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DEQ called in The Boeing Company (Boeing) in Portland, OR to the Cleaner Air Oregon (CAO) program on February 28, 2025. DEQ received the submittal of the CAO Emission Inventory (Inventory) for Boeing on May 29, 2025 (Your DEQ Online Submittal ID 64867). In accordance with Oregon Administrative Rule (OAR) 340-245-0030(2), DEQ issued a written request on September 15, 2025, requiring additional information and a revised Inventory to be submitted by November 14, 2025. Boeing requested an extension to DEQ's deadline and submitted their response to DEQ's request in two parts. Boeing submitted supporting information on November 13, 2025. Additional supporting information and the revised Inventory was received on February 12, 2026.

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 Boeing with a revised deadline for submittal of a revised Inventory. Please submit the information specified below by **65 days** after the issuance date of this letter, or **July 17, 2026**.

General Comments

1. **Supporting Documentation**: Per OAR 340-245-0060(4)(b)(C), Boeing is required to submit all supplementary materials required to verify the calculated emissions as submitted in the Inventory. DEQ has requested additional supporting information in the proceeding Specific Comments section. However, Boeing must provide the supporting documentation used to develop the Inventory for DEQ to review. This includes, but is not limited to:
    a. References for all resources used to obtain toxic air contaminant (TAC) emission factors. [OAR 340-245-0060(4)(b)(C)(ii)] If these are not publicly available documents, provide a copy of the reference for DEQ to review.
    b. Emissions calculations methodologies, including all formulas and assumptions along with supporting technical documentation (such as safety data sheets and engineering estimates). [OAR 340-245-0060(4)(b)(C)(iii)]
    c. Technical documentation related to air pollution control device operation and efficiency. [OAR 340-245-0060(4)(b)(C)(v)]
    d. Source test data sufficient to verify emission factors (such as analytical and source test reports). [OAR 340-245-0060(4)(b)(C)(vi)]
2. **Actual Basis**: Per OAR 340-245-0040(4)(a)(B)(i)(I), existing sources are required to submit actual annual and maximum daily production activities and usage rates for the calendar year preceding the DEQ call in. Boeing is not required to submit emissions estimates for the actual

basis on Worksheets 3 and 5 of the Inventory but is required to submit the actual annual and maximum daily production activities and usage rates on Worksheets 2 and 4.

3. **Internally Venting Sources**: CAO requires all sources or activities that emit or have the potential to emit any TAC be included in the Inventory unless they are Categorically Exempt Toxics Emissions Units that are principally supporting primary production activities and listed in OAR 340-245-0060(3)(b). This includes both externally and internally vented sources, regardless of whether the TAC emitted is a particulate. Capture and removal efficiencies for internally venting particulate emissions are assessed on a case-by-case basis. Boeing must include all TAC emission sources in the Inventory. If Boeing believes the ventilation of the source provides full capture and control of TACs, justification must be provided for this assumption which should include a discussion of particulate size distribution and local building ventilation. DEQ has requested additional information on known sources in the "Specific Comments" section.
4. **Exempt Toxics Emissions Units (TEUs)**: If Boeing believes that certain activities meet the criteria of an Exempt TEU under OAR 345-245-0060(3)(a), Boeing may submit an Exempt TEU analysis for approval by DEQ. Exempt TEUs must be listed on Worksheets 2 or 4 of the Inventory but there is no requirement to include activity or usage levels for Exempt TEUs. Additionally, these TEUs can be excluded from Worksheets 3 and 5 as you do not need to estimate emissions for Exempt TEUs.

Specific Comments

1. **Process Flow Diagram**: Provide a copy of the facility's process flow diagram (PFD) which meets the requirements of OAR 340-245-0040(4)(b)(C)(i). The submitted PFD, while descriptive of the production process at Boeing, is missing information required under the CAO program. Update the previously submitted PFD per the following:
    a. Include all TAC emitting sources and activities. TEUs which are not integrated into the production flow (such as emergency engines) should still be included;
    b. Include the TEU IDs used in the Inventory within the diagram; and
    c. Include emission points for sources. Indicate if emissions from a source are directed to a pollution control device and include the control device ID.
2. **Safety Data Sheets (SDSs) and Environmental Data Sheets (EDSs)**: Provide the requested SDSs and EDSs as individual files instead of as a single combined document. Boeing may zip the files for ease of submittal. Submitted files should be named and organized in a manner that is easy to interpret and associate with the appropriate TEU or activity. Alternatively, Boeing should supply a "crosswalk" document which associates individual files with the associated TEU or activity.
    a. **Abrasive Blasting Units (TEU-AB)**: Provide SDSs for the various blasting media used at TEU-AB.
    b. **Plating Line Materials**: Provide SDSs for the following tank solutions. Alternatively provide SDSs for the component materials if a solution SDS is unavailable.
        i. Alkaline Clean solution (e.g., Tank 41-11);
        ii. Alodine solution (e.g., Tank 41-33);
        iii. Alkaline Clean solution (e.g., Tank 44-16);
        iv. Passivate Test solution (e.g., Tank 42-45);
        v. Anode Clean solution (e.g., Tank 43-10); and
        vi. Ti-Cad Plate solution (e.g., Tank 45-13).

