Fact Sheet for NPDES Permit WA0000884

Sonoco Products Company (Sonoco)

September 9, 2019

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Sonoco.

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

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Sonoco, NPDES permit WA0000884, are available for public review and comment from September 11, 2019 until October 14, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

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

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

Summary

The proposed limits and monitored parameters in the proposed renewal permit are generally the same as those established in the existing permit that was issued in 2013. However, stormwater Outfalls 002 and 003 will now be required to have increased monitoring and will have benchmarks that require corrective action if exceeded. The allowances for TSS still reflect implementation of WAC 173-201A-320, which addresses anti-degradation. Ecology does not propose to change the daily maximum allowances for BOD and ammonia or the limits for fecal coliform because they are based on the White River BOD total daily maximum load (TMDL). The monthly average BOD limit was reduced slightly due to a decrease in production. Ecology modified the previous permit approach to bacteria by also limiting Escherichia coli in response to new water quality standards. Changes in appearance of the permit or fact sheet simply reflect changes in the underlying boilerplate format that Ecology uses.

Table of Contents

I. Introduction

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

The following regulations apply to industrial NPDES permits:

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

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

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

II. Background Information

Table 1 General Facility Information

Facility Information	
Applicant:	Sonoco Products Company
Facility Name and Address	1802 Steele Avenue Sumner WA 98390
Contact at Facility	Name: Mike Wetzel Telephone #: 253 863 6366
Responsible Official	Name: Jon Febus Title: Plant Manager Address: 1802 Steele Avenue Sumner WA 98390 Telephone #253 863 6366
Industry Type	Recycled Paperboard Manufacturing
Categorical Industry	40 CFR Part 430 Subpart J, Secondary Fiber Non-Deink Subcategory
Type of Treatment	Primary Clarification/Activated Sludge/Secondary Clarification
SIC Codes	2631
NAIC Codes	322130
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47.20899 Longitude: 122.23818
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	White River – Outfall 001 Latitude: 47.213889 Longitude: 122.238889

Permit Status	
Renewal Date of Previous Permit	July 1, 2013
Application for Permit Renewal Submittal Date	December 27, 2017

Permit Status	
Date of Ecology Acceptance of Application	January 2, 2018

Inspection Status	
Date of Last Sampling Inspection	June 26, 2019
Date of Last Non-sampling Inspection Date	February 1, 2019

Figure 1 Facility Location Map

A. Facility Description

History

The mill is located in Sumner, Washington adjacent to the White River. The mill was constructed by Northern Paperboard in 1915. Sonoco Products Company purchased the mill in 1980. The mill produced an average of 117 tons/day paperboard from waste paper and recycled cardboard during the period from July 1, 2013 through December 31, 2017. The paperboard produced is used by the pulp and paper industry as core material for paper rolls.

Sonoco is considered a major NPDES facility by the United States Environmental Protection Agency (EPA).

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. Sonoco selected “No” on this form when asked if a cooling water intake is associated with the facility.

Industrial Processes

Secondary wood fiber in the form of various grades of wastepaper including old corrugated boxes and old newspapers are the primary materials for the paperboard manufacturing process. These materials are blended and forced into a water suspension using hydropulpers. The resulting pulp slurry then flows through various cleaning and screening operations to remove contaminants and is further beaten or "refined" to develop bending strength and other characteristics needed in the finished product. Finally, the pulp slurry flows to the wet end forming section of the paper machine where a pulp mat is formed and combined into as many as eight layers using wire covered cylinder vat formers. From this point in the process, a continuous web approximately 94 inches wide is further processed by pressing, drying, and calendaring, and is then wound onto a reel, which is the intermediate product.

Occasionally, minor amounts of sizing agents, colors, wet strength resins, defoamers, slimicides, starch, and alum (for pH adjustment) are added at various points in the process to impart specific characteristics to the sheet based on customer requirements and specifications.

In the forming section of the cylinder machine, water is removed from the fiber under controlled conditions, leaving a mat of fiber at approximately 15% solids (by weight) which is supported by a fabric called a "felt" and carried forward to the press section where all the remaining free water is removed leaving a mat of fiber at approximately 45% solids (by weight). The balance of water (down to 6% moisture) is removed in the dryer section using heat energy to release the water through evaporation. The web of dried paperboard is then calendared on both surfaces, densified, and given a smooth finish, prior to packaging.

Since wet end forming takes place at very low consistencies (0.5% solids), large volumes of water are removed in the forming section and pressing operations. Sonoco collects and reuses this process wastewater commonly referred to as white water.

Before reuse, they must treat a portion of this wastewater in a primary settling clarifier to remove some of the suspended particles. The process wastewater is pumped to the primary clarifier where the fibers are separated from the water through gravity settling. The fiber fraction is returned to the process as part of the raw material and the clarified water is reused for various showers and other processes. Excess water from this system is then pumped to the aeration pond for biological treatment as required under NPDES permit WA0000884, and then on to a secondary settling clarifier to remove any remaining solids and any additional solids generated in the treatment process, prior to discharge.

Wastewater Treatment Processes

As discussed above, the mill's wastewater receives primary and secondary treatment followed by secondary clarification before it is discharged into the White River through a diffuser system. The primary and secondary biological (activated sludge) wastewater treatment systems were built in 1972. From July 2013 through December 2017, the wastewater flow averaged 0.302 million gallons per day (MGD) with a maximum daily flow of 0.400 MGD, the biochemical oxygen demand (BOD) averaged 82 pounds per day (lbs/day) and the total suspended solids (TSS) averaged 150 lbs/day. The production volume averaged 117 tons per day (tons/day) with a maximum of 154 tons/day during 2013 through 2017. Ecology based the limits in the proposed permit on the highest annual average production rate of 120 tons/day. The company raw stock consisted of 75 percent corrugated and 25 percent non-corrugated waste paper. The company indicated that it plans to continue using the same percentage of raw materials for the foreseeable future.

Solid Wastes

The facility submitted its most recent revision of the Solid Waste Control Plan to Ecology on September 9, 2014. The majority of the solid waste generated on-site consists of pulper rejects (paper, plastic, wire). Approximately 126 tons per month of solid waste is generated at the Sumner facility and disposed of in the Hidden Valley Landfill. Settled solids generated in the primary clarifier are returned to the papermaking process. Sludges collected in the secondary clarifier are split between the activated sludge aeration basin and paper making process.

Discharge Outfall

The mill’s discharge point is to the White River (Outfall 001) about 30 feet upstream of Fryar Avenue Bridge, at mile marker 1.4. The outfall line extends 10 feet from the south shoreline and ends with a diffuser under the water surface. The effluent is discharged via an 18-foot long, seven port diffuser, with a port height of 1 foot above the riverbed. The outfall is a 10-inch pipe designed with seven 3-inch diameter riser ports spaced at 36-inch centers configured to discharge in the direction of river flow. The outfall inspection conducted during January 2012 found that four ports were fully functional, two were covered and one was blocked. Ecology evaluated the proposed dilution ratio and receiving water impact using the actual outfall configuration.

Collection point 001A receives rooftop, parking lot, and loading dock stormwater from an adjacent business. This stormwater stream is discharged through Outfall 001 directly to the White River.

Collection points 002 and 003 are not outfalls but receive overland flow from the Sonoco facility and discharge this collected flow directly into the City of Sumner stormwater collection system. Outfall 002 receives stormwater from the Sonoco parking area and routes the stormwater to the City of Sumner stormwater collection system. Outfall 003 receives stormwater from a high vehicle traffic area and routes the stormwater through an oil/water separator before discharging to the City of Sumner stormwater collection system.

The permit also authorizes discharge from Outfall 004 to the city stormwater system. The Outfall 004 system routes storm water to the northwest corner of the facility and onto a swale. At the end of the swale is a shallow weir made of rocks. Sufficient flow can result in overflow of the weir into what is designated as Outfall 004, which routes the stormwater to the city of Sumner's stormwater collection system. Discharge has historically been intermittent occurring during heavy rain events.

B. Description of the Receiving Water

Sonoco discharges to the White River. Other nearby point source outfalls which are covered under the Industrial Stormwater General Permit include Exide Technologies Sumner, Pasquier Panel Products Inc Sumner, Pacific Northwest Baking Co, McConkey & Co Inc, Golden State Foods, Sumner Cedar, Precision Aerospace & Composites, and Thermo Fluids Inc. Western Wood Preserving Co and Fleischmann's Vinegar are nearby sources covered under individual NPDES permits. Section III.E of this fact sheet describes any receiving waterbody impairments.

