TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 22-3550
Air Discharge Permit Application CL-3212

Issued: December 28, 2022

Taiga Exterior Wood

SWCAA ID - 422

Prepared By: Wess Safford
Air Quality Engineer
Southwest Clean Air Agency

TABLE OF CONTENTS

Section		Page
1.	Facility Identification	1
2.	Facility Description	1
3.	Current Permitting Action	1
4.	Process Description	1
5.	Equipment/Activity Identification	2
6.	Emissions Determination	4
7.	Regulations and Emission Standards	8
8.	RACT/BACT/BART/LAER/PSD/CAM Determinations	9
9.	Ambient Impact Analysis	10
10.	Discussion of Approval Conditions	10
11.	Start-up and Shutdown Provisions/Alternative Operating Scenarios/Pollution Prevention	11
12.	Emission Monitoring and Testing	11
13.	Facility History	12
14.	Public Involvement Opportunity	12

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
CAS#	Chemical Abstracts Service registry number
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
EU	Emission Unit
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
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
acfm	Actual cubic foot per minute
dscfm	Dry Standard cubic foot per minute
gr/dscf	Grain per dry standard cubic foot
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
psig	Pounds per square inch, gauge
scfm	Standard cubic foot per minute
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
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
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
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:	Taiga Exterior Wood
Applicant Address:	PO Box 206, Washougal, WA 98671
Facility Name:	Taiga Exterior Wood
Facility Address:	2685 Index Street, Washougal, WA 98671
SWCAA Identification:	422
Contact Person:	Robert Babb, HR/EHS Manager
Primary Process:	Wood Treatment
SIC/NAICS Code:	2491: Wood Preserving 321114: Wood Preservation
Facility Classification:	Natural Minor

2. FACILITY DESCRIPTION

Taiga Exterior Wood (Taiga) operates a wood preservative/treating facility located at 2685 Index Street in Washougal, Washington. The facility includes wood treating retorts, a dry kiln, a process boiler, wood stain application and lumber handling equipment. The facility is a natural minor whose emissions are below 100 tons per year of any criteria air pollutant for which an emission standard applies.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CL-3212 (ADP Application CL-3212) dated October 3, 2022. Taiga submitted ADP Application CL-3212 requesting approval of the following:

- Installation of new Superior Super Seminole process boiler; and
- Removal of existing cleaver Brooks model CEW200-700 process boiler.

The current permitting action provides approval for the proposed boiler replacement. ADP 22-3550 will supersede ADP 09-2898 in its entirety.

4. PROCESS DESCRIPTION

4.a Lumber Drying (*existing*). Treated lumber, as well as a small amount of green lumber and plywood, is dried in the facility's dry kiln. Taiga has a two bay dry kiln to dry previously dried, stained lumber as well as green lumber on-site. There are three drying sheds that have three sides and a roof. The back wall of each drying shed is equipped with a bank of exhaust fans. Lumber in the drying sheds is dried by drawing ambient air around and through stacked lumber until moisture levels are within the applicable specification. The dry kiln is a fully enclosed building. The dry kiln is equipped with two small exhaust fans that operate continuously during the kiln cycle. Lumber in the dry kiln is dried by applying elevated temperatures to the kiln chamber until moisture levels are within the applicable specification. Maximum operating temperature in the dry kiln is limited to 180˚F.

ADP Application CL-3212. Taiga is not proposing any changes to lumber drying operations at this time.

4.b Process Boiler (*modified*). A single process boiler is used to provide process heat for the facility's dry kiln. There are no other significant uses of steam at the facility.

ADP Application CL-3212. Taiga proposes to install a new Superior package boiler to replace the existing Cleaver Brooks package boiler operated in support of lumber drying operations. The Superior boiler is significantly smaller than the existing boiler and is appropriately sized to support dry kiln operation. The Cleaver Brooks boiler will be removed from the facility.

4.c Stain Line (*existing*). Lumber is taken from storage and graded, incised, stained, repackaged and banded. Approximately 90% of the wood is stained. Wood stain is sprayed onto dimensional lumber as it passes through one of two spray applicators on a roll case. Stain application is generally conducted prior to any wood treatment. The spray area is completely enclosed. Excess stain is removed from the lumber with air knives. Collected stain is sent through a separator to remove the solids (mostly wood particles) and then recovered for re-use. Taiga is currently using a single low VOC, water-based stain.

Plywood products manufactured at the facility are not stained.

