Oregon
Tina Kotek, Governor

Department of Environmental Quality
Headquarters/Portland Administrative Offices
700 NE Multnomah Street, Suite 600
Portland, OR 97232
503-229-5696
TTY 711

April 13, 2026

Murphy Company dba Murphy Veneer
5205 North River Road
Rogue River, OR 97537
Sent electronically only

Brent Way,

DEQ called in Murphy Company dba Murphy Veneer (Murphy) in Rogue River, OR to the Cleaner Air Oregon (CAO) program on June 30, 2025. DEQ received the CAO Emissions Inventory (Inventory) from Murphy on September 29, 2025 (Your DEQ Online submittal 69894). In accordance with Oregon Administrative Rule (OAR) 340-245-0030(2), DEQ issued a written request on December 8, 2025, requiring additional information and a revised Inventory to be submitted by February 6, 2025. Murphy submitted a revised Inventory with two AQ520 forms, one for start-up operations and one for normal operations, and supporting materials on February 6, 2025.

DEQ has reviewed the Inventory and identified additional updates that are needed before approval. In accordance with OAR 340-245-0030(4)(b), DEQ is providing Murphy with a revised deadline for submittal of a revised Inventory. Please submit the information specified below by **June 12, 2026.**

General Comments

1. The following materials were included in the previous version of the AQ520 form but were removed from the current form. If Murphy intends to use any of these materials in the future, provide a full Safety Data Sheet (SDS) and include any Toxic Air Contaminant (TAC) emissions in the AQ520 form. If Murphy believes that usage of the following materials is exempt, then include justification including usage amounts and SDSs in accordance with CAO's Exempt TEU Reporting document[1].
    a. XU-100-E 6:1 Lt. Fir
    b. U-100 BL3-Plus Pine
    c. Form Seal Gray #15
    d. EPR-56 End Seal Green LV
2. The Presses Toxics Emissions Unit (TEU) point emissions are directed to VENT1-VENT33. For the Modeling Protocol, DEQ will require rationale for the proportion of the emissions that go to each vent. Alternatively, Murphy may determine the vent that

[1] https://www.oregon.gov/deq/aq/cao/Documents/ExemptTEUReporting-Appendices.pdf

results in the highest estimated risk and assume 100% of the emissions from TEU Presses flow through that vent.

3. The activity information provided in Columns J and M of the AQ520 forms may become enforceable permit limits. DEQ discusses potential consequences for specific TEUs below. DEQ is available to discuss how the activity information provided in the AQ520 form can become permit limits in more detail.

Specific Comments

1. **MUP Revised AQ520 form and MUP Boiler Startup AQ520 form:** Provide revised AQ520 forms that includes the following updates and revisions:
    a. **Veneer Dryers TEU:**
        i. Worksheet 2: Column L (References/Notes). Include the wood type (softwood).
        ii. Worksheet 2 and 3: The permit review report notes that "Fugitive material created from the veneer dryers are exhausted through the roof vents". Split this TEU into two Toxics Emissions Sub-Units (TESUs), one with emissions to the RCO, and one with these fugitive emissions. Provide justification for the percentage of emissions assumed to be fugitive versus point.
        iii. Worksheet 3: Include Acetone (CASRN 67-64-1) at 1.6 $x10^{-2}$ lb/MSF from the National Council for Air and Stream Improvement, Inc. (NCASI) TB 768 Table 6.1.1.
    b. **Veneer Dryers cooling zone**:
        i. Worksheet 2 and 3: Include this process as a TEU.
        ii. Worksheet 3: Use emission factors from NCASI TB 768 Table 6.1.4.
    c. **Presses TEU, Worksheet 3:**
        i. Column L (References/Notes). Include the wood type (softwood).
        ii. Include Acetone (CASRN 67-64-1) at 4.8 x 10^{-3} lb/MSF from NCASI TB 768 Table 6.2.1.
    d. **RCO-NG TEU Worksheet 3:**
        i. Add 90% to Column F "Destruction Removal Efficiency (DRE)" and add "Yes" in Column H.
        ii. Use Emission Factors from DEQ's Combustion Emission Factors spreadsheet.[2]
            1. Provide manufacturer documentation to support the heat input rate emission factors used.
    e. **Welding TEU:**
        i. Include emissions from flux-cored arc welding (FCAW) that use electrode type E309L. There are no exempt levels for FCAW E309L welding in Cleaner Air Oregon's Exempt TEU Reporting[3] guidance.
        ii. For shielded metal arc welding (SMAW) using electrode type E7018:
            1. Include calcium fluoride as "fluorides" "DEQ SEQ ID 239" at 3%; and