The ambient background data used for this permit includes the following from Sonoco's 2017 permit renewal application, Receiving Water Study conducted in 2008 by Sonoco and submitted in February 2009 (metals data), and from Ecology's 1993 "Puyallup River Total Maximum Daily Load for Biological Oxygen Demand, Ammonia, and Residual Chlorine" assessment performed by Ecology's Environmental Investigations and Laboratory Services Program:

Table 2. Ambient Background Data

Parameter	Value Used
Temperature (highest annual 1-DADMax)	18.2° C
Temperature (mean)	16.2° C
Temperature (minimum)	13.5° C
pH (Mean)	7.31 standard units
Dissolved Oxygen (Critical Annual 5th %tile)	8.9 mg/L
Total Ammonia-N (Critical Annual 5th %tile)	0.14 mg/L

Parameter	Value Used
Fecal Coliform	46/100 mL dry weather
Hardness	20.1mg/L as CaCO3
Lead (Avg of 8 samples)	0.26 µg/L [1]
Copper (Avg of 8 samples)	1.94 µg/L [1]
Zinc (Avg of 8 samples)	1.91 µg/L [1]

1. Metal measurements are total recoverable concentrations

C. Wastewater Characterization

Sonoco reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. The following tabulated data also includes Ecology inspection monitoring results. The tabulated data represents the quality of the wastewater effluent discharged during the 2013-2017 permit term. The wastewater effluent is characterized as follows:

Table 3 Wastewater Characterization

Parameter	Units	# of Samples	Average Value	Maximum Value
Flow	MGD	365	0.302	0.400
Temperature (summer)	°C	180	14.3	26.7
TSS	mg/L	158	59	444
TSS	lb/day	158	150	1269
BOD_5	mg/L	143	31	157
BOD_5	lb/day	143	82	464
Ammonia	mg/L	12	0.11	0.17
Ammonia	lb/day	12	0.28	0.49
Antimony	ug/L	4		1.36
Arsenic	ug/L	4		1.57
Beryllium	ug/L	4		0.033
Cadmium	ug/L	4		0.043
Chromium	ug/L	4		2.05
Copper	ug/L	4		2.17
Cyanide	ug/L	4		12.1
Lead	ug/L	4		0.735
Nickle	ug/L	4		2.53
Thallium	ug/L	4		0.053
Zinc	ug/L	4		14.7

Parameter	Units	# of Samples	Monthly Geometric Mean
Fecal Coliform	#/100 ml	10	2268

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH	standard units	726	4.9	8.5

Table 4. Stormwater Characterization Outfall 004 (Sampling Event on 10/23/2017 and DMR Data)

Parameter	Units	# of Samples	Maximum Value	Permit Benchmark Value
BOD5	mg/L	5	8.0	30
Ammonia	mg/L	5	0.495	38
Lead (Total)	ug/L	5	3.69	81.6
Copper (Total)	ug/L	5	39.1	14
Turbidity	NTU	5	69.4	25
Total Oil & Grease	mg/L	5	5.5	15
Zinc (Total)	ug/L	5	31.8	117
pH	SU	5	7.4	5-9

D. Summary of Compliance with Previous Permit Issued

Sonoco has not consistently complied with the effluent limits and permit conditions throughout the duration of the permit issued on July 1, 2013. Ecology assessed compliance based on its review of the facility's discharge monitoring reports (DMRs) and on inspections.

The following table summarizes the violations and permit triggers that occurred during the permit term. Permit triggers are not violations but rather when triggered require the permit holder to take an action defined in the permit.

Table 5 Violations/Permit Triggers

Violation Date	Outfall	Parameter	Value	Limit Min	Limit Max	Violation
2014-2019		DMR submission				23 Late or failed to submit DMRs and other submittals
12/31/2016	004	Required Monitoring	N/A	N/A	N/A	Annual stormwater sampling at Outfall 004 was not conducted in 2016
1/5/2016	001	TSS	2475		1441	TSS violation caused by burst fresh water line
2/3/2016	001	Ammonia	4.3		1.1	Limit exceedance, possibly due to lab error.
5/4/2017	001	pH	4.9	5		Lower pH limit exceedance
7/1/2017	001	Fecal Coliform				July fecal coliform sampling missed

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

Table 6 Permit Submittals

Submittal Name	Submittal Status	Due Date	Received Date	Approved/Reviewed Date
Outfall Evaluation - Inspection Report	Received	1/1/2018	4/2/2018	4/2/2018
Acute Toxicity Testing	Received	1/1/2018	4/2/2018	4/6/2018
Application For Permit Renewal	Received	1/1/2018	12/27/2017	1/2/2018
Chronic Toxicity Testing	Received	12/27/2017	12/27/2017	1/24/2018
Chronic Toxicity Testing	Received	9/3/2017	10/3/2017	1/24/2018
Chronic Toxicity Testing	Not Received	3/3/2017		
Chronic Toxicity Testing	Received	9/3/2016	1/4/2017	2/9/2018
Chronic Toxicity Testing	Received	3/3/2016	3/4/2016	6/1/2016
Chronic Toxicity Testing	Received	9/3/2015	9/15/2015	2/9/2018
Chronic Toxicity Testing	Received	3/3/2015	3/10/2015	2/9/2018
Fecal Coliform Engineering Report	Received	1/1/2015	12/31/2014	1/6/2015
Chronic Toxicity Testing	Received	9/3/2014	9/10/2014	2/9/2018

Submittal Name	Submittal Status	Due Date	Received Date	Approved/Reviewed Date
O&M - Treatment System Operating Plan Update	Received	7/1/2014	9/9/2014	9/9/2014
Spill Prevention Plan Update	Received	7/1/2014	9/9/2014	9/9/2014
Chronic Toxicity Testing	Received	3/3/2014	3/7/2014	2/9/2018
Fecal Coliform Study Plan Submittal	Received	8/1/2013	8/1/2013	8/13/2013

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 National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

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

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

A. Design Criteria

Under WAC 173-220-150 (1)(g), flows and waste loadings must not exceed approved design criteria. Ecology does not have an engineering report that specifies the design criteria for the wastewater treatment plant at this facility. Sonoco's system was installed before the design criteria requirements were promulgated; however, based on the original design criteria and results from the last 39 years of operation, Sonoco agrees with the following influent waste loadings:

Table 7 Design Criteria for Wastewater Treatment System

Parameter	Design Quantity
Daily Maximum Flow to Aeration Basin	0.600 MGD*
Monthly average Aeration Basin daily BOD5 influent loading	3,527 lb/day**

*from original CH2M Hill design criteria, 1973

**based on 85% removal efficiency in the original design and current monthly average effluent limit of 529 pounds/day.

B. Technology-Based Effluent Limits

Outfall 001 – Process Wastewater

Technology-based limitations are set by regulations or developed on a case-by-case basis. The federal effluent guidelines for practicable control technically available (BPT) is defined in 40 CFR Subpart J, Parts 430.102 and 430.105, which is the paperboard from wastepaper subcategory. The Environmental Protection Agency (EPA) published these guidelines in the federal register on April 15, 1998. The federal effluent guidelines for best conventional pollutants control technology (BCT) for these categories were originally defined under Subpart E on December 17, 1986 to be the same as BPT previously defined in March 1983. The subcategory was changed in April 1998, but the effluent guidelines were unchanged. As such, BCT and BPT were defined more than ten years ago. With BCT and BPT being defined longer than ten years, Ecology must determine if they are still valid and if it can still consider them equivalent to all known and reasonable treatment (AKART) for these categories of paper making.

Throughout the history of the effluent guidelines, secondary treatment has been the accepted standard for BOD and TSS removal. It is expected that in the immediate future this trend will continue as indicated by the guideline promulgated on April 15, 1998. Ecology therefore determines that the effluent guidelines for paperboard made from both corrugated and non-corrugated wastepaper are equivalent to AKART for the following reasons:

- The mill has historically generated wastewater from two components of raw wastepaper – corrugated and non-corrugated.
- EPA did not make any changes in the 1998 guidelines for BOD and TSS for the type of paper making conducted at Sonoco.
- EPA based the most recent guidelines on secondary treatment which Ecology expects will not change in the near future.
- All permits except those of paper grade sulfite and Kraft subcategories have been drafted and issued with the 1982 effluent guidelines being determined to be equivalent to AKART.

