STIMSON LUMBER COMPANY
Environmental Management
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1 November 2022

Ms. Julia Degagne
Air Toxics Program Manager
Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232

Re: Stimson Lumber Company Forest Grove Complex – Response to Pre-Enforcement Notice 2022-PEN-7631/34-2066-TV-01

Dear Ms. DeGagne:

Stimson Lumber Company (Stimson) timely submits this response to DEQ's pre-enforcement notice 2022-PEN-7631 (PEN) dated October 11, 2022. DEQ alleges in the PEN that Stimson has not submitted a complete Cleaner Air Oregon Emissions Inventory (Inventory) in violation of OAR 340-245-0040(1) and (4) and is responsible for one Class II violation under the Cleaner Air Oregon program. In addition, DEQ demands Stimson to satisfy a long list of corrective actions by November 1, 2022. Stimson hereby provides the requested information.

As an initial matter, as DEQ is aware, DEQ and Stimson have met on multiple occasions since January 26, 2021 to discuss the information DEQ wants included in the Inventory and DEQ has issued several revised information requests since Stimson's original Inventory submission on September 30, 2020. Stimson has submitted three supplemental Inventory responses in response to DEQ's requests. The scope of DEQ's requests has changed over time, requiring significantly more data and calculations than under DEQ's original Inventory requirements from 2020. While Stimson acknowledges some minor omissions in Stimson's most recent submissions in August 2022 (most of which were embedded in large and complex spreadsheets from Stimson's technical consultant and were not obvious to Stimson and other reviewers), DEQ has provided no basis for DEQ's characterizations of Stimson's failure to include certain information as posing a risk to surrounding communities. The Cleaner Air Oregon program is still new and DEQ's implementation thereof is constantly evolving. Consequently, the program's requirement are still not fully understood by the regulated community and technical consultants. Since the program's inception, Stimson has consistently demonstrated its commitment to compliance with the program. Therefore, we request that DEQ's Office of Compliance and Enforcement not assess any civil penalties or issue any orders for this matter.

The responses in this document are organized in the same manner as presented in the PEN letter. The revised emissions inventory and AQ520 form are provided in Attachment A and C to this response, respectively.

By no later than November 1, 2022, Stimson must satisfy the following Corrective Actions:

1) Submit to DEQ a revised emissions inventory (AQ520 form), supporting calculations in Excel format, and Process Flow Diagrams (PFDs) including the following updates:
   a) **Forming machine (FORMER):**
      i) designate a new TEU (FORMER_FUG) to include fugitive emissions as proposed in Stimson's letter to DEQ dated August 15, 2022 ("as 10% of the vacuum table emissions"); and

ii) update the TEU ID representing the FORMER vacuum system emissions to FORMER_STCK and clarify the emission point for this stack by updating the supporting calculations, AQ520, and PFDs to be consistent with one another; currently, the PFD indicates a distinct emission point for the FORMER with no associated controls, while the AQ520 indicates the emissions vent through the press vent stack (PV_STCK) with wet scrubber control.

Both items i and ii have been addressed and are provided in the attached emissions inventory and AQ520 form. Although the emission release point identified in the AQ520 was PV_STCK, no emission control from the scrubber was taken for this source. The designation of this stack was a clerical error in the form and has since been updated to reflect the actual stack ID.

b) **b. Fuel Dryer (FDRYER):** update the phenol (CASRN 108-95-2) emission factor for the FDRYER to 0.0233 pounds per ODT for consistency with the NCASI database.

The emission factor has been updated and is reflected in the attached emissions inventory and AQ520 form.

c) c. Boilers (BOILER_ESP and BOILER_SCR):

i) update the 'Actual' BOILER_ESP 2019 activity value to 583,631 MMBtu per year and the BOILER_SCR 2019 activity value to 49,168 MMBtu per year to align with 2019 Annual Report and reported Fuel Heat Input to Steam Output ratio (FHISOR); and

The 2019 activity values have been updated and are reflected in the attached emissions inventory and AQ520 form.

ii) update the emissions for BOILER_ESP and BOILER_SCR to include the following emission factors:
(1) Thallium and compounds (CASRN 7440-28-0): 1.85E-06 lb/MMBtu;
(2) 3-Methylcholanthrene (CASRN 56-49-5): 8.68E-09 lb/MMBtu; and
(3) 7,12-Dimethylbenz[a]anthracene (CASRN 57-97-6): 4.57E-09 lb/MMBtu.

