



April 2023  
Penn Cove Shellfish Samish Bay Plant



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# Industrial Wastewater Facility Engineering Report

Prepared for Penn Cove Shellfish

April 2023  
Penn Cove Shellfish Samish Bay Plant

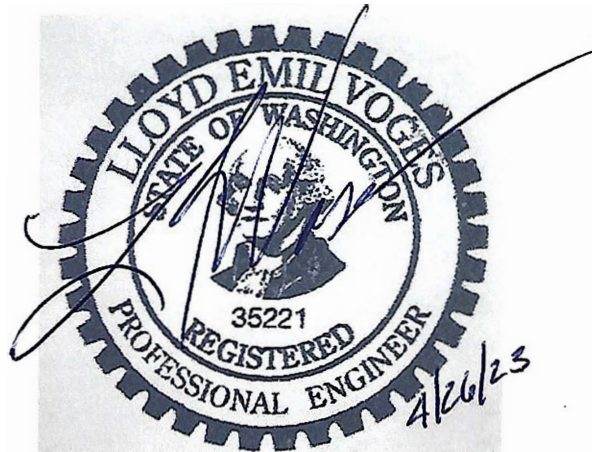
# Industrial Wastewater Facility Engineering Report

**Prepared for**  
Penn Cove Shellfish, LLC  
P.O. Box 148  
106 North Sherman Road  
Coupeville, Washington 98239

**Prepared by**  
Anchor QEA, LLC  
1201 3rd Avenue  
Seattle, Washington 98101

## CERTIFICATION STATEMENT

The material and data in this report were prepared under the supervision and direction of the undersigned.



Lloyd Emil Voges, PE  
Anchor QEA, LLC

April 27, 2023

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## ABBREVIATIONS

BOD	biochemical oxygen demand
cfu	colony-forming unit
DMR	Discharge Monitoring Report
Ecology	Washington State Department of Ecology
Facility	Penn Cove Shellfish, LLC, Samish Bay Plant
gpd	gallon per day
gpm	gallon per minute
mg/L	milligram per liter
mL	milliliter
NA	not applicable
NAICS	National American Industry Classification System
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
SEPA	State Environmental Policy Act
TMDL	Total Maximum Daily Load
TSS	total suspended solids
WAC	Washington Administrative Code

# 1 Introduction

Penn Cove Shellfish, LLC, operates the shellfish processing plant adjacent to Samish Bay, south of Bellingham, Washington. It processes the oysters it harvests from the adjacent tidelands at its facility located on the shore of Samish Bay at 11321 Blue Heron Road, Bow, Washington 98232, in Skagit County. The Samish Bay Plant (Facility) was formerly owned and operated by Blau Oyster Company and was leased by Penn Cove Shellfish in 2022. The oyster processing generates wastewater that is discharged into Samish Bay, and the discharge is permitted under the National Pollutant Discharge Elimination System (NPDES). The permit was first issued by the Washington State Department of Ecology (Ecology) to Blau Oyster Company in July 2001 and most recently renewed in March 2017. The permit was transferred to Penn Cove Shellfish in August 2022. Previous operations by Blau Oyster Company under the permit included oyster shucking. However, Penn Cove Shellfish upgraded the Facility in 2022 for the purpose of only processing live in-shell oysters (shucking has been discontinued).

The current NPDES permit number is WA-002926-2. During the permit transfer to Penn Cove Shellfish, Ecology required preparation of an Engineering Report for approval to maintain the existing permit. Anchor QEA, LLC, was engaged by Penn Cove Shellfish in February 2023 to develop this Engineering Report to meet the requirements of the NPDES wastewater discharge permit.

## 2 Applicable Regulations

### 2.1 Washington Administrative Code

This report has been developed in accordance with Washington Administrative Code (WAC) Chapter 173-240, which describes the requirements for the submission of plans and reports for construction of wastewater facilities. The Facility's wastewater system is existing and has been in near-continuous operation for more than 20 years. Because the Facility's oyster processing system has been upgraded and ownership has changed, this report is submitted as an update consistent with WAC 173-240-110.4. WAC 173-240-130 defines, by sections, the required content of engineering reports for industrial wastewater facilities. Table 1 lists those WAC sections and cross references them to the sections of this report. WAC sections that are not applicable to the Facility and the nature of its operations are annotated as such in Table 1.