Therefore, Ecology used 40 CFR 430.102 and 40 CFR 430.105 for paperboard from wastepaper subcategory to determine technology-based limits. Ecology based the limits on best practicable control technology (BPT) for production levels that occurred prior to 1982 and based limits on new source performance standards (NSPS) for the production increases after 1982. Past production prior to 1982 averaged 61 tons per day. Ecology used 40 CFR 430.102 BPT effluent guideline allowances to determine technology-based limits for production up to 61 tons per day. Production during the 2007-2011 timeframe averaged 108 tons per day. The highest annual average production during the 2013-2017 permit term was 120 tons per day. Ecology used this value to determine technology-based limits for this permit cycle. Ecology used new source performance standards (NSPS) guidelines values contained in 40 CFR 430.105 and the 59 tons of production above the historical average of 61 tons per day to calculate technology-based limits for the production increases after 1982. The company indicated the raw furnish consisted of 75 percent corrugated and 25 percent non-corrugated. The breakout of production types and effluents guidelines numbers are given below:

Table 8 Technology-Based Limits – Based on 40 CFR Subpart J

Type	Production (2013 to Present)	Monthly Average Allocation	Monthly Average Limit	Daily Maximum Allocation	Daily Maximum Limit	Monthly Average Allocation	Monthly Average Limit	Daily Maximum Allocation	Daily Maximum Limit
	1000 lbs paper per day	lbs BOD per 1000 lbs paper	BOD lbs/day	lbs BOD per 1000 lbs paper	BOD lbs/day	lbs TSS per 1000 lbs paper	TSS lbs/day	lbs TSS per 1000 lbs paper	TSS lbs/day
Non-NSPS Corrugated (75%)	91.5	2.8	256.2	5.7	521.6	4.6	420.9	9.2	841.8
Non-NSPS Non-corrugated (25%)	30.5	1.5	45.75	3	91.5	2.5	76.2	5	152.5
Total Non-NSPS	**122**		**302.0**		**613.1**		**497.1**		**994.3**
NSPS Corrugated (75%)	88.5	2.1	185.8	3.9	345.2	2.3	203.5	4.4	389.4
NSPS Non-corrugated (25%)	29.5	1.4	41.3	2.6	76.7	1.8	53.1	3.5	103.3
Total NSPS	**118**		**227.1**		**421.9**		**256.6**		**492.7**

The technology effluent limits would be calculated using the production and allowances indicated. Technology-based effluent limits are summarized below:

Table 9 Calculated Technology - Based Allowances

BOD Monthly Average	BOD Daily Maximum	TSS Monthly Average [a]	TSS Daily Maximum [a]
529.1 lbs/day	1035 lbs/day	754 lbs/day	1487 lbs/day

a. See Tier II discussion in Section C below for reductions to these limits.

Outfalls 001A, 002, 003, and 004 – Stormwater

As described previously, the stormwater discharges from Outfall 001A discharges to Outfalls 002, 003, and 004 have been discharging to the City of Sumner sewer system. Sumner has a Phase II Storm Water General permit issued by Ecology. The City of Sumner and Sonoco have a contractual agreement titled "Agreement to Maintain Stormwater Facilities and to Implement a Pollution Source Control Plan" to allow Sonoco's stormwater discharge to city sewers. As part of this contract, Sonoco must perform and log detailed inspections and housekeeping about the stormwater sources and conveyances prior to final discharge to the City's system.

The proposed permit includes benchmarks and required corrective actions rather than discharge limits for the stormwater discharges from Outfalls 001A, 002, 003, and 004. The proposed permit also requires the implementation of best management practices (BMPs) to minimize pollutant levels in the discharges and the requirement to implement AKART. These BMPs must be included in the facility's Stormwater Pollutant Prevention Plan.

The following permit benchmarks are necessary to satisfy the requirement for AKART:

Table 10 Stormwater Benchmarks

Stormwater Benchmarks: Outfalls # 001A, 002,003, and 004 **Latitude 47.21246 Longitude 122.24139**		
Parameter	**Units**	**Maximum Daily**
Biochemical Oxygen Demand (5-day) (BOD_5)	mg/L	30
Ammonia	mg/L as N	38
Turbidity	NTU	25
Oil & Grease	mg/L	15
Lead (Total)	µg/L	81.6

Stormwater Benchmarks: Outfalls # 001A, 002,003, and 004 **Latitude 47.21246 Longitude 122.24139**		
Parameter	**Units**	**Maximum Daily**
Copper (Total)	µg/L	14
Zinc (Total)	µg/L	117
	Daily Minimum	**Daily Maximum**
pH	≥ 5.0 standard units	≤ 9.0 standard units

C. Surface Water Quality-Based Effluent Limits

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

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

Numerical Criteria for the Protection of Human Health

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

These newly adopted criteria, located in WAC 173-201A-240, are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

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

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

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

Antidegradation

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

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

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

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

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.

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

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

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

The overall terms and conditions of this permit are designed to collectively achieve Tier I requirements.

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.

Ecology defined “expanded action” in the Water Quality Program Guidance Manual publication no. 11-10-073 which addresses Tier II antidegredation. Ecology uses a 10% mass loading increase as a trigger for defining what is considered an expanded action. Ecology considers this interpretation as consistent with the current Ecology practice of applying new source performance standards to dischargers who increase production by more than 10%. Where a permit limit is not based on a facility’s design capacity, it is necessary to track the changes that occur in effluent mass loading over successive permit cycles, in order to implement the 10% trigger for an existing facility. WAC 173-201A-320, which addresses Tier II, became effective in 2003. Therefore the production allowance during 2003 is considered the base year allowance. The table below compares production-based emission factor derived allowances to the 2003 base year allowance.

Table 11 Previous and Proposed Permit Allowances Compared to 2003 Base Year

	BOD Monthly Average	BOD Daily Maximum	TSS Monthly Average	TSS Daily Maximum
2003 Baseline Allowance during 2001-2007 permit term	500 lbs/day	673 lbs/day	660 lbs/day	1310 lbs/day
2007-2012 permit term	529 lbs/day	673 lbs/day	754 lbs/day	1487 lbs/day
2013-2019 permit term	550 lbs/day	673 lbs/day	726 lbs/day	1441 lbs/day
2019-2024 proposed	529 lbs/day	673 lbs/day	726 lbs/day	1441 lbs/day
Increase from Baseline	5.8%	0%	10%	10%

While the current permit renewal application does not indicate an increase in production at the facility during the next permit cycle, Sonoco would have triggered a Tier II analysis based on the TSS and BOD mass loading increases greater than 10% from the base year allowance (2003 permit limits). Based on this fact, Sonoco has voluntarily accepted a mass loading increase cap of 10% for TSS and the 2003 limit for BOD rather than conduct a Tier II evaluation. The new BOD monthly average limit was further reduced from the previous 10% cap of the 2012 permit due to a decrease in production.

Mixing Zones – Outfall 001

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

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

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control, and treatment (AKART).

Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [WAC 173-201A-400 (7)(a)(ii-iii)].

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

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

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

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

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

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 Sonoco 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 Permit Writer's Manual.

Table 12 Critical Conditions Used to Model the Discharge

Critical Condition	Value
The seven-day-average low river flow with a recurrence interval of ten years (7Q10)	179 cfs
River depth at the 7Q10 period	3.5 feet
River velocity	0.55 ft per second
Manning roughness coefficient	0.03
Channel width	92 feet

Critical Condition	Value
Maximum average monthly effluent flow for chronic and human health non-carcinogen	0.19 MGD
Annual average flow for human health carcinogen	0.14 MGD
Maximum daily flow for acute mixing zone	0.28 MGD
7-DAD MAX Effluent temperature	25 degrees C

Ecology obtained ambient data at critical conditions in the vicinity of the outfall from Sonoco's Dilution Ratio Study 1993 and the Puyallup River TMDL study conducted by Ecology in 1993. An updated mixing study is required in the new permit. This study will take into account the current diffuser condition as well as any other discharge, ambient, and modeling changes that have occurred in the 26 years since the last 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 and is smaller than the size restrictions due to the use of the 2.5% of the 7Q10 river flow 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 less than 10% of the distance of the chronic mixing zone at the ten-year low flow as it will be met after mixing with just 2.5% of the 7Q10 river flow.

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

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

- **Comply with size restrictions.**

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

9. Overlap of mixing zones.

This mixing zone does not overlap another mixing zone.

D. Designated Uses and Surface Water Quality Criteria

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

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

Table 13 Freshwater Aquatic Life Uses and Associated Criteria

Salmonid Spawning, Rearing, and Migration	
Temperature Criteria – Highest 7-DAD MAX	17.5°C (63.5°F)
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	8.0 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

Salmonid Spawning, Rearing, and Migration	
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

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

Table 14 Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation	Escherichia coli (E coli) organism levels within an averaging period must not exceed a geometric mean value of 100 colony forming unit (CFU) or most probable number (MPN) /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 /100 mL.

- The *water supply uses* are domestic, agricultural, industrial, and stock watering.
- The *miscellaneous freshwater uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Water Quality Impairments

In June 1993 and July 1994, Ecology finalized the ammonia and biochemical oxygen demand total maximum daily loads (TMDL) for the White River.

