Fact Sheet for NPDES Permit WA0991012

Eagle US 2, LLC
dba Axiall Corporation, a Westlake Company

July 3, 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 Eagle US 2, LLC (Eagle US 2).

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 Eagle, NPDES permit WA0991012, are available for public review and comment from July 9, 2019 until August 9, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Eagle US 2 reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

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

Summary

Eagle US 2 operates a 229 tons per day membrane chlor-alkali plant. The facility receives solid salt (sodium chloride) and creates brine. The brine is split to form sodium hydroxide (caustic soda), hydrogen gas, and chlorine gas. The chlorine gas is liquefied or combined with the hydrogen gas to create hydrochloric acid. Some of the chlorine gas is combined with the sodium hydroxide to create sodium hypochlorite (bleach). To avoid confusion with other discharge locations near or associated with Eagle US 2, Ecology has added an E to the outfall numbers for Eagle US 2's discharge points.

Wastewater produced by the process is neutralized, if necessary, with caustic soda or hydrochloric acid. Chlorinated wastewater is treated to reduce residual chlorine levels. The treated wastewater is pumped to the Nippon Dynawave Packaging Company, LLC (Nippon Dynawave) industrial wastewater treatment plant (Industrial Treatment Plant) for additional treatment through the caustic sump (Outfall 001E). The caustic sump has effluent limits for pH and total residual chlorine.

Stormwater from the parking lot drains to Outfall 002E which discharges into Nippon Dynawave's Outfall 001/002 Ditch which runs the length of the northwest side of the site.

Outfall 002E has discharge benchmarks for copper, lead, zinc, turbidity, biochemical oxygen demand (BOD_5), oil and grease, and pH.

Stormwater from certain process areas and some comingled process water are collected at the clean water sump. This comingled process water is typically discharged to the caustic sump and then discharged to the Nippon Dynawave Industrial Treatment Plant through Outfall 001E. During high rain events, the comingled stormwater from the clean water sump is discharged directly to Nippon Dynawave's Outfall 001/002 for discharge to the Columbia River (Outfall 003E). Outfall 003E has effluent limits for pH.

Ecology renewed the Eagle US 2 State Waste Discharge Permit (SWDP) ST0006199 on November 25, 2009. The SWDP expired on December 1, 2014. Ecology has determined during this permit renewal process that the discharges from Eagle US 2 require a NPDES permit.

Table of Contents

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 E**.

II. Background Information

Table 1 General Facility Information

Facility Information	
Applicant:	Eagle US 2, LLC (dba Axiall Corporation, a Westlake Company)
Facility Name and Address	Eagle US 2, LLC
Contact at Facility	Name: Michael Loree Telephone #: (360) 577-5586
Responsible Official	Name: Thomas Luke Hart Title: Plant Manager Address: PO Box 865 Longview, Washington 98632 Telephone #: (360) 577-3236
Industry Type	Inorganic Chemicals Manufacturing, Chlorine Production
Categorical Industry	40 CFR Part 415, Subpart F – Chlor-Alkali Subcategory (Chlorine, and Sodium or Potassium Hydroxide Production)
Type of Treatment	Chemical addition – pH adjustment, chlorine residual reduction
SIC Codes	2812 – Alkalies and Chlorine
NAIC Codes	325180 – Other Basic Inorganic Chemical Manufacturing
Facility Location (NAD83/WGS84 reference datum)	Latitude: 46.1303 Longitude: -122.9912
Discharge Location to Nippon Dynawave Packaging Company, LLC Industrial Wastewater Treatment Plant (NAD83/WGS84 reference datum)	Latitude: 46.129838 Longitude: -122.987925

Facility Information	
Discharge Waterbody Name and Locations (NAD83/WGS84 reference datum)	**Columbia River** Outfall 002E (via 001/002 Ditch) – Stormwater Latitude: 46.130833 Longitude: -122.991103 Outfall 003E (via Outfall 001/002) – Clean Water Sump Latitude: 46.130902 Longitude: -122.988575

Permit Status	
Renewal Date of Previous Permit	December 1, 2009
Application for Permit Renewal Submittal Date	June 4, 2014 Additional revisions received September 6 and October 26, 2016
Date of Ecology Acceptance of Application	February 2, 2017

Inspection Status	
Date of Last Non-sampling Inspection	April 15, 2019

Figure 1 Facility Location Map

A. Facility Description

History

The Eagle US 2 membrane cell, chlor-alkali plant started operation in July 2006 under the ownership of Equa-Chlor, Inc. The facility was constructed on the 13-acre site of the former mercury cell, chlor-alkali plant which was operated by Weyerhaeuser NR Company from the mid-1950's until it was shut down in 1999.

Cowlitz County made a SEPA Determination of Nonsignificance for the construction of the membrane cell, chlor-alkali plant on March 29, 2004. The State Waste Discharge Permit (SWDP) application and an engineering report for the membrane cell, chlor-alkali facility was received by the Washington State Department of Ecology (Ecology) on May 25, 2004.

Ecology issued the initial SWDP on December 17, 2004. The SWDP authorized the discharge of: process wastewater and stormwater through Outfall 001 for biological treatment at the Weyerhaeuser Longview (now Nippon Dynawave) wastewater treatment plant; sanitary wastewater for treatment at the Weyerhaeuser Longview sanitary wastewater treatment plant; stormwater from the Clean Water Sump to the Weyerhaeuser Longview Outfall 001/002; and stormwater from the paved parking lot to the Weyerhaeuser Longview outfall ditch.

The SWDP was renewed by Ecology in 2009 with an effective date of December 1, 2009 and expiration date of December 1, 2014. No substantial changes were made to the renewed permit.

On May 1, 2011, the facility was sold from Equa-Chlor, Inc. to PPG Industries, Inc. On January 28, 2013, the facility was sold to a newly formed subsidiary of Georgia Gulf Corporation, now Axiall Corporation. Eagle US 2, LLC operated as a subsidiary of Axiall Corporation. In 2016, the Axiall Corporation was sold to Westlake Company. The facility continues to operate as Eagle US 2, LLC which remains a subsidiary of Axiall Corporation.

Following discussions with Ecology, it was determined that future permitting of the discharges from Eagle US 2 should be done under a NPDES permit. Eagle US 2 electronically submitted a NPDES permit application to Ecology on September 9, 2016. Ecology received updated NPDES permit application forms on October 26, 2016. Ecology determined that the NPDES permit application was complete on February 2, 2017.

Industrial Processes

Eagle US 2 is a membrane cell, chlor-alkali plant. Chlor-alkali plants fall under the "Inorganic Chemicals Manufacturing Point Source Category – Chlor-alkali Subcategory" in 40 CFR Part 415, Subpart F. The Environmental Protection Agency (EPA) has not established effluent limit guidelines for membrane cell, chlor-alkali plants.

Eagle US 2 operates 24 hours a day, 7 days a week, producing approximately:

- 79,000 tons per year of liquid chlorine
- 91,000 tons per year of sodium hydroxide (caustic soda)
- 55,000 tons per year of 36% hydrochloric acid
- 35,000 gallons per year of 12.5% sodium hypochlorite (bleach)
- 2,000 tons per year of 76% sulfuric acid
- 2,300 tons per year of hydrogen gas

The chlor-alkali process involves the electrolytic decomposition of sodium chloride (NaCl, salt) in a brine solution to form chlorine gas, caustic soda, and hydrogen gas. Solid salt is transported up the Columbia River on ships and barges and is loaded into the Eagle US 2 salt dissolving basin. Fresh, demineralized water and recycled water are sprayed over the piles of salt in the dissolving basin to form a brine solution. The raw brine is sent for primary treatment to remove impurities.

