FACT SHEET FOR WESTERN WOOD PRESERVING COMPANY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
WA0040738

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 Western Wood Preserving Company.

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

Ecology makes the draft permit and fact sheet available for public review and comment at least 30 days before issuing the final permit. Copies of the fact sheet and draft permit for Western Wood Preserving Company, NPDES permit WA 0040738, are available for public review and comment. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

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

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

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I. INTRODUCTION

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

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits [chapter 173-220 Washington Administrative Code (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 30 days (WAC 173-220-050). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

II. BACKGROUND INFORMATION

Facility Information

Facility Name and Address	Western Wood Preserving Company 1313 Zehnder Street Sumner, WA 98390
Industry Type	Wood Preserving (SIC2491, NAICS 321114)
Categorical Industry	40 CFR Part 429 Subcategory F
Type of Treatment	Outfall 001 (treated lumber storage basin area) – Bioretention Pond Outfall 002 (untreated lumber storage basin area) - Bioswale
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	White River via city of Sumner Storm Sewer Outfall 001(to City Storm) Latitude: 47.2093° N, Longitude: 122.2382° W Outfall 002 (to City Storm) Latitude: 47.2096° N, Longitude: 122.2357° W
Cooling Water Intakes	None
Permit Fee Category	Timber Products – Wood Preserving

Permit Status

Issuance Date of Previous Permit	August 4, 2010
Application for Permit Renewal Submittal Date	December 14, 2020
Date of Ecology Acceptance of Application	January 4, 2021

Inspection Status

Date of Last Non-sampling Inspection Date	August 16, 2019

A. Facility Description

Western Wood Preserving Company (WWPC) is located in Sumner, Washington. WWPC has been a producer of pressure treated wood products since 1971. The facility includes 12 acres of treatment and wood storage areas, drying and shipping areas, and produces preserved wood products for residential and commercial end uses to be sold to the wholesale market.

No process-related wastewater is discharged from the site; the only discharge is passively-treated stormwater into the city of Sumner storm sewer. The facility is divided into two distinct areas: one on each side of Pease Avenue which runs northerly to southerly through the facility (see Figure 1). The area east of Pease Avenue is the "white wood" area where only untreated wood is stored. The area west of Pease Avenue contains the storage area for treated wood, the preservative plant, and the process and handling systems for stacking and wrapping the preserved wood.

Figure 1 — Aerial Photo of Facility Location (GoogleMaps, 2021. Property Boundaries are Approximate).

Since the first issuance of WWPC's NPDES Permit in 1993, the facility has implemented the required Best Management Practices (BMPs), characterized the toxicity of the effluent, developed and practiced procedures in the Oil and Hazardous Material Spill Plan (OHMSP), and followed the guidelines of the Solid Waste Control Plan.

History

The facility first received its National Pollution Discharge Elimination System (NPDES) Permit for the discharge of stormwater from the site in 1993. The permit was appealed by WWPC and later modified in 1995.

The modified permit allowed for the discharge of pollutants at a higher concentration with due consideration of dilution in the city of Sumner storm sewer. Since the issuance of the Permit, the facility has implemented the required Best Management Practices (BMPs), characterized the toxicity of the effluent, developed a Stormwater Pollution Prevention Plan (SWPPP), Spill Plan, and a Solid Waste Control Plan. The facility has also constructed a lined pond with vegetation that is intended to provide some reduction of pollutants in the stormwater runoff from the treated wood storage area.

The US Environmental Protection Agency (EPA) announced a voluntary decision by industry to move consumer use of treated lumber products away from Chromated Copper Arsenate (CCA) pressure treated wood by December 31, 2003, in favor of new alternative wood preservatives. As of January 1, 2004, EPA does not allow CCA products to be used to treat wood intended for most residential settings. As a result, WWPC had added Alkaline Copper Quaternary (ACQ) as a wood preservative.

Effective in the fall of 2020, WWPC no longer uses ACQ due to the high demand for quat biocide by the hand sanitizer market, making it unavailable for other uses. WWPC now uses Copper Azole (CA) as the primary copper-based wood preservative. WWPC currently does not have plans to enlarge or change facility operations.

Wood Preservatives Used and Chemical Tank Farm

WWPC currently preserves wood using 4 preservative systems: FlamePRO fire retardant, Naturewood (CA), Advance Guard Borate, and CCA for industrial uses. All preservatives solutions are water-borne.

Some lumber is treated with a water-borne CA preservative consisting of copper ethanolamine complex. The CA solution is delivered via tanker truck to the site as a 33 percent solution, with a copper equivalent of 9.3 percent of the total solution, and 67 percent water.

Other lumber and plywood, in a much lesser quantity, is treated, for industrial use only, with a water-borne Type C CCA preservative delivered as a 60 percent solution strength, consisting of chromic acid (CAS 1333-82-0), arsenic acid expressed as As2O5 (CAS 7778-39-4), and cupric oxide (CAS 1317-39-1), and 40 percent water.

The tank farm unloading area is designed to contain the volume of one tanker truck. The tank farm containing the concentrated preservative and various dilutions is completely enclosed. A 10,000-gallon tank is used to store concentrated preservative while four 30,000-gallon tanks are used to store the preservatives at various concentrations.

The tanks have conical bottoms with drains to facilitate removal of any sediments. The tank farm also has two 20,000-gallon recovery tanks to store make-up water obtained from the kiln

condensate, drippage, and incidental rain in the drip pad area, and any rainwater collected in the retort area sumps. Spent solution, as well as any sediment laden tank bottoms, are filtered at the pump filter and the liquid is reused. The filtrate is collected and disposed of as hazardous waste. It is a completely closed system, releasing no spent water or liquid. Sulfuric acid is rarely used to change the pH of the preservative stored in the tank farm.

Industrial Process

Untreated wood is delivered to the facility by truck and stored in the eastern portion of the facility. Occasionally, lumber is also delivered via rail, which runs northerly and southerly immediately west of the covered drip pad. The eastern portion is also used for processing the lumber prior to treating. A forklift is dedicated to the area. Some of the untreated wood is stored in the open and some under cover. Approximately 60 percent of the wood is incised prior to treatment. This is done at the two incisors located north and west of the drip pad area.

Approximately 15 percent of the treated wood (only fire retardant-treated wood is kiln dried after treatment) is dried in the kiln located in the southwestern portion of the facility (in the area containing the treated wood storage area). Kiln condensate and boiler blowdown are pumped to a recovery tank located in the tank farm and reused.

The wood treatment process begins with delivery of untreated wood to the north entrance of the covered drip pad. An operator transfers the lumber to a tram using a forklift dedicated to the drip pad. The trams are sloped to the center sump which traverses the length of the drip pad. The tram loaded with lumber is allowed to enter the retort where a vacuum is applied. While under vacuum, the retort is filled with either the CCA or CA preservative. The vacuum is released and 110 pounds of pressure is applied to the wood. After the pressure period, the spent preservative is returned to the working tanks and a final vacuum is applied in the retort. Any excess preservative removed during the final vacuum is also returned to the working tanks and reused.

The pressurized wood treatment occurs using the two retorts at the facility. The process is completely automated and computerized with a PLC Controller. The computerized control includes filling and emptying of the retorts at set times and pressures in addition to assuring that only a certain mixture of the preservative is pumped from the preservative solution tanks.

The tank farm/retort area was constructed on a 71-pile foundation to make it earthquake proof. The concrete floor contains a plastic impermeable layer to prevent any unexpected migration of preservative to groundwater.

