Fact Sheet for NPDES Permit WA0039641

Mint Farm Generating Station

March 27, 2015

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 the Mint Farm Generating Station.

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 Mint Farm Generating Station, NPDES permit WA0039641, are available for public review and comment from March 27, 2015 until April 27, 2015. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Mint Farm Generating Station 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 will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

Summary

Mint Farm Generating Station is a 311 megawatt (MW) natural gas-fired turbine, combined cycle power generation facility owned by Puget Sound Energy. The facility is located at the Mint Farm Industrial Park in Longview, Washington. Mint Farm Generating Station utilizes a gas-fired combined cycle process to generate electrical energy from both a natural gas and a steam powered turbine. For the production of electrical energy, the facility uses water from on-site wells in the process for cooling. Processed water from blowdown from the cooling towers is discharged to the Columbia River through Weyerhaeuser Longview Outfall 001/002. Mint Farm Generating Station may optionally discharge to Weyerhaeuser Longview's wastewater treatment system for treatment and ultimate discharge through Weyerhaeuser Longview's Outfall 001/002.

Quantitative values of effluent limits for the pollutants oil and grease, total suspended solids (TSS), temperature (°C), chlorine (total residual), chromium, zinc, polychlorinated biphenyl compounds (PCBs), and pH are unchanged from the permit issued in 2005. The monitoring frequencies for TSS and Oil and Grease have been reduced from weekly to monthly.

The effluent limit for 126 priority pollutants (less chromium and zinc) remains unchanged, however Ecology has clarified that the effluent limit is for priority pollutants (less chromium and

zinc) in *chemicals used for cooling tower maintenance*. Compliance with the priority pollutant limit is demonstrated through an annual confirmation letter verifying chemicals used in cooling water maintenance and annual reporting of priority pollutant monitoring.

Whole Effluent Toxicity (WET) test results during the previous permit term require an acute WET limit and semi-annual sampling which have been included in the permit.

To be consistent with the Ecology's *Industrial Stormwater General Permit (2012)*, the frequency of stormwater inspections has been increased to monthly. Additionally, stormwater benchmarks have been established for the stormwater discharge to the private ditch which connects to Consolidated Diking Improvement District No. 1, Ditch No. 5.

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I. Introduction

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

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC)
- Water quality criteria for ground waters (chapter 173-200 WAC)
- Whole effluent toxicity testing and limits (chapter 173-205 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

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

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

II. Background Information

Table 1 General Facility Information

Facility Information	
Applicant:	Puget Sound Energy
Facility Name and Address	Mint Farm Generating Station 1200 Prudential Boulevard Longview, Washington 98632
Contact at Facility	Name: Mark Carlson Telephone #: (360) 353-7220
Responsible Official	Name: Ronald J. Roberts Title: Director of Thermal Resources Address: 10885 N.E. 4th Street, Bellevue, WA 98004 Telephone #: (425) 456-2442
Individual with Delegated Authority	Name: Mark Carlson Title: Plant Manager Address: 1200 Prudential Blvd, Longview, WA 98632 Telephone #: (360) 353-7220
Industry Type	Steam Electric Power Generator
Categorical Industry	40 CFR Part 423
Type of Treatment	Stormwater: Oil Water Separator and settling pond
SIC Codes	4911
NAIC Codes	221112
Facility Location (NAD83/WGS84 reference datum)	Latitude: 46.138311 Longitude: 122.985538
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Outfall 001/002 (Columbia River, river mile 63.5): Latitude: 46.129828 Longitude: 122.99307

Facility Information	
	Outfall 003 (Private Ditch to CDIDD No. 5): Latitude: 46.138467 Longitude: 122.984347

Permit Status	
Issuance Date of Previous Permit	September 15, 2005
Application for Permit Renewal Submittal Date	March 13, 2010
Date of Ecology Acceptance of Application	April 15, 2010

Inspection Status	
Date of Last Non-sampling Inspection Date	July 8, 2014

Figure 1 Facility Location Map

A. Facility Description

History

Mint Farm Generating Station operates and maintains a 311 megawatt (MW) natural gas-fired combined cycle electric generating plant with closed-loop cycle cooling at the Mint Farm Industrial Park in Longview, Washington. The project began operation in December 2007 under Wayzata Corporation ownership. Puget Sound Energy purchased Mint Farm Generating Station from Wayzata Corporation in December 2008. Ecology issued the current NPDES Permit No. WA0039641 on September 15, 2005.

Industrial Processes

The Mint Farm Generating Station is a year round, electric generation facility that began commercial operations in December 2007, and has an expected life of approximately 25 to 30 years.

The main industrial process at the facility is conversion of natural gas fuel to electricity. Natural gas is burned in a combustion turbine that drives an electric generator. The combustion turbine exhaust flows through a heat recovery steam generator (HRSG) producing high temperature, high pressure steam. The steam is delivered to a steam turbine where it drives a second electric generator. The facility condenses the spent steam from the steam turbine and recycles this high quality water. The facility includes an evaporative cooling tower for cooling the steam condenser.

Primary supply water is obtained from on-site groundwater wells owned by Mint Farm. Analytical data indicates that the water quality is excellent except for elevated quantities of certain metals. An alternate water source option is Weyerhaeuser's filtered water or Weyerhaeuser Sump B water, which is non-contact once through heat exchange effluent. Filter water is cooler than Sump B water, but it is nearly identical from a constituent standpoint. The facility uses supply water as cooling tower make-up, steam generator make-up, and for other uses. The Mint Farm Generating Station operates at three cooling cycles using groundwater from the on-site wells.

Process wastewater from the Mint Farm Generating Station consists primarily of blowdown from the cooling tower. The flow and chemical constituency of the process wastewater depends primarily on the source water and number of cooling tower concentration cycles used in the generation facility. The process wastewater discharges to either the Weyerhaeuser wastewater treatment plant or the Weyerhaeuser Outfall 001/002 as authorized by Weyerhaeuser NPDES Permit No. WA0000124.

Stormwater sheet flows across the site or flows into catch basins. The water passes through an oil-water separator prior to being discharged to Stormwater Management Pond 2A. Stormwater Management Pond 2A serves as treatment and detention for the Mint Farm Generating Station while the second serves the remaining industrial park. The water is then discharged to a private ditch which connects to Consolidated Diking Improvement District (CDID) Ditch No. 5. The previous permit allowed for non-stormwater discharges from vehicle wash water, dust control water, area wash-up water, equipment wash water, non-contact cooling water overflow, and emergency fire control water. These non-stormwater discharges were comingled with stormwater, creating a process water discharge. In

conversations with the Permittee, these non-stormwater discharges are not present at the facility, have been removed from the permit, and are no longer permitted. The stormwater is therefore regulated as stormwater and not process wastewater.

Discharge Outfall

The Mint Farm Generating Station discharges its wastewater into the Outfall 001/002 junction box where it is mixed with the treated effluent from the Weyerhaeuser Longview wastewater treatment plant, non-contact cooling water, and filter plant backwash prior to discharge. Mint Farm Generating Station is also approved to discharge wastewater into Weyerhaeuser Longview's wastewater treatment system for treatment.

Mint Farms NPDES Waste Discharge Permit authorizes the facility to discharge stormwater through Outfall 003 to the private ditch which connects to Consolidated Diking Improvement District No. 1, Ditch No. 5.

