



Oregon

Kate Brown, Governor

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February 6, 2020

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Owens-Brockway Glass Container
9710 NE Glass Plant Rd.
Portland, OR 97220

Mr. Buenger,

DEQ received the Cleaner Air Oregon Air Toxics Emissions Inventory Form AQ405CAO, Modeling Protocol, and Level 3 Risk Assessment Work Plan for the Owens-Brockway Glass Container Inc. facility (Owens) in Portland, OR on August 1, 2019 and has completed our review of these submittals. According to Oregon Administrative Rule (OAR) 340-245-0030(2), DEQ requests additional information, corrections and updates to the emissions inventory and modeling protocol by March 23, 2020. DEQ is also requiring that you conduct source testing for Furnace D within 30 days of restarting the furnace. This additional information will provide information needed for final approval of the facility's emissions inventory.

DEQ acknowledges the challenges in establishing an accurate inventory of emissions for this facility and filling these data gaps is a high priority for further work. Given the configuration of current operations, having an accurate representation of current and potential future emissions at this facility will allow DEQ to approve the final risk assessment with increased confidence and provide Owens with maximum operational flexibility going forward. DEQ's comments are organized in five sections below: (I) Source Testing, (II) Facility and Process Flow Diagrams, (III) Emissions Inventory, (IV) Modeling Protocol, and (V) Risk Assessment Work Plan.

I. Source Testing

On May 13, 2019, DEQ responded to the revised source test plan Owens submitted to DEQ on May 9, 2019. In this letter, DEQ stated the following:

For any source test data to be used for a Cleaner Air Oregon (CAO) risk assessment(s), DEQ will need to better understand the products manufactured, glass formulations (including chromium content), and how various production variables affect emissions. Therefore, DEQ does not accept the Source Test Plan submitted on May 9, 2019 as the only Source Test Plan required to meet CAO requirements. DEQ will require that data used for CAO risk assessment purposes result from source tests conducted under typical worst-case conditions that generate the highest emissions. Consistent with DEQ's Source Sampling Manual, it will be imperative to describe in detail the proposed process conditions that generate such "worst-case conditions." Because the facility has a number of variable process conditions (e.g. % cullet, type of cullet, natural gas usage, electric boost rate) and manufactures different colors of glass with variable chromium and other metal HAP content, multiple source testing events may be required for DEQ to understand the facility's hazardous air pollutant emissions and approve a risk assessment.

Owens completed source testing at Furnaces A and D in May 2019. Testing results indicated that lead emissions were significantly higher than the emission factor in your permit. As quoted previously, DEQ did not accept the Source Test Plan submitted on May 9, 2019 as the only Source Test Plan required to meet CAO requirements. DEQ believes it is important to gather more data to verify emission rates for all metals at higher production levels and with a variable feedstock to better understand the impacts of changes in production conditions on emissions. In order to complete the Emissions Inventory, DEQ requires more data to verify emission rates of reportable toxic air contaminants (TACs) listed in OAR 340-245-8020 Table 2 that are emitted from your facility. According to ORS 468A.070 and OAR 340-212-0120(1)(a), DEQ requires Owens to test the emissions units discussed below. Depending on the outcome of DEQ's future review of potential fugitive emissions that exit through the passive vents on the roof of the building, source testing at these vents may also be required.

Source testing must be conducted as follows:

1. Within 30 days of starting up Furnace D, conduct source testing of Furnace D while producing amber glass, analyzing for total chromium, antimony, arsenic, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, and selenium using Method 29 and hexavalent chromium using SW-846 Test Method 0061. Consistent with section 2.3 of the DEQ Source Sampling Manual, your source test plan is due 30 days before conducting the source test. Source test results are due to DEQ within 60 days after the test is completed.
2. Ensure that source testing is conducted at cullet feedstock percentages that are within two standard deviations of the historical minimum cullet percentage used in the last five years.
3. Provide batch tickets for all batches runs for the three days prior to and during source testing.

