TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 23-3601
Air Discharge Permit Application CO-1076

Preliminary Issued: September 7, 2023

Weyerhaeuser Longview Lumber

SWCAA ID - 2514

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TABLE OF CONTENTS

ABBREVIATIONS

List of Acronyms

ADP	Air Discharge Permit
AP-42	Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA
ASIL	Acceptable Source Impact Level
BACT	Best available control technology
CAM	Compliance Assurance Monitoring
CAS#	Chemical Abstracts Service registry number
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
EU	Emission Unit
MACT	Maximum Achievable Control Technologies
mfr	Manufacturer
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of Violation/
NSPS	New Source Performance Standard
PSD	Prevention of Significant Deterioration
RCW	Revised Code of Washington
SCC	Source Classification Code
SDS	Safety Data Sheet
SQER	Small Quantity Emission Rate listed in WAC 173-460
Standard	Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
SWCAA	Southwest Clean Air Agency
WAC	Washington Administrative Code

List of Units and Measures

µg/m³	Micrograms per cubic meter
µm	Micrometer (10^{-6} meter)
acfm	Actual cubic foot per minute
bhp	Brake horsepower
gr/dscf	Grain per dry standard cubic foot
hp	Horsepower
hp-hr	Horsepower-hour
MMBtu	Million British thermal unit
MMcf	Million cubic feet
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
ppmw	Parts per million by weight
scfm	Standard cubic foot per minute
tph	Ton per hour
tpy	Tons per year

List of Chemical Symbols, Formulas, and Pollutants

CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
N_2O	Nitrous oxide
NH_3	Ammonia
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
O_2	Oxygen
O_3	Ozone
PM	Particulate Matter with an aerodynamic diameter 100 µm or less
PM_{10}	PM with an aerodynamic diameter 10 µm or less
$PM_{2.5}$	PM with an aerodynamic diameter 2.5 µm or less
SO_2	Sulfur dioxide
SO_X	Sulfur oxides
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
TOC	Total Organic Carbon
VOC	Volatile organic compound

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

1. FACILITY IDENTIFICATION

Applicant Name:	Weyerhaeuser NR Company	
Applicant Address:	PO Box 931, Longview, Washington 98632	
Facility Name:	Weyerhaeuser Longview Lumber	
Facility Address:	2901 Industrial Way, Longview, Washington 98632	
SWCAA Identification:	2514	
Contact Person:	Angela Cameron, Facility Environmental Manager	
Primary Process:	Lumber Sawmill	
SIC/NAICS Code:	2421 / Sawmills and Planing Mills	
	321113 / Sawmills	
Facility Classification:	Title V (Criteria/HAP)	*current status*
	Title V Opt-out (Criteria/HAP)	*proposed status*

2. FACILITY DESCRIPTION

Weyerhaeuser Longview Lumber (Longview Lumber) is located in Longview, Washington. The facility is part of a larger 700+ acre site that includes a kraft pulp and paper mill, wastewater treatment plant, and a thermomechanical pulp and paper mill. These sources are currently considered to be separate sources pursuant to a disaggregation memo issued by the Department of Ecology (*February 8, 2019*).

Longview Lumber produces dimensional lumber (green and kiln-dried) from raw timber. Operations at the facility include log receiving and storage; lumber receiving and storage, shipping facilities; lumber dry kilns; lumber planer lines, anti-sapstain spray treatment systems, wood residual storage and shipping, and maintenance support activities. The facility has the ability to process lumber from offsite sawmills, but does not currently do so.

3. CURRENT PERMITTING ACTION

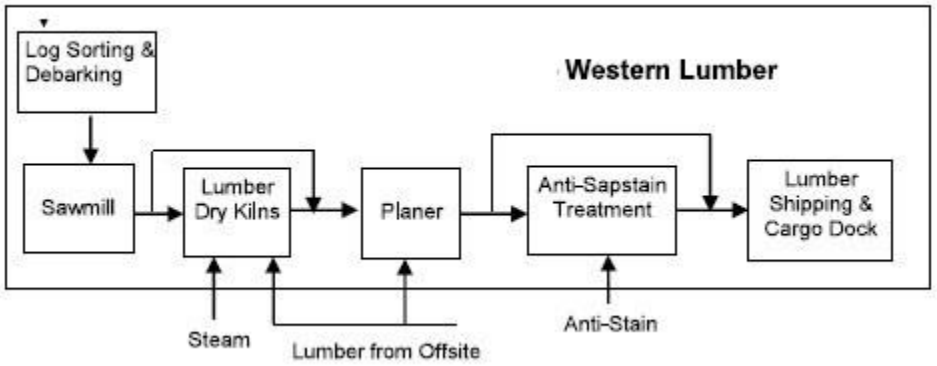
This permitting action is in response to Air Discharge Permit application number CO-1076 (ADP Application CO-1076) dated June 7, 2023. Longview Lumber submitted ADP Application CO-1076 requesting approval of the following:

- Establishment of voluntary facility-wide emission limits for VOC and methanol, which will make the facility a synthetic minor for purposes of the Air Operating Permit program.