4.d Wood Treatment (*existing*). Untreated lumber (the majority of it having been stained) and plywood is loaded onto small rail cars and rolled into one of four retorts. The retort is hydraulically sealed and a vacuum is applied to remove air from the retort and wood cells. A treatment solution is pumped into the retort at ambient temperature without breaking the vacuum. After the retort is filled, internal pressure is increased to between 130 and 160 psi depending on the product specification and wood species. After the treatment cycle concludes, internal pressure is released and the treatment solution is pumped back into a storage tank for re-use. A vacuum is drawn on the retort removing residual treatment solution from the wood. Treated lumber is removed from the cylinder and placed on a drip pad prior to entering the drying kiln, paper wrap, shipment, or storage.

The industry has eliminated using CCA for residential application due to chrome and arsenic contents and is utilizing CA-C or other formulations as an alternative.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Lumber Dry Kiln (*existing*). One American Wood Dryers dry kiln with two drying bays each measuring approximately 30' wide x 23' high x 36' deep each. Kiln lumber capacity is specified as 50,000 board feet (1 ¾" lumber ¾" sticks) per charge. Each bay is equipped with two vent exchangers with ports of 24" diameter that exhaust at a height of approximately 30' above ground level.

5.b <u>Process Boiler (removed).</u> *One Cleaver Brooks model CEW200-700 boiler (s/n OL101511) with a rated heat input of 29.3 MMBtu/hr. The boiler was manufactured in 2001, and is equipped with a Cleaver Brooks model LND378P low emission burner and flue gas recirculation. The boiler is fired primarily on natural gas with #2 diesel as a secondary fuel. The boiler is not currently configured to utilize #2 diesel. Exhaust gases from the boiler discharge vertically through a 24" diameter stack approximately 26' above ground level.*

<u>ADP Application CL-3212.</u> Taiga proposes to permanently remove the existing Cleaver Brooks boiler from service.

5.c <u>Process Boiler (*new*).</u> One natural gas fired package boiler is used to supply process steam at the facility.

Boiler Make / Model:	Superior / 250 HP Super Seminole
Burner Make/Model:	Oilon / GP320M-LN30
Emissions:	<12 ppmv NO_X / <30 ppmv CO – corrected to 3% O_2
Heat Input Rating:	10.5 MMBtu/hr
Fuel:	Natural Gas
Exhaust Stack:	20" diameter vertical at ~20' above grade

<u>ADP Application CL-3212.</u> Taiga proposes to replace the existing process boiler with a new package boiler manufactured by Superior. The new unit is equipped with an ultra-low NOX burner and fires only on natural gas. Unlike the existing boiler, which is significantly oversized for the facility's process load, the new boiler is appropriately sized to serve dry kiln operations.

5.d <u>Stain Application (*existing*).</u> Two conveyor line stain applicators. Application equipment is enclosed within a tube. Excess stain is recovered for re-use.

5.e <u>Wood Treatment Retorts (*existing*).</u> Four unheated vacuum/pressure retorts with a maximum specified pressure rating of 200 psi. Two of the retorts are 6' wide x 80' long and the other two are 6' wide x 120' long.

5.f <u>Insignificant Emission Units.</u> The following pieces of facility equipment have been determined to have insignificant emissions, and are not registered as emission units:

- Reclaim/re-grade saw
- Small waste wood hog
- Single cut trim saw
- One Samsco Series 500 water evaporator. This unit is fired on natural gas with a maximum operating temperature of 250 ºF and a maximum volume of 164 gallons. Maximum burner capacity is rated at 0.195 MMBtu/hr. Due to minimal operation, emissions are minor and therefore the unit is designated as an insignificant emission unit (IEU).

5.g <u>Equipment/Activity Summary.</u>

ID No.	Equipment/Activity	Control Equipment/Measure
1	Lumber Dry Kiln	Limited Operating Temperature
2	Process Boiler (Superior Super Seminole)	Ultra-low Emission Burner, Low Sulfur Fuel
3	Stain Application Lines	Low VOC coating, Equipment Enclosure
4	Wood Treatment Retorts	Equipment Enclosure

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from facility operations, as proposed in ADP Application CL-3212, 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*). The majority of the wood dried by Taiga in the dry kiln is dried and treated prior to arriving at the facility. Only a small portion of lumber throughput is dried onsite. Although the typical maximum drying temperature is 155 ºF, emission factors correspond to a maximum temperature of 180 ºF to provide a conservative estimate of potential emissions. Dried lumber is approximately 18% hemlock, 81% Douglas fir and 1% other species with a total throughput of 25.00 MMbf/yr as cited in ADP 03-2475R1.