Compounds 2 and 3 have been included with both the BOILER_ESP and BOILER_SCR sources. As Compound 1 is only included in Table 7.4 "Summary of Trace Element Emissions from Wood Fired Boilers: Wet Scrubber", it has only been added to BOILER_SCR. These changes are reflected in the attached emissions inventory and AQ520 form.

Surface Coating (MB_SURFACE): update the weight percent of Dipropylene glycol monomethyl ether (CASRN 34590-94-8) in Anti-Blu XP-64 to 10 percent (to reflect the average listed in the Safety Data Sheet (SDS) previously provided), or submit a recent SDS that is consistent with the product data in the Inventory.

The weight percentage for this product has been updated and is reflected in the attached emissions inventory and AQ520 form.

d) Storage Tanks:

i) for the gasoline tank (G1), update calculations to follow the methodology in AP-42, Section 7.1 for annual working losses and all standing losses, and the Texas Commission on Environmental Quality (TCEQ) methodology for daily working losses, and make minor typographical corrections – specific updates that will satisfy this corrective action have been included as Attachment A;

Updates to this table have been made consistent with Attachment A to the PEN and are reflected in the attached emissions inventory and AQ520 form. Note: the average daily minimum and maximum temperatures have been updated using the Forest Grove, Oregon meteorological station (Station ID 352997). The 30-year period between 1992 and 2021 was used to estimate average daily minimum and maximum temperatures. The temperature data for the Forest Grove station were obtained from the Western Regional Climate Center[1].

ii) for TEUs G1, D1, and D2:
  (1) update the temperatures used to calculate Toxic Air Contaminant (TAC) vapor pressures to be consistent with the temperatures used to calculate product vapor pressures, for both annual and maximum daily emissions estimates; and
  (2) update TAC vapor mole fraction calculations to reflect the product vapor pressure at the maximum daily temperature, for maximum daily emissions estimates;

  Both of these items have been updated and are reflected in the attached emissions inventory and AQ520 form.

iii) for resin tanks (**R1, R2**, and **R3**):
  (1) Confirm the maximum daily liquid surface temperature is not expected to exceed 25 degrees Celsius; and

  At this time, there is no way to confirm the daily liquid surface temperature cannot exceed 25 degrees Celsius. As identified in Tables 31-33 of the attached emissions inventory, the vapor pressure used for the phenol resin is based on 25 degrees Celsius. At this time, Stimson is unable to identify vapor pressure for phenol resin at higher temperature. As a result, this vapor pressure is the best information available for the emissions calculations from the resin storage tanks. It's important to note that even though the vapor pressure of the resin assumes a temperature of 25 degrees Celsius, the vapor pressure calculated for each TAC assumes the average annual and daily maximum ambient temperatures, as described below.

iv) Update the temperatures used to calculate TAC vapor pressures to be consistent with the expected average and maximum daily liquid surface temperatures for annual average and maximum daily emissions estimates, respectively; and

The vapor pressure calculations for each TAC are now updated to be representative of the average and maximum daily liquid surface temperature. This change is reflected in the attached emissions inventory.

v) Tank calculations for tanks R1, R2, and R3 use different ambient temperature statistics than tank calculations for tanks G1, D1, and D2 – update the average daily maximum and average daily minimum ambient temperatures for all tanks to be consistent with Forest Grove Complex meteorological dataset cited; alternatively, update the references to describe the data source used.

It was initially believed air temperatures in the room that houses the resin tanks was in a location that didn't experience the maximums and changes as the ambient temperatures outside the hardboard building. However, upon review, it has been determined that the diurnal temperature range in the room is similar to ambient conditions. Therefore, the temperature data have been updated to be consistent with values used for the diesel and gas tanks. The change is included with the attached emissions inventory and AQ520 form.

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[1] https://wrcc.dri.edu/

Note: We've included emissions calculations for the two diesel storage tanks to provide the most complete emission characterization of our site as possible. However, since both diesel tanks are stored in ambient conditions and are non-pressurized, they meet the exempt TEU criteria established in the "Cleaner Air Oregon Exempt TEU Reporting" guidance document. As a result, we plan to exclude them from any risk assessments as part of the CAO permitting program.

e) **Refiners:** update the supporting calculations, the Stack or Fugitive IDs in Tab 2 of the AQ520 form, and the PFD to be consistent with one another with regard to the emission point(s) for RF12. The PFD indicates two emission points (rotary valves venting directly to the atmosphere and the stock chest venting to Scrubber 5), while the AQ520 indicates only one emission point (Point Stack ID RF12).

