

**FACT SHEET FOR OCEAN COMPANIES
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT WA0041971**

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 Ocean Companies.

This fact sheet complies with Washington Administrative Code (WAC) 173-220-060, 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 30 days before issuing the final permit. Copies of the fact sheet and draft permit for Ocean Companies, NPDES permit WA0041971, are available for public review and comment. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Ocean Companies 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.

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I. INTRODUCTION

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

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for Issuing NPDES Permits ([chapter 173-220 WAC](#))
- Water Quality Criteria for Surface Waters ([chapter 173-201A WAC](#))
- Water Quality Criteria for Ground Waters ([chapter 173-200 WAC](#))
- Whole Effluent Toxicity Testing and Limits ([chapter 173-205 WAC](#))
- Sediment Management Standards ([chapter 173-204 WAC](#))
- Submission of Plans and Reports for Construction of Wastewater Facilities ([chapter 173-240 WAC](#))

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](#)). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

II. BACKGROUND INFORMATION

Facility Information

Applicant:	Ocean Companies P.O Box 1104 Westport, WA 98595-1104
Facility Name and Address	Ocean Gold 1804 Nyhus Street Westport, WA 98595 Clear Ocean 1601 Yearout Drive Westport, WA 98595
Contact at Facility	Name: Albert Cater Telephone #:360-268-2510
Responsible Official	Name: Albert Carter Title: Safety and Compliance Manager Address: P.O. Box 1104 Westport, WA 98595 Telephone #:360-268-2510
Industry Type	Seafood Processing
Categorical Industry	40 CFR Part 408
Type of Treatment	Screen and Dissolved Air Floatation Treatment Unit
SIC Codes	2092
NAIC Codes	311712
Facility Location (NAD83/WGS84 reference datum)	Ocean Gold Inc. Latitude: 46.90546 Longitude: -124.10847 Clear Ocean/Ocean Cold Latitude: 46.90216 Longitude: -124.10429
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Grays Harbor Latitude: 46.90555 Longitude: -124.10088
Intake Structures	None

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Permit Status

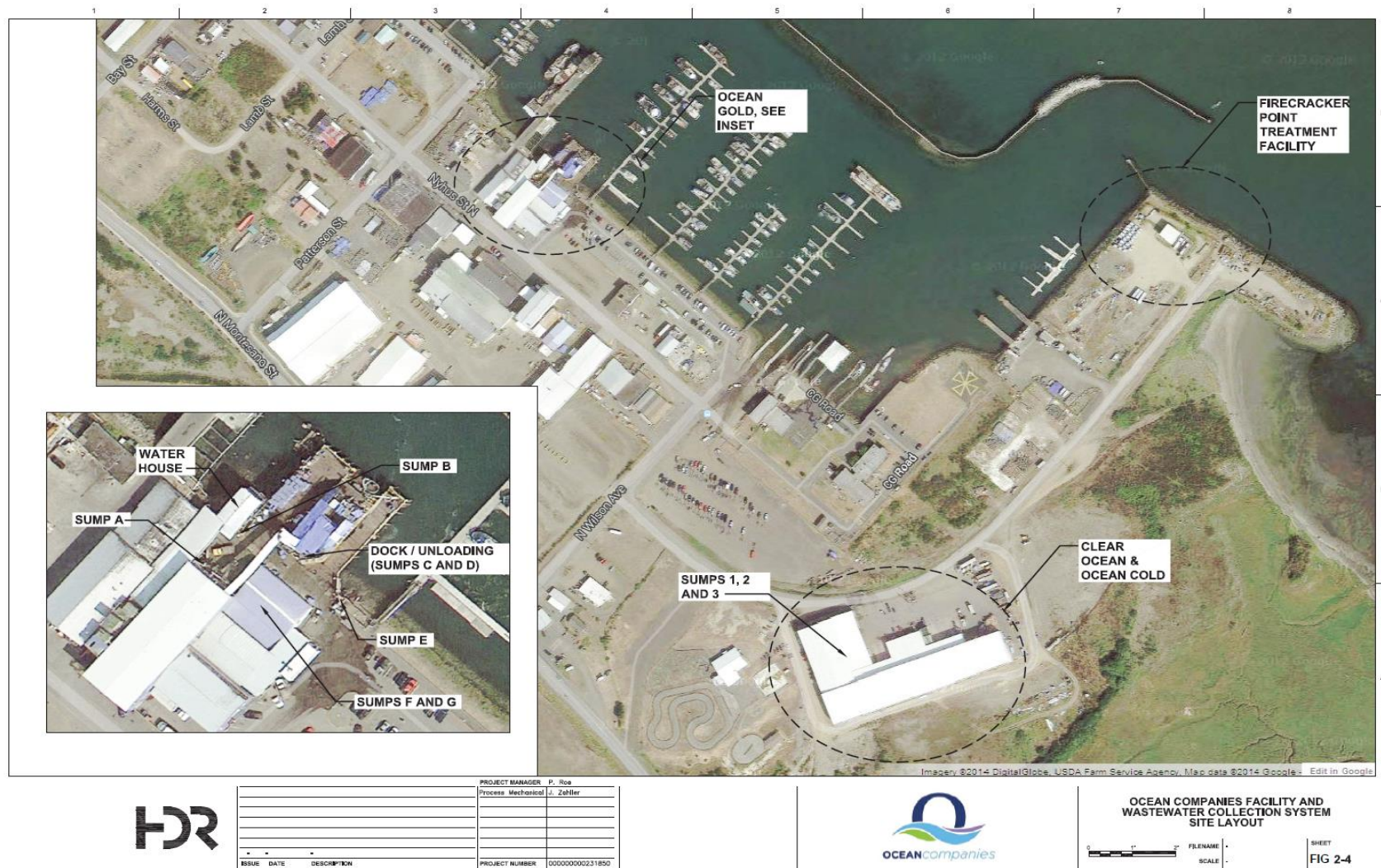
Renewal Date of Previous Permit	June 30, 2016
Application for Permit Renewal Submittal Date	September 4, 2020
Date of Ecology Acceptance of Application	December 3, 2020

Inspection Status

Date of Last Non-sampling Inspection Date	September 4, 2020
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Figure 1 - Facility Location Map



A. Facility Description

History

The ownership of Ocean Companies is a three-way partnership. This partnership includes Rydman family, Miller family and Frank Dulcich Pacific Seafood. Ocean Companies have two operations in Westport, Washington and they are Ocean Gold and Ocean Cold (aka Clear Ocean). Ecology issued the first NPDES permit to Ocean Gold Seafoods Inc. on April 17, 1996. Consequently this permit was renewed after every five years. Around year 2007, Ocean Gold Seafood Inc. became part of Ocean Companies. Ocean Companies submitted an Engineering Report on April 18, 2008, with the permit application requesting that Ecology modify the permit and add Clear Ocean/Ocean's processing facility located at 1601 Yearout Drive in Westport. Ecology modified Ocean Companies' NPDES permit in year 2010 to reflect these changes/additions.

Cooling Water Intakes

Clean Water Act (CWA) § 316(b) requires the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. Since July 2013, Ecology has required a supplemental application for all applicants using EPA Form 2-C. Ocean Companies selected "No" on this form when asked if a cooling water intake is associated with the facility.

