TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit 23-3602
Air Discharge Permit Application L-731

Preliminary Issued: October 11, 2023

Hampton Lumber Mills – WA, Inc.
Randle Facility

SWCAA ID – 350

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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
BART ..... Best Available Retrofit Technology
CAM ..... Compliance Assurance Monitoring
CAS#..... Chemical Abstracts Service registry number
CFR..... Code of Federal Regulations
EPA..... U.S. Environmental Protection Agency
ESP..... Electrostatic Precipitator
EU ..... Emission Unit
LAER..... Lowest achievable emission rate
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
RACT..... Reasonably Available Control Technology
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
T-BACT ..... Best Available Control Technology for toxic air pollutants
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
bdt ..... bone dry tone
bhp ..... Brake horsepower
dscfm..... Dry Standard cubic foot per minute
g/dscm..... Grams per dry Standard cubic meter
gpm ..... Gallon per minute
gr/dscf ..... Grain per dry standard cubic foot
hp ..... Horsepower
hp-hr..... Horsepower-hour
kW..... Kilowatt
lb/hr..... pounds per hour
lb/yr.....pounds per year
MMbf.....Million board feet
MMBtu .....Million British thermal unit
MMcf.....Million cubic feet
oz/yrd^2.....ounce per square yard
ppm.....Parts per million
ppmv.....Parts per million by volume
ppmvd.....Parts per million by volume, dry
ppmw.....Parts per million by weight
psig .....Pounds per square inch, gauge
rpm.....Revolution per minute
scfm .....Standard cubic foot per minute
tph.....Ton per hour
tpy.....Tons per year

List of Chemical Symbols, Formulas, and Pollutants

C_3H_8 .....Propane
CH_4.....Methane
CO .....Carbon monoxide
CO_2.....Carbon dioxide
CO_2e.....Carbon dioxide equivalent
H_2S .....Hydrogen sulfide
HAP.....Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
HCl.....Hydrochloric acid
Hg.....Mercury
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
TGOC.....Total Gaseous Organic Carbon
TOC.....Total Organic Carbon
TSP.....Total Suspended Particulate
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:	Hampton Lumber Mills
Applicant Address:	PO Box 189, Randle, Washington 98377
Facility Name:	Hampton Lumber Mills - WA, Inc. Randle Facility
Facility Address:	10166 US Highway 12, Randle, Washington 98377
SWCAA Identification:	350
Contact Person:	Tim Johnson (Washington Regional Manager); Amy Peccia (Environmental Manager)
Primary Process:	Dimensional dried lumber
SIC/NAICS Code:	2421: Sawmills and Planing Mills, General 321113: Sawmills
Facility Classification:	Title V (CO, NO_X, VOC, and HAPs)

2. FACILITY DESCRIPTION

Hampton Lumber Mills has a sawmill located at 10166 US Highway 12 in Randle, Lewis County, Washington. Hampton Lumber Mills - WA, Inc. Randle Facility (Hampton Lumber Randle) is a manufacturer of finished dimensional lumber products. The products manufactured by Hampton Lumber Randle are primarily used in the construction industry. Dimensional lumber produced at the Randle facility is shipped both kiln dried and green. Some of the green lumber is treated with anti-stain. The equipment includes a Wellons hog fuel boiler, bunkers, dry kilns, pneumatic conveyors, plant vehicle traffic, and debarking and saw equipment. The facility has the potential to emit more than 100 tons per year of nitrogen oxides, carbon monoxide, and volatile organic compounds and more than 10 tons per year of acetaldehyde and methanol; therefore, it is a major source and is subject to the Air Operating Permit Program.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit (ADP) application number L-731 dated December 16, 2022. Hampton Lumber Randle submitted ADP application L-731 requesting the following:

- To modify the short-term carbon monoxide (CO) averaging period from a 24-hour to a 30-day period. Hampton Lumber Randle is not requesting an increase in the concentration limit of 225 ppm nor the annual limit of 105.35 tpy.

  The modified CO short-term averaging period, as a 30-day average, will align the applicable emission limit with the requirements of 40 Code of Federal Regulations (CFR) Part 63, Subpart DDDDD, for units that use a CO CEMS to demonstrate compliance with the application CO emission limit. Furthermore, a 30-day averaging period is consistent with the basis for CO emission limits

recommended by Wellons, the boiler manufacturer, and established by SWCAA for other, similar boilers in our jurisdiction.

- Permit two existing diesel emergency engines that have been at the facility since prior to new source review being required on the units.
- The requirements for the annual source test for nitrogen oxides (NO_X) and CO will be removed, because the continuous emissions monitoring systems (CEMS) are used as the compliance determination. In the event that the CEMS is unavailable, testing must be resumed. The annual relative accuracy test audit (RATA) is still required. Annual source test requirements for particulate matter (PM) and ammonia will remain in effect.
- Baghouse #1, Sawdust Cyclone, knock-out boxes, and some Wellons boiler annual emissions were previously determined using emission factors. The annual emissions for this equipment will now be determined using the emission rate from the most recent source test if available.
- Recordkeeping and reporting of Wellons boiler start-up hours of operation have been included.
- Limited wet suppression on the transfer bunkers to occur between April to November due to pipes freezing in winter months.
- Updated the anti-stain products and limit.

ADP 23-3602 will supersede ADP 06-2691R2 in its entirety.

4. PROCESS DESCRIPTION

4.a. Green timber is brought into the facility, debarked, and cut into specified sizes (dimensional lumber) by wood-working equipment.

4.b. The Wellons hog fuel boiler provides steam for the dry kilns. Wood waste from sawmill operations and residuals that are purchased off-site are used to fire the Wellons hog fuel boiler. Emissions from the boiler are controlled via a multiclone, dry electrostatic precipitator (ESP), and a selective non-catalytic reduction (SNCR) system.

4.c. Green lumber is stacked on carts and dried in one of the four American Wood Dryers dry kilns or four Wellons dry kilns. After drying, lumber is removed from the kilns and sent to the planer mill for surfacing and trimming.

4.d. Green lumber may also be surfaced in the planer mill without drying. An anti-stain chemical is sometimes applied after surfacing to prevent mold growth. Anti-stain may also be applied to dried lumber.

4.e. Lumber is sent to the planer mill. Emissions from the planer are controlled by a Clarke's Sheet Metal baghouse, which is exhausted to the atmosphere.

4.f. Particulate matter collected from various waste streams throughout the plant is mechanically conveyed to storage bins.

4.g. Finished lumber (green and dry) is stored and shipped off site for sale.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a. Log Yard. The log yard consists of all outdoor areas on the south side of the facility used for the handling and storage of raw logs. Raw logs are received by trucks and stacked until needed for the sawmill. Access roads to the log yard from US Highway 12 are completely paved, but the yard area itself is packed earth. Haul road and fugitive dust emissions are controlled by low pressure water spray. Water is applied with a water truck as necessary to minimize emissions.

5.b. Sawmill/Planer. The sawmill consists of an enclosed building and associated equipment used to produce green lumber. The sawmill is arranged in a linear configuration. Raw logs are debarked and sent through the merchandizer. This equipment is outside but equipped with sawdust guards to reduce fugitive emissions. Processed logs are then cut down to standard dimensional lumber sizes through multiple stages of trimming, edging, and resawing. Green sawdust from sawing operations is collected by drag chains and mechanically conveyed to exterior storage bins. Select pieces of equipment, such as planers, are directly connected to the cyclone and baghouse combination. Finished lumber is color coded and/or marked prior to shipment off site.

Particulate matter collected by the planer mill baghouse is conveyed to exterior storage bins. Bark and other streams of byproduct material are mechanically conveyed to a fuel hog and stored in an exterior bin. Other streams of unusable wood are mechanically conveyed to multiple chippers. Wood chips are mechanically conveyed to exterior storage bins prior to shipment off site. Hog fuel produced on-site is sent to the Wellons boiler.

The following relevant equipment is associated with the sawmill/planer:

- Log sawing equipment: One debarker, one bucksaw, one merchandizer (four saws), one fuel hog, three chippers, various conveyors, various chop saws, trim saws, various edgers, one planer, four stackers (two sawmill, two planer), and two sorters (one sawmill, one planer).
- One Clarke's Pneumatic Conveying System green sawdust cyclone (Sawdust Cyclone), model HP056XX14528 rated at 1,630 dscfm is used for collection and transfer of green sawdust from log processing operations. The Clarke's cyclone has a diameter of 56" and a length of 7'10".
- One cyclone/baghouse combination: Clarke’s Sheet Metal, Inc. "Pneu-Aire" baghouse (Baghouse #1), model l00-20-G2 and cyclone with an airflow of 42,200 dscfm to control sawmill emissions.
- Metal shavings from grinding and sharpening saw blades and other cutting equipment are collected by two knock-out boxes which exhaust to the ambient atmosphere with a combined airflow of 4,960 dscfm. Collected metal shavings are stored in barrels prior to disposal.