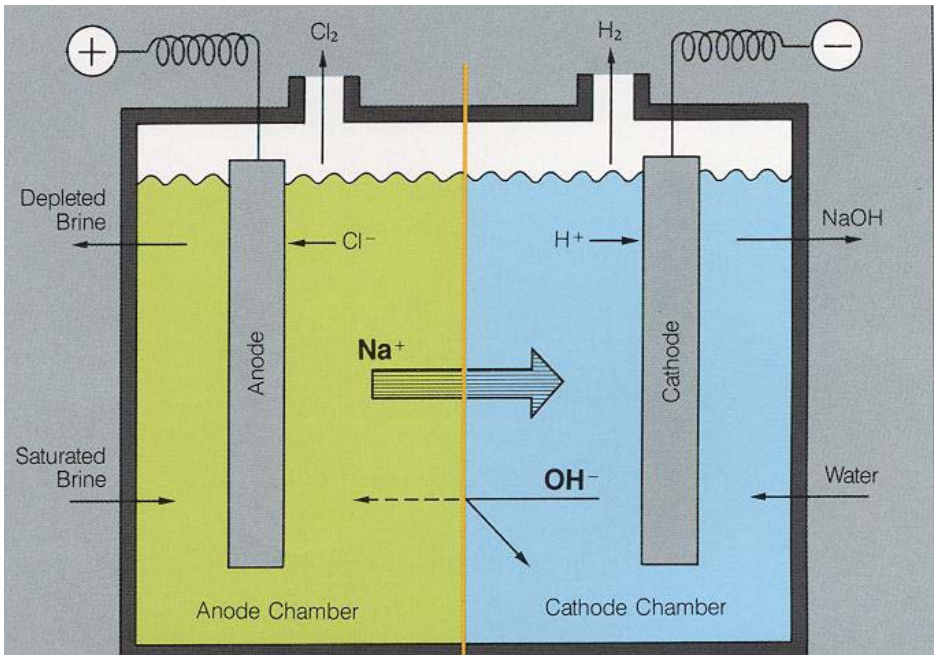
Impurities from the brine settle and form a brine mud, which is pH adjusted and discharged to the Nippon Dynawave Packaging Company, LLC (Nippon Dynawave) Industrial Wastewater Treatment Plant (Industrial Treatment Plant).

The brine, which has undergone primary treatment, must undergo an additional purification step to prevent problems in the membrane electrolysis cells. The brine is sent through a series of three ion exchange columns filled with a chelating resin designed to remove residual metals. Once treated, the brine is sent to the ultra-pure brine storage tank for use in the chlor-alkali process.

The resin beds in the ion exchange columns are individually taken offline and regenerated with hydrochloric acid followed by caustic soda. The spent regeneration solution is combined, pH adjusted, and then discharged to the Nippon Dynawave Industrial Treatment Plant.

The ultra-pure brine is sent to the electrolyzers, which consist of electrolytic cells that are separated into an anode chamber and a cathode chamber by a semi-permeable membrane. The brine enters the anode chamber where the sodium ions (Na+) pass from the anode chamber, through the membrane, to the cathode chamber. The sodium ions combine with water in the cathode chamber to form sodium hydroxide (NaOH) and hydrogen gas (H_2). In the anode chamber, the remaining chlorine combines to form chlorine gas (Cl_2).

Figure 2 Chlor-Alkali Electrolytic Cell



The depleted brine, containing residual chlorine, leaves the anode chamber. The depleted brine is vacuum stripped of the chlorine, pH adjusted, and then treated with sodium sulfite to remove any residual chlorine.

The depleted brine is then sent through a nano-filtration membrane to remove the sulfate. The sulfate-rich purge stream is then pH adjusted and sent to the Nippon Dynawave Industrial Treatment Plant.

Wastewater Treatment Processes

Figure 3 Outfall Map

Process Wastewater (Outfall 001E)

The process wastewater is segregated into acidic, basic, chlorinated, and high solids streams. The acidic stream is pumped to a covered 25,000 gallon tank (T-7510) in the caustic storage and handling area. If the pH in the acid tank is too low, caustic soda is added and mixed with a 300 gallon per minute (gpm), chemical resistant pump prior to being batch discharged to the Nippon Dynawave Industrial Treatment Plant through the caustic sump.

The chlorinated stream is collected in a second 25,000 gallon tank (T-7500) in the caustic storage and handling area. The chlorinated wastewater can have residual chlorine, low pH, or high pH.

Depending on the nature of the chlorinated wastewater, sodium bisulfite, caustic soda, and/or acid are added and recirculated in the tank with a 300 gpm, chemical resistant pump prior to discharging to the Nippon Dynawave Industrial Treatment Plant through the caustic sump.

The basic stream is collected in the Caustic Tank Farm sump where the facility is capable of discharging to the Nippon Dynawave Industrial Treatment Plant or to the wastewater collection tanks if there is elevated pH.

The high solids stream is collected in the brine mud thickening tank. The brine mud is pumped periodically to the wastewater discharge pump where it is diluted to 5% solids before discharging to the Nippon Dynawave Industrial Treatment Plant.

A 1-inch slipstream is taken from the main wastewater line from the caustic sump to the Nippon Dynawave Industrial Treatment Plant. The slip stream runs through two pH probes and oxidation-reduction (ORP) probes. If the wastewater is not within established, acceptable ranges, the discharge valve automatically closes and the wastewater is diverted back to the wastewater collection tanks for additional treatment. A discussion of the ORP monitoring and auto-diversion system is included in the monitoring discussion of this fact sheet.

Stormwater (Outfall 002E)