c. **Paint Booth Operations (TEU-Booth)**: Provide EDSs for all coating materials used at TEU-Booth.
d. **Facility-Wide Miscellaneous Material Usage (TEU-FW-MISC)**: Boeing provided approximately 85 SDSs for miscellaneous materials used across the facility as Attachment C-1 to the Inventory. DEQ has reviewed these SDSs against the materials listed in the Inventory and was unable to positively match all of the materials with SDSs. DEQ has prepared a summary table of the SDSs reviewed and included as an attachment (see the "SDS Review" worksheet). The "SDS Review" worksheet includes a table with the following information taken from the SDSs (as available): Boeing SDS Code (Column A), Product Name (Column B), and Manufacturer (Column C). DEQ has also included a column to match the AQ520 material name with these SDSs (Column D), which has been completed as best possible. The "AQ520 Materials" worksheet includes a list of all the materials included in the Inventory for this TEU in Column A and Column B includes a formula to identify if that material's name is included in the Column D of the "SDS Review" worksheet. Review the summary table in the "SDS Review" worksheet and provide the following:
    i. A revised copy of this table which confirms or corrects DEQ's SDS matching and provides missing information in Columns A and D;
    ii. If the SDSs for reported materials used at this TEU are found to be missing from the original submittal, provide these SDSs. Include the information from these new SDSs in the revised table and include a note in Column E that these are new SDSs; and
    iii. If SDSs provided in the previous submittal are for materials not used at this TEU, include a note in Column E indicating this.
e. **FPI Dye**: Provide a copy of the SDS(s) for the penetrant dye(s) used at the FPI line to DEQ.
f. **Powder Coatings**: Provide SDSs and EDSs for all powder coating materials.

3. **Abrasive Blasting Units (TEU-AB)**:
    a. Confirm the types of blasting media used at the facility along with an estimate of the relative proportion of blasting activity associated with each media.
    b. Provide a narrative description of abrasive blasting activities including where the operations are conducted (including total number of booths), types of alloys processed, and whether plated or coated parts are processed. Also indicate if blasting media is alloy specific.
    c. Provide a narrative description of the dust collection and ventilation of these operations. Including information about the dust collection mechanism, dust control devices, and whether these are internally or externally vented sources. Boeing has submitted filter specification sheets for Donaldson Ultra-Web Cartridges. If other types of fabric filters are used at control devices servicing abrasive blasting units, provide information on these fabric filters (manufacturer specifications and removal efficiencies).

4. **Plating Line TEUs**:
    a. DEQ has noted differences in plating tank naming across submitted documents. Incorporate a common identification structure across documents for consistency and coherence. For example, inclusion of a dash in the naming of tanks at the 85-001 Plating Line is inconsistent between the tank emissions calculations in the "Boeing_Plating_Emissions_R2.xlsx" workbook and the plating line tank diagrams shown in the "85-001_Tank_Contents" documents.

b. **Control/Removal Efficiency**:
    i. Include references for all removal efficiencies used. Supporting information provided by Boeing does not address the removal efficiencies selected for the following compounds:
        1. Cadmium (CASRN 7440-43-9);
        2. Chromic(VI) acid (CASRN 7738-94-5);
        3. Fluorides (DEQ ID 239);
        4. Hydrochloric acid (CASRN 7647-01-0);
        5. Nickle chloride (CASRN 7718-54-9);
        6. Phosphoric acid (CASRN 7664-38-2);
        7. Sodium hydroxide (CASRN 1310-73-2); and
        8. Zinc (CASRN 7440-66-6).
    ii. Provide documentation from the scrubber manufacturers (Duall and Viron) supporting removal efficiencies selected for the individual TACs or groups of TACs as appropriate.
c. **Soluble Nickel Compounds**: Boeing has emissions of both nickel chloride (CASRN 7718-54-9) and nickel sulfate (CASRN 7786-81-4) from the plating line tanks. Risk from emissions of these TACs should be assessed using the Risk-Based Concentrations for nickel compounds, soluble (DEQ ID 368). Therefore, Boeing has two options for reporting these TACs:
    i. Report nickel chloride and nickel sulfate emissions as nickel compounds, soluble under DEQ ID 368. Include a note Column L of Worksheet 3 that emissions are of nickel chloride or nickel sulfate, as appropriate. Note, Boeing is only required to estimate emissions of the nickel portion of the nickel compound; or
    ii. Report nickel chloride and nickel sulfate under their respective CASRNs in the Inventory and incorporate the necessary molecular weight adjustments when developing TAC emission rates for the Modeling Protocol.
d. **Phosphate Compounds**: Tank composition information provided by Boeing indicates that the Alkaline Clean tank solution (e.g., Tank 44-16) contains phosphate compounds. Include estimates for phosphorous (DEQ ID 504) emissions from these tanks. Note, Boeing is only required to report the phosphorous content of these phosphate compounds.
e. **Demister 6 Tanks**: DEQ has reviewed material composition information for the 85-001 plating line tanks controlled by Demister 6. Based on the conditions of use of these solutions and tank composition information provided by Boeing, DEQ has approved the tanks controlled by Demister 6 as an Exempt TEU for the purposes of CAO under OAR 345-245-0060(3)(a). Exempt TEUs must be listed in Worksheet 2, but there is no requirement to include activity levels for this TEU and it can be excluded from Worksheet 3 as you do not need to estimate emissions for Exempt TEUs.
f. **85-105 Scrubbers**:
    i. In supporting calculations and permit materials for Boeing, the Acid/Alkali Scrubber and Cyanide Scrubber are presented as separate pollution control devices. However, the emissions from tanks controlled by these two scrubbers are combined under the 105SC1 TEU in the Inventory. Note, the emission generating activities for the plating line are the tanks, not the scrubber. Therefore, unless the ventilation from these tanks is combined, the emissions from these two tank groupings must be represented by two TEUs in the Inventory.
    ii. Control Device IDs: The Control Device IDs for TEUs 105SC1 and 105SC2 appear to be inconsistent with information presented in Boeing's ACDP renewal

