United States Environmental Protection Agency
Region 10, Air & Radiation Division
1200 Sixth Avenue, Suite 155, 15-H13
Seattle, Washington 98101

Permit Number: R10NT501001
Issued: July 1, 2021
Effective: August 1, 2021
AFS Plant I.D. Number: 16-009-00018

Non–Title V Air Quality Operating Permit
Revision No. 1

Is issued in accordance with the provisions of the Federal Air Rules for Reservations (FARR), 40 CFR 49.139, and applicable rules and regulations to

Stimson Lumber Company

for operations in accordance with the conditions in this permit at the following location:

Coeur d'Alene Reservation
733 10th Street
Plummer, Idaho 83851
Latitude: 47.33°N Longitude: 116.89°W

Local Individual Responsible for Compliance:
Kevin Crider
Plant Manager
733 10th Street
Plummer, Idaho 83851
Phone: 208.686.9080, ext. 2222
Email: kcrider@stimsonlumber.com

A technical support document that describes the bases for conditions contained in this permit is also available.

DOUGLAS HARDESTY
Digitally signed by DOUGLAS HARDESTY
Date: 2021.07.01 11:11:52 -06'00'

Doug Hardesty, Acting Chief
Air Permits & Toxics Branch
Air & Radiation Division
U.S. EPA, Region 10

7/1/21
Date

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1. Abbreviations and Acronyms

AF	Adjustment factor
ASTM	American Society for Testing and Materials
bf	Board feet
Btu	British thermal units
CAA	Clean Air Act [42 U.S.C. section 7401 et seq.]
CBI	Confidential business information
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CFR	Code of Federal Regulations
dscf	Dry standard cubic feet
EF_X	Emission factor for HAP X
EPA	United States Environmental Protection Agency (also U.S. EPA)
ESLPAF	Lumber product consisting of the following wood species: Engelmann Spruce, Lodgepole Pine, Alpine Fir (and Western White Pine at Stimson)
EU ID	Emission unit identification
FC	Fuel content
F	Fahrenheit
F_d	Volume of combustion components per unit of heat content on a dry basis
FL	Lumber product consisting of the following wood species: Douglas Fir, Western Larch
ft3	Cubic feet
FARR	Federal Air Rules for Reservations
FC	Fuel content
FHISOR	Fuel heat input to steam output ratio
gal	Gallon
GCV	Gross calorific value
GWR	Green wood residue
HAP	Hazardous air pollutant
HCl	Hydrogen chloride
hr	Hour
IHFIR	Lumber product consisting of the following wood species: Western Hemlock and Western True Firs
lb	Pound (lbs = pounds)
m	Thousand
mbf	Thousand board feet
mlb	Thousand pounds
mm	Million
mmBtu	Million British thermal units
NCASI	National Council for Air and Stream Improvement
No.	Number
O&M	Operation and maintenance
odt	Oven dry ton
POM	Polycyclic organic matter
PTE	Potential to emit
Region 10	U.S. EPA, Region 10

RF	Release factor
Stimson	Stimson Lumber Company
WW	Lumber product consisting of any combination of western softwood species

2. Description of Permit Revision

This permit was originally issued September 28, 2007, to create synthetic minor HAP PTE limitations so Stimson could avoid being considered a major source of HAP emissions. According to EPA's proposed 40 CFR part 63 rulemaking published July 26, 2019, entitled, "Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act" at 84 FR 36304," to be enforceable as a practical matter, HAP limits must specify:

- A technically accurate limitation that identifies the portions of the source subject to the limitation;
- The time period for the limitation (hourly, daily, monthly, and annual limits such as 12-month rolling limits); and
- The method to determine compliance, including appropriate monitoring, recordkeeping and reporting.

EPA Region 10 is revising the September 2007 permit so that it satisfies these criteria.

3. Source Information

The Stimson sawmill in Plummer, Idaho, on the Coeur d'Alene Reservation manufacturers lumber and generates electricity for sale. This permit limits HAP emissions generated by the activities at the facility listed in Table 3-1 to less than major source thresholds.

Table 3-1: Emission Units and Control Devices

EU #	Emission Unit Description	HAP Control Devices*
EU-1	Hogged Fuel-Fired Boiler: Riley R-X-1, Serial No. 2771, (including ash handling fugitives); 70,000 lb/hr steam output capacity, 105 mmBtu/hr heat input capacity; manufactured 1951, installed 1983.	Joy Manufacturing multiclone, Yanke Energy wet scrubber. Scrubber installed July 2009.
EU-2	Lumber Drying Kilns: Four, batch-type, indirect steam-heated, dual-track kilns; combined annual capacity 130 mmbf.	None
EU-3**	Sawmill: Includes log bucking and debarking, hog, bark conveying, log sawing, sawdust conveying, chipper, chip conveying and loading, unloading and storage of materials in sawdust and chip truck bins; annual capacity 109.2 mmbf of logs, or 393,000 dry tons of logs	None
EU-4**	Planer Mill; includes planer shavings cyclone and the planer chipper cyclone; annual capacity 130 mmbf	None

EU #	Emission Unit Description	HAP Control Devices*
EU-5	Used Oil-Fired Heater: Clean Burn 4000; 280,000 Btu/hr.	None

* Use of the listed control devices is required by this permit.
** The HAP-emitting activity pneumatic conveyance of green wood residue at the sawmill and planer mill is part of larger emission generating activities referred to by EPA as sawmill EU-3 and planer mill EU-4 in prior and current 40 CFR part 71 permitting actions.

4. General Requirements

4.1. **Compliance Required.** Stimson (Permittee) shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the CAA.

4.2. **Compliance with Other Requirements.** Compliance with the terms of this permit does not relieve or exempt the Permittee from compliance with other applicable CAA requirements; other applicable federal requirements; or tribal, state or local laws or regulations.

4.3. **Permit Reopening.** EPA may reopen this permit for cause on its own initiative, such as if it contains a material mistake or fails to assure compliance with applicable requirements.

4.4. **Credible Evidence.** For the purposes of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any requirement, nothing in this permit precludes the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed.

4.5. **Alternatives to Testing, Monitoring, Recordkeeping and Reporting Requirements**. Alternatives to the testing, monitoring, recordkeeping, and reporting required by this permit may be established through the issuance or renewal of a Title V operating permit issued by EPA to the Permittee under 40 CFR part 71, or through a significant modification thereto, provided that the FARR non-Title operating permit requirements continue to be satisfied and that the Title V permit identifies the provisions of this permit that are no longer in effect.

5. Emission Limitations and Work Practice Requirements

<u>12-Month Rolling HAP Emission Limits</u>

5.1. HAP emissions from this facility shall not exceed 24 tons per year as determined on a rolling 12-month basis by calculating the emissions (tons) for each month and adding the emissions (tons) for the previous eleven months. Monthly HAP emissions (tons) shall be determined in accordance with Conditions 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.14, 5.15, 5.16, 5.19 and 5.20. With respect to boiler EU-1, the contribution of dibenzofurans, naphthalene and 2,3,7,8-tetrachlorodibenzo-p-dioxin shall not be double counted.

5.2. Emissions of any single HAP from this facility shall not exceed 9 tons per year as determined on a rolling 12-month basis by calculating the emissions (tons) for each month and adding the emissions (tons) for the previous eleven months. Monthly HAP emissions (tons) shall be determined in accordance with Conditions 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.14, 5.15, 5.16, 5.19 and 5.20.

Facility-wide Work Practice Requirement

5.3. Boiler EU-1, including the boiler, multiclone and scrubber, kilns EU-2, sawmill EU-3 and planer mill EU-4 shall be maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions at all times. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA which may include, but is not limited to, testing and monitoring results, opacity observations, review of operating and maintenance procedures, review of operating and maintenance records and inspection of the source.

Boiler EU-1 HAP Emissions Calculations and Work Practice Requirements

5.4. Monthly boiler EU-1 HAP emissions (tons), excluding periods while not generating steam, shall be calculated using Equation 5-1 as follows:

Equation 5-1

$$E_X = steam \times FHISOR \times EF_X \times \left(\frac{ton}{2000\ lb}\right); where$$

- "E_X" is monthly emissions of HAP X in units of "ton/month";
- "$steam$" is the mass of steam generated during the month in units of "mlb steam/month";
- "$FHISOR$" is in units of "mmBtu/mlb steam";
- "EF_X" is EF for HAP X in units of "lb/mmBtu";
- "$\frac{ton}{2000\ lb}$" is a conversion factor.