Treated wood from the retort is first stored in the drip pad area next to the retort. The drip pad area is fully roofed. The drip pad is certified annually by a professional engineer. Most of the drippage from the treated wood goes to a center drain, which is sloped to a dead-end sump located at the retort door. Retort sump sludge is placed into a 55-gallon drum which, when full, secured, and bolted shut, is moved into a hazardous waste storage area located in the southwest corner of the tankfarm building; which is covered, secured, and under alarmed security. Hazardous waste sludge is taken off site and disposed of by an authorized contractor within 90 days of generation. The drip pad area is bermed to prevent run-on and run-off of stormwater and treatment preservatives and residue.

All equipment used on the drip pad is dedicated to the area. Any equipment taken out for maintenance is triple-washed before exiting the area. As a rule, all personnel must wear protective rubber boot covers while working in the drip pad area.

Treated wood is taken from the trams and stored in the northeastern side of the drip pad to continue drying for anywhere between 3-14 days, or until drippage has ceased. This portion of the drip pad is sloped to the east to two steel-lined sumps which traverse the eastern portion of the drip pad. The fluid from the sump is automatically discharged to the recovery tank via a level actuated pump.

When treated wood is drip-free and dry, it is transferred to a storage area west of Pease Avenue. This is done via dedicated forklifts. Treated lumber is stored both under roof coverage as well as in the open. Treated lumber stored in the open is covered with water-resistant, plastic wraps to minimize contact with rain. Lumber stored under cover is taken directly to the Stacker for packaging.

WWPC produces over 30 million board feet per year of pressure treated lumber and plywood.

Stormwater Conveyance and Treatment Systems

Basin 001's (treated wood area's) stormwater conveyance system is comprised of 14 catch basins. Stormwater is routed to a bioretention pond for treatment and then discharges to the city of Sumner's stormwater system at Outfall 001. The bioretention pond is regularly maintained, and replanted to ensure its functionality.

Basin 002's (white wood area) stormwater conveyance system is comprised of 12 catch basins. Stormwater is routed to a bioswale and then discharges to the city of Sumner's stormwater system at Outfall 002. The bioswale is regularly maintained to ensure its functionality.

Best Management Practices and Permitting Strategy

WWPC uses Best Management Practices (BMPs) to minimize pollutants from their operations. Most of these BMPs are required to be used as part of their NPDES Permit requirements. The required BMPs are consistently required for all wood treating facilities in Washington State. All BMPs (both required and any additional BMPs) that WWPC implements are required to be specified and kept in their Stormwater Pollution Prevention Plan (SWPPP).

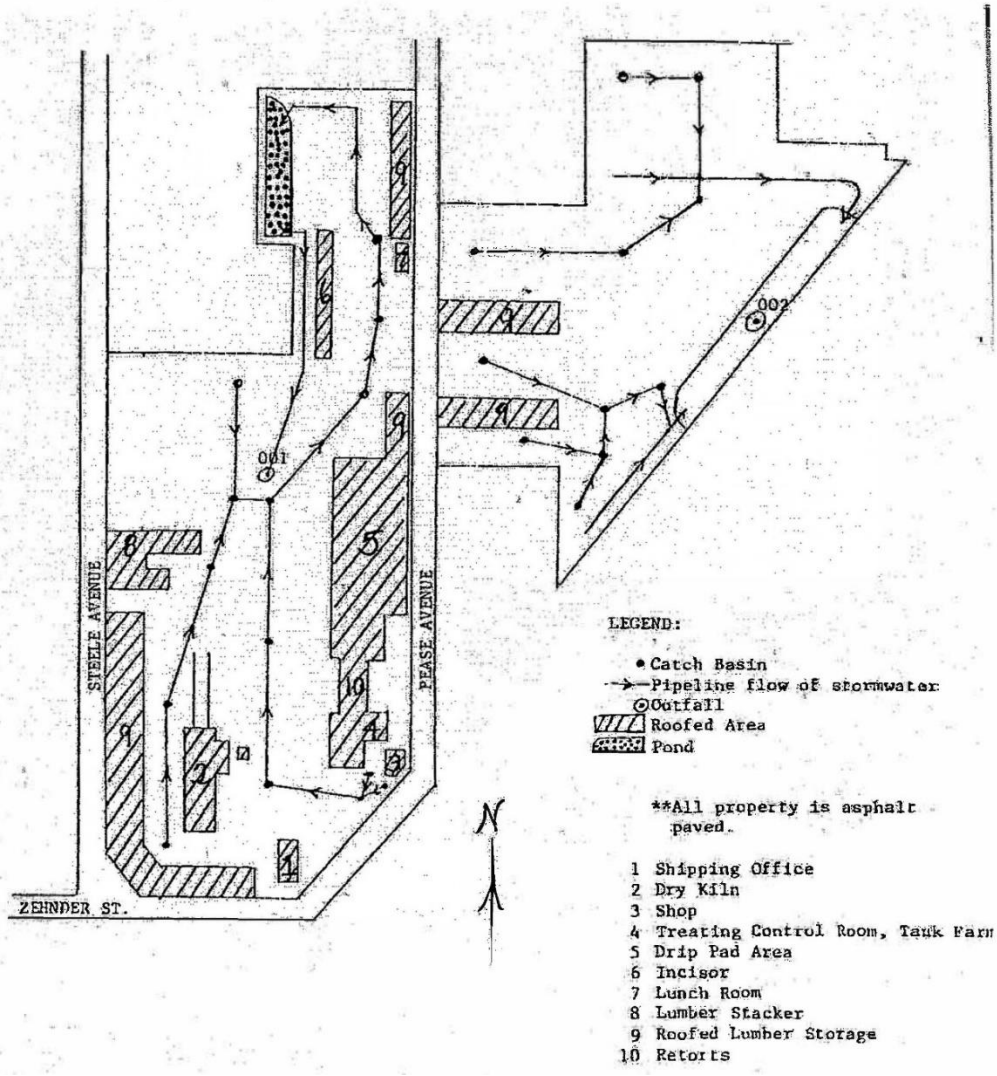
WWPC does a good job of implementing BMPs for source control. They work hard at managing their operations and maintaining a clean facility and site. They are always looking to find ways to improve to lower their pollutant impact and have had success so far in controlling pollutants through the use of BMPs and passive stormwater treatment (i.e. bioretention pond and bioswale). However, further improvements will be needed to consistently meet the copper water quality criteria.

In 2010, Ecology determined that the copper limit should be set at 90 µg/L to meet water quality criteria but allowed the limit to be set based on WWPC's performance data (at 127 µg/L). This was to provide WWPC the time to collect more information on new preservatives, development of BMPs and evaluate treatment technologies to address pollutants from wood treaters. Ecology

intended to re-evaluate the data and re-establish the lower copper limit based on water quality criteria when the permit was next renewed again.

Since 2010, WWPC has submitted a Mixing Zone Study. Ecology has approved the Study and re-calculated the copper limit using the approved, new dilution factors. Ecology establishes a new maximum daily copper limit of 97.1 µg/L in the accompanying permit. Based on DMR data from September 2010 through December 2020, WWPC would have exceeded the 97.1 µg/L copper limit two times (once in December 2014 for Outfall 001 (with a copper concentration of 127 µg/L) and once in December 2020 (with a copper concentration of 146 µg/L) for Outfall 001). Ecology believes WWPC can make improvements to reliably meet copper limits by implementing additional BMPs, or expanding upon existing BMPs, and optimizing and/or expanding their existing passive stormwater treatment systems.