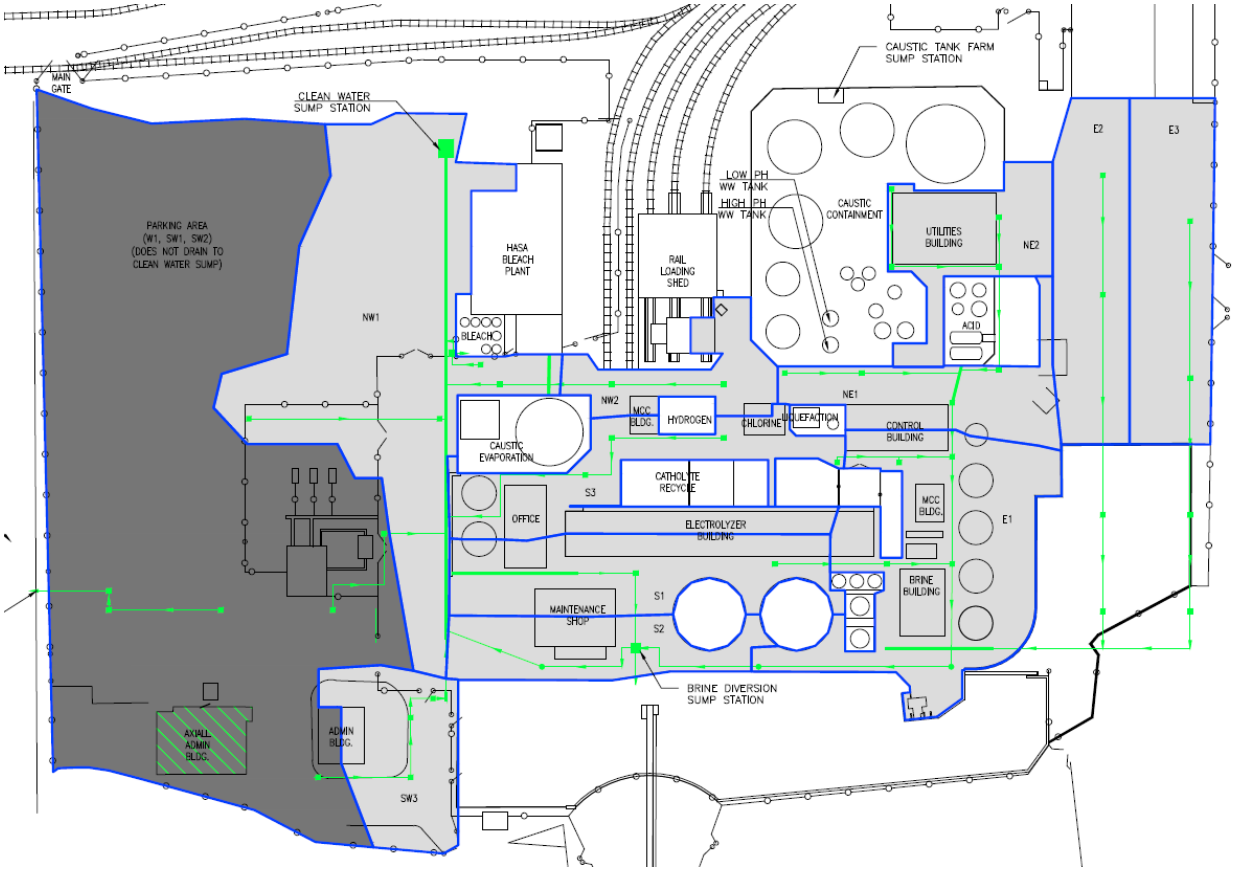
Stormwater from approximately 3 acres of parking lot northeast of the Eagle US 2 office is collected in a catch basin and flows through a 12-inch diameter pipe before being discharged to the ditch that houses Nippon Dynawave's Outfall 001/002. Estimated volume of stormwater generated by this stormwater basin from a 2-year rain event is 88,000 gallons per day (gpd). Stormwater from Weyerhaeuser's Truck Shop parking lot and portions of Nippon Dynawave's site also discharge to the same ditch.

Comingled Process Water and Stormwater (Outfall 003E)

Stormwater from approximately 3.27 acres of the site is collected and sent to the Clean Water Sump (located just north of the Hasa building). Estimated volume of stormwater generated by this stormwater basin from a 2-year rain event is 96,000 gpd. The Clean Water Sump additionally collects several process wastewater streams including the raw brine heater condensate, cooling tower overflow, and minor brine leaks.

The Clean Water Sump is continuously monitored for pH and ORP. During normal operation, stormwater and process wastewater from the Clean Water Sump is sent to the caustic sump via a 6-inch diameter pipeline and discharged to the Nippon Dynawave Industrial Treatment Plant through Outfall 001E. During large rain events, the 6-inch diameter pipeline is unable to convey the large volume of comingled storm and process water to the caustic sump for discharge through Outfall 001E. During these events Eagle US 2 manually opens a valve to discharge comingled storm and process water from the Clean Water Sump to Nippon Dynawave's E-sump line (Outfall 003E), which enters the 001/002 junction box and discharges into the Columbia River via Nippon Dynawave's Outfall 001/002.

Figure 4 Stormwater Basin Map



B. Description of the Receiving Water

Eagle US 2 discharges process wastewater to the Nippon Dynawave Industrial Treatment Plant (through Outfall 001E), stormwater from the parking lot to the Columbia River via the Nippon Dynawave Outfall 001/002 Ditch (through Outfall 002E), and comingled storm and process water to Nippon Dynawave's E-sump line and ultimately the Columbia River (through Outfall 003E).

Section III.E of this fact sheet describes any receiving waterbody impairments.

The ambient background data used for this permit includes the following data from the United States Geological Survey (USGS) Station No. 14246900 (Columbia River at Port Westward, near Quincy, OR; previously named Columbia River at Beaver Army Terminal near Quincy, OR).

Table 2 Ambient Background Data

Parameter	Value Used
pH (Maximum / Minimum)	10.9 standard units / 6.6 standard units
Turbidity	37.4 NTU
Hardness	42.8 mg/L as CaCO3
Lead	0.074 µg/L
Copper	1.8 µg/L (90th Percentile) 1.06 µg/L (Geometric Mean)
Zinc	3.0 µg/L (90th Percentile) 1.71 µg/L (Geometric Mean)
Nitrate-Nitrite	0.182 mg/L

C. Wastewater Characterization

Eagle US 2 reported the concentration of pollutants in the discharge in the permit application, in subsequent sampling requested by Ecology, and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent discharged from October 2014 through February 2019. The wastewater effluent is characterized as follows:

Table 3 Wastewater Characterization – Outfall 001E

Parameter	Units	# of Samples	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)	mg/L	1	< 4.0	< 4.0
Chemical Oxygen Demand (COD)	mg/L	1	6.4	6.4
Total Organic Carbon (TOC)	mg/L	1	1.08	1.08
Total Suspended Solids (TSS)	mg/L	1610	1106	37,163
Ammonia (as Nitrogen)	mg/L	1	<0.050	<0.050

Parameter	Units	# of Samples	Average Value	Maximum Value
Bromoform	µg/L	2	Not Reported	5.3
Chloroform	µg/L	2	Not Reported	75
Other Priority Pollutants (Volatile Compounds, Acid Compounds, Base-Neutral Compounds)	µg/L	2	Below Detection	Below Detection
Flow Rate	gpm	109	224	660

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH	standard units	110	5.0	13.9

Table 4 Stormwater Characterization – Outfall 002E

Parameter	Units	# of Samples	Average Value	Maximum Value
BOD_5	mg/L	78	3.11	30
COD	mg/L	1	112	112
TOC	mg/L	1	34	34
TSS	mg/L	1	38	38
Ammonia (as Nitrogen)	mg/L	1	1.30	1.30
Nitrate-Nitrite (as Nitrogen)	mg/L	78	0.098	0.707
Oil and Grease	mg/L	78	3.25	95.1
Phosphorus	mg/L	78	0.38	3.99
Turbidity	NTU	78	212.7	1100
Copper	µg/L	78	30.11	151

Parameter	Units	# of Samples	Average Value	Maximum Value
Lead	µg/L	78	4.82	42
Zinc	µg/L	78	247.1	1020

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH	standard units	78	6.42	8.18

Parameter	Units	# of Samples	Minimum Value	Average Value	Maximum Value
Hardness as $CaCO_3$	mg/L	78	4	106.3	6170

Table 5 Clean Water Sump Characterization – Outfall 003E

Parameter	Units	# of Samples	Average Value	Maximum Value
BOD_5	mg/L	6	11.5	30
COD	mg/L	2	44.4	73.7
TOC	mg/L	2	11.2	21.3
TSS	mg/L	2	6.5	8.0
Ammonia (as Nitrogen)	mg/L	2	0.258	0.414
Temperature	°C	1	Not Reported	30
Chlorine, Total Residual	mg/L	8	0.01	0.07
Nitrate-Nitrite (as Nitrogen)	mg/L	5	0.234	0.525
Oil and Grease	mg/L	9	Below Detection	Below Detection
Phosphorus	mg/L	4	0.439	0.969

Parameter	Units	# of Samples	Average Value	Maximum Value
Turbidity	NTU	12	30	60.2
Copper	µg/L	13	14.6	27.3
Lead	µg/L	12	2.61	4.49
Mercury	ng/L	2	30.15	60.3
Zinc	µg/L	13	130.8	241
Priority Pollutants (Volatile Compounds, Acid Compounds, Base-Neutral Compounds)	µg/L	2	Below Detection	Below Detection

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH	standard units	43	2.95	9.6
Hardness as $CaCO_3$	mg/L	2	18	33.6

D. Summary of Compliance with Previous Permit Issued

The previous permit placed effluent limits on pH and total residual chlorine for Outfall 001E. The previous permit did not include any effluent limits for Outfalls 002E or 003E.

