Fact Sheet for NPDES Permit No. WA0003239

Alon Asphalt Company
Richmond Beach Asphalt Terminal

Permit Effective Date: October 1, 2019

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 Alon Asphalt Company.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Alon Asphalt Company, NPDES Permit No. WA0003239 were available for public review and comment from August 3, 2019, until September 4, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Alon Asphalt Company 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 closed, Ecology summarized substantive comments and provided responses to them. Ecology included the summary and responses to comments in this fact sheet as **Appendix F - Response to Comments**, and published it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

Summary

Alon Asphalt Company (formerly Paramount Petroleum Corporation) – Richmond Beach Asphalt Terminal stores and distributes marine fuels and blended asphalt products. The facility produces various grades of paving asphalt, cutback asphalt, industrial asphalt, and asphalt emulsions. The facility receives asphalt feed product by rail, and marine fuel and diesel oils by barge. It ships out finished products by tank truck or barge. Alon Asphalt Company also leases storage tanks to Tesoro to store refined petroleum products. Tesoro delivers its products by barge and distributes them by tank truck. The facility discharges treated wastewater to Puget Sound by means of Outfall 001, and discharges stormwater from a small non-active parcel to Outfall 003.

Ecology issued the previous permit for this facility on May 12, 2010. Effluent limits for flow, oil & grease, oily sheen, total suspended solids, pH, TPH-G, and TPH-D are unchanged from the permit issued in 2010. The chronic toxicity limit has been removed in this permit as allowed under WAC 173-205-120 because the facility has demonstrated its discharge containing no chronic toxicity at levels of regulatory concern since August 2015.

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I. Introduction

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

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 F**.

II. Background Information

Table 1. General facility information

Facility Information	
Applicant	Alon Asphalt Company
Facility Name and Address	Alon Asphalt Company, Richmond Beach Terminal 20555 Richmond Beach Drive NW Seattle, WA 98177
Contact at Facility	Name: Mark Wells Telephone #: (206) 546-0504
Industry Type	Asphalt blending and petroleum storage and distribution terminal
Treatment for Stormwater	Oil/water separation
Treatment for Process Wastewater	Process wastewater is discharged to Edmonds Sewage Wastewater Treatment Plant
SIC Codes	2951, Asphalt Paving Mixtures and Blocks 5171, Petroleum Bulk Stations and Terminals
NAIC Codes	424710 Petroleum bulk terminal
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47.83116 °N Longitude: 122.392309 °W
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Puget Sound Outfall 001: Latitude: 47.78343 °N Longitude: 122.39563 °W Outfall 003: Latitude: 47.77855 °N Longitude: 122.39511 °W

Permit Status	
Renewal Date of Previous Permit	May 12, 2010
Application for Permit Renewal Submittal Date	August 25, 2014
Date of Ecology Acceptance of Application	January 27, 2015

Inspection Status	
Date of Last Non-sampling Inspection Date	September 14, 2016

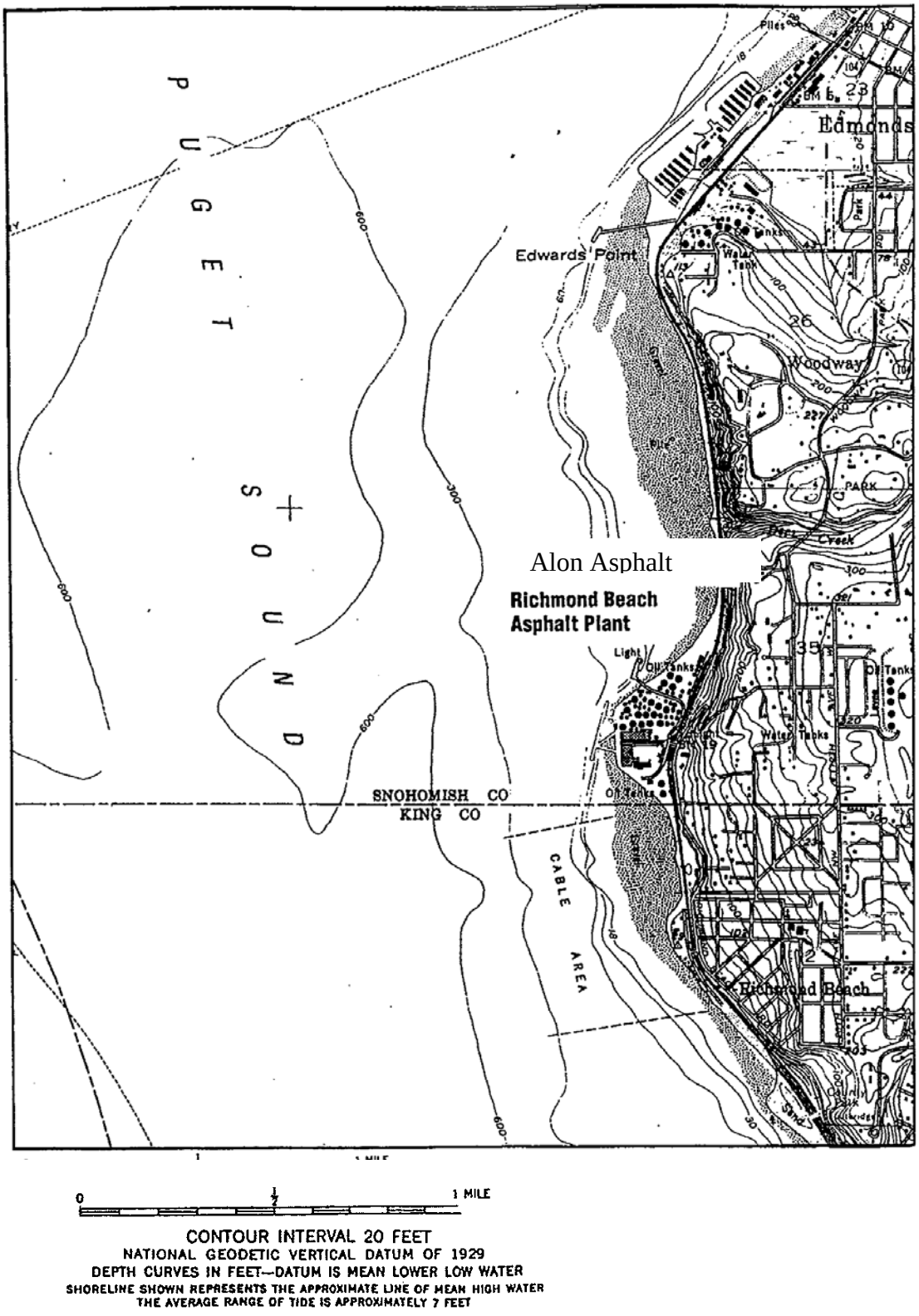


Figure 1. Facility location map (The facility's name has been changed from Paramount Petroleum to Alon Asphalt plant)

A. Facility description

History

Alon Asphalt Company (Alon) acquired Paramount Petroleum Corporation's asphalt and marine fuels terminal in Richmond Beach, Washington, in July 2017. The terminal is located north of Seattle, on the eastern shore of Puget Sound (See Figure 1 above), near the boundary of King and Snohomish Counties. The property is located in Section 35, Range 3E, Township 27N, within Snohomish County and covers approximately 62.77 acres.

The facility was reportedly constructed in 1912 after Standard Oil, Shell, Chevron, and other smaller oil companies purchased property on Point Wells. The various owners have historically used the property as an asphalt refinery and light products/lubricating oil distribution terminal. Petroleum products historically used, refined, transferred, or stored at the property include crude oil and a variety of asphalt products, lubrication oils, fuel oils, aviation fuels, motor vehicle and marine vessel fuels, and thinners. Petroleum product additives have also been used, transferred, and stored. The facility no longer operates the light products/lube oil distribution terminal. The asphalt refinery ceased operations in August 2000.