Figure 2 — Site Plan Showing Stormwater Conveyance, Treatment, and Outfall Locations



Solid Wastes

WWPC follows and maintains a Solid Waste Control Plan. Solid waste is disposed at a landfill. Hazardous Waste solids is collected and disposed by a Contractor.

WWPC Discharge Outfalls 001 and 002

The facility discharges stormwater through two outfalls to a city of Sumner storm sewer, where the WWPC effluent mixes with stormwater runoff from roadways and other industrial facilities in an approximately one-half mile long sewer system before discharging to the White River at River Mile 1.1 through the city of Sumner Sessler Outfall. (Maul, Foster, Alongi, 2011).

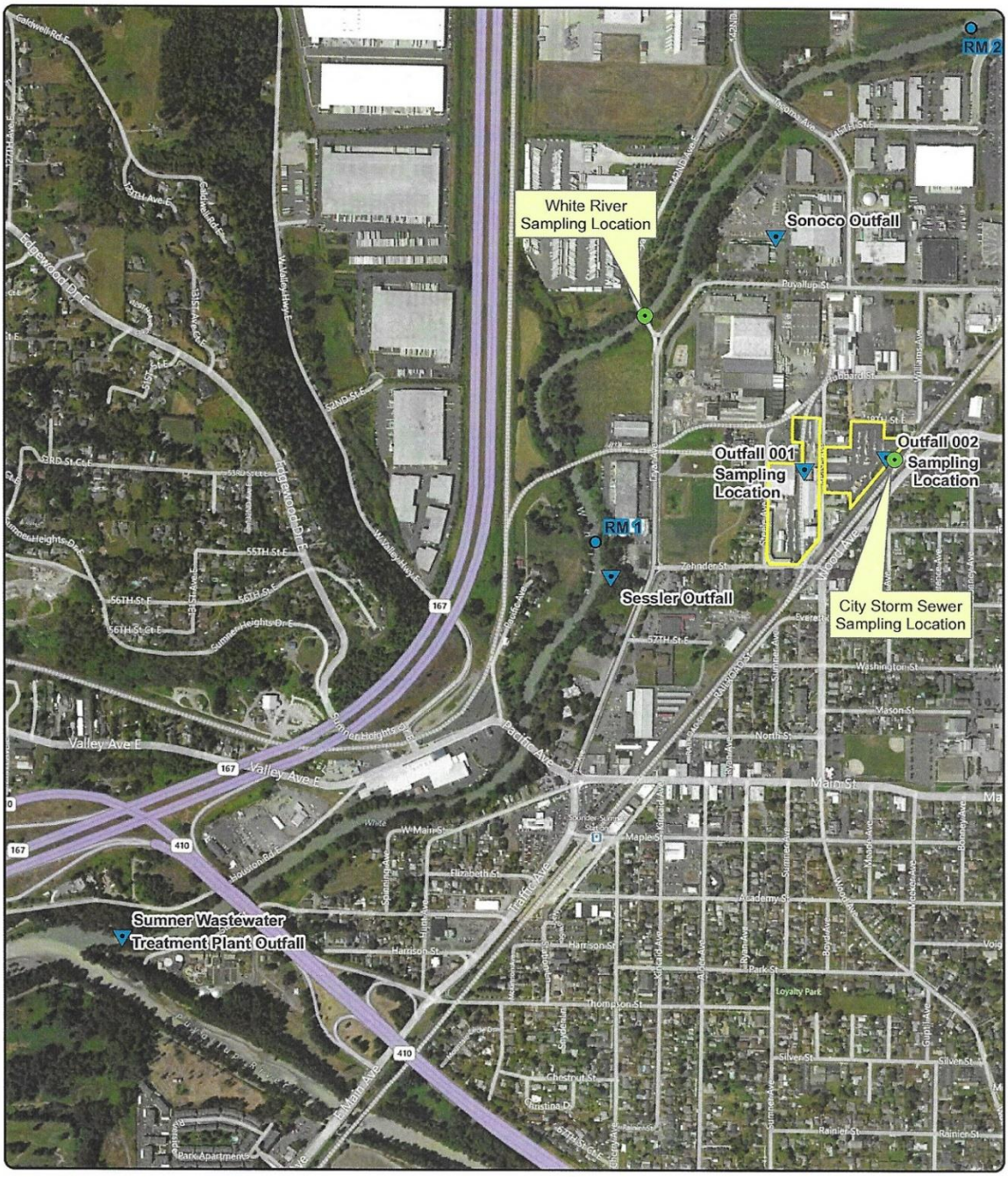
The two outfalls that exist on the site discharge stormwater runoff from two distinct drainage areas. Outfall 001 collects stormwater from the treated wood storage area west of Pease Avenue. Stormwater is collected via 14 catch basins (CBs) and is first directed to a lined vegetative pond (bioretention pond) before discharging into the city of Sumner's storm sewer. This drainage area is completely paved. The Basin 001 drainage area is approximately 294,649 square feet.

Outfall 002 collects stormwater from the "white wood" storage area east of Pease Avenue. Eleven CBs drain approximately 187,204 square feet of area and directs the flow to a bioswale which drains to the city of Sumner storm sewer at outfall 002. The drainage area is completely paved.

Cooling Water Intakes

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

Figure 3 — Map showing Locations of WWPC Outfalls and city of Sumner Sessler Outfall (Maul, Foster, Alongi, 2011)



B. Description of the Receiving Water

WWPC discharges to the city of Sumner stormwater system which ultimately discharges into the White River through the Sessler Outfall (see Figure 3). The Sessler Outfall is located at approximately river mile 0.9. There is approximately 0.5 miles of storm sewer between the city of Sumner's stormwater outfall to the White River and the location where WWPC's stormwater enters the city of Sumner's storm sewer.

Approximately 0.5 miles upstream are outfalls for Sonoco Products, Fleischmann's Vinegar, and another City stormwater outfall. Downstream by the confluence of the White River with the Puyallup River is the city of Sumner POTW outfall.

This stretch of the White River is protected for salmon rearing, spawning, and migration, primary contact recreation. 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. This stretch of the river is listed as impaired for temperature.

The ambient background data used for this permit is from the following sources: Western Wood Preserving Company Mixing Zone Study (December 2011), and River and Stream Water Quality Monitoring Report for Water Year 2003, July 2004 (Ecy. Pub. No. 04-03-031).