Industrial Processes

Fish are processed and wastewater is produced at the Ocean Gold Seafood facility (1804 Nyhus Street North, Westport, WA 98595) and at the processing section of the cold storage facility (Ocean Cold), which is designated as Clear Ocean (1601 Yearout Drive, Westport, WA 98595). Both of these facilities are part of the Ocean Gold Seafoods processing system. The plants process primarily Pacific Whiting, Sardines, Dungeness Crab and Shrimp, with smaller amounts of Salmon, Tuna and Squid processed based on seasonal availability. Some of these species, including Shrimp, are being added to the permit through this engineering report. Fish processing occurs on a variable basis, based on the demands of the fishing season and availability of raw product. The cold storage facility (Ocean Cold) allows the processing operation to store product and process when the market is most advantageous. Operations during fishing seasons can be up to 24 hours a day, seven days a week, while during the off-season product may not be generated for an extended period of time. Plant wastewater sources include:

- Boat hold water (from fish storage on boats);
- Wash water (from fish cleaning);
- Cooking water (shrimp and crab); and
- Mechanized processing of fish (head/gut/tail removal).

Wastewater Treatment Processes

Wastewater from both Ocean Gold and Clear Ocean is initially fed through screening systems at each individual location before being pumped to the treatment plant at Firecracker Point. The overall wastewater collection system and treatment unit are shown in figures 2, 3 and 4 (Source HDR Inc.). Treatment of seafood processing wastewater consists of five steps:

- Screening (Ocean Gold and Clear Ocean);
- Influent Pumping;
- Dissolved air flotation;
- Disinfection; and
- Effluent disposal.

The following sections describe the screening operations at both Ocean Gold and Clear Ocean, followed by a description of the treatment facilities at Firecracker Point.

Ocean Gold Screening

All wastewater collected from Ocean Gold passes through one of two Hycor Rotoshear wedgewire fine screens (0.01-inch, Model #HRS60120-28) (Figure 2).

Clear Ocean/Ocean Cold Screening

All wastewater collected from Clear Ocean must ultimately pass through a Lyco screen. This process water is discharged from the screen to a collection sump where dual submersible pumps (Tsuremi model) convey the wastewater through a flow meter and 6-inch-diameter force main to the Dissolved Air Flotation (DAF) treatment unit at Firecracker Point (Figure 3).

Influent pumping and DAF treatment unit at Firecracker Point

Wastewater from both the Ocean Gold and Clear Ocean force mains discharges into the sump vault. This vault acts as an equalization collection point for all screened wastewater. The top mounted Vaughn chopper pump conveys wastewater from the sump directly to the DAF unit (and through a flow meter) located inside the building (Figure 4). The pump maximum capacity, based on the experience of plant staff, is likely between 450-500 gpm. This is less than the rated hydraulic capacity of the DAF unit, as described in the following section.

Two DAF units are located inside the treatment building. One is a Gas Energy Mixing (GEM) system supplied by Clean Water Technology. The GEM unit is a dual train design with a total hydraulic capacity of 500 gpm (250 gpm per train). This unit was placed in service in 2010 and described as part of the 2010 Engineering Report. The other unit is a Nijhuis Water Technology Model NPF 110. The Nijhuis unit has a total hydraulic capacity

of 600 gpm. This unit was discussed as a future installation in the 2010 Engineering Report³, but has now been installed and is the active treatment unit for the plant. The GEM unit is not currently used, but is available as a back-up if necessary.

The Nijhuis DAF unit includes a pre-treatment piping manifold that acts as a mixing zone for the addition of polymer/coagulant and compressed air. The pre-treatment zone provides flocculation time, mixing, and air entrainment to allow the DAF tank to function properly when pretreated product enters the unit. Solids, oil, and grease are floated to the top and removed from the system. The solids are hauled by truck for disposal or reuse.

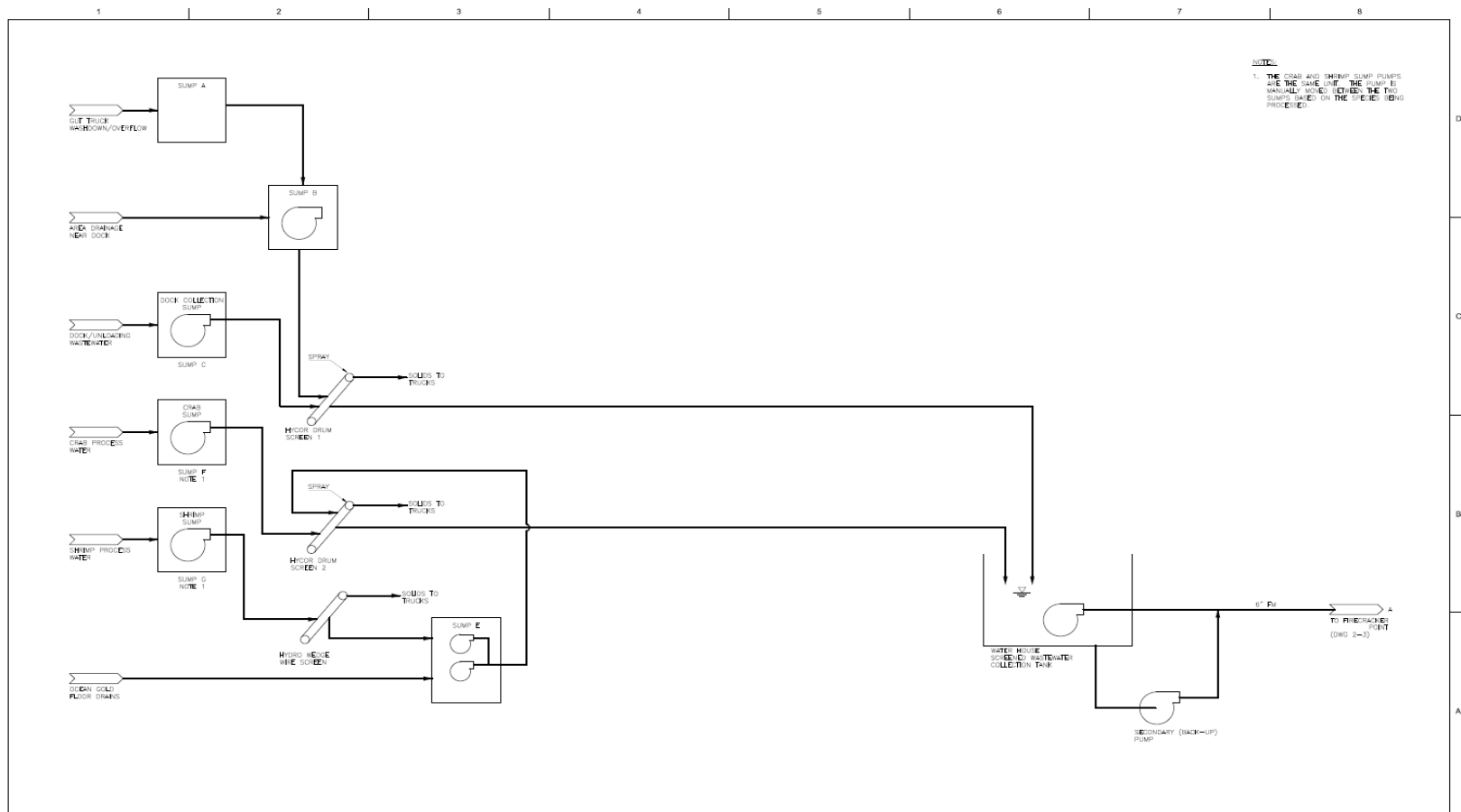
The polymer and coagulants used for treatment are detailed in the following section on chemical storage and use.

Disinfection

To accomplish disinfection, as measured by fecal coliform removal), peracetic acid is added to the DAF effluent. Discharge pH is also monitored for compliance with the NPDES permit. There is minimal residence time from the DAF effluent to the outfall, however, the plant has been able to successfully achieve the requirements of the permit based on the DMR data.