5.c. Anti-Stain Treatment. Spray Technologies anti-stain/sap stain spray system, including a Spray Technologies Linear SS 100 spray booth with an airflow of 500 acfm and a Spray Technologies model CT-12012 mist eliminator. Emissions from the spray enclosure are collected and vented to the mist eliminator. The mist eliminator consists of internal baffles that collect the anti-stain droplets and route them back into circulation. The mist eliminator is estimated to eliminate 98% of all spray particles 12 microns or larger.

5.d. Chip Bunkers. Five transfer bunkers with 20-unit capacity. These bunkers are used to store/transfer wood chips.

5.e. Sawdust Bunker. One transfer bunker with 30-unit capacity. This bunker is used to store/transfer sawdust and is equipped with wind shrouds.

5.f. Hog Fuel/Bark Bunker. One transfer bunker with 30-unit capacity. This bunker is used to store/transfer bark and hog fuel.

5.g. Shavings Bunker. One transfer bunker with 30-unit capacity. This bunker is used to store/transfer shavings and is equipped with wind shrouds and a wet suppression system.

5.h. Hog Fuel Boiler. The Wellons Inc. hog fuel boiler was manufactured in 2006 and is an existing fuel cell boiler. The boiler is used to generate steam for the lumber dry kilns on-site and is fired solely on wood byproducts from facility operations with the potential to buy additional hog fuel from other facilities on an as-needed basis. Most of the boiler's fuel is hog fuel from the sawmill. However, chips, bark, planer shavings, sawdust, and scrap wood are all fired in the boiler depending on required fuel characteristics. Exhaust from the boiler's furnace passes through an SNCR system to reduce oxides of nitrogen (NO_x) concentrations and then through a multiclone followed by a two-field ESP to remove particulate matter (PM).

The Wellons hog fuel boiler is subject to the NSPS standard 40 CFR 60.40b *et seq*. (Subpart Db) "Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units" for units greater than 100 MMBtu/hr. It is also subject to the NESHAP 40 CFR 63.7480 (Subpart DDDDD) "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters."

Opacity, NO_x, and CO emissions are continuously monitored using continuous emission/opacity monitors.

The following relevant equipment is associated with the hog fuel boiler:

- Wellons hog fuel boiler, model 2D2C9.0A, serial #2606-0501, rated at 120,000 pounds of saturated steam per hour and 164.9 MMBtu/hr with an airflow of 78,090 acfm (approximately 44,000 dscfm). The unit has water cooled grates, where the water from the grates will pre-heat the incoming water to the boiler and a heat exchanger to pre-heat incoming boiler combustion air.
- One SNCR system to reduce post-combustion NO_X concentrations using urea. The unit can achieve a control efficiency of approximately 50%. The system includes a urea tank, approximately 6,100 gallons in capacity, with redundant urea and water pumps rated at 18 gpm.
- One multiclone and one two-field ESP model number 2W-092-2922, serial number B2606-2425 in series to reduce PM emissions.
- The stack is 80 feet 5 13/16 inches tall with a diameter of 7 feet 1/8 inches.

Wellons has a guaranteed emission level of 90 ppm for NO_X, 225 ppm for CO, 0.01 gr/dscf for PM, and 25 ppm for ammonia corrected to 7% O_2.

5.i. Dry Kilns. Eight dry kilns are used to dry green lumber from the sawmill. The kilns are powered exclusively with steam from the facility's hog fuel boiler. Rough sawn lumber, almost exclusively Douglas fir and hemlock, but also minor amounts of pine, spruce and other woods, is stacked on carts and rolled into the kilns. After drying, lumber is removed from the kilns and sent to the planer.

The following equipment is associated with the dry kilns:

- Four American Wood Dryers, Inc. model 1156 steam-heated dry kilns with added heat exchangers.
- Four Wellons, Inc. steam-heated, 104-foot double track dry kilns. The kilns hold approximately 50 MMbf/yr each, totaling 200 MMbf/yr.

5.j. Emergency Generator Engine. This engine is used to provide emergency electrical power to the office during power outages.

Engine Make / Model:	Allis-Chalmers / 16000
Engine Serial Number:	16-09299
Generator Make / Model:	Melley Motor Supply Co / 80104
Generator Serial Number:	941
Fuel Type:	Diesel
Fuel Consumption:	7.6 gal/hr
Horsepower Rating:	150 bhp
Kilowatt Rating:	~100 kW
Engine Built:	1978
Generator Built:	1973
Engine Certification:	uncertified
Stack Description:	Exhausting ~8.3 feet above grade through a 4-inch diameter stack.

5.k. Fire Pump Emergency Engine. This engine is used to provide emergency electrical power to the main sprinkler house that provides emergency fire protection in the event of a power outage.

Engine Make / Model:	Detroit Diesel / 6-71
Engine Serial Number:	6A0359016
Fuel Type:	Diesel
Fuel Consumption:	8.6 gal/hr
Horsepower Rating:	170 bhp
Engine Built:	1978
Engine Certification:	uncertified
Stack Description:	Exhausting ~8 feet above grade through a 4-inch diameter stack.

Other Equipment

1 Canter (vertical twin)
1 Twinsaw (resaw or horizontal twin)
1 Stenner saw
1 Head rig
1 Water truck

5.l. Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Log yard	Water truck – low pressure water spray
2	Sawmill/Planer	Building enclosures, Sawdust cyclone, Baghouse #1, Knock-out boxes
3	Spray Technologies anti-stain system	Spray Technologies mist eliminator
4	Five chip bunkers	None
5	Sawdust bunker	Wind shrouds
6	Shavings bunker	Wet suppression system, Wind shrouds
7	Hog fuel/bark bunker	None
8	Wellons hog fuel boiler	One multiclone followed by a two-field ESP and SNCR
9	Eight dry kilns	Process temperature limit
10	Emergency diesel engine	Low sulfur fuel, limited hours
11	Fire pump emergency diesel engine	Low sulfur fuel, limited hours

6. EMISSIONS DETERMINATION

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. Haul Roads. Emissions from unpaved haul roads were calculated using AP-42 Section 13.2.2 (11/06) and assuming an average silt content of 8.4%, an average round trip distance of 0.5 miles, and the average truck weight of 20 tons; the total vehicle miles traveled (VMT) is calculated to be 22,000 mile/yr. The use of wet suppression is expected to provide an overall control efficiency of 80% for haul road emissions.

$$E = k\left(\frac{s}{12}\right)^{a}\left(\frac{w}{3}\right)^{b}(100\% - CE)$$

Where:

E = Emission factor, in lb/VMT, for PM, PM_{10}, or $PM_{2.5}$;
k = Emission constants for PM (k=4.9), PM_{10} (k=1.5), or $PM_{2.5}$ (k=0.15);
a = Emission constants for PM (a=0.7), PM_{10} (a=0.9), or $PM_{2.5}$ (a=0.9);
b = Emission constants for PM (b=0.45), PM_{10} (b=0.45), or $PM_{2.5}$ (b=0.45);

s = Road surface silt content, in percent;
w = Average truck weight, in tons; and
CE = Control efficiency, in percent.

A precipitation correction has been applied, where P = 180. $E_{ext} = E((360-P)/365)$

Activity	Mileage (miles/yr)	Pollutant	Emission Factor - Uncontrolled (lb/mile)	Control Efficiency	Emissions (tpy)
Haul Road	22,000	PM	5.84	80%	12.85
		PM_{10}	1.67	80%	3.67
		$PM_{2.5}$	0.17	80%	0.37

6.b. Sawmill.

6.b.l. Baghouse: PM emissions from the Clarke's Sheet Metal baghouse (Baghouse #1), based on 42,200 dscfm, 8,760 hours per year, and 0.005 gr/dscf, are 7.92 tpy.

6.b.2. Cyclone: PM emissions from the Clarke's cyclone (Sawdust Cyclone), based on 1,630 dscfm, 8,760 hours per year and 0.030 gr/dscf, are 1.84 tpy. The emission limit of 0.030 gr/dscf is referenced from EPA AP-42 10-4.1 (2/80) for other types of sawmill emissions.

6.b.3. Knock-out boxes: PM emissions from the two filing rooms, based on 4,960 dscfm, 8,760 hours per year, and 0.01 gr/dscf, are 1.86 tpy.