B. Description of the Receiving Water

The Mint Farm Generating Station discharges to the Columbia River and CDID Ditch No. 5. Other nearby point source outfalls include those belonging to Weyerhaeuser Longview, Longview Fibre Paper & Packaging (doing business as KapStone Kraft Paper Corporation), the Three Rivers Regional Wastewater plant, and the City of Rainier wastewater treatment plant. Significant nearby non-point sources of pollutants include livestock and silviculture runoff into the Cowlitz River which discharges into the Columbia River. There are no nearby drinking water intakes. Section III.E of this fact sheet describes any receiving waterbody impairments.

The ambient background data used for this permit includes the following USGS's *Water-Data Reports 14246900 Columbia River at Beaver Army Terminal, Near Quincy Oregon* dated 1994, 2006, 2007, 2009, 2010, and 2011. Additional ambient background data was obtained from Weyerhaeuser Longview's 2013 NPDES draft fact sheet.

Table 2 Ambient Background Data

Parameter	# of Samples	Value Used
Temperature (90th percentile annual 1-DADMax) [a]	--	20.96 ° C
pH (Maximum / Minimum) [b]	--	8.3 / 7.32 standard units
Dissolved Oxygen [c]	347	7.9 mg/L
Phosphorus, unfiltered [f]	24	0.05 mg/L as P
Sulfate, filtered [f]	24	9.21 mg/L
Fecal Coliform [e]	--	52.2/100 mL dry weather

Table 2 Ambient Background Data

Parameter	# of Samples	Value Used
Turbidity [f]	24	9.9 NTU (geometric mean)
Hardness [f]	24	40.5 mg/L as CaCO3 (10th percentile)
Alkalinity, filtered [f]	24	49.5 mg/L as CaCO3
Ammonia [f]	23	30 µg/L (90th percentile)
Aluminum, filtered [g]	7	7.82 µg/L (90th percentile)
Antimony [g]	7	0.09 µg/L (geometric mean)
Arsenic, filtered [f]	24	0.99 µg/L (90th percentile) 0.8 µg/L (geometric mean)
Boron, filtered [f]	24	9.9 µg/L (geometric mean)
Cadmium, filtered [g]	7	0.04 µg/L (90th percentile)
Chromium [f]	24	0.19 µg/L (90th percentile)
Copper, Total [f]	24	1.22 µg/L (90th percentile) 0.97 µg/L (geometric mean)
Iron, filtered [f]	24	66.4 µg/L (90th percentile) 31.2 µg/L (geometric mean)
Lead, Total [f]	24	0.7 µg/L (90th percentile) 0.3 µg/L (geometric mean)
Magnesium, filtered [f]	24	5000 µg/L (90th percentile)
Manganese [g]	7	1.4 µg/L (geometric mean)
Mercury [h]	6	0.005 µg/L (90th percentile) 0.0027 µg/L (geometric mean)
Nickel, filtered [f]	24	0.64 µg/L (90th percentile) 0.39 µg/L (geometric mean)

Table 2 Ambient Background Data

Parameter	# of Samples	Value Used
Selenium, filtered [f]	24	0.16 µg/L (90th percentile)
Zinc, Total [f]	24	4.36 µg/L (90th percentile)

[a] Ambient temperatures taken from Appendix A of CH2M Hill's *Outfall Dilution and Temperature Study, Longview Mill Outfalls 001 And 002, Weyerhaeuser Company, Longview, Washington, 2004.* The Upstream River Temperature Site (Station UP-1) located at RM 64.

[b] Maximum pH value taken from Integral Consulting's *Receiving Water Study, Weyerhaeuser Longview Mill, Longview, Washington, 2008.* Minimum pH value and Hardness taken from Appendix D, Table D-1 of CH2M Hill's *Outfall Dilution and Temperature Study, Longview Mill Outfalls 001 And 002, Weyerhaeuser Company, Longview, Washington, 2004.*

[c] Ambient dissolved oxygen value calculated from arithmetic mean of measurements recorded in Appendix B, Table B-8 and B-9 of CH2M Hill's *Outfall Dilution and Temperature Study, Longview Mill Outfalls 001 And 002, Weyerhaeuser Company, Longview, Washington, 2004.*

[d] Ambient values taken from Integral Consulting's *Receiving Water Study, Weyerhaeuser Longview Mill, Longview, Washington, 2008.*

[e] Ambient value taken from Ecology's *Fact Sheet for NPDES Permit WA0037788, Three Rivers Regional Wastewater Authority, 2007.*

[f] Percentile and geometric mean values calculated from USGS's *Water-Data Reports, 14246900 Columbia River at Beaver Army Terminal, Near Quincy, OR, 2010 and 2011.*

[g] Percentile value calculated from USGS's *Water-Data Reports, 14246900 Columbia River at Beaver Army Terminal, Near Quincy, OR, 2007.*

[h] Percentile and geometric mean value calculated from Washington State Department of Ecology's *Water Quality Monitoring, 28A100 Columbia River at Vancouver, WA 2007.*

C. Wastewater Characterization

The Mint Farm Generating Station reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the wastewater effluent discharged from the renewal application, priority pollutant scans, and 2013 DMR reports. Priority pollutants not listed in this fact sheet were not detected in the wastewater effluent. The wastewater effluent is characterized as follows:

Table 3 Wastewater Characterization

Parameter	Units	# of Samples	Average Value	Maximum Value
Biochemical Oxygen	mg/l	**1**	**ND**	**ND**

Table 3 Wastewater Characterization

Parameter	Units	# of Samples	Average Value	Maximum Value
Demand (BOD_5) [a]				
Chemical Oxygen Demand (COD) [a]	mg/l	**1**	**20.80**	**20.80**
Total Organic Carbon (TOC) [a]	mg/l	**1**	**8.38**	**8.38**
Total Suspended Solids (TSS) [b]	mg/l	**12**	**ND**	**ND**
Ammonia (as N) [a]	mg/l	**1**	**0.066**	**0.066**
Chlorine, Total Residual [b]	mg/l	**53**	**0.11**	**0.22**
Color [a]	CU	**1**	**15**	**15**
Fluoride [a]	mg/l	**1**	**0.39**	**0.39**
Nitrate-Nitrite (as N) [a]	mg/l	**1**	**0.254**	**0.254**
Nitrogen, Total Organic (as N) [a]	mg/l	**1**	**1.13**	**1.13**
Oil and Grease [b]	mg/l	**53**	**ND**	**ND**
Phosphorus, Total (as P) [a]	mg/l	**1**	**1.94**	**1.94**
Sulfate (as SO_4) [a]	mg/L	**1**	**178**	**178**
Aluminum, Total [a]	µg/l	**1**	**16.6**	**16.6**
Barium, Total [a]	µg/l	**1**	**33.7**	**33.7**
Boron, Total [a]	µg/l	**1**	**44.6**	**44.6**
Cobalt, Total [a]	µg/l	**1**	**0.22**	**0.22**
Iron, Total [a]	µg/L	**1**	**941**	**941**
Magnesium, Total [a]	µg/l	**1**	**17400**	**17400**