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Figure 2 — Ocean Gold Seafood Wastewater Collection



			PROJECT MANAGER		P. Rose
			Process Manager		J. Zeller
08/13/21					
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	000000000231850	

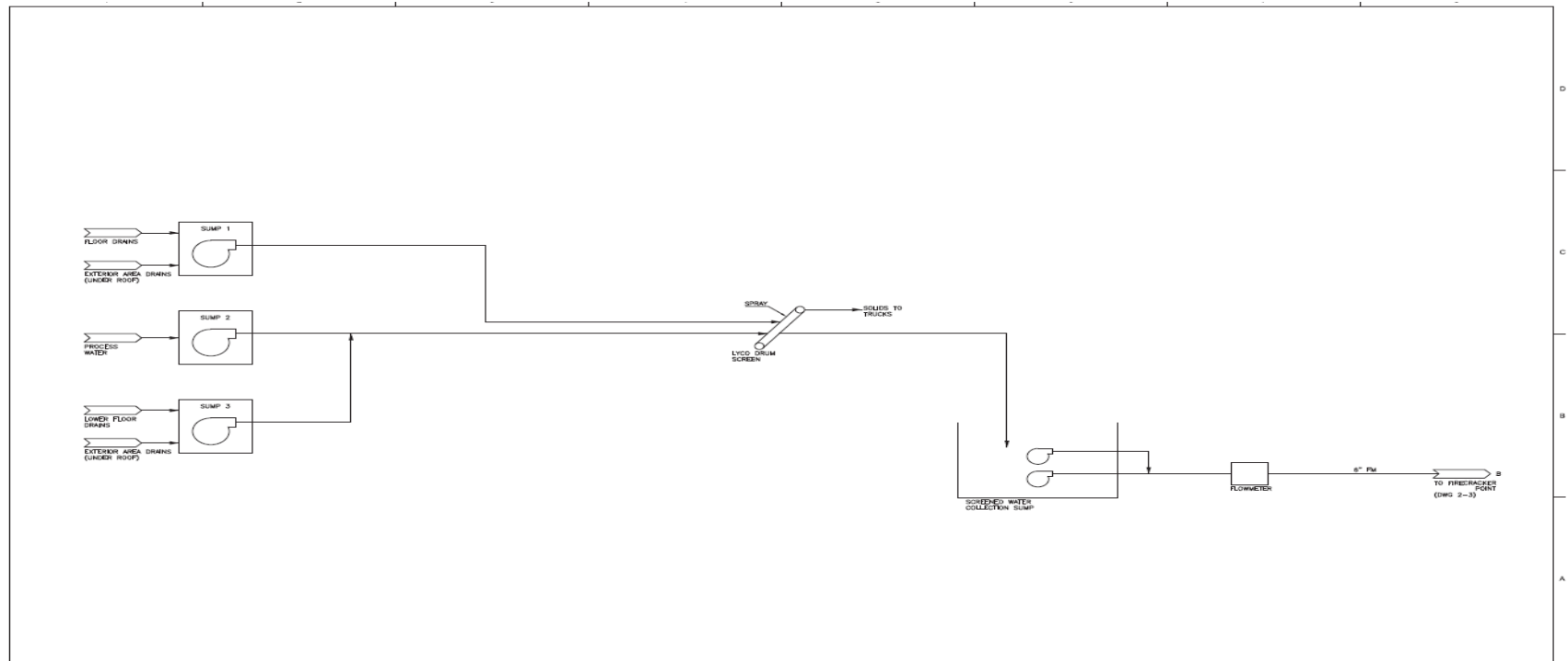


**OCEAN GOLD SEAFOOD
WASTEWATER COLLECTION**



SHEET
2-1

Figure 3 — Clear Ocean/Cold Storage Seafood Wastewater Collection



			PROJECT MANAGER P. Rye	
			Process Mechanical J. Zoller	
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER 00000000031850	



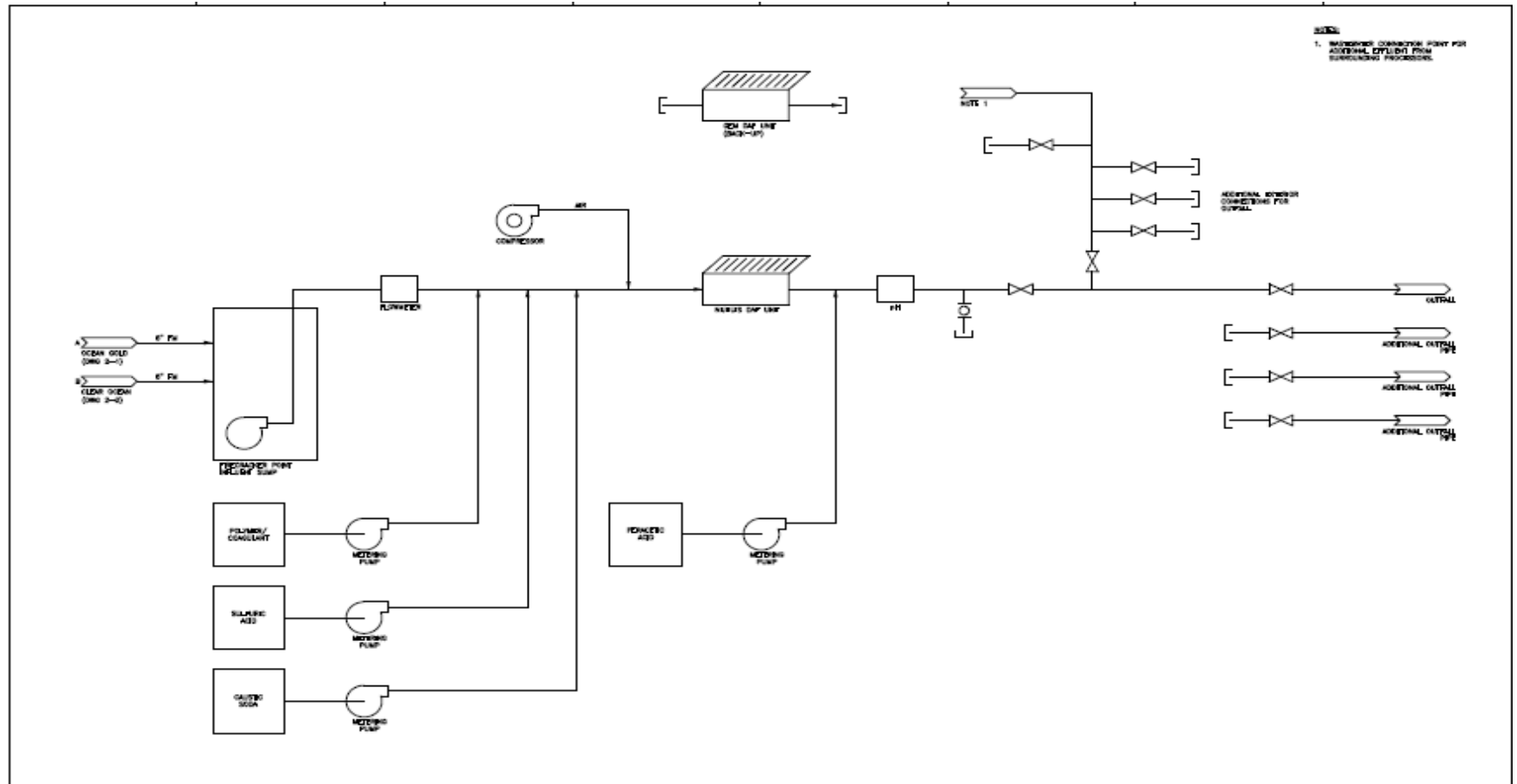
CLEAR OCEAN
WASTEWATER COLLECTION



FILENAME
SCALE

SHEET
FIG 2-2

Figure 4 — Ocean Gold and Clear Ocean Seafood wastewater collection and treatment



Solid Wastes

The following table summarizes the types, quantities and disposition practices for the solid waste that is generated at the facility.