The primary business of the facility now is the storage and selling of various grades of paving asphalt, industrial asphalts (roofing), and asphalt emulsions. In addition, the facility provides terminal services for Tesoro Refining and Marketing, Inc., primarily for marine diesel and marine fuel oil, which is shipped and received by barge/ship over the dock. The facility is open 24 hours a day, 365 days a year. The paving asphalt business is most active in the summer. All products are stored in tanks and pumped through pipes. Asphalt products are primarily received at the plant by railcar. Finished products leave the site by tanker truck. Annual asphalt throughput averages 200,000 to 300,000 barrels per year. Under the current contract agreement between Alon and Tesoro, Tesoro leases 8 aboveground storage tanks for the storage of diesel and marine fuel oils. Average annual throughput across the dock is approximately 5-8 million barrels per year.

The facility leases 9 storage tanks to Tesoro to store refined petroleum products. Tanks #T1, T11, T40, T44, T45, T61, T62, T68, and J99A are leased to Tesoro. Tank T61 is the largest, with a storage capacity of 5.5 million gallons. Tesoro delivers its products by barge and distributes them by tank truck.

The facility has three outfalls which discharge to Puget Sound. The discharge from these three outfalls are regulated by two separate NPDES Permits. NPDES Permit No. WA0003239 regulates Outfalls 001 and 003. NPDES Permit No. WA0031704 regulates Outfall 002.

NPDES Permit No. WA0003239 regulates Outfalls 001 and 003: Outfall 001 discharges treated storm water from the tank farms and asphalt plant areas. Outfall 003 discharges storm water emanating from the Woodway Highlands residential development, stream runoff from the blue directly east of the terminal, and from the terminal's Upper Industrial Area (no industrial activity).

Industrial processes

The facility manufactures asphalt products and ships and stores the petroleum distillates used for manufacturing and finished products. Asphalt product is received at the plant primarily by rail, and marine fuel and diesel oils are received by barge. The facility ships out products by tank truck or barge. It sells finished asphalt and blends it into cutbacks or emulsions, or air-blows it to manufacture industrial asphalt. Air-blown asphalt is produced by blowing air through molten asphalt to raise its softening point and modify other properties. The plant currently includes the following manufacturing equipment:

- Four (4) Air Blowing Stills
- Emulsion Mill

Ancillary operations include blending equipment, aboveground storage tanks, shipping and trucking facilities, dock facilities, railcar off-loading facilities, hot oil furnace, boilers for steam production, maintenance shop, office, warehouse, laboratory, and wastewater and stormwater treatment facilities.

Wastewater management and treatment

The facility discharges sanitary wastewater and boiler blowdown to City of Edmonds Wastewater Treatment Plant.

The facility's wastewater consists of air blowing stills wastewater, occasional tanks drawdown, stormwater and other miscellaneous intermittent wastewater streams, including maintenance wash water, tank hydro testing, and control system test fire water. The discharge consists of approximately 90% stormwater and 10% of the occasional or intermittent process wastewater.

The wastewater treatment process at this facility includes conveying the wastewater to the north API separator, then follow by a sand trap, a corrugated plate interceptor (CPI) unit, and to the modulation tank (Tank# 51) for treatment. Wastewater from the modulation tank is then discharged to the induced air flotation (Quadricell) treatment unit for treatment as necessary, before it is discharged to Puget Sound through Outfall 001. Oily slop water from the API and CPI separators is sent to oil recovery tanks for recycling purpose. Solids build up in the API separator and the CPI unit are removed on an intermittent basis during unit shutdowns or scheduled maintenance.

In May 2015, the facility failed the chronic toxicity test, and consequently ceased discharge to investigate the cause of the problem. In October 2015, the facility submitted a toxicity identification/reduction evaluation (TI/RE) plan to Ecology describing the actions to be taken to identify the cause of the problem. Following the steps in the TI/RE plan, the facility ultimately routed the boiler blowdown stream to the sanitary sewer system in October 2015. Following the removal of that wastewater stream, another toxicity test was conducted for the effluent in November 2015. The results of that test indicate the discharge was non-toxic. Thus, the TI/RE was considered to be successful and the facility has returned to routine whole effluent toxicity monitoring. The subsequent chronic toxicity tests to present indicate the discharge is in compliance with the permit requirements (see Table 13). Since the boiler blowdown stream has been routed to the sanitary sewer system, the effluent does not need to be treated by the Quadricell/flocculent unit in order to meet the permit limits.

Discharge outfall

The facility has a total of three outfalls. The treated wastewater, including stormwater discharges through Outfall 001, and the off-site stormwater run-on to the facility's south lot discharges through Outfall 003. The proposed permit addressed both of these outfalls. Ecology regulates the discharge of treated contaminated groundwater from Outfall 002 by a separate NPDES Permit No. WA0031704.

Outfall 001 is located approximately 100 feet west of the Puget Sound shoreline (See Figure 2). The outfall lies parallel to the small service dock at the asphalt plant and discharged approximately 11 feet below mean sea level. The outfall pipe is a 20" steel pipe surrounded by a 22" concrete casing. The end of the discharge pipe transitions to an 18" steel elbow angled down at 45 degrees, then further transitions to an 8-inch port.

The facility conducted a dilution ratio study for Outfall 001 in 1993 and revised it in 1995. Ecology approved the study in March 1995. The study concluded that the facility needed to modify the existing 18-inch discharge outfall by installing an 8-inch port to improve mixing. The facility completed the installation of the 8-inch port in January 1997. Permit Condition S1.C describes the resulting mixing zone for Outfall 001.

B. Permit status

Ecology issued the previous permit for this facility on May 12, 2010.

Outfall 001: The previous permit placed effluent limitations on flow, oil & grease, oily sheen, total suspended solids (TSS), pH, TPH-G, TPH-D, and chronic toxicity limit.

Outfall 003: The previous permit placed effluent limits on oil & grease and oily sheen.

C. Summary of compliance with previous permit issued May 12, 2010

Ecology staff last conducted a compliance inspection on September 14, 2016. Ecology assessed facility compliance based on our review of the facility's Discharge Monitoring Reports (DMRs) and on inspections conducted by Ecology. The facility's discharge had the following violations during the history of the permit issued on May 12, 2010.

Table 2. Violations occurred during the last permit cycle

Parameter	Reporting Period	Reported Value	Permit Limit
Outfall 001			
TSS, mg/L	04/01/2010, 12/01/2010, 01/01/2012, and 05/01/2015	70, 55, 47, and 82 respectively	45 mg/L

The facility had taken corrective actions to address the above-referenced violations.

Outfall 003: The facility has complied with the effluent limits and permit conditions throughout the duration of the permit issued on May 12, 2010, except for an occasion when oil & grease exceeded the limit in January 2011. The Permittee took corrective actions to address the one time exceedance for oil & grease, and no further permit violation has occurred since that incident.

Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), discharge monitoring reports (DMRs), and on inspections.

D. Description of the receiving water

The facility discharges to Puget Sound, which was formerly listed as a Class AA water body. The new listings (Chapter 173-201A WAC, Table 612) list Puget Sound as "Extraordinary for Aquatic life uses, shellfish harvest, primary contact for recreational uses and includes wildlife habitat, harvesting commerce/navigation, boating and aesthetic under miscellaneous uses."