Emissions from lumber drying include particulate matter (presumably condensable PM), volatile organic compounds, methanol, formaldehyde, acetaldehyde, propionaldehyde, acrolein, ethanol, and acetic acid. SWCAA had 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 volatile organic compounds, 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. 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						
	Response	Molecular				
Component	Factor	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 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.

Hemlock Drying

Throughput =	4,750,000	Board Feet
Maximum Kiln Temperature =	180	º F

	Emission Factors				
Pollutant	Equation	lb/MMBf	lb/yr	tpy	Emission Factor Source
PM		51.0	242.25	0.12	Nov. 1998 by Horizon Engineering at OSU
PM_{10}		51.0	242.25	0.12	Nov. 1998 by Horizon Engineering at OSU
$PM_{2.5}$		51.0	242.25	0.12	Nov. 1998 by Horizon Engineering at OSU
VOC	See discussion	297.0	1,410.75	0.71	SWCAA Default August 2009
Methanol	2.83*(T) - 457	52.4	248.90	0.12	SWCAA Default August 2009
Formaldehyde	0.064*(T) - 10.8	0.72	3.42	0.0017	SWCAA Default August 2009
Acetaldehyde		113.0	536.75	0.27	SWCAA Default August 2009
Propionaldehyde		1.2	5.70	0.0029	SWCAA Default August 2009
Acrolein		1.75	8.31	0.0042	SWCAA Default August 2009
Total TAPs			803.08	0.40	
Total HAPs			803.08	0.40	

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

Douglas Fir Drying

Throughput =	20,250,000	Board Feet
Maximum Kiln Temperature =	180	º F

Pollutant	Emission Factors Equation	lb/MMBf	lb/yr	tpy	Emission Factor Source
PM		21.0	425.25	0.21	Nov. 1998 by Horizon Engineering at OSU
PM_{10}		21.0	425.25	0.21	Nov. 1998 by Horizon Engineering at OSU
$PM_{2.5}$		21.0	425.25	0.21	Nov. 1998 by Horizon Engineering at OSU
VOC	See discussion	630.0	12,757.50	6.38	SWCAA Default August 2009
Methanol	1.45*(T) - 223	38.0	769.50	0.38	SWCAA Default August 2009
Formaldehyde	0.0495*(T) - 7.6	1.31	26.53	0.013	SWCAA Default August 2009
Acetaldehyde		49.0	992.25	0.50	SWCAA Default August 2009
Propionaldehyde		0.53	10.73	0.0054	SWCAA Default August 2009
Acrolein		0.73	14.78	0.0074	SWCAA Default August 2009
Total TAPs			1,813.79	0.91	
Total HAPs			1,813.79	0.91	

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

Annual emissions will calculated from actual lumber throughput using the above methodology.

6.b Process Boiler – Superior Super Seminole (*new*). Potential emissions from boiler operation are based on a rated heat input of 10.5 MMBtu/hr, 8,760 hr/yr of operation, and applicable emission factors. Emission factors for all pollutants other than NO_X and CO are taken from EPA AP-42 Section 1.4 "Natural Gas Combustion" (7/98). All PM is assumed to be $PM_{2.5}$. Emission factors for NO_X and CO correspond to 12 ppmv and 30 ppmv at 3% O_2, respectively.

Annual emissions will be calculated based on actual fuel consumption using the same methodology.

Heat Input Rating =	10.500	MMBtu/hr		
Gas Heat Content =	1,020	Btu/scf		
Fuel Consumption =	91,980	MMBtu/yr		
Pollutant	Emission Factor (lb/MMBtu)	(lb/hr)	Emissions (lb/yr)	(tpy)
NO_X	0.0146	0.15	1,343	0.67
CO	0.0222	0.23	2,042	1.02
VOC	0.0054	0.057	496	0.25
SO_X as SO_2	5.88E-04	6.2E-03	54	0.027
PM (total)	0.0075	0.078	685	0.34
PM_{10}	0.0075	0.078	685	0.34
$PM_{2.5}$	0.0075	0.078	685	0.34
Benzene	2.06E-06	2.2E-05	1.9E-01	9.5E-05
Formaldehyde	7.35E-05	7.7E-04	6.8E+00	3.4E-03
CO_2e	117.1	1229.6	10,770,858	5385.43

6.c Stain Application (*existing*). Emissions from stain application are calculated based on reported consumption of stain concentrate and the VOC content of the concentrate as documented in applicable Safety Data Sheet (SDS) information. Potential emissions are based on a maximum throughput of two shifts per day.