Solid Waste Sources and Management

Waste Stream	Waste Source	Estimated Annual Quantity	Method of Collection	Disposition
Fish Offal	Fish processing	50 million pounds	Container trucks	Fish Meal Processing Plant
Crab and Shrimp Shells	Crab and Shrimp processing	1.5 million pounds	Container trucks	Picked up by local solid waste handler
Wastewater Screenings	Rotary screens	3 million pounds	Totes	Fish Meal Processing Plant
Wastewater Solids	DAF unit	1.5 million pounds	Totes	Fish Meal Processing Plant
Solid Waste	Plant/office	2,500 cubic yards	Dumpster	Picked up by local solid waste handler
Scrap Metal	Processing plant	3,000 pounds	Pile	Picked up by local scrap metal recycler

Discharge Outfall

The Port of Grays Harbor outfall utilized by Ocean Companies (Ocean Gold and Clear Ocean/Ocean Cold) consists of a 24-inch diameter pipe terminating in an open-ended diffuser 5 feet off the seabed. It discharges treated effluent perpendicular to the current at a depth of 35 feet and with a vertical angle of 22.25 degrees to Grays Harbor Estuary.

B. Description of the Receiving Water

Ocean Companies their treated water discharges to Grays Harbor Estuary. Other nearby point source outfalls include Pacific Seafood Westport LLC and the city of Westport. Significant nearby non-point sources of pollutants include Ocean Companies and Pacific Seafood Westport LLC. Nearby drinking water intakes include none located. Section IIIE of this fact sheet describes any receiving waterbody impairments.

The ambient background data used for this permit includes the following from Ecology ambient monitoring station near Westport, GYS016- Grassy Harbor at Damon Point:

Ambient Background Data

Parameter	Value Used
Temperature (1-DMax)	17.83 °C
pH (Maximum / Minimum)	9.4/6.4 standard units
Dissolved Oxygen (average)	8.7 mg/L
Turbidity	4.5 NTU
Salinity	27.3 PSU

C. Wastewater Characterization

Ocean Companies reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent discharged from July 1, 2016. The wastewater effluent is characterized as follows:

Wastewater Characterization

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD ₅)	mg/L	295.61	1380
	lbs/day	623.64	3914
Total Suspended Solids (TSS)	mg/L	52.2	97.18
	lbs/day	220	1920
Oil and Grease	mg/L	26.64	140
	lbs/day	58	461
Arsenic (Total)	ug/L	10.34	44.4
Cadmium (Total)	ug/L	0.44	1.8
Chromium (Total)	ug/L	2.64	8.5
Copper (Total)	ug/L	2.6	11.05
Lead (Total)	ug/L	0.54	1.20
Mercury (Total)	ng/L	8.14	54.5
Nickel (Total)	ug/L	3.37	15.4
Selenium	ug/L	2.37	16.7
Zinc (Total)	ug/L	159.02	829
Temperature	°C	12.58	17.4

Parameter	Units	Average Value	Maximum Value
Fecal Coliforms	#/mL	35.58	410
Flow	MGD	0.211	0.88
pH	Standard Units	Minimum Value	Maximum Value
		5.54	7.56

D. Summary of Compliance with Previous Permit Issued

Ocean Companies has complied with the effluent limits and permit conditions throughout the duration of the permit issued on June 30, 2016. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), DMRs, and on inspections.

Permit Submittals

Submittal Name	Submittal Status	Due Date	Received Date
Operations & Maintenance Manual	Reviewed	7/1/2017	6/30/2017
Operations & Maintenance Manual	Reviewed	7/1/2017	9/22/2017
Operations & Maintenance Manual	Submitted	7/1/2017	6/30/2017
Solid Waste Control Plan	Reviewed	7/1/2017	6/30/2017
Priority Pollutants Sampling Report	Received		9/2/2016
Priority Pollutants Sampling Report	Reviewed		11/1/2016
Priority Pollutant Metals Report	Reviewed	7/1/2017	7/1/2017
Priority Pollutant Metals Report	Reviewed	7/1/2017	9/22/2017
Priority Pollutant Metals Report	Submitted	7/1/2017	7/1/2017
DMR Reporting Oversight	Accepted		7/22/2019

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](#)). The exemption applies only to existing discharges, not to new discharges.

III. PROPOSED PERMIT LIMITS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

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

A. [Design Criteria](#)

Under [WAC 173-220-150 \(1\)\(g\)](#), flows and waste loadings must not exceed approved design criteria. Ecology approved design criteria for this facility's treatment plant in the engineering report dated October 3, 2014/January 30, 2015, prepared by HDR Engineering Inc. The table below includes design criteria from the referenced report.

Design Criteria for Ocean Companies Wastewater Treatment Unit

Parameter	Product	Unit	Average Monthly ^a	Maximum Daily ^b
Biochemical Oxygen Demand (5-day) (BOD ₅)	Dungeness Crab	lbs/day per 1000 lbs of seafood	4.10	10.0
	West Coast Hand-Butchered Salmon	lbs/day per 1000 lbs of seafood	1.7	2.7
	Non-Alaska Mechanized Bottom Fish	lbs/day per 1000 lbs of seafood	0.71	1.2
	Non-Alaska Conventional Bottom Fish	lbs/day per 1000 lbs of seafood	7.50	13
	Sardine	lbs/day per 1000 lbs of seafood	3.19	9.58
	Squid	lbs/day per 1000 lbs of seafood	20.91	62.74
	Mackerel	lbs/day per 1000 lbs of seafood	3.19	9.58
	Shrimp	lbs/day per 1000 lbs of seafood	62	155
	Tuna	lbs/day per 1000 lbs of seafood	8.1	20
Total Suspended Solids (TSS)	Dungeness Crab	lbs/day per 1000 lbs of seafood	0.69	1.7
	West Coast Hand-butchered Salmon	lbs/day per 1000 lbs of seafood	0.42	0.70
	Non-Alaska Mechanized Bottom Fish	lbs/day per 1000 lbs of seafood	0.72	1.50
	Non-Alaska Conventional Bottom Fish	lbs/day per 1000 lbs of seafood	2.90	5.30
	Sardine	lbs/day per 1000 lbs of seafood	10.0	36.0
	Squid	lbs/day per 1000 lbs of seafood	5.45	16.35

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Parameter	Product	Unit	Average Monthly ^a	Maximum Daily ^b
	Mackerel	lbs/day per 1000 lbs of seafood	1.81	5.44
	Shrimp	lbs/day per 1000 lbs of seafood	15.00	38.00
	Tuna	lbs/day per 1000 lbs of seafood	3	7.50
Oil and Grease	Dungeness Crab	lbs/day per 1000 lbs of seafood	0.10	0.25
	West Coast Hand- butchered Salmon	lbs/day per 1000 lbs of seafood	0.026	0.045
	Non-Alaska Mechanized Bottom Fish	lbs/day per 1000 lbs of seafood	0.47	1.20
	Non-Alaska Conventional Bottom Fish	lbs/day per 1000 lbs of seafood	0.042	0.077
	Sardine	lbs/day per 1000 lbs of seafood	0.57	1.40
	Squid	lbs/day per 1000 lbs of seafood	5.28	15.83
	Mackerel	lbs/day per 1000 lbs of seafood	0.13	0.38
	Shrimp	lbs/day per 1000 lbs of seafood	5.70	14.00
	Tuna	lbs/day per 1000 lbs of seafood	0.76	1.90

Parameter	Minimum	Maximum
pH	6.0 standard units	9.0 standard units

Parameter	Average Monthly	Maximum Daily
Fecal Coliform Bacteria	200/100 mL	400/100 mL

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. Ocean Companies must meet the following applicable technology based limits to comply with the code of the federal regulation 40 CFR 408.