Ecology set the daily maximum load waste load allocation (WLA) from Sonoco's discharge at 1.1 lbs/day for ammonia in the TMDL. Ecology also set the daily maximum WLA from Sonoco's discharge for BOD at 673 lbs/day in the TMDL. Ecology placed these WLA values in the NPDES permit issued September 25, 2001.

The WLA allocation protects the designated use classifications for the White River in the vicinity of Sonoco's outfall. These WLA allocations are placed in the proposed permit. The limits from the TMDL further ensure that the water quality of the receiving water are equal to or better than the use designation criteria and that the water quality will not be degraded.

In June of 2011, Ecology published the *Puyallup River Watershed Fecal Coliform Total Maximum Daily Load* report. The White River is a tributary to the Puyallup River. The federal Clean Water Act requires that a total maximum daily load (TMDL) be developed for each of the water bodies on the state's 303(d) list of polluted waters. The White River has experienced fecal coliform (FC) levels higher than the allowed standards for freshwater streams during the dry season (July through October). The TMDL identifies pollution problems in the watershed, and then specifies how much pollution needs to be reduced or eliminated to achieve clean water.

The goal of the Puyallup River watershed fecal coliform TMDL is to reduce FC concentrations within the watershed to water quality standards by 2022. One of the key action items from each effluent contributor is to determine the sources of the pollution to reach the load reductions for nonpoint sources.

The TMDL includes a WLA for Sonoco which is tabulated below. Because there is no additional loading capacity, Sonoco's WLA is the WQ criteria at the discharge point. EPA approved the TMDL in 2011.

Table 15 Fecal Coliform TMDL Wasteload Allocation (WQ Criteria)

Wastewater Treatment Plant	Geomean Limit	Less than 10% of the samples greater than
Sonoco Products	100 cfu/ 100 mL	200 cfu /100 mL

The TMDL study acknowledges "that waste load allocations as pollutant loading does not always work well for bacteria TMDL studies because bacteria loading in terms of "numbers of bacteria per day" is awkward and challenging to understand." Instead, a statistical rollback method was used to manage the distribution of fecal coliform bacteria counts. The overall approach is to achieve FC reduction from all sources. The goal of the Puyallup River watershed FC TMDL is to reduce FC concentrations within the study area to water quality standards by 2022 (page xiii of TMDL executive summary). The TMDL report goes on to address Sonoco Products directly in the following excerpt:

> *Within the study area, Sonoco Products is the only industrial facility that discharges treated industrial process water to surface waters. In a 2010 study, the facility found high concentrations of fecal indicator bacteria (fecal coliform and Escherichia coli) in their treated effluent, which discharges to the White River (Sonoco, 2011).*
>
> *Although the facility discharges a very small amount of effluent (approximately 0.15 MGD) and a relatively small FC load, the concentrations of FC were above water quality standards. Given that the White River does not currently meet FC standards in the receiving water segment, there is no additional loading capacity, and Sonoco effluent must meet the surface water quality standards at the point of discharge.*

The permit cycle beginning in 2013 established a 5-year compliance schedule for bringing mill effluent into compliance with the water quality standards for fecal coliform. Sonoco evaluated a Mixed Oxidant Solution (MOS) Generation System during June of 2016 for the 2016 critical season. The critical seasons during 2016 and 2017 were to be used to refine operation of the full scale system and work toward sufficient reduction of bacteria to meet water quality standards. Final limits became effective during the 2018 critical season. Monitoring required fecal sampling one day per month during the dry season (July through October). The results of sampling conducted during the 2018 sampling period are summarized below.

Table 16 2018 Fecal Coliform Monitoring Results as CFU/100ml

Sample Date	Fecal Coliform by MF (CFU/100 ml)
7/24/2018	5
8/23/2018	10
9/26/2018	10
10/30/2018	20
11/15/2018	25
Geometric Mean	12

On January 23, 2019, Ecology revised the water quality standards with an effective date of February 23, 2019. As part of the revisions, the bacterial indicator for freshwater was changed from fecal coliform to Escherichia coli (E. coli). The new criteria is:

Table 17 Proposed Bacteria Indicator

Bacterial Indicator	Geomean Limit	Less than 10% of the samples greater than
E. Coli	100 CFU or MPN / 100 mL	320 CFU or MPN / 100 mL

The current TMDL has not been updated yet to reflect the new bacteria indicator, therefore, Ecology is proposing that Sonoco continue the use of the MOS system and the proposed permit will retain the Fecal Coliform limit. In addition, the new bacterial water quality standard for E. Coli will be applied to the discharge. Ecology feels this meets the current TMDL, since the TMDL "allowance" for Sonoco is that they comply with the water quality standards at the point of discharge.

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

Ecology must consider the narrative criteria described in WAC 173-201A-160 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section.

When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

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

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

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants; their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biochemical 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. Outfall 001 is the only outfall that directly discharges to a surface water body and is the only outfall discussed in the following sections related to water quality criteria. The ultimate discharge of stormwater from Outfalls 002, 003, and 004 are addressed under a different permit, as discussed in Section III.B above.

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

The original outfall consisted of seven ports. Sloughing in the stream bank has resulted in the current 4 functional port outfall configuration. The 4-port configuration was evaluated for compliance with applicable water quality standards.

The functional portion of the diffuser at Outfall 001 is 9 feet long with a diameter of 10 inches. The diffuser has a total of 4 three-inch diameter ports. The distance between ports is 3 feet. The diffuser depth is 2.5 feet. The mean lower low water (MLLW) depth is 3.5 feet. Ecology obtained this information from the Dilution Ratio Study Report submitted on June 15, 1993 and amended on November 13, 1995. The dilution ratios presented in Table 17 below are from the 1995 Dilution Ratio Study amendment.

The most recent visual inspection occurred on October 12, 2017. No issues were reported.

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% of the flow, and not occupy greater than 25% of the width of the water body.

The horizontal distance of the chronic mixing zone is 302.5 feet. The mixing zone extends from the bottom to the top of the water column. The width of the mixing zone is 25% of the width of the water body or 23 feet.

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% of the distance towards the upstream and downstream boundaries of the chronic zone, not use greater than 2.5% of the flow and not occupy greater than 25% of the width of the water body.

The horizontal distance of the acute mixing zone is 30.3 feet. The mixing zone extends from the bottom to the top of the water column. The dilution factor is based on this distance.

Ecology determined the dilution factors that occur within these zones at the critical condition using CORMIX2 model. The dilution factors are listed below.

Table 18 Dilution Factors (DF)

Criteria	Acute	Chronic
Aquatic Life	15	130
Human Health, Carcinogen		130
Human Health, Non-carcinogen		130

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

Dissolved Oxygen--BOD_5 and Ammonia Effects--Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone.

The 5-day Biochemical Oxygen Demand (BOD_5) of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. The amount of ammonia-based nitrogen in the wastewater also provides an indication of oxygen demand in the receiving water.

Ecology completed a dissolved oxygen and ammonia TMDL for the Puyallup River in 1993, and established mill effluent limits for BOD_5 and ammonia. The proposed permit includes daily maximum effluent limits for BOD_5 and ammonia derived from completed TMDL.

pH--The 2007-2012 permit term required the Permittee to perform a two-year study on the pH of the receiving water. Receiving water data was collected upstream and downstream from the outfall in 2002 and again in 2006 during the critical summer months of June through October. The average upstream pH was 7.45 in 2002 and 7.25 in 2006. The average downstream pH was 7.39 in 2002 and 7.18 in 2006.

Ecology modeled the impact of the effluent pH on the receiving water using the calculations from EPA, 1988, and the chronic dilution factor tabulated above. Appendix D includes the model results.

Ecology predicts no violation of the pH criteria under critical conditions. Therefore, the proposed permit includes technology-based effluent limits for pH. Generally in this case Ecology would include a technology-based limit of a pH range of 6.0 to 9.0.

Fecal Coliform-- The 2007-2012 permit required the Permittee to perform a two-year study on fecal coliform. The fecal coliform data gathered during the two-year study indicated that ten percent of fecal coliform values were greater than 200 CFU/100 mL. The data indicated that the White River is of lower water quality than the criteria assigned. These data for Sonoco's effluent showed that several tests measured fecal coliform counts greater than 1600 CFU/100 mL.