Ambient Background Data

Parameter	No. of Samples	Value Used
Hardness (agreed value in previous permit)	--	35 mg/L
Ammonia (90th percentile)	10	0.23 mg/L
Total Arsenic (90th percentile)	10	0.91 µg/L
Total Chromium (90th percentile)	10	0.51 µg/L
Total Copper (90th percentile)	10	1.92 µg/L
Dissolved Oxygen (average)	10	9.94 mg/L
Dissolved Oxygen (10th percentile)	10	7.46 mg/L
TSS (90th percentile)	10	29.1 mg/L
Temperature (highest annual 1-DMax)	12	19.3 °C
pH range (Minimum - Maximum)	12	7.33 – 8.7 standard units

C. Wastewater Characterization

WWPC reported the concentration of pollutants in the discharge in the permit application and in Discharge Monitoring Reports (DMRs). The tabulated data represents the quality of treated stormwater discharged from Outfalls 001 and 002 from September 2010 through October 2020. The stormwater effluent is characterized as follows:

Wastewater Characterization

Outfall 001 – Treated Wood Storage Area

Parameter	Units	No. of Samples	Average Value	Maximum Value
Flow	gpm	87	83.82	212.98

Parameter	Units	No. of Samples	Average Value	Maximum Value
Total Arsenic	µg/L	54	4.7	17
Total Chromium	µg/L	87	4.3	132
Total Copper	µg/L	87	22.9	127
Ammonia	mg/L	87	0.7	3.5
Oil and Grease	mg/L	54	Non-Detect	Non-Detect
Total Suspended Solids	mg/L	87	3.8	18
pH range	standard units	87	6.8-7.9	

Outfall 002 – Treated Wood Storage Area

Parameter	Units	No. of Samples	Average Value	Maximum Value
Flow	gpm	47	83.82	212.98
Total Arsenic	µg/L	47	2.5	8
Total Chromium	µg/L	47	2.8	53
Total Copper	µg/L	47	11.3	79.8
Ammonia	mg/L	47	Non-Detect	0.3
Oil and Grease	mg/L	47	Non-Detect	Non-Detect
Total Suspended Solids	mg/L	47	4.3	32
pH range	standard units	47	6.5-7.2	

D. Summary of Compliance with Previous Permit Issued

WWPC has, for the most part, consistently complied with the effluent limits and permit conditions throughout the duration of the permit issued on August 4, 2010.

- There was one exceedance of the chromium maximum daily limit for Outfall 001. WWPC reported a chromium concentration of 132 µg/L for Outfall 001 in February 2017.
- The March 2012, February 2014, and October 2020 DMRs were received late.
- The Solid Waste Control Plan, Stormwater Pollution Plan, and Spill Control Plan were received late. They were due on January 31, 2014, and were received on February 3, 2014.

Ecology assessed compliance based on its review of the facility's DMRs from September 2010 through October 2020, PARIS database records, and on inspections.

E. State Environmental Policy Act (SEPA) Compliance

State law exempts the issuance, reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges.

III. PROPOSED PERMIT LIMITS

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

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).

- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the Federal Water Quality Criteria Applicable to Washington (40 CFR 131.45).

- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

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

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

A. Technology-Based Effluent Limits

Process Wastewater

EPA has promulgated effluent guidelines and standards for the timber products processing point source category in Code of Federal Regulations 40 CFR Part 429. WWPC falls under Subcategory F of 40 CFR Part 429 which deals with pressure wood preserving treatment processes employing water borne inorganic salts. Effluent limitation representing "best practicable control technology currently available" (BPT) and "best available technology economically achievable" (BAT) for direct dischargers within Subcategory F is **zero discharge of process wastewater pollutants into**

navigable waters. This is considered equivalent to "all known, available, and reasonable methods of prevention, control, and treatment" (AKART) for this industry under State laws.

Process wastewater is defined in 40 CFR Part 429.11. The term "process wastewater" specifically excludes non-contact cooling water, material storage yard runoff (either raw natural or process wood storage), and boiler blowdown. However, these wastewaters must be authorized in a permit prior to discharge into the waters of the State.

For the purposes of the accompanying permit, process wastewater includes all wastewaters generated as part of the conditioning of the wood in the treatment cylinder. Other sources of process wastewater include, but are not limited to, preservative formulation; recovery and regeneration wastewater; water used to wash excess preservative from the surface of preserved wood; condensate from drying kilns used to dry preserved, or surface-protected lumber; and **residual drippage of preservative from treated lumber**. Any rainwater or stormwater which falls in the retort area, drip pad area, or tank farm area is also considered process wastewater.

Only discharge of stormwater from the white wood or treated product storage areas are covered in the accompanying permit.

Stormwater

Technology-based limitations for stormwater discharge are based on an evaluation of AKART applicable to the stormwater discharge. Currently, WWPC is passively treating collected stormwater through a bio-retention pond for Outfall 001, and a bioswale for Outfall 002. The facility is also implementing aggressive BMPs and following EPA's Categorical Standards.

Total Arsenic: Performance-based limitations for total arsenic have been evaluated and established in recognition that the EPA human health arsenic criteria is unattainable and unreasonable (see Section III – Proposed Permit Limits, Subsection H – Human Health, page 36). The data utilized to develop performance-based limitations for arsenic is from September 2010 through October 2020 for Outfall 001. Please refer to Appendix D – Technical Calculations of this fact sheet for a printed copy of the calculation spreadsheet. The performance-based limit was determined to be 19.4 µg/L on a maximum daily basis. These performance-based limits are less than the dissolved arsenic acute water quality criteria of 360 µg/L and the previous performance-based limits established in the previous permit. There is no reasonable potential to exceed water quality criteria for arsenic.

Total Chromium: Performance-based limitations for total chromium have been evaluated and established. The data utilized to develop performance-based limitations for arsenic is from September 2010 through October 2020 for Outfall 001. Please refer to Appendix D – Technical Calculations of this fact sheet for a printed copy of the calculation spreadsheet. The performance-based limit was determined to be 35.1 µg/L on a maximum daily basis. These performance-based limits are less than the chromium (tri) acute water quality criteria of 232.3 µg/L and the previous performance-based limits established in the previous permit. There is no reasonable potential to exceed water quality criteria for tri-valent chromium.

Chemical Oxygen Demand: Ecology decided to establish a technology-based limitation for Chemical Oxygen Demand (COD). This limit is based on adopting the value used in the Industrial Stormwater

General Permit (ISGP) for timber-related industries. The Timber Product Industry (NAICS 321xxx), under the ISGP, have a 120 mg/L benchmark. When the benchmark is exceeded for three quarters annually, facilities are required to develop an Engineering Report to provide treatment to reduce the COD concentration. WWPC's accompanying permit utilizes the 120 mg/L value to establish a maximum daily limit for both Outfall 001 and 002. This is considered a technology-based limit since it applies the same level of pollutant controls that other sawmills, log yards, and wood products facilities are expected to meet under the ISGP.

Oil and Grease: The technology-based limit of 10 mg/L (as a maximum daily limit) for oil and grease was proposed in the previous permit and is retained as a limit in the accompanying permit. This limitation reflects effluent quality that can be obtained through the use of a properly operated and maintained oil/water separator, or other equivalent control technology.

Total Suspended Solids (TSS): The technology-based limit of 50 mg/L (as a maximum daily limit) for TSS was proposed in the previous permit and is retained as a limit in the accompanying permit. This limitation reflects effluent quality that can be obtained through the use of BMPs to control solids in stormwater.

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

Numeric criteria for the protection of human health are promulgated in Chapter 173-201A WAC and 40 CFR 131.45. These criteria are designed to protect human health from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria [e.g., WAC 173-201A-240(1); 2006] limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2016) and of all marine waters (WAC 173-201A-210, 2016) in the state of Washington.

Antidegradation

Description – The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2016) is to:

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

  Tier I: ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions.

  Tier II: ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities.

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

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

  - The facility is planning a new or expanded action

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

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

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

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

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

Mixing Zones

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

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

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive AKART. Mixing zones typically require compliance with water quality criteria within a specified distance from the point

of discharge and must not use more than 25 percent of the available width of the water body for dilution [WAC 173-201A-400 (7)(a)(ii-iii)].