5.5. For the twelve months prior to and including the calendar month in which the permit becomes effective, monthly boiler EU-1 HAP emissions (tons) shall be calculated using Equation 5-1 as follows:

- "$FHISOR$" equal to 1.768 mmBtu/mlb steam;
- "EF_X", except for HCl EF, as specified in Appendix A to this permit; and
- HCl EF calculated using Equation 5-2 as follows:

Equation 5-2

$$EF = FC \times 0.15; where$$

- "EF" is the quarterly HCl EF in units of "lb/mmBtu";
- "FC" is the chlorine fuel content in units of "lb/mmBtu" based upon fuel sampling and analysis performed during the previous quarter pursuant to Appendix D to this permit; and
- "0.15" is the default ratio of HCl EF (lb/mmBtu) to chlorine FC (lb/mmBtu)

5.6. Unless otherwise required in this permit, monthly boiler EU-1 HAP emissions (tons) beginning the calendar month after the month in which the permit becomes effective shall be calculated using Equation 5-1 as follows:

- "$FHISOR$" equal to 1.768 mmBtu/mlb steam;
- "EF_X", except for HCl EF, as specified in Appendix B to this permit; and
- HCl EF calculated using Equation 5-2 except that chlorine fuel content is based upon fuel sampling and analysis performed during the previous eight quarters.

5.7. Beginning the month after EPA approves FHISOR, EF and RF determined using the two tests required pursuant to Condition 6.2, monthly boiler EU-1 HAP emissions (tons) shall be calculated using Equation 5-1 as follows:

5.7.1. "$FHISOR$" equal to the average of the following five values: 2.005, 1.632, 1.667 and the two 3-run (or more) average FHISOR associated with the two source tests conducted pursuant to Condition 6.2;

5.7.2. "EF_X" is EF for HAP X in units of "lb/mmBtu" as determined pursuant to Conditions 5.7.2.1 through 5.7.2.4 as follows:

5.7.2.1 For HAP not identified in Table 6-1, EF_X is EF for HAP X in Appendix B to this permit;

5.7.2.2 For organic HAP compounds identified in Table 6-1, EF_X is the average of the two 3-run (or more) average values determined based upon the two source tests conducted pursuant to Condition 6.2;

5.7.2.3 For halogen and hydrogen halide HAP compounds identified in Table 6-1, quarterly EF_X shall be calculated using Equation 5-3 as follows:

Equation 5-3

$$EF_X = FC \times RF;\ where$$

- "EF_X" is the quarterly halogen or hydrogen halide EF in units of "lb/mmBtu";
- "FC" is the halogen fuel content in units of "lb/mmBtu" based upon fuel sampling and analysis performed during the previous eight quarters (for fluorine, use all available quarters until sampling required in Condition 7.9 produces eight quarters of data); and
- "RF" is the halogen release factor (unitless) and is the average of the two 3-run (or more) average values determined based upon the two source tests conducted pursuant to Condition 6.2.

5.7.2.4 For trace metal HAP compounds identified in Table 6-1, quarterly EF_X shall be calculated using Equation 5-4 as follows:

Equation 5-4

$$EF_X = FC \times RF \times AF; where$$

- "EF_X" is the quarterly trace metal compound EF in units of "lb/mmBtu";
- "FC" is the trace metal fuel content in units of "lb/mmBtu" based upon fuel sampling and analysis performed during the previous eight quarters (use all available quarters until sampling required in Condition 7.9 produces eight quarters of data);
- "RF" is the trace metal release factor (unitless) and is the average of the two 3-run (or more) average values determined based upon the two source tests conducted pursuant to Condition 6.2; and
- "AF" is the trace metal adjustment factor (unitless) identified in Table 5-1 equal to the ratio of the lowest weight of an oxide per unit of metal as follows:

Table 5-1: Lowest Weight Oxide per Unit of Metal

Trace Metal Compound	Adjustment Factor (unitless)
1. Antimony compounds	1.19710
2. Arsenic compounds	1.32031
3. Beryllium compounds	2.77526
4. Cadmium compounds	1.14233
5. Chromium compounds	1.46154
6. Cobalt compounds	1.27148
7. Lead compounds	1.07722
8. Manganese compounds	1.29122
9. Mercury compounds	1.03988
10. Nickel compounds	1.27259
11. Phosphorus	1 (not applicable)
12. Selenium compounds	1.20262

5.8. Beginning the month after EPA approves FHISOR specified in a source test report submitted to EPA to satisfy a Title V permit requirement to conduct source testing, monthly boiler EU-1 emissions (tons) shall be calculated using Equation 5-1 consistent with Condition 5.7, except "FHISOR" equal to the average of the following six or more values: 2.005, 1.632, 1.667, two 3-run (or more) average FHISOR associated with the two source tests conducted pursuant to Condition 6.2, and all additional 3-run (or more) average FHISOR associated with source tests conducted pursuant to a Title V permit requirement.

5.9. Beginning the calendar month after the month in which the permit becomes effective, the Permittee shall calculate monthly boiler EU-1 HAP emissions (tons) while not generating steam using Equation 5-5 as follows:

Equation 5-5

$$E_X = fuel \times \left(0.227\ \frac{mmBtu}{ft^3}\right) \times EF_X \times \left(\frac{ton}{2000\ lb}\right); where$$

- "E_X" is monthly emissions of HAP X in units of "ton/month";
- "$fuel$" is the volume of fuel fired in boiler EU-1 during the month while not generating steam in units of "ft3/month, wet basis";

- "$0.227\ \frac{mmBtu}{ft^3}$" is the heat content of fuel on a wet, volume basis;
- "EF_X" is EF for HAP X in units of "lb/mmBtu" determined consistent with Conditions 5.6 or 5.7 (depending upon when emission generated); and
- "$\frac{ton}{2000\ lb}$" is a conversion factor.

5.10. The Permittee is prohibited from combusting in boiler EU-1 any fuel other than resinated and non-resinated wood residue and wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); logging residues (slash); and agricultural-derived biomass (i.e., crop residue) such as wheat chaff.

5.11. The monthly mass of agricultural-derived biomass combusted in boiler EU-1 shall not constitute more than 1% of the monthly total mass of fuel combusted in boiler EU-1. Compliance is determined by dividing the monthly mass of agricultural-derived biomass combusted in boiler EU-1 by the monthly total mass of fuel combusted in boiler EU-1 and multiplying the quotient by 100. The mass of fuel combusted shall be determined in accordance with Condition 7.5.

5.12. At all times boiler EU-1 operates, boiler EU-1 exhaust shall be directed to the multiclone and wet scrubber.

5.13. No later than the sixth calendar month after the month in which the permit becomes effective, the Permittee shall develop and implement an O&M plan for the boiler, multiclone and wet scrubber that describes the methods and procedures that will be followed to assure good air pollution control practices and efficient operation in accordance with manufacturer specifications and recommendations. The O&M plan shall be updated as necessary and shall include the following, at a minimum:

5.13.1. Description of equipment;

5.13.2. Parameter indicator ranges as identified in Condition 7.8.1;

5.13.3. Normal operating conditions and procedures;

5.13.4. Startup, shutdown, and maintenance procedures;

5.13.5. Inspection procedures and inspection frequency; and

5.13.6. Upset conditions guidelines and corrective action procedures.

Kilns EU-2 HAP Emissions Calculations and Work Practice Requirements

5.14. Monthly kilns EU-2 HAP emissions (tons) shall be calculated using Equation 5-6 as follows:

Equation 5-6

$$E_X = \sum_{i=1}^{n} lumber_{species\ i} \times EF_{X,species\ i} \times \left(\frac{ton}{2000\ lb}\right); where$$

- "E_X" is monthly emissions of HAP X in units of "ton/month";
- "$lumber_{species\ i}$" is the volume of lumber for wood species i dried during the month in units of "mbf/month";
- "$EF_{X,species\ i}$" is EF for HAP X for wood species i in units of "lb/mbf"; and

- "$\frac{ton}{2000\ lb}$" is a conversion factor.

5.15. For the twelve months prior to and including the calendar month in which the permit becomes effective, monthly kilns EU-2 HAP emissions (tons) shall be calculated using Equation 5-6 as follows:

- "$lumber_{species\ i}$" is determined pursuant to Appendix E to this permit; and
- "$EF_{X,species\ i}$" is determined pursuant to Appendix F to this permit. Use the monthly maximum set point temperature (specified in the drying schedule for the heated air entering a load of lumber) from among all charges consisting of the wood species, in whole or in part, to determine methanol and formaldehyde EF.