Ecology received the results of the fecal coliform study on February 1, 2011. The purpose of the study was to determine if fecal coliform counts in the mill effluent will cause a violation of the water quality criteria at the edge of the chronic mixing zone and if the measured fecal coliform are from the pulping processing. There are several issues causing Ecology to require this study. The White/Stuck River has shown inability to maintain the fecal coliform Water Quality Standard and Sonoco's Waste Water discharge has occasionally tested high in fecal coliform. Confusing this issue is that fecal coliform is an indicator bacterium and not necessarily an indication of a hazard. There are non-harmful bacteria such as klebsiella associated with paper manufacturing that will test as fecal coliform. Ecology recognizes this issue with paper mill effluents so it allows alternative indicator criteria to be used. The water quality criteria for fecal coliform bacteria is that it shall not exceed a geometric mean of 100 CFU/100 mL, and not more than 10% of all samples may exceed 200 CFU/100 mL. The results of the study are summarized below and indicate that while Sonoco's effluent contributes to fecal count it is inconclusive as an explanation for the downstream fecal count.

Table 19 Summarized Results as Geometric Mean of Sonoco 2010 Fecal Coliform Study

Effluent			**410 Bridge (downstream)**			**Tacoma Bridge (upstream)**		
Fecal Coli	**E Coli**	**Klebsiella**	**Fecal Coli**	**E Coli**	**Klebsiella**	**Fecal Coli**	**E Coli**	**Klebsiella**
352	208	148	62	50	40	46	41	18

As discussed in Section III. E above, Ecology completed the Puyallup River Watershed Fecal Coliform Total Maximum Daily Load Water Quality Improvement Report and Implementation Plan (Publication No. 11-10-040) in June 2011 and included a waste load

allowance for Sonoco during the dry months (July through October). A reasonable potential analysis for the remaining months could not be performed since the facility did not collect E. Coli measurements for those months during the last permit cycle. The proposed permit requires E. Coli monitoring throughout the year for comparison to the water quality criteria during the next permit renewal.

Turbidity--Ecology evaluated the impact of turbidity based on the range of turbidity in the effluent and turbidity of the receiving water. Based on visual observation of the facility's effluent, Ecology expects no violations of the turbidity criteria outside the designated mixing zone.

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.

Ammonia's toxicity depends on that portion which is available in the unionized form. The amount of unionized ammonia depends on the temperature and pH in the receiving freshwater. To evaluate ammonia toxicity, Ecology used the available receiving water information for ambient station 10C070 and Ecology spreadsheet tools. The evaluation demonstrated that there is not a reasonable potential for Sonoco's discharge to cause or contribute to an exceedance of the water quality standard.

The following toxic pollutants are present in the discharge: Chlorine, Ammonia, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Cyanide, Lead, Nickle, Thallium, and Zinc. A reasonable potential analysis to exceed water quality criteria was performed on all these pollutants. Ecology determined that the cited pollutants pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991 (**Appendix D**) and as described above. Ecology's determination assumes that this facility meets the other effluent limits of this permit.

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

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

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

- Annual summer maximum and supplementary spawning/rearing criteria

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

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

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- Incremental warming criteria

The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

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

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

- Protections for temperature acute effects

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

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

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

Reasonable Potential Analysis

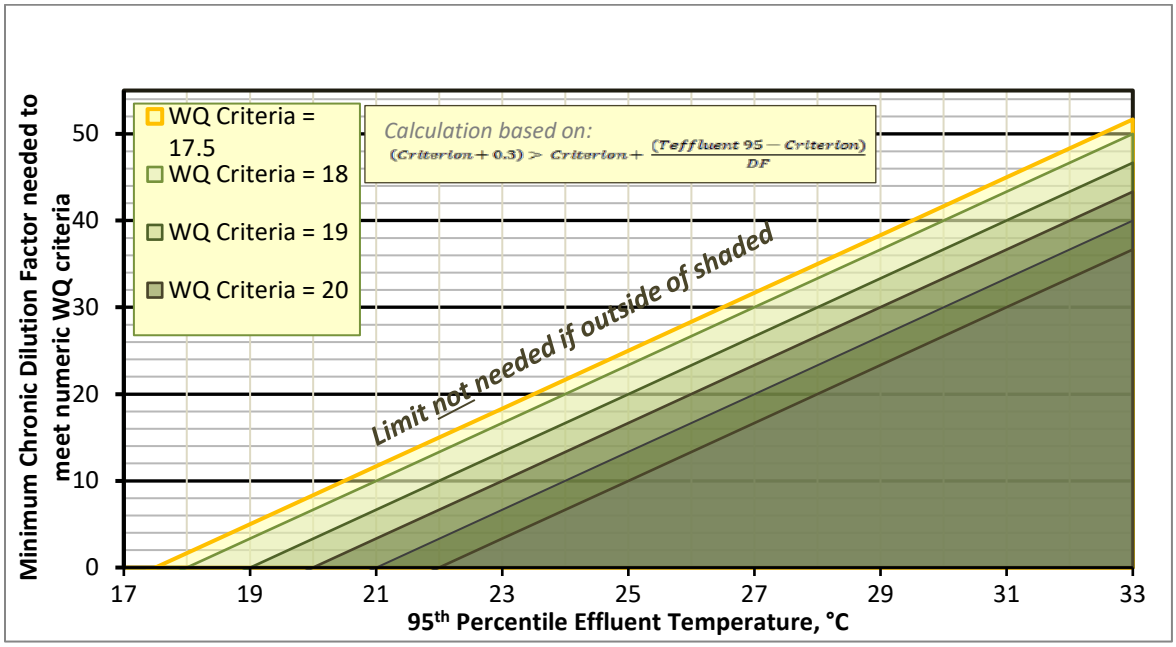
The Permittee completed a two-year study on temperature during the 2007-2012 permit term. Ecology reviewed existing records and found that the White River at the point of Sonoco's discharge is below the water quality classification for temperature during a small time frame in the late summer months.

Annual Summer Maximum, Supplementary Spawning Criterion, and Incremental Warming Criteria: Ecology calculated the reasonable potential for the discharge to exceed the annual summer maximum, the supplementary spawning criterion, and the incremental warming criteria at the edge of the chronic mixing zone during critical condition(s). No reasonable potential exists to exceed the temperature criterion where:

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

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

Figure 2. Dilution Necessary to Meet Criteria at Edge of Mixing Zone



(17.5 + 0.3) > (17.5 + (26.7– 17.5)/130).

Therefore, the proposed permit does not include a temperature limit. The permit requires additional monitoring of effluent temperatures. Ecology will reevaluate the reasonable potential during the next permit renewal. Ecology included the temperature calculations in Appendix D.

H. Human Health

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

Ecology determined the effluent may contain chemicals of concern for human health, based on the facility's status as an EPA major discharger, data or information indicating the discharge contains regulated chemicals, and a 303(d) listing (quality impairment) of the receiving waterbody for a regulated chemical that Ecology knows or expects is present in the discharge.

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

I. Sediment Quality

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

Ecology evaluated the sediment deposition and accumulation potential in the vicinity of the Sonoco outfall and concluded that the outfall is in a high energy environment where there is very low potential sediment deposition such that:

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

J. Groundwater Quality Limits

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

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

K. Whole Effluent Toxicity

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

- *Acute toxicity tests measure mortality as the significant response* to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.
- *Chronic toxicity tests measure various sublethal toxic responses*, such as reduced growth or reproduction.

  Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure organism survival.

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

All WET testing results conducted in order to monitor for compliance with a chronic WET limit assigned in a previous permit met the chronic toxicity performance standard defined in WAC 173-205-020. In addition, Ecology has determined that the Permittee has not made any changes to the facility which would trigger an additional effluent characterization pursuant to WAC 173-205-060. For these reasons, Ecology has not included the chronic WET limit in the proposed permit. Instead, the Permittee must conduct WET testing at the end of the permit term in order to verify that effluent toxicity has not increased.

