch basins.

**4. Solid wastes**

Solids in the form of shell fragments and sand are removed from screenings and dead storage in the trench drain and in catch basins. They are removed and added to shell storage piles on the upland.

**5. Discharge outfall**

The treated and disinfected effluent flows into receiving water through a 6" pipe that discharges on the beach near the Mean High Tide Line. Outfall #001 is located on the beach directly to the east of the processing plant. The 6-inch outfall pipe was originally buried in the sand, but due to beach physics, the pipe is occasionally exposed. Effluent infiltrates into the sand and eventually discharges to Samish Bay. Effluent samples for Outfall #001 are taken from the end of the pipe. Sources of wastewater are oyster and clam shell washing and wash water from the outside slab.

**II.B. Description of the receiving water**

Penn Cove Shellfish Samish Bay Plant discharges to Samish Bay. There are no other nearby point source outfalls. Significant nearby non-point sources of pollutants include residential stormwater runoff. There are no receiving waterbody impairments.

The ambient background data used for this permit includes the following from EIM marine station BLL009 from 2007 to present for all parameters except bacteria. Fecal Coliform are pooled data from SKA012A, SKA012B, SKA012C.

The water surrounding the outfall is on a wide shallow sand bar. The ambient temperature is likely much warmer than at the mid Bellingham Bay location. The water used to wash down is drawn from deeper in Samish Bay and likely cooler than the receiving water when the surface water exceeds criteria.

The discharge from the facility into Samish Bay poses no reasonable threat of violating water quality standards. The major contaminant source is mud from Samish Bay that has been washed off of the shells.

**Table 2 - Ambient Background Data**

Parameter	Value Used
Temperature (90th of highest annual 1-DMax)	18.7 °C
pH (Maximum / Minimum)	7.22 to 8.74 standard units
Dissolved Oxygen (10th of Profile Maxima)	8.36 mg/L

Parameter	Value Used
Fecal Coliform	5.7 cfu/100ml (Geometric Mean) 50 cfu/100ml (90th Percentile)
Enterococci	12.2 MPN/100 mL (Geometric Mean) 23.3/100 mL (90th Percentile)
Turbidity (90th of profile Maxima)	2.97 NTU
Salinity (range of profile minima)	10.4 to 29.9 PSU

### II.C. Wastewater characterization

Blau Oyster Company reported the concentration of pollutants in the discharge in the 2017-permit application and in discharge monitoring reports submitted under the previous permit. An updated application was received in 2023 with Penn Cove contact information but no new data. Penn Cove verified the information in the application. Outfall 002 was abandoned prior to 2020 and combined with Outfall 001.

The tabulated data represents the quality of the wastewater effluent discharged from January 2007 to March 2020. The wastewater effluent is characterized as follows:

**Table 3 - Wastewater Characterization**

Parameter	Units	# of Samples	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD5) (max month)	mg/L	286	431	2402
Total Suspended Solids (TSS)	mg/L	288	327	2300

Parameter	Units	# of Samples	Geometric Mean	90th Percentile
Fecal Coliform (max month)	#/100 ml	288	6.87	170

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH	Standard Units	120	5.4*	8.91

\* a single sample was recorded as 1. This value was discarded as no chemicals with that low of a pH are used.

### II.D. Summary of previous permit compliance

The previous permit issued to Blau Oyster Company placed effluent limits on pH for Daily Min and Daily Max.

Blau Oyster Company had complied with the effluent limits throughout the duration of the permit issued on June 28, 2007, with the exceptions listed below. Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and inspections.

The following table summarizes the effluent violations associated with Blau Oyster Company's operations that occurred during the permit term. None of the violations are associated with the current applicant, Penn Cove Shellfish Company.

**Table 4 - Numeric Effluent Violations July 2007 to June 2022**

Violation Month/Year	Parameter Type	Monitoring Point	Limit	Measurement Value Quantity	Statistical Base Type
8/2012	pH	001	<=9	11.7	Daily Max
8/2012	pH	002	<=9	9.8	Daily Max
8/2013	pH	001	<=9	11.3	Daily Max
8/2013	pH	002	<=9	11.3	Daily Max
11/2017	pH	001	6>=	5.4	Daily Minimum
5/1/2019	pH	001	6>=	5.85	Daily Minimum
9/1/2019	pH	001	6>=	5.61	Daily Minimum

Blau Oyster Company also submitted 104 late DMRs. Two DMRs have not yet been submitted and there were a total of 18 occasions where analysis was not conducted.