Table 3 Wastewater Characterization

Parameter	Units	# of Samples	Average Value	Maximum Value
Molybdenum, Total [a]	µg/l	**1**	**3.2**	**3.2**
Manganese, Total [a]	µg/l	**1**	**3.2**	**3.2**
Titanium, Total [a]	µg/l	**1**	**2.8**	**2.8**
Antimony, Total [c]	µg/l	**10**	**0.99**	**1.68**
Arsenic, Total [c]	µg/l	**10**	**16.85**	**21.9**
Cadmium, Total [c]	µg/l	**10**	**0.03**	**0.04**
Chromium, Total [c]	µg/l	**10**	**0.66**	**0.9**
Copper, Total [c]	µg/l	**10**	**0.8**	**1.7**
Lead, Total [c]	µg/l	**10**	**0.08**	**0.29**
Nickel, Total [c]	µg/l	**10**	**1.7**	**3.2**
Silver, Total [c]	µg/l	**10**	**0.01**	**0.04**
Zinc, Total [c]	µg/l	**10**	**6.3**	**17**
Phenolics, Total [c]	mg/l	**10**	**0.02**	**0.08**

Parameter	Units	# of Samples	Maximum Monthly Geometric Mean	Maximum Weekly Geometric Mean
Fecal Coliform [a]	mpn/100ml	**1**	**ND**	**ND**

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH [b]	standard units	**365**	**5.56**	**8.96**

Parameter	Units	# of Samples	Minimum Value	Maximum Value
Temperature [b]	°C	**180**	**N/A**	**23**

[a] *Mint Farm Permit Renewal Application Analytical Information*, received April 2, 2010

[b] Mint Farm Discharge Monitoring Reports, 2013

[c] Priority Pollutant Scans, 2009 - 2013

D. Summary of Compliance with Previous Permit Issued

Mint Farm Generating Station has been in overall compliance with the effluent limits and permit conditions throughout the duration of the permit issued on September 15, 2005**.** One numeric violation of the pH limit at Outfall 003 occurred on February 2, 2013.

Ecology assessed facility compliance based on its review of the facility's Discharge Monitoring Reports (DMRs). As can happen with new permits, there was some confusion after the issuance date on whether the facility was required to submit a DMR to Ecology when all discharges were going into the Weyerhaeuser Longview facility's industrial wastewater treatment system. The DMR submittals were quickly resolved. The Permittee has properly submitted DMRs and has complied with its permit.

On January 31, 2008, the facility collected samples from the Mint Farm Generation cooling tower discharge line to verify pollutant levels were below permit limits before aligning the site's effluent discharge to Outfall 001/002. The facility measured an arsenic concentration of 15 µg/l. On March 6, 2008, it took samples from the cooling tower basin, well pump "A" discharge, well pump "B" discharge, and the influent supply system from Weyerhaeuser Longview. The results of these samples were 6.2 µg/l, 4.7 µg/l, and non-detect, respectively. Discharge limits specified in the existing permit section S.1, paragraph A.1 for priority pollutants less chromium and zinc is "no detectable amount." However, based on the arsenic levels of the well water make-up supply to the cooling tower, higher arsenic levels from the cooling tower are not unexpected or unusually high. As the water evaporates, the concentration of the metals in the cooling water will increase. Mint Farm noted in its application that it did not add the detected arsenic. A letter from Ecology on September 24, 2008, based on this analysis noted that in footnote "d" in condition S.1 A.1 of the expired permit, "…the Permittee may also demonstrate compliance by comparing influent mass to effluent mass, to document that the detected pollutant(s) were not added by the Permittee." The letter noted this was the case for the arsenic detection, and although Ecology did not modify the permit at the time, it acknowledged that the Mint Farm was in compliance with their NPDES permit in regards to arsenic.

Table 4 Permit Violations

Begin Date	Monitoring Point	Parameter	Statistical Base	Units	Value	Limit Min/Max	Violation
2/1/2013	003	pH	Minimum	Standard Units	5.45	6.0	Numeric Effluent Violation

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

Table 5 Submittals

Submittal Type	Submittal Name	Permit Section	Due Date	Received Date
Application for Permit Renewal	Application for Permit Renewal	G7	4/15/2010	4/15/2010
Toxicity – Acute	Acute Toxicity Characterization	S7	5/14/2009	5/14/2009
Toxicity – Chronic	Chronic Toxicity Characterization	S8	1/8/2009	1/8/2009
Toxicity – Acute	Acute Toxicity Characterization	S7	1/8/2009	1/8/2009
Toxicity – Acute	Acute Toxicity Characterization	S7	9/8/2008	9/8/2008
Toxicity – Acute	Acute Toxicity Characterization	S7	8/8/2008	8/8/2008
Toxicity – Chronic	Chronic Toxicity Characterization	S8	8/8/2008	8/8/2008
Spill Prevention Plan	Spill Prevention Plan	S6	6/12/2008	8/11/2008
Solid Waste Control Plan	Solid Waste Control Plan	S4.C	6/12/2008	1/27/2011

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 are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges.

III. Proposed Permit Limits

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

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Technology-Based Effluent Limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit.

The EPA has developed effluent guidelines for steam electric power generating point sources (40 CFR 423). New Source Performance Standards (NSPS) apply to the Mint Farm Generating Station. Separate effluent limits have been established for wastewater from cooling tower blowdown and wastewater from low volume waste sources. "Low volume

waste sources means, taken collectively as if from one source, wastewater from all sources expect those which specific limitations are otherwise established... Low volumes wastes sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recalculating house service water systems. Sanitary and air conditioning wastes are not included."

Mint Farm Generating Station did not report any low volume waste streams in their permit application. Effluent limits for total suspended solids (TSS) and oil and grease remain in the permit on a best professional judgment (BPJ) basis.

Federal regulations put effluent limits on the amount of free available chlorine to be discharged from the steam electric power generating point source category. The limits established in this permit are based on total residual chlorine which is more congruent with water quality standards. The total residual chlorine limit in this permit, established on a best-professional-judgment basis, is more conservative than the federal free available chlorine limit.

Table 6 Technology-based Limits for All Discharges

Parameter	Average Monthly Limit	Maximum Daily Limit
pH	6.0 standard units	9.0 standard units
Polychlorinated Biphenyl Compounds (PCBs)	Discharge prohibited	Discharge prohibited

Table 7 Technology-based Limits for Low Volume Waste Sources

Parameter	Average Monthly Limit	Maximum Daily Limit
Total Suspended Solids (TSS)	30.0 mg/l	100.0 mg/l
Oil and Grease	15.0 mg/l	20.0 mg/l

Table 8 Technology-based Limits for Cooling Tower Blowdown

Parameter	Average Monthly Limit	Maximum Daily Limit
Free Available Chlorine	0.2 mg/l	0.5 mg/l
126 Priority Pollutants contained in chemicals used for cooling water maintenance, not including Chromium and Zinc	No detectable amount	No detectable amount
Chromium, Total	0.2 mg/l	0.2 mg/l

Parameter	Average Monthly Limit	Maximum Daily Limit
Zinc, Total	1.0 mg/l	1.0 mg/l

Chlorine

The previous permit imposed an average monthly limit and maximum daily limit of 0.2 and 0.5 mg/l of "total residual chlorine." The federal effluent guideline calls for an average monthly limit and maximum daily limit of 0.2 and 0.5 mg/l of "free available chlorine." The previous limit on total residual chlorine is more restrictive and has been carried forward.