Although there are two rotary valves identified in the PFD, emissions are not emitted simultaneously between the two stacks. During hardboard plant operations, only one refiner (and subsequent rotary valve) is operational at any given time. As a result of this configuration, we believe it's appropriate to estimate emissions from one rotary valve. This configuration has been addressed and is provided in the attached emissions inventory and AQ520 form.

f) Hardboard Wastewater: in Table 15 of the supporting calculations, update units in the "WATER9 Model Output" header and the footnotes to be consistent with one another and the model output.

This item has been addressed and is provided in the attached emissions inventory.

g) Welding: for the WELD TEU, update emissions as follows:

i) include emissions for Cobalt (CASRN 7440-48-4) from the LIN 309L, 332BLUE product in the supporting calculation emissions totals and on the AQ520 form; and

This item has been addressed and is provided in the attached emissions inventory and AQ520 form.

ii) report emissions for aluminum oxide as "aluminum and compounds" (CASRN 7429-90-5) rather than aluminum oxide (fibrous forms) (CASRN 1344-28-1); welding emissions are not anticipated to be fibrous.

This item has been addressed and is provided in the attached emissions inventory and AQ520 form.

Update the PFDs to include all TEUs, including but not limited to: the whitewater chest (WHITE), press pit (PRESSP; if applicable), fuel storage tanks (D1, D2, G1), and emergency engines (BGEN and FIRE).

The PDF has been updated to include the whitewater chest, fuel storage tanks, and emergency engines. See below on how press pit emissions are covered by the press controls.

h) Update the AQ520 form as follows:

Each items in this section has been addressed and is provided with the attached AQ520 form. Only responses for this section with additional information are addressed in this cover letter.

i) populate the boxed fields in column B of Tab 1 ("Facility Information);

ii) if Stimson is not seeking a de minimis source determination for CAO, the activity information listed in the "Annual Capacity" and "Max Daily Capacity" columns on Tab 2 and the Capacity emissions on Tabs 3 and 5 may be removed; alternatively, please update these activities and emissions to reflect the maximum emissions from each TEU under its physical and operational design, per the definition of "capacity" in OAR 340-200-0020(19);
iii) on Tabs 2 through 5, update TEU IDs and Unit Descriptions to the "New TEU IDs" and "New TEU Descriptions" as specified in Attachment B;
iv) for the TEUs BGEN_DPM and FIRE_DPM, update the emission factors and units in Tab 3 from "grams per kilowatt hour" to "pounds per hour" for consistency with activity units on Tab 2;
v) for the TEUs BGEN and FIRE, update "Max Daily" activity values on Tab 2 to reflect the reported units of "thousand gallons" of fuel;
vi) for the KILN TEUs (KILN_DF, KILN_HL, KILN_TF), and PRESS TEUs (PRESS_STK and PRESS_FUG), update activity units in Tab 2 to "Mbdft" for consistency with emission factor units on Tab 3 and supporting calculations.
vii) update the "CAS or DEQ ID" on Tab 3 for the following TACs:
    (1) di-n-octyl phthalate: DEQ SEQ ID 518 ("phthalates" group, for TEUs BLR_ESP and BLR_SCR);
    (2) phosphorus: DEQ SEQ ID 504 ("phosphorus and compounds" group, for TEUs BLR_ESP and BLR_SCR);
    (3) polycyclic aromatic hydrocarbons (PAHs): DEQ SEQ ID 401 (for TEUs BGEN and FIRE);
    (4) Diesel Particulate Matter: DEQ SEQ ID 200 (for TEUs BGEN and FIRE); and
    (5) Fluorides: DEQ SEQ ID 239 ("fluorides" group, for TEU WELD);
viii) Update the emission factors and emissions on Tab 3 to include at least as many significant digits as are cited in the emission factor reference source;
ix) Update the "Max Daily Actual" emissions on Tab 3 to match the values in the supporting calculation workbook for TEUs HYDRO, SURGE, ABASE, CLAR, PIT, S_POND, E_POND, R_POND and HEAD;
x) Update the "Max Daily Requested PTE" emissions on Tab 3 to match the value in the supporting calculation workbook for TEU BPOT;
xi) Update the emission factor references on Tab 3 for the following TEUs and TACs:
    (1) PRESS (all reported TACs): update to "AP-42 Chapter 10 (October 2002), Table 10.6.4-6. Representative of Hardboard hot press, PF resin;"
    (2) FORMER: for phenol (CASRN 108-95-2) and propionaldehyde (CASRN 123-38-6), update to "Source Test Evaluation Report (2007)";
    (3) BGEN: for DPM (DEQ SEQ ID 200), update to "Emission rates from engine manufacturer and provided with emergency generator application submitted to DEQ in June, 2003. Emission rates represent 20% and 52% control by the catalytic converter for PM and THC, respectively".
    (4) BPOT (all reported TACs): update to "PM emission factor with TACs speciated by alloy composition. PM EF from AP-42, Chapter 12.10, Table 12.10-3 "Particulate Emission Factors for Iron Furnaces"; uncontrolled particulate emission factor for melting in an electric induction furnace."
    (5) BLR_SCR:
        (a) for metal TACs with wet scrubber emission factors, update to: "NCASI Technical Bulletin 1050 (September 2018). Emission factor for wood-fired boiler with wet scrubber control."
        (b) For molybdenum trioxide (CASRN 1313-27-5) and vanadium (CASRN 7440-62-2), update to: "NCASI Technical Bulletin 1050 (September 2018). Emission factor for wood-fired boiler with ESP."