**Table 1**  
**WAC-173-240-130 Engineering Report Requirements**

<b>WAC 173-240-130 Section</b>	<b>Engineering Report Requirements</b>	<b>Engineering Report Section</b>
2.a	Type of industry or business	2.1
2.b	The kind and quantity of finished product	2.1
2.c	The quantity and quality of water used by the industry and a description of how it is consumed or disposed of including the requirements for Sections 2.c.i through 2.c.iv	2.3
2.c.i	The quantity and quality of all process wastewater and method of disposal	4.1
2.c.ii	The quantity of domestic wastewater and how it is disposed of	4.1
2.c.iii	The quantity and quality of noncontact cooling water (including air conditioning) and how it is disposed of (the Facility does not use cooling water)	NA
2.c.iv	The quantity of water consumed or lost to evaporation (the Facility has no evaporative processes)	NA
2.d	The amount and kind of chemicals used in the treatment process, if any (the Facility does not use chemicals for treatment)	NA
2.e	The basic design data and sizing calculations of the treatment units	4.3
2.f	A discussion of the suitability of the proposed site for the Facility	3.6
2.g	A description of the treatment process and operation, including a flow diagram	4.3
2.h	All necessary maps and layout sketches	Figures
2.i	Provisions for bypass, if any	4.3
2.j	Physical provision for oil and hazardous spill control or accidental discharge prevention or both (the Facility does not store oil or hazardous chemicals)	NA
2.k	Results to be expected from the treatment process including the predicted wastewater characteristics, as shown in the waste discharge permit, where applicable	4.3



<b>WAC 173-240-130 Section</b>	<b>Engineering Report Requirements</b>	<b>Engineering Report Section</b>
2.l	A description of the receiving water, location of the point of discharge, applicable water quality standards, and how water quality standards will be met outside of any applicable dilution zone	2.2, 3.4
2.m	Detailed outfall analysis	3.5
2.n	The relationship to any existing treatment facilities, if any (the Facility has no related treatment facilities)	NA
2.o	Discharge to a municipal sewerage system (the Facility does not discharge industrial wastewater to a municipal sewer system)	NA
2.p	Discharge through land application (the Facility does not use land application)	NA
2.q	A statement expressing sound engineering justification through use of pilot plant data, results from other similar installations, or scientific evidence from literature, or both, that the effluent from the proposed facility will meet applicable permit effluent limitations or pretreatment standards or both	4.3.2
2.r	A discussion of the method of final sludge disposal selected and any alternatives considered with reasons for rejection	4.2
2.s	A statement regarding who will own, operate, and maintain the system after construction	3.1
2.t	A statement regarding compliance with any state or local water quality management plan or any plan adopted under the Federal Water Pollution Control Act as amended	4.3
2.u	Provisions for any committed future plans	3.8
2.v	A discussion of the various alternatives evaluated, if any, and reasons they are unacceptable (as an existing Facility and wastewater system, an alternatives analysis was not applicable)	NA
2.w	A timetable for final design and construction (the Facility is existing)	NA
2.x	A statement regarding compliance with the SEPA and the NEPA, if applicable (as there are no proposed changes to the Facility as compared to its existing use, the application is exempt from SEPA and NEPA requirements)	NA
2.y	Items related to solid waste leachate treatment system (the Facility is not a solid waste facility)	NA

## 2.2 Water Quality Standards

Samish Bay is designated by Ecology as “excellent” for aquatic life use and “primary contact recreation” for recreation use. Water quality standards for pH are set in WAC 173-201A-210-1f as 7.0 to 8.5 for excellent quality aquatic life use.

### 2.2.1 Samish Bay Watershed Total Maximum Daily Load

Ecology issued a Total Maximum Daily Load (TMDL) for the Samish Bay Watershed for fecal coliform bacteria in August 2009 and adopted the TMDL and Implementation Plan in 2014 (Ecology 2009). The Samish River is the largest contributor of both freshwater and fecal coliform bacteria to the

Samish Bay and is the main target for cleanup under the TMDL and Implementation Plan (Ecology 2009). The most significant sources of bacteria in the watershed are livestock, operations that spread manure, on-site sewage systems, and possibly pet sources (Ecology 2009). Numeric criteria were set for freshwater tributaries to Samish Bay and marine waters of Samish Bay for both the geometric mean and 90th percentile (Table 2). The freshwater tributaries to Samish Bay have numeric criteria of a geometric mean of 100 colonies per 100 milliliters (mL) and no more than 10% of samples to exceed 200 colonies per 100 mL (90th percentile.) The marine numeric criteria are a geometric mean of 14 colonies per 100 mL and no more than 10% of samples to exceed 43 colonies per 100 mL (90th percentile).

**Table 2**  
**Samish Bay Numeric Criteria**

<b>Standard</b>	<b>Geometric Mean (cfu/100 mL)</b>	<b>90th Percentile (cfu/100 mL)</b>
Freshwater tributaries to Samish Bay (excellent)	100	200
Marine, Samish Bay (shellfish harvesting and primary contact recreation)	14	43

Note:

Numeric criteria set in the TMDL and Implementation Plan (Ecology 2009) for the Samish Bay Watershed.