The ambient background data used for this permit includes the following from the Receiving Water Characterization Study conducted by King County NPDES Monitoring Program dated June 2013, monitoring station KSBP01:

Table 3. Data collected from monitoring station KSBP01

Parameter	Min	Max	Mean
DO (mg/L)	5.6	12.9	--
pH (unitless)	7.5	8.0	7.7
Salinity (PSS)	26.061	30.719	29.175
Temperature (°C)	7.177	13.951	--
TSS (mg/L)	0.6	7.0	2.4
Metal (µg/L)	**Min**	**Max**	**Mean**
Arsenic, Total	1.11	1.41	1.29
Arsenic, Dissolved	1.15	1.43	1.33
Cadmium, Total	0.0636	0.0864	0.0732
Cadmium, Dissolved	0.0520	0.0734	0.0664
Chromium, Total	0.096	0.377	0.144
Chromium, Dissolved	0.092	0.150	0.114
Copper, Total	0.314	1.220	0.437
Copper, Dissolved	0.234	0.617	0.322
Lead, Total	0.007	0.046	0.020
Lead, Dissolved	--	--	--
Mercury, Total	0.00020	0.00055	0.00030
Mercury, Dissolved	--	--	--
Nickel, Total	0.400	0.593	0.435
Nickel, Dissolved	0.387	0.443	0.408
Silver, Total	0.016	0.030	--
Silver, Dissolved	0.019	0.029	--
Zinc, Total	0.330	0.890	0.513
Zinc, Dissolved	0.170	0.694	0.438

Station KSBP01 is located in the northern Central Puget Sound Basin, approximately two miles upstream north of the facility's outfall. King County currently samples this station on a monthly basis.

E. Wastewater characterization

The facility 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 March 2010 to September 2016. The wastewater effluent is characterized as follows:

Table 4. Outfall 001 - Wastewater data submitted between March 2010 and September 2015, before boiler blowdown stream was removed.

Parameter (outfall 001)	Units	# of Samples	Average Value	Maximum Value	Permit Limit
Flow	gpm	65	295	570	650
TPH-Dx	mg/L	65	0.236	0.85	5
TPH-Gx	mg/L	65	0.05	0.05	1
Oil & grease	mg/L	65	2.17	11.7	15
Benzene	µg/L	65	0.92	1	--
Copper(total)	µg/L	65	5.51	33.9	--
Nickel (total)	mg/L	65	2.22	11.7	--
Zinc (total)	µg/L	65	60.18	369	--
Total phenols	mg/L	65	0.01	0.01	--
Total suspended solids	mg/L	65	11.8	82	45
Temperature	°C	65	12.23	21.6	--
Parameter (outfall 001)	**Units**	**# of Samples**	**Minimum Value**	**Maximum Value**	**Permit Limit**
pH	Standard units	65	6	8.3	Between 6 and 9

Table 5. Outfall 001 - Wastewater data submitted between October 2015 and June 2016, after the boiler blowdown stream was removed.

Parameter (outfall 001)	Units	# of Samples	Average Value	Maximum Value	Permit Limit
Flow	gpm	9	327.8	650	650
TPH-Dx	mg/L	9	0.1	0.1	5
TPH-Gx	mg/L	9	0.05	0.05	1
Oil & grease	mg/L	9	5.36	8.2	15
Benzene	µg/L	9	1	1	--
Copper	µg/L	9	4.83	10.1	--
Nickel	mg/L	9	1.97	6.3	--
Zinc	µg/L	9	63.37	179	--
Total phenols	mg/L	9			--
Total suspended solids	mg/L	9	6.56	13	45
Temperature	°C	9	13.6	18.3	--

Table 6. Outfall 003 - Wastewater characterization from March 2010 to September 2016

Parameter (outfall 003)	Units	# of Samples	Average Value	Maximum Value	Permit Limit
Oil & grease	mg/L	73	3.56	25 [a]	15
Parameter (outfall 003)	**Units**	**# of Samples**	**Minimum Value**	**Maximum Value**	**Permit Limit**
pH	Standard units	73	6.6	8.4	Between 6 and 9

[a] See Section C, Summary of Compliance with previous permit issued May 12, 2010, on page 10 of the fact sheet.

F. 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.

- 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 National Toxics Rule (40 CFR 131.36).
- 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. The facility evaluated the hydraulic capacity and treatment efficiency of the existing treatment system (API and CPI oil/water separators, modulation Tank 51, and induced air flotation unit (aka Quadricell) and determined a maximum system flow capacity of 650 gpm.

Table 7. Design criteria for existing treatment system

Parameter	Design Quantity
Maximum Design Flow Rate	650 gpm (936,000 gpd)

B. Technology-based effluent limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit. The technology-based effluent limits proposed in this permit are as follows:

Table 8. Technology-based effluent limits

Outfall	Parameter	Maximum Daily Limit
001	Flow	650 gpm
001	Oil & grease	15 mg/L
001	Oily sheen	No visible sheen
001	TSS	45 mg/L
001	TPH-G	1 mg/L
001	TPH-D	5 mg/L
001	pH	Not to exceed the range of 6 to 9 standard units
003	Oil & grease	15 mg/L
003	Oily sheen	No visible sheen
003	pH	Not to exceed the range of 6 to 9 standard units

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 study (TMDL).

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 (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 as adopted in the National Toxics Rule (40 CFR 131.36) remain in effect.

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, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

Antidegradation

Description--The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.

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

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

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

Facility Specific Requirements--This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.
- For waters that do not meet assigned criteria, or protect existing or designated uses, Ecology will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.
- Whenever the natural conditions of a water body are of a lower quality than the assigned criteria, the natural conditions constitute the water quality criteria. Where water quality criteria are not met because of natural conditions, human actions are not allowed to further lower the water quality, except where explicitly allowed in chapter 173-201A WAC.

Ecology's analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water.

Mixing zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [WAC 173-201A-400 (7)(a)(ii-iii)].

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses

values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (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% and the receiving water is 75% of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

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

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

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

The facility performed a mixing zone study for Outfall 001 in 1993, and revised the study in February 1995. The study was approved by Ecology in March 1995. The final study indicated that reduction of the outfall discharge port from 18 inches to 8 inches would increase the dilution in both the acute and chronic zones by more than a factor of 4. The dilution modeling results with a modified 8-inch port predicts a 10:1 dilution at the acute zone boundary and 32:1 at the mixing zone boundary. These conservative estimates of dilution are sufficient for the discharge to meet the state water quality standards for all conditions. To meet this objective, the facility proposed to modify the existing outfall with an 8-inch diameter discharge port. An Engineering Report for the reduction of outfall port diameter was approved by Ecology on August 1996. The 8-inch discharge port was installed in January 1996.

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 at Alon 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

Table 9. Critical conditions used to model the discharge

• Water depth at MLLW of 5 feet, and approximately 11 feet below mean sea level.
• Ambient density profile: surface – 1.02195 g/cm^3 near bottom – 1.02232 g/cm^3
• Ambient current speed: 1.0 cm/sec (lowest 10th percentile) 3.0 cm/sec (50th percentile) 10.0 cm/sec(90th percentile)
• Effluent flow rate: 225 gpm (average dry weather flow) 1,200 gpm (maximum flow)
• Average effluent temperature: minimum 12°C high 25°C
• Vertical angle of port relative to horizontal: 0 °
• Current direction: normal 90° to outfall port
• Number of ports and diameter: one 18-inch port one 8-inch port (each separately)

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% 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

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

- 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.

  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.

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

Table 10. Marine aquatic life uses and associated criteria

Extraordinary Quality	
Temperature Criteria – Highest 1D MAX	13°C (55.4°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	7.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.2 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 uses for this receiving water are identified below.

Table 11. 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 value 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-160 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

In addition, Ecology considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when there is a reasonable potential for the discharge to contain toxics. Ecology's analysis of the need for WET testing for this discharge is described later in the fact sheet.

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 biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

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

The diffuser at Outfall 001 is an 8-inch port. The mean lower low water (MLLW) depth is 11 feet. Ecology obtained this information from the Dilution Ratio Study Report prepared in 1993 and revised it in 1995, by CH2M Hill. Installation of the 8-inch port to improve mixing was completed in 1997.