Pollutant	Stain Consumption	VOC Content	Emissions
VOC	80,000 gallons	0.27 lb/gal	10.8 tpy

6.d Wood Treatment (*existing*). AP-42, Section 10.8 describes emissions from waterborne wood preservatives as "not significant." Most of the treatment chemicals used by Taiga (CCA, DRICON, borate) do not have a significant VOC content. Emissions from the treatment process are essentially limited to the evaporation of water and trace amounts of treatment solution. Although some of the listed components in the treatment solutions are TAPs, emissions of these compounds (e.g., arsenic, copper, boric acid, phosphoric acid,) are negligible due to the very low vapor pressures at the temperatures associated with the treatment process and chemical reactions which serve to bind the compounds to the wood.

However, one of the treatment chemicals does have a significant VOC content (EPA Method 24). Potential emissions from use of this chemical are calculated based on material consumption using material balance methodology. All VOC content is assumed to be emitted fugitively during the treatment processes. Maximum material consumption is equivalent to 150% of the average material consumption during calendar years 2020 and 2021.

Pollutant	Treatment Chemical	Consumption	VOC Content	Emissions
VOC	Wolman CA-C	400,000 lb/yr	24.84%	49.68 tpy

6.e 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	0.67	-4.39
CO	1.02	-3.94
VOC	67.81	-0.54
SO_2	0.027	-0.10
Lead	0.0	0.0
PM	0.68	-0.68
PM_{10}	0.68	-0.66
$PM_{2.5}$	0.68	-0.63
TAP	1.31	-0.01
HAP	1.31	-0.01
CO_2e	5,385	-9,642

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	1,529	0.0	50
Acrolein	107-02-8	HAP/TAP B	23.1	0.0	175
Benzene	71-43-2	HAP/TAP A	0.2	-0.3	20
Formaldehyde	50-00-0	HAP/TAP A	36.7	-12.3	20
Methanol	67-56-1	HAP/TAP B	1,019	0.0	43,748
Propionaldehyde	123-38-6	HAP/TAP B	16.4	0.0	--

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 Title 40 CFR Part 63.11428 et seq. (Subpart QQQQQQ) "Standards of Performance for Hazardous Air Pollutants for Wood Preserving Area Sources" applies to all wood preserving operations that are an area sources of HAPs. Taiga is an existing facility subject to this Standard. The initial notification and notification of compliance was submitted to EPA July 30, 2007.

7.b Title 40 Code of Federal Regulations (40 CFR) 60.7 "Notification and Recordkeeping" requires that notification shall be submitted to SWCAA, the delegated authority, for date construction commenced, anticipated initial startup, and initial startup.

7.c 40 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.d 40 CFR 60 Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" applies to any steam generating unit with a heat input greater than or equal to 10 million Btu/hr, but less than or equal to 100 million Btu/hr constructed, modified, or reconstructed after June 9, 1989. The new Superior boiler is subject to this regulation because it has a rated heat input greater than 10.0 MMBtu/hr.

7.e 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.f 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.g 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.h 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.i 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.j 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.k 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.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.

7.n SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall 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) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
(3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(5) 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 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 BACT Determination – Process Boiler. The proposed use of low sulfur fuel (natural gas), annual emission monitoring, and ultra-low emission burner technology (≤ 9 ppmv – NO_X, ≤ 50 ppmv CO) has been determined to meet the requirements of BACT for the new process boiler at this facility.

Previous BACT Determinations

8.b BACT Determination – Modification of Compliance Determination for the Dry Kiln (*ADP 09-2898*). The equipment affected by this permitting action is not being modified. The determination of compliance for the dry kiln emission limits has been changed from utilizing the most recent source test to utilizing the emission factors in this TSD. The emission factors have been updated due to new information on VOC and HAP emissions from lumber drying. The use of process temperature limits and vertical dispersion of exhaust gases has been determined to meet the requirements of BACT for this facility at time of installation.

Other Determinations

8.c 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.d 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 incremental increases in TAP emissions associated with this permitting action are quantified in Section 6 of this Technical Support Document. All incremental increases in individual TAP emissions are less than the applicable small quantity emission rate (SQER) identified in WAC 173-460.

Conclusions

9.b Installation of a replacement boiler, as proposed in ADP Application CL-3212, 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 Installation of a replacement boiler, as proposed in ADP Application CL-3212, 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 Installation of a replacement boiler, as proposed in ADP Application CL-3212, 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 22-3550 in response to ADP Application CL-3212. ADP 22-3550 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a Supersession of Previous Permits. ADP 22-3550 supersedes ADP 09-2898 in its 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 CL-3212. 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, Recordkeeping, and Reporting Requirements. ADP 22-3550 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 recordkeeping requirements are established for operating temperature, fuel consumption, coating consumption, and hazardous waste disposal.