Technology-BASED LIMITS

Subpart H—Dungeness and Tanner Crab Processing in the Contiguous States Subcategory
408.85 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kg/kg of seafood)	
BOD5	10	4.1
TSS	1.7	0.69
Oil and grease	0.25	0.10
pH	(¹)	(¹)
	English units (lb/1,000 lb of seafood)	
BOD5	10	4.1
TSS	1.7	0.69
Oil and grease	0.25	0.10
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

Subpart R—West Coast Hand-Butchered Salmon Processing Subcategory
408.185 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 kg of seafood)	
BOD5	2.7	1.7
TSS	0.70	0.42
Oil and grease	0.045	0.026
pH	(¹)	(¹)
	English units (pounds per 1,000 lb of seafood)	
BOD5	2.7	1.7
TSS	0.70	0.42
Oil and grease	0.045	0.026
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

Subpart U—Non-Alaskan Conventional Bottom Fish Processing Subcategory
408.215 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 kg of seafood)	
BOD5	1.2	0.71
TSS	1.5	0.73
Oil and grease	0.077	0.042
pH	(¹)	(¹)
	English units (pounds per 1,000 lb of seafood)	
BOD5	1.2	0.71
TSS	1.5	0.73
Oil and grease	0.077	0.042
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

Subpart V—Non-Alaskan Mechanized Bottom Fish Processing Subcategory
408.225 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kilograms per 1,000 kg of seafood)	
BOD5	13	7.5
TSS	5.3	2.9

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
Oil and grease	1.2	0.47
pH	(¹)	(¹)
	English units (pounds per 1,000 lb of seafood)	
BOD5	13	7.5
TSS	5.3	2.9
Oil and grease	1.2	0.47
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

Subpart AB—Sardine Processing Subcategory
408.285 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kg/kg of seafood)	
TSS	36	10
Oil and grease	1.4	0.57
pH	(¹)	(¹)
	English units (lb/1,000 lb of seafood)	
TSS	36	10

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
Oil and grease	1.4	0.57
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

Subpart K—Northern Shrimp Processing in the Contiguous States Subcategory
408.115 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kg/kg of seafood)	
BOD5	155	62
TSS	38	15
Oil and grease	14	5.7
pH	(¹)	(¹)
	English units (lb/1,000 lb of seafood)	
BOD5	155	62
TSS	38	15
Oil and grease	14	5.7
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

Subpart N—Tuna Processing Subcategory
408.145 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (kg/kg of seafood)	
BOD5	20	8.1
TSS	7.5	3.0
Oil and grease	1.9	0.76
pH	(¹)	(¹)
	English units (lb/1,000 lb of seafood)	
BOD5	20	8.1
TSS	7.5	3.0
Oil and grease	1.9	0.76
pH	(¹)	(¹)

¹Within the range 6.0 to 9.0.

C. Surface Water Quality-Based Effluent Limits

The Washington State Surface Water Quality Standards ([chapter 173-201A WAC](#)) 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 (TMDL) Study.

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical Water Quality Criteria are listed in the Water Quality Standards for Surface Waters ([chapter 173-201A WAC](#)). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

In 1992, U.S. EPA published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State in its National Toxics Rule 40 CFR 131.36 (EPA, 1992). Ecology submitted a standards revision for 192 new human health criteria for 97 pollutants to EPA on August 1, 2016. In accordance with requirements of [CWA section 303\(c\) \(2\) \(B\)](#), EPA finalized 144 new and revised Washington Specific Human Health Criteria for priority pollutants, to apply to waters under Washington's jurisdiction. EPA approved 45 human health criteria as submitted by Washington. The EPA took no action on Ecology submitted criteria for arsenic, dioxin, and thallium. The existing criteria for these three pollutants remain in effect and were included in [40 CFR 131.45](#), Revision of certain Federal Water quality criteria applicable to Washington.

These newly adopted criteria, located in [WAC 173-201A-240](#), are designed to protect humans 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.

Narrative Criteria

Narrative water quality criteria (e.g., [WAC 173-201A-240\(1\); 2006](#)) 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, 2016](#)) and of all marine waters ([WAC 173-201A-210, 2016](#)) in the state of Washington.

Antidegradation

Description – The purpose of Washington's Antidegradation Policy ([WAC 173-201A-300-330; 2016](#)) 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 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.

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 — Ecology determined that this facility must meet Tier II requirements. A Tier II analysis focuses on evaluating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with the lowering of water quality. New discharges and facility expansions are prohibited from lowering water quality without providing overriding public benefits.

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 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 percent 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 (see Ecology's [Permit Writer's Manual](#)). 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 percent and the receiving water is 75 percent of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water Quality Standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

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

The two types Of Human Health-Based Water Quality Criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The Human Health-Based Water Quality Criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures

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

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

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

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

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

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

3. Ecology must consider critical discharge conditions.

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

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents, and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology uses the water depth at Mean Lower Low Water (MLLW) for marine waters. Ecology’s [Permit Writer’s Manual](#) describes additional guidance on criteria/design conditions for determining dilution factors. The manual can be obtained from Ecology’s website at: <https://fortress.wa.gov/ecy/publications/documents/92109.pdf>

Critical Conditions Used to Model the Discharge

Critical Condition	Value
Water depth at MLLW	35 feet
90th percentile current speeds for acute mixing zone	1.132 m/sec
50th percentile current speeds for chronic and human health mixing zones	0.617 m/sec
Maximum average monthly effluent flow for chronic	0.712 MGD
Maximum daily flow for acute mixing zone	1.19 MGD
1 DAD MAX effluent temperature	18 °C

Cosmopolitan Marine Engineering obtained ambient data from ambient station GYS016 located Damon Point.

4. Supporting information must clearly indicate the mixing zone would not:
 - Have a reasonable potential to cause the loss of sensitive or important habitat
 - Substantially interfere with the existing or characteristic uses
 - Result in damage to the ecosystem
 - Adversely affect public health

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

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

The discharge plume does not impact drifting and non-strong swimming organisms because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could maintain a position within the plume, but they can also avoid the discharge by swimming away. Mixing zones generally do not affect benthic organisms (bottom dwellers) because the buoyant plume rises in the water column. Ecology has additionally determined that the effluent will not exceed 33 degrees C for more than two seconds after discharge; and that the temperature of the water will not create lethal conditions or blockages to fish migration.

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

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

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

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

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

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

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

7. Maximum Size of Mixing Zone

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

8. Acute Mixing Zone

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

Ecology determined the acute criteria will be met at 10 percent of the distance of the chronic mixing zone.

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

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

- Comply with Size Restrictions

The mixing zone authorized for this discharge complies with the size restrictions published in chapter [173-201A WAC](#).

9. Overlap of Mixing Zones

This mixing zone does not overlap another mixing zone.