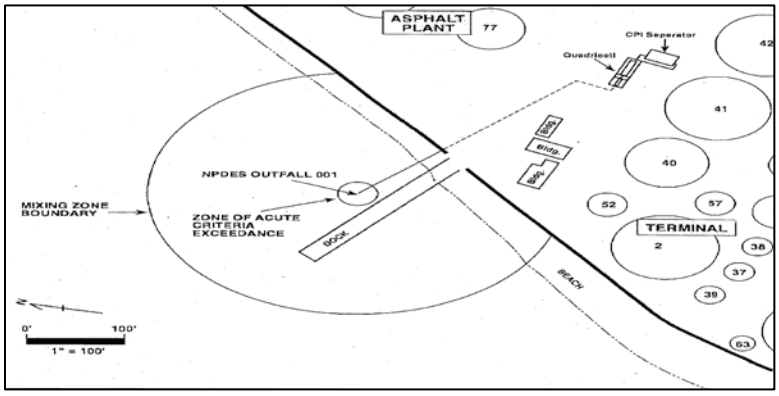


Figure 2. The facility outfall and acute and chronic mixing zones

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% of the width of the water body as measured during MLLW.

The horizontal distance of the chronic mixing zone is 211(200 feet plus 11 feet water depth) 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% of the distance established for the chronic zone. The acute mixing zone for Outfall 001 extends 21feet in any direction from any discharge port.

Ecology determined the dilution factors that occur within these zones at the critical condition as listed in the approved Mixing Zone study which was conducted by CH2M Hill using model UDKHDEN. The approved dilution factors are listed below.

Table 12. Dilution factors (DF)

Criteria	Acute	Chronic
Aquatic Life	10:1	32:1

Ecology determined the impacts of pH, 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.

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.

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

Temperature--The state temperature standards (WAC 173-201A-200-210 and 600-612) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15).
- Supplemental spawning and rearing season criteria.
- Incremental warming restrictions.
- Protections against acute effects.

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

- Annual summer maximum and supplementary spawning/rearing criteria.

Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1)(c), 210(1)(c), and Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- Incremental warming criteria

The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 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. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning 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, 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 standard 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% 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.

- Protections for 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 two 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.

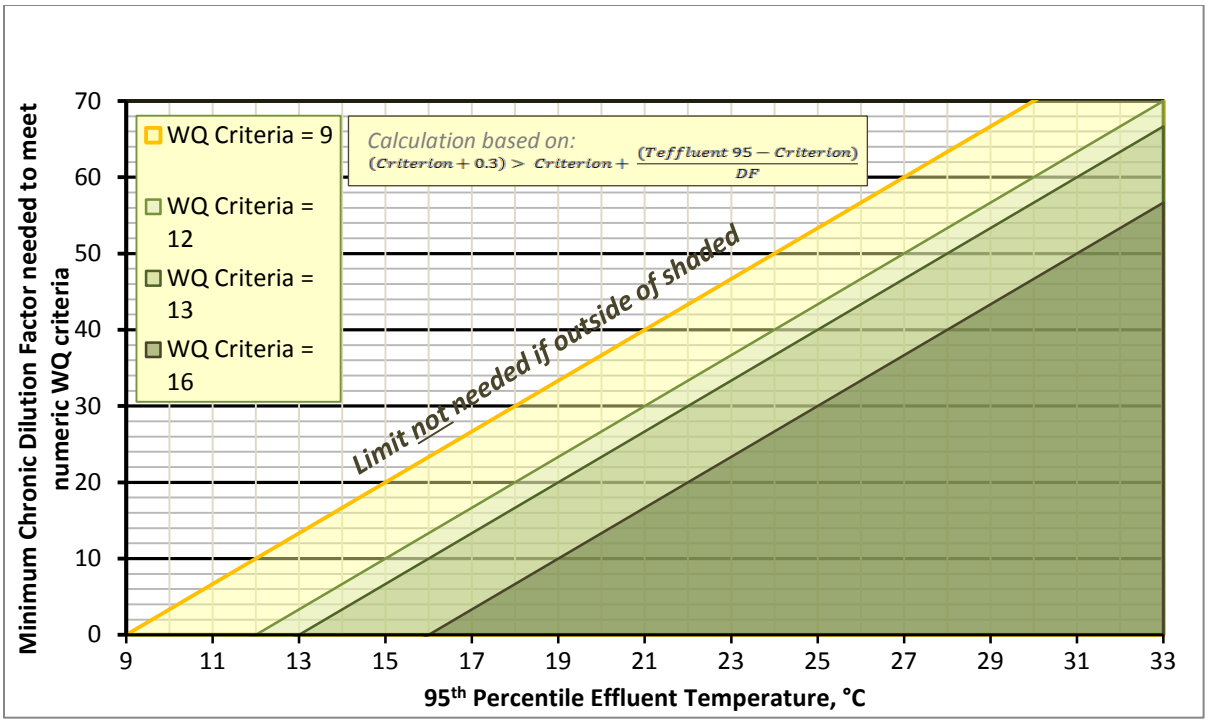
Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

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 at the edge of the chronic mixing zone during critical conditions. (See temperature calculations in Appendix E.) No reasonable potential exists to exceed the temperature criterion where:

(Criterion + 0.3) > [Criterion + (Teffluent95 – Criterion)/DF].

The figure below graphically portrays the above equation and shows the conditions when a permit limit will apply.



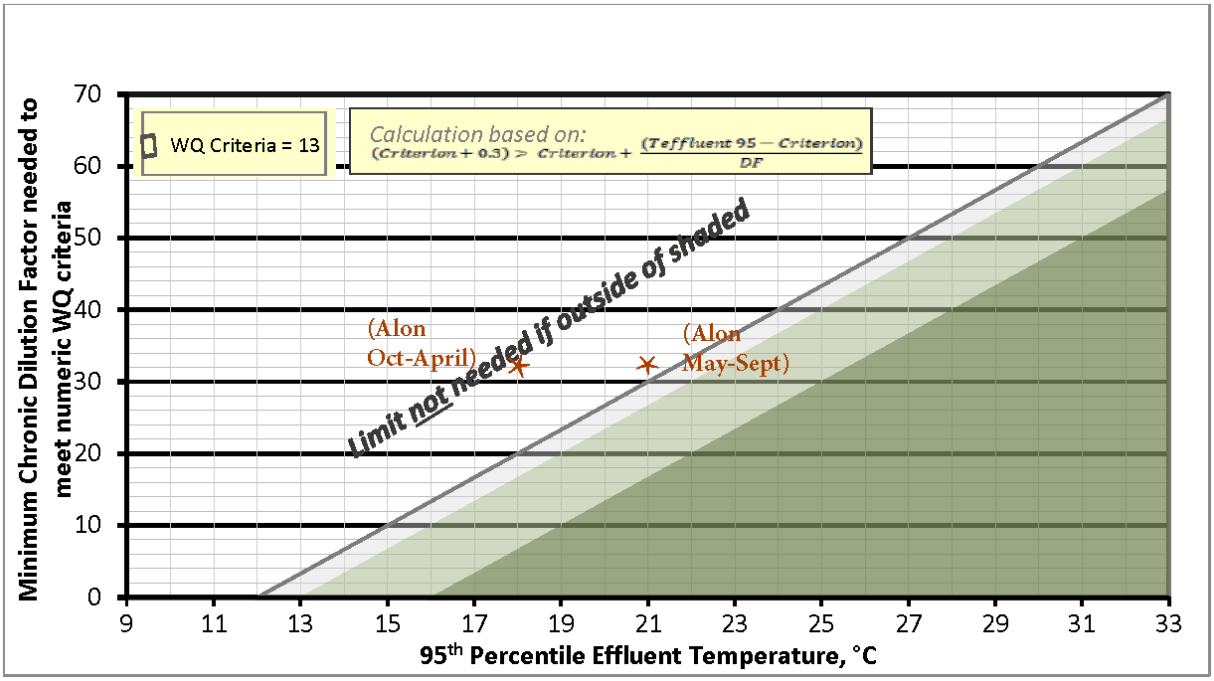


Figure 3. Dilution necessary to meet criteria at edge of mixing zone

Between May and September 2010 to 2015

The facility's effluent temperature at 95% is 21 °C during the period of May and September 2010 to 2015 (see temperature data presented in Appendix E)

Marine water quality criterion: 13 °C (Table 10 of fact sheet)

Chronic dilution factor: 32 (Table 12 of fact sheet)

(13+ 0.3) > [13 + (21 – 13)/32]

13.3 > 13.25

Between October and April 2010 to 2015

The facility's effluent temperature at 95% is 17.9 °C during the period of May and September 2010 to 2015 (see temperature data presented in Appendix E)

Marine water quality criterion: 13 °C (Table 10 of fact sheet)

Chronic dilution factor: 32 (Table 12 of fact sheet)

(13+ 0.3) > [13 + (17.9 – 13)/32]

13.3 > 13.15

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 (see Appendix E – Marine Temperature Reasonable Potential & Limit Calculation). 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 applicant's discharge does not contain chemicals of concern based on existing effluent data or knowledge of discharges to the system. Benzene concentrations in the effluent have no reasonable potential to exceed the benzene standards (see Appendix E). Ecology will reevaluate this discharge for impacts to human health at the next permit reissuance.