## 3 Facility Review

### 3.1 Industry Description

The Facility is operated by Penn Cove Shellfish. Applicable classifications are as follows:

- National American Industry Classification System (NAICS) codes 112512 – Shellfish Farming and 311710 – Seafood Product Preparation and Packaging
- Occupational Safety and Health Administration (OSHA) Standard Industrial Codes 0913 – Shellfish and 2092 – Prepared Fresh and Frozen Fish and Seafood

The Facility produces an average of approximately 5,000 to 7,000 dozen shell-on oysters and 10,000 to 15,000 pounds of shell-on clams weekly. Shucking activities are not performed at this Facility.

### 3.2 Facility Description

The Facility is located on the shore of Samish Bay and adjacent to roughly 93 acres of intertidal shellfish farms that are less than 5 miles from the Facility (Figure 1a). The Facility includes a processing building for cleaning, grading, and packaging of oysters for distribution to vendors. The Facility also includes an office building with work and meeting spaces and a single bathroom. The bathroom fixtures (toilet and sink) discharge to septic and a drain field located on site. Potable water to the processing building and office is supplied from the City of Bow municipal water system.

The oyster processing facility building is approximately 3,200 square feet and includes an oyster tote staging area, oyster grading area, cooler, oyster packing area, and finished product storage area. The layout of the processing facility and drainage system are shown in Figure 1b. The processing facility building is set back 30 feet from the mean high tide elevation. The processing facility was remodeled and updated in 2022 including replacing floors with a new concrete slab, replacing floor drain grates, installing a new propane heater, and installing upgraded oyster processing equipment. The processing facility has epoxy-coated cement floors with three floor drains located in the cooler, oyster grading area, and finished product storage area that drain to a combined sediment trap and then to a single discharge point via a culvert to Samish Bay (Figure 1b). The cooler is an insulated room where packaged oysters are stored on ice; there is no additional process cooling water. The rinsing, pressure washing, and grading equipment are powered by the local electrical utility.

### 3.3 Process Description

#### 3.3.1 Oyster Processing

Oysters are harvested by hand from the shellfish farm located in Samish Bay within the intertidal zone during low tide and transported by boat in totes to the Facility after the tide rises. Initial washing of oysters occurs during the harvest. The totes are staged in the oyster tote staging area.

Totes of oysters are loaded into the hopper, where the oysters are rinsed with potable water of loose residual sediments, vegetation, and organisms not washed during harvesting. The rinse water is recycled until it becomes excessively sediment-laden, at which point it is discharged into the oyster grading area floor drain. The hopper is then refilled with fresh potable water. Bulk sediment is separated from process wastewater during recirculation through a stainless-steel mesh screen with 2-millimeter openings. Sediment separated and collected during recirculation is disposed of at an off-site waste storage area on another parcel owned by Penn Cove Shellfish.

After initial rinsing, the oysters move up a conveyor belt to the pressure washing hood. Potable water is used to pressure wash the oysters to remove any remaining sediments or affixed organisms (such as barnacles). Wastewater from pressure washing is discharged after single use to the floor drain. Following the pressure wash, the oysters follow a conveyor belt that organizes the oysters into single file, and dead or anomalous-sized oysters are removed. Oysters remaining on the belt are then scanned by laser to determine size and sorted by grade according to existing orders. The grading equipment sorts the processed oysters into bags, and these are stored on ice in the cooler until ready for packaging and shipment to vendors.

After all oysters are processed, the Facility floors and equipment are rinsed down with potable water and equipment is cleaned using a diluted (less than or equal to 2 ounces) Crystal Simple Green Industrial Cleaner and Degreaser solution, which is sprayed onto paper towels for wiping down equipment surfaces and left to air dry per manufacturer specifications. The solution is stored within a containment area away from any production or sensitive areas.

Previous Facility operations included washing oysters outdoors near the mean high-tide elevation and discharged wastewater at Monitoring Point 002. Presently all oyster processing operations occur inside the processing facility.

### **3.3.2 *Clam Processing***

Clams are also harvested from Samish Bay by Penn Cove Shellfish, but the clams do not enter and are not processed in the oyster processing described in Section 3.3.1. No process wastewater is generated during clam processing. After digging up and collecting clams in mesh bags, harvested and bagged clams are placed on the shore at the Facility below the high-tide elevation overnight to allow for clam purging. Clam purging occurs when live clams are submerged in the high tide and the clams depurate the sand and grit within their shells. Following purging, bags of harvested clams are collected and stored outside until they are loaded onto trucks for distribution to vendors.