Eagle US 2 has not consistently complied with the effluent limits and permit conditions throughout the duration of the permit issued on November 25, 2009. Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections.

The following table summarizes the violations that occurred during the permit term.

Table 6 Permit Violations during Previous Permit Term

Date	Parameter	Monitoring Point	Limit	Value	Violation
12/19/2018	N/A	N/A	N/A	N/A	O&M Review Letter late submittal
05/01/2018	N/A	N/A	N/A	N/A	Late submittal of DMRs

Date	Parameter	Monitoring Point	Limit	Value	Violation
01/26/2018	N/A	N/A	N/A	N/A	O&M Review Letter late submittal
11/01/2017	pH (Daily Maximum)	001	12.0	13.1	Numeric effluent violation
11/01/2017	N/A	N/A	N/A	N/A	Late submittal of DMRs
09/01/2017	N/A	N/A	N/A	N/A	Late submittal of DMRs
08/01/2017	N/A	N/A	N/A	N/A	Late submittal of DMRs
07/01/2017	N/A	N/A	N/A	N/A	Late submittal of DMRs
04/01/2017	N/A	N/A	N/A	N/A	Late submittal of DMRs
11/01/2016	pH (Daily Maximum)	001	12.0	13.4	Numeric effluent violation
04/26/2016	Solids (Residue)	001	N/A	N/A	Analysis not conducted
04/01/2016	N/A	N/A	N/A	N/A	Late submittal of DMRs
03/01/2016	N/A	N/A	N/A	N/A	Late submittal of DMRs
01/21/2016	N/A	N/A	N/A	N/A	O&M Review Letter late submittal.
05/01/2015	N/A	N/A	N/A	N/A	Late submittal of DMRs
08/01/2014	pH (Daily Maximum)	001	12.0	14.0	Numeric effluent violation
06/22/2014	N/A	N/A	N/A	N/A	Salt Spill
06/01/2014	N/A	N/A	N/A	N/A	Failure to submit required report (Non-DMR)
06/07/2013	N/A	N/A	N/A	N/A	Unauthorized discharge

Date	Parameter	Monitoring Point	Limit	Value	Violation
08/01/2012	N/A	N/A	N/A	N/A	Late submittal of DMRs
05/01/2012	N/A	N/A	N/A	N/A	Late submittal of DMRs
03/01/2011	N/A	N/A	N/A	N/A	Late submittal of DMRs
05/01/2010	pH (Daily Maximum)	001	12.0	12.2	Numeric effluent violation
05/01/2010	pH (Daily Minimum)	001	5.0	1.6	Numeric effluent violation
04/01/2010	N/A	N/A	N/A	N/A	Late submittal of DMRs
04/01/2010	pH (Daily Minimum)	001	5.0	0.4	Numeric effluent violation
03/01/2010	pH (Daily Minimum)	001	5.0	2.2	Numeric effluent violation
03/01/2010	pH (Daily Maximum)	001	12.0	12.5	Numeric effluent violation
02/01/2010	pH (Daily Minimum)	001	5.0	3.4	Numeric effluent violation
02/01/2010	pH (Daily Maximum)	001	12.0	12.5	Numeric effluent violation
01/01/2010	pH (Daily Minimum)	001	5.0	3.0	Numeric effluent violation
01/01/2010	pH (Daily Maximum)	001	12.0	12.4	Numeric effluent violation

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

Table 7 Summary of Submittals during Previous Permit Term

Submittal	Received Date
O&M – Operation and Maintenance Manual (Update)	03/14/2019
O&M – Operation and Maintenance Manual (Update)	01/26/2018
Reporting Permit Violations	11/30/2017
Application for NPDES Permit Renewal (Update)	02/13/2017
O&M – Operation and Maintenance Manual (Update)	12/19/2016
Non-Routine Discharge Request	10/26/2016
Application for NPDES Permit Renewal (Update)	10/26/2016
Application for NPDES Permit Renewal	09/06/2016
Spill Report – Salt Spill 04/06/16	04/12/2016
Non-Routine Discharge Request	11/19/2014
Pollution Prevention Plan	10/21/2014
Reporting Permit Violation	09/05/2014
Reporting Permit Violation	07/08/2014
Application for Permit Renewal	06/04/2014
O&M – Operation and Maintenance Manual (Update)	12/10/2013
Notice of Permit Transfer	02/08/2013
Slug Discharge Control Update	12/04/2012
O&M – Operation and Maintenance Manual (Update)	12/19/2011
O&M – Operation and Maintenance Manual	12/16/2010
Spill Prevention Plan	05/14/2010
Slug Discharge Control Plan	05/14/2010

E. State Environmental Policy Act (SEPA) Compliance

State law exempts the issuance, reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges. Eagle US 2 is an existing discharge. A Determination of Nonsignificance was issued by Cowlitz County for the Eagle US 2 facility on March 29, 2004.

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. 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. As part of the AKART analysis Ecology reviews federal effluent guidelines established by EPA.

The discharges of process wastewater from Eagle US 2 are included in the "Inorganic Chemicals Manufacturing Point Source Category – Chlor-Alkali Subcategory" in 40 CFR Part 415, Subpart F. Pretreatment standards for new sources (PSNS) have been established in Subpart F for chlor-alkali facilities which use the mercury cell or diaphragm cell process. Eagle US 2 uses a membrane cell process. Effluent guidelines have not been established for chlor-alkali facilities using a membrane cell process.

The state waste discharge permit regulations include restrictions and prohibitions to protect publicly-owned sewerage systems. A facility may not discharge any wastewater having a pH less than 5.0 or greater than 1.0 or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel unless the:

- System is specifically designed to accommodate such discharge.
- Discharge is authorized by a permit (WAC 173-216-060).

Federal regulations (40 CFR 403.5b) also prohibits the discharge pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the collection and treatment system is designed to accommodate such discharges. These rules **do not** apply to privately owned treatment works. For this reason, Ecology has established pH limits on a best-professional-judgement basis, prohibiting the discharge of wastewater with pH lower than 5.0 or greater than 12.0. It has been demonstrated during the previous permit term that pH discharges within this range will not cause damage or hazard to structures, equipment, or personnel at the receiving wastewater treatment plant.

Ecology has established technology-based standards to protect the treatment capabilities of the receiving wastewater treatment plant. The book toxicity designation for dangerous waste included in WAC 173-303-100(5)(b) establishes that a waste with a chemical concentration greater than 100 mg/L that exhibits an LC_{50} to fish of 0.01 mg/L to <0.1 mg/L, such as residual chlorine, is a toxic dangerous waste. This toxicity designation threshold was used to determine the technology-based effluent limit for the discharge of total residual chlorine from Outfall 001E.