[2] https://www.oregon.gov/deq/aq/Documents/AQ104B-ToxicsATEICombustionTool.xlsx
[3] https://www.oregon.gov/deq/aq/cao/Documents/ExemptTEUReporting-Appendices.pdf

2. Include hexavalent chromium (CASRN 18540-29-9) as 55% of the total chromium emissions estimates, per the San Diego Air Pollution Control District guidance.[4]

iii. Worksheet 2: List gas metal arc welding (GMAW) E70S welding and note as "exempt" in the TEU name. Include activity amounts. Emissions estimates are not required for this or any exempt TEUs.

iv. Currently, the welding daily activity levels are equal to the annual rod usage divided by 365. This assumption estimates the same amount of welding occurs every day of the year, which may underestimate the actual daily maximum welding that Murphy performs. Murphy may want to consider increasing daily activity levels to account for the maximum amount of welding that may occur in one day, as these activity levels may become permit limits.

v. Provide full SDSs for welding rods E309L and E70S.

vi. Annual usage on Worksheet 2 of the AQ520 form says 100 lb/yr but the detailed calculations spreadsheet uses 110 lb/yr. Update to ensure consistency.

f. **Plywood Layup TEU:** For the U-100-B Patch Catalyst material, 99.7% of the composition information on the SDS is listed as "Trade Secret" MDI chemicals. Either:

i. Request further documentation from the manufacturer on the ingredients that are "trade secret" and what percentages are TACs per OAR 340-247-8010, Table 1; or,

ii. Assume 100% of the materials are methylene diphenyl diisocyanate (MDI, CASRN 101-68-8).

2. **MUP Boiler Startup AQ520 form:** Provide a revised AQ520 form that includes the following updates and revisions:

a. **Wood-Fired Boiler TEU Worksheet 2**: include two rows for this TEU with two separate TESUs to represent the two emission profiles (controlled by multiclone vs. controlled by Dry electrostatic precipitator (ESP).

i. One TESU will represent startup operations and will list the multiclone in Column D as the Dry ESP will not be operational during startup operations.

1. Include a unique TESU ID for the start-up operations with multiclone only.
2. Include the maximum daily use of the Wood-Fired Boiler controlled only by the multiclone converted to MMBtu in Column M.

ii. The second TESU will represent normal operations and will list the Dry ESP as the control in Column D.

1. Include a unique TESU ID for normal operations with Dry ESP.
2. Include the maximum daily use of the Dry ESP during days with a cold startup.
3. For the maximum daily activity, Murphy may want to use more than the total hours worked minus 4 hours for startup to allow for

[4] https://www.sdapcd.org/content/dam/sdapcd/documents/permits/emissions-calculation/welding/APCD-Welding-Operations.pdf

shorter startup periods. For example, if the minimum startup is 2 hours, Murphy should include maximum daily activity levels to account for 22-hour operations. The activity information provided in Columns J and M may become enforceable permit limits.

   b. **Wood-Fired Boiler TEU Worksheet 3:**
      i. Include two TESUs with two full sets of emission factors and emission estimates; following the guidance in Specific Comment 1.a.
      ii. Use the DEQ approved emission factors for wood-fired boilers attached to this letter. Use "Mechanical Collector" emission factors for the emission profile with only the multiclone as the control unit and "Fabric filter/ESP" for the emission provide with ESP as the control unit.