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 website 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).

The facility does not discharge wastewater to the ground. No permit limits are required to protect groundwater.

K. Whole effluent toxicity

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

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

Laboratories accredited by Ecology for WET testing know how to use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff know about WET testing and how to calculate an NOEC, LC50, EC50, IC25, etc. Ecology gives all accredited labs the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* (https://fortress.wa.gov/ecy/publications/documents/9580.pdf), which is referenced in the permit. Ecology recommends that the facility send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

Acute: The facility has been monitoring for acute toxicity as required in the permit since 1993. The facility has demonstrated its discharge has no acute toxicity at levels of regulatory concern since 2004. Thus, the acute toxicity limit from the permit was removed during the last permit cycle as allowed under WAC 173-205-120. For the purpose of this permit, Ecology has determined to require acute toxicity testing to be conducted during the last year of the permit cycle as an end check to assist drafting the next renewed permit.

Chronic: The facility has been monitoring for chronic toxicity as required in the permit since 1993. The facility has demonstrated its discharge has no chronic toxicity at levels of regulatory concern since August 2015. As described in page 9, the Permittee took steps to reduce the toxicity level in the effluent. In accordance with WAC 173-205-120, the chronic toxicity limit from the previous permit is removed. For the purpose of this permit, Ecology has determined to require chronic toxicity testing to be conducted during the last year of the permit cycle as an end check to assist drafting the next renewed permit.

Table 13. Summary of effluent toxicity test results from last permit cycle

WET Test Results Summary for Alon Asphalt Company, Richmond Beach (WA0003239)

Scheduled	Test Code	Collected	Start Date	Duration	Organism	Endpoint	NOEC	LOEC	PMSD	Effluent Survival (100%)	Met Performance Standard?
2010 June	RMAR2019	6/15/2010	6/15/2010	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	19.2%	96.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	22.8%		
						7-Day Weight	100%	>100%	15.6%		
2010 June	RMAR2018	6/15/2010	6/15/2010	Fert.	*Strongylocentrotus purpuatus*	Fertilization	100%	>100%	N/A	88.3%	**Yes**
					Purple Urchin						
2010 October	RMAR2151	10/18/2010	10/19/2010	Chronic	*Menidia b.*	7-Day Survival	100%	>100%	20.3%	87.5%	**Yes**
					silverside	7-Day Biomass	100%	>100%	23.20%		
						7-Day Weight	100%	>100%	19.70%		
2010 October	RMAR2149	10/18/2010	10/19/2010	Fert.	*Strongylocentrotus purpuatus*	Fertilization	11%	25%	8.1%	N/A	**Yes**
					Purple Urchin						
2010 October	RMAR2148	10/18/2010	10/19/2010	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	8.1%	92.5%	**Yes**
					Shrimp						
2010 October	RMAR2150	10/18/2010	10/19/2010	Acute	*Menidia b.*	96-Hour Survival	100%	>100%	20.4%	97.5%	**Yes**
					silverside						
2011 May	RMAR2291	5/9/2011	5/10/2011	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100%	18.8%	95.0%	**Yes**
					Topsmelt						
2011 May	RMAR2294	5/9/2011	5/10/2011	Fert.	*Strongylocentrotus purpuatus*	Fertilization	3%	11%	4.6%	N/A	**Yes**
					Purple Urchin						
2011 May	RMAR2293	10/9/2011	10/10/2011	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	9.7%	92.5%	**Yes**
					Shrimp						
2011 May	RMAR2292	10/9/2011	10/10/2011	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	14.3%	88.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	24.60%		
						7-Day Weight	100%	>100%	17.50%		
2011 October	RMAR2390	10/26/2011	10/27/2011	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100%	9.2%	95.0%	**Yes**
					Topsmelt						
2011 October	RMAR2391	10/26/2011	10/27/2011	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	11.0%	96.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	12.10%		
						7-Day Weight	100%	>100%	9.29%		
2011 October	RMAR2392	10/26/2011	10/27/2011	Fert.	*Strongylocentrotus purpuatus*	Fertilization	100%	>100%	7.0%	N/A	**Yes**
					Purple Urchin						

2011 October	RMAR2393	10/26/2011	10/27/2011	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	14.6%	90.2%	**Yes**
					Shrimp						
2012 May	RMAR2541	5/7/2012	5/8/2012	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	16.8%	96.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	21.30%		
						7-Day Weight	100%	>100%	21.60%		
2012 May	RMAR2542	5/7/2012	5/8/2012	Fert.	*Strongylocentrotus purpuatus*	Fertilization	3.4%	11%	10.3%	N/A	**Yes**
					Purple Urchin						
2012 May	RMAR2539	5/7/2012	5/8/2012	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100%	13.5%	90.0%	**Yes**
					Topsmelt						
2012 May	RMAR2540	5/7/2012	5/8/2012	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	12.8%	97.5%	**Yes**
					Shrimp						
2012 October	RMAR2767	10/22/2012	10/23/2012	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	9.7%	100.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	22.4%		
						7-Day Weight	100%	>100%	19.6%		
2012 October	RMAR2765	10/22/2012	10/23/2012	Chronic	*Strongylocentrotus purpuatus*	Fertilization	3.4%	11%	1.4%	76.2%	**Yes**
					Purple Urchin						
2012 October	RMAR2766	10/22/2012	10/23/2012	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100%	5.0%	100.0%	**Yes**
					Topsmelt						
2012 October	RMAR2764	10/22/2012	10/23/2012	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	9.9%	95.0%	**Yes**
					Shrimp						
2013 May	RMAR2938	5/13/2013	5/14/2013	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100%	14.0%	90.0%	**Yes**
					Topsmelt						
2013 May	RMAR2941	5/13/2013	5/14/2013	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	11.5%	96.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	21.20%		
						7-Day Weight	100%	>100%	24.40%		
2013 May	RMAR2940	5/13/2013	5/14/2013	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	7.2%	100.0%	**Yes**
					Shrimp						
2013 May	RMAR2939	5/13/2013	5/14/2013	Fert.	*Strongylocentrotus purpuatus*	Fertilization	3.4%	11%	18.2%	N/A	**Yes**
					Purple Urchin						
2013 October	RMAR3075	10/14/2013	10/15/2013	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	>50%	10.6%	N/A	**Yes**
					Purple Urchin						
2013 October	RMAR3074	10/14/2013	10/15/2013	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100%	5.0%	100.0%	**Yes**
					Topsmelt						
2013 October	RMAR3077	10/14/2013	10/15/2013	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	8.8%	97.5%	**Yes**
					Shrimp						
2013 October	RMAR3076	10/14/2013	10/15/2013	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	5.0%	100.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	12.80%		
						7 Day Weight	100%	>100%	12.80%		