$PM_{2.5}$ emissions are assumed to be 23% of PM emissions (EPA PM Calculator Version 2.0 - SCC 30700899). Emission evaluations should be based on maximum allowed emission concentrations and actual hours of operation.

Pollutant	Emissions
PM/PM_{10}	11.62 tpy
$PM_{2.5}$	2.67 tpy

6.c. Wood Waste Bunkers. Emissions from wood waste storage and transfer consist primarily of fugitive particulate matter emitted during truck loading. Potential emissions from the existing bunkers (shavings, sawdust, chip, hog/bark) are calculated from material throughput reported by the facility for those process units.

Emission factors for PM and PM_{10} are based on information from EPA AP-42 Table 10.4-2 (7/79). The original factors provided in Table 10.4-2 have been modified subsequent to engineering review by SWCAA. The modifications are due to variations in material and emission controls. The resulting emission factors applicable to this facility are provided below. An additional emission reduction of 20% has been applied to the base emission factors for sawdust and shavings transfer due to the use of 2-sided shrouding and additional emission reduction of 5% on the shavings due to water spray control. $PM_{2.5}$ emissions are estimated to be 23% of PM emissions (EPA PM Calculator Version 2.0 - SCC 30700899).

Material	Throughput	Pollutant	Emission Factor	Emissions
Shavings	38,160 Bdt	PM	0.49 lb/ton	9.35 tpy
		PM_{10}	0.29 lb/ton	5.53 tpy
		$PM_{2.5}$	23% PM	2.15 tpy
Green Sawdust	46,700 Bdt	PM	0.24 lb/ton	5.60 tpy
		PM_{10}	0.14 lb/ton	3.27 tpy
		$PM_{2.5}$	23% PM	1.29 tpy
Chip	111,000 Bdt	PM	0.20 lb/ton	11.10 tpy
		PM_{10}	0.12 lb/ton	6.66 tpy
		$PM_{2.5}$	23% PM	2.55 tpy
Green Hog/Bark	58,330 Bdt	PM	0.15 lb/ton	4.37 tpy
		PM_{10}	0.09 lb/ton	2.62 tpy
		$PM_{2.5}$	23% PM	1.01 tpy
Total		PM		30.42 tpy
		PM_{10}		18.09 tpy
		$PM_{2.5}$		7.00 tpy

6.d. Hog Fuel Boiler. Emissions from the Wellons hog fuel boiler are determined from emission factors from Wellons, a heat input of 164.9 MMBtu/hr, an airflow of 44,000 dscfm, and 8,760 annual hours per year. $PM_{2.5}$ emission factors are 90% of PM_{10} emissions as determined from EPA's PM Calculator Version 2.0.

Emission factors	lbs/MMBtu	PPM	Emissions (tpy) (8,760 hr)
NO_x	0.15	90	108.34
CO	0.23	225	166.12
VOC	0.03		21.67
SO_2	0.025		18.06
PM/ PM_{10}	0.0228	0.010 gr/dscf	16.46
$PM_{2.5}$	0.0205		14.81
Acetaldehyde	0.000164		0.12
Acrolein	0.0000316		0.02
Ammonia	0.015	25	10.83
Formaldehyde	0.00172		1.24

Compliance with emission limits shall be based on the most recent source test information, except for the NO_X and CO. Compliance for NO_X and CO short-term limits must be demonstrated using the CEMS.

An ammonia slip of 25 ppm can result from the use of the SNCR system.

The annual limits include start-up and shutdown emissions. During start-up, the CO and NO_X concentrations spike to 1500 ppm (1.51 lb/MMBtu) and 110 ppm (0.18 lb/MMBtu), respectively. The facility estimates approximately 144 hours of start-up situations annually (twenty-four start-ups per year). These emissions are accounted for in the annual (tpy) limit and the boiler is assumed to be at full firing rate, 164.9 MMBtu/hr.

Total Boiler Emissions Including Start-up Emissions

Pollutant	Start-up Hours 144 hr/yr	Normal Operation Hours 8,616 hr/yr	Total Emissions
NOx	2.14 tpy	106.56 tpy	108.70 tpy
CO	17.93 tpy	163.39 tpy	181.32 tpy

Emissions of PM during start-up and shutdown periods where the ESP is not in operation should be calculated using actual wood consumption during start-up/shutdown (or a higher heating value of 8,000 Btu/lb if actual heating value of wood consumption during start-up/shutdown is not available), an ash content of 1.5%, and actual hours of start-up/shutdown where the ESP is not online.

All TAPs/HAPs emitted by the boiler were modeled using ISC-PRIME for ADP application L-577, except formaldehyde which was modeled using AERMOD-PRIME. The predicted ambient impacts did not exceed each individual TAP's acceptable source impact level (ASIL) as provided in WAC 173-460 effective 8/21/98.

6.e. Lumber Drying. Emissions from lumber drying operations are estimated based on applicable emission factors and the maximum rated lumber throughput for each wood type (a total of 325 MMbf/yr). The average final moisture content is 16% and the facility typically dries at 180 ºF but wants to maintain the ability to operate the kilns at 200 ºF. Actual wood species vary, and are approximately 60% hemlock, 30% Douglas fir and 10% other species.

Emissions from lumber drying include PM (presumably condensable PM), VOCs, methanol, formaldehyde, acetaldehyde, propionaldehyde, acrolein, ethanol, and acetic acid. SWCAA has developed individual emission factors for PM, VOCs, methanol, formaldehyde, acetaldehyde, propionaldehyde, and acrolein from test data available to SWCAA at the time of permitting. Test data and literature (e.g., articles by Dr. Mike Milota – Oregon State University) indicate that emissions of VOCs, methanol, and formaldehyde have a strong dependence on the maximum drying temperature; therefore, SWCAA has developed a temperature dependent emission factor for each of these pollutants based on a least squares fit of the available data from numerous tests for various facilities. SWCAA is not aware of any full speciation profiles of the VOC emissions from dry kilning lumber from which to develop an accurate scaling factor for the EPA Method 25A results. SWCAA has used the following assumptions to calculate VOC emissions based on the EPA Method 25A test data and the available 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

where response factor = (ppm as CH_4 indicated by M25A)/(ppm compound)

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 methane (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 since both have low response factors and higher ratios of molecular weight to the number of carbon atoms in the molecule.

For this analysis the following temperature dependent Method 25A relationships were used:

Wood Species	VOCs as C_3H_8
Western hemlock	1.75*(T) – 121
Douglas fir	19.2*(T) – 2,845

where: T is temperature in degrees Fahrenheit.

Emissions of acetaldehyde, propionaldehyde, and acrolein did not appear to be strongly temperature dependent, therefore the emission factor for these pollutants is a simple average of the available test data. No test data is yet available to estimate emissions of ethanol and acetic acid.

Source tests conducted by Horizon Engineering using the "H. Dettinger" method were not used to calculate emission factors because this method does not control humidity in the kiln, and therefore does not accurately represent a drying cycle. Generally, this resulted in shorter drying times. Some portion of the VOC emissions is believed to be related to thermal decomposition products that would be related to the kiln temperature and the overall time the wood is held at specific temperatures; therefore the H. Dettinger method is likely to underestimate VOC emissions.

The facility wants the flexibility to use Douglas fir and hemlock interchangeably. They expect that the maximum usage of either wood would be 70%, or 227.5 MMbf/yr. Because Douglas fir has higher VOC emissions, the VOC limit will be based on drying 70% Douglas fir and 30% hemlock. However, because hemlock has higher HAP emissions, the HAP limits will be based on drying 70% hemlock and 30% Douglas fir.

Hemlock Drying

Throughput = 227,500,000 Board Feet
Maximum Kiln Temperature = 200 º F

		Emission Factors			
Pollutant	Equation	lb/MMBf	lb/yr	tpy	Emission Factor Source
PM		50.5	11,488.75	5.74	Nov. 1998 by Horizon Engineering at OSU
PM_{10}		50.5	11,488.75	5.74	Nov. 1998 by Horizon Engineering at OSU
$PM_{2.5}$		50.5	11,488.75	5.74	Nov. 1998 by Horizon Engineering at OSU
VOC	See discussion	371	84,402.50	42.20	SWCAA Default August 2009
Methanol	2.83*(T) - 457	109.0	24,797.50	12.40	SWCAA Default August 2009
Formaldehyde	0.064*(T) - 10.8	2.00	455.00	0.23	SWCAA Default August 2009
Acetaldehyde		113	25,707.50	12.85	SWCAA Default August 2009
Propionaldehyde		1.2	273.00	0.14	SWCAA Default August 2009
Acrolein		1.75	398.13	0.20	SWCAA Default August 2009
Total TAPs			51,631.13	25.82	
Total HAPs			51,631.13	25.82	

(T) is in units of degrees Fahrenheit in the equations presented in the table above.