Table 8 Technology-Based Limits – Outfall 001E

Parameter	Average Monthly Limit	Maximum Daily Limit
Chlorine, Total Residual	N/A	100 mg/L

Parameter	Daily Minimum	Daily Maximum
pH	5.0 standard units	12.0 standard units

Outfall 002E discharges stormwater from a portion of Eagle US 2's parking lot. Stormwater discharges from Outfall 002E enter Nippon Dynawave's Outfall 001/002 ditch and is conveyed through the ditch to the Columbia River. The dynamic nature of the stormwater as it is conveyed down the grass-lined ditch prior to discharge makes the establishment of numeric technology-based limits difficult.

Ecology's ability to evaluate the "treatment" that the stormwater receives prior to discharge to the Columbia River and the intermittent nature of the discharge make the establishment of numeric technology-based limits infeasible.

The proposed permit requires the implementation of targeted BMPs (catch basin cleanout, visual inspections, spill prevention, spill cleanup, etc.) to minimize pollutant levels in the discharge and the requirement to implement AKART. These BMPs must be included in the facility's Stormwater Pollution Prevention Plan. In order to evaluate the effectiveness of the BMPs, Ecology has developed performance-based benchmarks. The performance-based benchmarks are based on the 95th percentile of the stormwater data collected from December 2009 through February 2019. Calculations for the performance-based benchmarks are included in Appendix D. The following technology-based discharge benchmarks are necessary for the stormwater discharge to meet the AKART requirements:

Table 9 Technology-Based Benchmarks – Outfall 002E

Parameter	Average Monthly Limit
Biochemical Oxygen Demand (BOD_5)	13.1 mg/L
Oil and Grease	15.4 mg/L

The discharge from the Clean Water Sump (Outfall 003E) is primarily stormwater from process areas. The following process wastewater streams were identified in the application and are approved for discharge through Outfall 003E:

- Raw Brine Heater Condensate
- Cooling Tower Overflow
- Dechlorine Brine Tank
- DI Water Tank

Typically flow from the Clean Water Sump discharges to the Caustic Sump which pumps wastewater to the Nippon Dynawave Industrial Treatment Plant via Eagle US 2's Outfall 001E. However, during heavy rain events the pipeline between the Clean Water Sump and the Caustic Sump is unable to handle the high flows and the Clean Water Sump overflows. The Clean Water Sump has a manual valve which allows water from the Clean Water Sump to flow into Nippon Dynawave's E-sump line. The E-sump line flows directly to the 001/002 junction box and is discharged to the Columbia River via Nippon Dynawave's Outfall 001/002. Eagle US 2 submitted the *Technical Memorandum* (Memorandum), completed by Kennedy/Jenks Consultants, on December 14, 2016. The Memorandum addressed the various treatment alternatives reasonably available for the discharge from the Clean Water Sump to the Columbia River in order to address the AKART requirements for the discharge.

Based on the information provided in the Memorandum, Ecology has determined that AKART for this discharge is reducing the frequency of discharges from the Clean Water Sump, implementing BMPs to reduce the potential for pollutants in stormwater runoff, monitoring the discharge for potential spills (indicated by a pH less than 6.0 or more than 9.0), and terminating discharges if possible spills are identified. Eagle US 2 quantified the maximum flow rate capacity of the transfer pipe between the Clean Water Sump and the Caustic Sump as 252 gallons per minute (gpm). Based on the Memorandum and the information provided in the permit application, Ecology has determined that the following technology-based limits are necessary for the discharge to meet the AKART requirements:

Table 10 Technology-Based Benchmarks – Outfall 003E

Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units
Flow rate to Caustic Sump [a]	252 gallons per minute (gpm)	N/A

a. This limit only applies while stormwater is being discharged from Outfall 003E.

B. 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 Part 131 (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. The Columbia River at the discharge location is impaired for temperature, bacteria, and dioxin. A TMDL has been developed for dioxin. A TMDL has not been developed for bacteria or temperature. The discharge from Eagle US 2 is not expected to contribute to the impairments listed above.

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

Eagle US 2 discharges comingled stormwater and process wastewater to Nippon Dynawave's E-Sump line, which flows to the 001/002 junction box and ultimately discharges to the Columbia River via Nippon Dynawave's Outfall 001/002. The mixing zones for Nippon Dynawave's Outfalls 001 and 002 are authorized by Ecology in Nippon Dynawave's NPDES permit (WA0000124). The following discussion and information on mixing zones is for Nippon Dynawave's Outfall 001/002, which Eagle US 2 discharges through during times of high flow through the Clean Water Sump.

A mixing zone is the defined area in the receiving water surrounding the discharge ports, 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.

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 BMPs, continuous discharge monitoring, and reduced discharge frequency meets the requirements of AKART (see Section III-A "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'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

In CH2M Hill's *Outfall Dilution and Temperature Study* dated January 20, 2004, the dilution and mixing zone analysis was performed on a variety of discharge and environmental conditions. The modeling conditions that produced the lowest predicted dilutions were identified as the site-specific critical conditions.

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.

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

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 at the ten year low flow.

- **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 based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 11 Freshwater Aquatic Life Uses and Associated Criteria

Salmonid Spawning, Rearing, and Migration	
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 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.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- The *recreational uses* for this receiving water are identified below.

Table 12 Recreational Uses and Associated Criteria

Recreational Use	**Criteria**
Primary Contact Recreation	Escherichia coli (E. coli) organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not 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 320 colonies /100 mL.

- The *water supply uses* are domestic, agricultural, industrial, and stock watering.

- The *miscellaneous freshwater uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Water Quality Impairments

The Columbia River is listed on the current 303(d) and is impaired for temperature, bacteria, and dioxin. The United States Environmental Protection Agency (EPA) issued a total maximum daily load (TMDL) for dioxin in the Columbia River Basin on February 25, 1991. The TMDL includes waste load allocations (WLA) for bleaching pulp and paper mills located in the Columbia River Basin at the time of the TMDL issuance. Eagle US 2 is not expected to discharge dioxin. No WLA has been established for Eagle US 2's discharge.

A TMDL has not been developed for the bacteria impairment in the Columbia River. It's unlikely that Eagle US 2 will discharge bacteria from the Clean Water Sump (Outfall 003E) or from the stormwater discharge (Outfall 002E); however, the proposed permit requires the facility to implement stormwater BMPs to reduce the likelihood of stormwater discharges containing bacteria.

Ecology has documented a temperature impairment in the receiving water in the vicinity of the outfall. Ecology considers the entire Columbia River impaired for temperature. EPA has prepared a draft TMDL for temperature however has delayed issuance pending discussion and information exchanges. Based on the information provided in Eagle US 2's application, it's unlikely that discharges from Outfall 002E or Outfall 003E will contribute to the temperature impairment in the Columbia River.

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 for Nippon Dynawave's Outfall 001 is 320 feet long with a diameter of 54 inches. The diffuser has a total of twelve 14-inch diameter ports. The first two ports are spaced 27 feet apart. Ports two through ten are spaced 32 feet apart. Ports eleven and twelve are spaced 17.5 feet apart. The average depth of discharge ranges from 28 feet below Columbia River Datum (CRD) at low river flow and ebb tide to 43 feet CRD at high river flow and flood tide.

The diffuser for Nippon Dynawave's Outfall 002 is 300 feet long with a diameter of 48 inches. The diffuser has a total of 36 8-inch diameter ports. The ports are spaced 8 feet and 4 inches apart. The average depth of discharge ranges from 21 feet below CRD at low river flow and ebb tide to 36 feet CRD at high river flow and flood tide.

Ecology obtained this information from CH2M Hill's *Outfall Dilution & Temperature Study* dated January 20, 2004, and CH2M Hill's *Addendum – Outfall Dilution & Temperature Study for the Weyerhaeuser Longview Mill Outfalls 001 & 002* dated May 23, 2014.