D. Designated Uses and Surface Water Quality Criteria

1. Aquatic life uses are designated using the following general categories. All indigenous fish and non-fish aquatic species must be protected in waters of the state.
 - a. Extraordinary quality 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.
 - b. Excellent quality 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.
 - c. Good quality salmonid migration and rearing; 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.
 - d. Fair quality salmonid and other fish migration.

The Aquatic Life Uses and the associated criteria for this receiving water are identified below.

Marine Aquatic Life Uses and Associated Criteria

Excellent Quality

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	<ul style="list-style-type: none"> • 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.

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.

The *recreational use* is primary contact recreation. After December 31, 2020, all marine waters will be designated for primary contact recreation. This redesignation of the recreational use includes a change in the bacteria indicator from fecal coliform to enterococci and elimination of the secondary contact enterococci standard.

Recreational Uses

Recreational Use	Criteria
Primary Contact Recreation (Effective 1/1/2021)	Enterococci organism levels within an averaging period must not exceed a geometric mean of 30 CFU 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.

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

E. Water Quality Impairments

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

F. Evaluation of Surface Water Quality-Based Effluent Limits for Narrative Criteria

Ecology must consider the narrative criteria described in WAC 173-201A-260 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 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 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.

G. Evaluation of Surface Water Quality-Based Effluent Limits for Numeric Criteria

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

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

The current Port of Grays Harbor outfall utilized by Ocean Gold consists of a 24-inch diameter pipe terminating in an open-ended diffuser 5 feet off the seabed. It discharges treated effluent perpendicular to the current at a depth of 35 feet and with a vertical angle of 22.25 degrees. The MLLW depth is 35 feet. Ecology obtained this information from the Dilution Ratio Study Report submitted on in October 2013.

Chronic Mixing Zone — WAC 173-201A-400(7)(b) specifies that mixing zones must not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports and may not occupy more than 25 percent of the width of the water body as measured during MLLW.

The horizontal distance of the chronic mixing zone is 235 feet. The mixing zone extends from the bottom to the top of the water column.

Acute Mixing Zone — WAC 173-201A-400(8)(b) specifies that in estuarine waters a zone where acute criteria may be exceeded must not extend beyond 10 percent of the distance established for the chronic zone. The acute mixing zone for Outfall 001 extends 23.5 feet in any direction from any discharge port.

Dilution Factors (DF)

Criteria	Acute	Chronic
Aquatic Life	25.4	297
Human Health, Carcinogen		297
Human Health, Non-carcinogen		297

Ecology determined the impacts of dissolved oxygen deficiency, pH, fecal coliform, ammonia, metals, other toxics, and temperature as described below, using the dilution factors in the above table. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

Dissolved Oxygen — BOD₅ and Ammonia Effects — Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The BOD₅ of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. The amount of ammonia-based nitrogen in the wastewater also provides an indication of oxygen demand in the receiving water.

With technology-based limits, this discharge results in a small amount of BOD₅ loading relative to the large amount of dilution in the receiving water at critical conditions. Technology-based limits will ensure that dissolved oxygen criteria are met in the receiving water.

pH — Compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards of surface waters because of the high buffering capacity of marine water.

Bacteria — In the previous permit cycle, Ecology modeled the number of fecal coliform by simple mixing analysis using the technology-based limit of 400 organisms per 100 mL and a dilution factor of 297. That analysis showed no violation of the fecal coliform water quality criterion under critical conditions. The changes to the State's surface water quality criteria for bacteria did not affect the domestic technology based limits for fecal coliform in WAC 173-221. Given that the characteristics of the receiving water and the discharge have not changed substantially since the analysis conducted in the previous permit cycle, the proposed permit will maintain the technology-based effluent limit for fecal coliform.

Turbidity —Based on visual observation of the facility's effluent, Ecology expects no violations of the turbidity criteria outside the designated mixing zone.

Toxic Pollutants — Federal regulations ([40 CFR 122.44](#)) 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.

The following toxic pollutants are present in the discharge: ammonia, and heavy metals. Ecology conducted a reasonable potential analysis (See **Appendix D**) on these parameters to determine whether it would require effluent limits in this permit.

No valid ambient background data were available for ammonia, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc. Ecology used zero for background.

Ecology determined that there is no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (**Appendix D**) and as described above. Ecology's determination assumes that this facility meets the other effluent limits of this permit.

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

- Annual 1-Day maximum criteria
- Incremental warming restrictions
- Protections against acute effects

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

- Annual 1-Day Maximum Criteria

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

- 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:

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

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

At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the

naturally warm condition. When Ecology has not yet completed a TMDL to address documented temperature impairments, our policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25 percent or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- Temperature Acute Effects
 - 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.
 - 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.
 - Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Reasonable Potential Analysis

Annual Summer Maximum, and Incremental Warming Criteria: Ecology calculated the reasonable potential for the discharge to exceed the annual summer maximum and the incremental warming criteria (See temperature calculations in **Appendix D**).

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

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

H. Human Health

Washington's water quality standards include numeric human health-based criteria for 97 priority pollutants that Ecology must consider when writing NPDES permits.

Ecology determined the effluent may contain chemicals of concern for human health, based on data indicating the discharge contains regulated chemicals.

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

potential determination. The evaluation showed that the discharge has no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed.

I. [Sediment Quality](#)

The aquatic sediment standards ([chapter 173-204 WAC](#)) 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](#) available at: <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups>

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.

J. [Groundwater Quality Limits](#)

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

Ocean Companies do not discharge wastewater to the ground. No permit limits are required to protect groundwater.

K. Comparison of Effluent Limits with the Previous Permit Issued on June 30, 2016

Comparison of Previous and Proposed Effluent Limits

Parameter	Product proposed to be processed	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
			Average Monthly	Max Daily	Average Monthly	Max Daily
			Waste loading limits are lbs/1000lbs of seafood			
Biochemical Oxygen Demand (5-day)	Dungeness Crab	Technology	4.10	10.0	4.10	10.0
	West Coast Hand butchered Salmon	Technology	1.7	2.7	1.7	2.7
	Non-Alaskan Conventional Bottom Fish	Technology	0.71	1.20	0.71	1.20
	Non-Alaskan Mechanized Bottom Fish	Technology	7.50	13.0	7.5	13.0
	Sardine	Technology	3.19	9.58	3.19	9.58
	Squid	Technology	20.91	62.74	20.91	62.74
	Mackerel	Technology	3.19	9.58	3.19	9.58
	Shrimp	Technology	62	155	62	155
	Tuan	Technology	8.1	20	8.1	20
Total Suspended Solids	Dungeness Crab	Technology	0.69	1.70	0.69	1.70
	West Coast Hand butchered Salmon	Technology	0.42	0.70	0.42	0.70
	Non-Alaskan Conventional Bottom Fish	Technology	0.72	1.50	0.72	1.50
	Non-Alaskan Mechanized Bottom Fish	Technology	2.90	5.30	2.90	5.30
	Sardine	Technology	10.0	36.0	10.0	36.0
	Squid	Technology	5.45	16.35	5.45	16.35
	Mackerel	Technology	1.81	5.44	1.81	5.44

Parameter	Product proposed to be processed	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
			Average Monthly	Max Daily	Average Monthly	Max Daily
			Waste loading limits are lbs/1000lbs of seafood			
	Shrimp	Technology	15.00	38.00	15.00	38.00
	Tuna	Technology	3.0	7.5	3.0	7.5
Oil and Grease	Dungeness Crab	Technology	0.10	0.25	0.10	0.25
	West Coast Hand Butchered Salmon	Technology	0.026	0.045	0.026	0.045
	Non-Alaska Conventional Bottom Fish	Technology	0.47	1.20	0.47	1.20
	Non-Alaska Mechanized Bottom Fish	Technology	0.042	0.077	0.042	0.077
	Sardine	Technology	0.57	1.40	0.57	1.40
	Squid	Technology	5.28	15.83	5.28	15.83
	Mackerel	Technology	0.13	0.38	0.13	0.38
	Shrimp	Technology	5.70	14.00	5.70	14.00
	Tuna	Technology	0.76	1.90	0.76	1.90

Parameter	Basis of Limit	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Fecal Coliform Bacteria	Technology	200/100 mL	400/100 mL	200/100 mL	400/100 mL

Parameter	Basis of Limit	Limit (Minimum/Maximum)	Limit (Minimum/Maximum)
pH	Technology	6.0/9.0 Standard Units	6.0/9.0 Standard Units

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting ([WAC 173-220-210](#) and [40 CFR 122.41](#)) 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, DL, and QL on the discharge monitoring report or in the required report.