5.16. Monthly kilns EU-2 HAP emissions (tons) beginning the calendar month after the month in which the permit becomes effective shall be calculated using Equation 5-6 as follows:

- "$lumber_{species\ i}$" is determined pursuant to Condition 7.14; and
- "$EF_{X,species\ i}$" is determined pursuant to Appendix G to this permit. Add 4°F to the monthly maximum set point temperature (specified in the drying schedule for the heated air entering a load of lumber) from among all charges consisting of the wood species, in whole or in part, to determine methanol and formaldehyde EF.

5.17. The Permittee shall not dry any species of wood other than Pacific Northwest softwood lumber in kilns EU-2.

5.18. No later than the sixth calendar month after the month in which the permit becomes effective, the Permittee shall develop and implement an O&M plan for the lumber drying kilns that describes the methods and procedures that will be followed to assure good air pollution control practices and efficient operation in accordance with manufacturer specifications and recommendations. The O&M plan shall be updated as necessary and shall include the following, at a minimum:

5.18.1. Air temperature measurement systems used in the kiln;

5.18.2. Lumber moisture measurement systems used in the kiln;

5.18.3. Systems for ensuring only allowed species of wood are dried in the kiln;

5.18.4. Sizing and placement of stickers, bolsters and boards;

5.18.5. Door seals and kiln structure integrity;

5.18.6. Kiln vent, baffle and fan systems (including, but not limited to, regular air velocity hecks);

5.18.7. Kiln steam system;

5.18.8. Kiln control PC interface system;

5.18.9. Recordkeeping of inspections, maintenance and calibrations including dates and the personnel conducting the work; and

5.18.10. Availability of spare parts.

<u>Sawmill EU-3 HAP Emissions Calculations</u>

5.19. Beginning the month in which the Permittee submits the plan required by Condition 7.16, but no later than the sixth calendar month after the month in which the permit becomes effective, monthly sawmill EU-3 HAP emissions (tons) shall be calculated using Equation 5-8 as follows:

Equation 5-8

$$E_{methanol} = \sum_{i=1}^{n} GWR_{EQPi} \times \left(\frac{0.00122\ lb}{odt}\right) \times \left(\frac{ton}{2000\ lb}\right); where$$

- "$E_{methanol}$" is the sum of the emissions across all pieces of equipment (e.g., bin, target box) receiving green wood residue pneumatically conveyed to it during the month in units of "ton/month";
- *"n"* is the total number of pieces of equipment receiving green wood residue pneumatically conveyed to them;
- "GWR_{EQPi}" stands for green wood residue and is the mass of the residue conveyed to a piece of equipment during the month in units of "odt/month" determined pursuant to Condition 7.16. The term does not include hogged bark;
- "$\frac{0.00122\ lb}{odt}$" is the EF for single piece of equipment receiving green wood residue pneumatically conveyed to it. The EF is expressed in units of pounds of methanol emitted per oven dry tons of green wood residue received; and
- "$\frac{ton}{2000\ lb}$" is a conversion factor.

Planer Mill EU-4 HAP Emission Calculations

5.20. Beginning the month in which the Permittee submits the plan required by Condition 7.17, but no later than the sixth calendar month after the month in which the permit becomes effective, monthly planer mill EU-4 HAP emissions (tons) shall be calculated using Equation 5-9 as follows:

Equation 5-9

$$E_{methanol} = \sum_{i=1}^{n} GWR_{EQPi} \times \left(\frac{0.00122\ lb}{odt}\right) \times \left(\frac{ton}{2000\ lb}\right); where$$

- "$E_{methanol}$" is the sum of the emissions across all pieces of equipment (e.g., bin, target box) receiving either green wood residue pneumatically conveyed to it during the month in units of "tons/month";
- *"n"* is the total number of pieces of equipment receiving wood residue pneumatically conveyed to them;
- "GWR_{EQPi}" stands for green wood residue that has not been dried in a kiln and is the mass of the residue conveyed to a piece of equipment during the month in units of "odt/month" determined pursuant to Condition 7.17. The term does not include hogged bark;
- "$\frac{0.00122\ lb}{odt}$" is the EF for single piece of equipment receiving GWR pneumatically conveyed to it. The EF is expressed in units of pounds of methanol emitted per oven dry tons of green wood residue received; and

- "$\frac{ton}{2000\ lb}$" is a conversion factor.

Heater EU-5 Work Practice Requirements

5.21. The Permittee is prohibited from operating heater EU-5.

5.22. The Permittee shall remove heater EU-5 from the facility by end of the month following the month the permit becomes effective.

6. Testing Requirements

General Emission Testing Requirements

6.1. Unless otherwise required in this permit, for any emission testing required by this permit, the Permittee shall meet the following requirements:

6.1.1. Facilities for performing and observing the emission testing shall be provided that meet the requirements of 40 CFR 60.8(e) and Reference Method 1 (40 CFR Part 60, Appendix A).

6.1.2. Unless EPA determines in writing that other operating conditions are representative of normal operations or unless specified in the emission unit sections of this permit, the source shall be operated at a capacity of at least 90% but no more than 100% of maximum during all tests.

6.1.3. Only regular operating staff may adjust the processes or emission control devices during or within 2 hours prior to the start of a source test. Any operating adjustments made during a source test, that are a result of consultation during the tests with source testing personnel, equipment vendors, or consultants, may render the source test invalid.

6.1.4. Each source test shall follow the reference test methods specified by this permit and consist of at least three (3) valid test runs. Source test emission data shall be reported as the arithmetic average of all valid test runs and in the terms of any applicable emission limit, unless otherwise specified in the emission unit sections of this permit.

Boiler EU-1 Testing Requirements

6.2. Between July 1 and September 30, 2021, and then again between December 1, 2021 and March 31, 2022, the Permittee shall simultaneously perform source testing of boiler EU-1 and conduct fuel sampling (and later analysis) to determine FHISOR, EF and RF (equal to EF/FC) in accordance with an EPA-approved test plan required in Condition 8.1 and as follows:

6.2.1. The hourly average steam generating rate for each run shall be at least 90% but no more than 110% of the historical hourly average rate for the month in which testing is conducted.

6.2.2. The sampling duration for each test run shall be at least 60 minutes, and the volume of sample gas collected for each run shall be at least 1.25 dry standard cubic meters.

6.2.3. FHISOR shall be determined pursuant to Appendix C to this permit.

6.2.4. EF for all HAP listed in Table 6-1 shall be determined by performing the following calculation in Equation 6-1 based upon measurements performed using the test methods specified in Table 6-2:

Equation 6-1

$$EF_X = C_X \times F_d \; ; where$$

- "EF_X" is EF for HAP X in units of "lb/mmBtu";
- "C_X" is the exhaust gas concentration of HAP X in units of "lb/dscf"; and
- "F_d" is the dry F factor in units of "dscf/mmBtu" and is the dry volume of combustion components per unit of the fuel's heat content.

Table 6-1: Identification of HAP for Which EF Shall Be Determined through Source Testing

Organic Compounds	Halogen and Hydrogen Halide Compounds	Trace Metal Compounds
1. Acetaldehyde	1. Chlorine	1. Lead compounds
2. Acrolein	2. Hydrogen chloride	2. Manganese compounds
3. Benzene	3. Hydrogen flouride	3. Phosphorus
4. Formaldehyde		
5. Hexane	For halogen, hydrogen halide compounds and trace metals compounds listed in these two columns, RF shall also be determined through simultaneous fuel sampling and source testing.	
6. Methanol		
7. Methyl isobutyl ketone		
8. Methylene chloride		
9. Propionaldehyde		
10. Styrene		
11. Toluene		

Table 6-2: Test Methods Used to Determine Boiler EU-1 EF

Exhaust Gas Sampling and Analysis Performed to Determine…	Test Method
Port location/traverse	EPA Method 1, 1A of Appendix A to 40 CFR part 60
Velocity/flow	EPA Method 2, 2A, 2C, 2D, 2F, 2G of Appendix A to 40 CFR part 60
Molecular weight	EPA Method 3, 3A, 3B of Appendix A to 40 CFR part 60
Moisture content	EPA Method 4 of Appendix A to 40 CFR part 60
Concentration of organic HAP compounds	EPA Method 18 of Appendix A to 40 CFR part 60, EPA Method 320 of Appendix A to 40 CFR part 63 or NCASI Method ISS/FP-A105.01
Concentration of halogen and hydrogen halide HAP compounds	EPA Method 26A of Appendix A to 40 CFR part 60
Concentration of trace metal HAP compounds	EPA Method 29 of Appendix A to 40 CFR part 60

Exhaust Gas Sampling and Analysis Performed to Determine…	Test Method
Fuel Sampling and Analysis Performed to Determine…	**Test Method**
F_d (dry F factor)	Steps 1 – 7 of Procedure to Determine FHISOR in Appendix C to this permit, except that boiler steam and exhaust flow monitoring are not necessary to calculate F_d

6.2.5. RF for halogens, hydrogen halides and trace metal compounds listed in Table 6-1 shall be determined by performing the following calculation in Equation 6-2:

Equation 6-2

$$RF_X = \frac{EF_X}{FC} \; ; where$$

- "RF_X" is RF (unitless) for HAP X;
- "EF_X" in units of "lb/mmBtu" for HAP X is determined pursuant to Condition 6.2.4; and;
- "FC" in units of "lb/mmBtu" for halogens and trace metals is determined based upon fuel sampling and analysis conducted pursuant to Appendix D to this permit.