The federal effluent guidelines also prohibit the discharge of free available chlorine or total residual chlorine from any unit *for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination*. Mint Farm Generating Station provided a report to Ecology dated October 14, 2014 demonstrating that limiting the discharge of free available chlorine or total residual chlorine from any one unit to two hours per day was not feasible due to safety and operational concerns. Concerns cited included: significant increased risk of exposure to Legionella bacteria, premature failure of condenser tubes, and early replacement of tower fill. For this reason, Ecology has not placed a prohibition on the continuous chlorination at the facility.

Priority Pollutants

EPA's *Development Document for Final Effluent Limitations Guidelines, New Source Performance Standards, and Pretreatment Standards for the Steam Electric Point Source Category* dated November 1982, states (page 328) that," [t]he source of these priority pollutants are chemical additives used for corrosion, scaling, and biofouling control and asbestos fill material from the cooling towers. The only feasible technology for priority pollutant control is substitution of products not containing priority pollutants for products that do contain these pollutants."

Therefore, to satisfy the requirement that "priority pollutants contained in chemicals added for cooling water maintenance" are not discharged in detectable amounts, the Permittee must submit an annual certification stating that chemicals added for cooling water maintenance do not contain the priority pollutants of concern (Special Conditions S 12). If priority pollutants are contained in chemicals added for cooling tower maintenance, a mass balance must be performed to demonstrate that the use of particular maintenance chemicals will not result in detectable amounts of priority pollutants in the discharge. Chemicals and quantities used for cooling water maintenance must be reported to Ecology (Special Condition S12). An annual priority pollutant scan is required per Special Condition S2.

Stormwater Discharge Benchmarks

Stormwater discharge benchmarks for zinc and copper have been established for Outfall 003 at Mint Farm Generating Station. Benchmarks are not numeric effluent limitation; they are

indicator values. Although exceedance of a benchmark is not a violation, failure to comply with the prescribed actions following the exceedance of a benchmark value is a violation.

Weyerhaeuser Longview WWTP Discharge

Mint Farm Generation Station may optionally discharge to Weyerhaeuser Longview's wastewater treatment plant. The pretreatment standards for existing sources found in 40 CFR 423.16 were used to establish effluent limits on a best-professional-judgment (BPJ) basis.

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

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA, 1992). These criteria 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.

Mint Farm Generating Station is not a new facility but has the potential for expanded actions that would trigger a Tier II analysis. Ecology has defined expanded action as an increase (either monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a water body greater than 10%. The 10% increase is relative to established baselines which were in place when the Tier II guidance came into effect in 2003. Based on this guidance, Mint Farm Generating Station has not met the trigger which would require a Tier II analysis since it has not experience the above mentioned 10% increase.

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

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

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

Mixing zones

Mint Farm discharges their wastewater to the Weyerhaeuser Longview's existing Outfalls 001/002, whose mixing zone is authorized by Ecology in their NPDES permit (WA0000124). The following discussion about mixing zone and associated information are included to indicate the wastewater is discharged through a permitted outfalls referencing Weyerhaeuser Longview's facility.

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

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

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

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's *Permit Writer's Manual*). Each critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 5 means the effluent is 20% and the receiving water is 80% 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 liters/day for drinking water.
- 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, Figure 2).

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

Ecology has determined that the treatment provided at Mint Farm Generation Station meets the requirements of AKART (see "Technology-based Limits").

3. Ecology must consider critical discharge conditions.

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

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents, and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology'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/SummaryPages/92109.html.

There is no saltwater intrusion into the Columbia River that reaches as far as mile 63.5. However, the river is tidally influenced. Flood tides cause currents to decelerate and occasionally reverse near high water. Consequently, the Columbia River at mile 63.5 is classified as an estuary for the purposes of defining mixing zones. In the Mirant Corporation's *Cooling Tower Blowdown and Low Volume Waste Discharge to the Weyerhaeuser Outfall Diffuser* engineering report dated July 10, 2002, the dilution and mixing zone analysis was performed on a variety of discharge and environmental conditions. Various effluent flow rates, effluent temperatures, water sources, receiving water temperatures, and current speeds were evaluated using the EPA model UDKHDEN. In all, 24 modeling conditions were analyzed to determine the site-specific critical conditions.

For the Weyerhaeuser Longview NPDES permit renewal, Ecology requested an additional analysis to account for the effects of tidal reflux on the dilution factors. Weyerhaeuser Longview provided Ecology with a technical memorandum titled "*Addendum to Weyerhaeuser Longview Outfalls 001 & 002*" on May 27, 2014. The revised dilution factors took into account the reflux conditions which occur due to tidal influences. These revised dilution factors are used for the Mint Farm Generating Station and are considered representative of 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. Additional information regarding the Ecology WET evaluation can be found in Section I.

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.

Although Outfalls 001 and 002 run parallel to each other as they extend into the Columbia River, the end of east diffuser section and the beginning of the west diffuser section are separated by 300 feet. The modeling results show that the neither the plumes emanating from each diffuser (001 and 002) nor the adjacent plumes from Outfall 001 and 002 merge within the extent of the mixing zone sizes for each outfall. This indicates that within the overlapping mixing zones the concentrations at the edge of the mixing zone are unaffected and remain the same as for plumes outside the overlapping mixing zones.

C. 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 9 Freshwater Aquatic Life Uses and Associated Criteria

Salmonid Spawning, Rearing, and Migration	
Temperature Criteria – Highest 1-DAD MAX	• 1-day maximum (1-DMax) of 20.0 °C • When natural conditions exceed 1-DMax, no temperature increase will raise the receiving

Salmonid Spawning, Rearing, and Migration	
	water temperature by greater than 0.3 °C; nor shall such temperature increases, at any time, exceed 0.3C due to any single source or 1.1C due to all such activities.
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	To exceed 90 percent saturation
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 10 Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation	Fecal coliform 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 200 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.

D. Water Quality Impairments

Total maximum daily loads (TMDLs) have been established for the Columbia River for dioxin and total dissolved gas (TDG).

On February 25, 1991, the Environment Protection Agency (EPA) established a TMDL to limit discharges of dioxins to the Columbia River Basin (TMDL Document for Columbia River - Dioxin). The pollutant 2,3,7,8-TCDD is the most toxic of all the dioxins and therefore the TMDL was based on data describing concentration of 2,3,7,8-TCDD. To meet the water quality standard, EPA allocated point sources with discharge limits. Mint Farm

Generating Station had not been constructed at the time TMDL was established but is not a source of 2,3,7,8-TCDD; therefore Ecology did not propose a limit.

On November 18, 2002, the EPA established a TMDL to limit discharges of TDG (TMDL Document for Columbia River - Total Dissolved Gas). Elevated TDG levels are caused by four hydroelectric dams along the lower Columbia River. Water spilling from the dams entrains air causing the supersaturation of water with dissolved gases. Mint Farm Generating Station is not a source of TDG therefore Ecology did not propose a limit for TDG in this permit.

Ecology has documented 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.

The Consolidated Diking Improvement District Ditch No. 5 (CDID Ditch No. 5), which Mint Farm Generating Station discharges to through a private ditch and Outfall 003, is listed on the current 303(d) and is impaired for dissolved oxygen and fecal coliform. Chemical oxygen demand (COD) discharged from sources has a negative impact on dissolved oxygen levels. Based on an evaluation of the processes and analytical data, Mint Farm Generating Station is not a significant source of fecal coliform or COD, therefore no limits has been established. Monitoring of COD has been established to ensure that degradation of CDID Ditch No. 5 does not occur.