Douglas Fir Drying

Throughput = 227,500,000 Board Feet
Maximum Kiln Temperature = 200 º F

		Emission Factors			
Pollutant	Equation	lb/MMBf	lb/yr	tpy	Emission Factor Source
PM		21	4,777.50	2.39	Nov. 1998 by Horizon Engineering at OSU
PM_{10}		21	4,777.50	2.39	Nov. 1998 by Horizon Engineering at OSU
$PM_{2.5}$		21	4,777.50	2.39	Nov. 1998 by Horizon Engineering at OSU
VOC	See discussion	1008	229,320.00	114.66	SWCAA Default August 2009
Methanol	1.45*(T) - 223	67	15,242.50	7.62	SWCAA Default August 2009
Formaldehyde	0.0495*(T) - 7.6	2.3	523.25	0.26	SWCAA Default August 2009
Acetaldehyde		49	11,147.50	5.57	SWCAA Default August 2009
Propionaldehyde		0.53	120.58	0.06	SWCAA Default August 2009
Acrolein		0.73	166.08	0.08	SWCAA Default August 2009
Total TAPs			27,199.90	13.60	
Total HAPs			27,199.90	13.60	

(T) is in units of degrees Fahrenheit in the equations presented in the table above.

The emission factors established for spruce and Engelmann spruce/lodgepole pine (ESLP) are based on a single source test at 180 °F provided by Hampton Lumber Randle. The factors for white fir and ponderosa pine have been scaled to 200 °F. Western true firs consist of the following seven species classified in the same Abies genus: bristlecone fir, California red fir, grand fir, noble fir, pacific silver fir, subalpine fir and white fir (EPA Region 10 HAP and VOC Emission Factors for Lumber Drying, 2021) and have the same emission factor. For those species that do not have information on particulate matter emissions, hemlock emission factors should be used. These emission factors are here for future emission inventory

determinations not potential to emit establishment since the throughput on these different wood species will be much smaller than the dominate species of Douglas fir and hemlock.

Other Wood Species' Emission Factors					
	VOC (lb/MMBf)	PM (lb/MMBf)	Methanol (Lb/MMBf)	Formaldehyde (lb/MMBf)	Reference
True fir (grand/white)	633	50.5	221	7.1	SWCAA Default
Sitka spruce	290				HLM, OSU, 11/03
Ponderosa pine	2,596		89	3	HLM, OSU, 7/07; HEFLD, Milota, 7/06
ESLP	400		29	0.9	HLM, OSU, 2/07

HLM, OSU, 11/03 - Hampton Lumber Mills test performed by Oregon State University on November 2003.
HLM, OSU, 7/07 – Hampton Lumber Mills test performed by Oregon State University on July 2007.
HEFLD, Milota, 7/06 – Hazardous air pollutant emissions from lumber drying, Dr. Michael Milota, July 2006.
HLM, OSU, 2/07 – Hampton Lumber Mills test performed by Oregon State University on February 2007.
SWCAA Default - 090814

6.f. Anti-Stain Treatment. Emissions from anti-stain treatment come from the usage of Kop-Coat WORKHORSE® II and Anti-foam. According to the safety data sheet (SDS) and Kop-Coat, WORKHORSE contains trace amounts of 1,4-dioxane and ethylene oxide at under 0.0001%, which are not added to the product but are contained in trace amounts in one raw material. The Anti-foam contains no HAPs or TAPs. Emissions shall be based on annual throughput and SDS information.

	Used (gal/yr)	VOC (lb/gal)	VOC (tpy)
Anti-foam		0	0.0
Workhorse II	3,500	0.0041	0.007
VOC (total)			0.007

6.g. Emergency Generator Diesel Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 200 hours per year.

Emergency Generator Engine

Hours of Operation =	200	hours
Power Output =	150	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	7.50	gallons per hour (estimated based on 7,000 Btu/hp-hr)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source
NO_X	3.10E-02	4.65	0.47	AP-42 Table 3.3-1 (10/96)
CO	6.68E-03	1.00	0.10	AP-42 Table 3.3-1 (10/96)
VOC	2.51E-03	0.377	0.04	AP-42 Table 3.3-1 (10/96)
SO_X as SO_2	1.08E-05	0.0016	0.00016	Mass Balance
PM/PM10/PM2.5	2.20E-03	0.33	0.03	AP-42 Table 3.3-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e
CO_2	73.96	1	163.05	22.501	16.876
CH_4	0.003	25	0.165	0.023	0.017
N_2O	0.0006	298	0.394	0.054	0.041
Total GHG - CO_2e			163.6	22.579	16.93

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.h. Fire Pump Emergency Diesel Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 200 hours per year.

Fire Pump Emergency Engine

Hours of Operation =	200	hours
Power Output =	170	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	8.50	gallons per hour (estimated based on 7,000 Btu/hp-hr)
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source
NO_X	3.10E-02	5.27	0.53	AP-42 Table 3.3-1 (10/96)
CO	6.68E-03	1.14	0.11	AP-42 Table 3.3-1 (10/96)
VOC	2.51E-03	0.427	0.04	AP-42 Table 3.3-1 (10/96)
SO_X as SO_2	1.08E-05	0.0018	0.00018	Mass Balance
PM/PM10/PM2.5	2.20E-03	0.37	0.04	AP-42 Table 3.3-1 (10/96)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e
CO_2	73.96	1	163.05	22.501	19.126
CH_4	0.003	25	0.165	0.023	0.019
N_2O	0.0006	298	0.394	0.054	0.046
Total GHG - CO_2e			163.6	22.579	19.19

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.i. Facilitywide Potential to Emit.

Air Pollutant	Potential to Emit (tpy)	Project Impact (tpy)
NO_x	109.35	0.65 tpy
CO	181.53	0.21 tpy
VOC	136.42	-4.65 tpy
SO_2	18.06	--
PM	77.16	-0.47 tpy
PM_{10}	55.66	1.29 tpy
$PM_{2.5}$	30.68	-0.12 tpy

Facilitywide TAP/HAP Emissions

The Ambient Impact Analysis was only performed for those compounds exceeding the SQER (WAC 173-460 effective 8/21/98) for ADP application L-577.

Toxic Compound	CAS #	Total Annual Emissions (lb/yr)	Small Quantity Emission Rate (lb/yr)	Ambient Impact ($\mu g/m^3$)	Acceptable Source Impact Level ($\mu g/m^3$)	TAP Class	EPA Classified HAP (Yes/No)
Acetaldehyde	75-07-0	25,945	50	0.0109**	0.45	A	Yes
Acetophenone	98-86-2	0.0046	--		0	B	Yes
Acrolein	107-02-8	443.73	175	0.602**	0.02	B	Yes
Ammonia	7664-41-7	21,660	17,500	10.2	100	B	No
Antimony	7440-36-0	33.1	175		1.7	B	Yes
Arsenic	7440-38-2	2.05	--	9.43E-05	0.00023	A	Yes
Beryllium	7440-41-7	2.24	--	1.03E-04	0.00042	A	Yes
Benzene	71-43-2	1,070	20	0.0492	0.12	A	Yes
Bis(2-ethylhexyl) phthalate	117-81-7	0.068	500		2.5	A	Yes
Cadmium	7440-43-9	4.19	--	1.92E-04	0.00056	A	Yes
Carbon Tetrachloride	56-23-5	65.6	0.5	0.00301	0.067	A	Yes
Chlorine	7782-50-5	1,140	175	0.262	5	B	Yes
Chlorobenzene	108-90-7	48	22,750		150	B	Yes
Chloroform	67-66-3	39.8	10	0.00182	0.043	A	Yes
2-Chlorophenol	108-43-0	0.049	50		0.18	A	No
Chromium, hexavalent	7440-47-3	1.73	--	7.95E-05	0.000083	A	Yes
Chromium, trivalent	7440-47-3	2.22	175		0.00083	A	Yes
Cobalt	7440-48-4	0.18	175		0.17	B	Yes
Copper	7440-50-8	10.8	175		0.67	B	No
1,2-Dichloroethane	107-06-2	42.2	10	0.00194	0.038	A	Yes
Dichloromethane	75-09-2	415	50	0.019	0.56	A	Yes
1,2-Dichloropropane	78-87-5	48.1	500		4	A	Yes
Dinitrophenol-24	51-28-5	0.14	--		0	B	Yes
Ethyl benzene	100-41-4	45.2	43,748		1,000	B	Yes
Formaldehyde	50-00-0	2,935	20	0.0479**	0.077	A	Yes
Hydrogen chloride	7647-01-0	5,780	175	1.33	7	B	Yes
Lead	7439-92-	71.5	50	0.0164	0.5	A	Yes