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.

Outfall 001 (east diffuser): The horizontal distance of the chronic mixing zone is 228 feet. The mixing zone extends from the bottom to the top of the water column.

Outfall 002 (west diffuser): The horizontal distance of the chronic mixing zone is 221 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.

Outfall 001 (east diffuser): The acute mixing zone extends 22.8 feet in any direction from any discharge port.

Outfall 002 (west diffuser): The acute mixing zone extends 22.1 feet in any direction from any discharge port.

Ecology determined the dilution factors that occur within these zones at the critical condition using CH2M Hill's *Outfall Dilution & Temperature Study* dated January 20, 2004.

Ecology requested an additional analysis to account for the effects of tidal reflux on the dilution factors. CH2M Hill prepared the *Addendum – Outfall Dilution & Temperature Study for the Weyerhaeuser Longview Mill Outfalls 001 & 002* dated May 23, 2014. The revised dilution factors are listed below.

Table 13 Dilution Factors (DF) Outfall 001 (East Diffuser)

Criteria	Acute	Chronic
Aquatic Life	16.0	104.5
Human Health, Carcinogen		104.5
Human Health, Non-carcinogen		104.5

Table 14 Dilution Factors (DF) Outfall 002 (West Diffuser)

Criteria	Acute	Chronic
Aquatic Life	27.8	97.5
Human Health, Carcinogen		97.5
Human Health, Non-carcinogen		97.5

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

Dissolved Oxygen--BOD_5 and Ammonia Effects--Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The 5-day Biochemical Oxygen Demand (BOD_5) of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. The amount of ammonia-based nitrogen in the wastewater also provides an indication of oxygen demand in the receiving water.

With technology-based limits, this discharge results in a small amount of BOD_5 loading relative to the large amount of dilution in the receiving water at critical conditions. Technology-based limits will ensure that dissolved oxygen criteria are met in the receiving water.

pH--Ecology predicts no violation of the pH criteria under critical conditions. Therefore, the proposed permit includes technology-based effluent limits for pH.

Turbidity--Ecology evaluated the impact of turbidity based on the range of turbidity in the effluent and turbidity of the receiving water. Based on visual observation of the facility's effluent, Ecology expects no violations of the turbidity criteria outside the designated mixing zone for Outfall 003E (Clean Water Sump).

A discharge benchmark with required corrective actions for turbidity has been developed for the stormwater discharge from Outfall 002E. A benchmark with required corrective actions is considered to be equivalent to a limit and is considered to be appropriate for this discharge since it will be combined with other stormwater discharges prior to discharge to the receiving water. This benchmark is based on the 95th percentile turbidity value for the Columbia River and the water quality standards, which was calculated to be 42 NTUs.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants are present in the discharge from Outfall 001E to the Nippon Dynawave Industrial Treatment Plant: chlorine, nitrate, chloroform, bromoform, and ammonia.

The following toxic pollutants are present in the discharge from Outfall 002E: nitrate-nitrite, ammonia, copper, lead, and zinc. The following toxic pollutants are present in the discharge from Outfall 003E: chlorine, nitrate-nitrite, ammonia, copper, lead, mercury, and zinc. Ecology conducted a reasonable potential analysis for the discharges from Outfalls 002E and 003E (See **Appendix D**) on these parameters to determine whether it would require effluent limits or benchmarks in this permit.

Valid ambient background data were available for nitrate-nitrite, copper, lead, zinc, and hardness (See Table 2). Ecology used all applicable data to evaluate reasonable potential for this discharge to cause a violation of water quality standards.

For Outfall 002E, Ecology determined that nitrate-nitrite, ammonia, and chlorine pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (**Appendix D**) and as described above. For Outfall 003E, Ecology determined that chlorine, nitrate-nitrite, ammonia, copper, lead, mercury, and zinc pose no reasonable potential to exceed the water quality criteria at the critical condition (**Appendix D**). Ecology's determination assumes that this facility meets the other effluent limits of this permit.

Ecology derived effluent benchmarks with required corrective actions for the toxic pollutants determined to have a reasonable potential to cause a violation of the water quality standards from Outfall 002E (copper, lead, and zinc). See Turbidity section above for a discussion regarding the use of benchmarks for this discharge. Because the discharge from Outfall 002E is stormwater that has not been evaluated by a mixing zone study to establish a mixing zone, the discharge benchmarks were conservatively developed using the water quality standards for each pollutant (**Appendix D**).

The resultant effluent limits are as follows:

- Copper – average monthly limit of 7.6 micrograms per liter (µg/L)
- Lead – average monthly limit of 25.4 µg/L
- Zinc – average monthly limit of 55.8 µg/L

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 (September 15 to June 15)
- 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.

Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. 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

Data Collection Required: Ecology does not have sufficient information on the temperature of the effluent or the receiving water to determine compliance with water quality criteria for temperature. The proposed permit requires Eagle US 2 to monitor effluent water temperature from Outfall 003E and report the results to Ecology. Discharges from Outfall 002E consist of stormwater and are unlikely to have elevated temperatures. Outfall 001E discharges to the Nippon Dynawave Industrial Treatment Plant. Therefore, temperature monitoring is not required for Outfalls 001E and 002E.

H. Human Health

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

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

Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and Ecology's *Permit Writer's Manual* to make a reasonable potential determination. The evaluation showed that the discharges have no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed.

I. Sediment Quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website, ***https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups***

Ecology could not determine the potential for this discharge to cause a violation of sediment quality standards. If in the future Ecology determines a potential for violation of the sediment quality standards, Ecology may issue an order requiring Eagle US 2 to demonstrate either:

- The point of discharge is not an area of deposition, or
- Toxics do not accumulate in the sediments even though the point of discharge is a depositional area.

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). Stormwater discharges from Outfall 002E enter Nippon Dynawave's Outfall 001/002 ditch approximately 250 feet away from the Columbia River. During heavy rain events, the ditch is saturated and stormwater flows to the Columbia River. When the soil in the ditch isn't saturated stormwater, discharges from Outfall 002E infiltrate into the 001/002 ditch. Ecology's *Implementation Guidance for the Ground Water Quality Standards* (revised 2005) indicates that stormwater discharges are typically considered to have a potential to contaminate groundwater.

Ecology determined Eagle US 2's discharge from Outfall 002E does not have potential to cause a violation of the groundwater quality standards. However, the discharge has not been monitored for all of the pollutants of concern included in the *Implementation Guidance for the Ground Water Quality Standards*. Additionally, the following pollutants are present in the discharge from Outfall 002E and have groundwater quality standards: copper, lead, nitrates, and zinc.

The proposed permit includes the following conditions to protect groundwater:

- required BMPs to reduce the potential of stormwater contamination
- discharge benchmarks for copper, zinc, lead, and oil and grease
- monitoring for chloride, total dissolved solids, e. coli, and the parameters listed above with discharge benchmark values.

K. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters.

Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in WAC 173-205-040, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

L. Comparison of Effluent Limits with the Previous Permit Issued on November 25, 2009

The previous permit included effluent limits for Outfall 001E. No effluent limits or benchmarks were established for the discharges from Outfalls 002E and 003E in the previous permit. No changes to the effluent limits for Outfall 001E are proposed.