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

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

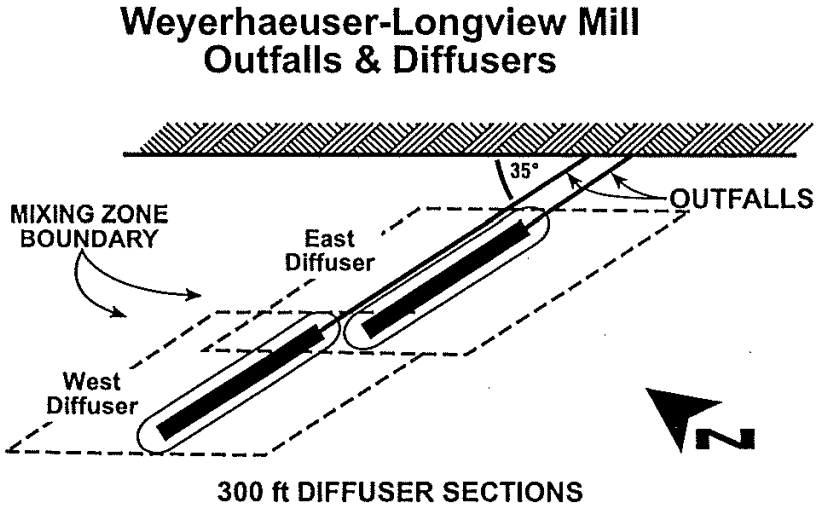
With technology-based controls (AKART), predicted pollutant concentrations in the discharge exceed water quality criteria. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones by chapter 173-201A WAC.

The diffuser at Outfall 001 is 320 feet long with a diameter of 54 inches. The diffuser has a total of 12 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 from the diffuser ports 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 at 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-foot 4-inch on center. The average depth of discharge from the diffuser ports 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 *Cooling Tower Blowdown and Low Volume Waste Discharge to the Weyerhaeuser Outfall Diffuser* engineering report dated July 10, 2002.

Figure 2 Outfalls 001/002 Diagram



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 top of the discharge ports to the water surface.

Outfall 002 (west diffuser): The horizontal distance of the chronic mixing zone is 221 feet. The mixing zone extends from the top of the discharge ports to the water surface.

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 for Outfall 001 extends 22.8 feet in any direction from any discharge port.

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

Ecology previously determined the dilution factors that occur within these zones at the critical condition using CH2M Hill's *Cooling Tower Blowdown and Low Volume Waste Discharge to the Weyerhaeuser Outfall Diffuser* dated July 10, 2002.

During the renewal of Weyerhaeuser Longview's NPDES permit, Ecology determined the dilution factors that occur within these zones at the critical condition using CH2M Hill's *Outfall Dilution and Temperature Study* dated January 20, 2004. UDKHDEN, a three-dimensional hydrodynamic model, was selected to characterize near-field dilution in the

study. Far-field dilution was modeled using the Brooks' method. Forty-eight combinations of parameters such as effluent flow rates and temperatures, receiving water temperatures, current speeds, discharge depth, and tidal effects were evaluated to determine dilution under critical (worst-case) conditions. Ecology requested an additional analysis to account for the effects of tidal reflux on the dilution factors. Weyerhaeuser Longview provided Ecology with a technical memorandum titled "*Addendum to Weyerhaeuser Longview Outfalls 001 & 002*" on May 27, 2014. The revised dilution factors took into account the reflux conditions which occur due to tidal influences. Ecology reviewed the revised dilution factors provided in the technical memorandum and has incorporated them into the Weyerhaeuser Longview permit. Because the outfalls of Weyerhaeuser Longview and Mint Farm generating station are shared, the revised worst-case dilution factors determined in the Weyerhaeuser Longview reanalysis have been included in this permit and are listed below.

Table 11 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 12 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 pH, chlorine, metals, other toxics, and temperature as described below, by using the dilution factors in the above table and by reviewing CH2M Hill's engineering report *Cooling Tower Blowdown and Low Volume Waste Discharge to the Weyerhaeuser Outfall Diffuser* dated July 10, 2002. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

pH--Ecology modeled the impact of the effluent pH on the receiving water using the calculations from EPA, 1988, and the chronic dilution factor tabulated above.

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 total suspended solids in the effluent and turbidity of the receiving water. No violations of the turbidity criteria are expected based on the low total suspended solids (TSS) loading.

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:

- Aluminum
- Ammonia
- Antimony
- Arsenic
- Cadmium
- Chlorine
- Chromium
- Copper
- Iron
- Lead
- Manganese
- Nickel
- Silver
- Zinc
- Phenol

Ecology reviewed CH2M Hill's *Cooling Tower Blowdown and Low Volume Waste Discharge to the Weyerhaeuser Outfall Diffuser* engineering report dated July 10, 2002. The engineering report included two separate reasonable potential analyses for Mint Farm Generating Station when using ground water supply and using Weyerhaeuser Longview filtered water supply.

Ecology conducted an updated reasonable potential analysis using updated effluent characterization data received from the facility and the updated mixing zone dilution factors. The effluent from Mint Farm Generating Station is mixed in the Outfall 001/002 junction box prior to discharge through both east and west diffusers. Each diffuser has acute and chronic dilution factors, the most conservative values for acute and chronic dilution factor were used in the reasonable potential analysis. Pollutants analyzed included: ammonia, aluminum, iron, arsenic, cadmium, chromium, copper, lead, nickel, zinc, chlorine, and phenol (**Appendix D**). Mercury and selenium were not detected in the wastewater characterization.

Ammonia's toxicity depends on that portion which is available in the unionized form. The amount of unionized ammonia depends on the temperature and pH in the receiving freshwater. To evaluate ammonia toxicity, Ecology used the available receiving water information for ambient United States Geologic Survey (USGS) station No. 14246900 (Columbia River at Beaver Army Terminal) and Ecology spreadsheet tools.

Ecology determined that aluminum, ammonia, arsenic, cadmium, chlorine, chromium, copper, iron, lead, mercury, nickel, selenium, silver, and zinc pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 and as described above. Ecology's determination assumes that this facility meets the other effluent limits of this permit.

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

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (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. The effluent does not exceed 33°C.

General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

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

Reasonable Potential Analysis

Annual summer maximum and incremental warming criteria: Ecology reviewed the reasonable potential analysis performed by CH2M Hill for the discharge to exceed the annual summer maximum and the incremental warming criteria (Table 13).

The discharge is only allowed to warm the water by a defined increment when the background (ambient) temperature is cooler or warmer than the assigned threshold criterion.

The incremental increase for this discharge is within the allowable amount. The current permit establishes an effluent temperature limit of 88° F; this limit will be carried forward.

