Cascade Steel Rolling Mills, Inc.
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McMinnville, OR 97128

A Schnitzer Company

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July 3, 2023

Ms. Julia Degagné
Air Toxics Project Manager
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232

via email: Julia.degagne@deq.state.or.us

Re: Cascade Steel Rolling Mills, Inc.
CAO Emissions Inventory

Dear Ms. Degagné:

Cascade Steel Rolling Mills ("CSRM") is in receipt of your May 4, 2023 and May 25, 2023 letters relating to our Cleaner Air Oregon Air Toxics Emissions Inventory (the "emissions inventory") submitted to the Department on May 9, 2022 and most recently updated February 13, 2023. The May 4, 2023 letter identified specific items that you requested be submitted by June, 2023 and the May 25 letter extended that deadline to July 3, 2023. This letter and the associated attachments constitute our complete response to your request. For ease of reference, we have reproduced verbatim each of your requests from the May 4, 2023 letter below in italics followed by our response.

1. *Submit to DEQ a revised Inventory (AQ520 form), along with all supporting calculations in Excel format, as well as all information as required under OAR 340-245-0040(4), including the following updates:*

Please be advised that with our February 13, 2023 submission of an earlier version of the EI we noted that the inventory provided was not an accurate representation of the CSRM facility as it will exist when the risk assessment is performed. Those thoughts, along with the others provided in the first two pages of the February 13, 2023 submittal cover letter also apply to today's EI submission.

a. *Melt shop (TEUs EU-1 and EU-3):*
    i. *Include emissions estimates for hydrogen fluoride (CASRN 7664-39-3) and provide justification – if using emission factors from another facility, include the engineering calculations or source test data used to derive the emission factors.*

ii. *In the absence of site-specific emissions data for fluorides (DEQ SEQ ID 239), update emissions to use the following emission factors:*
    1. *For TEU EU-1 (BH01, BH01A, and BH02 combined): 0.01 pounds fluoride per ton metal produced, based on DEQ's review of permits for steel production facilities with similar processes and controls to CSRM[1]; and*
    2. *For TEU EU-3 (melt shop fugitives (MELTFUG) and roof monitor (RMELT) combined): 0.01 pounds fluoride per ton metal produced, based on the overall capture/control efficiency assumptions proposed by CSRM in Table B-2 of the Inventory supporting calculations; and*

iii. *CSRM should apportion emissions between all potential release points, including baghouses (BH01, BH01A, and BH02), melt shop fugitives (MELTFUG) and the roof monitor (RMELT) using current knowledge of the facility and engineering judgement.*

Regarding item 1.a.i, emission estimates for hydrogen fluoride are now included in the EI. On March 10, 2023 Cascade provided DEQ with an estimate of hydrogen fluoride and this letter is provided in Attachment L of the included Revised Emission Inventory Supporting Information document.

Regarding item 1.a.ii we understand that a response is not required as your May 25, 2023 letter removed that comment.

Regarding item 1.a.iii, as with the February 13, 2023 version of the EI we have allocated Fluoride/HF emissions as follows:

Stack Emissions: 83.3% to BH-1 and 16.7% to BH-1A
Uncaptured Emissions: 100% to Melt Shop Fugitives (MELTFUG)

Other release points associated with the Melt Shop are BH-2 and the roof monitor (RMELT). However, Fluoride/HF emissions are generated at the ladle furnace away from the roof monitor end of the melt shop. Further, as described in DEQ's Review Report, "The ladle furnace and ladle heater emissions are also collected and vented through the baghouses BH-1 and BH-1A." Without conducting site specific source tests and/or flow path evaluations the assignment of HF emissions to the baghouse BH-1/1A system and MELTFUG release point represents a reasonably conservative allocation of emissions for the purpose of the Cleaner Air Oregon Inventory and subsequent risk assessment.

b. *<u>Billet cutting (TEUs EU-10 and EU-12)</u>: update the vanadium (CASRN 7440-62-2) emission factor to correct a miscalculation on page 15 of the*