Table 15 Comparison of Previous and Proposed Effluent Limits – Outfall 001E

		Previous Effluent Limits	Proposed Effluent Limits
Parameter	**Basis of Limit**	**Daily Maximum**	**Daily Maximum**
Chlorine, Total Residual	Technology	100 mg/L	100 mg/L

Parameter	Basis of Limit	Daily Minimum	Daily Maximum	Daily Minimum	Daily Maximum
pH	Technology	5.0 su	12.0 su	5.0 su	12.0 su

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 S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Special Condition S2 of the initial SWDP allowed for Total Residual Chlorine (TRC) to be monitored continuously using an Oxidation-Reduction Potential (ORP) meter and an approved ORP vs. TRC calibration curve. The facility submitted calibration curves for various pH values to Ecology on August 21, 2006.

The facility established ORP and pH set-points based on 75% of the 10 part per million TRC concentration calibration curve. When wastewater exceeds the set-points the auto-diversion system closes the discharge valve and diverts wastewater to the treatment tanks for further treatment. The proposed permit includes requirements for requesting this alternative monitoring method and for maintaining continuous compliance with the TRC limit while utilizing the alternative monitoring method. The alternative monitoring approved during the previous permit cycle will remain in effect until March 1, 2020 to provide time for the Permittee to develop and submit the required information for alternative monitoring. If the auto-diversion system fails, Eagle US 2 must immediately conduct TRC monitoring to determine compliance with the TRC limit. Eagle US 2 is required to submit information to Ecology with the Discharge Monitoring Report (DMR) for the month if the auto-diversion system fails.

B. Lab Accreditation

Ecology requires that facilities use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters). Ecology accredited the laboratory at this facility for: TSS, total residual chlorine, and pH.

Table 16 Accredited Parameters

Parameter Name	Category	Method Name	Matrix Description
Solids, Total Suspended	General Chemistry	SM 2540 D-2011	Non-Potable Water
Chlorine (Residual), Total	General Chemistry	SM 4500-CL G-2011	Non-Potable Water
pH	General Chemistry	SM 4500-H+ B-2011	Non-Potable Water

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. Operation and Maintenance Manual

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

C. Solid Waste Control Plan

Eagle US 2 could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

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

D. 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.

E. Spill Plan

This facility stores 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].

Eagle US 2 developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The initial Spill Plan was submitted to Ecology on May 11, 2010. The proposed permit requires the facility to update this plan and submit it to Ecology.

F. Stormwater Pollution Prevention Plan (SWPPP)

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 Eagle US 2 must develop a 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 manage those sources of contamination to prevent or minimize contamination of stormwater. Eagle US 2 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.

Best Management Practices (BMPs)

BMPs are the actions identified in the SWPPP to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. Eagle US 2 must ensure that its SWPPP includes the operational and structural source control BMPs listed as "applicable" in Ecology's stormwater management manuals. Many of these "applicable" BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

Ecology-Approved Stormwater Management Manuals

Consistent with RCW 90.48.555 (5) and (6), the proposed permit requires the facility to implement BMPs contained in the Stormwater Management Manual for Western Washington (*2005* edition), or any revisions thereof, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology. This should ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under 40 CFR 125.3. The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manual's, including: the technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected, an assessment of how the BMPs will satisfy AKART requirements, and the applicable technology-based treatment requirements under 40 CFR 125.3.

Operational Source Control BMPs

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

Structural Source Control BMPs

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

Treatment BMPs

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

Volume/Flow Control BMPs

Ecology recognizes the need to include specific BMP requirements for stormwater runoff quantity control to protect beneficial water uses, including fish habitat. New facilities and existing facilities undergoing redevelopment must implement the requirements for peak runoff rate and volume control identified by Volume 1 of the *Western Washington SWMM*. Chapter 3 of Volume 3 *Western Washington* lists BMPs to accomplish rate and volume control. Existing facilities in western Washington should also review the requirements of Volumes 1 (Minimum Technical Requirements) and Chapter 3 of Volume 3 in the *Western Washington SWMM*. Although not required to implement these BMPs, controlling rate and volume of stormwater discharge maintains the health of the watershed. Existing facilities should identify control measures that they can implement over time to reduce the impact of uncontrolled release of stormwater.

Bacteria Contamination Reduction BMPs

The Columbia River is impaired for bacteria near the discharge location for Outfall 002E. Bacteria has not been monitored in the discharge from Outfall 002E during previous permit cycles. Eagle US 2 must implement BMPs to reduce the potential for bacteria contamination in the stormwater discharge. BMPs include inspections to identify potential cross-connections of the stormwater system and the sanitary sewer and source control BMPs to address potential sources of bacterial contamination.

Benchmark Exceedance Corrective Actions

Eagle US 2 must respond to all benchmark exceedances in accordance with the Level One, Level Two, or Level Three Corrective Actions, as defined in Special Conditions S1.B.a., b., and c., respectively. Eagle US 2 must conduct an inspection following a benchmark exceedance, review the SWPPP, make changes if necessary, and possibly install additional BMPs.

G. Prohibited Discharges

Ecology prohibits certain pollutants from being discharged to the privately owned treatment works. These include substances which cause pass-through or interference, pollutants which may cause damage to the privately owned treatment works or harm to the privately owned treatment plant workers (chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (chapter 173-303 WAC).

H. Dilution Prohibited

Ecology prohibits the facility from diluting its effluent as a partial or complete substitute for adequate treatment to achieve compliance with permit limits.

I. Slug Discharge Plan

Ecology determined that Eagle US 2 has the potential for a batch discharge or a spill that could adversely affect the treatment plant, therefore the proposed permit requires a slug discharge control plan [(40 CFR 403.8 (f)(l)(iii)(B)(6) and (f)(2)(vi)].

J. Annual Stormwater Report

Eagle US 2 is required to submit an annual stormwater report. The report must summarize all corrective actions taken in response to benchmark exceedances at Outfall 002E during the previous year.

K. Dangerous Wastes – Permit by Rule Requirements

The proposed permit authorizes Eagle US 2 to treat dangerous wastes, generated onsite, at the wastewater treatment tanks under the permit by rule provisions of Chapter WAC 173-303-802(5). This authorization is limited to the onsite waste streams identified on the permit application and application amendments as approved by Ecology.

Effluent sampling and monitoring requirements established in the permit should adequately address the pollutants in the waste stream. Permit-by-rule provisions cover the identified waste streams as long as Eagle US 2 complies with the conditions of the NPDES permit and with the following dangerous waste requirements in Chapter 173-303 WAC, as required by WAC 173-303-802(5)(a), pertaining to:

- Notification and identification numbers
- Designation of dangerous wastes
- Performance standards
- General waste analysis
- Security
- Contingency plans and emergency procedures
- Emergencies

- Manifest system
- Operating record
- Facility reporting

M. 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 5 years.

VII. References for Text and Appendices

CH2M Hill

2004. *Outfall Dilution & Temperature Study Longview Mill Outfalls 001 & 002 Weyerhaeuser Company Longview, Washington.* January 20, 2004.

2014. Wilson, David. *Addendum – Outfall Dilution & Temperature Study for the Weyerhaeuser Longview Mill Outfalls 001 & 002.* Project Number 494844.01.01. May 23, 2014.

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.

McCaslin, Nichole D.

2010. *Spill and Slug Discharge Plan.* Equa-Chlor, Inc. May 11, 2010.

Ravander, David R.

2006. *Equa-Chlor wastewater ORP vs. Chlorine concentration calibration*. Equa-Chlor. August 4, 2006.

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.

July 2018. *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://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx)

Permit and Wastewater Related Information (https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance)

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.

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

Universal Dynamics

2004. *Engineering Report Proposed Wastewater Treatment Plant Equa-Chlor, LLC Longview, Washington.* UDA – 4432. May 2004.

