Votorantim Cimentos

St Marys Cement

Via Certified Mail
7013 1090 0000 4409 3504

June 18, 2019

Mr. Rob Dickman
Environmental Quality Analyst
Air Quality Division
Michigan Department of Environment, Great Lakes & Energy
120 West Chapin Street
Cadillac, MI 49601

Re: Response to Violation Notice, dated May 29, 2019
St. Marys Cement, Inc. (SRN: B1559)
Charlevoix, Michigan

Dear Mr. Dickman:

St. Marys Cement, Inc. (SMC) has prepared this letter in response to the Michigan Department of Environment, Great Lakes & Energy (EGLE) Violation Notice (VN) dated May 29, 2019. The VN alleges that SMC violated the following Special Conditions (SC) related to permit to install (PTI) 140-15 for emission unit EUINLINEKILN:

Process Description	Rule/Permit Condition Violated	Comments
EUINLINEKILN	*PTI 140-15* *EUINLINEKILN, I.6*	*Nitrogen Oxide (NOx) emissions are limited to 700 pounds per hour (pph) from the Main and Bypass stacks combined. Reported emissions were in excess of this limit for 72 hours and 5.02% of the total source operating time for the first calendar quarter of 2019.*
EUINLINEKILN	*PTI 140-15* *EUINLINEKILN, I.4*	*Sulfur Dioxide (SO_2) emissions are limited to 1175 pounds per hour (pph) from the Main and Bypass stacks combined. Reported emissions were in excess of this limit for 120 hours and 8.36% of the total source operating time for the first calendar quarter of 2019.*
EUINLINEKILN	*PTI 140-15* *EUINLINEKILN, I.10, Main Stack*	*Opacity from the Main Stack is limited to 10% based on six-minute averages. Reported opacity was in excess of this limit for 1202 six-minute averages and 8.65% of the total source operating time for the first calendar quarter of 2019.*

As requested, this letter provides information regarding the referenced citations, including:

- the date the alleged violations occurred
- an explanation of the causes and duration of the alleged violation
- whether the violation is ongoing
- a summary of the actions that have been taken, and/or are proposed to be taken, to correct the violation
- the date(s) by which these actions will take place
- what steps are being taken to prevent a reoccurrence

SO_2 and NO_X Excess Emissions

As described in our Quarterly Excess Emissions Report and during our June 13, 2019 meeting, SMCs PTI 140-15 established new SO_2 and NO_X emissions standards of 1,175 lb/hr and 700 lb/hr, respectively, based on a daily average time period. On January 14, February 23, March 5, March 9, and March 28, 2019, emissions of SO_2 from the inline kiln/raw mill exceeded 1,175 lb/hr as a result of pockets or seams of shale with higher sulfur content encountered in the quarry. Prior to the plant upgrade and operation under PTI 140-15, the SO_2 limit for SMC was 2,800 lb/hr, based on a calendar day average; therefore, these higher sulfur content shales did not cause emissions exceedances. When the inline raw mill is down, elevated SO_2 from the main stack occurs because the inherent scrubbing that takes place when the inline raw mill is operational is not lowering emissions. To prevent these emission exceedances, SMC has purchased bauxite. Bauxite can be mixed in with the raw materials to reduce the sulfur content, thereby lowering SO_2 emissions. SMC is also more closely monitoring the shale content to keep SO_2 emissions in compliance. During the March 28th exceedance, SMC immediately instituted this new procedure to reduce the amount of shale in the mix. However, because the higher sulfur materials were already in the process, the reduction could not be accomplished quickly enough to bring the plant back into compliance on this date. The control room and quarry operators and also more closely monitoring sulfur content of raw materials and are adjusting the location of mining in the quarry to access raw materials with lower sulfur when needed. Following the April 2019 planned outage there have been no SO_2 exceedances.