10.d Dry Kiln. Permit requirements for the lumber dry kiln incorporate the operating scheme proposed by the permittee at the time of installation. Visible emissions are limited to 5% opacity consistent with proper operation. Restrictions have been imposed on the dry kiln operating temperature, and monitoring has been required to assure compliance. Emission limits for lumber drying are based on emission test data and the maximum lumber capacity of the kiln.

10.e Process Boiler. Permit requirements for the new Superior boiler incorporate expected operational performance and the operating schemes proposed in ADP Application CL-3212. Manufacturer's information for the proposed burner indicate the unit will maintain NO_X and CO emissions at <9 ppmv and <50 ppmv at 3% O_2, respectively. SWCAA has established a NO_X emission limit of 12 ppmv at 3% O_2 to allow for compliance margin. SWCAA has established a CO emission limit of 30 ppmv at 3% O_2 because this level of emissions corresponds to the common performance

of newer units of this size and fuel type. Visible emissions from the boiler are limited to 0% opacity consistent with proper operation. Periodic emission testing requirements have been established for the purposes of demonstrating compliance with applicable emission limits. Annual emission monitoring requirements have been established to assure proper operation on an ongoing basis.

10.f Water Evaporators. The facility has replaced two existing site-built propane fired water evaporators with one natural gas fired Samsco water evaporator. The maximum capacity of the Samsco evaporator is smaller than the combined capacity of the previous units. The Samsco unit serves as a functional back-up to the electrically powered primary evaporator. Actual emissions are minor so the unit is designated as insignificant emission unit (IEU).

10.g Continuing Requirements. Consistent with ADP Application CL-3212, the scope of this permitting action is limited to replacement of the existing process boiler. The applicant has not proposed any other changes to existing equipment or operations at the facility. Permit requirements for unaffected operations have been carried forward unchanged from the facility's previous permit (ADP 09-2898).

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.

The applicant did not identify any start-up and shutdown periods during which affected equipment is not capable of achieving continuous compliance with applicable technology determinations or approval conditions. To SWCAA's knowledge, this facility can comply with all applicable standards during startup 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. 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

12.a Emission Testing – Superior Boiler. Emission testing of the Superior Boiler is required on a continuing 5-year cycle. All emission testing must be conducted in accordance with ADP 22-3550, Appendix A.

12.b Emission Monitoring – Superior Boiler. Emission monitoring of the Superior Boiler is required on a continuing 12-month cycle. All emission monitoring must be conducted in accordance with ADP 22-3550, Appendix B.

12.c Emission Testing Requirements – Lumber Drying. Emission testing of lumber drying operations is required upon request, not more often than once every five years for the purpose of quantifying kiln emissions. Required emission testing will be conducted in accordance with the provisions of SWCAA 09-2898, Appendix C.

13. FACILITY HISTORY

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

Permit Number	Application Number	Date	Purpose
09-2898	CL-1825	11/10/2009	Revision of emission limits to incorporate new dry kiln factors and wastewater evaporator
03-2475R1	CL-1690	5/12/2005	Approval for the replacement of an existing dry kiln. Superseded by ADP 09-2898.
03-2475	CL-1597	9/10/2003	Approval for the replacement of the existing process boiler. Superseded by SWCAA 03-2475R1.
85-791	CL-550	9/3/1985	Approval for the installation of new wood treating retort, increase in throughput, and use of new fire retardant application process. Superseded by SWCAA 03-2475.
79-479	CL-389	10/11/1979	Approval for the installation of a boiler and lumber dry kiln. Superseded by 03-2475.
77-290	CL-290	12/8/1977	Approval for the installation of a new wood treating facility. Superseded by 03-2475.

13.b Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues during the past five (5) years.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a Public Notice for ADP Application CL-3212. Public notice for ADP Application CL-3212 was published on the SWCAA internet website for a minimum of (15) days beginning on October 7, 2022.

14.b Public/Applicant Comment for ADP Application CL-3212. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP application. Therefore no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. A complete SEPA checklist was submitted by Taiga in conjunction with ADP Application CL-3212. After reviewing the checklist, SWCAA has made a Determination of SEPA Exempt (SWCAA 22-037) concurrent with issuance of ADP 22-3550.