(c) For hydrogen fluoride (CASRN 7664-39-3) and hydrochloric acid (CASRN 7647-01-0) , update to: “NCASI Technical Bulletin 1050 (September 2018). Emission factor for wood-fired boiler with wet control device.”

(d) For emission factors with the reference “NCASI Technical Bulletin 1050 (September 2018). Emission factor for wood-fired boiler with dry control device,” update to: “NCASI Technical Bulletin 1050 (September 2018). Emission factor for wood-fired boiler.”

The references for these emission factors have been updated with the exception of hydrochloric acid. A boiler MACT compliance source test was performed in 2019 on the ESP outlet (BLR_ESP) and fuel dryer (H-DRY) (i.e., scrubber outlet) for mercury and hydrochloric acid. As a result, the emission factors from these source tests have been used for the emissions inventory. Stimson understands that DEQ should have a fully copy of the two compliances tests. As a result. we are providing a copy of the summary tables from the compliance source test reports as an attachment (Attachment C) to this submittal.

xii) for Material Balance Activities on Tab 4 (TEUs PL_BASE, PL_TOP, and LSP – MB):
(1) update the “Annual” and “Max Daily” activity values to correctly reflect the total Actual and Requested Potential to Emit (PTE) usage of each material; and
(2) review the “Emission Type (e.g. Point or Fugitive)” designation, and update to “fugitive” if emissions do not exit from a designated stack;

xiii) for Pollutant Emissions on Tab 5 (TEU LSP – MB), update the following:
(3) Daily Requested PTE Dipropylene glycol monomethyl ether (CASRN 34590-94-8) emissions for Anti-Blu XP-64, to be consistent with annual requested PTE of zero; and
(4) Annual Requested PTE and Capacity Dipropylene glycol monomethyl ether (CASRN 34590-94-8) emissions for Mycostat P51 Treating Solution, to be consistent with the supporting calculations;

xiv) for storage tank TEUs (D1, D2, G1, R1, R2, and R3), calculate “Annual” and “Max Daily” emission factors in units of pounds TAC emitted per gallon of product throughput and include these on Tab 3;

xv) for TEUs with emissions estimated using WATER9 (HYDRO, SURGE, ABASE, CLAR, PIT, S_POND, R_POND, E_POND, WHITE, MACH, and HEAD), calculate “Annual” and “Max Daily” emission factors in units of pounds TAC emitted per gallon of wastewater throughput and include these on Tab 3;

xvi) for WELD and BPOT TEUs, calculate emission factors in units of pounds TAC emitted per pound of product throughput and include these on Tab 3 (create additional TEUs as needed to capture emission factors for individual products or processes);

xvii) Include the WELD and BPOT TEUs and associated information on Tab 2;

xviii) include emissions from the PRESS_FUG TEU on Tab 3; and

xix) clarify whether TAC emissions have been calculated for the press pit (TEU PRESP), and update the supporting calculations, AQ520, and PFD accordingly – this TEU is listed on Tab 2 of the AQ520, but is not listed in Tab 3 or in the supporting calculations.