Table 20 WET Testing Results

WET Test Results Summary for Sonoco (WA0000884)						
Scheduled	**Organism**	**Endpoint**	**NOEC**	**LOEC**	**Effluent Survival (100%)**	**Met Performance Standard?**
2013 December	*Ceriodaphnia dubia* (Water Flea)	48-Hour Survival	100%	>100%	95.0%	**Yes**
2013 December	*Ceriodaphnia dubia* (Water Flea)	7 Day Survival	12%	>12%	100.0%	**Yes**
		7 Day Reproduction	12%	>12%		
2014 January	*Ceriodaphnia dubia* (Water Flea)	48-Hour Survival	100%	>100%	95.0%	**Yes**
2014 June	*Pimephales promelas* (Fathead Minnow)	96-Hour Survival	100%	>100%	100.0%	**Yes**
2014 June	*Pimephales promelas*(Fathead Minnow)	7 Day Survival	12%	>12%	100.0%	**Yes**
		7 Day Biomass	12%	>12%		
		7 Day Weight	12%	>12%		
2014 November	*Ceriodaphnia dubia* (Water Flea)	48-Hour Survival	100%	>100%	100.0%	**Yes**
2014 November	*Ceriodaphnia dubia* (Water Flea)	7 Day Survival	12%	>12%	100.0%	**Yes**
		7 Day Reproduction	12%	>12%		

WET Test Results Summary for Sonoco (WA0000884)						
2015 June	*Pimephales promelas* (Fathead Minnow)	96-Hour Survival	100%	>100%	97.5%	**Yes**
2015 June	*Pimephales promelas* (Fathead Minnow)	7 Day Survival	12%	>12%	100.0%	**Yes**
		7 Day Biomass	12%	>12%		
		7 Day Weight	12%	>12%		
2015 December	*Ceriodaphnia dubia* (Water Flea)	48-Hour Survival	100%	>100%	100.0%	**Yes**
2015 December	*Ceriodaphnia dubia* (Water Flea)	7 Day Survival	12%	>12%	100.0%	**Yes**
		7 Day Reproduction	12%	>12%		
2016 June	*Pimephales promelas* (Fathead Minnow)	96-Hour Survival	100%	>100%	97.5%	**YES**
2016 June	*Pimephales promelas* (Fathead Minnow)	7 Day Survival	12%	>12%	100.0%	**YES**
		7 Day Biomass	12%	>12%		
		7 Day Weight	12%	>12%		
2017 July	*Pimephales promelas* (Fathead Minnow)	7 Day Survival	12%	>12%	90.0%	**Yes**
		7 Day Biomass	12%	>12%		
		7 Day Weight	12%	>12%		

WET Test Results Summary for Sonoco (WA0000884)						
2017 July	*Pimephales promelas* (Fathead Minnow)	96-Hour Survival	100%	>100%	92.5%	**Yes**
2017 November	*Ceriodaphnia dubia* (Water Flea)	96-Hour Survival	100%	>100%	100.0%	**Yes**
2017 November	*Ceriodaphnia dubia* (Water Flea)	7 Day Survival	12%	>12%	100.0%	**Yes**
		7 Day Reproduction	12%	>12%		

Table 21 Comparison of Previous and Proposed Effluent Limits

		Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
Parameter	**Basis of Limit**	**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Biochemical Oxygen Demand (5-day)	Technology for monthly average [a], TMDL for daily maximum	550 lbs/day	673 lbs/day	529 lbs/day	673 lbs/day
Total Suspended Solids	Technology for monthly average and daily maximum [a]	754 lbs/day	1487 lbs/day	726 lbs/day	1441 lbs/day
Total Ammonia N	TMDL for daily maximum	1.1 lbs/day		-	1.1 lbs/day

a. Reduced to avoid triggering a Tier II analysis.

Table 22 Comparison of Previous and Proposed Geometric Mean Limits

Parameter	**Basis of Limit**	**Previous Effluent Monthly Geometric Mean Limit**	**Previous Effluent Geometric Mean Sample Variance Limit**	**Proposed Effluent Monthly Geometric Mean Limit**	**Proposed Effluent Geometric Mean Sample Variance Limit**
Fecal Coliform Bacteria	TMDL	100 CFU / 100 mL	Less than 10% of samples greater than 200 CFU / 100 mL	100 CFU / 100 mL	Less than 10% of samples greater than 200 CFU / 100 mL
E. Coli	Water Quality Based	N/A	N/A	100 CFU or MPN / 100 mL	Less than 10% of samples greater than 320 CFU or MPN / 100 mL
Parameter	**Basis of Limit**	**Previous Effluent Limits: Outfall # 001**		**Proposed Effluent Limits: Outfall # 001**	
pH	Technology	6.0 – 9.0		6.0 – 9.0	

V. Monitoring Requirements

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

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

A. Wastewater Monitoring

The monitored parameters and 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). Ecology accredited the laboratory at this facility for TSS, pH, and BOD.

VI. 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. Nonroutine and Unanticipated Wastewater

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

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

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

- Require the facility to reuse the wastewater.

C. Spill Plan

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

Sonoco 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 within at least one year of the effective permit renewal date.

D. Solid Waste Control Plan

Sonoco 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 within one year of the effective date of this permit. The facility must submit the plan to Ecology for approval (RCW 90.48.080). You can obtain an Ecology guidance document, which describes how to develop a Solid Waste Control Plan, at Solid Waste Control Plan Guidance.

E. Effluent Mixing Study

Ecology used a 1993 study to estimate the amount of mixing of the treated process wastewater discharge with receiving water and the potential for the mixture to violate the water quality standards for surface waters at the edge of the mixing zone (chapter 173-201A WAC). The proposed permit requires Sonoco to perform an updated study to determine the mixing characteristics of the discharge to reflect current discharge scenarios and the current configuration of the outfall (Special Condition S.15). The effluent mixing study must measure or model the characteristics of the discharge under conditions specified in the permit to assess whether the receiving water quality is protected outside the mixing zone boundary.

F. Outfall Evaluation

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

G. Operation and Maintenance Manual

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [40 CFR 122.41(e) and WAC 173-220-150 (1)(g)]. The facility must prepare and submit any substantial changes or updates to the operation and maintenance manual.

Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit.

H. Stormwater Pollution Prevention Plan

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

The SWPPP must identify potential sources of stormwater contamination from industrial activities and identify how it plans to manage those sources of contamination to prevent or minimize contamination of stormwater. Sonoco 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. Sonoco must ensure that its SWPPP includes the operational and structural source control BMPs listed as "applicable" in Ecology's stormwater management manuals. Many of these "applicable" BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

Ecology-Approved Stormwater Management Manuals

Consistent with RCW 90.48.555 (5) and (6), the proposed permit requires the facility to implement BMPs contained in the Stormwater Management Manual for Western Washington (*2005* edition), or any revisions thereof, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology.

This should ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under 40 CFR part 125.3. The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including: The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected.

An assessment of how the BMPs will satisfy AKART requirements and the applicable technology-based treatment requirements under 40 CFR part 125.3.

Operational Source Control BMPs

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

Structural Source Control BMPs

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

Treatment BMPs

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

Volume/Flow Control BMPs

Ecology recognizes the need to include specific BMP requirements for stormwater runoff quantity control to protect beneficial water uses, including fish habitat.

New facilities and existing facilities undergoing redevelopment must implement the requirements for peak runoff rate and volume control identified by volume 1 of the *Western Washington SWMM* and chapter 2 in the *Eastern Washington SWMM* as applicable to their development. Chapter 3 of volume 3 *Western Washington SWMM* and chapter 6 in the *Eastern Washington SWMM* lists BMPs to accomplish rate and volume control.

Existing facilities in western Washington should also review the requirements of volumes 1 (Minimum Technical Requirements) and chapter 3 of volume 3 in the *Western Washington SWMM*. Chapter 2 (Core Elements for New Development and Redevelopment) in the *Eastern Washington SWMM* contains the minimum technical requirements for facilities east of the Cascades. Although not required to implement these BMPs, controlling rate and volume of stormwater discharge maintains the health of the watershed. Existing facilities should identify control measures that they can implement over time to reduce the impact of uncontrolled release of stormwater.

I. Prohibited Discharges

Ecology prohibits certain pollutants from being discharged to the treatment system. These include substances which cause pass-through or interference, pollutants which may cause damage to the treatment system or harm to the treatment system workers (chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (chapter 173-303 WAC). The permit includes discharge prohibitions to the Sonoco Wastewater Treatment Plant and to the City of Sumner's Stormwater System.

Discharges of process wastewater, stormwater from process areas, oil, or trash or floating debris to the City of Sumner's Stormwater System is prohibited. This prohibition is based on Special Conditions S5.E. and S5.F. of the *Industrial Stormwater General Permit* (2015). Discharges of sanitary wastewater to Sonoco's wastewater treatment system are prohibited.

J. 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.

VII. Permit Issuance Procedures

A. Permit Modifications

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

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

B. Proposed Permit Issuance

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

VIII. REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

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

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

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

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

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

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

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

Washington State Department of Ecology.

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

September 2011. *Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation*. Publication Number 11-10-073 (Supplemental Tier II Antidegradation Guidance)

October 2010 (revised). *Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits*. Publication Number 06-10-100 (Implementing Washington State's Temperature Standards)

Laws and Regulations (Washington State Laws and Regulations)

Permit and Wastewater Related Information (*Water Quality Guidance*)

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

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

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

Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to Sonoco Products 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 will place a Public Notice of Draft on September 11, 2019 in the Bonney Lake & Sumner Courier-Herald to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

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

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

You may obtain further information from Ecology by telephone, 360-407-6937 or by writing to the address listed below.