2014 June	RMAR3326	6/2/2014	6/3/2014	Fert.	*Strongylocentrotus purpuatus*	Fertilization	11%	25%	4.1%	N/A	**Yes**
					Purple Urchin						
2014 June	RMAR3324	6/2/2014	6/3/2014	Acute	*Mysis bahia*	48-Hour Survival	100%	>100%	5.3%	97.5%	**Yes**
					Shrimp						
2014 June	RMAR3325	6/2/2014	6/3/2014	Acute	*Atherinops affinis*	96-Hour Survival	100%	>100	5.0%	100.0%	**Yes**
					Topsmelt						
2014 June	RMAR3327	6/2/2014	6/3/2014	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	9.7%	96.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	14.0%		
						7-Day Weight	100%	>100%	13.9%		
2014 October	RMAR3434	10/27/2014	10/28/2014	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	8.2%	100.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	20.8%		
						7-Day Weight	100%	>100%	21.6%		
2014 October	RMAR3435	10/27/2014	10/28/2014	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	>50%	4.0%	95.0%	**Yes**
					Purple Urchin						
2015 May	RMAR3663	5/11/2015	5/12/2015	Fert.	*Strongylocentrotus purpuatus*	Fertilization	1%	3.4%	12.5%	N/A	**No**
					Purple Urchin						
2015 May	RMAR3664	5/11/2015	5/12/2015	Chronic	*Atherinops affinis*	7-Day Survival	100%	>100%	n/a	100.0%	**Yes**
					Topsmelt	7-Day Biomass	100%	>100%	16.30%		
						7-Day Weight	100%	>100%	16.30%		
2015 June Ac. #1	RMAR3665	6/8/2015	6/9/2015	Fert.	*Strongylocentrotus purpuatus*	Fertilization	3.4%	11%	4.0%	N/A	**Yes**
					Purple Urchin						
2015 June Ac. #2	RMAR3666	6/22/2015	6/23/2015	Fert.	*Strongylocentrotus purpuatus*	Fertilization	11%	25%	7.5%	N/A	**Yes**
					Purple Urchin						
2015 July Ac. #3	RMAR3667	7/13/2015	7/14/2015	Fert.	*Strongylocentrotus purpuatus*	Fertilization	1%	3.4%	7.5%	N/A	**No**
					Purple Urchin						
2015 Aug. Ac. #4	RMAR3668	8/11/2015	8/12/2015	Fert.	*Strongylocentrotus purpuatus*	Fertilization	25%	50%	8.7%	N/A	**Yes**
					Purple Urchin						
2015 November	RMAR3760	11/16/2015	11/17/2015	Chronic	*Atherinops affinis*	7-Day Survival	50%	>50%	9.1%	100.0%	**Yes**
					Topsmelt	7-Day Biomass	50%	>50%	23.7%		
						7-Day Weight	50%	>50%	23.1%		
2015 November	RMAR3759	11/18/2015	11/19/2015	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	50%	1.4%	98.0%	**Yes**
					Purple Urchin						

2016 May	RMAR3917	5/16/2016	5/17/2016	Chronic	*Atherinops affinis*	7 Day Survival	50%	>50%	7.3%	N/A	**Yes**
					Topsmelt	7 Day Biomass	50%	>50%	22.1%		
						7 Day Weight	50%	>50%	20.2%		
2016 May	RMAR3918	5/18/2016	5/19/2016	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	50%	4.2%	N/A	**Yes**
					Purple Urchin						
2016 October	JAMM0094	10/12/2016	10/13/2016	Chronic	*Atherinops affinis*	7 Day Survival	50%	>50%	8.2%	100.0%	**Yes**
					Topsmelt	7 Day Biomass	50%	>50%	22.4		
						7 Day Weight	50%	>50%	21.6		
2016 October	JAMM0095	10/12/2016	10/13/2016	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	50%	2.0%	N/A	**Yes**
					Purple Urchin						
2017 May	JAMM0151	5/10/2017	5/11/2017	Chronic	*Atherinops affinis*	7 Day Survival	50%	>50%	10.6%	100.0%	**Yes**
					Topsmelt	7 Day Biomass	50%	>50%	22.50%		
						7 Day Weight	50%	>50%	20.10%		
2017 May	JAMM0152	5/16/2017	5/17/2017	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	50%	1.1%	N/A	**Yes**
					Purple Urchin						
2017 November	CDUD0084	11/1/2017	11/2/2017	Chronic	*Atherinops affinis*	7 Day Survival	50%	>50%	9.5%	N/A	**Yes**
					Topsmelt	7 Day Biomass	50%	>50%	14.9%		
2017 November	CDUD0085	11/1/2017	11/2/2017	Fert.	*Strongylocentrotus purpuatus*	Fertilization	50%	>50%	0.7%	N/A	**Yes**
					Purple Urchin						

Scheduled	**Test Code**	**Collected**	**Start Date**	**Duration**	**Organism**	**Endpoint**	**NOEC**	**LOEC**	**PMSD**	**Effluent Survival (100%)**	**Met PERformance Standard?**
2018 May	CDUD0357	5/9/2018	5/10/2018	Fert.	Strongylocentrotus purpuratus (purple sea urchin)	Fertilization	50%	>50%	1.68%	N/A	**Yes**
2018 June	CDUD0358	6/15/2018	6/15/2018	7 Day Chronic	Topsmelt	Surv. Biomass	100 100	>100 >100	19.4% 25.7%	N/A	**Yes**
2018 November	CDUD0345	10/17/18	10/17/18	Fert.	Strongylocentrotus purpuratus (purple sea urchin)	Fertilization	63%	>63%	6.95%	N/A	**Yes**
2018 November											

L. Comparison of effluent limits with the previous permit issued on May 12, 2010

Table 14. Comparison of previous and proposed effluent limits

	Previous Effluent Limits	Proposed Effluent Limits
Parameter	**Maximum Daily**	**Maximum Daily**
Outfall 001		
Flow	650 gpm (936,000 gpd)	650 gpm (936,000 gpd)
Total Suspended Solids (TSS)	45 mg/L	45 mg/L
Oil and Grease	15 mg/L	15 mg/L
pH	Between 6 and 9 su	Between 6 and 9 su
Oily Sheen	No visible sheen	No visible sheen
TPH-Gasoline Range	1 mg/L	1 mg/L
TPH-Diesel Range	5 mg/L	5 mg/L
Outfall 003		
Oil and Grease	15 mg/L	15 mg/L
Oily Sheen	No oily sheen	No visible sheen

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, detection level (DL), and quantitation level (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 S.2. 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.

Ecology has determined not to require the facility to continue monitoring for phenolic compounds. Analytical results submitted over the last several years indicate only an insignificant amount of concentration was detected. In addition, boiler blown down has already been routed to the sanitary sewer system in 2015. Thus, the phenolic compound concentration is expected to be even smaller if it is detectable. Should changes occur in the facility's process, Ecology will reevaluate and may require tis compound to be monitored again in the future.

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].

The facility 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. Treatment system operating plan

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 will update and submit the treatment system operating plan as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). Implementation of the procedures in the treatment system operating plan ensures the facility's compliance with the terms and limits in the permit.

E. Stormwater pollution prevention plan

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the proposed permit includes requirements for the development and implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that the facility must update the SWPPP and implement adequate BMPs in

order to meet the requirements of "all known, available, and reasonable methods of prevention, control, and treatment" (AKART). A SWPPP requires a facility to implement actions necessary to manage stormwater to comply with the state's requirement under chapter 90.48 RCW to protect the beneficial uses of waters of the state.

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

F. 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.

G. 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 (5) years.

VII. References for Text and Appendices

Alon Asphalt Company (previously Paramount Petroleum Corporation, Inc.)

2014. NPDES permit applications – EPA Forms 1 and 2C.

Environmental Protection Agency (EPA)

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

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

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

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

1983. *Water Quality Standards Handbook*. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

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

Washington State Department of Ecology.

January 2015. *Permit Writer's Manual*. Publication Number 92-109 (https://fortress.wa.gov/ecy/publications/documents/92109.pdf)

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)

October 2010 (revised). *Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits*. Publication Number 06-10-100 (https://fortress.wa.gov/ecy/publications/summarypages/0610100.html)

Laws and Regulations (http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/permits/guidance.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

Wright, R.M., and A.J. McDonnell.