The following table summarizes Blau Oyster Company's compliance with report submittal requirements over the permit term.

**Table 5 - Permit Submittals**

Submittal Name	Permit Section	Submittal Status	Due Date	Received Date
APPLICATION FOR PERMIT RENEWAL	G7	Received	12/28/2011	3/2/2012
APPLICATION FOR PERMIT RENEWAL	G7	Received	12/28/2016	3/24/2017
Signatory Requirements	G1	Received		4/1/2015
Signatory Requirements	G1	Received		6/23/2017
Signatory Requirements	G1	Received		12/7/2018

## 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.0383](http://app.leg.wa.gov/RCW/default.aspx?cite=43.21C.0383)<sup>9</sup>). The exemption applies only to existing discharges, not to new discharges. Because the application does not propose any new discharges and the proposed permit contains conditions that are as stringent as federal and state rules and regulations, the permit issuance is considered exempt from SEPA.

<sup>9</sup> <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 125.3](#)<sup>10</sup>, and [chapter 173-220 WAC](#)<sup>11</sup>).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards ([chapter 173-201A WAC](#)<sup>12</sup>), Ground Water Standards ([chapter 173-200 WAC](#)<sup>13</sup>), Sediment Quality Standards ([chapter 173-204 WAC](#)<sup>14</sup>), or the Federal Water Quality Criteria Applicable to Washington ([40 CFR 131.45](#)<sup>15</sup>).
- 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\(a\)](#)]<sup>16</sup>. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

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<sup>10</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-125#125.3>

<sup>11</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220>

<sup>12</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

<sup>13</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200>

<sup>14</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-204>

<sup>15</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-131#131.45>

<sup>16</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.42>

### III.A. Design criteria

According to [WAC 173-220-150 \(1\)\(g\)](#)<sup>17</sup>, neither flows nor waste loadings may exceed approved design criteria, however, Ecology does not have an engineering report that specifies the design criteria for the wastewater treatment plant at this facility. The proposed permit requires the facility to prepare an engineering report to establish design criteria.

### III.B. Technology-based effluent limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit. The technology-based limit of 6.0-9.0 for pH will be retained. The federal effluent guideline for this industry is 6.0-9.0 standard units and is considered AKART. Because of the high buffering capacity of marine water, compliance with the technology-based limits will assure compliance with the water quality standards for surface waters. No limits for Flow, Total Suspended Solids, Biological Oxygen Demand or Fecal Coliform have been established.

Monitoring of these parameters will continue. New facility operation will only include cleaning and sorting but no shucking.

**Table 6 - Technology-based Limits**

Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units

### III.C. Surface water quality-based effluent limits

The Washington State surface water quality standards ([chapter 173-201A WAC](#)<sup>18</sup>) 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

<sup>17</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-150>

<sup>18</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

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 131.45](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-131#131.45)<sup>19</sup>. 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.

## 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 pollutions.

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<sup>19</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-131#131.45>

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

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

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

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

**Facility Specific Requirements** – This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.
- Ecology's analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water.

## 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 is applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

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

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

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

This permit does not authorize a mixing zone.

III.D. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in [chapter 173-201A WAC](#)<sup>20</sup>. 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**

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

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<sup>20</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

#### 4. Miscellaneous marine water uses

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

#### III.E. Water quality impairments

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

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

Ecology must consider the narrative criteria described in [WAC 173-201A-260](https://apps.leg.wa.gov/wac/default.aspx?cite=173-201A-260)<sup>21</sup> 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.

#### III.G. Evaluation of surface water quality-based effluent limits for numeric criteria

##### 1. Mixing zones and dilution factors

Ecology has not authorized a mixing zone in the permit.

##### 2. Dissolved Oxygen: BOD<sub>5</sub> 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 (BOD<sub>5</sub>) 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.

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<sup>21</sup> <https://apps.leg.wa.gov/wac/default.aspx?cite=173-201A-260>

With technology-based limits, this discharge results in a small amount of BOD<sub>5</sub> loading relative to the large amount of dilution in the receiving water at critical conditions. BOD is generally low. Continued monitoring will continue for BOD<sub>5</sub> to ensure that dissolved oxygen criteria are met in the receiving water.

### 3. pH

Compliance with limits for pH from applicable Federal effluent guidelines (6.0 to 9.0, 40 CFR 408.252) will assure compliance with the water quality standards for surface waters because of the high buffering capacity of marine water.