application, dated June 2024. In the Inventory, TEU 105SC1 (Acid/Alkali/Cn Scrubber) is associated with Control Device 105SCBR1 and TEU 105SC2 (Chrome Scrubbers) is associated with Control Device 105SCBR2. However, in the renewal application, both of these Control Device IDs appear to be associated with the two Chrome Scrubbers: 105SCBR1 with the East Chrome Scrubber and 105SCBR2 with the West Chrome Scrubber. Naming and identification of TEUs/EUs and pollution control devices needs to be consistent across information submitted for air quality permitting. Review and revise as appropriate. Note, Boeing may elect to revise the information submitted in the ACDP renewal to align with updates implemented during the development of the Inventory.

g. DEQ has reviewed the "Boeing_Plating_Emissions_R2.xlsx" workbook submitted on April 11, 2026. Provide an updated version of the Plating Emissions workbook that address the following:
    i. Include references for all parameters used in developing the TAC emission estimates. If parameters are calculated values, include information on these calculations. Specific parameters of interest include the following:
        1. Removal efficiencies (per Specific Comment 4.b.i);
        2. Air sparging emissions calculation parameters:
            a. Bubble radius;
            b. Sparge flow rate; and
            c. Bath concentrations [mass fraction, lb/lb] used in the adjusted emission rate calculations;
        3. Plating tank emissions calculation parameters:
            a. Bath concentrations [oz/gal];
            b. Tank exhaust rate;
            c. Current density;
            d. Cathode efficiency; and
            e. Electrochemical equivalent; and
        4. Emission factors not developed within the workbook. Including:
            a. The emission factor for cumulative chromium emissions from tanks Y-10, Y-13 and Y-16 at the 85-001 Plating Line; and
            b. The emission factor for chromium emissions through the Cyanide Scrubber at the 85-105 Plating Line.
    ii. 85-001 Plating Line ("85-001 Emissions" Worksheet):
        1. Emission estimates were included for the following TACs which are not included in the tank solutions SDSs. If these TACs were included in error, Boeing may remove them. If these TACs are emitted, provide justification for why the TACs do not appear on the associated SDSs.
            a. Passivate Tank U-18: Hydrogen fluoride (CASRN 7664-39-3); and
            b. Zn Ni Strip Tank W-30:
                i. Nickel (CASRN 7440-02-0); and
                ii. Sodium hydroxide (CASRN 1310-73-2).
        2. Zn-Ni Post Treat/Zn-Ni Chromate Tank V-07: Include air sparging emissions of nitric acid (CASRN 7697-37-2) and cobalt (CASRN 7440-48-4) from Tank V-07.

3. Zn-Ni Plate Tanks V-17 and V-20: Update the annual controlled emissions of nickel (DEQ ID 368) and zinc (CASRN 7440-66-6). The calculations are based on the hourly emission estimate but are missing a multiplier of 24 hours per day.
4. TAC composition data for the following tanks is inconsistent with information presented in the Boeing SDSs for the tank solutions. Per Section 5 of DEQ's "Cleaner Air Oregon Emissions Inventory Form AQ520" Instructions document,[1] for SDS composition information that is presented as other than an exact number, DEQ will accept at minimum the average of the range. Review and revise the calculations as needed. If Boeing elects to use alternate tank composition data, provide a copy of this to DEQ for review.
    a. Zn-Ni Plate Tank V-17;
    b. Zn-Ni Plate Tank V-20;
    c. Anodize Seal Tank W-28; and
    d. Anodize Seal Tank W-29.
5. Deoxidizer Tanks V-23, W-20, and W-21: Boeing appears to have reported the hydrogen fluoride content of these tanks as both hydrogen fluoride (CASRN 7664-39-3) and fluorides (DEQ ID 239). The fluorides TAC category excludes hydrogen fluoride. Therefore, if hydrogen fluoride is the only fluoride compound in these tank solutions, Boeing is not required to report as fluorides under DEQ ID 239.
6. Tank W-16: Include air sparging emissions of ferric sulfate (CASRN 10028-22-5). Alternatively, provide justification for excluding emissions of this TAC.
7. Anodize Seal Tanks W-28 and W-29: Update the adjusted emission rate calculations to reference the correct tank emissions.