The current permitting action establishes voluntary facility-wide emission limits as proposed in ADP Application CO-1076. As part of this permitting action, all outstanding minor source New Source Review permits will be consolidated into a single ADP.

ADP 23-3601 will supersede Order 12950, Order 10371, Order 4372 Amend 1, Order 97AQ-I087 Amend 1, and Order 95AQ-I079 in their entirety.

4. PROCESS DESCRIPTION



Longview Lumber – Process Flow Diagram

4.a Sawmill Operations (*existing*). Longview Lumber operates a sawmill at this facility. Logs for the sawmill are received by trucked and stored onsite until needed. Logs are debarked and then processed into dimensional lumber. The maximum production capacity of the sawmill is ~500 MMbf/yr. Lumber produced by the sawmill is sent to the onsite planer mill. The sawmill was rebuilt and expanded in 2008. The facility may also receive lumber from offsite mills for processing, product storage and/or shipping at the Longview facility. Offsite lumber is received by truck or rail. Finished lumber products are shipped by truck, rail, and barge. Cargo dock operations include product storage and barge loading.

4.b Planer Mill Operations (*existing*). Longview Lumber operates two planer lines at the Longview facility. The planer lines are referred to as Line 18 and Line 19. Line 18 commenced operation in 1972. Line 19 commenced operation in 2003. Annual production capacity is ~300 MMbf for Line 18 and ~400 MMbf for Line 19. The planer lines typically do not operate at full capacity, so maximum production capacities are based on facility estimates. Finished lumber may be shipped green or dried in onsite lumber drying kilns.

Planer mill operations include high-speed dimensional planers, anti-sapstain solution spray application booths, ink-jet grade stamping units and wood residual collection systems (chips, shavings, dust). Lumber trim ends are chipped and transferred to elevated storage bins. Stored chips are gravity loaded into trucks and shipped offsite, typically for use in making pulp. Planer shavings and dust are collected from planers, trimmer saws and package saws in the mill, and transferred to elevated storage bins using pneumatic systems equipped with cyclones. Each planer line has a dedicated transfer system. Exhaust from each transfer cyclone is vented to a dedicated high-efficiency baghouse, which controls particulate emissions from the system.

4.c Lumber Drying (*existing*). Longview Lumber operates ten dry kilns at the facility. All of the dry kilns (new and existing) have a batch configuration. Green lumber is stacked on carts and manually moved into each dry kiln. The drying profile (length of drying cycle, drying temperature, final wood moisture) for each 'charge' of lumber is controlled by a preset computer program. Although parameters for each drying profile depend on product specification, the maximum dry bulb temperature of kiln exhaust does not exceed 200˚F. After drying, lumber carts are moved to a covered area adjacent to the kilns for unloading.

Longview Lumber is approved to dry hemlock and Douglas fir lumber. Each dry kiln has an estimated annual drying capacity of ~15 million board feet (MMbf) for green hemlock furnish and ~30 MMbf for Douglas fir. The mix of species dried at the facility varies with market conditions. The dry kilns are considered a single emission unit, with

each dry kiln constituting a separate emission point. There are no active emission control devices in use on the dry kilns.

4.d Wood Byproduct Storage/Transfer (*existing*). Wood byproducts (hog fuel, planer shavings, sawdust) generated by sawmill operations are mechanically and/or pneumatically conveyed to multiple storage bunkers from various points in the facility. Stored material is gravity loaded into trucks and shipped offsite, typically for use as boiler fuel.

4.e Emergency Fire Pumps (*existing*). Two diesel engines are used to power emergency pumps that provide water to onsite fire suppression systems in the event of a loss of utility power.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Lumber Dry Kilns (*existing*). Ten single track steam heated dry kilns with a combined capacity of ~240,000,000 MMbf/yr. The maximum temperature of drying cycles in the dry kilns is limited to 212°F, but there are no active emission control devices in use.

This emission unit is subject to 40 CFR 63 Subpart DDDD, but there are no emission standards or operating requirements applicable to lumber dry kilns. Therefore, there are no applicable MACT requirements beyond submittal of the initial notification of applicability, which was submitted on January 26, 2005.

ADP Application CO-1076. This facility is a major source and subject to the Air Operating Permit program due to potential emissions of VOC and HAP. Longview Lumber is requesting voluntary limits on allowable emissions from lumber drying operations for the purpose of reducing potential emissions below applicable Title V program thresholds and withdrawing from the program. Reductions will be achieved by limiting lumber throughput. No physical change to lumber drying operations is proposed.