II. Facility and Process Flow Diagrams

In order to better understand facility operations, DEQ requests that Owens submit a process flow diagram and detailed site diagram. Please ensure that the process flow diagram includes: (i) all Toxics Emissions Units (TEUs) as defined in OAR 340-245-0020(60) that emit TACs listed in OAR 340-245-8020 Table 2; and (ii) clearly indicates their corresponding emission points. Please ensure that TEU designations are consistent with your Title V Permit in accordance with OAR 340-245-0060(1). For any TEUs you determine to be exempt, substantiate that each TEU meets the applicable criteria as defined in OAR 340-245-0060(3). In your emissions inventory, list all TEUs you have designated as exempt in accordance with OAR 340-245-0040(3)(a)(A).

III. Emissions Inventory

1. Based on production data submitted to DEQ, your maximum daily production rate is not the same as your annual production rate on a daily basis. Revise the emissions inventory to reflect the production or usage for the projected maximum day as required in OAR 340-245-0040(3)(a)(B)(iii).
2. The requested Potential to Emit (PTE) for both Furnaces A and D are based on activity levels over 20% greater than those recorded during May 2019 source testing. Specifically, the PTE requested for Furnace D is based on 225 tons of glass produced per day (tpd), but 2019 source testing was completed at an average of 177.7 tpd. The requested PTE for Furnace A is based on 270 tpd, but 2019 source testing was completed at an average of 202.1 tpd. In accordance with OAR 340-245-0040(3), please demonstrate that the facility can produce at the activity levels and emit at the PTEs requested for Furnaces A and D.
3. EU7, an onsite boiler, is typically natural gas fired but can burn fuel oil. If fuel oil usage is not reflected in the emissions inventory, fuel oil use will not be assessed for risk and, as a result, will not be a permitted activity allowed at this facility. Provide a projected maximum amount

(gallons/year and gallons/day) of fuel oil EU7 may use if you wish to maintain the option of using fuel oil.

4. Verify that nickel spray welding is the only type of welding performed at the facility. DEQ requires supporting calculations and references for all nickel welding emission factors.
5. Provide supporting calculations for EU1 sand and batchhouse emissions. In addition, provide technical specification sheets and performance data, if available, for the raw material and batch baghouses used onsite. Provide a technical description of the batchhouse characteristics cited in the reference/notes column for EU1.
6. The facility's most recent review report indicates that EU2 PM/PM10 emissions from cullet crushing and the post-consumer cullet crushing processes amount to 3.4 tpy and 17.1 tpy, respectively. Provide supporting materials, including calculations, for all TAC emissions from EU2, cullet crushers and cullet processors and EU3, material blending equipment including conveyors/elevators, weigh bin hopper and surge bin, and mixers/chargers. Specifically, please consider emissions of respirable silica from these emissions units. If it is assumed that no TACs are emitted from EU2 or EU3, please provide data supporting this assumption for DEQ review.
7. Clarify whether emissions reported for Hot End Surface Treatment (HEST) EU5 include all emissions units within this EU ID (hot end surface treatment units HEST1-4, and mold swabbers MS1-MS4). Provide supporting calculations and references for emissions factor sources cited here. Please estimate potential TAC emissions from MS1-MS4 as these units are uncontrolled, and the mold swabbing process that uses a graphite/oil mixture is heated. As supporting documentation, provide safety data sheet(s) for graphite oil mixture(s) used on the mold swabbing equipment for DEQ review.
8. Provide supporting calculations and analytical data, if available, for the emission factor used to quantify hydrochloric acid (HCl) emissions associated with HEST activities that result from monobutyltin trichloride (MBTT) decomposition.
9. Emission factors and emission levels are dependent on equipment heat ratings for fuel combustion. Provide heat input ratings for each individual device that uses natural gas. Separate "Miscellaneous Fuel Burning NG" equipment into TEUs as appropriate for each individual heat rating.
10. Revise the Emissions Inventory to include TAC emissions from EU10, the dust collectors connected to the machine repair and mold repair bench areas listed in the facility's Title V Permit. Though MRD-1 (small machine repair dust collector) and MBD-1 (mold bench dust collector) discharge inside the building, emissions from these units may release TACs through building roof vents, including respirable silica. If it is assumed that no TACs are emitted from MRD-1 or MBD-1, please provide data supporting this assumption.
11. TAC emissions from bottle coding are reported in the emissions inventory at approximately half the amount of VOC emissions listed as "aggregate insignificant activities" in Section 17 of the facility's 2019 Review Report (0.32 and 0.66 tons, respectively). Please substantiate the difference in reported values.
12. Provide additional context for all references cited in the submitted emissions inventory. For example, please be specific about SCC codes used for WebFIRE, which AP-42 tables were used, and other clarifying information as appropriate.
13. Revise the emissions inventory to match the percent compositions listed on the Safety Data Sheets (SDS) provided for materials listed in the material balance section of the emissions inventory. TAC percent weights reported and those observed in the SDS provided are summarized in the table on the following page. Please note the following:
 - a. If percent ranges are provided on an SDS, assume the average of the range.