iii. 85-105 Plating Line ("85-105 Emissions" Worksheet):

1. Deoxidizer Tank 41-24: Boeing appears to have reported the hydrogen fluoride content of this tank as both hydrogen fluoride (CASRN 7664-39-3) and fluorides (DEQ ID 239). The fluorides TAC category excludes hydrogen fluoride. Therefore, if hydrogen fluoride is the only fluoride compound in these tank solutions, Boeing is not required to report as fluorides under DEQ ID 239.
2. Anodize Seal Tanks 41-31 and 41-32: TAC composition data for these tanks is inconsistent with information presented in the Boeing SDS for the tank solution. Per Section 5 of DEQ's "Cleaner Air Oregon Emissions Inventory Form AQ520" Instructions document,[1] for SDS composition information that is presented as other than an exact number, DEQ will accept at minimum the average of the range. Review and revise the calculations as needed. If Boeing elects to use alternate tank composition data, provide a copy of this to DEQ for review.
3. Include emissions from the following tanks which have TAC-containing solutions. Alternatively, provide justification as to why there are no TAC emissions from these tanks.

[1] Oregon DEQ. June 5, 2025. "Cleaner Air Oregon Emissions Inventory Form AQ520." (https://www.oregon.gov/deq/aq/cao/Documents/AQ520FormInstructions.pdf)

    a. Alodine Tank 41-33; and
    b. Cad/Ti-Cad Passivate Tank 45-08.
4. Chrome Strip Tank 43-08: Confirm which scrubber Tank 43-08 vents to. Conflicting information is presented in the "85-105_Tank_Contents" document and the "Boeing_Plating_Emissions_R2.xlsx" Excel workbook. Correct the supporting information as appropriate.
5. Chrome Plate Tanks 43-12, 43-13, and 43-15: Include air sparging emissions of sulfuric acid (CASRN 7664-93-9) from these tanks. The SDS for the tank solution includes a sulfuric acid content of less than 1 percent by weight. If Boeing elects to use alternate tank composition data, provide a copy of this to DEQ for review.
6. Nickel Strike Tanks 44-13 and 44-20:
    a. Include estimates for nickel emissions generated from electroplating activities at these tanks. See Specific Comment 4.c about reporting emissions of soluble nickel compounds.
    b. Include estimates for emissions of hydrochloric acid (CASRN 7647-01-0) generated from air sparging.
7. Ti-Cad/Cad Strip Tank 45-20: Emission estimates were included for sodium hydroxide (CASRN 1310-73-2) from this tank but the TAC is not included in the tank solution's SDSs. If this TAC was included in error, Boeing may remove it. If this TAC is emitted provide justification for why the TAC does not appear on the associated SDSs (such as alternate tank composition data).
8. Revise the emission calculations for hydrogen cyanide (CASRN 74-90-8) and cadmium (CASRN 7440-43-9) from the following tanks. The calculated emission factors in units of grains per dry standard cubic feet have been misidentified in the table header as the hourly uncontrolled emission estimates in units of pounds per hour. Similarly, the hourly uncontrolled emission estimates in units of pounds per hour have been misidentified in the table header as the annual uncontrolled emission estimates in units of pounds per year. Calculation errors carry through into the controlled emission estimates.
    a. Bright Cad Plate Tank 44-23;
    b. Bright Cad Plate Tank 44-24;
    c. Ti-Cad Plate Tank 45-12; and
    d. Ti-Cad Plate Tank 45-13.
9. Cyanide Scrubber:
    a. Confirm the source of chromium emissions through the Cyanide Scrubber. Review of tanks controlled by the Cyanide Scrubber does not indicate any of the tank solutions contain chromium compounds. If Boeing is relying on alternate tank composition data, provide a copy of this to DEQ for review. If chromium was included in error, revise as appropriate.
    b. Review and revise the information presented under the "85-105 Cyanide Scrubber" section of the worksheet. The information in the emissions summary table at the top of this section appears to be copied from the Chrome Scrubber section.

5. **Cooling Towers (TEU-COOL)**: DEQ has reviewed emission estimates prepared by Boeing along with the SDSs for the two, cooling tower water treatment materials. Based on the conditions of use of these materials, TAC content, and the low target concentrations in the cooling tower recirculation water, DEQ has approved TEU-COOL as an Exempt TEU for the purposes of CAO under OAR 345-245-0060(3)(a). Exempt TEUs must be listed in Worksheet 2, but there is no requirement to include activity levels for this TEU and it can be excluded from Worksheet 3 as you do not need to estimate emissions for Exempt TEUs.