5.b Planer #18 Shavings System (*existing*). Planer #18 operations are served by a central system that collects waste material from associated planers, trimmer saws and package saws. The material collection system vents to a dedicated baghouse described below.

Make/Model:	Western Pneumatics model 630
Flowrate:	50,000 acfm
Filtration Area:	8,247 ft^2
Filter Cleaning:	Reverse air

5.c Planer #19 Material Collection System (*existing*). Planer #19 operations are served by a central system that collects waste material from associated planers, trimmer saws and package saws. The material collection system vents to a dedicated baghouse described below.

Make/Model:	Western Pneumatics model 512
Flowrate:	49,000 acfm
Filtration Area:	8,042 ft^2
Filter Cleaning:	Reverse air

5.d Anti-Sapstain Spray Systems - Planer #18 / Planer #19 (*existing*). Each planer line is equipped with a Chapcoater 85-2 lumber spray system manufactured by Lacey-Harmer Company. The system sprays green lumber with anti-sapstain chemicals to inhibit the growth of mold and other fungi. Both spray systems vent to a common horizontal exhaust discharging through the building wall. Each spray system is composed of three major components: a pump station, a spray chamber, and an overspray recycling system as described below.

1) Pump Station. The pump station consists of a two-head adjustable proportioning pump to control the dilution ratio of water and concentrate into a 30-gallon work tank. The treatment chemical is then drawn from the work tank by a positive displacement feed pump through a motorized filter for delivery to the spray chamber. A special vibrating filter designed to remove sawdust and other solids from the overspray solution captured within the spray chamber or recycling system is included prior to recycling the solution back to the work tank.

2) Spray Chamber. The spray chamber is a stainless steel, fully gasketed unit with high pressure airless nozzles which deliver a mist of fine droplets for maximum coverage of the lumber. Flexible isolation curtains on the infeed and outfeed opening contain the mist inside the spray chamber.

3) Recycling System. The recycling system comprises an exhaust blower, condensation chamber, exhaust and return manifolds and a vibrating filter to remove solids from the recycled solution. Overspray which condenses in the spray chamber drains to a bottom collection tray for recycling. The spray chamber is evacuated with an exhaust system to draw off any aerosol overspray, which is then condensed and recirculated back to the spray chamber. Overspray solution from either the spray chamber or the condensation chamber is returned via ducting to the vibrating filter for removal of solids for reuse in the work tank.

5.e Anti-Sapstain Spray Systems - End Spray (*existing*). Two anti-sapstain spray systems (northeast, southwest) operate in support of lumber packaging operations. The end spray systems apply anti-sapstain coatings to the board ends of sawn bundles of finished lumber. The northeast spray chamber exhausts vertically through the building roof. The southwest spray chamber exhausts horizontally through an adjacent building wall.

5.f Trimmer Saw Dust Collection System (*existing*). Saw systems at the sawmill (quad bandsaw, compact roundsaw, trimmer saw) are vented to dust collection systems. Quad bandsaw and compact roundsaw operations are vented to a dust collection system equipped with a cyclone. Trimmer saw operations are vented to a separate dust collection system equipped with a baghouse. While most of the airflow from the bandsaw/roundsaw cyclone system is vented back into the sawmill building, a portion of the flow is vented as a secondary stream to the trimmer saw baghouse. The trimmer saw baghouse is described below.

Make/Model:	Superior Systems model 233
Flowrate:	~19,600 acfm
Filter Cleaning:	Reverse air

5.g Storage Bin – Bark (*existing*). One elevated storage bin (42 unit) used to store and transfer bark from debarking operations at the sawmill. Stored material is gravity loaded into truck trailers and shipped offsite. Emissions from material handling are minimized through the use of wind shrouds and process enclosure.

5.h Storage Bin – Sawdust (*existing*). One elevated storage bin (42 unit) used to store and transfer sawdust from manufacturing operations at the sawmill. Stored material is gravity loaded into truck trailers and shipped offsite. Emissions from material handling are minimized through the use of wind shrouds and process enclosure.

5.i Storage Bins – Wood Chips (*existing*).

Sawmill Two elevated storage bins (42 unit each) used to store and transfer wood chips generated by manufacturing operations at the sawmill. Stored material is gravity loaded into truck trailers and shipped offsite. Emissions from material handling are minimized through the use of wind shrouds and process enclosure.

Planer Mill Two elevated storage bins (42 unit each) used to store and transfer wood chips generated by manufacturing operations at the planer mill. Stored material is gravity loaded into truck trailers and shipped offsite.