2019 Particulate and Trace Metals Emissions Test Report (submitted to DEQ on May 9, 2022):

i. *In the supporting calculations ("BC Filter No Blank" tab), update the pound per ton emission rates for Runs 5 and 7 to reflect the reported pounds vanadium emitted per hour divided by tons per hour metal produced: 7.07E-7 pounds per ton for Run 5 and 7.14E-7 pounds per ton for Run 7; and*

ii. *Update the emission factor in the AQ520 form to 5.84E-6 pounds per cut*

The vanadium emission factor has been corrected in the supporting calculations and the AQ520 form.

c. *Scrap handling (TEU EU-09sh_Main and TEU EU-02sh_Sec): Use the EPA drop point equation (AP-42 Section 13.2.4, Equation 1) to develop particulate matter emission factors instead of the batch drop emission factor from AP-42 Table 12.5.4[2]:*

i. *Assume wind speeds equal to those used for slag handling (TEU EU-05): 20.85 miles per hour for maximum daily emissions and 6.66 miles per hour for annual average emissions; and*

ii. *If the moisture content of scrap is unknown, moisture content may be assumed 0.25 percent.*

The emission factor for scrap handling has been updated to use the EPA drop point equation. A discussion of how this equation was adapted for metal scrap is included in the electronically submitted Inventory Supporting Calculations.

d. *Welding (TEU EU-17, all welding rod types): Use the San Diego Air Pollution Control District's Welding Operations methodology to develop emissions estimates for all Toxic Air Contaminants (TACs) present in welding products.*

Welding emissions have been updated using the SDAPCDs methodology as shown in Table B-11. Please note that welding material usage types and amounts have also been updated.

e. *Raw materials handling: Raw materials handling must be included as a TEU or TEUs in the Inventory, as follows:*

i. *Bulk lime: bulk lime handling in the lime storage silo may be considered an exempt TEU under OAR 340-245-0060(3)(a), based on emissions estimates DEQ has developed from information provided by CSRM on February 13, 2023. Please confirm the accuracy and completeness of the calculations provided in Attachment A, or provide a revised emissions estimate; and*

ii. *Other materials: Provide emissions estimates for handling of*

all materials used which contain TACs; alternatively, provide justification for classifying handling of the materials as an exempt TEU under OAR 340-245-0060(3)(a).[4] Materials must include but are not limited to the list provided in Attachment A.

Regarding item 1.e.i, we concur with DEQ's calculations for the lime storage silo and will include the lime storage silo as an exempt TEU on Tab 2 of the AQ520 Form.

Regarding item 1.e.ii we have reviewed material handling activities including those listed in Attachment A to your May 4, 2023 letter. A majority of the facility's materials are stored in bags or super sacks and then brought into the Melt Shop via a material handling elevator and then charged to the furnaces. Emissions from Melt Shop activities are currently included in the Inventory. Other material handling activities with the potential to generate TAC emissions outside the Melt Shop include the following:

- Truck unloading of alloys to storage bunkers
- Loading alloys into a feeder/hopper for conveyance into the Melt Shop
- Adding lime stored in super sacks to the charge buckets outside the Melt Shop

Emissions of TACs from these three activities have been estimated and included in the Inventory as TEU EU-18. Below we have appended your Appendix A table to describe the storage and handling of each material and whether or not it is included in new TEU EU-18.