## **3.4 Chemical Storage**

Propane is stored in a 200-gallon vertical propane tank used for the propane heating system, which is located outside of the oyster processing facility along the southwest wall. A 5-gallon container of

Crystal Simple Green Industrial Cleaner and Degreaser is stored in the Facility within a containment area. The safety data sheet for Crystal Simple Green Industrial Cleaner and Degreaser is included as Appendix A

### **3.5 Receiving Water**

The receiving water from the Facility is Samish Bay. Samish Bay is south of Bellingham Bay and connected to the Pacific Ocean near the San Juan Islands. The Samish River, Edison Slough, and other tributaries discharge into Samish Bay to the southeast of the Samish Island Facility. The Samish Bay Watershed (including Samish Bay) has a TMDL for fecal coliform bacteria, as described in Section 2.2.1.

### **3.6 Outfalls**

The primary outfall that discharges wastewater to Samish Bay is located approximately 40 feet from the sediment trap. The outfall is a 6-inch culvert pipe equipped with a tide gate to prevent tidal backflow. The invert of this outfall is located below the mean high-tide elevation. A second outfall (as historically defined by the permit) is located to the west of the primary outfall and currently discharges only dispersed surface runoff from the site. In previous operations by Blau Oyster Company, this outfall was representative of rinse water from the outdoor rinsing and processing location, which is no longer in use. As part of the requested permit modification, this outfall and associated monitoring point will be removed from the permit as it does not convey wastewater associated with Facility processes.

### **3.7 Suitability of the Site**

The Facility location is ideal for access to both salt water tidal flats for growing shellfish and the municipal water system potable water to clean a food-grade finished product. Wastewater discharge to Samish Bay has been previously permitted under the NPDES wastewater discharge permit since 2001.

### **3.8 Provisions for Future Plans**

There are no plans to modify the Facility following the completion of renovations in 2022. However, there are preliminary plans to expand the oyster processing operations and add processing of additional live in-shell shellfish products. The specific quantities of the additional oyster and other shellfish processing have not been determined, but future operations will not exceed the maximum allowable process wastewater discharge of 10,000 gallons per day (gpd) designated in the existing permit. Processing of other shellfish types will not change the existing expected water quality of process wastewater under current operations.

## 4 Wastewater Review

### 4.1 Water Use

The Facility uses only potable water from the City of Bow municipal water system. Domestic wastewater from the bathroom facilities located in the office building discharges to an on-site septic system and drain field. Potable water is used in the processing facility to bulk rinse and pressure wash oysters, rinse flooring and equipment, and ice-making. Bulk rinse water is reused until it becomes too sediment-laden and is then discharged to the floor drain in the oyster grading area. Pressure wash water is not reused and is discharged to the floor drain in the oyster grading area. Unused ice is melted and drained to the floor drain in the cooler. On average, the Facility produces 2,500 gpd of process wastewater but has a maximum daily process wastewater production of 10,000 gpd, allowed by the previous and existing permits.

#### 4.1.1 Water Balance

The water balance for average water usage at the Facility is shown in Table 3.

**Table 3**  
**Average Usage Water Balance**

Description	Quantity (gpd)
<b>System Inputs</b>	
Potable Water	2,600
Precipitation	100
<b>System Outputs</b>	
Process Wastewater	2,500
Sanitary Wastewater	<100
Stormwater Runoff	100

### 4.2 Treatment

Process wastewater from the oyster processing activities is drained via floor drains to a single sediment trap, which slows down discharge and allows for sediments to settle from the wastewater prior to discharge to Samish Bay. The sediment trap is a simple rectangular concrete trap (65-inch length, 33-inch width, and 24-inch depth) with two 3-inch inlet pipes from the Facility and a single 4-inch outlet pipe at an invert elevation approximately 10 inches above the sediment trap bottom. At an operating depth of 10 inches, the trap has a volume of approximately 93 gallons. This volume provides 10 minutes of hydraulic retention at 9.3 gallons per minute (gpm) of flow. This hydraulic retention is higher than required to allow for settling of the types of solids washed from the oysters,

and 9.3 gpm is greater than the highest instantaneous wastewater flow rate from the process. Thus, the sediment trap is adequately sized.

The sediment trap is cleaned out weekly and on an as-needed basis when sediment depths reach approximately 4 inches by removing the surface grate and digging out the sediments. Sediments removed from the trap are disposed of in an off-site waste storage area on another parcel owned by Penn Cove Shellfish. There is no concern that the sediments should be treated as hazardous waste given the Facility processes.

In the event of a large discharge that exceeds the capacity of the sediment trap, samples would be collected at the outfall to ensure no exceedance of water quality standards, but no additional provisions are necessary for bypass as the sediments do not present a contamination hazard, and wastewater prior to treatment is not expected to exceed water quality standards. No other treatment of wastewater is required to meet water quality standards.