5.j Storage Bins – Planer Shavings (*existing*). Three elevated storage bins (42 unit each) used to store and transfer planer shavings from Planer #18 and Planer #19. Stored material is gravity loaded into truck trailers and shipped offsite. Emissions from material handling are minimized through the use of wind shrouds and process enclosure.

5.k Emergency Fire Pump #1 (*existing*). One diesel engine driven fire pump used to provide water to onsite fire suppression systems in event of a loss of utility power. *This unit is not currently operable.*

Make/Model: Cummins model 6CTA
Power Rating: 300 hp
Fuel Type: Diesel
Installed: December 2004

5.l Emergency Fire Pump #2 (*existing*). One diesel engine driven fire pump used to provide water to onsite fire suppression systems in event of a loss of utility power.

Make/Model: Cummins model NT855
Power Rating: 335 hp
Fuel Type: Diesel
Installed: November 1995

5.m Chipper Room (*existing*). One material chipper used to reduce residual material from sawmill operations. The chipper is vented to a cyclone.

5.n Grade Stamper (*existing*). Stamping equipment used to mark lumber with grade stamps and other product information.

5.o Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Lumber Dry Kilns	Temperature Control
2	Planer #18 Shavings System	Process Enclosure, High Efficiency Filtration
3	Planer #19 Material Collection System	Process Enclosure, High Efficiency Filtration
4	Anti-Sapstain Systems – Planer #18/Planer #19	Process Enclosure
5	Anti-Sapstain Systems – End Spray	Process Enclosure
6	Trimmer Saw Dust Collection System	Process Enclosure, High Efficiency Filtration
7	Storage Bin – Bark	Process Enclosure
8	Storage Bin - Sawdust	Process Enclosure
9	Storage Bins – Wood Chip	Process Enclosure
10	Storage Bins – Planer Shavings	Process Enclosure
11	Emergency Fire Pump #1	Low Sulfur Fuel
12	Emergency Fire Pump #2	Low Sulfur Fuel
13	Chipper Room	Process Enclosure, Cyclone
14	Grade Stamper	None

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from lumber mill operations, as proposed in ADP Application CO-1076, consist of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO_2), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

(a) Continuous emissions monitoring system (CEMS) data;
(b) Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
(c) Source emissions test data (other test method); and
(d) Emission factors or methodology provided in this TSD.

6.a Lumber Drying (*existing*). Emissions from lumber drying include PM (presumably condensable), VOC and HAP/TAP compounds (methanol, formaldehyde, acetaldehyde, propionaldehyde, acrolein). Test data and literature (e.g. articles by Dr. Mike Milota – Oregon State University) indicate that emissions of volatile organic compounds, methanol, and formaldehyde have a strong dependence on the maximum drying temperature, so emission factors for these pollutants are temperature dependent. Emissions of acetaldehyde, propionaldehyde, and acrolein are not strongly temperature dependent, so emission factors for these pollutants are a simple average of the available test data.

SWCAA has used the following assumptions to calculate emission factors from available EPA Method 25A test data and speciated HAP data:

Assumptions:

Component	Response Factor	Molecular Weight	Notes
Methanol	0.69	32.04	CH_4O
Formaldehyde	0	30.04	CH_2O
Acetaldehyde	1.0	44.05	C_2H_4O
Propionaldehyde	2.0	58.08	C_3H_6O
Acrolein	1.95	56.06	C_3H_40
Mono Turpenes	10	136.23	$C_{10}H_{16}$

where response factor = (ppm as CH_4 indicated by M25A)/(ppm compound)
Assume all unknown VOCs are mono turpenes ($C_{10}H_{16}$), Mwt. = 136.23

For example, to correct the Method 25A data for the known methanol emissions, SWCAA assumed that the methanol response factor is 0.69, meaning that for every 1 ppm of methanol measured, the Method 25A analyzer read 0.69 ppm as CH_4. Using this assumption, the portion of the Method 25A reading resulting from methanol in the exhaust stream can be estimated and subtracted from the Method 25A result. After doing this for all known species, we are left with a Method 25A result that is due to compounds other than the known compounds. For this analysis, SWCAA has assumed that the remaining VOCs are represented by mono turpenes ($C_{10}H_{16}$). To scale the remaining VOC emissions expressed as propane (C_3H_8) to mono turpenes ($C_{10}H_{16}$) the following equation would be used:

$$\frac{\text{lb as } C_{10}H_{16}}{\text{MMbf}} = \left(\frac{\text{lb as } C_3H_8}{\text{MMbf}}\right)\left(\frac{\text{Mwt C in } C_3H_8}{\text{Mwt } C_3H_8}\right)\left(\frac{\text{Mwt } C_{10}H_{16}}{\text{Mwt C in } C_{10}H_{16}}\right) = \left(\frac{\text{lb as } C_3H_8}{\text{MMbf}}\right)\left(\frac{36}{44}\right)\left(\frac{136.23}{120}\right)$$

This could result in a significant underestimation of VOC emissions if it turns out that the bulk of the remaining VOC emissions are alcohols or aldehydes that both have low response factors and higher ratios of molecular weight to the number of carbon atoms in the molecule.