6.2.6. Fuel samples from which to conduct analysis to determine (a) FHISOR, (b) F_d (to determine RF) and (c) FC shall be gathered simultaneously.

6.2.7. For each test run, a composite fuel sample shall be created from three individual samples taken from the open-top section of the mechanical conveyance system inside the Boiler Building at equally-spaced intervals with a frequency of no less than the beginning, middle and end of the test run.

6.2.8. If each fuel sample analysis or source test run (at least three) results in a measurement that is less than the method detection limit for a halogen or trace metal (fuel analysis) or HAP (test run), the concentration of the constituent will be assumed equal to one-half the method detection limit for each fuel analysis or test run. If at least one fuel analysis or test run results in a measure greater than the method detection limit, the concentration for non-detect fuel analysis or non-detect test runs will be assumed equal to the method detection limit for each fuel analysis or test run.

6.2.9. FHISOR, EF_X, and RF_X from each of the three (or more) fuel samples and source test runs shall be averaged to determine a single test result value.

6.3. During each source test run, the Permittee shall perform the following:

6.3.1. Record the values (and time recorded) of the parameters specified in Condition 7.7. For monitoring devices that do not have continuous recording devices, the

recorded values must consist of no fewer than one value recorded every 15 minutes; and

6.3.2. Estimate and record values for the following fuel parameters:

6.3.2.1 Percentage of material less than 1/8th inch;

6.3.2.2 Percentages of hogged bark and different wood residue types (e.g., kiln-dried planer shavings, green sawdust, green chips);

6.3.2.2.1 For each category, percentage produced on-site and percentage received from off-site;

6.3.2.2.2 For each category, percentages of different species; and

6.3.2.2.3 For each type of wood residue, percentages of green and kiln-dried material.

7. Monitoring and Recordkeeping Requirements

Facility-wide Monitoring and Recordkeeping Requirements

7.1. By the tenth of each month, the Permittee shall calculate and record facility-wide 12-month rolling emissions of HAP by using the emissions calculated for the previous 12 months pursuant to Conditions 5.1 and 5.2.

7.2. The Permittee shall retain records of emission calculations and parameters used to calculate emissions for at least five years. In addition, the Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, all original stripchart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

7.3. Unless otherwise required in this permit, the Permittee shall ensure that the monitoring equipment required in Section 7 of the permit meets the following performance, operational and maintenance criteria:

7.3.1. Measurement locations that provide for obtaining data that are representative of the emissions or parameters being monitored.

7.3.2. Quality assurance and control practices, considering manufacturer recommendations, that are adequate to ensure the continuing validity of the data.

7.3.3. Maintaining necessary parts for routine repairs of the monitoring equipment.

7.3.4. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), continuous operation of the monitoring equipment (or collecting data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part,

including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

7.4. The Permittee shall develop and implement a monitoring plan demonstrating that each monitoring system required in Section 7 of the permit complies with Condition 7.3. Elements of the plan related to boiler EU-1 shall be implemented no later than the beginning of the first source test required in Condition 6.2. All other elements of the plan shall be implemented no later than the sixth calendar month after the month in which the permit becomes effective. The monitoring plan shall be updated as necessary and shall address design, data collection and quality assurance and quality control elements of each monitoring system consistent with manufacturer's specifications and recommendations including, but not limited to the following:

7.4.1. Equipment make, model, date of manufacture, date of installation and description of technology used to perform measurement;

7.4.2. Description of the measurement location and data displays of the monitoring system including, as necessary, photographs and diagrams;

7.4.3. General explanation of how the monitoring system performs measurements/calculations and subsequently displays and records the results;

7.4.4. Performance and equipment specifications for the measurement device (e.g., expected accuracy and precision ranges) and the data collection and reduction systems;

7.4.5. Performance evaluation procedures, frequency and acceptance criteria (e.g., calibration techniques, accuracy audits, analytical drift); and

7.4.6. Ongoing operation and maintenance procedures, including inventory of spare parts.

<u>Boiler EU-1 Monitoring and Recordkeeping Requirements</u>

7.5. No later than the sixth calendar month after the month in which the permit becomes effective, the Permittee shall develop and implement a plan for determining monthly the mass of fuel combusted in boiler EU-1 for the following two categories: (1) wood residue, wood products and logging residues, and (2) agricultural-derived biomass. The plan shall be updated as necessary and shall include the following, at a minimum:

7.5.1. Methodology and associated assumptions for calculating monthly the mass of fuel combusted for each of the two categories;

7.5.2. Monitoring necessary to implement the methodology; and

7.5.3. Recordkeeping procedures.

7.6. At the end of each month, for the fuel combusted in boiler EU-1 during that month, the Permittee shall estimate and record (a) beginning the month immediately following the

month in which the plan required in Condition 7.5 is first implemented, the percentage of monthly total mass of fuel combusted in boiler EU-1 consisting of agricultural-derived biomass, (b) the volume of fuel fired (wet basis) while not generating steam (ft3/event, ft3/month), and (c) the basis for the estimations.

7.7. For boiler EU-1, the Permittee shall install, calibrate, operate, and maintain, in accordance with manufacturer specifications, equipment and procedures necessary to measure, display, calculate, and record (including the date and time of measurements or records and, if applicable, the company or entity that performed the analyses and the analytical techniques or methods used) the following while the boiler is operating:

7.7.1. Steam production (lb/hr): Using a totalizer, measure and display continuously, and record hourly and monthly with a 90% minimum monthly data capture based upon availability of hourly recordings;

7.7.1.1 For those hours in which no measurements have been recorded, the steam production rate for each hour in the missing data period shall be equal to the average of the steam production rates for the hour immediately preceding the period and the hour immediately following the period.

7.7.2. One-hour average exhaust gas oxygen concentration (% by volume) downstream of the combustion chamber, including the two overfire air ports, but upstream of the multiclone: Measure oxygen concentration at least every 15 minutes. Calculate and display rolling 60-minute average at least every 15 minutes based on all measurements performed within that 60-minute period. Record the one-hour block average each hour based on all measurements performed within that hour. 90% minimum monthly data capture based upon availability of hourly recordings;

7.7.3. Pressure drop across the multiclone (inches of water): Continuous measurement/display, recorded at least once per day;

7.7.4. One-hour average pressure drop across the scrubber (inches of water): Measure pressure drop at least every 15 minutes. Calculate and display rolling 60-minute average at least every 15 minutes based on all measurements performed within that 60-minute period. Record the one-hour block average each hour based on all measurements performed within that hour. 90% minimum monthly data capture based upon availability of hourly recordings;

7.7.5. One-hour average water flow to the scrubber (gallons per minute): Measure water flow at least every 15 minutes. Calculate and display rolling 60-minute average at least every 15 minutes based on all measurements performed within that 60-minute period. Record the one-hour block average each hour based on all measurements performed within that hour. 90% minimum monthly data capture based upon availability of hourly recordings; and

7.7.6. No later than the beginning of the first boiler EU-1 source test required in Condition 6.2, one-hour average pressure in the water supply header (inches of water): Measure water pressure at least every 15 minutes. Calculate and display rolling 60-minute average at least every 15 minutes based on all measurements

performed within that 60-minute period. Record the one-hour block average each hour based on all measurements performed within that hour. 90% minimum monthly data capture based upon availability of hourly recordings.