## **4.3 Water Quality**

Process water from the oyster processing facility is used to rinse and pressure wash sediments, organisms (such as barnacles), and vegetation from the outside of closed oysters. The quality of process water is expected to be acceptable with only primary sediment settling (occurring in the sediment trap) because the processes that produce process wastewater do not use the addition of any chemicals or substances. The solids entrained in the wastewater during the rinsing and pressure washing are composed of only those found naturally in, and returned to, the receiving water.

### ***4.3.1 Wastewater Sampling***

Samples are collected at both outfalls monthly and reported in a Discharge Monitoring Report (DMR) submitted to Ecology. Samples are tested for fecal coliform bacteria, biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. Waiver of sampling requirements for conventional and non-conventional pollutants shown in the NPDES Permit Application Table A include chemical oxygen demand, total organic carbon, ammonia, and temperature (EPA 2019). Although the Facility is located outside of the Samish Bay Watershed and therefore compliance with the TMDL is not required, sampling for fecal coliform bacteria meets the requirements indicated in the Samish Bay Watershed TMDL (Ecology 2009). There are no additional pollutants of concern that need to be sampled for at the Facility.

### ***4.3.2 Sample Results***

Results from wastewater samples reported in DMRs since the NPDES permit was transferred to Penn Cove Shellfish in 2022 and average results are shown in Table 4. DMR data since the transfer of the permit to Penn Cove Shellfish and Facility upgrades in 2022 do not show exceedances of

numerical criteria, indicating that current processes and wastewater treatment are appropriate, and future effluent is expected to meet water quality standards.

**Table 4**  
**Wastewater Sample Results Since Permit Transfer**

<b>Sample Date</b>	<b>Flow (gpd)</b>	<b>Fecal Coliform Bacteria (cfu/100 mL)</b>	<b>pH (daily minimum, daily maximum)</b>	<b>BOD (mg/L)</b>	<b>TSS (mg/L)</b>
1/27/2023	642	2	7.47, 7.47	3.1	36
12/29/2022	410	20	7.57, 7.57	0.0	44
11/29/2022	440	10	8.35, 8.35	1.3	108



## 5 References

- Ecology (Washington State Department of Ecology), 2009. *Samish Bay Watershed Fecal Coliform Bacteria Total Maximum Daily Load, Volume 2 – TMDL and Water Quality Implementation Plan*. Publication No. 09-10-019. August 2009.
- EPA (U.S. Environmental Protection Agency), 2019. *Application Form 2C Existing Manufacturing, Commercial, Mining, and Silvicultural Operations*. NPDES Permitting Program. U.S. Environmental Protection Agency Form 3510-2C. March 2019.

## Figures

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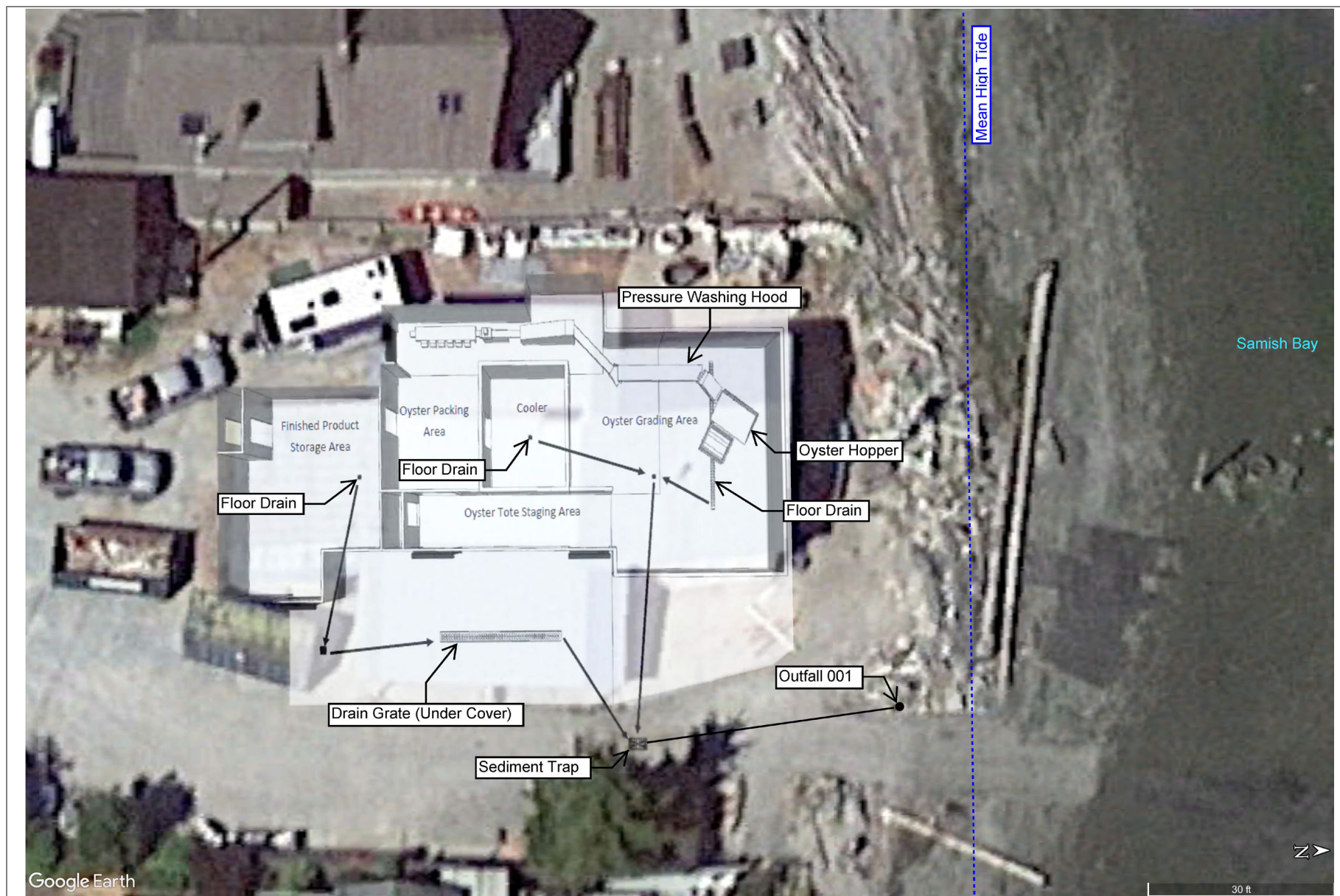