6. **HVAC TEUs**: Boeing is not required to include each non-exempt natural gas HVAC unit as an individual TEU in the Inventory. To simplify the modeling and permitting for these HVAC units, Boeing may represent these units as a single TEU representing the aggregate HVAC units similar to the TEU designation in the original Inventory submitted on May 28, 2025. When designating TEUs and toxics emissions subunits (TESUs), Boeing should consider how emissions from the HVAC units will be modeled. Some options to consider if Boeing elects to change the HVAC TEU designations:
    a. Include all HVAC units as a single TEU representing the aggregate of all natural gas HVAC units. To ensure a conservative risk assessment, emissions would be modeled from some "worst-case" location with the HVAC units in the TEU. Note, this location may differ based on the risk scenario (residential, nonresidential child, nonresidential worker, acute) being evaluated; or
    b. Define a single TEU with multiple TESUs which include the aggregate HVAC units at each building, or some alternate grouping designated by Boeing. To ensure a conservative risk assessment, the aggregate emissions from each TESU should be modeled from some "worst-case" location associated with the HVAC units in that TESU. Note, this location may differ based on the risk scenario being evaluated.

7. **Paint Booth Operations (TEU-Booth)**:
    a. **Coating TAC Compositions**: Boeing has developed "worst-case" coating compositions for each coating category (10-11, 10-20, 10-60, 10-79, 10-83, and 10-86) by evaluating the TAC compositions for all coatings within each category. This "worst-case" coating for each category is assumed to contain all TACs identified in SDSs for materials in that category. The TAC composition is assumed to be the maximum concentration across all SDSs for materials in that category. DEQ has reviewed composition information presented in SDSs for materials in each coating category but was unable to reproduce the TAC compositions in the Inventory using the criteria identified by Boeing. If Boeing is relying on alternate material composition data, provide a copy of this to DEQ for review. DEQ found the following discrepancies:
        i. 10-11 Coatings:
            1. SDS review shows a higher maximum composition than in the Inventory for the following TACs. The Boeing SDS number with the highest TAC content is indicated.
                a. Ethyl benzene (CASRN 100-41-4), Boeing SDS number 82650;
                b. Methyl isobutyl ketone (CASRN 108-10-1), Boeing SDS number 82650;
                c. Toluene (CASRN 108-88-3), Boeing SDS number 82649;
                d. Ethylene glycol monobutyl ether (CASRN 111-76-2), Boeing SDS number 82650;
                e. Xylene (mixture) (CASRN 1330-20-7), Boeing SDS numbers 80889 and 89213; and

f. Chromium VI (CASRN 18540-29-9), Boeing SDS number 84278.

2. The following TACs were included in the Inventory but were not listed on any of the provided SDSs:
    a. Ethylene glycol (CASRN 107-21-1);
    b. Lead (CASRN 7439-92-1);
    c. Cadmium (CASRN 7440-43-9); and
    d. Isopropylbenzene (CASRN 98-82-8).

ii. 10-60 Coatings:

1. SDS review shows a higher maximum composition than in the Inventory for the following TAC. The Boeing SDS number with the highest TAC content is indicated.
    a. Xylene (mixture) (CASRN 1330-20-7), Boeing SDS number 92827.
2. TAC compositions in the Inventory for the following TACs were higher than the maximum composition presented in the SDSs provided:
    a. Ethyl benzene (CASRN 100-41-4);
    b. Toluene (CASRN 108-88-3);
    c. Benzene (CASRN 71-43-2);
    d. Lead and compounds (CASRN 7439-92-1); and
    e. 2-Butanone (CASRN 78-93-3).
3. The following TACs were included in the Inventory but were not listed on any of the provided SDSs:
    a. Ethylene glycol (CASRN 107-21-1);
    b. Vinyl acetate (CASRN 108-05-4); and
    c. Hexamethylene-1,6-diisocyanate (CASRN 822-06-0).

iii. 10-79 Coatings:

1. SDS review shows a higher maximum composition than in the Inventory for the following TACs. The Boeing SDS number with the highest TAC content is indicated.
    a. Methyl isobutyl ketone (CASRN 108-10-1), Boeing SDS number 88944;
    b. Toluene (CASRN 108-88-3), Boeing SDS number 88943;
    c. Ethyl benzene (CASRN 100-41-4). Boeing SDS number 88944 lists “Reaction mass of ethylbenzene and xylene” as ≤ 3 percent by weight. Unless more refined compositional information is available assume both TACs are present at concentrations of ≤ 3 percent by weight;
    d. Xylene (mixture) (CASRN 1330-20-7). Boeing SDS number 88944 lists “Reaction mass of ethylbenzene and xylene” as ≤ 3 percent by weight. Unless more refined compositional information is available assume both TACs are present at concentrations of ≤ 3 percent by weight; and
    e. Barium (CASRN 7440-39-3), Boeing SDS number 81599.
2. TAC compositions in the Inventory for the following TAC are higher than the maximum composition presented in the SDSs provided:
    a. Chromium VI (CASRN 18540-29-9).

