KAISER ALUMINUM

December 7, 2017

Mr. Rex I. Lane
Senior Environmental Quality Analyst
Department of Environmental Quality
Air Quality Division
7983 Adobe Road
Kalamazoo, MI 49009-50256

Re: Kaiser Aluminum Fabricated Products LLC, 5205 Kaiser Drive, Kalamazoo, Michigan - Violation Notice ("VN") dated June 27, 2017 Re: PTI No. 113-09D (the "PTI")

Dear Mr. Lane:

On behalf of Kaiser Aluminum Fabricated Products, LLC ("Kaiser" or "the Company"), this letter provides additional information in response to the above-referenced VN and supplements the response the Company provided to MDEQ on July 18, 2017. Kaiser would like to continue to work with MDEQ to seek an amicable resolution of the VN, while reserving all its rights, privileges and defenses.

The VN alleges that stacks for the EUMELTFURNACE and EUHMFURNACE (SVMELTFURNACE and SVHMFURNACE) do not "discharge unobstructed vertically upwards to the ambient" atmosphere as required in the PTI. You will recall that in the Company's initial response to the VN, we provided photographic evidence that SVHMFURNACE stack is not fitted with any cap and clearly discharges "unobstructed," so we consider that claim to have been resolved. We also requested that we be permitted more time to evaluate the EUMELTFURNACE stack including original permitting and design documents; we have now completed that assessment, as described below.

This letter includes additional information obtained from Kaiser's investigation and emphasizes two primary points concerning the SVMELTFURNACE stack compliance. First, that the "inverted cone" style raincap fitted on the SVMELTFURNACE should be considered "unobstructed" for permitting purposes based on guidance obtained from other states, because it is designed to direct emissions upward. Second, based on Kaiser's work with its air permitting consultant (FTC&H), modeled stack emissions from SVMELTFURNACE both with and without a raincap show there is no meaningful difference in impacts.

I. Facility Furnace Background

As we indicated in our preliminary July 18, 2017 VN Response, preventing precipitation from entering the melt furnace is a primary and significant safety concern at secondary aluminum manufacturing facilities like Kaiser's Midlink facility. Even a few drops of water in the meltfurnace can cause catastrophic explosions. The SVMELTFURNACE stack at the facility is used to bring a cold furnace slowly up to operating temperature after a shutdown, or to maintain an empty furnace at operating temperature when maintenance is being performed on the Group 1 baghouse control system, or is infrequently used for exhaust of "Group 2" operations (clean charge) without the use of pollution controls consistent with the RRR MACT*. As such, the SVMELTFURNACE stack provides a direct conduit to the meltfurnace, and therefore preventing precipitation from entering the stack is paramount. It is for this reason that SVMELTFURNACE stack was fitted with the raincap depicted in Attachment 1. MDEQ should be aware that, although the facility is permitted to use the EUMELTFURNACE stack for Group 2 emissions (clean charge), the facility rarely operates in the Group 2 "mode" – on average less than 3% of annual operating time at the facility involves these authorized Group 2 operations.

II. The EUMELTFURNACE Raincap Is Designed with an Inverted Cone that Directs Emissions Up and Should Be Considered "Unobstructed" for Air Permitting Purposes.

As indicated in the attached drawing (Attachment 1), the EUMELTFURNACE does not have a typical raincap which obstructs the exhaust from the stack; rather, the SVMELTFURNACE stack has a type of rain protection referred to as an inverted cone. This type of stack has a cone below the rain cap which acts to steer the exhaust around the cap and exhaust vertically upwards. Although our review of MDEQ dispersion modeling guidance did not reveal anything directly applicable, guidance from other state/local agencies suggests that this type of stack should be considered vertically discharged. For instance, Attachment 2 provides the Stack Height and Rain Guard Guidance from the Vermont Department of Environmental Conservation. This guidance indicates that the inverted cone raincap is one of their acceptable configurations for meeting the vertically discharged requirements. We also found similar guidance from the Spokane Regional Clean Air Agency and the Southwest Clean Air Agency (both in Washington).

After review of these documents and our inverted cone configuration for this stack, Kaiser asserts there is adequate evidence that SVMELTFURNACE is in substantial conformance with the requirements presented in the Vermont guidance (Attachment 2), and therefore should also meet the requirement in PTI No. 113-09D for furnace emissions to be discharged unobstructed vertically upwards.

III. Modeled Stack Emissions from EUMELTFURNACE both with and without a Raincap show there is no meaningful difference in emissions.

In addition to its review of the stack design, Kaiser worked with its air consultant, FTC&H, to perform a dispersion modeling analysis comparing the impacts from EUMELTFURNACE if modeled as an unobstructed vertically discharged stack as presented in the application for PTI No. 113-09 versus the impacts using the raincap option in AERMOD (a raincap without the internal inverted cone, so not exactly the same as our stack). FTC&H entered the SVMELTFURNACE into AERMOD as two individual stacks, one capped and one uncapped. For the capped stack, the release type was set to "raincap" and the as-built parameters for the stack were used. For the uncapped stack, the release type was set to default (vertical) and the permitted parameters of the stack were used. The remaining exhaust parameters, including the 1 gram per second emission rate, were used for modeling both stacks. The model input parameters are presented in Table 1. The model was run for all applicable averaging periods using up-to-date software incorporating current U.S.EPA algorithms for AERMOD and current meteorological data ((Kalamazoo/Battle Creek International Airport, 2016 (Surface Station No. 94815), and White Lake, 2016 (Upper Air Station No. 4830)).

The results from the dispersion modeling analysis (provided in attached Table 2), show that the difference in modeled impact with or without the raincap were negligible (+/- 2.5%). As such, there are no averaging periods for which the impacts with a raincap demonstrated a meaningful increase in emissions. Although not specifically applicable to this scenario, the MDEQ Rule 285 exemptions utilize definitions for "meaningful" increases in emissions, indicating that increases that are less than 10% should not be considered meaningful. As demonstrated in Table 2, any increased impacts associated with the raincap option in AERMOD are significantly less than the 10% threshold for being considered meaningful. Moreover, the "raincap" setting in AERMOD models the dispersion of a traditional raincap (without an inverted cone like that used on the SVMELTFURNACE), so it is reasonable to expect that if AERMOD could account for an inverted cone raincap design the modeling change in impacts would be even closer to zero. Simply put, even assuming the SVMELTFURNACE raincap had a standard design (which it does not), there would be no meaningful change in modeled emissions impacts (and therefore no violation).

IV. Conclusion

Kaiser asserts that the SVMELTFURNACE is in substantial conformance with the requirements in relevant agency guidance (e.g., Attachment 2), and therefore effectively meets the requirement in PTI No. 113-09D of being discharged unobstructed vertically upwards. In addition, a modeling comparison of impacts from the stack with and without the raincap indicates that the difference in the impacts would not be considered meaningful, so that there is no violation.

Kaiser appreciates this opportunity to explain its findings above and respectfully requests that a meeting be scheduled to further discuss these matters and potential resolution of the VN, if necessary. Please feel free to contact me at (269) 359-2571 or Andrew.Frisbie@kaiseraluminum.com to schedule a mutually convenient time to meet.

Sincerely,

Andrew Frisbie
EHS Manager
Kaiser Aluminum Fabricated Products LLC

cc: Mary Ann Dolehanty, DEQ
Mr. Mark Shelley, Kaiser Aluminum
Mr. Roger Crawford, Kaiser Alumium
Ms. Sue Kuieck, FTC&H
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