Emissions from lumber drying operations are calculated from wood species specific lumber throughput, a maximum drying temperature of 212 °F and species specific emission factors. As proposed in ADP Application CO-1076, the facility dries lumber made of Douglas fir and hemlock timber. VOC and HAP/TAP emission factors for Douglas fir and hemlock were developed by SWCAA based on available test date from similar drying operations. The PM emission factor is taken from test data collected at Oregon State University by Horizon Engineering (Nov 1998). All PM emitted is assumed to be $PM_{2.5}$.

Potential emission values presented below represent the maximum throughput of any one species that could be processed. Each wood species emits different levels of VOC and HAP/TAP compounds. Consequently, estimated emissions vary depending on the exact combination of wood species throughput at the facility. Annual emissions will be calculated based on the actual combination of lumber processed at the facility during the affected period.

Douglas Fir Lumber

Throughput = 88,000,000 Board Feet
Maximum Kiln Temperature = 200 °F

	Emission Factors				
Pollutant	Equation	lb/MMbf	lb/yr	tpy	Emission Factor Source
PM		50.5	4,444	2.22	Nov. 1998 by Horizon Engineering at OSU
PM_{10}		50.5	4,444	2.22	Nov. 1998 by Horizon Engineering at OSU
$PM_{2.5}$		50.5	4,444	2.22	Nov. 1998 by Horizon Engineering at OSU
VOC	19.2*(T) - 2,845	995	87,560	43.78	SWCAA Default Factors - July 2009
Methanol	1.45*(T) - 223	67.0	5,896	2.95	SWCAA Default Factors - July 2009
Formaldehyde	0.0495*(T) - 7.6	2.3	202	0.10	SWCAA Default Factors - July 2009
Acetaldehyde		54.7	4,814	2.41	SWCAA Default Factors - July 2009
Propionaldehyde		0.50	44	0.02	SWCAA Default Factors - July 2009
Acrolein		0.70	62	0.03	SWCAA Default Factors - July 2009
Total HAPs			11,018	5.51	
Total TAPs			11,018	5.51	

Hemlock Lumber

Throughput = 88,000,000 Board Feet
Maximum Kiln Temperature = 200 °F

Pollutant	Emission Factors Equation	lb/MMbf	lb/yr	tpy	Emission Factor Source
PM		50.5	4,444	2.22	Nov. 1998 by Horizon Engineering at OSU
PM_{10}		50.5	4,444	2.22	Nov. 1998 by Horizon Engineering at OSU
$PM_{2.5}$		50.5	4,444	2.22	Nov. 1998 by Horizon Engineering at OSU
VOC	2.14*(T) - 147	281	24,728	12.36	SWCAA Default Factors - July 2009
Methanol	2.83*(T) - 457	109	9,592	4.80	SWCAA Default Factors - July 2009
Formaldehyde	0.064*(T) - 10.8	2.00	176	0.09	SWCAA Default Factors - July 2009
Acetaldehyde		113	9,944	4.97	SWCAA Default Factors - July 2009
Propionaldehyde		1.20	106	0.05	SWCAA Default Factors - July 2009
Acrolein		1.75	154	0.08	SWCAA Default Factors - July 2009
Total HAPs			19,972	9.99	
Total TAPs			19,972	9.99	

ADP Application CO-1076. Longview Lumber proposes to establish voluntary emission limits on lumber drying operations for the purpose of reducing facility-wide potential emissions of VOC and HAPs to levels below applicability thresholds for the Air Operating Permit Program (Title V). The proposed limits will reduce maximum allowable lumber throughput and maximum drying temperature. No physical changes to equipment or method of operation are proposed.

6.b Material Collection System Baghouses (*existing*). Potential emissions from material collection system baghouses are calculated based on maximum permitted emission concentration, rated airflow, and 8,760 hr/yr of use. All emitted PM is assumed to be PM_{10}. $PM_{2.5}$ emissions are estimated to be 25% of PM emissions (EPA PM Calculator Version 2.0 - SCC 30700899). Annual emissions will be calculated based on actual baghouse operation using the same methodology.