b. **Weighted-Average Emission Rate Analysis**:
    i. Submit a copy of supporting calculations for the toxicity-weighted emission rate analysis used to determine the "worst-case" coating for each risk category (chronic residential cancer, chronic nonresidential child cancer, nonresidential worker cancer, residential chronic noncancer, chronic nonresidential child noncancer, chronic nonresidential worker noncancer, and acute noncancer). The supporting calculations should be provided in the native file format (such as Excel). Provide supplemental narrative explanation of the analysis as appropriate.
    ii. Based on the narrative description of the toxicity-weighted emission rate analysis included in Boeing's February 12, 2026, response letter, Boeing evaluated the coatings on a unit basis assuming a volume usage rate of 1 gallon. The coatings should be evaluated on a weight usage basis since TAC compositions are on a weight basis and the density of coating materials varies.
    iii. Per Specific Comment 7.b.ii, Boeing evaluated the coating categories on a unit basis. This analysis led Boeing to conclude that the 10-60 category coating is the worst-case coating for acute noncancer risk. Boeing has reported a maximum daily PTE coating use of 29.1 pounds which is well below the average daily usage estimated from the annual PTE usage rate (170.9 pounds). Ensure Boeing's analysis evaluates the impact of variable maximum daily usage rates across the coatings categories when determining the "worst-case" coating for the acute exposure scenario.

c. **Booth Filters**:
    i. Confirm if all coating booths use the same fabric filtration system. Information in Boeing's permit suggests the Binks Paint Booth is equipped with a wet curtain particulate filtration system. If so, provide additional information on this pollution control device including manufacturer specifications and removal efficiency.
    ii. The manufacturer information provided by Boeing shows both filter panels and filter pocket/bags for each filter media, but it is unclear what types of these filters are used at Boeing. Provide a description of the filter staging used in the coating booths. The description should include a description of the filter media and filter type (panel or pocket/bag) used at each stage. If filters and staging differ between coating booths, provide details for each booth.
    iii. DEQ does not approve additive removal efficiencies for the 2-stage filter system at the paint booth. Given the high removal efficiency claims of the first stage filter (ATI Ultra Media), the second stage filter (ATI-500), which has a MERV 11 rating, likely provides negligible reductions in particulate emissions.
    iv. Boeing has assumed a 99.74 percent removal efficiency from the first stage filters. Provide additional documentation for the ATI Ultra Media filters to support such a high removal efficiency. Submit copies of the "independent lab test results" noted in ATI's Ultra Media specifications for review. Justification for such a high removal efficiency should include removal efficiencies across different sizes of particulate and a discussion relating the filter media testing conditions to the operational conditions at Boeing's coating line.

8. **Facility-Wide Miscellaneous Material Usage (TEU-FW-MISC)**: The following materials were included in the previous version of the Inventory but are no longer listed in Worksheet 4 under

this TEU. Confirm that these materials were removed intentionally. Review and revise as appropriate.

a. 5-92 TY5, CL1 3333 GRAY EPOXY;
b. 767 ANTI-SEIZE THREAD COMPOUND (MIN 10);
c. MASCOBOND LO MOD;
d. OIL, AEROKROIL;
e. OIL, KROIL;
f. PAINT, KRYLON TOUGH COAT 1800 WHITE ;
g. PAINT, KRYLON TOUGH COAT 1800 WHITE (MIN 12);
h. ULTRAGEL II (MIN BUY 12);
i. KRAZY GLUE REGULAR; and
j. KRYLON 1310 OSHA SAFETY YELLOW(MIN 12).

9. **Fluorescent Penetrant Inspection:**
    a. **FPI Dye**: Based on DEQ observations made during a May 2025 site visit, the penetrant dye can be applied to parts through both a dip tank and spray application. If the material does not contain TACs, this would not be considered an TEU under the CAO program. If the material does contain TACs, Boeing must assess emissions from this activity or provide justification for there being no emissions route for the TACs in the material through its use. Alternatively, per General Comment 4, Boeing may provide justification for why this activity would meet the criteria of an Exempt TEU under OAR 345-245-0060(3)(a).
    b. **Dye Developer (TEU-DEV)**:
        i. DEQ has reviewed the Boeing SDS number 308619 for the Magnaflux ZP-4D material provided as Attachment C-2 to the Inventory. This has been identified as the representative SDS for the ZP-4P material used at this TEU. Confirm that ZP-4D and ZP-4P are the same material. If not, revise the Inventory and/or provide an updated SDS for review as appropriate.
        ii. DEQ has reviewed emission estimates prepared by Boeing and the SDS for the penetrant testing dye developer. Based on the TAC composition and low usage rates of the developer material, DEQ has approved the developer usage as an Exempt TEU for the purposes of CAO under OAR 345-245-0060(3)(a), pending confirmation of Specific Comment 9.b.i. above. Exempt TEUs must be listed in Worksheet 4, but there is no requirement to include activity levels for this TEU and it can be excluded from Worksheet 5 as you do not need to estimate emissions for Exempt TEUs.

