PCC Structurals, Inc.

June 24, 2024

Heather Kuoppamaki
Oregon Department of Environmental Quality
700 NE Multnomah Street, Suite 600
Portland, Oregon 97232
Re: Response to DEQ letter dated April 25, 2024

Dear Heather:

PCC Structurals, Inc. (PCC) received your letter dated April 25, 2024 (the letter), relating to the Cleaner Air Oregon (CAO) Large Parts Campus Emissions Inventory submitted by PCC on October 10, 2020 and subsequent responses to requests for information, including the stack test reports Mostardi Platt submitted to the Oregon Department of Environmental Quality (DEQ) on December 21, 2023. Upon receiving the Letter, PCC requested an extension to July 26, 2024, to respond to item 1 and committed to respond to items 2 through 10 by the initial response deadline June 24, 2024. An extension was granted by the DEQ on June 3, 2024 for the due date of the response to item 1. PCC and Maul Foster & Alongi, Inc. (MFA), have prepared the following responses to items 2 through 10 of the letter.

This response letter is organized in the same manner as the information was requested in the letter. DEQ comments are shown in bold followed by the response.

1. Proposal for revising emission estimates from baghouse and filter-controlled activities.

PCC is working to develop a response to this item. The DEQ approved an extension of the due date for item 1 to July 26, 2024.

2. Oil-Water Separators: Provide additional information on the oil-water separators to confirm these units are exempt. Include where and how the wastewater entering the oil-water separator is generated as well as the quantities of wastewater generated and wastewater composition data.

PCC and MFA performed a site walk of the Large Parts Campus and did not identify any process oil-water separators. Oil is generally viewed as a contaminant in the investment casting process, and oil is not expected to be present in wastewater generated at the Large Parts Campus.

3. **Acid Etch Tank: For the following acid etch tank TEUs please provide supporting documentation (such as ventilation system design) for the acid etch tank design component values used in equation 6.5-5 of "Preferred and Alternative Methods for Estimating Air Emissions from Semiconductor Manufacturing" dated February 1999, prepared by Eastern Research Group, Inc., as shown in Table 15 of the Revised potential to emit emissions inventory, submitted September 3, 2020.**

    a. ETCH_LMA,
    b. ETCH_T, and
    c. ETCH_S

Please see Attachment A, which contains dimensional drawings of the etch tanks. MFA used the same surface area for all three etch tanks in estimating emissions. MFA will update the facility emissions inventory to reflect the correct dimensions for the acid etch tank represented by ETCH_T, which has a slightly smaller surface area than ETCH_LMA and ETCH_S. The etch tank represented by ETCH_S is empty and has not been in service for the previous three years. Because this tank has not been decommissioned, it will continue to be represented in the facility emissions inventory.

4. **Baghouses: Please update the following to reflect the current list and type of baghouses and their after-filters.**

    a. Process flow diagram, and
    b. Site diagram

See Attachment B for revised process flow diagrams and site diagrams.

5. **Heat Treat Ovens: Please provide details on the source of the emission factor for hexavalent chromium (CASRN 18540-29-9) for the following Heat Treat TEUs – only total Chromium was provided in source the test ("Emissions Test Report, PCC Structurals, Inc. Heat Treat Furnace #23 Engineering Tests" dated August 5, 2020, prepared by Bison Engineering, Inc.) referenced in the Emissions Inventory:**

    a. HT_NG_VP_S, and
    b. HT_NG_AP_S

HT_NG_VP_S and HT_NG_AP_S represent directly-heated natural gas-fired heat treat furnaces. Only natural gas-fired heat treat furnaces are assumed to generate hexavalent chromium emissions. Hexavalent chromium was not directly measured during the stack test, so the hexavalent fraction was derived from the baghouse dust sampling data. PCC proposes to update this factor as part of the revised emissions inventory using the hexavalent chromium fraction applied to natural gas combustion, since natural gas combustion is the primary source of emissions for the TEUs referenced. Vacuum heat treat furnaces are operated under vacuum in an inert atmosphere which limits the potential for oxidation. In addition, vacuum heat treat furnaces are electrically heated, so no combustion emissions are generated.

6. **Wax Burnout Furnace: Provide Appendix C (Process Data) from the "Technical Report: Organic Emissions from Wax Burnout Furnace 44 at PCC Structurals, Inc." dated October 31, 2018, prepared by Bison Engineering, Inc. This entire Appendix was redacted.**

The redacted portions of the Wax Burnout Furnace 44 stack test contain confidential business information about how the burnout furnaces are operated. An unredacted version of the Wax Burnout Furnace 44 stack test will be provided separately from this letter through a secure file transfer program. The previously redacted data will be highlighted, and any pages containing confidential business information will be identified as such.

Confidential Business Information:

The highlighted information in the Wax Burnout Furnace 44 stack test is considered Confidential Business Information and entitled to trade secret status because the information: (1) cannot be patented, (2) is known only to a limited number of individuals within PCC who make every effort to ensure this information is not available to or obtained by competitors, (3) provides economic value to PCC by being maintained as confidential, and (4) is maintained as confidential by PCC and thereby provides PCC with a business advantage over its competitors. In support of these factors, we note that PCC has never shared the CBI with anyone outside of a select group of "need to know" employees and contractors and for many products we are prohibited by our customer from revealing certain aspects of production. Our competitors are always keenly interested in knowing details about our operations. The redacted portions of this letter contain information PCC actively works to keep confidential. If such information was released to the public,

competitors could utilize that information to their advantage to steer sales away from PCC and/or to avoid incurring expenses. This information derives independent economic value from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use--the very definition of a trade secret.