Baghouse	Pollutant	Discharge Rate (cfm)	Emission Conc (gr/dscf)	Operation (hrs)	Emissions (lb/hr)	(tpy)
Planer #18 System	PM/PM_{10}	50,000	0.01	8,760	4.29	4.69
	$PM_{2.5}$		25% PM		1.07	
Planer #19 System	PM/PM_{10}	49,000	0.005	8,760	2.10	2.30
	$PM_{2.5}$		25% PM		0.53	
Trimmer Saw System	PM/PM_{10}	19,600	0.005	8,760	0.84	0.92
	$PM_{2.5}$		25% PM		0.21	

6.c Anti-Sapstain Systems (*existing*). Potential emissions from anti-sapstain coating application are calculated based on 8,600 hours per year of operation and proposed maximum coating consumption using material balance methodology. Emission limits from anti-sapstain application on the Planer18 production line are taken from Ecology Order 95AQ-I079. Emission limits from anti-sapstain application on the Planer19 production line are taken from Ecology Order 10371.

Pollutant	Emissions (lb/hr)	Emissions (tpy)
Planer #18		
VOC	5.23	22.5
Ethanol	2.30	9.85
Petroleum Naphtha	1.36	5.85
Planer #19		
VOC	7.42	31.9

6.d Wood Residual Transfer (*existing*). Emissions from bulk storage and transfer of wood residuals consist primarily of fugitive particulate matter emitted during truck loading. Emissions are calculated from annual material throughput and applicable emission factors. PM and PM_{10} emission factors from EPA AP-42 Table 10.4-2 (7/79) have been modified subsequent to engineering review by SWCAA. The modifications are due to variations in material and emission controls. The modified emission factors applicable to this facility are provided below. $PM_{2.5}$ emissions are estimated to be 23% of PM emissions (EPA PM Calculator Version 2.0 - SCC 30700899). Potential emissions are calculated based on the maximum material throughput specified in ADP Application CO-1076. Annual emissions will be calculated based on actual material throughput using the same methodology.

Activity	Throughput (BDT)	Pollutant	Emission Factor (lb/ton)	Emissions (tpy)
Planer Shavings	47,879	PM	0.40	9.58
		PM_{10}	0.24	5.75
		$PM_{2.5}$	0.090	2.15
Sawdust	61,126	PM	0.3	9.17
		PM_{10}	0.18	5.50
		$PM_{2.5}$	0.070	2.14
Chip	366,152	PM	0.1	18.31
		PM_{10}	0.06	10.98
		$PM_{2.5}$	0.020	3.66
Bark	74324	PM	0.2	5.57
		PM_{10}	0.09	3.34
		$PM_{2.5}$	0.030	1.11

6.e Emergency Fire Pump #1 (*existing*). Potential emissions from engine operation are calculated based on 200 hours per year of operation at full load and the use of ultra-low sulfur diesel (<0.0015% sulfur by weight). Sulfur oxide emissions are estimated using mass balance methodology, assuming all fuel sulfur is converted to sulfur dioxide. Annual emissions will be calculated from actual hours of operation using the emission factors identified below.

Operation =	200	hr/yr
Power Output =	300	horsepower
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	16.26	gal/hr
Fuel Heat Content =	0.138	MMBtu/gal (40 CFR 98)

	Emissions		
Pollutant	lb/hr	tpy	EF Source
NO_X	2.71	0.27	EPA Certification Data
CO	0.30	0.030	EPA Certification Data
VOC	0.0	0.00	EPA Certification Data
SO_X as SO_2	0.0035	0.00035	Mass Balance
$PM/PM_{10}/PM_{2.5}$	0.044	0.0044	EPA Certification Data

	EF		Emissions		
	kg/MMBtu	lb/MMBtu	lb/gallon	tpy	
CO_2e	73.9636	163.61	22.58	37	40 CFR 98

6.f Emergency Fire Pump #2 (*existing*). Potential emissions from engine operation are calculated based on 200 hours per year of operation at full load and the use of ultra-low sulfur diesel (<0.0015% sulfur by weight). Sulfur oxide emissions are estimated using mass balance methodology, assuming all fuel sulfur is converted to sulfur dioxide. Annual emissions will be calculated from actual hours of operation using the emission factors identified below.

Operation =	200	hr/yr
Power Output =	335	horsepower
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	16.75	gal/hr
Fuel Heat Content =	0.138	MMBtu/gal (40 CFR 98)

	Emissions		
Pollutant	lb/hr	tpy	EF Source
NO_X	10.39	1.04	EPA Certification Data
CO	2.24	0.22	EPA Certification Data
VOC	0.83	0.083	EPA Certification Data
SO_X as SO_2	0.0036	0.00036	Mass Balance
$PM/PM_{10}/PM_{2.5}$	0.74	0.074	EPA Certification Data

	EF		Emissions		
	kg/MMBtu	lb/MMBtu	lb/gallon	tpy	
CO_2e	73.9636	163.61	22.58	38	40 CFR 98

6.g Chipper Room (*existing*). Potential emissions from Chipper Room operation are calculated based on 8,760 hours per year of operation, maximum lumber throughput of 700 MMbf, and an emission factor of 4.4 lb/MMbf. All PM is assumed to be PM_{10}.