10. **Hand Finishing Operations**: Provide additional information on all Hand Finishing operations at the facility, including those which vent internally per General Comment 3.
    a. **Hand Finishing – Externally Venting**: DEQ has reviewed the Hand Finishing Booth emission calculations provided as Attachment E-3 to the Inventory. Provide the following information on these hand finishing operations:
        i. Confirm the total number of externally venting booths with wet filter control. The emission calculations in Attachment E-3 include 9 booths, however information in Boeing's response letter ("262204_Boeing_CAO EI Response_12FEB2026.pdf") indicate there are 16 booths. Update emission calculations as appropriate to account for the total number of booths. Alternatively, provide justification for excluding booths;

ii. Provide a copy of the Excel workbook used to develop the Hand Finishing Booth emissions calculations tables;
iii. Provide a copy of the Eurofins Analytical Report referenced in Footnote 4 of the "Hand Finishing Metal Grinding and Cutting PM Emissions" table; and
iv. Include speciated TAC emission estimates for the hand finishing booths based on the results of the analytical testing. TAC emission estimates may be presented for each individual booth or for the booths in aggregate.

b. **Hand Finishing – Internally Venting**: Boeing has indicated they operates additional hand finishing stations which vent internally and are controlled by fabric filters at each station. Provide the following information on the internally venting hand finishing operations:
   i. A narrative description of hand finishing activities, including the purpose of hand finishing, tools used, alloys processed, and total number of booths; and
   ii. A narrative description of the dust collection and ventilation of these hand finishing stations. Including information about the dust collection mechanism, dust control devices, and information on the fabric filters (manufacturer specifications and removal efficiency).
c. **Hand Finishing – Cadmium Plated Parts**: Boeing has indicated they operate one internally venting hand finishing station dedicated to the processing cadmium plated parts. Provide the following information on this operation:
   i. Confirm in what ways the operation and/or ventilation of this booth differs from the other internally venting hand finishing stations addressed in Specific Comment 10.b; and
   ii. A narrative description of these hand finishing activities, including the purpose of operations at this booth, tools used, and an estimate of the scale of this activity (such as hours of operation or parts processed relative to other hand finishing stations).
d. Confirm if Boeing processes plated or coated parts through hand finishing operations, aside from the cadmium plated parts addressed in Specific Comment 10.c above. If so, provide additional details on these operations (see Specific Comment 10.c).
e. **Hand Finish – Building 85-120**: Provide additional details on the hand finishing operations conducted in the hand finishing room at Building 85-120.
   i. A narrative description of hand finishing activities, including the purpose of hand finishing operations in this area, tools used, alloys processed, and scale of the operations in this space (such as portion of total parts processed or number of stations in this room); and
   ii. A narrative description of the dust collection and ventilation of the space. Include information about the dust collection mechanism, dust control devices, and information on the fabric filters (manufacturer specifications and removal efficiency).

11. **Powder Coating Operations**:
    a. Provide a narrative description of powder coating activities including: how the coating is applied; the scale of the operations compared with the coating operations at TEU-Booth; and number of booths.
    b. A narrative description of the dust collection and ventilation of these operations. Including information about the dust collection mechanism, dust control devices,

information on the fabric filters (manufacturer specifications and removal efficiency), and whether this is an internally or externally vented source.

c. Review SDSs and EDSs for powder coating materials (see Specific Comment 2.f). If these materials contain TACs, include emission estimates for powder coating activities in the Inventory.

12. **Welding**: Confirm if Boeing conducts welding activities for either production or maintenance operations.

13. **Fuel Storage Tanks**:
    a. During DEQ's visit to the facility in May 2025, Boeing indicated there are multiple diesel storage tanks on site. TACs from diesel stored at ambient temperature and pressure do not need to be reported. If the diesel storage tanks at Boeing are operated under these conditions they are considered Exempt TEUs under OAR 345-245-0060(3)(a). Exempt TEUs must be listed in Worksheet 2, but there is no requirement to include activity levels for these TEUs and they can be excluded from Worksheet 3 as you do not need to estimate emissions for Exempt TEUs.
    b. Provide to DEQ the following information about all fuel storage tanks at your facility, including the diesel storage tanks:
        i. Number of tanks;
        ii. Type of fuel stored at each tank;
        iii. Capacity for each tank; and
        iv. Annual fuel throughput.