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

The mixing zone analysis produces a numerical value called a Dilution Factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 4 means the effluent is 25 percent and the receiving water is 75 percent of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

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

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

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

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

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

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

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

Ecology has determined that the treatment provided at WWPC 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/documents/92109.pdf

Ecology approved WWPC's Mixing Zone Study and utilized ambient data (see Table 4) in the vicinity of the outfall from Western Wood Preserving Company's Mixing Zone Study (December 2011), and River and Stream Water Quality Monitoring Report for Water Year 2003, July 2004 (Ecology Pub. No. 04-03-031). Ecology used 90th percentile background concentrations to model the critical condition. The Mixing Zone Study used a 7Q10 White River flow of 199 cfs. This is consistent with the Sonoco Product Company's Mixing Study.

4. Supporting information must clearly indicate the mixing zone would not:

- Have a reasonable potential to cause the loss of sensitive or important habitat.
- Substantially interfere with the existing or characteristic uses.
- Result in damage to the ecosystem.

- Adversely affect public health.

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

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

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

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

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

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

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

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

At any given time, the effluent plume uses only a portion of the acute and chronic mixing zone, which minimizes the volume of water involved in mixing. The plume mixes as it rises through the water column therefore much of the receiving water volume at lower depths in the mixing zone is not mixed with discharge. Similarly, because the discharge may stop rising at some depth due to density stratification, waters above that depth will not mix

with the discharge. Ecology determined it is impractical to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises and moves with the current.

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

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

7. Maximum Size of Mixing Zone

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

8. Acute Mixing Zone

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

  Ecology determined the acute criteria will be met at 10 percent of the downstream distance of the chronic mixing zone at the ten year low flow (30.18 feet).

- 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

There is no known overlap of mixing zones. However, there is comingling of stormwater from residential, commercial and industrial facilities within the city of Sumner's storm sewer before discharging through the Sessler Outfall.

C. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. 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.

Freshwater Aquatic Life Uses and Associated Criteria

Salmonid Spawning, Rearing, and Migration

Criteria	Value
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

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

Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation	*E.coli* organism levels must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 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

The White River segment receiving discharge from WWPC through the Sessler Outfall is listed on the current 303(d) as impaired for temperature. At this time, Ecology has not included this impairment in their plan to conduct a Total Maximum Daily Load Study.

WWPC only discharges treated stormwater. Ecology has determined that temperature is not a significant stormwater pollutant parameter. Therefore, the proposed permit does not include a temperature limit and does not require the facility to monitor temperature in the stormwater discharges. Ecology may elect to develop procedures and guidance for regulating the effects of stormwater to comply with temperature water quality criteria in the future.

The segment of the White River where the Sessler Outfall is located is listed as meeting Water Quality Standards for ammonia –N, and bacteria.

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

Ecology must consider the narrative criteria described in WAC 173-201A-260 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

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

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

F. 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.

Chronic Mixing Zone — WAC 173-201A-400(7)(a) specifies that mixing zones must not extend in a downstream direction from the discharge ports for a distance greater than 300 feet plus the depth of water over the discharge ports or extend upstream for a distance of over 100 feet, not utilize greater than 25 percent of the flow, and not occupy greater than 25 percent of the width of the water body.

The downstream distance plus depth of water over the city of Sumner Sessler Outfall of the chronic mixing zone is 301.8 feet, and is the limiting factor for determining the mixing zone. The mixing zone extends from the bottom to the top of the water column. The chronic dilution factor is determined to be 4.2.

Acute Mixing Zone — WAC 173-201A-400(8)(a) specifies that in rivers and streams a zone where acute toxics criteria may be exceeded must not extend beyond 10 percent of the distance towards the upstream and downstream boundaries of the chronic zone, not use greater than 2.5 percent of the flow and not occupy greater than 25 percent of the width of the water body.

The downstream distance of the acute mixing zone is 30.2 feet from the city of Sumner Sessler Outfall (which is 10 percent of the distance determined to be the limiting factor for the chronic mixing zone). The mixing zone extends from the bottom to the top of the water column. The dilution factor is based on this distance. The acute dilution factor is determined to be 1.5.

Since these mixing zones are for the Sessler Outfall to the White River, Ecology additionally grants a 20:1 dilution credit for stormwater mixing within the city of Sumner stormwater system. This 20:1 dilution credit is determined from the ratio of the city of Sumner's Sessler Outfall drainage basin area compared to WWPC's site drainage area.

The total dilution factors are shown below.

Dilution Factors (DF)

Criteria	Acute	Chronic
Aquatic Life	21.5	24.2
Human Health, Carcinogen		24.2
Human Health, Non-carcinogen		24.2

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

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

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

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

Ambient background data were available (See Table 4). Ecology used all applicable data to evaluate reasonable potential for this discharge to cause a violation of water quality standards.

Ecology determined that ammonia, arsenic, and chromium pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (see **Appendix D**).

Ammonia

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 and Ecology spreadsheet tools. Since ammonia had no reasonable potential to exceed water quality criteria, and because ammoniacal copper quarternary (the source of ammonia) is no longer used, Ecology has decided that no ammonia limit is needed.

Arsenic

Arsenic did not meet the human health criteria at the critical condition and this issue is described more in subsection H. Human Health. For reasons, discussed in subsection H, arsenic was given a technology-based limit that reflect the treatment and BMPs that are used at the facility. It should be noted that the technology-based limit (19.4 µg/L) was reduced from the previous technology-based limit (67 µg/L).

Chromium

Chromium did not have a reasonable potential to exceed water quality criteria. Because chromium is still a pollutant of concern at wood treating facilities, chromium was given a technology-based limit (see subsection A. Technology-Based Effluent Limits). It should be noted that the technology-based limit (35.1 µg/L) was reduced from the previous technology-based limit (100 µg/L).

Copper

Ecology derived effluent limits for the toxic pollutant copper. Copper was determined to have a reasonable potential to cause a violation of the water quality standards. Ecology calculated effluent limits using methods from EPA, 1991 as shown in **Appendix D**. The maximum daily copper effluent limit was determined to be 97.1 µg/L.

Water quality criteria for most metals published in chapter 173-201A WAC are based on the dissolved fraction of the metal [see footnotes to table WAC 173-201A-240(3); 2006]. WWPC may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Ecology may adjust a metal's translator on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Temperature--The state temperature standards (WAC 173-201A, WAC 173-201A-200, WAC 173-201A-600, and WAC 173-201A-602) 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), WAC 173-201A-210(1)(c), and WAC 173-201A-602, 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), WAC 173-201A-210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

  At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. 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 percent or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- Protections for Temperature Acute Effects

  Instantaneous lethality to passing fish: The upper 99th percentile daily maximum effluent temperature must not exceed 33°C, unless a dilution analysis indicates ambient temperatures will not exceed 33°C two seconds after discharge.

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

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

  WWPC only discharges treated stormwater. Ecology has determined that temperature is not a significant stormwater pollutant parameter. Therefore, the proposed permit does not include a temperature limit and does not require the facility to monitor temperature in the stormwater discharges. Ecology may elect to develop procedures and guidance for regulating the effects of stormwater to comply with temperature water quality criteria in the future.

G. Human Health

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

Ecology determined the effluent may contain chemicals of concern for human health, based on data or information indicating the discharge contains regulated chemicals. Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) and Ecology's Permit Writer's Manual to make a reasonable potential determination. The evaluation showed that the discharge has a reasonable potential to cause a violation of water quality standards for inorganic arsenic.