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Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to Alon Asphalt Company. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Draft on August 3, 2019, in the *Everett Herald* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at

https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html

You may obtain further information from Ecology by telephone, 425-649-7000, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

The primary author of this permit and fact sheet is Jeanne Tran, 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 SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	**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 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) -- The 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 month's time taking into account zero discharge days.

Average monthly discharge limit -- The average of the measured values obtained over a calendar month's 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% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

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

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 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% by volume and the receiving water 90%.

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

Early warning value -- The concentration of a pollutant set in accordance with WAC 173-200-070 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 173-240-130.

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

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

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

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

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

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

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

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

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

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

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

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

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

Method detection 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 % 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, or 5) x 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 year(s), respectively, of professional experience working in the area of agronomy, crops, or soils.

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

Soluble BOD_5 -- Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD_5 test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD_5 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--Site Maps

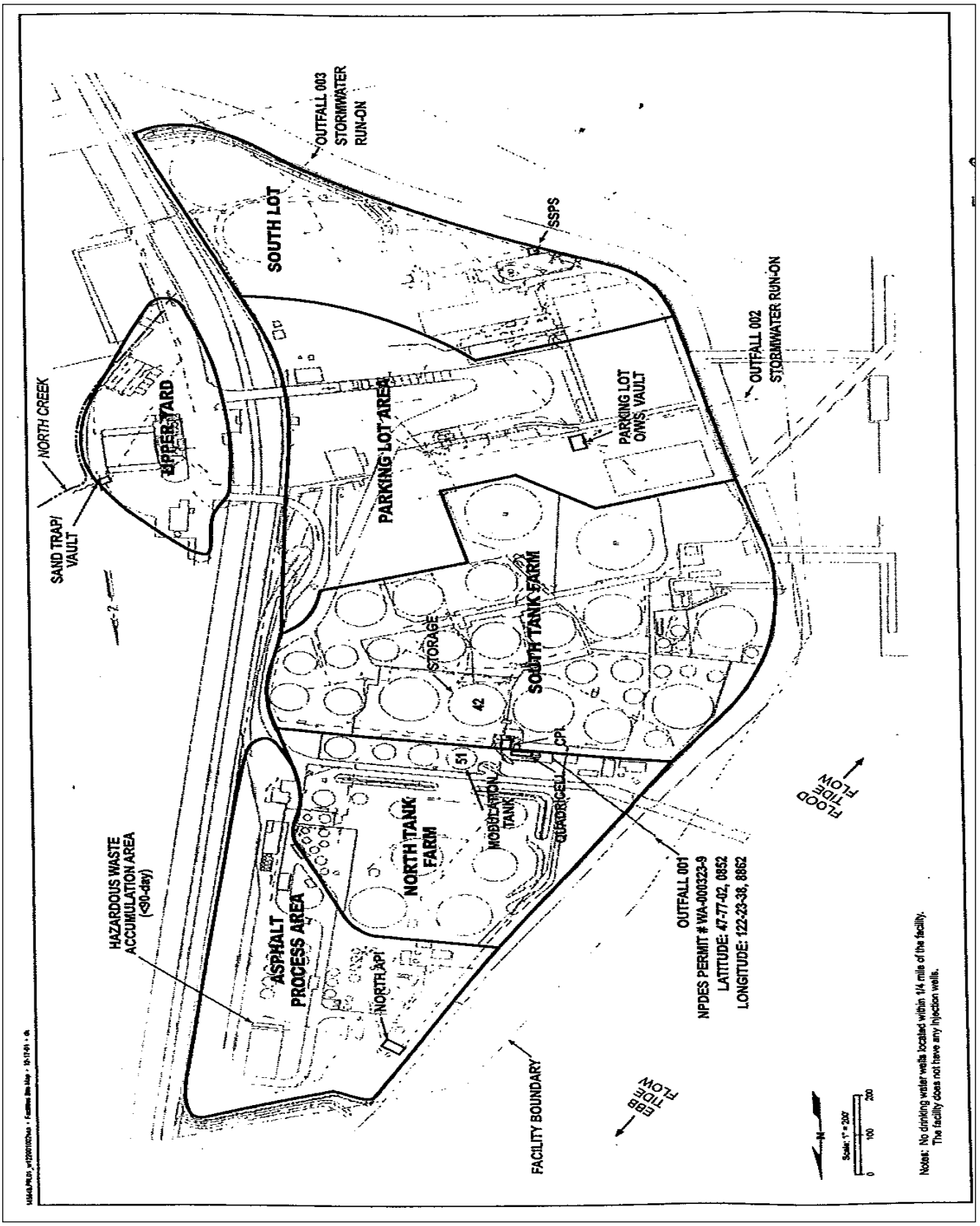

Figure 4. Site map

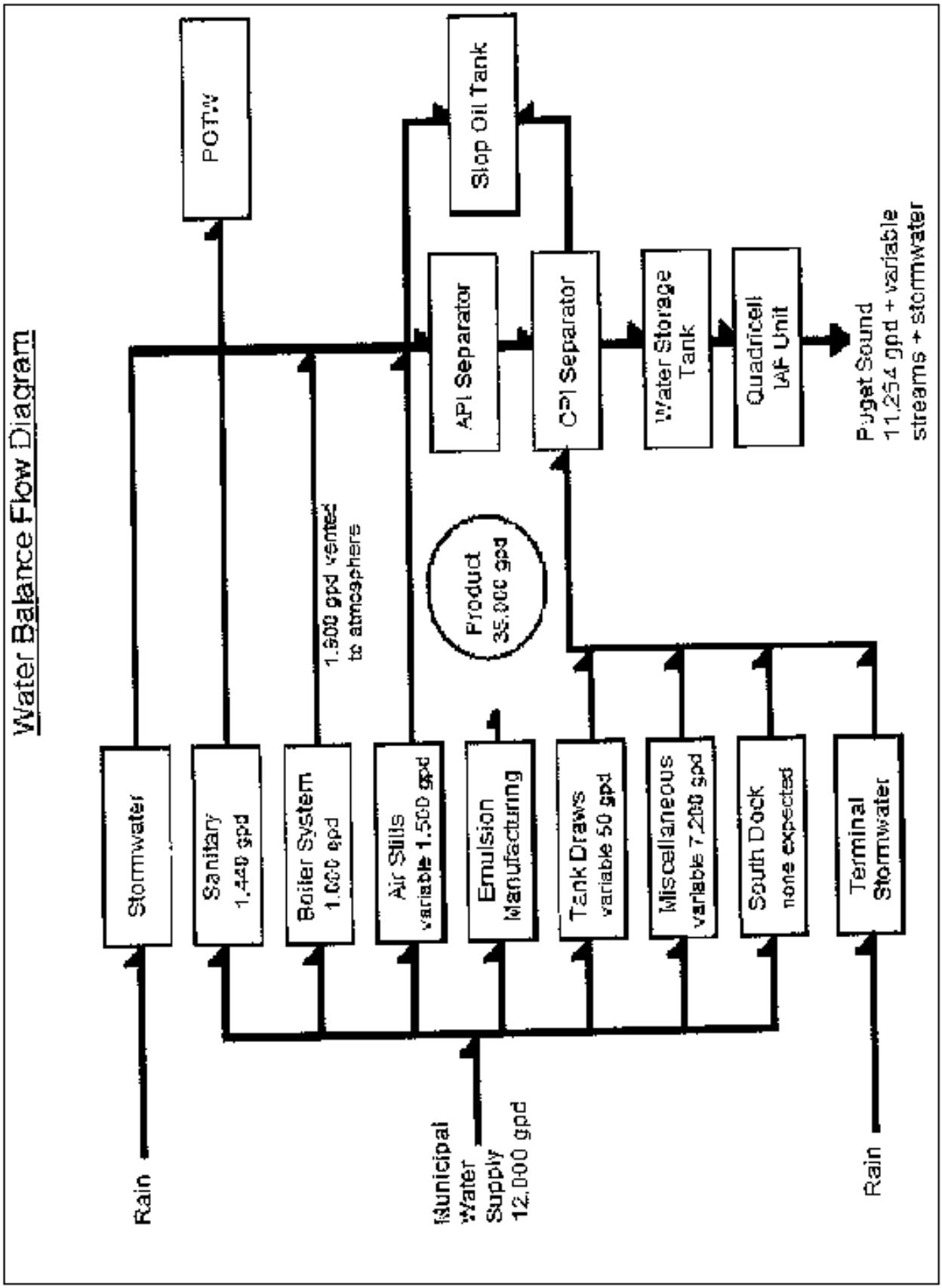

Figure 5. Water balance flow diagram

Appendix E--Technical Calculations

Reasonable Potential Calculation - Copper, zinc and nickel

Facility	Alon
Water Body Type	Marine

Dilution Factors:	Acute	Chronic
Aquatic Life	10.0	32.0
Human Health Carcinogenic		1.0
Human Health Non-Carcinogenic		