A. Wastewater Monitoring

The monitoring schedule is detailed in the proposed permit under Special Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

B. Lab Accreditation

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

C. Effluent Limits Which are Near Detection or Quantitation Levels

The Method Detection Level (MDL) also known as 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 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

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](#)).

B. Non Routine and Unanticipated Wastewater

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

The permit authorizes the discharge of non-routine and unanticipated wastewater under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater
- Require the facility to treat the wastewater
- Require the facility to reuse the wastewater

C. **Spill Plan**

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [[Section 402\(a\)\(1\) of the Federal Water Pollution Control Act \(FWPCA\)](#) and [RCW 90.48.080](#)].

Ocean Companies developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to update this Plan and submit it to Ecology.

D. **Solid Waste Control Plan**

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

This proposed permit requires this facility to update the approved Solid Waste Control Plan designed to prevent solid waste from causing pollution of waters of the state. The facility must submit the updated Plan to Ecology for approval ([RCW 90.48.080](#)). You can obtain an Ecology guidance document, which describes how to develop a [Solid Waste Control Plan](#), at: <https://fortress.wa.gov/ecy/publications/documents/0710024.pdf>

E. **Outfall Evaluation**

The proposed permit requires Ocean Companies to conduct an outfall inspection and submit a report detailing the findings of that inspection (Special Condition S10). The inspection must evaluate the physical condition of the discharge pipe and diffusers, and evaluate the extent of sediment accumulations in the vicinity of the outfall.

F. **Operation and Maintenance Manual**

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [[40 CFR 122.41\(e\)](#) and [WAC 173-220-150 \(1\)\(g\)](#)]. The facility has prepared and submitted an operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities ([WAC 173-240-150](#)). Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit.

G. **Best Management Practices**

Best Management Practices (BMPs) are the actions identified to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance

procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage.

H. 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

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.

B. Proposed PERMIT ISSUANCE

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of five years.

VII. REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

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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.)

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- July 2018. [Permit Writer's Manual. Publication Number 92-109](https://fortress.wa.gov/ecy/publications/documents/92109.pdf)
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- September 2011. [Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation. Publication Number 11-10-073](https://fortress.wa.gov/ecy/publications/summarypages/1110073.html)
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(<https://fortress.wa.gov/ecy/publications/summarypages/0610100.html>)
- February 2007. [Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees, Publication Number 07-10-024](https://fortress.wa.gov/ecy/publications/documents/0710024.pdf).
(<https://fortress.wa.gov/ecy/publications/documents/0710024.pdf>) Wright, R.M., and A.J. McDonnell.

[Laws and Regulations](http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx) (<http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx>)

[Permit and Wastewater Related Information](https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance) (<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 Ocean Companies. 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 Application on _____, and _____, in the [Daily World](#) to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice of Draft on _____, in the [Daily World](#) to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

Ecology has published a document entitled [Frequently Asked Questions about Effective Public Commenting](https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html) which is available on our website at <https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html>

You may obtain further information from Ecology by email at carey.cholski@ecy.wa.gov or by writing to the address listed below.

Water Quality Permit Administrator
Department of Ecology
Southwest Regional Office
PO Box 47775
Olympia, WA 98504-7775

The primary author of this permit and fact sheet is Aziz Mahar, P.E.

APPENDIX B — YOUR RIGHT TO APPEAL

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by [chapter 43.21B RCW](#) and [chapter 371-08 WAC](#). “Date of receipt” is defined in [RCW 43.21B.001\(2\)](#) (see glossary).

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

File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.

Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in [chapter 43.21B RCW](#) and [chapter 371-08 WAC](#).

Address and Location Information

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive Southeast Lacey, WA 98503 Pollution Control Hearings Board 1111 Israel Road Southwest, Suite 301 Tumwater, WA 98501	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

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](#) and [RCW 90.48.520](#), [WAC 173-200-030\(2\)\(c\)\(ii\)](#), 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\(2\)](#).

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.

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\(3\)](#)]. Background water quality for any parameter is statistically defined as the 95 percent upper tolerance interval with a 95 percent confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) – Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅ – Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD₅ is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass – The intentional diversion of waste streams from any portion of a treatment facility.

Categorical pretreatment standards – National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine – A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic toxicity – The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

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\(2\)](#) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit – The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

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 percent by volume and the receiving water 90 percent.

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](#) 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\(11\)](#)]. 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](#) or [WAC 173-240-130](#).

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 percent sodium chloride, at pH 9.6, and at 10°C and 45°C.

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

Fecal coliform bacteria – Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the

wastewater. The presence of high numbers of fecal coliform 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 level (MDL) – See Detection Limit.

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](#)).

National pollutant discharge elimination system (NPDES) – The NPDES ([Section 402 of the Clean Water Act](#)) is 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 permit writers are joint NPDES/State permits issued under both state and federal laws.

pH – The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-through – A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak hour design flow (PHDF) – The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

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

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

- a. Exceeds 0.5 percent of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. 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 of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to $(1, 2, \text{ or } 5) \times 10^n$, where n is an integer. ([64 FR 30417](#)).

ALSO

GIVEN

AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

Reasonable potential – A reasonable potential to cause 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](#)).

Sample Maximum – No sample may exceed this value.

Significant industrial user (SIU) –

- 1) All industrial users subject to Categorical Pretreatment Standards under [40 CFR 403.6](#) and [40 CFR Chapter I, Subchapter N](#) and;
- 2) 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 paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with [40 CFR 403.8\(f\)\(6\)](#), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge – Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

Soil scientist – An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3, or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

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

Soluble BOD₅ – Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD₅ test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD₅ test is sufficient to remove the particulate organic fraction.

State waters – Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater – That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based effluent limit – A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria – A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids – That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) – A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total suspended solids (TSS) – Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset – An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit – A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

APPENDIX D — TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found in the [PermitCalc workbook](https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance) on Ecology's webpage at: <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance>.

Simple Mixing:

Ecology uses simple mixing calculations to assess the impacts of certain conservative pollutants, such as the expected increase in fecal coliform bacteria at the edge of the chronic mixing zone boundary. Simple mixing uses a mass balance approach to proportionally distribute a pollutant load from a discharge into the authorized mixing zone. The approach assumes no decay or generation of the pollutant of concern within the mixing zone. The predicted concentration at the edge of a mixing zone (C_{mz}) is based on the following calculation:

$$C_{mz} = C_a + \frac{(C_e - C_a)}{DF}$$

where: C_e = Effluent Concentration
 C_a = Ambient Concentration
 DF = Dilution Factor

Reasonable Potential Analysis:

The spreadsheets Input 2 – Reasonable Potential, and LimitCalc in Ecology's PermitCalc Workbook determine reasonable potential (to violate the aquatic life and human health water quality standards) and calculate effluent limits. The process and formulas for determining reasonable potential and effluent limits in these spreadsheets are taken directly from the [Technical Support Document for Water Quality-based Toxics Control, \(EPA 505/2-90-001\)](#). The adjustment for autocorrelation is from EPA (1996a), and EPA (1996b).