### 4. Bacteria

Department of Health monitors fecal coliform in Samish Bay. Sites to the east, west and north are meeting the criteria. Monitoring of the beach to the west for recreation use has not detected any violations. No limit will be applied but monitoring for report only will continue.

### 5. Turbidity

Based on visual observation of the facility's effluent, Ecology expects no violations of the turbidity criteria.

### 6. Toxic Pollutants

Federal regulations ([40 CFR 122.44](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122#122.44)<sup>22</sup>) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

No toxic pollutants have been documented in the discharge.

### 7. 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

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<sup>22</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122#122.44>

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 13°C.

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.

This discharge at the high tide line often flows into the beach gravel, or into wave generated mixing of the effluent. No temperatures limit is needed.

III.H. Human health

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

Ecology determined the applicant's discharge is unlikely to contain chemicals regulated to protect human health. Ecology will reevaluate this discharge for impacts to human health at the next permit reissuance.

#### III.I. Sediment quality

The aquatic sediment standards ([chapter 173-204 WAC](#)<sup>23</sup>) 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 website](#)<sup>24</sup>.

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

#### III.J. Groundwater quality limits

The groundwater quality standards ([chapter 173-200 WAC](#)<sup>25</sup>) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Penn Cove Shellfish Samish Bay Plant does not discharge wastewater to the ground. No permit limits are required to protect groundwater.

#### III.K. Whole effluent toxicity

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

Using the screening criteria in [chapter 173-205-040 WAC](#)<sup>26</sup>, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

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<sup>23</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-204>

<sup>24</sup> <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups>

<sup>25</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200>

<sup>26</sup> <https://app.leg.wa.gov/WAC/default.aspx?cite=173-205-040>

III.L. Comparison of effluent limits with the previous permit issued on June 28, 2007  
There have been no changes in effluent limits. The only change is that monitoring point 002 is removed as Outfall 002 is no longer in use.

**Table 8 - Comparison of Previous and Proposed Effluent Limits – Outfall 001**

Limit	Monitoring Point	Basis of Limit	Existing permit limit	Proposed permit limit
pH – Daily Minimum	001	Technology	6.0 S.U,	6.0 S.U,
pH – Daily Maximum	001	Technology	9.0 S.U.	9.0 S.U.
pH – Daily Minimum	002	Technology	6.0 S.U,	NA
pH – Daily Maximum	002	Technology	9.0 S.U.	NA

## IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting ([WAC 173-220-210](https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-210)<sup>27</sup> and [40 CFR 122.41](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.41)<sup>28</sup>) 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

Penn Cove Shellfish Samish Bay Plant monitors for Flow, pH, BOD5, TSS, and fecal coliform to further characterize the effluent. These pollutant(s) could have a significant impact on the quality of the surface water.

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

Monitoring for priority pollutants has been removed in this permit. There are no sources expected to have those pollutants and they have not been detected in the last permit cycle.

<sup>27</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-210>

<sup>28</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-122/subpart-C/section-122.41>

**IV.B. Lab accreditation**

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of [chapter 173-50 WAC](#)<sup>29</sup>, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters)

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

None of the water quality-based effluent concentrations are near the limits of current analytical methods to detect or accurately quantify. The method detection level (MDL) also known as 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. Estimated concentrations are the values between the DL and the QL. 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.

**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 173-220-210](#)<sup>30</sup>).

**V.B. 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**

**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.

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<sup>29</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-50>

<sup>30</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-220-210>



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

**Application Information**

WA0029262\_RenewalApp\_2017-03-17.pdf

WA0029262\_RenewalApplication\_2023-01\_PennCoveShellfish.pdf

Available for download from <https://apps.ecology.wa.gov/paris/DocumentSearch.aspx>

**For mapping figures**

D. Kahle and H. Wickham. ggmap: Spatial Visualization with ggplot2. The R Journal, 5(1), 144-161. URL <http://journal.r-project.org/archive/2013-1/kahle-wickham.pdf>

**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 92-109](#)<sup>31</sup>

September 2011. **Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation**. [Publication 11-10-073](#)<sup>32</sup>

October 2010 (revised). **Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits**. [Publication 06-10-100](#)<sup>33</sup>

February 2007. **Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees**, [Publication 07-10-024](#)<sup>34</sup>.