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**Figure 1a**  
**Vicinity Map**

Industrial Wastewater Facility Engineering Report  
Penn Cove Shellfish Samish Bay Plant



Filepath: [https://anchorqea-my.sharepoint.com/personal/kknight\\_anchorqea\\_com/Documents/Documents/Penn Cove/Final/Figure 1b - PCS Samish Bay Plant Site Plan 042623.docx](https://anchorqea-my.sharepoint.com/personal/kknight_anchorqea_com/Documents/Documents/Penn Cove/Final/Figure 1b - PCS Samish Bay Plant Site Plan 042623.docx)



**Figure 1b**  
**Site Plan**

Industrial Wastewater Facility Engineering Report  
Penn Cove Shellfish Samish Bay Plant

# Appendix A

## Safety Data Sheet

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**Section 1: IDENTIFICATION****Product Name:** Crystal Simple Green® Industrial Cleaner & Degreaser**Additional Names:****Manufacturer's Part Number:** *\*Please refer to Section 16***Recommended Use:** Cleaner & Degreaser for water tolerant surfaces.**Restrictions on Use:** Do not use on non-rinsable surfaces.**Company:** Sunshine Makers, Inc.  
15922 Pacific Coast Highway  
Huntington Beach, CA 92649 USA**Telephone:** 800-228-0709 • 562-795-6000 Mon – Fri, 8am – 5pm PST**Fax:** 562-592-3830**Email:** [info@simplegreen.com](mailto:info@simplegreen.com)**Emergency Phone:** Chem-Tel 24-Hour Emergency Service: 800-255-3924**Section 2: HAZARDS IDENTIFICATION****This product is considered hazardous under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).****OSHA HCS 2012 Classification:** Serious Eye Damage 2BOSHA HCS 2012Label Elements**Signal Word:** Warning**Hazard Symbol(s)/Pictogram(s):** None required**Hazard Statements:** Causes eye irritation.**Precautionary Statements:** Wash hands thoroughly after handling. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.**Hazards Not Otherwise Classified (HNOC):** None Known**Other Information:** None Known**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Ingredient</u>	<u>CAS Number</u>	<u>Percent Range</u>
Water	7732-18-5	> 82.998%*
C9-11 Alcohols Ethoxylated	68439-46-3	< 5.000%*
Surfactant	Proprietary Mixture	< 5.000%*
Tetrasodium Glutamate Diacetate	51981-21-6	< 5.000%*
Sodium Carbonate	497-19-8	< 1.000%*
Sodium Bicarbonate	144-55-8	< 1.000%*
Methylchlorisothiazolinone, Methylisothiazolinone	55965-84-9	< 0.002%*