Table 13 Summary of Temperature Effects and Dilution

	Core Summer Criteria	Supplemental Criteria
INPUT	July 1-Sept 14	Sept 15-July 1
1. Chronic Dilution Factor at Mixing Zone Boundary	97.5	97.5
2. 7DADMax Ambient Temperature (T) (Upstream Background 90th percentile)	21.0 °C	N/A
3. 7DADMax Effluent Temperature (95th percentile)	23.0 °C	N/A
4. Aquatic Life Temperature WQ Criterion in Fresh Water	17.5 °C	N/A
OUTPUT		
5. Temperature at Chronic Mixing Zone Boundary:	21.0 °C	N/A
6. Incremental Temperature Increase or decrease:	0.0 °C	N/A
7. Maximum Allowable Incremental Temperature Increase:	0.3 °C	N/A
8. Maximum Allowable Temperature at Mixing Zone Boundary:	21.3 °C	N/A
A. If ambient temp is warmer than WQ criterion		
9. Does temp fall within this warmer temp range?	YES	N/A
10. Temperature Limit if Required:	NO LIMIT	N/A
B. If ambient temp is cooler than WQ criterion but within $28/(T_{amb}+7)$ and within 0.3 °C of the criterion		
11. Does temp fall within this incremental temp. range?	---	---
12. Temp increase allowed at mixing zone boundary, if required:	---	---
C. If ambient temp is cooler than (WQ criterion-0.3) but		

within 28/(T_{amb}+7) of the criterion		
13. Does temp fall within this Incremental temp. range?	---	---
14. Temp increase allowed at mixing zone boundary, if required:	---	---
D. If ambient temp is cooler than (WQ criterion - 28/(T_{amb}+7))		
15. Does temp fall within this Incremental temp. range?	---	---
16. Temp increase allowed at mixing zone boundary, if required:	---	---
RESULTS		
17. Do any of the above cells show a temp increase?	**NO**	**N/A**
18. Temperature Limit if Required?	**NO LIMIT**	**N/A**

F. Human Health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the effluent may contain chemicals of concern for human health, based on the facility's status as an EPA major discharger, 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 discharge has no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed (Appendix D).

Arsenic--In 1992 the USEPA adopted risk-based arsenic criteria for the protection of human health for the State of Washington. The freshwater criterion is 0.018 µg/L, and is based on exposure from fish and shellfish tissue and water ingestion. The criteria has caused confusion in implementation because they differ from the drinking water maximum contaminant level (MCL) of 10 µg/L, which is not risk-based, and because the human health criteria is sometimes exceeded by natural background concentrations of arsenic in surface water and groundwater.

In Washington, when a natural background concentration exceeds the criterion, the natural background concentration becomes the criterion, and no dilution is allowed. This could result in a situation where natural groundwater or surface water used as a municipal or industrial source-water would need additional treatment to meet numeric effluent limits even though no arsenic was added as waste. Although this is not the case for all discharges, we do not have data at this time to quantify the extent of the problem.

A regulatory mechanism to deal with the issues associated with natural background concentrations of arsenic in groundwater-derived drinking waters is currently lacking. Consequently, the Water Quality Program, at this time, has decided to use a three-pronged strategy to address the issues associated with the arsenic criteria. The three strategy elements are:

1. Pursue, at the national level, a solution to the regulatory issue of groundwater sources with high arsenic concentrations causing municipal treatment plant effluent to exceed criteria. The revision of the drinking water MCL for arsenic offered a national opportunity to discuss how drinking water sources can affect NPDES wastewater dischargers, however Ecology was unsuccessful in focusing the discussion on developing a national policy for arsenic regulation that acknowledges the risks and costs associated with management of the public exposure to natural background concentrations of arsenic through water sources. The current arsenic MCL of 10 µg/L could also result in municipal treatment plants being unable to meet criteria-based effluent limits. Ecology will continue to pursue this issue as opportunities arise.

2. Additional and more focused data collection. The Water Quality Program will in some cases require additional and more focused arsenic data collection, will encourage or require dischargers to test for source water arsenic concentrations, and will pursue development of a proposal to have Ecology's Environmental Assessment Program conduct drinking water source monitoring as well as some additional ambient monitoring data. At this time, Washington NPDES permits will contain numeric effluent limits for arsenic based only on treatment technology and aquatic life protection as appropriate.

3. Data sharing. Ecology will share data with USEPA as they work to develop new risk-based criteria for arsenic and as they develop a strategy to regulate arsenic.

Oregon Water Quality Analysis

To ensure compliance with the applicable water quality requirements of all affected States [40 CFR 122.4(d)], Ecology has reviewed the reasonable potential analysis with respect to Oregon's water quality standards for the protection of human health. The analysis in Appendix D shows no reasonable potential of a violation of the Oregon water quality standards for the protection of human health.

G. 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. http://www.ecy.wa.gov/programs/tcp/smu/sediment.html

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

H. Groundwater Quality Limits

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

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

I. Whole Effluent Toxicity

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

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

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

WET testing conducted during the previous permit term showed the facility's effluent has a reasonable potential to cause **acute toxicity** in the receiving water. The proposed permit will include an acute toxicity limit. **The effluent limit for acute toxicity is: No acute toxicity detected in a test sample representing the acute critical effluent concentration (ACEC).** The acute critical effluent concentration (ACEC) is the concentration of effluent at the boundary of the acute mixing zone during critical conditions.

Compliance with an acute toxicity limit is measured by an acute toxicity test comparing test organism survival in the ACEC (using a sample of effluent diluted to equal the ACEC) to survival in nontoxic control water. Mint Farm Generating Station is in compliance with the acute toxicity limit if there is no statistically significant difference in test organism survival between the ACEC sample and the control sample.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water **chronic toxicity**. The proposed permit will not include a chronic WET limit. Mint Farm Generating Station must retest the effluent before submitting an application for permit renewal.

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit

modification, or in the permit renewal) require the facility to conduct additional effluent characterization

- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. Mint Farm Generating Station may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing after the process or material changes have been made.

Table 14 Acute Toxicity Test Results

Sample Collection Date	Species	Percent Survival	NOEC[a]	LC50[b]
6/16/2008	Daphnia magna	0	6.25	16
6/16/2008	Fathead minnow	98	100	>100
7/16/2008	Daphnia magna	100	100	>100
8/28/2008	Daphnia magna	100	100	>100
8/28/2008	Fathead minnow	100	100	>100
11/19/2008	Daphnia magna	100	100	>100
11/19/2008	Fathead minnow	100	100	>100
3/12/2009	Daphnia magna	100	100	>100
3/12/2009	Fathead minnow	100	100	>100

[a] No observed effect concentration (NOEC) is the highest concentration of effluent in a toxicity test shown to have no statistically significant adverse effect when compared to an appropriate control.

[b] Lethal concentration, 50% (LC50) is the effluent concentration estimated to cause death in fifty percent of the test organisms in a toxicity test.

Table 15 Chronic Toxicity Test Results

Sample Collection Date	Species	End Point	NOEC[a]	LOEC[b]
6/16/2008	Ceriodaphina dubia	7-day Survival	25	50
		Reproduction	25	50
6/16/2008	Fathead minnow	7-day Survival	100	>100
		Biomass	100	>100
		Weight	100	>100
11/19/2008	Ceriodaphina dubia	7-day Survival	100	>100
		Reproduction	100	>100
11/19/2008	Fathead minnow	7-day Survival	100	>100
		Biomass	25	50

Sample Collection Date	Species	End Point	NOEC[a]	LOEC[b]
		Weight	100	>100

[a] No observed effect concentration (NOEC) is the highest concentration of effluent in a toxicity test shown to have no statistically significant adverse effect when compared to an appropriate control.

[b] Lethal concentration, 50% (LC50) is the effluent concentration estimated to cause death in fifty percent of the test organisms in a toxicity test.