Arsenic

Ecology submitted newly adopted state Human Health Water Quality Criteria to the EPA for Clean Water Act review and approval in August 2016. Parts of that submittal to EPA were new total arsenic criteria of 10 μg/L for both marine and freshwaters. Additional requirements in the new state rule included pollutant minimization requirements for anthropogenic inputs of arsenic from both indirect and direct discharges. The state's new total arsenic criteria match the EPA's Safe Drinking Water Act maximum contaminant level (MCL) used in Washington State for drinking water protection. The state's new arsenic criteria took into account existing scientific data, high concentrations of naturally occurring arsenic in the State of Washington, and EPA's CWA approval of 10 μg/L total arsenic criteria in almost all other western states.

Ecology intended the new total arsenic criteria to supersede the inorganic arsenic human health criteria adopted for the State of Washington by the EPA in the 1992 National Toxics Rule (NTR; 40 CFR 131.36). The EPA's 1992 risk based human health criterion for marine waters is 0.14 μg/L inorganic arsenic, and is based on exposure from fish and shellfish tissue ingestion. The freshwater criterion is 0.018 μg/L, and is based on exposure from fish and shellfish tissue and surface water ingestion. The 2016 arsenic criteria adopted by Ecology eliminated uncertainties associated with the cancer potency factor used by the EPA in the 1992 NTR arsenic standards. However, the EPA disapproved Ecology's proposed total arsenic criteria in November 2016 and retained the inorganic arsenic human health criteria set in the 1992 NTR. The EPA's Technical Support Document for the approval/disapproval of Washington's Human Health Water Quality Criteria states that the federal agency intends to conduct a toxicological review of inorganic arsenic in 2017. The work has not yet been completed. This toxicological review could lead to an opportunity for Ecology to participate in a national dialogue associated with the update of the arsenic criteria in section 304(a) of the Clean Water Act. Until the EPA inorganic arsenic review is completed, scientific information is updated, and Washington State adopts into rule EPA CWA-approvable new total or inorganic arsenic criteria, the EPA's existing marine and freshwater inorganic arsenic criteria remain in effect at 0.14 and 0.018 μg/L.

The EPA's disapproval of Washington's new total arsenic criteria continues to create several difficulties in the wastewater discharge permitting process. One issue, as mentioned above, involves natural background concentrations of both marine and freshwaters that exceed the criteria. This can be particularly problematic for groundwater-sourced drinking waters with arsenic concentrations above 0.018 μg/L, which then pass through wastewater treatment plants after initial use. In this situation, no implementation tool exists to account for the naturally occurring element in the drinking water source. Intake credits do not apply in this situation because the source water and the receiving water must be the same body of water or proven to be hydraulically connected. Another issue is the lack of a 40 CFR 136-approved analytical method

for inorganic arsenic that can be used for compliance assessment. Evaluation of point source discharges for effluent limit compliance must use 40 CFR 136 methods. The current 40 CFR 136-approved method for arsenic measures the total recoverable portion of the metal, and does not differentiate the inorganic portion. The lack of federally approved translators for inorganic-to-total recoverable arsenic in discharges increases the difficulty in assigning an effluent limitation for discharges to surface waters.

Attainment of Washington's inorganic arsenic criteria remains challenging if not improbable. At best, current treatment technologies may be capable of arsenic removal to approximate concentrations ranging from 0.5 - 1 µg/L. The difference between the best available treatment technology and numeric effluent limits based on the criteria creates difficulty for both existing and proposed discharges. Ecology intends to continue to pursue a solution to the regulatory issue of groundwater sources with high arsenic concentrations that would cause treatment plant effluent to exceed effluent limits based on the numeric criteria.

Where numeric effluent limits are infeasible, 40 CFR 122.44(k) provides for the use of BMPs to control or abate the discharge of pollutants. This provision in the federal regulations provides the basis for Ecology's permitting strategy for inorganic arsenic until the EPA revisits their criteria development procedures and develops site specific total-to-inorganic arsenic translators for individual dischargers. Components of Ecology's permitting strategy include permit requirements to monitor for total recoverable arsenic, implementation of source control BMPs, and an adaptive management process to refine BMPs for continuous pollutant minimization. While numeric effluent limits based on the human health inorganic arsenic criteria remain infeasible, Washington NPDES permits will continue to contain numeric effluent limits for arsenic based on best available treatment technology and aquatic life-based criteria as appropriate.

It should be noted that background receiving water concentrations for arsenic [0.91 (90^{th} percentile receiving water concentration)] are already characterized to be above the human health criteria (0.018 µg/L).

This permit continues to require technology-based limits that are established based on performance of the passive stormwater treatment systems and the facility's BMPs. The performance-based limit, for this permit cycle, has been greatly reduced for Outfalls 001 and 002, from 67 µg/L to 19.4 µg/L.

Ecology will continue to require arsenic monitoring and encourage WWPC to find ways to further control arsenic through BMPs, operations and maintenance, and/or enhanced treatment.

H. Sediment Quality

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

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

I. 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).

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

J. 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 WET testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

- Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.

- Chronic toxicity tests measure various sublethal toxic responses, such as reduced growth or reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure organism survival.

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

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water acute toxicity. The proposed permit will not include an acute WET limit. WWPC 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. WWPC may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing and/or chemical analyses after the process or material changes have been made. Ecology recommends that the Permittee check with it first to make sure that Ecology will consider the

demonstration adequate to support a decision to not require an 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.

WWPC is not required to conduct chronic WET testing this permit cycle. Ecology reserves the right to add this requirement in future permit renewals or by permit modification.

K. Comparison of Effluent Limits with the Previous Permit Issued on August 4, 2010

Comparison of Previous and Proposed Effluent Limits

		Previous Effluent Limits		Proposed Effluent Limits	
Parameter	**Basis of Limit**	**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Outfalls 001 & 002					
Total Arsenic	Technology	N/A	67 µg/L	N/A	**19.4 µg/L**
Total Chromium	Technology	N/A	100 µg/L	N/A	**35.1µg/L**
Total Copper	Water Quality	N/A	127 µg/L	N/A	**97.1 µg/L**
Chemical Oxygen Demand	Technology	No limit established		N/A	**120 mg/L**
Oil and Grease	Technology	N/A	10 mg/L	N/A	10 mg/L
Total Suspended Solids	Technology	N/A	50 mg/L	N/A	50 mg/L
pH	Technology	Between 6.0 and 9.0 s.u.		Between 6.0 and 9.0 s.u.	

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 DMR or in the required report.

A. Wastewater Monitoring

WWPC monitors for total arsenic, total chromium, total copper, COD, oil and grease, TSS, pH, and flow for both Outfalls 001 and 002. This/These pollutant(s) could have a significant impact on the quality of the surface water. It should be noted that the monitoring frequency for outfall 001 (treated product storage area) shall be once a month (except for oil and grease and arsenic) for the months of September through May for a total of nine samples per sampling season (five samples for oil and grease and arsenic). The monitoring frequency for outfall 002 (white wood storage area) shall be once every two months for the months of September through May for a total of five samples per sampling season.

WWPC must also conduct priority pollutant monitoring, once per permit cycle, to be submitted with their permit application. They must also conduct two acute WET toxicity characterization tests with reports to be submitted along with the permit application.

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

B. Lab Accreditation

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

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 (O&M) Manual

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

C. Acute Toxicity Characterization Reports

As specified in Special Condition S7, WWPC must submit two acute WET Toxicity characterization reports along with their permit renewal application; one for samples collected during wet weather conditions and one for samples collected during dry weather conditions.