14. **Revised Inventory**: Submit to DEQ a revised AQ520 Inventory Form, along with all supporting calculations in Excel format, as well as all information required under OAR 340-245-0040(4). Include the following updates to the AQ520:
    a. Incorporate any revisions to the Inventory required after addressing Specific Comments 1 through 13.
    b. Per General Comment 2, Boeing must include annual and maximum daily production activities and usages for the Actual basis in Worksheets 2 and 4. Boeing is not required to report emission estimates for the Actual basis levels in Worksheets 3 and 5.
    c. **Natural Gas TEUs**: Include a reference for the source of the emission factor for benzo[a]pyrene (CASRN 50-32-8) in the References/Notes column (Column L) of Worksheet 3.
    d. **TEU-PBO-3**: The heat input capacity noted in the TEU description and used to estimate the PTE natural gas usage for this TEU (0.9 MMBtu/hr) differs from information in the facility's Air Quality Discharge Permit (ACDP) (0.88 MMBtu/hr). Review and revise as appropriate.
    e. **TEU-PBO-4**: The heat input capacity noted in the TEU description and used to estimate PTE natural gas usage for this TEU (2.5 MMBtu/hr) differs from information in the facility's ACDP (2.536 MMBtu/hr). Review and revise as appropriate.
    f. **TEU-PBO-5**: The heat input capacity noted in the TEU description and used to estimate PTE natural gas usage for this TEU (1.8 MMBtu/hr) differs from information in the facility's ACDP (1.75 MMBtu/hr). Review and revise as appropriate.
    ~~g.~~ **TEU-BPBO-1**: The heat input capacity noted in the TEU description and used to estimate maximum daily PTE natural gas usage for this TEU (0.7 MMBtu/hr) differs from the heat input capacity used to estimate the annual PTE natural gas usage and the information in the facility's ACDP (0.734 MMBtu/hr). Review and revise as appropriate.

h. **TEU-BPBO-2**: The heat input capacity noted in the TEU description and used to estimate maximum daily PTE natural gas usage for this TEU (0.7 MMBtu/hr) differs from the heat input capacity used to estimate the annual PTE natural gas usage and the information in the facility's ACDP (0.734 MMBtu/hr). Review and revise as appropriate.

i. **Plating Line TEUs**:
    i. Update the Inventory as appropriate based on updates incorporated to the plating line emissions calculations per Specific Comment 4.
    ii. Update the TEU Descriptions in Column C of Worksheet 2 to refer to the emissions generating activities, not the control device. For the Plating Line TEUs, the TEU is the grouping of tanks which are controlled by the scrubber or demister, not the scrubber or demister itself.
    iii. Resolve discrepancies with the 85-105 Plating Line Scrubbers noted in Specific Comment 4.e.
    iv. Soluble Nickel Compounds: Update the TAC reporting for nickel emissions from the Plating Line TEUs as appropriate per Specific Comment 4.c.
    v. Phosphate Compounds: Report emissions of phosphorous (DEQ ID 504) from tanks containing phosphate compounds per Specific Comment 4.d.
    vi. Demister 6: Per Specific Comment 4.e, include the 85-001 Plating Tanks controlled by Demister 6 as an Exempt TEU. This TEU must be included in Worksheet 2, but there is no requirement to include activity levels for this TEU and it can be excluded from Worksheet 3 as you do not need to estimate emissions for Exempt TEUs.
    vii. Include a 100 percent capture efficiency (CE) for all plating line emissions in Column E of Worksheet 3.
    viii. Include the TAC specific destruction/removal efficiency (DRE) in Column F of Worksheet 3, except for those TAC emission factors developed from outlet source test results (such as for chromium IV). Note, entering the DRE into Column F will not impact the calculations in Columns M and N. Column H indicates that the emission factor includes the DRE, therefore the emissions calculations will exclude the DRE entered in Column F.
    ix. Update the Reference/Notes in Column L of Worksheet 3 to include the following information:
        1. Revise Column L for those emission factors which are derived from source test results to indicate such. Include the date of the source test and any other additional information necessary to determine how the emission factor was developed such as whether the average or maximum result was used; and
        2. Include a reference for the TAC-specific DRE.

j. **Cooling Towers (TEU-COOL)**: Per Specific Comment 5, Boeing may include TEU-COOL as an Exempt TEU. This TEU must be included in Worksheet 2, but there is no requirement to include activity levels for this TEU and it can be excluded from Worksheet 3 as you do not need to estimate emissions for Exempt TEUs.

k. **HVAC TEUs**: Revise HVAC TEU designations per Specific Comment 6. Ensure that appropriate updates are incorporated to both Worksheet 2 and Worksheet 3 of the Inventory.

l. **Paint Booth Operations (TEU-Booth)**: Incorporate any revisions to the emission estimates for this TEU required after addressing Specific Comment 7.

m. **Powder Coating Operations**: Per Specific Comment 11.c, include emission estimates for powder coating activities in the Inventory.
n. **Diesel Storage Tanks**: Per Specific Comment 13.a, the diesel storage tanks at Boeing may be considered Exempt TEUs. If so, these Exempt TEUs must be included in Worksheet 2, but there is no requirement to include activity levels for the TEUs and they can be excluded from Worksheet 3 as you do not need to estimate emissions for Exempt TEUs.

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).

If you have any questions regarding this letter please contact me directly at (971) 300-3653 or amy.devita-mcbride@deq.oregon.gov. I look forward to your continued assistance with this process.

Sincerely,

Amy DeVita-McBride

Amy DeVita-McBride
Cleaner Air Oregon Project Engineer

Enc: Attachment: Facility-Wide Miscellaneous Material Usage (TEU-FW-MISC) SDS Review (Excel File)

Cc: Michelle Neumann, Jacobs
Saphique Thomas, Jacobs
Claire Niemet, DEQ
Thomas Rhodes, DEQ
J.R. Giska, DEQ
File