If the DEQ determines that any portion of the information for which we are requesting trade secret protection is not immune from a Public Records Act request, we request that you remove this file from your system, in its entirety, so that we can find a different means of providing the information you need without endangering our business or causing PCC to be in breach of the representations it has made to its customers, which include the U.S. Military.

7. **Ammonia Gel Booth: During a site visit on November 16, 2023, DEQ staff detected an ammonia type odor on the roof near the wax reclaim stack. PCC staff indicated that the odor was likely from the "Ammonia Gel Booth". Please provide additional information on this emission unit and include it in the Inventory.**

The ammonia gel booth is used to achieve the necessary shell characteristics in some shell configurations. Ammonia is used to assist in speeding up shell solidification. Based on a review of historical records, the maximum potential ammonia usage at the ammonia gel booth is expected to be less than 6,500 pounds per year. PCC will finalize the maximum annual and daily ammonia usage rates when revising the facility emissions inventory. Estimated emissions associated with the volatilization of ammonia from the ammonia gel booth will likely be based on a mass balance approach.

8. **Investing: Provide supporting documentation for the hydrochloric acid (CASRN 7647-01-0) emission factor used for the Titanium Investing (INV_T) and Steel Investing (INV_S) TEUs including documentation of the previous permitting and calculations used to modify the previous permitting emission factor, if any.**

The emission factor for hydrochloric acid from investing represents a conservative estimate of potential volatilization of hydrochloric acid from the investing slurries. See the response to the October 19, 2021 information request submitted by PCC to the DEQ on December 15, 2021 for more details on the function of hydrochloric acid in the slurries. No modifications have been made to the previous permitting emission factor.

Some slurries used by PCC contain hydrochloric acid in quantities that represent a small fraction of the overall slurry. Hydrochloric acid modulates the slurry pH, and serves as a catalyst to generate the silica gel within the slurries needed to bind the ceramic powders. Hydrochloric acid is not expected to volatilize at a significant rate.

9. **Vacuum Casting: Provide additional supporting documentation for the control efficiencies assumed for the melting, pouring and cooling processes of vacuum casting for the following TEUs: VC_OP_TP, VC_DP_TP, VC_ST_P_VF3-4, VC_ST_P_MC1_M, VC_ST_P_MC1_C, VC_ST_I_VMM1, VC_ST_I_VMM2.**

There is no publicly available data representative of the type of vacuum casting operation performed at PCC. The October 19, 2021 information request submitted by PCC to the DEQ on December 15, 2021 provides specific details on how vacuum casting is performed. The control efficiencies applied reflect the fact that emissions occur while the chambers of the casting furnace are held under vacuum. When under vacuum, there is limited exhaust flow and the emissions are generally contained within the active vacuum chambers. PCC actively tries to minimize the potential for metal to oxidize throughout the casting process. Parts cast by PCC have an exceedingly small surface area of exposed metal compared to the overall amount of metal poured, and PCC covers exposed metal surfaces of the cast part to ensure an even temperature distribution and limit oxidation. This is achieved using the application of hot top (as described in previous information request responses) and ceramic "blankets".

10. **Burnout Ovens: For TEUs BURNOUT_NW_S and BURNOUT_NW_T, please provide data to support the engineering estimate for the emission factors listed. This data might include any bench or source test reports (provide name and date of the report and date submitted if this has been previously submitted to DEQ CAO Program), Safety Data Sheet (SDS) information, assumptions, or additional calculations used.**

The uncontrolled emission factors for non-wax product burnout are based on bench scale testing similar to the emission factors for the autoclave. The tests were performed on representative products at temperatures comparable to a burnout furnace (approximately 1,200°F). Table C-1 included in Attachment C shows the emission factors for BURNOUT_NW_S and BURNOUT_NW_T. The emission factors for BURNOUT_LTX_S are also shown in Table C-1.

The non-wax product emission factors for BURNOUT NW_S and BURNOUT_NW_T represent a revision to the factors previously submitted. These revised emission factors exclude non-wax products that the facility no longer processes but that had been represented in the historical average emission factor set.

The test reports supporting the data shown in Table Table C-1 are highly confidential as the identity and attributes of the non-wax components used by PCC is proprietary. As a result, these bench scale test reports are not attached to this letter, but, instead, will be made available for DEQ's review at the Large Parts Campus either in person, or via virtual meeting. Please let us know if you would like to review them.

We believe that with this submittal, we have responded to items 2 through 10 of the letter. We will continue working towards a response to item 1 of the letter.

Sincerely,
PCC Structurals, Inc.

Brandon Hadzinsky
Environmental Engineer

Attachments

A—Acid Etch Tank Drawings
B1—Updated Site Diagrams
B2—Updated Process Flow Diagrams
C—Non-Wax Product Burnout Emission Factors

cc: Bryan McCampbell
Tom Wood (Stoel Rives)
Brian Eagle (MFA)