Emissions from the press pit were initially considered, but later determined to be unlikely. Under normal operating conditions, the press pit functions as a drain to the wastewater system and does not have any stationary or free standing liquid. Any vapor loss from the resin is expected to be lost in the wet press phase or in the wastewater treatment process. Further, any minimal vapor loss from the press pit would propagate into the ventilation via negative pressure within the enclosure and through the wet scrubber. As a result, any emissions from the press pit are likely already included with the emissions estimates for the press via emissions factors from AP42. As identified in the source material for the emission factors from the press (AP42 Chapter 10.6.4, Table 4-6), most of the organic TACs from the press are below the detection limit as a result of wet scrubber control. As such, it's expected that any vapor loss resulting from the press pit would end up in the wastewater treatment system, which has already been accounted for in the CAO emissions inventory.

2) Provide the following additional information or documentation:

(a) for TEU FIRE, written documentation of EPA Tier 3 certification to support the use of the Tier 3 particulate matter (PM) emission factor for Diesel Particulate Matter (DEQ ID 200);
(b) for TEU BGEN, written documentation from the catalytic converter manufacturer to support assumed 20 percent control of PM and 52 percent control of total hydrocarbon emissions by the catalytic converter;

Both of these items have been previously provided and are also provided as an attachment (Attachment D) to this response.

(c) for all emissions estimates using WATER9 (TEUs HYDRO, SURGE, ABASE, CLAR, PIT, S_POND, R_POND, E_POND, WHITE, MACH, and HEAD):
  (i) laboratory data or other justification for parameters used in WATER9, including but not limited to biomass concentrations, clarifier percent removal, pH, TSS, temperature, and aeration parameters;
  (ii) laboratory analytical data or other data sources used to characterize influent for WATER9; and

Any supportive data used to characterize the influent for sources modeled in the WATER9 model are provided as an attachment (Attachment E) to this response.

  (iii) all native WATER9 input files used in the Inventory;

The native WATER9 input files are provided as an attachment (Attachment E) to this response.

(d) for each "Individual Product" reported in Table 20 of the Inventory supporting calculations (WELD TEU):
  (i) SDS; and
  (ii) welding process types used (e.g., GMAW, SMAW, MIG, TIG);

The SDS for the welding rods are provided as an attachment to this response. The welding rod process types have also been added to Table 20 in the attached emissions inventory.

(e) for the Babbitt pots (BPOT TEU):
  (i) SDS(s) for all Babbitting alloys used; and
  (ii) maximum temperature(s) of Babbitting alloy during melting;

The SDS for the nickel babbitt alloy is provided as an attachment to this response. A review of the SDS has determined the content of metals provided in the original emissions inventory was incorrect. As such, the correct TACs and weight contents have been updated and are provided in the attached emissions inventory. Stimson has determined that the maximum temperature of babbitting alloy during melting is approximately 800 °F.

(f) for sawblade maintenance activities, provide estimates of TAC emissions or justification for exemption per OAR 340-245-0060(3)(a); and

Need final Stimson reviewed SDS information for the grinding wheels used for sawblade maintenance activities at the facility and did not identify any TACs associated with the process. Sawblade maintenance occurs in in a mostly enclosed room within the workshop underneath a hood that vents directly to a cyclone located within the basement of the shop. Any fugitive dust lost from saw maintenance activities will go to the cyclone and is highly unlikely to enter into the atmosphere.

(g) supporting calculations in a publicly accessible (not password-protected) format.

To satisfy this comment, we are providing a PDF version of the supporting calculation spreadsheet. This PDF is provided as an attachment (Attachment F) to this response.

In addition to the revisions described above, Stimson has identified an additional TEU that was not previously characterized at the facility. An additional hydrosieve that contains liquid throughput from the wet scrubber which controls emissions from the fuel dryer and wood-fired boilers has been added to the emissions inventory. The added hydrosieve is identified in the emissions inventory and AQ520 as BLR_HYDRO. Emissions for this source were estimated using the WATER9 software. To supplement the necessary information for WATER9, we assumed the default model settings and estimated concentrations by using the expected mass pollutant rate in the water and the known water flow rate of the scrubber.

Please contact me or Andrew Rogers if you have any questions about the responses provided above.

Sincerely,

STEVEN A. PETRIN
Stimson Lumber Company

Attachments: Attachment A – Revised Emissions Inventory
Attachment B – AQ520 Form
Attachment C – Boiler MACT Source Tests
Attachment D – Emergency Engine/Fire Pump Emissions Spec Sheets
Attachment E – Wastewater Influent Analytical Data
Attachment F – WATER9 native input files
Attachment G – Welding Rod/BPOT SDS
Attachment H – Supporting Calculations PDF Format

Cc (via email only):
Brian Bartlett, Stimson Lumber Company
Patty Jacobs, DEQ