Pollutant	Throughput (MMbf)	Emission Factor (lb/MMbf)	Emissions (lb/hr)	Emissions (tpy)
PM	700	4.4	0.35	1.54
PM_{10}		4.4	0.35	1.54

6.h Grade Stamper (*existing*). Potential emissions from Grade Stamper operation are calculated based on 8,760 hours per year of operation, maximum lumber throughput of 700 MMbf, and applicable emission factors.

Pollutant	Throughput (MMbf)	Emission Factor (lb/MMbf)	Emissions (lb/hr)	Emissions (tpy)
VOC	700	1.86	0.15	0.65
Methyl Ethyl Ketone		1.62	0.13	0.57

6.i Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

Pollutant	Potential Emissions (tpy)	Project Increase (tpy)
NO_X	1.31	0.0
CO	0.25	0.0
VOC	98.91	-140.03
SO_2	0.0007	
Lead	0.0	0.0
PM	78.12	-5.36
PM_{10}	61.06	-5.36
$PM_{2.5}$	19.28	-5.36
TAP	10.55	-29.27
HAP	9.99	-29.27
CO_2e	75	0

Pollutant	CAS Number	Category	Facility-wide Emissions (lb/yr)	Project Increase (lb/yr)	WAC 173-460 SQER (lb/yr)
Acetaldehyde	75-07-0	HAP/TAP A	33900	-23,956	50
Acrolein	107-02-8	HAP/TAP B	525	-371	175
Formaldehyde	50-00-0	HAP/TAP A	868	-666	20
Methanol	67-56-1	HAP/TAP B	42888	-33,296	43,748
Methyl Ethyl Ketone	78-93-3	TAP B	1134	0	43,748
Propionaldehyde	123-38-6	HAP/TAP B	360	-254	0

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a 40 CFR 60.4200 et seq. (Subpart IIII) "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to each compression ignition (CI) internal combustion engine (ICE) that commences construction after July 11, 2005 and is manufactured after April 1, 2006, or that is modified or reconstructed after July 11, 2005. The diesel engines powering Emergency Fire Pumps #1 and #2 were manufactured prior to 2005. Therefore, this regulation is not applicable.

7.b 40 CFR 63 Subpart ZZZZ (63.6580 et seq.) "National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines" establishes national emission limitations and operating limitations for HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The diesel engines powering Emergency Fire Pumps #1 and #2 are affected sources and classified as existing sources under this regulation.

7.c Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.d RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.e WAC 173-401 "Operating Permit Regulation" requires all major sources and other sources as defined in WAC 173-401-300 to obtain an operating permit. This regulation is currently applicable to the facility because potential emissions are higher than applicable program thresholds. This permitting action will reduce potential emission to levels below applicable program thresholds. Subsequent to permit issuance, the facility will become an opt-out source.

7.f WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety.

7.g WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.h SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.i SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.j SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.k SWCAA 400-091 "Voluntary Limits on Emissions" allows sources to request voluntary limits on emissions and potential to emit by submittal of an ADP application as provided in SWCAA 400-109. Upon receipt of a complete application, SWCAA shall issue a Regulatory Order that reduces the source's potential to emit to an amount agreed upon between SWCAA and the permittee. Longview Lumber has requested a reduction in allowable emissions from lumber drying operations. The proposed emission limits will reduce facility-wide potential emissions to levels below applicable Title V program thresholds, allowing the facility to leave the Air Operating Permit Program.

7.l SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.m SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification. ADP Application CO-1076 does not include the installation of new emission units, physical modification of existing emission units, or an increase in potential emissions. Therefore, this regulation is not applicable to this permitting action.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

New BACT Determinations

8.a Voluntary Emission Limits. Longview Lumber has requested voluntary emission limits for the purposes of opting out of the Title V program. No new equipment or increase in potential emissions are proposed. Therefore, no BACT determination is required.

Other Determinations

8.b Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.c Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

9.a TAP Small Quantity Review. The voluntary emission limits proposed in ADP Application CO-1076 will decrease potential TAP emissions from approved facility operations. Therefore, no review of TAP emissions is required.

Conclusions

9.b Establishment of voluntary emissions limits, as proposed in ADP Application CO-1076, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.c Establishment of voluntary emissions limits, as proposed in ADP Application CO-1076, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.d Establishment of voluntary emissions limits, as proposed in ADP Application CO-1076, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 23-3601 in response to ADP Application CO-1076. ADP 23-3601 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a Supersession of Previous Permits. ADP 23-3601 supersedes Order 12950, Order 10371, Order 4372 Amend 1, Order 97AQ-I087 Amend 1, and Order 95AQ-I079 in their entirety.