3. **MUP Revised AQ520 form:** Provide a revised AQ520 form that includes the following updates and revisions:
   a. **Wood-Fired Boiler TEU Worksheet 3:** Use the DEQ approved emission factors for wood-fired boilers attached to this letter. Use "Fabric filter/ESP" emission factors.
4. **Supporting materials:**
   a. Provide a revised Process Flow Diagram that includes the following updates and revisions:
      i. Include a graphical representation of the process flow and the TEUs throughout the entire process. See this approved Process Flow Diagram as an example of an acceptable process flow diagram.[5]
      ii. Include all expected points of fugitive and non-fugitive emissions. These points should match the information in the AQ520 form. For example, Presses TEU should list VENT1-VENT33 as the emission locations.
   b. Provide full SDSs of all materials used onsite, not just a single page.
   c. As requested in Comment 4.b.i of the December 8, 2025 DEQ letter, provide a flow schematic illustrating how emissions are distributed from the Veneer Dryers. Specifically, DEQ is concerned with potential emissions that are not captured by the RCO as well as emissions from the cooling zone of the Veneer Dryers.
   d. Provide the VOC/HAP reports from the manufacturers for the coating and patching products referenced in the **MUP Revised EI Report**.

DEQ requests that you submit additional information to complete your Inventory. If you think that any of that information is confidential, trade secret or otherwise exempt from disclosure, in whole or in part, you must comply with the requirements in OAR 340-214-0130 to identify this information. This includes clearly marking each page of the writing with a request for exemption from disclosure and stating the specific statutory provision under which you claim exemption. Emissions data is not exempt from disclosure.

DEQ remains available to discuss this information request with you and answer any questions you may have. Failure to provide additional information, corrections, or updates to DEQ by the deadlines above may result in a violation of OAR 340-245-0030(4)(b).

[5] https://ormswd2.synergydcs.com/HPRMWebDrawer/RecordView/6915710

If you have any questions regarding this letter, please contact me directly at heather.kuoppamaki@deq.oregon.gov or 503-407-7596, and I look forward to your continued assistance with this process.

Sincerely,



Heather Kuoppamaki, P.E.
Cleaner Air Oregon Project Engineer

Cc: Steven LaFranchi, Environmental Science Associates, Inc.
Wayne Kauzlarich, DEQ
J.R. Giska, DEQ
File

Encl:
Oregon DEQ CAO Combustion EF Basis – 2025

Wood-Fired Boilers

EF in [lb/MMBTU]