Toxic Compound	CAS #	Total Annual Emissions (lb/yr)	Small Quantity Emission Rate (lb/yr)	Ambient Impact (µg/m^3)	Acceptable Source Impact Level (µg/m^3)	TAP Class	EPA Classified HAP (Yes/No)
Manganese	7439-96-5	142	175		3.3	B	Yes
Mercury	7439-97-6	0.6	175		0.33	B	Yes
Methanol	67-56-1	25,998	43,748		870	B	Yes
Naphthalene	91-20-3	137	22,750		170	B	Yes
Nickel	7440-02-2	3.65	0.5	1.67E-04	0.0021	A	Yes
Nitric Oxide	10102-43-9	127,000	17,500	29.2	100	B	No
Nitrophenol-4	100-02-7	0.25	--		0	B	Yes
PAH	PAH	0.026	--	1.20E-06	0	A	Yes
Pentachlorophenol	87-86-5	0.033	50		0.33	A	Yes
Phenol	108-95-2	18.1	10,500		63	B	Yes
Phosphorus	7723-14-0	39	175		0.33	B	Yes
Propionaldehyde	123-38-6	361.1	--		0	B	Yes
Selenium	7782-49-2	2.52	175		0.67	B	Yes
Styrene	100-42-5	2,740	43,748		1000	B	Yes
Sulfuric Acid Mist	7664-93-9	2,960	175	0.679	3.3	B	No
TCDD, Total	1746-01-6	0.00002	--	9.98E-10	0.00000003	A	Yes
Tetrachloroethene	127-18-4	55.2	500		1.1	A	Yes
Tin	7440-31-5	9.58	175		6.7	B	No
Toluene	108-88-3	30.7	43,748		400	B	Yes
Trichloroethane	79-01-6	43.8	50		0.59	A	Yes
Trichlorofluoromethane	75-69-4	58.5	43,748		190000	B	No
2,4,6- Trichlorophenol	88-06-2	0.0164	50		0.32	A	Yes
Vanadium	1314-62-1	1.96	175		0.17	B	No
Vinyl Chloride	75-01-4	26.6	10	0.00122	0.012	A	Yes
Xylene	1330-20-7	35.4	43,748		1500	B	Yes

** This modeled result is from hog fuel boiler emissions only and does not include dry kiln emissions.

Acetophenone, dinitrophenol-2,4, nitrophenol-4 and propionaldehyde are listed as HAPs however have no ASIL information and are listed with low EPA confidence in the studies in which the (reference dose) RfD was based, according to the Technology Transfer Network Air Toxics Web Site. Emissions of acetaldehyde, acrolein, methanol, and propionaldehyde from the hog fuel boiler upgrade were modeled using ISC-PRIME, and formaldehyde was modeled using AERMOD-PRIME.

7. REGULATIONS AND EMISSION STANDARDS

Regulations have been established for the control of emissions of air pollutants to the ambient air. Regulations applicable to the facility 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 following regulations, codes, or requirements. These items establish maximum emissions limits that could be allowed and are not to be exceeded for new or existing facilities. More stringent limits are established in this Permit consistent with implementation of Best Available Control Technology (BACT):

7.a. Title 40 Code of Federal Regulations (CFR) Part 60.8 "Performance Tests" requires that emission tests be conducted according to test methods approved in advance by the permitting authority and a copy of the results be submitted to the permitting authority.

7.b. 40 CFR Part 60.40 *et seq.* (Subpart Db) "Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units" applies to any steam generating unit with a heat input greater than 100 MMBtu/hr constructed, modified, or reconstructed after June 19, 1984. The hog fuel boiler at this source has a design heat input over 100 MMBtu/hr and was constructed after 1984, therefore this standard applies to this unit.

7.c. 40 CFR Part 63.7 "Performance testing requirements" requires that emission tests be conducted according to test methods approved in advance by the permitting authority and a copy of the results be submitted to the permitting authority.

7.d. 40 CFR Part 63.9 "Notification Requirements" requires that an initial notification, a notification of performance testing, and a notification of compliance status be submitted to SWCAA, the delegated authority.

7.e. 40 CFR Part 63.2230 *et seq.* (Subpart DDDD) "National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products" applies to each Plywood and Composite Wood Products manufacturing facility that is located at a major source of HAP emissions. Hampton Lumber Randle is subject to this regulation because the facility in Randle is a major source of HAP emissions. The facility is only required to comply with the initial notification requirement. The initial notification was submitted July 15, 2009.

7.f. 40 CFR Part 63.6580 *et seq.* (Subpart ZZZZ) "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. This regulation is applicable to the two facility emergency engines.

For purposes of this Subpart, "diesel fuel" also includes any non-distillate fuel with comparable physical and chemical properties (e.g., biodiesel) that is suitable for use in compression ignition engines per §63.6675.

7.g. 40 CFR Part 63.4680 *et seq.* (Subpart QQQQ) "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products" applies to each facility that applies over 1,100 gallons of a HAP containing coatings using, for example, roll coaters or curtain coaters in the finishing or laminating of

any wood building product that contains more than 50 percent by weight wood or wood fiber excluding the weight of any glass components, and is used in the construction, either interior or exterior, of a residential, commercial, or institutional building. Reviewing the pre-amble of the rule suggests this rule does apply to anti-fungal agents applied to lumber, however, there are no limits established for lumber coatings. The facility uses over 1,100 gallons. According to the SDS and Kop-Coat, WORKHORSE contains trace amounts of 1,4-dioxane and ethylene oxide at under 0.0001%, which are not added to the product but are contained in trace amounts in one raw material. Considering the low amount of the HAP, the facility meets compliance using the Compliant Material Option.

7.h. 40 CFR Part 63.7480 *et seq*. (Subpart DDDDD) "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters" applies to each industrial, commercial, or institutional boiler or process heater that is located at, or is part of, a major source of HAP emissions. Hampton Lumber Randle is subject to this regulation because the facility in Randle is a major source of HAP emissions. The initial notification was submitted September 16, 2011.

7.i. 40 CFR Part 64 "Compliance Assurance Monitoring" requires the owner or operator of selected pollutant specific emission units at a major stationary source to develop and implement a monitoring plan that provides a reasonable assurance of compliance with applicable emission limitations or standards. This regulation is applicable to the hog fuel boiler and ESP and Baghouse #1.

7.j. 40 CFR Part 68 "Chemical Accident Prevention Provisions" sets forth the list of regulated substances and thresholds, the petition process for adding or deleting substances to the list of regulated substances, the requirements for owners or operators of stationary sources concerning the prevention of accidental releases, and the State accidental release prevention programs approved under section 112(r). This facility uses urea not aqueous ammonia; therefore, this regulation is not triggered.

7.k. 40 CFR Part 70 "State Operating Permit Programs" requires facilities with site emissions of any regulated air pollutant greater than 100 tpy, any single hazardous air pollutant greater than 10 tpy, or any aggregate combination of hazardous air pollutants greater than 25 tpy to obtain a Title V permit. The facility is an affected facility because potential criteria pollutant emissions are in excess of 100 tons per year and HAPs are in excess of 10 tpy of a single pollutant.

7.l. 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 (RCW 70A.15) 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.m. 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 ADP for installation and establishment of an air contaminant source.

7.n. Washington Administrative Code (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 applicable because this source has the potential to exceed the Title V thresholds and has obtained an operating permit.

7.o. WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires BACT 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.p. WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, SO_2, NO_x, ozone, and CO in the ambient air, which must not be exceeded. The facility emits PM_{10}, $PM_{2.5}$, SO_x, NO_x, and CO; therefore, certain sections of this regulation apply.

7.q. 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, SO_2, concealment and masking, and fugitive dust.

7.r. SWCAA 400-040(1) "Visible Emissions" requires that emissions of an air contaminant from any emissions unit must not exceed twenty percent opacity for more than three minutes in any one hour at the emission point, or within a reasonable distance of the emission point. A visible emission standard for hog fuel boilers during start-up and shutdown, as well as soot blowing and grate cleaning is established.

7.s. SWCAA 400-040(2) "Fallout" requires that emissions of PM from any source must not be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

7.t. SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere.

7.u. SWCAA 400-040(4) "Odors" requires any source which generates odors that may unreasonably interfere with any other property owner's use and enjoyment of their property to use recognized good practice and procedures to reduce these odors to a reasonable minimum. This source must be managed properly to maintain compliance with this regulation.