7.8. When not operating within the indicator ranges established below, the Permittee shall restore operation of boiler EU-1 (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of operating with an indicator out of range (other than those caused by excused startup or shutdown conditions). Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

7.8.1. Beginning the month after EPA approves the source test report associated with the second source test required in Condition 6.2, indicator ranges are defined as follows:

7.8.1.1 One-hour block average exhaust gas oxygen concentration equal to or greater than the lowest test-run average level established during the two source tests required in Condition 6.2;

7.8.1.2 One-hour block average pressure drop across the scrubber equal to or greater than the lowest test-run average level established during the two source tests required by Condition 6.2;

7.8.1.3 One-hour block average water flow to the scrubber equal to or greater than the lowest test-run average level established during the two source tests required by Condition 6.2; and

7.8.1.4 One-hour block average pressure in the pipe exclusively dedicated to supplying water to the scrubber's four nozzles equal to or greater than the lowest test-run average pressure or equal to or less than the highest test-run average pressure for that pipe established during the two source tests required in Condition 6.2.

7.9. The Permittee shall sample and analyze the boiler EU-1 fuel as follows:

7.9.1. Beginning the quarter in which the permit becomes effective, determine halogen (chlorine and fluorine) FC (lb/mmBtu) and trace metal (the three appearing in Table 6-1 of this permit) FC (lb/mmBtu) pursuant to Appendix D to this permit no less frequently than quarterly.

7.9.2. A composite fuel sample shall be created from three individual samples taken from the open-top section of the mechanical conveyance system inside the Boiler Building.

7.10. The Permittee shall maintain the following boiler EU-1 records:

7.10.1. Records of the occurrence and duration of each malfunction of boiler EU-1, or of the associated air pollution control and monitoring equipment.

7.10.2. Records of actions taken during periods of malfunction to minimize emissions in accordance with Condition 5.3, including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

Kilns EU-2 Monitoring and Recordkeeping Requirements

7.11. For kilns EU-2, beginning the calendar month in which the permit becomes effective, the Permittee shall install, calibrate, operate, and maintain, in accordance with manufacturer specifications, equipment and procedures necessary to measure, display, calculate and record (including the date and time of measurements or records and, if applicable, the company or entity that performed the analyses and the analytical techniques or methods used) the following for each charge of lumber dried:

7.11.1. The lumber products (e.g., ESLPAF, FL, IHFIR, WW) and associated wood species present;

7.11.2. The volume of each lumber product dried per charge (mbf/charge);

7.11.3. The maximum set point temperature (°F) specified in the drying schedule for the heated air entering a load of lumber;

7.11.4. The dry bulb temperature of the heated air that enters each load of lumber in each zone of the kiln (°F), continuously measured.

7.11.4.1 Calculate and record a kiln-wide average "entering air" temperature at least every 15 minutes consistent with the O&M plan required in Condition 5.18.1 and monitoring plan required in Condition 7.4;

7.11.5. Beginning the quarter of an hour in which the charge's maximum "entering air" set point temperature is reached, continuously measure the moisture content of the lumber (%, dry basis) using a capacitance-based in-kiln moisture measurement system consistent with the O&M plan required in Condition 5.18.2 and monitoring plan required in Condition 7.4. Calculate and record the average of valid instantaneous measurements from all available monitoring locations every 15 minutes.

7.12. For kilns EU-2, beginning the calendar month after the month in which the permit becomes effective, the Permittee shall conduct the following monthly monitoring, calculations and recordkeeping:

7.12.1. For each wood species, record the maximum "entering air" set point temperature (°F) specified in drying schedules for charges initiated that month (containing that species); and

7.12.2. For each product grouping (e.g., ESLPAF, FL, IHFIR, WW), calculate and record the volume of lumber dried (mbf) counting charges initiated that month.

7.13. For kilns EU-2, beginning the calendar month after the month in which the permit becomes effective, the Permittee shall conduct monitoring and perform calculations according to the plan required in Condition 7.15 and as follows:

7.13.1. Daily, the Permittee shall identify the species of each log received on five selected truckloads. If less than five truckloads are received in a day, the Permittee shall identify the species of each log received that day;

7.13.2. Daily, the Permittee shall count and record the number of logs received by species on a per truckload basis for the truckloads scaled under Condition 7.13.1; and

7.13.3. Monthly, the Permittee shall calculate and record the number of logs received by species and the total number of logs received overall for the month and the most recent six-month period (including the new month) for the truckloads scaled under Condition 7.13.1.

7.14. For kilns EU-2, beginning the calendar month after the month in which the permit becomes effective, the Permittee shall determine the total lumber volume dried per month per wood species using Equation 7-1 as follows:

Equation 7-1

$$lumber = \sum_{i=1}^{n} product_i \times species\ fraction; where$$

- "$lumber$" is total lumber volume dried per month for the wood species (mbf);
- "$product_i$" is total lumber volume dried per month for a product i (mbf) pursuant to Condition 7.12.2;
- "$species\ fraction$" is the fraction of product *i* estimated to be the wood species;
    - $species\ fraction = \frac{6\text{-}month\ total\ \#\ logs\ received\ for\ the\ species}{6\text{-}month\ total\ \#\ logs\ received\ for\ all\ species\ in\ product_i}$
        - Use five months of existing on-site scaling data and one month of scaling data required to be collected pursuant to Condition 7.13 to perform this calculation for the month after the month the permit becomes effective; and
        - For each month thereafter, continue to replace an existing month's data with a new month's data until exclusively using scaling data required to be collected pursuant to Condition 7.13.

7.15. No later than the month after the month in which the permit becomes effective, the Permittee shall develop and implement a plan to estimate (in a manner that produces a representative result) the six-month rolling relative fraction of logs received at the facility, by species. The plan shall be updated as necessary and shall include the following, at a minimum:

7.15.1. Number of truckloads to be scaled per day;

7.15.2. Description of how the truckloads will be selected for scaling;

7.15.3. The form that the employees fill out to document the make-up of the load, by species;

7.15.4. Calculations to be performed; and

7.15.5. Recordkeeping procedures for the completed forms and calculations.

Sawmill EU-3 Monitoring and Recordkeeping Requirements

7.16. For sawmill EU-3, no later than the sixth calendar month after the month in which the permit becomes effective, the Permittee shall develop and implement a plan for determining monthly the mass of green wood residue pneumatically conveyed to a piece of equipment that either exhausts to atmosphere or is open to atmosphere. The plan shall be updated as necessary and shall include the following, at a minimum:

7.16.1. Description of each piece of equipment receiving green wood residue pneumatically;

7.16.2. Process flow diagrams of all pneumatic conveyance systems conveying green wood residue;

7.16.3. Methodology and associated assumptions for calculating monthly the mass of green wood residue pneumatically conveyed to each piece of equipment that either exhausts to atmosphere or is open to atmosphere;

7.16.4. Monitoring necessary to implement the methodology; and

7.16.5. Recordkeeping procedures.

Planer Mill EU-4 Monitoring and Recordkeeping Requirements

7.17. For planer mill EU-4, no later than the sixth calendar month after the month in which the permit becomes effective, the Permittee shall develop and implement a plan for determining monthly the mass of green wood residue pneumatically conveyed to a piece of equipment that either exhausts to atmosphere or is open to atmosphere. The plan shall be updated as necessary and shall include the following, at a minimum:

7.17.1. Description of each piece of equipment receiving green wood residue pneumatically;

7.17.2. Process flow diagrams of all pneumatic conveyance systems conveying green wood residue;

7.17.3. Methodology and associated assumptions for calculating monthly the mass of green wood residue pneumatically conveyed to each piece of equipment that either exhausts to atmosphere or is open to atmosphere;

7.17.4. Monitoring necessary to implement the methodology; and

7.17.5. Recordkeeping procedures.

8. Reporting Requirements

8.1. The Permittee shall submit to EPA for approval a source test plan 30 days prior to any required testing. The source test plan shall include and address the following elements:

8.1.1. Purpose and scope of testing;

8.1.2. Source description, including a description of the operating scenarios and mode of operation during testing and including fuel sampling and analysis procedures;

8.1.3. For boiler EU-1, an estimate of the average hourly steam generating rate for the month in which the test is to be conducted;

8.1.4. Schedule/dates of testing;

8.1.5. Process data to be collected during the test and reported with the results, including source-specific data identified in the emission unit sections of this permit;

8.1.6. Sampling and analysis procedures, specifically requesting approval for any proposed alternatives to the reference test methods, and addressing minimum test length (e.g., one hour, 8 hours, 24 hours, etc.) and minimum sample volume;

8.1.7. Sampling location description and compliance with the reference test methods;

8.1.8. Analysis procedures and laboratory identification;

8.1.9. Quality assurance plan;

8.1.10. Calibration procedures and frequency;

8.1.11. Sample recovery and field documentation;

8.1.12. Chain of custody procedures;

8.1.13. Quality assurance/quality control project flow chart;

8.1.14. Data processing and reporting;

8.1.15. Description of data handling and quality control procedures; and

8.1.16. Report content and timing.

8.2. Emission test reports shall be submitted to EPA within 60 days of completing any emission test required by this permit. The report shall include, but not be limited to, test-derived FHISOR, EF_X for each organic compound listed in Table 6-1, RF_X for each halogen, hydrogen halide and trace metal listed in Table 6-1 (and all supporting data and calculations) and items required to be recorded during the test.