	POLLUTANT	CAS or DEQ ID	Fabric filter /ESP	Wet Scrubber	Mechanical Collector	Source
	VOCs, SVOCs and Acid Gases					
HAP	1,1,1-Trichloroethane (Methyl chloroform)	71-55-6	5.78E-05	5.78E-05	5.78E-05	NCASI TB 1050
HAP	1,2-Dichloropropane (Propylene dichloride)	78-87-5	1.68E-05	1.68E-05	1.68E-05	NCASI TB 1050
HAP	2,4,6-Trichlorophenol	88-06-2	2.00E-07	2.00E-07	2.00E-07	NCASI TB 1050
HAP	2,4-Dinitrophenol	51-28-5	1.80E-07	1.80E-07	1.80E-07	NCASI TB 1050
HAP	2,4-Dinitrotoluene	121-14-2	9.42E-07	9.42E-07	9.42E-07	NCASI TB 1050
DEQ AT	2-Butanone (Methyl ethyl ketone)	78-93-3	6.97E-06	6.97E-06	6.97E-06	NCASI TB 1050
DEQ AT	2-Chlorophenol	95-57-8	2.35E-08	2.35E-08	2.35E-08	NCASI TB 1050
HAP	4,6-Dinitro-o-cresol (and salts)	534-52-1	2.10E-06	2.10E-06	2.10E-06	NCASI TB 1050
HAP	4-nitrophenol	100-02-7	1.140E-07	1.140E-07	1.140E-07	NCASI TB 1050
HAP	Acetaldehyde	75-07-0	2.83E-04	2.83E-04	2.83E-04	NCASI TB 1050
DEQ AT	Acetone	67-64-1	5.29E-04	5.29E-04	5.29E-04	NCASI TB 1050
HAP	Acetophenone	98-86-2	1.84E-06	1.84E-06	1.84E-06	NCASI TB 1050
HAP	Acrolein	107-02-8	2.60E-04	2.60E-04	2.60E-04	NCASI TB 1050
HAP	Benzene	71-43-2	9.80E-04	9.80E-04	9.80E-04	NCASI TB 1050
HAP	Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	4.650E-08	4.65E-08	4.65E-08	NCASI TB 1050
HAP	Bromomethane (Methyl bromide)	74-83-9	1.13E-05	1.13E-05	1.13E-05	NCASI TB 1050
HAP	Butyl benzyl phthalate	85-68-7	2.68E-05	2.68E-05	2.68E-05	NCASI TB 1050
HAP	Carbon tetrachloride	56-23-5	9.87E-06	9.87E-06	9.87E-06	NCASI TB 1050
HAP	Chlorine	7782-50-5	7.90E-04	7.90E-04	7.90E-04	a
HAP	Chlorobenzene	108-90-7	1.66E-05	1.66E-05	1.66E-05	NCASI TB 1050
HAP	Chloroform	67-66-3	2.01E-05	2.01E-05	2.01E-05	NCASI TB 1050
HAP	Chloromethane (Methyl chloride)	74-87-3	4.35E-05	4.35E-05	4.35E-05	NCASI TB 1050
DEQ AT	Crotonaldehyde	4170-30-3	4.48E-05	4.48E-05	4.48E-05	NCASI TB 1050
HAP	Cyanide, hydrogen	74-90-8	2.050E-05	2.05E-05	2.05E-05	NCASI TB 1050
HAP	Dibutyl phthalate	84-74-2	3.33E-05	3.33E-05	3.33E-05	NCASI TB 1050
HAP	Dichloromethane (Methylene chloride)	75-09-2	3.98E-04	3.98E-04	3.98E-04	NCASI TB 1050
HAP	Diethylphthalate	84-66-2	4.36E-05	4.36E-05	4.36E-05	NCASI TB 1050
DEQ AT	di-n-octylphthalate	518	1.100E-07	1.100E-07	1.100E-07	NCASI TB 1050
HAP	Ethylbenzene	100-41-4	1.22E-05	1.22E-05	1.22E-05	NCASI TB 1050
HAP	Ethylene dichloride (EDC, 1,2-dichloroethane)	107-06-2	2.92E-05	2.92E-05	2.92E-05	NCASI TB 1050
HAP	Formaldehyde	50-00-0	1.05E-03	1.05E-03	1.05E-03	NCASI TB 1050
HAP	Hexane	110-54-3	2.88E-04	2.88E-04	2.88E-04	NCASI TB 1050
HAP	Hydrochloric Acid	7647-01-0	4.36E-03	2.66E-04	4.36E-03	NCASI TB 1050
HAP	Hydrogen Fluoride	7664-39-3	9.05E-05	2.54E-05	9.05E-05	NCASI TB 1050
DEQ AT	Isopropyl alcohol	67-63-0	4.52E-03	4.52E-03	4.52E-03	NCASI TB 1050