2004. *Stormwater Pollution Prevention Plan (SWPPP) for Caustic Terminal Facility Equa-Chlor, LLC Longview, Washington.* UDA – 4393. January 2004.

Appendix A--Public Involvement Information

Ecology proposes to issue a permit to Eagle US 2, LLC. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice of Draft on July 9, 2019 in the Longview Daily News to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

Ecology published a document called *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, (360) 407-6355, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Industrial Section
PO Box 47600
Olympia, WA 98504-7600

The primary author of this permit and fact sheet is Kelsey Holbrook.

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 -- average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly (intermittent) discharge limit-- The average of the measured values obtained over a calendar months time taking into account zero discharge days.

Average monthly discharge limit -- The average of the measured values obtained over a calendar 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, hydro geologically, 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 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

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

Soluble BOD_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--Technical Calculations

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

Reasonable Potential Analysis:

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

Table 17 Stormwater (Outfall 002E) Reasonable Potential Analysis

		Dilution Factors:	Acute	Chronic
Facility	Eagle US 2	Aquatic Life	1.0	1.0
Water Body Type	Freshwater	Human Health Carcinogenic		1.0
Rec. Water Hardness	42.8 mg/L	Human Health Non-Carcinogenic		1.0

Pollutant, CAS No. & NPDES Application Ref. No.			**COPPER - 744058 6M Hardness dependent**	**LEAD - 7439921 7M Dependent on hardness**	**NITRATE/NITRITE (N)**	**ZINC- 7440666 13M hardness dependent**
Effluent Data	# of Samples (n)		78	78	78	78
	Coeff of Variation (Cv)		0.78	1.485	1.38	0.757
	Effluent Concentration, ug/L (Max. or 95th Percentile)		73.185	16.255		609.7
	Calculated 50th percentile Effluent Conc. (when n>10)		24.2		0.0645	186.5
Receiving Water Data	90th Percentile Conc., ug/L		1.8	0.034		3
	Geo Mean, ug/L		1.05		0.182	1.7
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	**7.649101621**	**25.35224299**	-	**55.76068914**
		Chronic	5.496655488	0.987940513	-	50.91796509
	WQ Criteria for Protection of Human Health, ug/L		1300	-	10000	1000
	Metal Criteria Translator, decimal	Acute	0.996	0.466	-	0.996
		Chronic	0.996	0.466	-	0.996
	Carcinogen?		N	N	N	N

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950		0.950
s	$s^2=\ln(CV^2+1)$		0.689	1.079		0.673
Pn	$Pn=(1\text{-confidence level})^{1/n}$		0.962	0.962		0.962
Multiplier			1.00	1.00		1.00
Max concentration (ug/L) at edge of…		Acute	72.892	7.575		607.261
		Chronic	72.892	7.575		607.261
Reasonable Potential? Limit Required?			**YES**	**YES**		**YES**

Table 18 Clean Water Sump (Outfall 003E) via Nippon Dynawave's Outfall 001 Reasonable Potential Analysis

		Dilution Factors:	Acute	Chronic
Facility	Eagle US 2	Aquatic Life	16.0	104.5
Water Body Type	Freshwater	Human Health Carcinogenic		104.5
Rec. Water Hardness	42.8 mg/L	Human Health Non-Carcinogenic		104.5

Pollutant, CAS No. & NPDES Application Ref. No.			**CHLORINE (Total Residual) 7782505**	**COPPER - 744058 6M Hardness dependent**	**LEAD - 7439921 7M Dependent on hardness**	**MERCURY 7439976 8M**	**ZINC- 7440666 13M hardness dependent**
Effluent Data	# of Samples (n)		8	13	12	2	13
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		0.07	27.3	4.3	0.06	204
	Calculated 50th percentile Effluent Conc. (when n>10)			12			126
Receiving Water Data	90th Percentile Conc., ug/L		0	1.8	0.0739	0	3
	Geo Mean, ug/L			1.059		0	1.708
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	19	7.6491	25.352	2.1	55.761
		Chronic	11	5.4967	0.9879	0.012	50.918
	WQ Criteria for Protection of Human Health, ug/L		-	1300	-	0.14	1000
	Metal Criteria Translator, decimal	Acute	-	0.996	0.466	0.85	0.996
		Chronic	-	0.996	0.466	-	0.996
	Carcinogen?		N	N	N	N	N

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950	0.950	0.950	0.950
s	$s^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.555
Pn	$Pn=(1\text{-confidence level})^{1/n}$		0.688	0.794	0.779	0.224	0.794
Multiplier			1.90	1.58	1.63	3.79	1.58
Max concentration (ug/L) at edge of…		Acute	0.008	4.371	0.273	0.012	22.865
		Chronic	0.001	2.194	0.104	0.002	6.042
Reasonable Potential? Limit Required?			**NO**	**NO**	**NO**	**NO**	**NO**

Table 19 Clean Water Sump (Outfall 003E) via Nippon Dynawave's Outfall 002 Reasonable Potential Analysis

		Dilution Factors:	Acute	Chronic
Facility	Eagle US 2	Aquatic Life	27.8	97.5
Water Body Type	Freshwater	Human Health Carcinogenic		97.5
Rec. Water Hardness	42.8 mg/L	Human Health Non-Carcinogenic		97.5

Pollutant, CAS No. & NPDES Application Ref. No.			**CHLORINE (Total Residual) 7782505**	**COPPER - 744058 6M Hardness dependent**	**LEAD - 7439921 7M Dependent on hardness**	**MERCURY 7439976 8M**	**ZINC- 7440666 13M hardness dependent**
Effluent Data	# of Samples (n)		8	13	12	2	13
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		0.07	27.3	4.3	0.06	204
	Calculated 50th percentile Effluent Conc. (when n>10)			12			126
Receiving Water Data	90th Percentile Conc., ug/L		0	1.8	0.0739	0	3
	Geo Mean, ug/L			1.059		0	1.708
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	19	7.6491	25.352	2.1	55.761
		Chronic	11	5.4967	0.9879	0.012	50.918
	WQ Criteria for Protection of Human Health, ug/L		-	1300	-	0.14	1000
	Metal Criteria Translator, decimal	Acute	-	0.996	0.466	0.85	0.996
		Chronic	-	0.996	0.466	-	0.996
	Carcinogen?		N	N	N	N	N

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950	0.950	0.950	0.950
s	$s^2=\ln(CV^2+1)$		0.555	0.555	0.555	0.555	0.555
Pn	$Pn=(1\text{-confidence level})^{1/n}$		0.688	0.794	0.779	0.224	0.794
Multiplier			1.90	1.58	1.63	3.79	1.58
Max concentration (ug/L) at edge of…		Acute	0.005	3.280	0.188	0.007	14.433
		Chronic	0.001	2.222	0.107	0.002	6.260
Reasonable Potential? Limit Required?			**NO**	**NO**	**NO**	**NO**	**NO**

Performance-Based Benchmarks

Benchmarks for Outfall 002E were established using DMR data reported to Ecology from December 2014 through and data reported in the permit applications. The 95th percentile of the data set was used to determine the average monthly benchmark values for BOD_5 and oil and grease.

Table 20 Performance-Based Benchmarks – Outfall 002E

	BOD_5	**Oil & Grease**
Mean, mg/L	3.11	3.25
Variance, mg/L	1.75	3.49
Average Monthly Limit, mg/L	**13.1**	**15.4**

Appendix E--Response to Comments

No comments were received.