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

The primary author of this permit and fact sheet is Mark Dirkx.

Appendix B--Your Right to Appeal

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

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

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

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

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

ADDRESS AND LOCATION INFORMATION

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

Appendix C--Glossary

1-DMax or 1-day maximum temperature -- The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-day average of the daily maximum temperatures -- The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute toxicity --The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART -- The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 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 month's time taking into account zero discharge days.

Average monthly discharge limit -- The average of the measured values obtained over a calendar month's time.

Background water quality -- The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)].

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

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

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

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

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

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

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

Clean water act (CWA -- The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples.

May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity -- Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring -- Uninterrupted, unless otherwise noted in the permit.

Critical condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of receipt – This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

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

Dilution factor (DF) -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

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

Early warning value -- The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit -- The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report -- A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method detection level (MDL) -- See Detection Limit.

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

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

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

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

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

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

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

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

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

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

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

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

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

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

Sample Maximum -- No sample may exceed this value.

Significant industrial user (SIU) --

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix D--Technical Calculations

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found in the PermitCalc workbook on Ecology's webpage at PermitCalc.

Simple Mixing:

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

$$C_{mz} = Ca + \frac{(Ce - Ca)}{DF}$$

where: Ce = Effluent Concentration
Ca = Ambient Concentration
DF = Dilution Factor

Reasonable Potential Analysis:

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

Calculation of Water Quality-Based Effluent Limits:

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

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

WLA_a	=	(acute criteria x DF_a) – [(background conc. x (DF_a - 1)]
WLA_c	=	(chronic criteria x DF_c) – [(background conc. x (DF_c -1)]
	where:	DF_a = Acute Dilution Factor
		DF_c = Chronic Dilution Factor

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

$LTA_a = WLA_a \times e^{[0.5\sigma^2 - z\sigma]}$		
	where:	$\sigma^2 = \ln[CV^2 + 1]$ $z = 2.326$ CV = coefficient of variation = std. dev/mean
$LTA_c = WLA_c \times e^{[0.5\sigma^2 - z\sigma]}$		
	where:	$\sigma^2 = \ln[(CV^2 \div 4) + 1]$ $z = 2.326$

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

MDL = Maximum Daily Limit		
$MDL = LTA \times e^{(Z\sigma - 0.5\sigma^2)}$		
	where:	$\sigma^2 = \ln[CV^2 + 1]$ $z = 2.326$ (99th percentile occurrence) LTA = Limiting long term average
AML = Average Monthly Limit		
$AML = LTA \times e^{(Z\sigma_n - 0.5\sigma_n^2)}$		
	where:	$\sigma^2 = \ln[(CV^2 \div n) + 1]$ n = number of samples/month z = 1.645 (95th % occurrence probability) LTA = Limiting long term average

Instructions

Reasonable Potential Calculation

Facility	Sonoco
Water Body Type	Freshwater
Rec. Water Hardness	26.1 mg/L

Dilution Factors:	Acute	Chronic
Aquatic Life	15.0	130.0
Human Health Carcinogenic		130.0
Human Health Non-Carcinogenic		130.0

Pollutant, CAS No. & NPDES Application Ref. No.			AMMONIA, Criteria as Total NH3	ANTIMONY (INORGANIC) 7440360 1M	ARSENIC (dissolved) 7440382 2M	ARSENIC (inorganic)	BERYLLIUM 7440417 3M	CADMIUM - 7440439 4M Hardness dependent	CHROMIUM(HEX) 18540299 - Dissolved	CHROMIUM(TRI) -16065831 5M Hardness dependent	COPPER - 744058 6M Hardness dependent	CYANIDE 57125 14M	LEAD - 7439921 7M Dependent on hardness
Effluent Data	# of Samples (n)		12	4	4	4	4	4	4	4	4	4	4
	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)		170.00	1.36	1.57	1.57	0.033	0.043	2.05	2.05	2.17	12.1	0.735
	Calculated 50th percentile Effluent Conc. (when n>10)												
Receiving Water Data	90th Percentile Conc., ug/L												
	Geo Mean, ug/L												
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	13,283	-	360	-	-	1	15	182.6391	4.6	22	14
		Chronic	1,492	-	190	-	-	0.15	10	59.24623	3.5	5.2	0.5
	WQ Criteria for Protection of Human Health, ug/L		-	6	-	0.018	-	-	-	-	1300	9	-
	Metal Criteria Translator, decimal	Acute	-	-	1	-	-	0.943	-	0.316	0.996	-	0.466
		Chronic	-	-	1	-	-	0.943	-	0.86	0.996	-	0.466
	Carcinogen?		N	N	Y	Y	Y	N	N	N	N	N	N

Aquatic Life Reasonable Potential

Effluent percentile value			0.950		0.950			0.950	0.950	0.950	0.950	0.950	0.950
s	$s^2=\ln(CV^2+1)$		0.555		0.555			0.555	0.555	0.555	0.555	0.555	0.555
Pn	Pn=(1-confidence level)$^{1/n}$		0.779		0.473			0.473	0.473	0.473	0.473	0.473	0.473
Multiplier			1.63		2.59			2.59	2.59	2.59	2.59	2.59	2.59
Max concentration (ug/L) at edge of…		Acute	18		0.271			0.007	0.353	0.112	0.373	2.085	0.059
		Chronic	2		0.031			0.001	0.041	0.035	0.043	0.241	0.007
Reasonable Potential? Limit Required?			**NO**		**NO**			**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Aquatic Life Limit Calculation

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

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$			0.55451	0.55451					0.55451	0.55451	
Pn	Pn=(1-confidence level)1/n			0.473	0.473					0.473	0.473	
Multiplier				1.03846	1.03846					1.03846	1.03846	
Dilution Factor				130	130					130	130	
Max Conc. at edge of Chronic Zone, ug/L				0.01086	0.01254					0.01733	0.09666	
Reasonable Potential? Limit Required?				**NO**	**NO**					**NO**	**NO**	

Human Health Limit Calculation

# of Compliance Samples Expected per month	
Average Monthly Effluent Limit, ug/L	
Maximum Daily Effluent Limit, ug/L	

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

Reasonable Potential Calculation - Page 2

Facility	Sonoco
Water Body Type	Freshwater
Rec. Water Hardness	26.1 mg/L

Dilution Factors:	Acute	Chronic
Aquatic Life	15.0	130.0
Human Health Carcinogenic		130.0
Human Health Non-Carcinogenic		130.0

Pollutant, CAS No. & NPDES Application Ref. No.			NICKEL - 7440020 9M - Dependent on hardness	THALLIUM 7440280 12M	ZINC- 7440666 13M hardness dependent									
Effluent Data	# of Samples (n)		4	4	4									
	Coeff of Variation (Cv)		0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		2.53	0.053	14.7									
	Calculated 50th percentile Effluent Conc. (when n>10)													
Receiving Water Data	90th Percentile Conc., ug/L		0											
	Geo Mean, ug/L		0											
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	454.317	-	36.671217									
		Chronic	50.45555	-	33.486383									
	WQ Criteria for Protection of Human Health, ug/L		80	1.7	1000									
	Metal Criteria Translator, decimal	Acute	0.998	-	0.996									
		Chronic	0.997	-	0.996									
	Carcinogen?		N	N	N									

Aquatic Life Reasonable Potential

Effluent percentile value			0.950	0.950
s	$s^2=\ln(CV^2+1)$		0.555	0.555
Pn	$Pn=(1\text{-confidence level})^{1/n}$		0.473	0.473
Multiplier			2.59	2.59
Max concentration (ug/L) at edge of…		Acute	0.435	2.523
		Chronic	0.050	0.291
Reasonable Potential? Limit Required?			**NO**	**NO**

Aquatic Life Limit Calculation

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

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$	0.554513	0.55451	0.554513
Pn	Pn=(1-confidence level)1/n	0.473	0.473	0.473
Multiplier		1.038459	1.03846	1.0384587
Dilution Factor		130	130	130
Max Conc. at edge of Chronic Zone, ug/L		0.02021	0.00042	0.1174257
Reasonable Potential? Limit Required?		**NO**	**NO**	**NO**

Human Health Limit Calculation

# of Compliance Samples Expected per month			
Average Monthly Effluent Limit, ug/L			
Maximum Daily Effluent Limit, ug/L			

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

Freshwater Temperature Reasonable Potential and Limit Calculation

Based on WAC 173-201A-200(1)(c)(i)--(ii) and the Water Quality Program Guidance. All data inputs must meet WQ guidelines. The Water Quality temperature guidance document may be found at: https://fortress.wa.gov/ecy/publications/summarypages/0610100.html