D. Solid Waste Control Plan

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

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

E. 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].

WWPC 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.

F. Stormwater Pollution Prevention Plan (SWPPP)

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the proposed permit includes requirements for the development and implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs, along with any necessary treatment, constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that WWPC must develop a SWPPP and implement adequate BMPs in order to meet the requirements of AKART. A SWPPP requires a facility to implement actions necessary to manage stormwater to comply with the state's requirement under chapter 90.48 RCW to protect the beneficial uses of waters of the state.

The SWPPP must identify potential sources of stormwater contamination from industrial activities and identify how it plans to manage those sources of contamination to prevent or minimize contamination of stormwater. WWPC 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. WWPC 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 (2019 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.

G. Application for Permit Renewal

Ecology requires WWPC to submit an application for permit renewal no later than October 31, 2024.

H. General Conditions

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

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

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

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

B. Proposed Permit Issuance

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

VII. REFERENCES FOR TEXT AND APPENDICES

David Evans and Associates, Inc.

June 1994. *Drainage Report for Western Wood Preserving – 1313 Zehnder Street, Sumner, WA 98390*.

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.)

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

Maul Foster & Alongi, Inc.

December 2011. *Effluent Mixing and Water Quality Analysis Study Report – Western Wood Preserving Company, 1313 Zehnder Street, Sumner, Washington, NPDES Permit WA0040738*. Project No. 0120.01.03.

Washington State Department of Ecology

July 2019. Stormwater Management Manual for Western Washington (https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/2019SWMMWW.htm). Ecy Pub. No. 19-10-021.

July 2018. *Permit Writer's Manual*. Publication Number 92-109 (https://fortress.wa.gov/ecy/publications/documents/92109.pdf)

September 2011. *Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation*. Publication Number 11-10-073 (https://fortress.wa.gov/ecy/publications/summarypages/1110073.html)

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

February 2007. *Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees*, Publication Number 07-10-024. (https://fortress.wa.gov/ecy/publications/documents/0710024.pdf) Wright, R.M., and A.J. McDonnell.

July 2004. River and Stream Water Quality Monitoring Report for Water Year 2003. (https://apps.ecology.wa.gov/publications/SummaryPages/0403031.html). Ecy. Pub. No. 04-03-031.

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

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

APPENDIX A — PUBLIC INVOLVEMENT INFORMATION

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

Ecology placed a Public Notice of Application on June 3, 2019; June 10, 2019; June 10, 2020; and June 17, 2020, in Tacoma News Tribune to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice of Draft on _____, in Tacoma News Tribune to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

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

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

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

The primary author of this permit and fact sheet is John Y. Diamant, P.E.

APPENDIX B — YOUR RIGHT TO APPEAL

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

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

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Address and Location Information

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive Southeast Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road Southwest, Suite 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 RCW 90.48.520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate point of compliance – An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient water quality – The existing environmental condition of the water in a receiving water body.

Ammonia – Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF – average of the daily flow volumes anticipated to occur over a calendar year.

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

Average monthly discharge limit – The average of the measured values obtained over a calendar months' time.

Background water quality – The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% 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 WAC 173-240-130.

Enterococci – A subgroup of fecal streptococci that includes *S. faecalis, S. faecium, S. gallinarum,* and *S. avium.* The enterococci are differentiated from other streptococci by their ability to grow in 6.5% sodium chloride, at pH 9.6, and at 10°C and 45°C.

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

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

wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

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

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

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

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

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

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

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

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

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

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

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

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

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

Method detection level (MDL) – See Detection Limit.

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

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

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

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

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

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

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

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

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

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

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

Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

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

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

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

Sample Maximum – No sample may exceed this value.

Significant industrial user (SIU) –

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX D — TECHNICAL CALCULATIONS

Instructions: Enter data on 'Input 1' tab and below with yellow fields. Spreadsheet uses pH and temperature at mixing zone boundaries, you can override this by entering your own data in these cells.
- Click here for more details -

Freshwater Un-ionized Ammonia Criteria Calculation

Based on Chapter 173-201A WAC, amended November 20, 2006

		mixed @ Acute Boundary	mixed @ Chronic Boundary	mixed @ Whole River
INPUT				
1. Receiving Water Temperature (deg C):	17.8	#DIV/0!	#DIV/0!	#DIV/0!
2. Receiving Water pH:	8.3	#DIV/0!	#DIV/0!	#DIV/0!
3. Is salmonid habitat an existing or designated use?	Yes	Yes	Yes	Yes
4. Are non-salmonid early life stages present or absent?	Present	Present	Present	Present
OUTPUT				
Using mixed temp and pH at mixing zone boundaries?	no			
Ratio	13.500	#DIV/0!	#DIV/0!	#DIV/0!
FT	1.400	#DIV/0!	#DIV/0!	#DIV/0!
FPH	1.000	#DIV/0!	#DIV/0!	#DIV/0!
pKa	9.473	#DIV/0!	#DIV/0!	#DIV/0!
Unionized Fraction	0.066	#DIV/0!	#DIV/0!	#DIV/0!
Unionized ammonia NH3 criteria (mg/L as NH_3)				
Acute:	0.242	#DIV/0!	#DIV/0!	#DIV/0!
Chronic:	0.042	#DIV/0!	#DIV/0!	#DIV/0!
RESULTS				
Total ammonia nitrogen criteria (mg/L as N):				
Acute:	3.029	#DIV/0!		#DIV/0!
Chronic:	0.530		#DIV/0!	#DIV/0!

Instructions

Reasonable Potential Calculation

Facility	Western Wood Preserving Company
Water Body Type	Freshwater
Rec. Water Hardness	35

Dilution Factors:	Acute	Chronic
Aquatic Life	21.5	24.2
Human Health Carcinogenic		24.2
Human Health Non-Carcinogenic		24.2

Outfalls 001 and 002 *1*

Pollutant, CAS No. & NPDES Application Ref. No.			AMMONIA, Criteria as Total NH3	ARSENIC (inorganic)	CHROMIUM(TRI) -16065831 5M Hardness dependent	COPPER - 744058 6M Hardness dependent							
Effluent Data	# of Samples (n)		87	54	87	87							
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		1,670	9.71	10.11	78.4							
	Calculated 50th percentile Effluent Conc. (when n>10)			3.05		14.8							
Receiving Water Data	90th Percentile Conc., ug/L		230.00	0.91	0.51	1.92							
	Geo Mean, ug/L			0.8086		1.14							
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	3,029	-	232.2506	6.32827							
		Chronic	530	-	75.3397	4.62845							
	WQ Criteria for Protection of Human Health, ug/L		-	0.018	-	1300							
	Metal Criteria Translator, decimal	Acute	-	-	0.316	0.996							
		Chronic	-	-	0.86	0.996							
	Carcinogen?		N	Y	N	N							

Aquatic Life Reasonable Potential

Effluent percentile value			0.950		0.950	0.950							
s	$s^2=\ln(CV^2+1)$		0.555		0.555	0.555							
Pn	Pn=(1-confidence level)$^{1/n}$		0.966		0.966	0.966							
Multiplier			1.00		1.00	1.00							
Max concentration (ug/L) at edge of…		Acute	297		0.635	5.463							
		Chronic	290		0.848	5.067							
Reasonable Potential? Limit Required?			**NO**		**NO**	**YES**							