J. Comparison of Effluent Limits with the Previous Permit Issued

Additional stormwater benchmarks have been added to the stormwater discharge at outfall 003. Those stormwater benchmarks can be found in Special Condition S1.C of the permit.

Table 16 Comparison of Previous and Proposed Effluent Limits

Parameter	Basis of Limit	Previous Average Monthly	Previous Maximum Daily	Proposed Average Monthly	Proposed Average Weekly
		Outfall 001/002		Outfall 001/002	
Total Suspended Solids	Technology	30	100	30	100
Oil and Grease	Technology	15	20	15	20
Temperature	Technology	N/A	88	N/A	88
Total residual chlorine	Best Professional Judgment	0.2	0.5	0.2	0.5
Chromium	Technology	0.2	0.2	0.2	0.2
Zinc	Technology	1.0	1.0	1.0	1.0
126 Priority Pollutants contained in chemicals used for cooling water maintenance, not including chromium and zinc	Technology	N/A	No detectable amount	N/A	No detectable amount
pH	Technology	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.			
Free available/Total Residual Chlorine Discharges	Technology	0.2 mg/L	0.5 mg/L	0.2 mg/L	0.5 mg/L

Table 16 Comparison of Previous and Proposed Effluent Limits

Parameter	Basis of Limit	Previous Average Monthly	Previous Maximum Daily	Proposed Average Monthly	Proposed Average Weekly
Polychlorinated Biphenyl compounds (PCBs)	Technology	N/A	Discharge prohibited	N/A	Discharge prohibited
Acute Toxicity	Water Quality	No limit		No toxicity in test samples representing the Acute Critical Effluent Concentration (ACEC)	
Chronic Toxicity	Water Quality	No limit			

		Previous Effluent Limits: Outfall # 003		Proposed Effluent Limits: Outfall # 003	
Parameter	**Basis of Limit**	**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Average Weekly**
Oil and Grease	--	15	20	15	20
		Limit		**Limit**	
pH	--	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.			

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the methods and meets or exceeds the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

A. Wastewater Monitoring

Mint Farm Generating Station monitors for the pollutants listed under Special Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Reductions in wastewater monitoring are established by comparing the long term average (LTA) of monitoring results from the previous two years and comparing that value to the average monthly limit (AML). The ratio of the LTA to the AML is then used to establish a reduction in monitoring frequency based on Table 19. In a letter to Ecology dated January 11, 2012, Mint Farm Generating Station requested a reduction in monitoring frequency for TSS, Oil and Grease, and Total Residual Chlorine from weekly to monthly.

Further conversations between Ecology and Mint Farm Generating Station indicated that a reduction in chlorine monitoring was not necessary. Reductions in monitoring frequencies were determined by examination of performance during the two years preceding renewal. The amount of reduction was dependent upon the ratio of the long term average (LTA) and the average monthly limit (AML), see Table 15. Based on Ecology's examination of Mint Farm Generating Station's performance, the monitoring frequencies for TSS and Oil and Grease, have been reduced from weekly to monthly.

Table 17 Allowable Monitoring Frequency Reductions based on LTA:AML

Baseline Monitoring Frequency	Reduced Frequency (LTA:AML 75-66%)	Reduced Frequency (LTA:AML 65-50%)	Reduced Frequency (LTA:AML 49-25%)	Reduced Frequency (LTA:AML <25%)
7/week	5/week	4/week	3/week	1/week
6/week	4/week	3/week	2/week	1/week
5/week	4/week	3/week	2/week	1/week
4/week	3/week	2/week	1/week	1/week
3/week	3/week	2/week	1/week	1/week
2/week	2/week	1/week	2/month	1/month
1/week	1/week	1/week	2/month	1/ 2 months
2/month	2/month	2/month	2/month	1/quarter
1/month	1/month	1/month	1/quarter	2/year

Table 18 Mint Farm Generating Station Monitoring Frequency Reductions

Parameter	LTA	AML	LTA-AML Ratio	Previous Monitoring Frequency	Proposed Monitoring Frequency
TSS	4.0 [a]	30 mg/l	0.13	Weekly	1/month [c]
Oil and Grease	0 [b]	15 mg/l	0	Weekly	1/month

[a] For the purpose of calculating the LTA, non-detect values for pollutants which have been detected in other sampling events were assigned a value of one half the reporting limit.

[b] For the purpose of calculating the LTA, non-detect values for pollutants which have not been detected in other sampling events were assigned a value of zero.

[c] Due to a large variation in the data values for TSS, a monthly monitoring frequency has been proposed to capture more representative samples.

B. Lab Accreditation

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

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

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)].

C. Non Routine and Unanticipated Discharges

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 non-routine and unanticipated discharges 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.

D. Spill Plan

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

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

E. Stormwater Pollution Prevention Plan

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the proposed permit includes requirements for the development and implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that Mint Farm Generating Station 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 mange those sources of contamination to prevent or minimize contamination of stormwater. Mint Farm Generating Station 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. Mint Farm Generation Station 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 part 125.3. The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, 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 part 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* and chapter 2 in the *Eastern Washington SWMM* as applicable to their development. Chapter 3 of volume 3 *Western Washington SWMM* and chapter 6 in the *Eastern Washington SWMM* 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*. Chapter 2 (Core Elements for New Development and Redevelopment) in the *Eastern Washington SWMM* contains the minimum technical requirements for facilities east of the Cascades. 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.

F. Cooling Water Maintenance Chemical Reporting

Ecology is requiring an annual report to meet the technology-based limit on priority pollutants discharged. The annual report must include a list of cooling tower maintenance chemicals used during the year, the annual quantity used, the priority pollutant content of each chemical, and (if applicable) a mass balance demonstrating "no resultant priority pollutants in detectable amounts."

G. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. Permit Issuance Procedures

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwaters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

VII. References for Text and Appendices

Environmental Protection Agency (EPA)

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

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

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

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

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

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

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

Washington State Department of Ecology

December 2011. *Permit Writer's Manual*. Publication Number 92-109 (https://fortress.wa.gov/ecy/publications/SummaryPages/92109.html)

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

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

February 2007. *Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees,* Publication Number 07-10-024. http://www.ecy.wa.gov/pubs/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.)

Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to Mint Farm Generating Station. 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 March 27, 2015 in The 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 titled *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) 407-7563, 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 Shingo Yamazaki.

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 storm water 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 Method Detection Level.

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

Mixing Zone -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

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

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

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

Peak Instantaneous Design Flow (PIDF) -- The maximum anticipated instantaneous flow.

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

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

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop

photographic film or paper, and car washes).
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL) -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1,2,or 5) x 10^n, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

Reasonable Potential -- A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible Corporate Officer -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

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 storm water 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 on Ecology's homepage at http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.html.

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).