8.3. The Permittee shall promptly report to EPA by telephone (206-553-1331) deviations from permit conditions, including those attributable to upset conditions as defined in this permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Reports shall also include the company name, permit number, and permit condition number.

8.3.1. For the purposes of Conditions 8.3 and 8.4, deviation means any situation in which an emissions unit fails to meet a permit term or condition. A deviation is not always a violation. A deviation can be determined by observation or through review of data obtained from any testing, monitoring, or record keeping required by this permit. For a situation lasting more than 24 hours that constitutes a deviation, each 24-hour period is considered a separate deviation. Included in the meaning of deviation are any of the following:

8.3.1.1 A situation where emissions exceed an emission limitation;

8.3.1.2 A situation where process or emissions control device parameter values indicate that an emission limitation or work practice requirement has not been met;

8.3.1.3 A situation in which observations or data collected demonstrate noncompliance with an emission limitation or work practice requirement required by the permit (including indicators of compliance revealed through parameter monitoring); and

8.3.1.4 A situation in which any testing, monitoring, recordkeeping or reporting required by this permit is not performed or not performed as required.

8.3.2. Reports of deviations shall be submitted to EPA based on the following schedule:

8.3.2.1 For emissions of any HAP that continue for more than one hour in excess of permit requirements, the report must be made within 24 hours.

8.3.2.2 For deviations of Conditions 5.1, 5.2 and 5.12 that continue for more than one hour, the report must be made within 24 hours of the occurrence.

8.3.2.3 For all other deviations from permit requirements, the deviations shall be reported semi-annually as required in Condition 8.4.

8.3.3. Within ten working days of the occurrence of a deviation as provided in Conditions 8.3.2.1 and 8.3.2.2, the Permittee shall also submit a written notice, which shall include a narrative description of the deviation and updated information as listed in Condition 8.3, to EPA.

8.4. The Permittee shall submit to EPA reports of any required monitoring for each six-month reporting period from July 1 to December 31 and from January 1 to June 30. All reports shall be submitted to EPA and shall be postmarked by the 60th day following the end of the reporting period. All instances of deviations from permit requirements must be clearly identified in such reports.

8.4.1. For each kilns EU-2 charge in which the lowest kiln-wide average moisture content was less than 13%, dry basis, report the following: (a) identity of the kiln, (b) lumber product and volume, and (c) lowest kiln-wide average moisture content and date of measure.

8.4.2. For each period (at least one hour in duration) during which an indicator is outside the range defined in Condition 7.8.1 for boiler EU-1 and scrubber, report the following: (a) indicator and range, (b) date and time of the beginning and end of the period, (c) all one-hour average values recorded during the period, and (d) action(s) taken to return the indicator to the operating range.

8.5. The boiler EU-1 O&M plan required pursuant to Condition 5.13, boiler EU-1 fuel monitoring plan required pursuant to Condition 7.5, kilns EU-2 O&M plan required pursuant to Condition 5.18, kilns EU-2 log scaling plan required pursuant to Condition 7.15, and elements of the monitoring plan required pursuant to Condition 7.4 unrelated to boiler EU-1 (and associated multiclone and scrubber) shall be submitted to EPA no later than the sixth calendar month after the month in which the permit becomes effective. Elements of the monitoring plan required pursuant to Condition 7.4 related to boiler EU-1

(and associated multiclone and scrubber) shall be submitted to EPA at the same time the first source test report required pursuant to Condition 8.2 is submitted to EPA.

8.5.1. The Permittee shall review each plan at least annually, update it as needed, and submit updates to EPA within 30 days of the update.

8.5.2. The Permittee shall revise any of these plans at any time if EPA determines that a plan does not achieve the goal of the plan. In such event, EPA will notify the Permittee of the specified deficiencies, and the Permittee shall submit a revised plan to EPA within 30 days.

8.6. The plans for determining monthly GWR_{EQP} associated with sawmill EU-3 and planer mill EU-4 required pursuant to Conditions 7.16 and 7.17 shall be submitted to EPA for approval by the end of the sixth calendar month after the month in which this permit becomes effective.

8.7. Any documents required to be submitted under this permit shall be submitted to the EPA electronically through EPA's CEDRI. CEDRI can be accessed through EPA's CDX at https://cdx.epa.gov/.

Confidential Business Information (CBI) may not be submitted through CDX and must be submitted by hardcopy to the EPA at one of the two addresses below as follows. For applications to revise this permit, source test reports and plans for determining GWR_{EQP} that contain CBI, submit the materials to EPA at the following address:

FARR Non-Title V Air Quality Permits
U.S. EPA – Region 10, 15-H13
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

For any other documents that contain CBI, submit the materials to EPA at the following address:

Clean Air Act Compliance Manager
U.S. EPA – Region 10, 20-C04
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

A copy of each document submitted to EPA that does not contain CBI shall be sent to the Tribal address below:

Air Quality Manager
Coeur d'Alene Tribe
P.O. Box 408
Plummer, ID 83851-0408

8.8. Once each year, on or before April 1, the Permittee shall submit to EPA a report containing the twelve monthly rolling 12-month emissions calculations, calculated and recorded pursuant to Condition 7.1, for the previous calendar year. The report shall contain a description of all emissions estimating methods used, including EF and their sources, assumptions made and production data.

Appendix A: Boiler EU-1 HAP EF for the 12 Calendar Months Prior to and Including the Month the Permit Becomes Effective

Hazardous Air Pollutants	EF (lb/MMBtu)
Trace Metal Compounds	
Antimony Compounds	7.90E-06
Arsenic Compounds (including arsine)	2.20E-05
Beryllium Compounds	1.10E-06
Cadmium Compounds	4.10E-06
Chromium Compounds (including hexavalent)	2.10E-05
Cobalt Compounds	6.50E-06
Lead Compounds (not elemental lead)	4.80E-05
Manganese Compounds	1.60E-03
Mercury Compounds	3.50E-06
Nickel Compounds	3.30E-05
Phosphorus	2.70E-05
Selenium Compounds	2.80E-06
Halogen and Hydrogen Halide Compounds	
Chlorine	7.90E-04
Hydrochloric acid (hydrogen chloride)	not specific here
Hydrogen Fluoride	none specified
Organic Compounds	
Acetaldehyde	8.30E-04
Acetophenone	3.20E-09
Acrolein	4.00E-03
Benzene	4.20E-03
Bis(2-ethylhexyl)phthalate (DEHP)	4.70E-08
Carbon disulfide	none specified
Carbon tetrachloride	4.50E-05
Chlorobenzene	3.30E-05
Chloroform	2.80E-05
Cumene	none specified
Di-n-Butyl Phthalate	none specified
Dibenzofurans*	1.87E-09
2,4-Dinitrophenol	1.80E-07
Ethyl benzene	3.10E-05
Ethylene dichloride (1,2-Dichloroethane)	2.90E-05
Formaldehyde	4.40E-03
Hexane	none specified
Methanol	none specified
Methyl bromide (Bromomethane)	1.50E-05
Methyl chloride (Chloromethane)	2.30E-05
Methyl chloroform (1,1,1-trichloroethane)	3.10E-05
Methyl isobutyl ketone (Hexone)	none specified
Methylene chloride (Dichloromethane)	2.90E-04
Naphthalene*	9.70E-05

Appendix A: Boiler EU-1 HAP EF for the 12 Calendar Months Prior to and Including the Month the Permit Becomes Effective

Hazardous Air Pollutants	EF (lb/MMBtu)
4-Nitrophenol	1.10E-07
Pentachlorophenol	5.10E-08
Phenol	5.10E-05
Polychlorinated biphenyls (PCB)	8.15E-09
Polycyclic Organic Matter (POM)	1.27E-04
Propionaldehyde	6.10E-05
Propylene dichloride (1,2-Dichloropropane)	3.30E-05
Styrene	1.90E-03
2,3,7,8-Tetrachlorodibenzo-p-dioxin*	8.60E-12
Tetrachloroethylene (tetrachloroethene)	3.80E-05
Toluene	9.20E-04
Trichloroethylene (Trichloroethene)	3.00E-05
2,4,6-Trichlorophenol	2.20E-08
Vinyl chloride	1.80E-05
Xylenes (inlc isomers and mixtures)	2.50E-05

* designates a HAP that is subject individually to the 10 tpy major source threshold but is also one of several POM compounds that, in aggregate, are subject to the same 10 tpy major source threshold.