Aquatic Life Limit Calculation

# of Compliance Samples Expected per month						1							
LTA Coeff. Var. (CV), decimal						0.6							
Permit Limit Coeff. Var. (CV), decimal						0.6							
Waste Load Allocations, ug/L		Acute				96.6978							
		Chronic				67.4646							
Long Term Averages, ug/L		Acute				31.048							
		Chronic				35.5831							
Limiting LTA, ug/L						31.048							
Metal Translator or 1?						1.00							
Average Monthly Limit (AML), ug/L						**66.6**							
Maximum Daily Limit (MDL), ug/L						**97.1**							

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$			0.55451		0.55451							
Pn	Pn=(1-confidence level)1/n			0.946		0.966							
Multiplier				0.41008		0.36309							
Dilution Factor				24.2		24.2							
Max Conc. at edge of Chronic Zone, ug/L				0.90122		1.70446							
Reasonable Potential? Limit Required?				**YES**		**NO**							

Human Health Limit Calculation

# of Compliance Samples Expected per month				1									
Average Monthly Effluent Limit, ug/L				**-18.3239**									
Maximum Daily Effluent Limit, ug/L				**-26.7312**									

Comments/Notes:

References: WAC 173-201A,
Technical Support Document for Water Quality-based Toxics Control, US EPA, March 1991, EPA/505/2-90-001, pages 56/99

Instructions: Enter data on 'Input 1' tab and below with yellow fields.
-- Click here for more details --

Performance-based Effluent Limits for Arsenic

INPUT	
LogNormal Transformed Mean:	1.2762
LogNormal Transformed Variance:	0.5288
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	4.6676
V(X) =	15.183
VARn	0.5288
MEANn=	1.2762
VAR(Xn)=	15.183
RESULTS	
Maximum Daily Effluent Limit:	**19.4**
Average Monthly Effluent Limit:	**11.9**
11.85152116	11.0773

Outfall 001

Month	As Conc.	LN(As Conc.)	Month	As Conc.	LN(As Conc.)
Sep-10	17	2.83	Mar-15	1.8	0.59
Oct-10	17	2.83	May-15	2.3	0.83
Nov-10	2	0.69	Sep-15	3.2	1.16
Dec-10	2	0.69	Nov-15	1.5	0.41
Jan-11	1	0.00	Jan-16	1.4	0.34
Feb-11	3	1.10	Mar-16	9.6	2.26
Mar-11	3	1.10	May-16	9.9	2.29
Apr-11	3	1.10	Sep-16	5.7	1.74
May-11	5	1.61	Nov-16	3	1.10
Jun-11	5	1.61	Jan-17	1.4	0.34
Sep-11	3	1.10	Mar-17	2.2	0.79
Nov-11	1.4	0.34	May-17	1	0.00
Jan-12	1.4	0.34	Sep-17	2	0.69
Mar-12	5	1.61	Nov-17	2.3	0.83
May-12	2.3	0.83	Jan-18	4.1	1.41
Nov-12	1.1	0.10	Mar-18	6.3	1.84
Jan-13	4.9	1.59	Sep-18	9	2.20
Mar-13	1.6	0.47	Nov-18	5.7	1.74
May-13	2.2	0.79	Jan-19	3.5	1.25
Sep-13	3.1	1.13	Mar-19	9.5	2.25
Nov-13	2.8	1.03	May-19	6.7	1.90
Jan-14	5.5	1.70	Sep-19	6.8	1.92
Mar-14	8.5	2.14	Nov-19	2.3	0.83
May-14	7.6	2.03	Jan-20	7	1.95
Sep-14	6.4	1.86	Mar-20	2.7	0.99
Nov-14	9.3	2.23	May-20	4.9	1.59
Jan-15	9.4	2.24	Sep-20	1.8	0.59

Instructions: Enter data on 'Input 1' tab and below with yellow fields.
-- Click here for more details --

Performance-based Effluent Limits for Chromium

INPUT	
LogNormal Transformed Mean:	0.3667
LogNormal Transformed Variance:	1.8813
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	3.6966
V(X) =	76.007
VARn	1.8813
MEANn=	0.3667
VAR(Xn)=	76.007
RESULTS	
Maximum Daily Effluent Limit:	**35.1**
Average Monthly Effluent Limit:	**13.8**
13.77773028	18.038

Outfall 001

Month	Cr Conc.	LN(Cr Conc.)	Month	Cr Conc.	LN(Cr Conc.)
Sep-10	2	0.69	Oct-15	0.2	-1.61
Nov-10	1	0.00	Nov-15	1.1	0.10
Dec-10	2	0.69	Dec-15	0.7	-0.36
Jan-11	1	0.00	Jan-16	0.7	-0.36
Feb-11	1	0.00	Feb-16	3.4	1.22
Mar-11	3	1.10	Mar-16	0.5	-0.69
Apr-11	1	0.00	Apr-16	0.2	-1.61
May-11	2	0.69	May-16	0.5	-0.69
Sep-11	1	0.00	Sep-16	0.9	-0.11
Oct-11	1	0.00	Oct-16	2	0.69
Nov-11	0.8	-0.22	Nov-16	1.7	0.53
Dec-11	2.5	0.92	Dec-16	1.5	0.41
Jan-12	0.6	-0.51	Jan-17	0.6	-0.51
Feb-12	2.2	0.79	Feb-17	132	4.88
Mar-12	10.2	2.32	Mar-17	1.4	0.34
Apr-12	7.4	2.00	Apr-17	11.8	2.47
May-12	1.6	0.47	May-17	22.2	3.10
Oct-12	1.2	0.18	Sep-17	2.3	0.83
Nov-12	0.8	-0.22	Oct-17	3.3	1.19
Dec-12	1.2	0.18	Nov-17	3.2	1.16
Jan-13	4	1.39	Dec-17	3.4	1.22
Feb-13	0.8	-0.22	Jan-18	3.9	1.36
Mar-13	1.9	0.64	Feb-18	3.2	1.16
Apr-13	0.6	-0.51	Mar-18	1.5	0.41
May-13	0.7	-0.36	Apr-18	4.7	1.55
Sep-13	0.8	-0.22	Sep-18	1.9	0.64
Oct-13	1.2	0.18	Oct-18	0.04	-3.22
Nov-13	0.2	-1.61	Nov-18	5.8	1.76
Dec-13	2.7	0.99	Dec-18	8.7	2.16
Jan-14	6	1.79	Jan-19	36	3.58
Feb-14	2.6	0.96	Feb-19	0.8	-0.22
Mar-14	9.9	2.29	Mar-19	0.04	-3.22
Apr-14	0.2	-1.61	Apr-19	0.8	-0.22
May-14	4.7	1.55	May-19	1.6	0.47
Sep-14	3.1	1.13	Sep-19	0.2	-1.61
Oct-14	3.3	1.19	Nov-19	1.7	0.53
Nov-14	1.2	0.18	Dec-19	0.2	-1.61
Dec-14	4.2	1.44	Jan-20	6.9	1.93
Jan-15	1.6	0.47	Feb-20	1.6	0.47
Feb-15	0.7	-0.36	Mar-20	1.1	0.10
Mar-15	2.2	0.79	Apr-20	1	0.00
Apr-15	0.04	-3.22	May-20	0.9	-0.11
May-15	1	0.00	Sep-20	0.04	-3.22
Sep-15	2.8	1.03			

APPENDIX E — RESPONSE TO COMMENTS

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