Facility	Mint Farm Generating Station
Water Body Type	Freshwater
Rec. Water Hardness	40.5 mg/L

Dilution Factors:	**Acute**	**Chronic**
Aquatic Life	16.0	97.5
Human Health Carcinogenic		97.5
Human Health Non-Carcinogenic		97.5

Pollutant, CAS No. & NPDES Application Ref. No.			**AMMONIA, Criteria as Total NH3**	**ALUMINUM, total recoverable, pH 6.5-9.0 7429905**	**ANTIMONY (INORGANIC) 7440360 1M**	**ARSENIC (dissolved) 7440382 2M**	**CADMIUM - 7440439 4M Hardness dependent**	**CHLORINE (Total Residual) 7782505**	**CHROMIUM(HEX) 18540299**	**COPPER - 744058 6M Hardness dependent**	**IRON 7439896**	**LEAD - 7439921 7M Dependent on hardness**	**MANGANESE 7439965**
Effluent Data	# of Samples (n)		1	1	10	10	10	53	10	10	1	10	1
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		66	16.6	1.68	21.9	0.04	220	0.9	1.7	941	0.29	3.2
	Calculated 50th percentile Effluent Conc. (when n>10)												
Receiving Water Data	90th Percentile Conc., ug/L		30	7.82		0.99	0.04	0	0.19	1.22	66.4	0.7	
	Geo Mean, ug/L				0.09					0.97	31.2		1.4
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	2,593	750	-	360	1.3892	19	15	7.2612	-	23.839	-
		Chronic	372	-	-	190	0.5281	11	10	5.2432	1000	0.929	-
	WQ Criteria for Protection of Human Health, ug/L		-	-	14	-	-	-	-	1300	300	-	50
	Metal Criteria Translator, decimal	Acute	-	-	-	1	0.943	-	0.982	0.996	-	0.466	-
		Chronic	-	-	-	1	0.943	-	0.962	0.996	-	0.466	-
	Carcinogen?		N	N	N	Y	N	N	N	N	N	N	N

Aquatic Life Reasonable Potential

Effluent percentile value		0.950	0.950		0.950	0.950	0.950	0.950	0.950	0.950	0.950	
s	$s^2=\ln(CV^2+1)$	0.555	0.555		0.555	0.555	0.555	0.555	0.555	0.555	0.555	
Pn	$Pn=(1\text{-confidence level})^{1/n}$	0.050	0.050		0.741	0.741	0.945	0.741	0.741	0.050	0.741	
Multiplier		6.20	6.20		1.74	1.74	1.00	1.74	1.74	6.20	1.74	
Max concentration (ug/L) at edge of…	Acute	54	13.761		3.309	0.042	13.750	0.274	1.328	426.8	0.671	
	Chronic	34	8.795		1.370	0.040	2.256	0.203	1.238	125.5	0.695	
Reasonable Potential? Limit Required?		**NO**	**NO**		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$			0.5545					0.5545	0.5545		0.5545
Pn	Pn=(1-confidence level)1/n			0.741					0.741	0.050		0.050
Multiplier				0.6986					0.6986	2.4895		2.4895
Dilution Factor				97.5					97.5	97.5		97.5
Max Conc. at edge of Chronic Zone, ug/L				0.1011					0.9722	54.907		1.4673
Reasonable Potential? Limit Required?				**NO**					**NO**	**NO**		**NO**

Facility	Mint Farm Generating Station
Water Body Type	Freshwater
Rec. Water Hardness	40.5 mg/L

Dilution Factors:	**Acute**	**Chronic**
Aquatic Life	16.0	97.5
Human Health Carcinogenic		97.5
Human Health Non-Carcinogenic		97.5

Pollutant, CAS No. & NPDES Application Ref. No.			**NICKEL - 7440020 9M - Dependent on hardness**	**PHENOL 108952 10A**	**ZINC- 7440666 13M hardness dependent**								
Effluent Data	# of Samples (n)		10	10	10								
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		3.2	80	17								
	Calculated 50th percentile Effluent Conc. (when n>10)												
Receiving Water Data	90th Percentile Conc., ug/L		0.64		4.36								
	Geo Mean, ug/L		0.39	0									
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	658.85	-	53.211								
		Chronic	73.171	-	48.59								
	WQ Criteria for Protection of Human Health, ug/L		610	21000	-								
	Metal Criteria Translator, decimal	Acute	0.998	-	0.996								
		Chronic	0.997	-	0.996								
	Carcinogen?		N	N	N								

Aquatic Life Reasonable Potential

Effluent percentile value		0.950		0.950								
s	$s^2=\ln(CV^2+1)$	0.555		0.555								
Pn	$Pn=(1\text{-confidence level})^{1/n}$	0.741		0.741								
Multiplier		1.74		1.74								
Max concentration (ug/L) at edge of…	Acute	0.947		5.928								
	Chronic	0.690		4.617								
Reasonable Potential? Limit Required?		**NO**		**NO**								

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$	0.5545	0.5545									
Pn	Pn=(1-confidence level)1/n	0.741	0.741									
Multiplier		0.6986	0.6986									
Dilution Factor		97.5	97.5									
Max Conc. at edge of Chronic Zone, ug/L		0.4089	0.5732									
Reasonable Potential? Limit Required?		**NO**	**NO**									

Appendix E--Response to Comments

Ecology received one set of comments regarding the draft NPDES permit for the Mint Farm Generating Station. The comments were from Puget Sound Energy. The comments and Ecology responses are included below.

PUGET SOUND ENERGY COMMENTS

1) Electronic Reporting of DMRs:

The proposed NPDES permit is requiring electronic Discharge Monitoring Reports (DMRs) to Ecology within the Water Quality Permitting Portal. This is a new process for providing DMRs and Mint Farm requests that the tabulated parameters required for reporting are prepared within the Portal in plenty of time in order for the facility to comply with the first electronic DMR reporting deadline on May 15, 2015.

Ecology Response to Comment:

Comment noted. Ecology will work to ensure that the transition to electronic reporting will be as smooth as possible. The electronic reporting deadline will be extended to August 15, 2015.

2) DMR Reporting Frequency:

The proposed NPDES permit is requiring DMR submittals on a Monthly, Quarterly, Semi-Annual, and Annual basis. The previous permit frequency was Monthly only and Mint Farm would like to continue with this frequency as including the other frequencies are redundant.

Ecology Response to Comment:

The electronic reporting system requires that DMRs be submitted based on reporting period and monitoring frequency. This is how the new electronic reporting system was built to receive data from all reporting industries.

The semi-annual reporting requirement has been removed because there is no DMR reporting due on a semi-annual frequency. There is a semi-annual submittal of acute WET test results.

3) Special Condition S1.D:

In S1.D. of the proposed NPDES permit, Weyerhaeuser Longview (WWTP) discharge effluent limits are included in the table along with reference to Special Conditions that are not included. We feel it would be better to include a footnote providing any Conditions that are currently listed.

Ecology Response to Comment:

In S1.D of the proposed permit, Special Conditions S.13 was referenced in err. The reference has been corrected to Special Condition S.12.

4) Consolidated Diking Improvement District Ditch Numbering:

S1.C of the proposed NPDES lists the Consolidated Diking Improvement Ditch as No. 5, we believe that should be No. 3.

Ecology Reponse to Comment:

Ecology's reviewed the CDID No. 1 ditch system maps and spoke with CDID No. 1 staff regarding the naming of the discharge ditch. CDID No. 1 staff confirmed that the stormwater discharges into private, unnamed ditch (with a predominate flow path to the south) which discharges into Ditch No. 5.

5) Fact Sheet Summary:

The Fact Sheet for the proposed NPDES permit includes a Summary that includes mention of Priority Pollutants compliance. We would like to include a statement this compliance will also be demonstrated by providing the annual confirmation letter verifying chemicals used in cooling water maintenance and through annual reporting of priority pollutant monitoring.

Ecology Response to Comment:

Ecology has updated the Fact Sheet summary.