Appendix B: Boiler EU-1 HAP EF Beginning the Calendar Month after the Month the Permit Becomes Effective

Hazardous Air Pollutants	EF (lb/MMBtu)
Trace Metal Compounds	
Antimony Compounds	1.13E-06
Arsenic Compounds (including arsine)	5.91E-05
Beryllium Compounds	1.77E-05
Cadmium Compounds	2.51E-05
Chromium Compounds (including hexavalent)	1.14E-04
Cobalt Compounds	7.17E-07
Lead Compounds (not elemental lead)	6.38E-04
Manganese Compounds	2.47E-03
Mercury Compounds	1.38E-06
Nickel Compounds	8.19E-05
Phosphorus	4.05E-04
Selenium Compounds	3.28E-05
Halogen and Hydrogen Halide Compounds	
Chlorine	3.69E-04
Hydrochloric acid (hydrogen chloride)	not specified here
Hydrogen Fluoride	1.27E-04
Organic Compounds	
Acetaldehyde	1.89E-03
Acetophenone	3.23E-09
Acrolein	5.66E-04
Benzene	5.85E-03
Bis(2-ethylhexyl)phthalate (DEHP)	4.65E-08
Carbon disulfide	1.25E-04
Carbon tetrachloride	4.54E-05
Chlorobenzene	3.32E-05
Chloroform	2.75E-05
Cumene	1.77E-05
Di-n-Butyl Phthalate	3.33E-05
Dibenzofurans*	4.02E-09
2,4-Dinitrophenol	1.80E-07
Ethyl benzene	3.13E-05
Ethylene dichloride (1,2-Dichloroethane)	2.92E-05
Formaldehyde	2.33E-03
Hexane	2.88E-04
Methanol	7.32E-04
Methyl bromide (Bromomethane)	2.80E-05
Methyl chloride (Chloromethane)	4.35E-05
Methyl chloroform (1,1,1-trichloroethane)	3.07E-05
Methyl isobutyl ketone (Hexone)	4.45E-04
Methylene chloride (Dichloromethane)	2.87E-04
Naphthalene*	1.39E-04

Appendix B: Boiler EU-1 HAP EF Beginning the Calendar Month after the Month the Permit Becomes Effective

Hazardous Air Pollutants	EF (lb/MMBtu)
4-Nitrophenol	1.14E-07
Pentachlorophenol	2.28E-08
Phenol	6.14E-05
Polychlorinated biphenyls (PCB)	9.08E-09
Polycyclic Organic Matter (POM)	1.57E-04
Propionaldehyde	3.11E-04
Propylene dichloride (1,2-Dichloropropane)	3.33E-05
Styrene	1.86E-03
2,3,7,8-Tetrachlorodibenzo-p-dioxin*	1.43E-11
Tetrachloroethylene (tetrachloroethene)	3.82E-05
Toluene	1.22E-03
Trichloroethylene (Trichloroethene)	3.03E-05
2,4,6-Trichlorophenol	1.14E-08
Vinyl chloride	1.84E-05
Xylenes (inlc isomers and mixtures)	2.45E-05

* designates a HAP that is subject individually to the 10 tpy major source threshold but is also one of several POM compounds that, in aggregate, are subject to the same 10 tpy major source threshold.

Appendix C: Procedure to Determine FHISOR for Boiler EU-1

Conduct at least three valid stack test runs; each at least 60 minutes in duration. Follow Steps 1 through 8 for each run. Calculate the arithmetic average value for fuel-heat-input-to-steam-output ratio considering the results of all valid runs.

1. Simultaneously Measure Stack Gas Volumetric Flow and Steam Generating Rate.
   - Measure average stack gas volumetric flow (dscfm) using EPA Reference Method 2
   - Measure average steam flow (mlbsteam/hr) using boiler monitoring equipment
2. Sample Fuel
   - Create composite sample (composed of three approximately 2-pound individual samples) using 63.7521(c); all individual samples shall be collected at a location that most accurately represents the fuel being burned; individual belt or screw feeder samples, described in 63.7521(c)(1)(ii), shall be collected such that one sample is representative of fuel combusted at the beginning of the run, one is representative of fuel combusted at the mid-point of the run, and one is representative of fuel combusted at the end of the run.
3. Homogenize Fuel Sample
   - Subdivide and homogenize composite sample using 63.7521(d) until sample passes 0.5 mm screen
4. Determine Fuel Moisture
   - Determine moisture content (%, wet basis) of composite sample using ASTM E871; time analysis such that sample used for moisture analysis represents moisture content of sample introduced to oxygen bomb;
   - For converting heat content or ultimate analysis % to dry basis, use the following:
     - (value, wet basis) / (1 - %moisture) = (value, dry basis)
5. Determine Fuel Heat Content (aka Gross Calorific Value or High Heat Value)
   - Determine gross calorific value (Btu/lb, wet basis) for composite sample using ASTM E711; convert GCV results to be on dry basis
6. Perform Ultimate Analysis (for composite sample)
   - Determine ash content (%, dry basis) using ASTM D1102
   - Determine C (%, wet basis) using ASTM E777; convert to dry basis
   - Determine H (%, wet basis) using ASTM E777; convert to dry basis
   - Determine N (%, wet basis) using ASTM E778; convert to dry basis
   - Determine S (%, wet basis) using ASTM E775; convert to dry basis
   - Calculate O (%, dry basis) using ash, C, H, N and S results (%, dry basis) and ASTM E870
7. Calculate Hogged Fuel F-Factor (for composite sample)
   - Calculate F-factor (dscf/mmBtu) using results from ultimate analysis (dry basis) and GCV (dry basis) using equation 19-13 in 40 CFR 60 App A, RM19
8. Calculate Conversion Factor
   - Determine fuel heat input rate (mmBtu/hr) using average stack flow rate and percent oxygen (dry) for the run and F-factor for composite sample:
     (dscf/min) x ((20.9 - $\%O_2$)/20.9) x (60 min/hr) / (dscf/mmBtu) = (mmBtu/hr)
   - Determine input/output ratio (mmBtu/mlbsteam) by dividing the fuel heat input rate (mmBtu/hr) for composite by the steam flow rate (mlbsteam/hr) for the run

Appendix D: Procedure to Determine Halogen and Trace Metal FC for Boiler EU-1

1. Sample Fuel
   - Take 3 composite samples (composed of three approximately 2-pound individual samples) using 40 CFR 63.7521(c); all samples shall be collected at a location that most accurately represents the fuel being burned; if not sampling during a stack test, individual belt or screw feeder samples, described in 40 CFR 63.7521(c)(1)(ii), shall be separated by a 30 minute period.
2. Homogenize Sample
   - Subdivide and homogenize each composite sample using 40 CFR 63.7521(d) until sample passes 0.5 mm screen; approximately 50 grams of sample are needed for each moisture analysis, 1 gram of sample is needed for each oxygen bomb, and 2 grams of sample are needed for ash analysis
3. Determine Moisture Content
   - Determine moisture content (%, wet basis) of three composite samples using ASTM E871; time analysis such that samples used for moisture analysis represents moisture content of samples introduced to oxygen bomb; do not average the three sample results
4. Prepare Sample for Heat Content, Halogen Content and Trace Metal Content Analysis
   - Prepare three composite samples using SW-846-5050; this sample preparation can be performed simultaneously with heat content analysis (ASTM E711); alternatively, ASTM E776 can be used in place of both SW-846-5050 and SW-846-9056/9056A; do not combine composite samples before or after sample preparation
5. Determine Heat Content (aka Gross Calorific Value or High Heat Value)
   - Determine gross calorific value (Btu/lb, wet basis) of three composite samples using ASTM E711; do not average the three sample results
   - Convert GCV results to be on a dry basis:
     (GCV, wet basis) / (1 - %moisture) = (GCV, dry basis)