[Laws and Regulations](#)<sup>35</sup>

[Permit and Wastewater Related Information](#)<sup>36</sup>

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<sup>31</sup> <https://apps.ecology.wa.gov/publications/summarypages/92109.html>

<sup>32</sup> <https://apps.ecology.wa.gov/publications/summarypages/1110073.html>

<sup>33</sup> <https://apps.ecology.wa.gov/publications/summarypages/0610100.html>

<sup>34</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/0710024.html>

<sup>35</sup> <http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx>

<sup>36</sup> <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 Penn Cove Shellfish Samish Bay Plant. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Draft on September 28, 2023 in the Skagit Valley Herald to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

### [Frequently Asked Questions about Effective Public Commenting<sup>37</sup>](#)

You may obtain further information from Ecology by telephone, 206-594-0167, or by writing to the address listed below.

Water Quality Permit Coordinator  
Department of Ecology  
Northwest Region Office  
P.O. Box 330316  
Shoreline, WA 98133-9716

The primary author of this permit and fact sheet is Steve Hood.

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<sup>37</sup> <https://apps.ecology.wa.gov/publications/SummaryPages/0307023.html>

## Appendix B – Your Right to Appeal

### 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\(2\)](#).

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

- File your notice of appeal and a copy of this permit with the PCHB (see filing information 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 notice of appeal and this permit on the Department of Ecology mail, in person, or by email (see addresses below).

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

### Filing an appeal

#### Filing with the PCHB

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

#### Service on Ecology

##### Street Addresses:

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

##### Mailing Addresses:

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

##### E-Mail Address:

[ecologyappeals@ecy.wa.gov](mailto:ecologyappeals@ecy.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 90.48.010](#)<sup>38</sup> and [RCW 90.48.520](#)<sup>39</sup>, [WAC 173-200-030\(2\)\(c\)\(ii\)](#)<sup>40</sup>, 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\(2\)](#)<sup>41</sup>.

**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.

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<sup>38</sup> <http://app.leg.wa.gov/RCW/default.aspx?cite=90.48.010>

<sup>39</sup> <http://app.leg.wa.gov/RCW/default.aspx?cite=90.48.520>

<sup>40</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-030>

<sup>41</sup> <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\(3\)](#)]<sup>42</sup>. 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.

**BOD<sub>5</sub>** – 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 BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD<sub>5</sub> 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

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<sup>42</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-020>

growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

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

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

**Compliance inspection-with sampling** – A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

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

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

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

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

**Date of receipt** – This is defined in [RCW 43.21B.001\(2\)](#)<sup>43</sup> 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.

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<sup>43</sup> <http://app.leg.wa.gov/RCW/default.aspx?cite=43.21B.001>

**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 distinguishable from method blank results as determined by the procedure given in [40 CFR part 136, Appendix B](#)<sup>44</sup>.

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

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

**Early warning value** – The concentration of a pollutant set in accordance with [WAC 173-200-070](#)<sup>45</sup> 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\(11\)](#)]<sup>46</sup>. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

**Engineering report** – A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in [WAC 173-240-060](#)<sup>47</sup> or [WAC 173-240-130](#)<sup>48</sup>.

**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.

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<sup>44</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-136/appendix-Appendix%20B%20to%20Part%20136>

<sup>45</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-070>

<sup>46</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-200-020>

<sup>47</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-240-060>

<sup>48</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-240-130>



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

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

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

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

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

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

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

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

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

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

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

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

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

**Method detection 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 WAC](#)<sup>49</sup>).

**National pollutant discharge elimination system (NPDES)** – [Section 402 of the Clean Water Act](#)<sup>50</sup>, 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

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<sup>49</sup> <https://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A>

<sup>50</sup> <https://www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system>

one-hour period, expressed as a daily or hourly average.

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

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

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

- 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 122.22](#)<sup>51</sup>).

**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 N](#)<sup>52</sup> and [40 CFR 403.6](#)<sup>53</sup> and;
- 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

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<sup>51</sup> [https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-121#se40.24.121\\_122](https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-121#se40.24.121_122)

<sup>52</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N>

<sup>53</sup> <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-N/part-403>

agronomy, crops or soils, and have 5, 3, or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

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

**Soluble BOD<sub>5</sub>** – Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD<sub>5</sub> test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD<sub>5</sub> 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**

Proposed permit has effluents limits for pH only and they were based on federal effluent guidelines.

There were no calculations done.

## Appendix E — Response to Comments

The only comment received was:

I hope you will give all possible latitude to the permitting requested by Penn Cove. The seafood industry is very important to our economy.

No changes necessary.