- b. Include constituents of a chemical mixture present at less than 1 percent by weight of any chemical or compound regulated under divisions 200 through 268 as cited in OAR 340-245-0060(3)(a)(A).

| Chemical/Product Name | TAC | CAS No. | Percent by weight reported in emissions inventory | Percent by weight listed in SDS provided for DEQ review |
|-----------------------|------------------------|-----------|---|---|
| GC-22 SFL Coating | N-butyl alcohol | 71-36-3 | 41.00% | 41.3% |
| GC-22 SFL Coating | Xylene | 1330-20-7 | 13.00% | 13.3% |
| GC-22 SFL Coating | Ethylbenzene | 100-41-4 | 3.00% | 2.8% |
| GC-22 SFL Coating | Sodium Hydroxide | 1310-73-2 | 1.00% | 1.3% |
| 5100M/MEK Ink | Methyl ethyl ketone | 78-93-3 | 75.00% | 60-70% |
| 5100M/MEK Ink | Naphthalene | 91-20-3 | Not reported | <1% |
| 5100M/MEK Ink | Isopropyl alcohol | 67-63-0 | Not reported | <1% |
| 5535/MEK Ink UV | Methyl isobutyl ketone | 108-10-1 | Not reported | 5-10% |

IV. Modeling Protocol

1. Provide the version number for AERMOD and all preprocessors (e.g., meteorological data preprocessor (AERMET), terrain data preprocessor (AERMAP), Downwash (BPIP), etc.). The version number listed on page 6 in Section 3.1 is inconsistent with how AERMOD versions are reported. The current version is v19191.
2. The receptor spacing listed on page 6 in Section 3.3 is inconsistent with current DEQ recommended spacing within 200 m of the fenceline. DEQ requests a denser receptor grid within 200m of the fenceline to better characterize risk where it is likely to be highest. Modeling receptors should be spaced no less than:
 - 25 m along fence line and out to 200 m from fence line (Note: if the fenceline is adjacent to road or rail, the 25 m spacing can begin on the opposite side of the road/rail)
 - 50 m spacing 200 to 1,000 m
 - 100 m spacing 1,000 to 2,000 m
 - 200 m spacing 2,000 to 5,000 m
 - 500 m spacing 5 000 to 10,000 m
3. If possible, conduct the modeling assessment with up to date meteorological data (2014-2018). In addition, provide the annual precipitation data for the selected meteorological years and the 30 year average that is used in the wetness determination, either in the modeling protocol or final risk assessment.
4. Provide a clear crosswalk between the emission inventory TEUs, the TEUs provided in the modeling protocol (both in the text and tables), and the AERMOD Source ID so DEQ is able to clearly link emissions to sources.
5. Provide a zoning map with finer resolution so that DEQ can review the various zones in close proximity of the facility. Provide electronic copies of the zoning information for DEQ review.
6. Provide a graphic of receptors, color coded by the assigned exposure location (residential, worker, child, acute only).

