

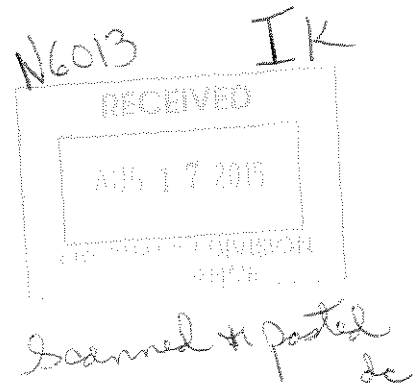


29201 MILFORD ROAD ■ NEW HUDSON ■ MI ■ 48165

July 31<sup>st</sup>, 2015

Mr. Iranna Konanahalli  
Michigan Department of Environmental Quality  
SE Michigan District Office  
2770 Donald Court  
Warren, MI 48092-2793

RE: Notice of Violation for salt flux parameter exceedances



Mr. Konanahalli,

This letter is in regards to the July 27<sup>th</sup> Notice of Violation (NOV) issued to Continental Aluminum for intermittent exceedances of the salt flux limit on the reverb (RV1) furnace during the 1<sup>st</sup> and 2<sup>nd</sup> quarters of 2015. This limit was established during the most recent stack testing as a ratio of pounds of salt flux added to pounds of scrap charged. Based on this stack testing, Continental Aluminum is currently permitted to charge 209.68 pounds of flux per ton of scrap charged (10.5% flux) per 3-hour block. This limit does not include cover flux added to the surface of molten aluminum in order to form a protective layer which prevents oxidation and absorption of atmospheric hydrogen.

Continental believes these parameter exceedances to be a matter of timing and data entry and not a potential cause of excess emissions. Total flux usage for RV1 for the period was 7.4%, significantly below the limit of 10.5%. RV1 was stack tested at only 26% of the HCL limit, and we are currently under 70% of our 12-month rolling average production limit on the RV1 furnace while using more than 125% of the lime used during stack testing to demonstrate compliance with emissions limits.

This letter provides an outline of this issue along with proposed corrective actions. A complete analysis of all flux exceedances will be reported in Continental's MACT semi-annual report which must be submitted by August 30<sup>th</sup>.

Background

Continental Aluminum operates two Group 1 furnaces with add-on pollution control (fabric filter baghouses), consisting of one reverbatory (reverb) furnace and one rotary furnace, internally referred to as RV1 and RO1, respectively. Additionally, Continental possesses a second reverbatory furnace (RV2) which is currently idle and must be stack tested prior to restarting.

Continental's rotary furnace (RO1) operates as a batch process. The furnace is charged with scrap material and flux, the scrap is melted, and then molten metal is poured from the furnace. From the beginning of the charge to the end of the pour is considered to be one complete operating cycle. As a batch process, the flux limit for RO1 is set by operating cycle. RV1, alternatively, operates as a continuous process. Scrap material is continually charged and flux additions are made while molten aluminum concurrently flows from the furnace tapholes to the production lines. As a continuous process, the flux limit for RV1 cannot be set by operating cycle, as there is not a clearly defined beginning and end to the process of charging, melting, and pouring. The flux limit for RV1 is set instead according to the time period used in the most recent stack testing (three hours). Flux usage for RV1 then is calculated for each 3-hour block for the purpose of complying with the flux limit established during stack testing. These 3-hour time periods, in contrast to operating cycles, are arbitrary and artificial, i.e. not based on production. As a result, this creates various timing issues with regards to flux calculations.

For example, if scrap material is charged to the furnace at 6:59 AM and flux is added at 7:01 AM, the scrap pounds charged are entered into one 3-hr block and the flux pounds charged are entered into another 3-hour block for the purpose of calculating flux usage. Depending on the specific time that flux or scrap is charged to the furnace, this can result in flux limit parameter exceedances which are not indicative of actual excess emissions.

For illustrative purposes, considering the following scenarios:

	Scenario A	Scenario B
<u>Block 1</u> (7 AM to 10 AM)	3,000 lbs of scrap charged at 7:30 AM 3,500 lbs of scrap charged at 8:30 AM 4,500 lbs of scrap charged at 9:30 AM 900 lbs of flux charged at 9:45 AM	3,000 lbs of scrap is charged at 7:46 AM 3,500 lbs of scrap is charged at 8:46 AM 4,500 lbs of scrap is charged at 9:46 AM
<u>Block 2</u> (10 AM to 1 PM)	3,000 lbs of scrap charged at 10:30 AM 2,000 lbs of scrap charged at 11:30 AM 400 lbs of flux charged at 12:15 PM	900 lbs of flux charged at 10:01 AM 3,000 lbs of scrap charged at 10:46 AM 2,000 lbs of scrap charged at 11:46 AM 400 lbs of flux charged at 12:36 PM

Flux usage would be calculated as follows:

Scenario A

Block 1:  $900 \text{ lbs flux} / 11,000 \text{ lbs scrap} = 8.1\% \text{ flux}$

Block 2:  $400 \text{ lbs flux} / 5,000 \text{ lbs scrap} = 8.0\% \text{ flux}$

Scenario B

Block 1:  $0 \text{ lbs flux} / 11,000 \text{ lbs scrap} = 0.0\% \text{ flux}$

Block 2:  $1,300 \text{ lbs flux} / 5,000 \text{ lbs scrap} = 26\% \text{ flux}$

In both Scenario A and B, an equal number of pounds of scrap and flux is charged in the same order, spaced apart by the same amount of time. These scenarios are completely identical with the only exception being that charging was started 16 minutes later in the day in Scenario B than in Scenario A. From an emissions standpoint, there is no difference between Scenario A and Scenario B; however, Scenario B nevertheless results in a parameter exceedance for flux while Scenario A does not. The parameter exceedance in Scenario B then is solely a function of the time of day that the scrap material and flux were charged to the system, a factor immaterial to emissions considerations.

Additionally, conforming production to artificial 3-hour blocks creates timing issues whenever production is halted on RV1. For example:

At 10:05 AM (5 minutes after a new 3-hour block has started), 700 lbs of scrap is charged to RV1 followed by 700 lbs of flux five minutes later at 10:10 AM. Production on RV1 is then halted because of a maintenance issue with the burners cutting off, and no further scrap is charged for the remainder of this 3-hour block while repairs are made to the burners. The flux usage for this 3-hour block would then be calculated at 100%, far in excess of the flux limit. Had production continued for the remainder of the 3-hour block, with typical flux additions, there would not have been a flux exceedance.

Corrective Actions

In recognition of these issues, Continental began discussions in early February with environmental consultants regarding possible solutions. Over the ensuing months, Continental also spoke with representatives of MDEQ on several occasions regarding this issue. Various potential solutions were considered, but it was decided that the most favorable and least onerous course of action at that time was to request from the state a modification to the RV1 flux recordkeeping section

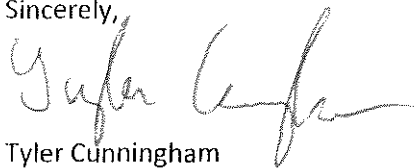
of Continental's Permit to Install (PTI no. 509-96F). In this request (application number 504-966) Continental asked to change from a flux usage rate expressed as pounds of flux per ton of scrap to one expressed as pounds of flux per hour. The flux limit would then be changed from 209.68 pounds per ton of scrap to 1,572 pounds of flux per hour, the latter being the hourly rate used in performance (stack) testing. This change would provide a flux limit which would be much easier for operators to manage to for a furnace operating as a continuous process. However, in June Continental was informed that this request, as written, could not be accommodated. Subsequently, this request was withdrawn by Continental on July 8<sup>th</sup>.

Following the withdrawal of this request, Continental began working on an alternative method of managing flux additions. Scrap and flux additions are currently entered into the shop floor data system's charge screen by the furnace operator after they're added to the charge. Continental is in the process of modifying this system to calculate, in real time, flux additions as a percentage of scrap charged for each 3-hour block. Operators will be required to enter flux pounds into the system prior to adding flux to the furnace. The system will then notify the operator via a warning screen in the event that a flux addition will raise the current flux percentage for the 3-hour block above the 10.5% limit. Some time will be needed to make the necessary changes to the shop floor data system and to train all affected employees on the new system and charging procedures. Additionally, since this system will create new challenges from a production standpoint, some additional time will likely be needed to navigate these new challenges. Continental hopes to have this system fully implemented by mid-November.

Continental has also considered the option of performing an additional stack test on RV1 in order to demonstrate compliance with emissions limits using a higher flux percentage. While this would not address the timing issues inherent to the way flux usage is calculated on continuous processes, it would provide a higher margin of error which would have the effect of reducing the frequency of exceedances caused by these timing issues. In such case, Continental hopes to only test for HCL and D/F, while retaining the existing stack tests on RV1 for PM, PM 2.5, and HF. Due to the high cost and time involved in performing additional stack testing, Continental does not wish to pursue this option at this time but will consider it at a later date in the event that the changes to the shop floor data system cannot be effectively managed while simultaneously meeting the needs of our customers.

In conclusion, it should be noted that Continental has been upfront and proactive in interfacing with the state on this issue while actively working to find a solution. This includes submitting the application for the change to Continental's PTI, as well as having numerous discussions with the State's expert on Subpart RRR. Additionally, as outlined in paragraph two, Continental believes that these are parametric exceedances only and not emission exceedances. Parametric exceedances are duly noted and submitted, as required, in the facility's MACT semi-annual reports. Based on these items Continental believes that no further enforcement action is necessary. Continental will continue to follow the MACT reporting requirements and to implement the corrective actions as noted.

Sincerely,



Tyler Cunningham  
HSE Manager  
Continental Aluminum