HAP	Isopropylbenzene (Cumene)	98-82-8	1.77E-05	1.77E-05	1.77E-05	NCASI TB 1050
HAP	Methanol	67-56-1	7.32E-04	7.32E-04	7.32E-04	NCASI TB 1050
HAP	Methyl isobutyl ketone (MIBK, Hexone)	108-10-1	4.45E-04	4.45E-04	4.45E-04	NCASI TB 1050
HAP	p-Dichlorobenzene (1,4-Dichlorobenzene)	106-46-7	2.79E-04	2.79E-04	2.79E-04	NCASI TB 1050
HAP	Pentachlorophenol	87-86-5	2.14E-07	2.14E-07	2.14E-07	NCASI TB 1050
HAP	Phenol	108-95-2	1.60E-04	1.60E-04	1.60E-04	NCASI TB 1050
HAP	Propionaldehyde	123-38-6	3.11E-04	3.11E-04	3.11E-04	NCASI TB 1050
HAP	Styrene	100-42-5	4.69E-04	4.69E-04	4.69E-04	NCASI TB 1050
HAP	Tetrachloroethene (perchloroethylene)	127-18-4	2.460E-05	2.460E-05	2.460E-05	NCASI TB 1050
HAP	Toluene	108-88-3	1.14E-05	1.14E-05	1.14E-05	NCASI TB 1050
HAP	Trichloroethene (TCE, Trichloroethylene)	79-01-6	1.99E-05	1.99E-05	1.99E-05	NCASI TB 1050
DEQ AT	Trichlorofluoromethane (Freon 11)	75-69-4	1.39E-05	1.39E-05	1.39E-05	NCASI TB 1050
HAP	Vinyl Chloride	75-01-4	1.84E-05	1.84E-05	1.84E-05	NCASI TB 1050
HAP	Xylene (mixture), including m-xylene, o-xylene, p-xylene	1330-20-7	5.22E-06	5.22E-06	5.22E-06	NCASI TB 1050
	Metals					
HAP	Antimony and compounds	7440-36-0	3.06E-07	2.00E-06	3.11E-06	NCASI TB 1050
HAP	Arsenic and compounds	7440-38-2	1.89E-06	1.11E-05	8.55E-06	NCASI TB 1050
DEQ AT	Barium and compounds	7440-39-3	2.09E-04	3.97E-04	4.83E-03	NCASI TB 1050
HAP	Beryllium and compounds	7440-41-7	2.85E-08	6.90E-08	1.35E-07	NCASI TB 1050
HAP	Cadmium and compounds	7440-43-9	3.24E-07	3.20E-06	4.99E-06	NCASI TB 1050
HAP	Chromium VI, chromate, and dichromate particulate	18540-29-9	2.72E-07	2.35E-07	6.97E-06	NCASI TB 1050
HAP	Cobalt and compounds	7440-48-4	4.97E-07	1.95E-06	1.67E-06	NCASI TB 1050
DEQ AT	Copper and compounds	7440-50-8	3.79E-06	1.82E-05	8.25E-05	NCASI TB 1050
Criteria	Lead and compounds	7439-92-1	5.21E-06	3.00E-05	3.10E-05	NCASI TB 1050
HAP	Manganese and compounds	7439-96-5	9.57E-05	2.50E-04	1.85E-03	NCASI TB 1050
HAP	Mercury and compounds	7439-97-6	1.06E-06	9.61E-07	1.77E-06	NCASI TB 1050
DEQ AT	Molybdenum trioxide	1313-27-5	3.11E-06	3.15E-06	3.15E-06	b
HAP	Nickel and compounds	7440-02-0	2.80E-06	7.34E-06	1.32E-05	NCASI TB 1050
HAP	Phosphorus and compounds	7723-14-0	3.10E-04	9.85E-05	5.45E-03	NCASI TB 1050
HAP	Selenium and compounds	7782-49-2	1.62E-06	1.71E-06	7.25E-07	NCASI TB 1050
DEQ AT	Silver and compounds	7440-22-4	9.85E-07	9.85E-07	9.37E-04	c
DEQ AT	Thallium and compounds	7440-28-0	1.85E-06	1.85E-06	1.85E-06	d
DEQ AT	Vanadium (fume or dust)	7440-62-2	5.94E-07	9.80E-07	9.80E-07	e
DEQ AT	Zinc and compounds	7440-66-6	5.76E-05	2.33E-04	5.69E-04	NCASI TB 1050
	PAHs					
DEQ AT	1-Methylphenanthrene	832-69-9	2.59E-07	2.59E-07	2.59E-07	NCASI TB 1050
HAP	2-Methyl naphthalene	91-57-6	1.40E-06	1.40E-06	1.40E-06	NCASI TB 1050