10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CO-1076. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.

10.c Monitoring and Recordkeeping Requirements. ADP 23-3601 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific monitoring requirements are established for opacity monitoring, lumber throughput, dry kiln temperature, anti-sapstain consumption, and hours of operation..

10.d Reporting Requirements. ADP 23-3601 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for monitoring results, lumber throughput, anti-sapstain consumption, and hours of operation. Reports are to be submitted on a quarterly basis.

10.e Title V Opt-out Emission Limits (*ADP 23-3601*). Longview Lumber proposes to voluntarily reduce allowable VOC and HAP emissions from the lumber dry kilns for the purpose of opting out of the Title V program. Longview Lumber has not proposed to modify emission limits for any other emission units. The proposed emission reductions will be achieved by limiting material throughput and maximum drying temperature. The requested emission limits result in facility-wide potential emissions that are very close to Title V program thresholds. To ensure compliance with applicable requirements, weekly and monthly monitoring requirements have been established as part of this permitting action.

10.f Consolidation of Outstanding Permits (*ADP 23-3601*). This permitting action consolidates all of the facility's outstanding approval orders into a single air discharge permit (see Section 10.a). Existing permit requirements have been carried forward unchanged from the preceding approval orders.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

There are no ongoing emission testing or monitoring requirements for this facility.

13. FACILITY HISTORY

13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

Permit Number	Application Number	Date	Purpose
Order 12950	--	12/18/2015	This permitting action approved replacement of the existing Planer #18 shavings system with a new reconfigured system. New equipment (ductwork, cyclone, and baghouse) was installed, but the project did not increase potential emissions and did not increase planer capacity. The action was subject to WAC 173-400-114 and did not include New Source Review.
Order 10371	--	3/14/2014	This permitting action approved an increase in VOC emissions from the Planer #19 anti-sapstain spray system.
Order 4372 Amendment 1	--	6/28/2010	This permitting action approved modification of the existing sawmill dust collection system to improve collection efficiency and reduce dust deposition within the sawmill building.
Order 97AQ-I087 Amendment 1	--	9/15/2008	This permitting action revised emission factors and potential emission estimates for lumber drying to reflect new emissions information. The revised emission factors increased the facility's estimated potential emissions above applicable major source thresholds in WAC 173-401. Consequently, the facility was reclassified as a major source for the purposes of the Air Operating Permit program.
Order 95AQ-I079	--	2/8/1996	This permitting action approved modification of existing Planer Mill anti-sapstain spray systems. The modifications increased production capacity and potential emissions.

Superseded/Obsolete Permits

Order 4372	--	3/27/2008	This permitting action approved installation of a new sawmill. The new sawmill included a saw filing and maintenance shop, a trimmer saw and collection systems for residual chips and shavings. No changes were made to existing planer lines and dry kilns. Superseded by Order 4372 Amendment 1.
Order 03AQIS-5416	--	3/19/2003	This permitting action approved installation of a new planer line (Planer #19) in the Planer Mill. The new planer line included a high-speed dimension planer, central dust collection system, anti-sapstain spray booth, and collection systems for residual chips and shavings. Planer mill capacity increased as a result of this project. Lumber drying capacity remained unchanged. Rescinded by Order 10371.
Order 97AQ-I087	--	12/1/1997	This permitting action approved installation of two new lumber dry kilns. Drying capacity of the facility increased as a result of the project. Superseded by Order 97AQ-I087 Amendment 1.
Order 96AQ-I082	--	11/26/1996	This permitting action approved installation of two new lumber dry kilns. Ten existing dry kilns were removed as part of the project. Drying capacity of the facility remained unchanged. Revoked by Order 97AQ-I087.
ADP 94-1684	--	11/30/1994	This permitting action approved installation of six new lumber dry kilns. The proposed dry kilns were to dry exclusively hem-fir and Douglas fir lumber. Forty existing dry kilns were removed as part of the project. Revoked by Order 96AQ-I082.
ADP 93-1498	--	8/5/1993	This permitting action approved the installation of a sapstain spray system on each of the facility's planer lines. Revoked by Order 95AQ-I079.

13.b Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a Public Notice for ADP Application CO-1076. Public notice for ADP Application CO-1076 was published on the SWCAA internet website for a minimum of (15) days beginning on June 23, 2023.

14.b Public/Applicant Comment for ADP Application CO-1076. A (30) day public comment period will be provided for this permitting action pursuant to SWCAA 400-171(3). SWCAA will provide a response to all comments received during the comment period.

14.c State Environmental Policy Act. A complete SEPA checklist was submitted by Longview Lumber in conjunction with ADP Application CO-1076. After reviewing the checklist, SWCAA has made a Determination of Nonsignificance (DNS 23-035) concurrent with issuance of ADP 23-3601.