6a. Determine Halogen Content
   - Analyze bomb combustate for each composite sample for halogen (mg/L, wet basis) using SW-846-9056 or SW-846-9056A (alternatively, use ASTM E776 in place of SW-846-5050 and SW-846-9056/9056A)
   - Convert halogen mg/L (wet basis) to halogen ug/g (wet basis) using SW-846-5050 (eq. 1)

6b. Determine Trace Metal Content
   - For trace metals except for mercury, analyze bomb combustate for each composite sample for trace metal (mg/L, wet basis) using ASTM D3683, or ASTM D4606, or ASTM D6357 or EPA 200.8 or EPA SW-846-6020, or EPA SW-846-6020A, or EPA SW-846-6010C, EPA 7060 or EPA 7060A (for arsenic only), or EPA SW-846-7740 (for selenium only).
   - For mercury, analyze bomb combustate for each composite sample for trace metal (mg/L, wet basis) using EPA SW-846-7471B or EPA 1631 or EPA 1631E or EPA 821-R-01-013.
   - Convert trace metal mg/L (wet basis) to trace metal ug/g (wet basis) using SW-846-5050 (eq. 1)

7a. Determine Average Halogen FC

- Convert halogen (ug/g, wet basis) to halogen (lb/mmBtu, dry basis) for each composite sample:
  (Halogen ug/g, wet basis) x (1/(1 -%moisture)) x (g/1x10^6 ug) x (1/(GCV Btu/lb, dry basis)) x (1x10^6 Btu/mmBtu) = (halogen lb/mmBtu)
- Determine FC (lb/mmBtu) by averaging the halogen results from the three composite samples.

7b. Determine Average Trace Metal FC

- Convert trace metal (ug/g, wet basis) to trace metal (lb/mmBtu, dry basis) for each composite sample:
  (trace metal ug/g, wet basis) / (1 -%moisture) / (1x10^6 ug/g) / (GCV Btu/lb, dry basis) x (1x10^6 Btu/mmBtu) = (trace metal lb/mmBtu)
- Determine FC (lb/mmBtu) by averaging the trace metal results from the three composite samples.

Appendix E: Calculations to Determine Monthly Total Volume of Lumber Dried for a Wood Species for the 12 Calendar Months Prior to and Including the Month the Permit Becomes Effective

For the twelve months prior to and including the calendar month in which the permit becomes effective, the monthly total volume of lumber dried for a wood species (mbf) shall be calculated as follows:

- Alpine Fir: ESLPAF × 0.138
- Douglas Fir: (FL × 0.811) + (WW × 0.296)
- Engelmann Spruce: (ESLPAF × 0.091) + (WW × 0.018)
- Lodgepole Pine: (ESLPAF × 0.670) + (WW × 0.037)
- Ponderosa Pine: WW × 0.088
- Western Hemlock: (IHFIR × 0.125) + (WW × 0.053)
- Western Larch: (FL × 0.189) + (WW × 0.069)
- Western Red Cedar: WW × 0.058
- Western True Firs (except Alpine Fir): (IHFIR × 0.875) + (WW × 0.371)
- Western White Pine: (ESLPAF × 0.101) + (WW × 0.008)

where FL (Douglas Fir-Larch), ESLPAF (Engelmann Spruce-Lodgepole Pine-Alpine Fir-Western White Pine), IHFIR (Western Hemlock-Western True Firs except Alpine Fir) and WW (Western Woods, all species listed above except Alpine Fir) reflect the monthly volume of lumber dried in kilns EU-2 (mbf) for the respective four product groups. Each product's monthly volume is the sum of measured volumes for all charges (of that product) initiated that month.

Appendix F: Kilns EU-2 HAP EF for the 12 Calendar Months Prior to and Including the Month the Permit Becomes Effective

Species	Monthly Max Set Point Temp[1] (°F)	Total HAP (lb/mbf)	Methanol[2] (lb/mbf)	Formaldehyde[2] (lb/mbf)	Acetaldehyde (lb/mbf)	Propionaldehyde (lb/mbf)	Acrolein (lb/mbf)
Non-Resinous Softwood Species							
Western True Firs	≤200	0.2107	0.1480	0.0034	0.0550	0.0018	0.0026
	>200	0.4956	0.4200	0.0163			
Western Hemlock	≤200	0.2921	0.1484	0.0016	0.1378	0.0018	0.0026
	>200	0.3661	0.2196	0.0044			
Western Red Cedar	≤200	0.2939	0.1484	0.0034	0.1378	0.0018	0.0026
	>200	0.5784	0.4200	0.0163			
Resinous Softwood Species (Non-Pine Family)							
Douglas Fir	≤200	0.1409	0.0690	0.0019	0.0682	0.0007	0.0011
	>200	0.1913	0.1170	0.0043			
Engelmann Spruce	≤200	0.0640	0.0250	0.0013	0.0360	0.0007	0.0010
	>200	0.1201	0.0780	0.0044			
Western Larch	≤200	0.1409	0.0690	0.0019	0.0682	0.0007	0.0011
	>200	0.1914	0.1170	0.0044			
Resinous Softwood Species (Pine Family)							
Lodgepole Pine	≤200	0.1166	0.0628	0.0041	0.0420	0.0032	0.0045
	>200	0.1166	0.0628	0.0041			
Ponderosa Pine	≤200	0.1271	0.0740	0.0034	0.0420	0.0032	0.0045
	>200	0.2029	0.1440	0.0092			
Western White Pine	≤200	0.1271	0.0740	0.0034	0.0420	0.0032	0.0045
	>200	0.2029	0.1440	0.0092			

[1] Use the monthly maximum set point temperature (specified in the drying schedule for the heated air entering a load of lumber) from among all charges consisting of the wood species to determine methanol and formaldehyde EF.
[2] Because methanol and formaldehyde emissions appear to be dependent upon drying temperature, separate values are calculated for low and high-temperature drying.
[3] 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.

Appendix G: Kilns EU-2 HAP EF Beginning the Calendar Month after the Month the Permit Becomes Effective

The species-specific lumber drying EF for acetaldehyde, propionaldehyde and acrolein are self-explanatory. For methanol and formaldehyde, the variable "x" in the mathematical expression represents the monthly maximum set point temperature (°F) (specified in the drying schedule for the heated air entering a load of lumber) from among all charges consisting of the same wood species, plus 4°F. The EF is calculated by substituting the max set point temperature + 4 for "x" and performing the math. For instance, the monthly Western True Firs methanol EF for a month in which the maximum set point temperature from among all relevant charges was 195°F is calculated as follows: (0.00465×199) – 0.73360 = 0.1918 lb/mbf.

Species	Methanol[1] (lb/mbf)	Formaldehyde[1] (lb/mbf)	Acetaldehyde (lb/mbf)	Propionaldehyde (lb/mbf)	Acrolein (lb/mbf)
Non-Resinous Softwood Species					
Western True Firs[2]	0.00465x - 0.73360	0.00016x - 0.02764	0.0550	0.0003	0.0009
Western Hemlock	0.00249x - 0.39750	0.000046x - 0.007622	0.0677	0.0004	0.0012
Species not otherwise listed	0.00465x - 0.73360	0.00016x - 0.02764	0.0677	0.0004	0.0012
Resinous Softwood Species (Non-Pine Family)					
Douglas Fir	0.00114x - 0.16090	0.000028x - 0.003800	0.0275	0.0003	0.0005
Engelmann Spruce	0.00088x - 0.13526	0.000042x - 0.006529	0.0201	0.0002	0.0005
Larch	0.00114x - 0.16090	0.000028x - 0.003800	0.0275	0.0003	0.0005
Species not otherwise listed	0.00114x - 0.16090	0.000028x - 0.003800	0.0275	0.0003	0.0005
Resinous Softwood Species (Pine Family)					
Lodgepole Pine	0.0550	0.0030	0.0104	0.0003	0.0008
Ponderosa Pine	0.00137x - 0.18979	0.000074x - 0.010457	0.0340	0.0010	0.0026
Species not otherwise listed	0.00137x - 0.18979	0.000074x - 0.010457	0.0340	0.0010	0.0026

[1] Because methanol and formaldehyde emissions are dependent upon maximum drying temperature, a best-fit linear equation with dependent variable maximum temperature of heated air entering the lumber has been generated to model emissions, with one exception. For Lodgepole Pine, a single methanol and formaldehyde (based upon high-temperature drying) has been generated due to lack of sufficient test data to build a best-fit linear equation.

[2] 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.