7.v. SWCAA 400-040(6) "Sulfur Dioxide" requires that no person is allowed to emit a gas containing in excess of 1,000 ppmd of SO_2, corrected to 7% O_2 or 12% CO_2 as required by the applicable emission standard for combustion sources.

7.w. SWCAA 400-040(8) "Fugitive Dust Sources" requires that reasonable precautions be taken to prevent fugitive dust from becoming airborne and minimize emissions.

7.x. SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met, and that no person is allowed to cause or permit the emission of PM from any combustion or incineration unit in excess of 0.23 g/Nm^3_{dry} (0.1 gr/dscf) of exhaust gas at standard conditions.

7.y. SWCAA 400-060 "Emission Standards for General Process Units" requires that all new and existing general process units do not emit PM in excess of 0.23 g/Nm^3_{dry} (0.1 gr/dscf) of exhaust gas.

7.z. SWCAA 400-070(2) "Hog fuel boilers" requires hog fuel boilers to meet all provisions of SWCAA 400-040 and SWCAA 400-050(1). All hog fuel boilers are also required to utilize RACT and be operated and maintained to minimize emissions.

7.aa. SWCAA 400-109 "Air Discharge Permit Applications" requires that an ADP 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 ADP application to request such changes. An ADP 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.bb. SWCAA 400-110 "New Source Review" requires that SWCAA issue an ADP in response to an ADP application prior to establishment of the new source, emission unit, or modification.

7.cc. SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source will be granted unless it is evidenced that:
(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) BACT will be employed for all air contaminants to be emitted by the proposed equipment;
(3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

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

The proposed equipment and control systems incorporate BACT for the types and amounts of air contaminants emitted by the processes as described below:

New BACT Determination(s)

8.a. BACT Determination – Hog Fuel Boiler. The following control measures were determined in ADP 06-2691 to meet the requirements of BACT for the hog fuel boiler at this facility:
(1) Proper combustion controls;
(2) A multiclone followed by a two-field ESP for PM; and
(3) An SNCR system with ammonia (urea solution) injection for NO_X. SNCR is well suited for furnace temperatures between 1,500-1,950 ºF, unlike selective catalytic reduction. The boiler has a furnace temperature of approximately 1,600 ºF. NO_X concentration in the exhaust gas is limited to 90.0 ppmvd corrected to 7% O_2 on a 24-hour average. Control measures include operation, monitoring and maintenance provisions for the ammonia injection system.

In the original permit, CO BACT for the hog fuel boiler was established at 0.23 lb/MMBtu on a 1-hr averaging period, later changed to a 24-hr averaging period. It was based on a Wellons emission

guarantee that originally had no averaging period, but Wellons has since established a 30-day averaging period for all of their boilers.

During past operation of the hog fuel boiler, Hampton Lumber Randle has had to reduce its operations to keep CO emissions below 0.23 lb/MMBtu for the 24-hr averaging period. They have requested that the averaging period for a boiler of this size and manufacture be reexamined and have requested a new averaging period of 30-days. They are not asking for a new short term emission limit nor an increase in the annual emission limit.

Due to the age of the boiler, add on mitigation efforts such as air heaters cannot be installed.

A search of the RACT/BACT/LAER Clearinghouse resulted in several boilers within the Hampton Lumber Randle's boiler size of 164.9 MMBtu/hr. Emission limits ranged from 0.49 lb/MMBtu to 0.075 lb/MMBtu for a few boilers sized from 464 – 1,200 MMBtu/hr, some with add-on controls. None of these boilers have been built.

On April 27, 2023, Hampton Lumber Mills – Randle received an email from Wellons, Inc. explaining that the typical CO emissions guarantee for the existing hog fuel boiler would be 0.23 lb/MMBtu of heat input on a 30-day average. SWCAA has chosen to use this guarantee for the existing hog fuel boiler at Hampton Lumber Randle. It is more stringent than the boilers listed below in the RACT/BACT/LAER Clearinghouse survey and is in line with current emission guarantees.

Date	Company	Location	Boiler Info	CO Limit	Notes
6-30-2017	Robbins Lumber, Inc.	Maine	167.3 MMBtu/hr	50.2 lb/hr, 0.3 lb/MMBtu	No controls
06-21-2017	Florida Power Development	Florida	992 MMBtu/hr Grate suspension	575 ppm @3% O_2 0.45 lb/MMBtu	Retrofitted to biomass from coal. Permit for capacity increase. Good combustion practices. Removed oxidation catalyst system.
5-9-2017	Arauco North America	Michigan	110 MMBtu/hr	36.3 lb/hr	Natural gas start-up. Good combustion practices.
10-27-2013	Ameresco Federal Solutions	South Carolina	98 MMBtu/hr	620 ppm @3% O_2	Draft. Diesel backup fuel Good combustion practices.

Date	Company	Location	Boiler Info	CO Limit	Notes
1-03-2013	Klausner Holding USA, Inc.	South Carolina	120 MMBtu/hr	0.40 lb/MMBtu, 3-hr average	Good combustion practices.

8.b. BACT Determination – Emergency Engines. The use of ultra-low sulfur diesel fuel (≤15 ppmw), limitation of visible emissions to 10% opacity or less, and limitation of engine operation to less than 200 hr/yr for maintenance checks and readiness testing has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from these existing engines.

Previous BACT Determination(s)

8.c. BACT Determination. All equipment at the facility has previously been through New Source Review and determined to meet the requirements of BACT at the time of installation or were installed prior to the establishment of BACT requirements.

8.d. RACT Determination – Sawdust Cyclone. The Sawdust Cyclone is a like-and-kind replacement and does not constitute an emission increase. A unit regulated under SWCAA 400-114 needs to meet Reasonably Available Control Technology (RACT). Historically within SWCAA's jurisdiction, a cyclone meets RACT for green sawmill waste.

8.e. BACT Determination - Dry kilns. A review of the RACT/BACT/LAER Clearinghouse (RBLC) showed no add-on controls established for dry kiln emissions. The use of process temperature limits had been determined to meet the requirements of BACT for the dry kilns installed at this facility.

8.f. Prevention of Significant Deterioration (PSD) Applicability. This permitting action will not result in a potential increase in actual emissions equal to or greater than the PSD thresholds. The facility does not fall into the collection of twenty-six source categories that are triggered by the 100 tpy threshold, nor are they subject to any NSPS or NESHAPs promulgated prior to 1980. They are in the 250 tpy category and do not have greater than 250 tons of any criteria pollutant potential to emit. Therefore, PSD review is not applicable to this action.

8.g. Compliance Assurance Monitoring (CAM). CAM is generally applicable to any emissions unit with the potential to emit 100 tons per year or more (uncontrolled) of any criteria air pollutant for which an emission standard (limit) applies, and that utilizes a control device to maintain compliance with the emission standard. Pursuant to 40 CFR 64.2(b)(1)(vi), CAM requirements are not applicable to emission limitations or standards for which a Part 70 permit specifies a continuous compliance determination method. However, EPA has required a CAM plan. The hog fuel boiler and the planer mill are the only potential emission units at Hampton Lumber Mills, Inc. - Randle that meets the criteria for CAM applicability. The hog fuel boiler is equipped with a continuous emission monitor for one of the applicable pollutants (NO_X), which satisfies CAM. The planer baghouse (Baghouse #1) will be equipped with a baghouse leak detection system (shipment is due in the fall of 2023), which satisfied CAM. The facility submitted a CAM plan with their Title V renewal application for the PM on the hog fuel boiler controlled by the ESP and PM on the planer Baghouse #1.

9. AMBIENT IMPACT ANALYSIS

9.a. Criteria Air Pollutant Review. Ambient impact modeling for NO_X, SO_2 and PM was conducted as part of ADP application L-577. The modeling indicated that the maximum emissions from this facility would have no significant impact on ambient air quality. In addition, the visibility impact at the most impacted Class I area (Mount Rainier National Park) was evaluated. The maximum concentration at the discrete Class I reception was less than the Class 1 MSL for each pollutant.

9.b. Hampton Lumber Randle estimated the following TAP emissions established in ADP 06-2691 and compared the modeled impact to the ASIL in WAC 173-460 [at the time effective 8/21/98]. As detailed in the table below, the project is not expected to cause an incremental exceedance of the acceptable source impact level.