Material	TACs	Material Handling Description
Silicomanganese	manganese (CASRN 7439-96-5); phosphorus (DEQ SEQ ID 504)	Outdoor handling (truck unload and loading to hopper-feeder). Emissions included in revised EI as TEU-18.
Ferromanganese	manganese (CASRN 7439-96-5), chromium (chromium VI, CASRN 18540-29-9), nickel (CASRN 7440-02-0)	Outdoor handling (truck unload and loading to hopper-feeder). Emissions included in revised EI as TEU-18.
Ferrocolumbium	aluminum (CASRN 7429-90-5)	Stored in small 10 pound cans and manually charged to furnace inside Melt Shop. No revisions to EI.
Ferrovanadium	vanadium (CASRN 7440-62-2)	Stored in small bags (e.g., 15 lb bags), brought to Melt Shop on pallets via forklift and/or material elevator and manually charged to furnace. No revisions to EI.
Ferrochromium	chromium (chromium VI, CASRN 18540-29-9)	Stored in super sacks, brought to Melt Shop via material elevator and then charged to furnace. No revisions to EI.
Electrolytic manganese	manganese (CASRN 7439-96-5)	Stored in super sacks, brought to Melt Shop via material elevator and then charged to furnace. No revisions to EI.
MMFX ladle slag	calcium fluoride (DEQ SEQ ID 239), quartz (crystalline silica, CASRN 14808-60-7)	Stored in super sacks, brought to Melt Shop via material elevator and then charged to

Material	TACs	Material Handling Description
		furnace. No revisions to EI.
LC slag	aluminum compounds (CASRN 7429-90-5), crystalline silica (CASRN 14808-60-7)	Stored in super sacks, brought to Melt Shop via material elevator and then charged to furnace. No revisions to EI.
WR slag	calcium fluoride (DEQ SEQ ID 239), crystalline silica (CASRN 14808-60-7)	Stored in super sacks, brought to Melt Shop via material elevator and then charged to furnace. No revisions to EI.
Slag Conditioner (use of this material discontinued 2Q2023)	aluminum compounds (CASRN 7429-90-5), crystalline silica (CASRN 14808-60-7)	Stored in super sacks, brought to Melt Shop via material elevator and then charged to furnace. No revisions to EI.
Vanadium carbide nitride	vanadium (CASRN 7440-62-2), aluminum (CASRN 7429-90-5), manganese (CASRN 7439-96-5), chromium (chromium VI, CASRN 18540-29-9), phosphorus (DEQ SEQ ID 504)	Stored in small bags (e.g., 15 lb bags), brought to Melt Shop on pallets via forklift and/or material elevator and manually charged to furnace. No revisions to EI.
Fluorite/fluorspar	calcium fluoride (DEQ SEQ ID 239)	Stored in 50# bags and brought into Melt Shop via material lift and charged to furnace. No revisions to EI.
Dolomitic lime and lime super sacks	crystalline silica (CASRN 14808607)	Stored in super sacks but both can be deposited into a charge bucket outside the Melt Shop. Emissions included in revised EI as TEU-18
Carbolon (Silicon Carbide)	crystalline silica (CASRN 14808-60-7)	Stored in 50# bags and brought into Melt Shop via material lift and charged to furnace. No revisions to EI.

f. *GDF (TEU EU-15): To avoid double-counting, CSRM may remove emissions for "xylene (mixture), including m-xylene, o-xylene, p-xylene" (CASRN 1330-20-7) from the Inventory – these emissions are also reported as individual isomers (m-, p-, and o-xylene).*

The xylene mixture has been removed from the Inventory.

g. *Revise the AQ520 form as follows:*
   i. *On Tab 2 and Tab 3, include separate TEU IDs (line items) for each applicable "Stack or Fugitive ID" (BH01, BH01A, BH02, RMELT, and MELTFUG, WSCALE, Scrap1, Scrap2, Scrap3, and Nroad) for the following TEUs5:*
      1. *EU-09sp;*
      2. *EU-09ng;*
      3. *EU-1*
      4. *EU-16ng;*