	Core Summer Critera	Supplemental Criteria
INPUT	**July 1-Sept 14**	**Sept 15-July 1**
1. Chronic Dilution Factor at Mixing Zone Boundary	130.0	130.0
2. 7DADMax Ambient Temperature (T) (Upstream Background 90th percentile)	18.2 °C	18.2 °C
3. 7DADMax Effluent Temperature (95th percentile)	26.7 °C	26.7 °C
4. Aquatic Life Temperature WQ Criterion in Fresh Water	17.5 °C	17.5 °C
OUTPUT		
5. Temperature at Chronic Mixing Zone Boundary:	18.3 °C	18.3 °C
6. Incremental Temperature Increase or decrease:	0.1 °C	0.1 °C
7. Maximum Allowable Incremental Temperature Increase:	0.3 °C	0.3 °C
8. Maximum Allowable Temperature at Mixing Zone Boundary:	18.5 °C	18.5 °C
A. If ambient temp is warmer than WQ criterion		
9. Does temp fall within this warmer temp range?	YES	YES
10. Temperature Limit if Required:	NO LIMIT	NO LIMIT
B. If ambient temp is cooler than WQ criterion but within $28/(T_{amb}+7)$ and within 0.3 °C of the criterion		
11. Does temp fall within this incremental temp. range?	---	---
12. Temp increase allowed at mixing zone boundary, if required:	---	---
C. If ambient temp is cooler than (WQ criterion-0.3) but within $28/(T_{amb}+7)$ of the criterion		
13. Does temp fall within this Incremental temp. range?	---	---
14. Temp increase allowed at mixing zone boundary, if required:	---	---
D. If ambient temp is cooler than (WQ criterion - $28/(T_{amb}+7)$)		
15. Does temp fall within this Incremental temp. range?	---	---
16. Temp increase allowed at mixing zone boundary, if required:	---	---
RESULTS		
17. Do any of the above cells show a temp increase?	**NO**	**NO**
18. Temperature Limit if Required?	**NO LIMIT**	**NO LIMIT**

Calculation of pH of a Mixture of Two Flows

Based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.)

INPUT			
	@ Acute Boundary	@ Chronic Boundary	@ Whole River
1. Dilution Factor at Mixing Zone Boundary	15.0	130.0	179.0
2. Ambient/Upstream/Background Conditions			
Temperature (deg C):	19.90	19.90	19.90
pH:	7.50	7.50	7.50
Alkalinity (mg CaCO3/L):	50.00	50.00	50.00
3. Effluent Characteristics			
Temperature (deg C):	26.70	26.70	26.70
pH:	8.50	8.50	8.50
Alkalinity (mg CaCO3/L):	390.00	390.00	390.00
OUTPUT			
1. Ionization Constants			
Upstream/Background pKa:	6.38	6.38	6.38
Effluent pKa:	6.34	6.34	6.34
2. Ionization Fractions			
Upstream/Background Ionization Fraction:	0.93	0.93	0.93
Effluent Ionization Fraction:	0.99	0.99	0.99
3. Total Inorganic Carbon			
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	54	54	54
Effluent Total Inorganic Carbon (mg CaCO3/L):	393	393	393
4. Condtions at Mixing Zone Boundary			
Temperature (deg C):	20.35	19.95	19.94
Alkalinity (mg CaCO3/L):	72.67	52.62	51.90
Total Inorganic Carbon (mg CaCO3/L):	76.41	56.42	55.71
pKa:	6.38	6.38	6.38
RESULTS			
pH at Mixing Zone Boundary:	**7.67**	**7.52**	**7.52**

Appendix E--Response to Comments

NPDES Permit WA0000884

Sonoco Products Company
Public comment period: September 11 – October 14, 2019

This document addresses questions and comments received by the Department of Ecology (Ecology) during the public comment period on draft NPDES permit WA0000884 for Sonoco Products Company in Sumner, Washington (Pierce county).

We published notice of an opportunity to comment in the Courier-Herald on September 11, 2019, and on the Ecology website. In the notice, we invited public review and provided a public comment period.

We received comments from one organization during the comment period. Comments appear in italicized text, followed by Ecology's response in regular text.

Comments from Tim Trumbull (Sonoco):

Comment 1: Fecal Indicator Bacteria Monitoring Methods

Appendix A of the proposed permit includes a list of approved analytical methods. The methods approved for fecal coliform include SM 9222 (membrane filtration) and SM 9221E (multiple tube fermentation), while SM 9221F (multiple tube fermentation) is shown as an approved method for E. coli. We request the option to use the modified Colilert method (at 44.5°C incubation temperature) (SM 9223B) to simultaneously measure fecal coliform and E. coli for the following reasons:

a. *Use of this method will permit evaluation of both fecal coliform and E. coli at no additional cost.*
b. *Fecal coliform tests measure all thermotolerant bacteria, not all of which are associated with intestinal sources (e.g. Klebsiella species from wood runoff) and E. coli may be only a fraction of fecal coliform.*
c. *The Colilert test method (approved under 40 CFR, part 136) has a wider analytical range which reduces the likelihood of reporting results as too numerous to count (TNTC) or estimated values common in membrane filtration reporting.*
d. *It should be noted that currently 15 Washington laboratories are accredited to run the Colilert Test (SM 9223B) for E. coli and 10 are accredited to run the Colilert test for fecal coliforms in non-potable and wastewaters.*

Additionally, we request the ability to perform EPA method 1603 (membrane filtration) for E. coli to provide operational flexibility as required.

As such, we request that the following test methods be added to the NPDES permit, Appendix A, all of which have been approved by the USEPA under 40 CFR Part136 (Table 1A- List of Approved Biological Methods for Wastewater and Sewage Sludge).

- *Colilert 18® QTray® (fecal coliform in wastewater)*

- *EPA method 1603 (modified mTEC) for E. coli*
- *SM 9223 B Colilert 18® QTray® for E. coli (at the method prescribed incubation temperature of 35 °C rather than the 44.5 °C)*

Response to Comment 1:

As currently described at the beginning of Appendix A other EPA approved methods are already allowed by the permit. The following language is quoted directly from Appendix A:

> "The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for permit and application required monitoring unless:
>
> - Another permit condition specifies other methods, detection levels, or quantitation levels.
> - The method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136.
>
> If the Permittee uses an alternative method, not specified in the permit and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report."

Ecology notes that one method per sample is required. Multiple methods per sample seeking the lowest result must not be employed.

Comment 2: S3.F.a. Reporting Permit Violations- Immediate Reporting

The first bulleted item under "Immediate Reporting" states that "Failures of the disinfection system" are required to be reported to the agency. Our facility is not required to disinfect effluent but we do utilize a Miox oxidant system to neutralize bacteria as needed. It is not clear what type of failure the agency wishes for Sonoco to report as fecal coliform levels are typically below permitted limits without the Miox oxidant system operating. The facility requests confirmation that the Miox system is not considered a disinfection system and that the White River is not a waterbody used as a source of drinking water.

Response to Comment 2:

Any failure of the disinfection system (Miox) must be immediately reported. While it is suspected that the fecal coliform is a result of wood waste and not warm-blooded animals, more data must be collected to verify that assumption. The proposed permit has additional sampling requirements for E. Coli, which can be used to verify that the fecal coliforms are not from warm blooded animals and the notification requirement may be reassessed during the next permit renewal.

Comment 3: Fecal Coliform Limit Removal

If both fecal coliform and E. coli are being proposed as bacterial indicators, we request that fecal coliform be eliminated or phased out to be consistent with updated recreational water quality criteria in Washington. The fact sheet states that the TMDL for the Puyallup River Watershed approved by the EPA in 2011 includes a waste load allocation (WLA) for Sonoco, and that because there is no additional loading capacity, Sonoco's WLA is the WQ criteria at the discharge point. Effective February 2019, Ecology updated their recreational water quality criteria. These updates included phasing out fecal coliform except for shellfish harvest zones (by December 31, 2020) and replacing it with E. coli. Because the intent of the 2011 TMDL is that Sonoco's effluent must meet the surface water quality standard at the point of discharge, it would make sense to phase out the use of fecal coliform and replace it with E. coli in the NPDES permit to be consistent with Washington's updated standard.

Response to Comment 3:

The current TMDL on the White River specifically requires Sonoco to meet a Fecal Coliform limit of 100 CFU/100mL. This TMDL is still in effect. As such, Ecology must continue to require the specific numeric values as the WLA in the permit. If and when a new TMDL becomes effective, the permit may be modified to implement it. Ecology notes that monitoring for fecal coliforms is limited to the time period when the TMDL applies to Sonoco's discharge and it not required year-round.