*\*specific percentages of composition are being withheld as a trade secret***Section 4: FIRST-AID MEASURES****Inhalation:** Not expected to cause respiratory irritation. If adverse effect occurs, move to fresh air.**Skin Contact:** Not expected to cause skin irritation. If adverse effect occurs, rinse skin with water.**Eye Contact:** Causes eye irritation. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.**Ingestion:** May cause upset stomach. Drink plenty of water to dilute. See section 11.**Most Important Symptoms/Effects, Acute and Delayed:** None known.**Indication of Immediate Medical Attention and Special Treatment Needed, if necessary:** Treat symptomatically



**Section 5: FIRE-FIGHTING MEASURES**

**Suitable & Unsuitable Extinguishing Media:** Use Dry chemical, CO<sub>2</sub>, water spray or “alcohol” foam. Avoid high volume jet water.  
**Specific Hazards Arising from Chemical:** In event of fire, fire created carbon oxides may be formed.  
**Special Protective Actions for Fire-Fighters:** Wear positive pressure self-contained breathing apparatus; Wear full protective clothing.

*This product is non-flammable. See Section 9 for Physical Properties.*

**Section 6: ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective Equipment and Emergency Procedures:** *For non-emergency and emergency personnel:* See section 8 – personal protection. Avoid eye contact. Wear safety goggles.

**Environmental Precautions:** Do not allow into open waterways and ground water systems.

**Methods and Materials for Containment and Clean Up:** Dike or soak up with inert absorbent material. See section 13 for disposal considerations.

**Section 7: HANDLING AND STORAGE**

**Precautions for Safe Handling:** Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. Do not mix or contaminate with any other chemical. Do not eat, drink or smoke while using this product.

**Conditions for Safe Storage including Incompatibilities:** Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109°F (42.7°C). If separation occurs, mix the product for reconstitution.

**Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Exposure Limit Values:** No components listed with TWA or STEL values under OSHA or ACGIH.

**Appropriate Engineering Controls:** Showers, eyewash stations, ventilation systems

**Individual Protection Measures / Personal Protective Equipment (PPE)**

**Eye Contact:** Use protective glasses or safety goggles if splashing or spray-back is likely.  
**Respiratory:** Use in well ventilated areas or local exhaust ventilations when cleaning small spaces.  
**Skin Contact:** Use protective gloves (any material) when used for prolonged periods or dermally sensitive.  
**General Hygiene Considerations:** Wash thoroughly after handling and before eating or drinking.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Clear Colorless Liquid	<b>Partition Coefficient: n-octanol/water:</b>	Not determined
<b>Odor:</b>	No added odor	<b>Autoignition Temperature:</b>	Non-flammable
<b>Odor Threshold:</b>	Not determined	<b>Decomposition Temperature:</b>	42.7°C (109°F)
<b>pH:</b>	9.8 – 10.8	<b>Viscosity:</b>	Like water
<b>Freezing Point:</b>	0-3.33°C (32-38°F)	<b>Specific Gravity:</b>	1.01 – 1.03
<b>Boiling Point &amp; Range:</b>	101°C (213.8°F)	<b>VOCs:</b> **Water & fragrance exemption in calculation	
<b>Flash Point:</b>	> 212°F	CARB Method 310**:	
<b>Evaporation Rate:</b>	Not determined	< 5.0 g/L; < 0.041lb/gal; < 0.5%	
<b>Flammability (solid, gas):</b>	Not applicable	<b>Vapor Pressure:</b>	0.60 PSI @77°F, 2.05 PSI @100°F
<b>Upper/Lower Flammability or Explosive Limits:</b>	Not applicable	<b>Relative Density:</b>	8.34 – 8.42 lb/gal
		<b>Solubility:</b>	100% in water
		<b>Vapor Density:</b>	Not determined

**Section 10: STABILITY AND REACTIVITY**

<b>Reactivity:</b>	Non-reactive.
<b>Chemical Stability:</b>	Stable under normal conditions 70°F (21°C) and 14.7 psig (760 mmHg).
<b>Possibility of Hazardous Reactions:</b>	None known.
<b>Conditions to Avoid:</b>	Excessive heat or cold.
<b>Incompatible Materials:</b>	Do not mix with oxidizers, acids, bathroom cleaners, or disinfecting agents.
<b>Hazardous Decomposition Products:</b>	Normal products of combustion - CO, CO2.

**Section 11: TOXICOLOGICAL INFORMATION**

<b>Likely Routes of Exposure:</b>	Inhalation -	Overexposure may cause headache.
	Skin Contact -	Not expected to cause irritation, repeated contact may cause dry skin.
	Eye Contact -	Causes eye irritation.
	Ingestion -	May cause upset stomach.

*Symptoms related to the physical, chemical and toxicological characteristics:* no symptoms expected under typical use conditions.

*Delayed and immediate effects and or chronic effects from short term exposure:* no symptoms expected under typical use conditions.