Toxic Compound	CAS #	Total Annual Emissions (lb/yr)	Small Quantity Emission Rate (lb/yr)	Ambient Impact (µg/m³)	Acceptable Source Impact Level (µg/m³)	TAP Class	EPA Classified HAP (Yes/No)
Acetaldehyde	75-07-0	25,945	50	0.0109**	0.45	A	Yes
Acrolein	107-02-8	443.73	175	0.602**	0.02	B	Yes
Ammonia	7664-41-7	21,660	17,500	10.2	100	B	No
Arsenic	7440-38-2	2.05	--	9.43E-05	0.00023	A	Yes
Benzene	71-43-2	1,070	20	0.0492	0.12	A	Yes
Beryllium	7440-41-7	2.24	--	1.03E-04	0.00042	A	Yes
Cadmium	7440-43-9	4.19	--	1.92E-04	0.00056	A	Yes
Carbon Tetrachloride	56-23-5	65.6	0.5	0.00301	0.067	A	Yes
Chlorine	7782-50-5	1,140	175	0.262	5	B	Yes
Chloroform	67-66-3	39.8	10	0.00182	0.043	A	Yes
Chromium, hexavalent	7440-47-3	1.73	--	7.95E-05	0.000083	A	Yes
1,2-Dichloroethane	107-06-2	42.2	10	0.00194	0.038	A	Yes
Dichloromethane	75-09-2	415	50	0.019	0.56	A	Yes
Formaldehyde	50-00-0	2,935	20	0.0479**	0.077	A	Yes
Hydrogen chloride	7647-01-0	5,780	175	1.33	7	B	Yes
Lead	7439-92-1	71.5	50	0.0164	0.5	A	Yes
Nickel	7440-	3.65	0.5	1.67E-04	0.0021	A	Yes

Toxic Compound	CAS #	Total Annual Emissions (lb/yr)	Small Quantity Emission Rate (lb/yr)	Ambient Impact (µg/m^3)	Acceptable Source Impact Level (µg/m^3)	TAP Class	EPA Classified HAP (Yes/No)
Nitric Oxide	02-2 10102-43-9	127,000	17,500	29.2	100	B	No
PAH	PAH	0.026	--	1.20E-06	0	A	Yes
Sulfuric Acid Mist	7664-93-9	2,960	175	0.679	3.3	B	No
TCDD, Total	1746-01-6	0.00002	--	9.98E-10	0.00000003	A	Yes
Vinyl Chloride	75-01-4	26.6	10	0.00122	0.012	A	Yes

** This modeled result is from hog fuel boiler emissions only and does not include dry kiln emissions.

Acetophenone, dinitrophenol-2,4, nitrophenol-4 and propionaldehyde are listed as HAPs however have no ASIL information and are listed with low EPA confidence in the studies in which the (reference dose) RfD was based, according to the Technology Transfer Network Air Toxics Web Site. Emissions of acetaldehyde, acrolein, methanol, and propionaldehyde from the hog fuel boiler upgrade were modeled using ISC-PRIME, and formaldehyde was modeled using AERMOD-PRIME. This current permitting action does not result in an increase in emissions of TAP compounds not previously emitted.

Conclusions

9.c. Modification of hog fuel boiler CO averaging period, as proposed in ADP application L-731, will not cause the ambient air quality requirements of 40 CFR 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.d. Modification of hog fuel boiler CO averaging period, as proposed in ADP application L-731, 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.e. The hog fuel boiler CO averaging period as proposed in ADP application L-731, will not violate 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 23-3602 in response to ADP application L-731. ADP 23-3602 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a. Supersession of Previous Permits. ADP 23-3602 supersedes ADP 06-2691R2 in its entirety. Compliance will be determined under this ADP, not previously superseded ADPs. Existing approval conditions for units not affected by this project have been carried forward unchanged.

10.b. General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP application L-731. Unless otherwise requested by the applicant, emission limits for approved equipment are based on the potential to emit emission calculations in Section 6 of this TSD. BACT is implemented as proposed for each emission unit from pervious permitting actions.

10.c. Operational Limits and Requirements. No monitoring or recordkeeping requirements have been modified by this permitting action.

Emergency Engines. Approval conditions are based on limited service (200 hr/yr) for maintenance and readiness testing and actual power interruptions. Compliance with these requirements will be demonstrated based on AP-42 emission factors and annual operation as recorded and reported by the source. BACT requirements for these units include the use of low sulfur diesel (sulfur content not to exceed 0.015% by weight). Visible emission limits have been established consistent with proper operation of the diesel engines. Due to the technical limitations of the engines, the limit of 10% opacity does not apply during periods of start-up and shutdown.

Boiler Opacity Limits. Note that Hampton Lumber Mills – Randle Facility has a variance from EPA that applies to the Boiler MACT start-up procedures. The EPA variance allows for five hours between the start of "not clean" fuel feed to the boiler and the requirement that the particulate control device be online. This applies only to the Boiler MACT limits and not those established by SWCAA, which remains one hour.

In the original Preliminary ADP for this permitting action, short term concentration limits were established for the boiler during start-up. That has been removed and the original operating standards limit was reestablished with some clarification. This is due to the fact that the concentrations were meant as emission factors, not limits, that the facility has no way to determine actual emissions during the start-up for CO, and other boilers of this size in our jurisdiction have not had start-up emission limits established.

10.d. Monitoring and Recordkeeping Requirements. No monitoring or recordkeeping requirements have been modified by this permitting action. ADP 23-3602 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. In specific, Hampton Lumber Randle is required to record boiler operation, bin unloading throughput, anti-stain consumption, dry kiln parameters, baghouse and cyclone operation, upset conditions, and excess emissions.

10.e. Reporting Requirements. No reporting requirements have been modified by this permitting action. ADP 23-3602 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for material throughput and hours of operation.

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 must 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 will include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

To SWCAA's knowledge, this facility can comply with all applicable standards during start-up and shutdown.

Emergency Generator and Fire Pump Engines. Visible emissions from the emergency generator and fire pump engines are limited to 10% opacity or less during normal operation. However, the engines are not capable of reliably limiting visible emissions to less than 10% opacity until the engines achieve normal operating temperature. Therefore, the 10% opacity limit does not apply during start-up periods.

Hog fuel boiler. Boiler start-up, as defined by 40 CFR 63 Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters", is as follows:
(1) Either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy for heating and/or producing electricity, or for any other purpose, or the firing of fuel in a boiler after a shutdown event for any purpose. Start-up ends when any of the useful thermal energy from the boiler or process heater is supplied for heating, and/or producing electricity, or for any other purpose, or
(2) The period in which operation of a boiler or process heater is initiated for any purpose. Start-up begins with either the first-ever firing of fuel in a boiler or process heater for the purpose of supplying useful thermal energy (such as steam or heat) for heating, cooling or process purposes, or producing electricity or the firing of fuel in a boiler or process heater for any purpose after a shutdown event. Start-up ends four hours after when the boiler or process heater supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes, or generates electricity, whichever is earlier.

Shutdown, as defined by 40 CFR 63 Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters", means the period in which cessation of operation of a boiler or process heater is initiated for any purpose. Shutdown begins when the boiler or process heater no longer supplies useful thermal energy (such as heat or steam) for heating, cooling, or process purposes and/or generates electricity or when no fuel is being fed to the boiler or process heater, whichever is earlier. Shutdown ends when the boiler or process heater no longer supplies useful thermal energy (such as steam or heat) for heating, cooling, or process purposes and/or generates electricity, and no fuel is being combusted in the boiler or process heater.

In accordance with SWCAA 400-040(1), visible emissions from the hog fuel boiler are limited to 40% opacity during periods of soot blowing and/or grate cleaning. These periods are limited to not more than fifteen (15) consecutive minutes in any eight (8) hour period.

Emissions are exhausted through the multiclone and ESP at start-up; however, the ESP cannot be safely energized until the stack exhaust temperature reaches 175 °F or greater according to the manufacturer and cannot reliably limit visible emissions during start-up until the stack temperature reaches 175 °F. According to the manufacturer, it can take up to four hours to reach an exhaust temperature of 175 °F to minimize serious safety risks. The COMS will not report valid data until the ESP exhaust temperature is 175 °F or greater. The Wellons start-up manual includes a caution never to energize the ESP with combustible gases present, as a high oxygen level can result in an explosion.

The SNCR may not function properly until the furnace temperature reaches a temperature that can support the reduction reaction (approximately 1600 °F).

Therefore, ammonia, NO_X, CO, and PM_{10} emissions from the hog fuel boiler may exceed the operational limit of 25 ppm, 90 ppm, 225 ppm, and 0.010 gr/dscf, respectively, corrected to 7% O_2, during periods of start-up and shutdown. These periods are limited to a six-hour period.