5. *EU-12;*
6. *EU-12ng; and*
7. *EU-11;*

ii. *On Tab 2, include maintenance shop chemical usage and cooling towers as TEUs. These may be considered exempt TEUs under OAR 340-245- 0060(3)(a); exempt TEUs must be included in the Inventory but emissions do not need to be quantified or included on Tab 3; and*

iii. *Update following line items in the "Reference/Notes" column on Tab 3:*
   1. *TEU EU-3_RM: for mercury (CASRN 7439-97-6): "Title V Review Report 36-5034-TV-0l: page 59 (mercury), page 29 (PM10), and page 28 (PM)";*
   2. *TEU EU-10ng: for benzene: (CASRN 71-43-2): "Oregon DEQ 2020 ATEI Combustion EF Tool"; and*
   3. *TEU EU-11: For PCDDs and PCDFs (DEQ SEQ ID 646) and PCBsTEQ (DEQ SEQ ID 645): "AP 42, Chapter 13.2.2 and Remus et al., 2013 (BAT Reference Document for Iron and Steel Production) for slag composition. Control efficiency from DEQ permit Review Report pg. 29 and this control efficiency is included in the emission factor provided"*

These updates have been included in the revised AQ520 Form.

2. *Provide SDSs for the following materials:*
   a. *Welding materials;*
   b. *Slag wetting oxidizer; and*
   c. *Chemicals used in the cooling towers.*

The SDSs for welding materials, the slag wetting oxidizer and chemicals used in the cooling towers are included in Attachments M, N, and O of the Inventory Supporting Information document respectively.

Please be advised that the currently submitted Inventory also includes the following updates:

Unpaved Roads: CSRM has conducted additional research into the extent of unpaved roads that exist at the facility. The unpaved road segments previously identified as "WSCALE" and "SCRAP2" have been determined to actually be paved roads. For the unpaved road segments previously identified as "NROAD" and "SCRAP3" these segments are scheduled to be paved. Purchase orders have been placed and paving is scheduled to be completed by mid September of this year. As such, the three road segments WSCALE, SCRAP2, and NROAD have been removed from the Inventory as emissions from paved roads are categorically exempt TEUs under OAR 340-245-0060(3)(b)(GG). The remaining unpaved road segment, SCRAP1, will be

graveled and because this road segment is in a scrap yard the scrap handling emissions TAC speciation data will be used to estimate emissions from SCRAP1.

Slag Handling: Slag handling emissions have been updated to include an estimate of Fluoride emissions based on recent analytical testing of the slag material (the analytical report is provided as Attachment P to the supporting documentation).

* * *

CSRM hopes that this information assists DEQ in concluding its review of our emissions inventory. We have made every effort to fully respond to the questions with the information we have available at this time. However, we continue to maintain that it is impossible to accurately respond to all of the questions without completing the planned site-specific emissions testing to obtain accurate and science-based emission data. CSRM has seen how DEQ has allowed other CAO sources to complete site-specific testing to develop robust, verifiable data for use in their emission inventories. This approach is far superior to the use of default emission factors that were derived from tests on or information from different sources. Nonetheless, in order to be responsive to your questions, we have used non-site specific emission factors pending completion of the testing. That said, as indicated, CSRM looks forward to continuing to work with DEQ to identify approaches for site-specific testing, including source testing, that DEQ will approve. While CSRM has been frustrated by DEQ's unwillingness to allow it to complete source testing of BH-1, BH-1A, and BH-2 and the Roof Monitor as was previously completed using methods acceptable to DEQ, CSRM remains committed to working cooperatively with DEQ to find methods for source testing those units that DEQ can approve, with the caveat that reaching that outcome will likely require reconfiguration of those units at significant time and expense.

As explained above, CSRM is similarly concerned that the attached emissions inventory is not consistent with the mandate in OAR 340-245-0040(4)(a)(B)(i)(II) to reflect the PTE at which the facility chooses to be permitted. CSRM reserves the right to amend the inventory to be consistent with the plain language in the regulations prior to proceeding with the risk assessment process.

We appreciate maintaining a productive dialog as we work with DEQ to finalize our emissions inventory using the best data and science and in an expeditious manner.

Sincerely,

Jim Spahr

Jim Spahr

Cc: Tim Sturdavant
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