	POLLUTANT	CAS or DEQ ID	Fabric filter /ESP	Wet Scrubber	Mechanical Collector	Source
	VOCs, SVOCs and Acid Gases					
HAP	3-Methylcholanthrene	56-49-5	8.68E-09	8.68E-09	8.68E-09	NCASI TB 1050
HAP	7,12-Dimethylbenz[a]anthracene	57-97-6	4.57E-09	4.57E-09	4.57E-09	NCASI TB 1050
HAP	Acenaphthene	83-32-9	8.53E-07	8.53E-07	8.53E-07	NCASI TB 1050
HAP	Acenaphthylene	208-96-8	4.69E-06	4.69E-06	4.69E-06	NCASI TB 1050
HAP	Anthracene	120-12-7	2.68E-06	2.68E-06	2.68E-06	NCASI TB 1050
HAP	Benz[a]anthracene	56-55-3	8.13E-08	8.13E-08	8.13E-08	NCASI TB 1050
HAP	Benzo[a]pyrene	50-32-8	2.22E-06	2.22E-06	2.22E-06	NCASI TB 1050
HAP	Benzo[b]fluoranthene	205-99-2	1.42E-07	1.42E-07	1.42E-07	NCASI TB 1050
HAP	Benzo[e]pyrene	192-97-2	2.11E-07	2.11E-07	2.11E-07	NCASI TB 1050
HAP	Benzo[g,h,i]perylene	191-24-2	1.51E-07	1.51E-07	1.51E-07	NCASI TB 1050
HAP	Benzo[j]fluoranthene	205-82-3	1.56E-07	1.56E-07	1.56E-07	NCASI TB 1050
HAP	Benzo[k]fluoranthene	207-08-9	5.18E-08	5.18E-08	5.18E-08	NCASI TB 1050
HAP	Chrysene	218-01-9	7.90E-08	7.90E-08	7.90E-08	NCASI TB 1050
HAP	Fluoranthene	206-44-0	1.67E-06	1.67E-06	1.67E-06	NCASI TB 1050
HAP	Fluorene	86-73-7	3.01E-06	3.01E-06	3.01E-06	NCASI TB 1050
HAP	Indeno[1,2,3-cd]pyrene	193-39-5	1.02E-07	1.02E-07	1.02E-07	NCASI TB 1050
HAP	Naphthalene	91-20-3	9.96E-05	9.96E-05	9.96E-05	NCASI TB 1050
HAP	Perylene	198-55-0	3.20E-08	3.20E-08	3.20E-08	NCASI TB 1050
HAP	Phenanthrene	85-01-8	6.46E-06	6.46E-06	6.46E-06	NCASI TB 1050
HAP	Pyrene	129-00-0	3.54E-06	3.54E-06	3.54E-06	NCASI TB 1050
	Dioxans & Furans					
HAP	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746-01-6	9.53E-13	9.53E-13	9.53E-13	NCASI TB 1050
DEQ AT	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	40321-76-4	1.33E-12	1.33E-12	1.33E-12	NCASI TB 1050
DEQ AT	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	39227-28-6	8.70E-13	8.70E-13	8.70E-13	NCASI TB 1050
DEQ AT	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	57653-85-7	2.09E-12	2.09E-12	2.09E-12	NCASI TB 1050
DEQ AT	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	19408-74-3	2.21E-12	2.21E-12	2.21E-12	NCASI TB 1050
DEQ AT	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	35822-46-9	9.76E-12	9.76E-12	9.76E-12	NCASI TB 1050
DEQ AT	Octachlorodibenzo-p-dioxin (OCDD)	3268-87-9	2.46E-11	2.46E-11	2.46E-11	NCASI TB 1050
HAP	2,3,7,8-Tetrachlorodibenzofuran (TcDF)	51207-31-9	8.04E-12	8.04E-12	8.04E-12	NCASI TB 1050
HAP	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	57117-41-6	3.99E-12	3.99E-12	3.99E-12	NCASI TB 1050
HAP	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	57117-31-4	6.09E-12	6.09E-12	6.09E-12	NCASI TB 1050
HAP	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	70648-26-9	3.56E-12	3.56E-12	3.56E-12	NCASI TB 1050
HAP	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	57117-44-9	3.16E-12	3.16E-12	3.16E-12	NCASI TB 1050
HAP	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	72918-21-9	6.67E-13	6.67E-13	6.67E-13	NCASI TB 1050
HAP	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	60851-34-5	2.66E-12	2.66E-12	2.66E-12	NCASI TB 1050
HAP	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	67562-39-4	5.71E-12	5.71E-12	5.71E-12	NCASI TB 1050
HAP	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	55673-89-7	7.98E-13	7.98E-13	7.98E-13	NCASI TB 1050
HAP	Octachlorodibenzofuran (OCDF)	39001-02-0	5.00E-12	5.00E-12	5.00E-12	NCASI TB 1050
	PCBs					
HAP	Polychlorinated biphenyls (PCBs)	1336-36-3	7.86E-09	7.86E-09	7.86E-09	Calculated from individual PCB groups (see below)