If refractory work has been performed on the boiler, the boiler start-up period is extended to include curing the new refractory. The curing process takes an extended period of time and generates an elevated moisture content in the firebox. Regardless of stack temperature, the ESP cannot be operated during the curing process because the high level of stack gas moisture can short out the ESP. Therefore, the length of the start-up period must be significantly extended to allow completion of the curing process. Start-up periods that occur after refractory work shall not exceed a maximum length of thirty-six (36) hours.

To SWCAA's knowledge, all other equipment at this facility can comply with all applicable standards during start-up and 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 other than start up and shutdown. Therefore, none were included in the approval conditions.

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 approval conditions.

12. EMISSION MONITORING AND TESTING

12.a. Emission Testing Requirements – Wellons Boiler. Permit requirements for the Wellons boiler require emission testing on an annual cycle for the purpose of formally demonstrating compliance with applicable emission limits. All emission testing shall be conducted in accordance with the provisions of ADP 23-3602, Appendix A.

12.b. Emission Testing Requirements – Baghouse and Cyclone. PM emissions from the baghouse and cyclone will be tested by November 2023 and every ten years thereafter, no later than the end of

November. This is consistent with similar testing requirements for other large baghouses at lumber production facilities recently permitted. All emission testing shall be conducted in accordance with the provisions of ADP 23-3602, Appendix D.

12.c. Emission Testing Requirements – Dry Kilns. A lumber drying emission test shall be performed no later than the end of November 2023 and every five years thereafter, no later than the end of November. Emission testing shall be conducted in accordance with the provisions of in ADP 23-3602, Appendix C. Constituents to be measured include wood weight, wood moisture content, kiln temperature, and speciated VOCs including HAPs and TAPs.

SWCAA recognizes there are no active testing companies available to test emissions from lumber drying at the time of permitting. If no testing company with the ability to test emissions from lumber drying is available within the required timeframe of this ADP, the facility should submit to SWCAA a letter indicating they have searched for a testing company and there are no testing companies available to test the dry kilns, and the facility should propose an alternate test schedule. This alternate test schedule must be approved by SWCAA.

In a letter dated September 27, 2018, SWCAA issued an extension for the lumber drying emission test until November 2023 because of lack of a company to perform such testing. This was a one-time extension.

13. FACILITY HISTORY

13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for Hampton Lumber Mills, - Randle Facility in Randle:

Permit Number	Application Number	Date	Purpose
77-204	L-89	October 26, 1977	Approved the installation of a baghouse filtration system for the sawmill. This Permit was superseded by SWCAA 02-2414.
78-338	L-94	May 4, 1978	Approved the installation of a wet scrubber for the hog fuel boiler. This Permit was superseded by SWCAA 97-2033.
78-380 and 78-381		August 29, 1978	Order of Consent to discontinue the use of the wood waste incinerator. Closed.
88-1033	L-180	January 16, 1989	Approved the installation of a new planer and baghouse for the sawmill. This Permit was superseded by SWCAA 96-1962.
90-1209	L-223	May 21, 1990	Approved the installation of a small log processing system and other lumber production equipment for the sawmill. This Permit was superseded by SWCAA 96-1962.

91-1342	L-254	June 24, 1991	Approved the installation of a new chipper, bucksaw and associated equipment for the sawmill. This Permit was superseded by SWCAA 06-2691.
93-1495	L-291	July 12, 1993	Approved the installation of a new fingerjointer and baghouse for Remanufacturing Plant #1. This Permit was superseded by SWCAA 94-1608.
94-1608	L-251, L-293, L-304	May 16, 1994	Approved the expansion of Remanufacturing Plant #1 and installation of Remanufacturing Plant #2. New control equipment included a Carter-Day baghouse in Remanufacturing Plant #1 and a new H&R Mechanical Systems baghouse in Remanufacturing Plant #2. This Permit was superseded by SWCAA 96-1962 with the exception of the VOC limit. This Permit was entirely superseded by SWCAA 01-2399.
95-1835	L-290	December 13, 1995	Approved the installation of new knock-out boxes for the filing room. This Permit was superseded by SWCAA 96-1962.
96-1953	L-371	December 2, 1996	Approved the installation of one new dry kiln and four new vent changers. This Permit was superseded by SWCAA 02-2414.
96-1962	L-340	January 1, 1992	Approved the modification of existing PM emissions limits for the baghouses, sawdust cyclones, and knock-out boxes. This Permit superseded SWCAA 88-1033, 90-1209, 93-1495, 94-1608, and 95-1835. This Permit was superseded by SWCAA 01-2399.
97-2033	L-385	September *5,* 1997	Approved the modifications of existing emissions limits for the hog fuel boiler. This Permit superseded SWCAA 78-338. This Permit was superseded by SWCAA 02-2414.
00-2263	L-456	April 19, 2000	Approved the installation of a new Spray Technologies sap stain spray system. This Permit was superseded by SWCAA 06-2691.
01-2399	L-487	December 17, 2001	Removed the requirements for equipment that was no longer at the facility. This Permit superseded SWCAA 94-1608 and 96-1962. This Permit was superseded by SWCAA 06-2691.

02-2414	L-440	June 17, 2002	Modified existing requirements and scrubber flow. This Permit superseded SWCAA 77-204, 96-1953, and 97-2033. This Permit was superseded by SWCAA 06-2691.
06-2691	L-577	October 8, 2006	Approved the replacement of the hog fuel boiler and wet scrubber with a new hog fuel boiler, ESP and SNCR and the installation of four new dry kilns. This Permit superseded SWCAA 91-1342, 00-2263, 01-2399, and 02-2414. This Permit is superseded by SWCAA 06-2691R1.
08-2801		August 12, 2008	Consent Order for spiking CO emissions. The requirements of the Consent Order will be met with the issuance of this Permit.
06-2691R1	L-607	July 20, 2010	Approved the modification of boiler temperature monitoring requirements. Modified the averaging periods for gaseous emissions, updated dry kiln emission factors and bin unloading throughputs. This Permit superseded SWCAA 06-2691.
06-2691R2	L-676	December 11, 2014	Approved the replacement of the Sawdust Cyclone with a replica. This Permit superseded SWCAA 06-2691R1.

Permits in italics have been superseded.

Hampton Lumber Mills purchased Cowlitz Stud Company on June 1, 1999.

13.c. Compliance History. The following compliance issues have been identified for this facility for the past five years:

NOV	Date	Violation
6043	4/6/20	CO exceedance
6040	1/7/20	CO and opacity exceedance
6039	5/16/19	Late deviation report
6037	12/10/18	CO and opacity exceedance. Less than 90% of data availability on CEMDAS.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a. Public Notice for ADP Application L-731. Public notice for ADP application L-731 was published on the SWCAA website for a minimum of fifteen (15) days beginning on December 19, 2022.

14.b. Public/Applicant Comment for ADP Application L-731. A thirty (30) day public comment period was provided for this permitting action pursuant to SWCAA 400-171(3).

SWCAA received the following comments from Hampton Lumbers Mills on October 4, 2023:

1) The NOx and CO start-up and shutdown short-term limit, one-hour average was included as a limit, when previously it was an operating standard. This was not addressed in the ADP application. How should we comply, as the CEMs are not calibrated for that high of a CO range?

   Response: SWCAA agrees to return the original requirement to the operating standard versus the short-term limits. The concentrations used for the short-term limit were based on emission factors the facility utilizes to determine emissions during start-up and we agree it is inappropriate to use those as actual limits.

2) Condition 6e table "Other Wood Species' Emission Factors" – White and Grand fir were combined into one row and the VOC EF for Grand fir is listed. In the Emission Inventory spreadsheet, you provided in the past, there is a second tab "Species" that lists the VOC EF for White fir as 633 lb/MMBf.

   Response: SWCAA reviewed the emission factors used for the different kinds of wood and updated the factor, calling the combined factor True Firs and noted that it covered grand fir and white fir.

3) Can we include Method 17 for the baghouse and cyclone as a source test option for PM?

   Response: SWCAA will include Method 17 as an approved method to determine PM emissions for the baghouse and cyclone source tests.

Due to the modification of the Preliminary ADP, the 30-day public comment period will be restarted on October 11, 2023.

14.c. State Environmental Policy Act. After review of the SEPA Checklist for this project, SWCAA has determined that it is exempt from SEPA requirements pursuant to WAC 197-11-800(3) and has issued Determination of SEPA Exemption 23-036. This project only involves repair, remodeling, maintenance, or minor alteration of existing structures, equipment or facilities, and will not involve material expansions or changes in use. There is no physical change proposed in the project that would have an adverse impact on the environment beyond that which has already been evaluated under previous SEPA reviews.