*Delayed and immediate effects and or chronic effects from long term exposure:* headache, dry skin, or skin irritation may occur.

*Interactive effects:* Not known.

Numerical Measures of Toxicity

<b>Acute Toxicity:</b>	Oral LD <sub>50</sub> (rat)	> 5 g/kg body weight
	Dermal LD <sub>50</sub> (rabbit)	> 5 g/kg body weight

*Calculated via OSHA HCS 2012 / Globally Harmonized System of Classification and Labelling of Chemicals*

<b>Skin Corrosion/Irritation:</b>	Non-irritant per Dermal Irritation® assay modeling. No animal testing performed.
<b>Eye Damage/Irritation:</b>	Irritant per Ocular Irritation® assay modeling. No animal testing performed.
<b>Germ Cell Mutagenicity:</b>	Mixture does not classify under this category.
<b>Carcinogenicity:</b>	Mixture does not classify under this category.
<b>Reproductive Toxicity:</b>	Mixture does not classify under this category.
<b>STOT-Single Exposure:</b>	Mixture does not classify under this category.
<b>STOT-Repeated Exposure:</b>	Mixture does not classify under this category.
<b>Aspiration Hazard:</b>	Mixture does not classify under this category.

**Section 12: ECOLOGICAL INFORMATION**

<b>Ecotoxicity:</b>	Volume of ingredients used does not trigger toxicity classifications under the Globally Harmonized System of Classification and Labelling of Chemicals.
<b>Aquatic:</b>	Not tested on finished formulation.
<b>Terrestrial:</b>	Not tested on finished formulation.

<b>Persistence and Degradability:</b>	Reaches 100% biodegradability within 140 days in a sanitary sewer or septic system (extended OECD 301D testing).
<b>Bioaccumulative Potential:</b>	No data available.
<b>Mobility in Soil:</b>	No data available.
<b>Other Adverse Effects:</b>	No data available.

**Section 13: DISPOSAL CONSIDERATIONS**

**Unused or Used Liquid:** May be considered hazardous in your area depending on usage and tonnage of disposal – check with local, regional, and or national regulations for appropriate methods of disposal.



**Section 13: DISPOSAL CONSIDERATIONS - continued**

**Empty Containers:** Dispose of in accordance with local regulations.

Never dispose of used degreasing rinsates into lakes, streams, and open bodies of water or storm drains.

**Section 14: TRANSPORT INFORMATION**

**U.N. Number:** Not applicable

**U.N. Proper Shipping Name:** Cleaning Compound, Liquid NOI

**Transport Hazard Class(es):** Not applicable

**Packing Group:** Not applicable

**Environmental Hazards:** Marine Pollutant - NO

**Transport in Bulk (according to Annex II of MARPOL 73/78 and IBC Code):** Unknown.

**Special precautions which user needs to be aware of/comply with, in connection with transport or conveyance either within or outside their premises:** None known.

**U.S. (DOT) / Canadian TDG:** Not Regulated for shipping.

**IMO / IDMG:** Not classified as Hazardous

**ICAO/ IATA:** Not classified as Hazardous

**ADR/RID:** Not classified as Hazardous

**Section 15: REGULATORY INFORMATION**

**All components are listed on:** TSCA and DSL Inventory.

**SARA Title III:** Sections 311/312 Hazard Categories – Not applicable.

Sections 313 Superfunds Amendments and Reauthorizations Act of 1986 – Not applicable.

Sections 302 – Not applicable.

**Clean Air Act (CAA):** Not applicable

**Clean Water Act (CWA):** Not applicable

**State Right To Know Lists:** No ingredients listed

**California Proposition 65:** No ingredients listed

**Section 16: OTHER INFORMATION**

<u>Size</u>	<u>UPC</u>	<u>Size</u>	<u>UPC</u>
2 fl. oz.	043318190117	15 gallon	043318000263
4 fl. oz.	043318001550	55 gallon	043318000171
24 fl. oz.	043318000164	260 gallon	043318190667
1 gallon	043318000188	275 gallon	043318000195
5 gallon	043318000140		

*USA items listed only. Not all items listed. USA items may not be valid for international sale.*

**NFPA:**

Health – Eye Irritant

Flammability – Non-flammable

Stability – Stable

Special - None



## Section 16: OTHER INFORMATION - continued

### Acronyms

NTP	National Toxicology Program	IARC	International Agency for Research on Cancer
OSHA	Occupational Safety and Health Administration	CPSC	Consumer Product Safety Commission
TSCA	Toxic Substances Control Act	DSL	Domestic Substances List

**Prepared / Revised By:** Sunshine Makers, Inc., Regulatory Department.

**This SDS has been revised in the following sections:** Correction to ingredient disclosure level

**DISCLAIMER:** The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.