Individual PCB groups:

POLLUTANT	CAS or DEQ ID	Fabric filter /ESP	Wet Scrubber	Mechanical Collector	Source
dichlorobiphenyl		7.35E-10	7.35E-10	7.35E-10	NCASI TB 1050
hexachlorobiphenyl		5.45E-10	5.45E-10	5.45E-10	NCASI TB 1050
pentachlorobiphenyl		1.20E-09	1.20E-09	1.20E-09	NCASI TB 1050
tetrachlorobiphenyl		2.50E-09	2.50E-09	2.50E-09	NCASI TB 1050
trichlorobiphenyl		2.61E-09	2.61E-09	2.61E-09	NCASI TB 1050
Decachlorobiphenyl		2.65E-10	2.65E-10	2.65E-10	NCASI TB 1050

a AP-42; Section 1.6, Table 1.6-3 (9/03) used for all control types. The AP-42 emission factor is for boilers with no controls or with particulate matter controls.

b Molybdenum Trioxide emission factor derived from using ratio of molecular weights multiplied by Molybdenum emission factors from the following sources:
NCASI TB 1050 for wood fired boilers with ESP; and,
AP-42; Section 1.6, Table 1.6-4 (9/03) - wood fired boilers with wet scrubber or mechanical collector. The AP-42 emission factor is for boilers with no controls or with particulate matter controls.

c Silver and compounds emission factor for wood fired boilers with wet scrubber used for wood fired boilers with ESP.

d Thallium and compounds emission factor for wood fired boilers with wet scrubbers used for wood fired boilers with ESP or mechanical controls. DEQ may review use of the emission factor for mechanical controls on a case-specific basis.

e Vanadium (fume or dust) emission factors from the following sources:
NCASI TB 1050 - for wood fired boilers with ESP; and
AP-42; Section 1.6, Table 1.6-4 (9/03) - for wood fired boilers with wet scrubber or mechanical collector. The AP-42 emission factor is for boilers with no controls or with particulate matter controls