Pollutant, CAS No. & NPDES Application Ref. No.			COPPER - 744058 6M Hardness dependent	ZINC- 7440666 13M hardness dependent	NICKEL - 7440020 9M - Dependent on hardness										
Effluent Data	# of Samples (n)		9	9	9										
	Coeff of Variation (Cv)		0.6	0.6	0.6	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)		9.58	137.16	5.18										
	Calculated 50th percentile Effluent Conc. (when n>10)														
Receiving Water Data	90th Percentile Conc., ug/L		0.365	0.6431	0.4244										
	Geo Mean, ug/L		0	0	0										
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	4.8	90	74										
		Chronic	3.1	81	8.2										
	WQ Criteria for Protection of Human Health, ug/L		-	1000	100										
	Metal Criteria Translator, decimal	Acute	0.83	0.946	0.99										
		Chronic	0.83	0.946	0.99										
	Carcinogen?		N	N	N										

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950	0.950										
s	$s^2=\ln(CV^2+1)$		0.555	0.555	0.555										
Pn	$Pn=(1\text{-confidence level})^{1/n}$		0.717	0.717	0.717										
Multiplier			1.81	1.81	1.81										
Max concentration (ug/L) at edge of…		Acute	1.769	24.081	1.311										
		Chronic	0.804	7.967	0.701										
Reasonable Potential? Limit Required?			**NO**	**NO**	**NO**										

Reasonable Potential Calculation - Benzene

Facility	Alon
Water Body Type	Marine

Dilution Factors:	Acute	Chronic
Aquatic Life	10.0	32.0
Human Health Carcinogenic		1.0
Human Health Non-Carcinogenic		

Pollutant, CAS No. & NPDES Application Ref. No.			BENZENE 71432 3V										
Effluent Data	# of Samples (n)		9										
	Coeff of Variation (Cv)		0.6	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)		1										
	Calculated 50th percentile Effluent Conc. (when n>10)												
Receiving Water Data	90th Percentile Conc., ug/L												
	Geo Mean, ug/L		0										
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	-										
		Chronic	-										
	WQ Criteria for Protection of Human Health, ug/L		1.6										
	Metal Criteria Translator, decimal	Acute	-										
		Chronic	-										
	Carcinogen?		Y										

Aquatic Life Reasonable Potential

Effluent percentile value			
s	$s^2=\ln(CV^2+1)$		
Pn	$Pn=(1\text{-confidence level})^{1/n}$		
Multiplier			
Max concentration (ug/L) at edge of…		Acute	
		Chronic	
Reasonable Potential? Limit Required?			

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	$s^2=\ln(CV^2+1)$	0.55451
Pn	Pn=(1-confidence level)1/n	0.717
Multiplier		0.72756
Dilution Factor		1
Max Conc. at edge of Chronic Zone, ug/L		0.72756
Reasonable Potential? Limit Required?		**NO**

Effluent's Temperature Data °C

Date	Temp °C (May-Sept)		Date	Temp °C (Oct -Apr)
6/1/2010	12.2		10/1/2010	16.1
7/1/2010	15.6		11/1/2010	7.2
8/1/2010	17.8		12/1/2010	5.1
9/1/2010	13.3		1/1/2011	6.8
5/1/2011	8.6		2/1/2011	7.8
6/1/2011	8		3/1/2011	5.6
7/1/2011	10.3		4/1/2011	9.7
8/1/2011	10.3		10/1/2011	6.6
9/1/2011	9.9		11/1/2011	5.5
5/1/2012	8.2		12/1/2011	3.5
6/1/2012	16		1/1/2012	5.7
7/1/2012	18.5		2/1/2012	6.8
8/1/2012	19.8		3/1/2012	6.8
9/1/2012	17.6		4/1/2012	5.8
5/1/2013	16.8		10/1/2012	12.3
6/1/2013	11.8		11/1/2012	9.3
7/1/2013	8.06		12/1/2012	7.6
8/1/2013	20.7		1/1/2013	7.5
9/1/2013	18.3		2/1/2013	10.5
5/1/2014	18.3		3/1/2013	8.1
6/1/2014	12.1		4/1/2013	5.7
7/1/2014	14.9		10/1/2013	18.2
8/1/2014	21.6		11/1/2013	9.8
9/1/2014	21		12/1/2013	6.7
5/1/2015	16.2		1/1/2014	9.5
6/1/2015	17.1		2/1/2014	10.1
7/1/2015	17.8		3/1/2014	6.6
8/1/2015	15.6		4/1/2014	6.2
9/1/2015	21		10/1/2014	18.5
95%	21		11/1/2014	17.5
			12/1/2014	17.3
			1/1/2015	16.2
			2/1/2015	17.2
			3/1/2015	16.3
			4/1/2015	15.7
			95%	17.92

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	Oct-Apr
1. Chronic Dilution Factor at Mixing Zone Boundary	32.0	32.0
2. Annual max 1DADMax Ambient Temperature (Background 90th percentile)	13.0 °C	11.5 °C
3. 1DADMax Effluent Temperature (95th percentile)	21.0 °C	17.9 °C
4. Aquatic Life Temperature WQ Criterion	13.0 °C	13.0 °C
OUTPUT		
5. Temperature at Chronic Mixing Zone Boundary:	13.22 °C	11.68 °C
6. Incremental Temperature Increase or decrease:	0.25 °C	0.20 °C
7. Incremental Temperature Increase 12/(T-2) if T≤ crit:	1.09 °C	1.27 °C
8. Maximum Allowable Temperature at Mixing Zone Boundary:	13.27 °C	12.75 °C
A. If ambient temp is warmer than WQ criterion		
9. Does temp fall within this warmer temp range?	NO	NO
10. Temp increase allowed at mixing zone boundary, if required:	---	---
B. If ambient temp is cooler than WQ criterion but within 12/(T_{amb}-2) and within 0.3 °C of the criterion		
11. Does temp fall within this incremental temp. range?	YES	NO
12. Temp increase allowed at mixing zone boundary, if required:	NO LIMIT	---
C. If ambient temp is cooler than (WQ criterion-0.3) but within 12/(T_{amb}-2) of the criterion		
13. Does temp fall within this Incremental temp. range?	NO	NO
14. Temp increase allowed at mixing zone boundary, if required:	---	---
D. If ambient temp is cooler than (WQ criterion - 12/(T_{amb}-2))		
15. Does temp fall within this Incremental temp. range?	NO	YES
16. Temp increase allowed at mixing zone boundary, if required:	---	NO LIMIT
RESULTS		
17. Do any of the above cells show a temp increase?	**NO**	**NO**
18. Temperature Limit if Required?	**NO LIMIT**	**NO LIMIT**

Appendix F--Response to Comments

Editorial and minor comments received from the facility on the proposed permit and fact sheet were incorporated into the final permit and fact sheet. No substantive comments were received on the proposed permit and fact sheet.