7. Provide a crosswalk of receptor IDs, UTM coordinates, and the assigned exposure location for each receptor.
8. For school/daycare locations, please expand upon the identified locations to include all schools and daycare facilities within the fine receptor grid (less than 1000 m). It appears there are additional child exposure locations within close proximity of the facility (e.g., Prescott Elementary School and Saint Rosa School). Receptors at these locations should be assigned a child exposure location.
9. Clarify what the "general employment" zoning classification means.
10. In future submittals that will accompany the risk assessment, please provide analysis/calculations to show how AERMOD concentrations were translated to risk.
11. Risk results should be provided for all seven exposure scenarios (e.g. residential cancer, non-residential adult noncancer, acute, etc.) and not totaled across scenarios.
12. The elevation reported on page 3 in Section 1.2 is incorrect and needs to be resubmitted.
13. In Table 3-3 on page 10, the geolocation of MEK solvent emissions from Coater Printing and Cleaning is shown in the middle of the large building west of Building 1. Google Earth shows a number of stacks on the roof of this coater building. MEK emissions are proposed to be treated as a volume source in the modeling protocol. DEQ requires additional information to consider this proposed designation. Provide more detail as to how emissions from the interior of this building are released to ambient air.
14. In Tables 3-2 through 3-4 on pages 9 and 10, the emission IDs are not consistent with descriptions in the text. For instance, it is unclear to which furnaces EU4 and EU7 are connected. Provide descriptions in these tables with relevant information.
15. Provide an additional table showing all emission sources that discharge to air inside Building 1, which are subsequently vented through the East and West roof vents. These sources include, but are not necessarily limited to TEUs listed below. If, in reviewing your emissions inventory, you discover other reportable TEUs, please include them in this table. Source information should include activity, including rating for each natural gas (NG) fired processes, and emissions factors.
 - a. Hot End Surface Treatment
 - b. Nickel Spray Welding
 - c. Solid Film Lubricant Coating
 - d. NG Combustion Refiners
 - e. NG Combustion Alcoves
 - f. NG Combustion Forehearths

V. Risk Assessment Work Plan

1. Some comments noted above for the modeling protocol also apply to your risk assessment work plan. Revise your risk assessment work plan as needed to reflect changes made to your modeling protocol.
2. In Section 3.1 on page 6, include maximum daily concentration in addition to annual average concentrations for each exposure location. Hazard quotients should be calculated for both chronic and acute effects.
3. Provide a table of RBCs so DEQ can check that correct values are used in the risk calculations.
4. The final risk assessment should have additional information in the uncertainty section. DEQ can work with the facility to determine what is appropriate in this section.

Confidential or trade secret information submitted to DEQ

DEQ is requesting that you submit additional information to complete your Toxic Air Contaminant Emissions 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.

Submittal Deadlines

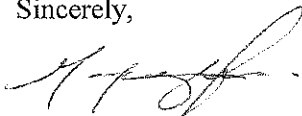
Please communicate any questions or clarifications regarding the above comments proactively in order to provide timely submittals. Your submittal due dates are summarized below:

1. Submit the revised emissions inventory, modeling protocol, risk assessment work plan, and facility and process flow diagrams excluding Furnace D source testing data by March 23, 2020.
2. Within 30 days of starting up Furnace D, conduct source testing of Furnace D while producing amber glass, analyzing for total chromium, antimony, arsenic, beryllium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, and selenium using Method 29 and hexavalent chromium using SW-846 Test Method 0061. The source test plan is due to DEQ 30 days before the test; the source test results are due to DEQ 60 days after completing the test.

Once Furnace D is back online, source testing data will need to be incorporated into your emissions inventory, modeling protocol, and risk assessment work plan as needed. DEQ remains available during this timeframe to discuss the submittal with you and answer any questions you may have. Failure to provide additional information or corrections required by DEQ by this date may result in a violation of OAR 340-245-0030(1) and OAR 340-245-0040(1).

Please contact me directly at 503.229.5247, billings.kenzie@deq.state.or.us, and we look forward to your continued assistance with this process.

Sincerely,



Kenzie Billings
DEQ CAO Project Manager

Cc: Keith Johnson, DEQ
Thomas Rhodes, DEQ
Steve Dietrich, DEQ
George Yun, DEQ