Calculation of Water Quality-Based Effluent Limits:

Water quality-based effluent limits are calculated by the two-value wasteload allocation process as described on page 100 of the TSD (EPA, 1991) and shown below.

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

$$WLA_a = (\text{acute criteria} \times DF_a) - [(\text{background conc.} \times (DF_a - 1))]$$
$$WLA_c = (\text{chronic criteria} \times DF_c) - [(\text{background conc.} \times (DF_c - 1))]$$

where: DF_a = Acute Dilution Factor
 DF_c = Chronic Dilution Factor

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

$$LTA_a = WLA_a \times e^{[0.5\sigma^2 - z\sigma]}$$

$$\text{where: } \sigma^2 = \ln[CV^2 + 1]$$

$$z = 2.326$$

CV = coefficient of variation = std.
dev/mean

$$LTA_c = WLA_c \times e^{[0.5\sigma^2 - z\sigma]}$$

$$\text{where: } \sigma^2 = \ln[(CV^2 \div 4) + 1]$$

$$z = 2.326$$

- Use the smallest LTA of the LTA_a or LTA_c to calculate the maximum daily effluent limit and the monthly average effluent limit.

MDL = Maximum Daily Limit

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

$$\text{where: } \sigma^2 = \ln[CV^2 + 1]$$

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

LTA = Limiting long term average

AML = Average Monthly Limit

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

$$\text{where: } \sigma^2 = \ln[(CV^2 \div n) + 1]$$

n = number of samples/month

$$z = 1.645 \text{ (95th \% occurrence probability)}$$

LTA = Limiting long term average

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Reasonable Potential Calculation

Facility	Ocean Companies
Water Body Type	Marine

Dilution Factors:	Acute	Chronic
Aquatic Life	25.4	297.0
Human Health Carcinogenic		297.0
Human Health Non-Carcinogenic		297.0

Pollutant, CAS No. & NPDES Application Ref. No.		ARSENIC (dissolved) 7440382 2M	CADMIUM - 7440439 4M Hardness dependent	CHROMIUM(III) -16065831 5M Hardness dependent	COPPER - 744058 6M Hardness dependent	LEAD - 7439921 7M Dependent on hardness	MERCURY 7439976 8M	NICKEL - 7440020 9M - Dependent on hardness	SELENIUM 7782492 10M	SILVER - 7740224 11M dependent on hardness.	ZINC- 7440666 13M hardness dependent
Effluent Data	# of Samples (n)	6	6	6	6	6	6	6	6	1	6
	Coeff of Variation (Cv)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)	44	1.8	8.5	11.05	1.2	0.0545	15.4	16.7	0.2	829
	Calculated 50th percentile Effluent Conc. (when n>10)										
Receiving Water Data	90th Percentile Conc., ug/L	0	0		0	0	0	0	0	0	0
	Geo Mean, ug/L						0	0	0		0
Water Quality Criteria	Aquatic Life Criteria, Acute ug/L	69	42	-	4.8	210	1.8	74	290	1.9	90
	Chronic	36	9.3	-	3.1	8.1	0.025	8.2	71	-	81
	WQ Criteria for Protection of Human Health, ug/L	-	-	-	-	-	0.15	190	480	-	2900
	Metal Criteria Acute	1	0.994	-	0.83	0.951	0.85	0.99	-	0.85	0.946
	Translator, decimal	-	0.994	-	0.83	0.951	-	0.99	-	-	0.946
	Carcinogen?	Y	N	N	N	N	N	N	N	N	N

Aquatic Life Reasonable Potential

Effluent percentile value		0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
s	$s^2=\ln(CV^2+1)$	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555	0.555
Pn	$Pn=(1-\text{confidence level})^{1/n}$	0.607	0.607	0.607	0.607	0.607	0.607	0.607	0.050	0.607
Multiplier		2.14	2.14	2.14	2.14	2.14	2.14	2.14	6.20	2.14
Max concentration (ug/L) at edge of...	Acute	3.710	0.151	0.773	0.096	0.004	1.286	1.408	0.041	66.125
	Chronic	0.317	0.013	0.066	0.008	0.000	0.110	0.120	0.004	5.655
Reasonable Potential? Limit Required?		NO	NO	NO	NO	NO	NO	NO	NO	NO

Aquatic Life Limit Calculation

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

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$	0.5545	0.5545	0.5545	0.5545
Pn	$Pn=(1-\text{confidence level})^{1/n}$	0.607	0.607	0.607	0.607
Multiplier		0.8603	0.8603	0.8603	0.8603
Dilution Factor		297	297	297	297
Max Conc. at edge of Chronic Zone, ug/L		1.6E-04	0.0446	0.0484	2.4012
Reasonable Potential? Limit Required?		NO	NO	NO	NO

Instructions: Enter data on 'Input 1' tab and below with yellow fields. Delete column if not needed. -- Click here for more details --	
Marine Temperature Reasonable Potential and Limit Calculation Based on WAC 173-201A-200(1)(c)(i)--(ii) and Water Quality Program Guidance. All Data inputs must meet WQ guidelines. The Water Quality temperature guidance document may be found at: http://www.ecy.wa.gov/biblio/0610100.html	
INPUT	May-Sep
1. Chronic Dilution Factor at Mixing Zone Boundary	297.0
2. Annual max 1DADMax Ambient Temperature (Background 90th percentile)	15.2 °C
3. 1DADMax Effluent Temperature (95th percentile)	17.8 °C
4. Aquatic Life Temperature WQ Criterion	16.0 °C
OUTPUT	
5. Temperature at Chronic Mixing Zone Boundary:	15.17 °C
6. Incremental Temperature Increase or decrease:	0.01 °C
7. Incremental Temperature Increase $12/(T-2)$ if $T \leq \text{crit}$:	0.91 °C
8. Maximum Allowable Temperature at Mixing Zone Boundary:	16.00 °C
A. If ambient temp is warmer than WQ criterion	
9. Does temp fall within this warmer temp range?	NO
10. Temp increase allowed at mixing zone boundary, if required:	---
B. If ambient temp is cooler than WQ criterion but within $12/(T_{\text{amb}}-2)$ and within 0.3 °C of the criterion	
11. Does temp fall within this incremental temp. range?	NO
12. Temp increase allowed at mixing zone boundary, if required:	---
C. If ambient temp is cooler than (WQ criterion-0.3) but within $12/(T_{\text{amb}}-2)$ of the criterion	
13. Does temp fall within this Incremental temp. range?	YES
14. Temp increase allowed at mixing zone boundary, if required:	NO LIMIT
D. If ambient temp is cooler than (WQ criterion - $12/(T_{\text{amb}}-2)$)	
15. Does temp fall within this Incremental temp. range?	NO
16. Temp increase allowed at mixing zone boundary, if required:	---
RESULTS	
17. Do any of the above cells show a temp increase?	NO
18. Temperature Limit if Required?	NO LIMIT

APPENDIX E- RESPONSE TO COMMENTS

[Ecology will complete this section after the public notice of draft period.]