On January 2, January 12 and January 13, 2019, emissions of NO_X from the inline kiln/raw mill exceeded 700 lb/hr. During January 12 and 13, SMC was operating at less than full production due to a number of operational issues, including a number of Roller Mill shutdowns. The production team also identified chemistry issues in the raw feed, which have since been rectified. When the issue was identified on January 12-13, the Control Room Operator reduced the fuel on the main burner to account for the deviation in raw material chemistry. To avoid *kiln flush* he needed to make changes to the fuel slowly and his efforts were not sufficient to lower NO_X emissions below the limit. It should be noted that the SNCR system was properly operating during this entire period. During the April 2019 planned outage, SMC also added additional ammonia spray heads and since the planned outage there have been no NO_X exceedances.

In addition to changes in kiln operation, SMC has improved the accessibility of the CEMS information to the Control Room Operator, which includes the NO_X and SO_2 lb/hr total daily rolling averages in order to initiate corrective action sooner to lower emissions.

Excess Opacity Emissions

Excess opacity dates and times were provided in the excess emissions reports, along with brief descriptions of the known or likely causes of the excess opacity. As we discussed during our June 13, 2019 meeting, PTI 140-15 lowered the opacity limit on the main and bypass stacks from 20% to 10%. Many of the opacity exceedances during the 1st quarter 2019, were low level, and would have complied with our previous limit of 20%. The majority of opacity exceedances are believed to be related to an increase or temperature and pressure during raw mill down. When the inline raw mill is operating, it acts as a scrubber to reduce SO_2, acid gases, ammonia, THC emissions as well as the detached plumes caused by the reaction between NH_3 and SO_X or HCl which appear as visible emissions. When the inline raw mill goes down it causes temperature, pressure, and flow swings in the main baghouse which have a detrimental effect on baghouse performance. Vast amount of work in the main baghouse, ductwork leading to it, and the raw mill effecting the operation of the baghouse has been done over the past year in attempt to reduce the opacity issue and solve the problem, including:

- Work to reduce differential pressure
    - Replaced fixed portions of blow pipes
    - Measurements taken for new removable blow pipe
- Sealing up clean side for reduction of false air
- Measurements for new bags and cages based on findings
- Full inspection and recommendations from technical specialist
- Gas Conditioning Tower Temperature Control Improvements
    - Installed perforated diffuser plate to normalize the flow through the conditioning tower
    - Slows the air down achieve better dispersion of water for improved cooling
    - Lower chance of build ups kiln stops and disturbances

The work completed by SMC staff and contractors have reduced the overall number of opacity exceedances, however the plant has continued to see increased opacity during raw mill downtime, therefore a decision has been made to replace all the bags and cages in the main baghouse. Please note, there are over 6,400 bags in the main baghouse, and new bags were installed in September 2018. The bags should have lasted 5-6 years. SMC has placed an order for bags, which will be made of a different material by a different manufacturer. One of SMCs sister plants uses these types of bags, and has had good results. The bags must be custom made for SMCs main baghouse. The first set of bags is set to arrive in early July, and we believe all the bags will be changed out by the end of August 2019.

EUINLINEKILN $PM_{10}/PM_{2.5}$ Exceedance outlined in February 12, 2019 Violation Notice

As described in our November 20, 2018, January 16, 2019 and March 5, 2019 letters, SMC encountered difficulties during the testing of $PM_{10}/PM_{2.5}$; therefore, we do not believe the test results to be representative of kiln operations. Issues with accurately measuring condensable $PM_{10}/PM_{2.5}$ emissions are well documented. In addition, because the plant had just come back online after an extended outage, the plant had not likely completed the necessary "shakedown activities" needed to complete the required emissions testing. This affected measured emissions.

SMC intended to take the plant into an extended outage beginning the first quarter of 2019, to address maintenance activities which could not be performed with the plant online. Unfortunately, the outage was delayed until April 2019 due scheduling and parts availability. Originally, SMC proposed to complete the follow-up stack testing as soon as possible after the outage following a couple weeks of stable operation. As described in the previous section during this operation, it was determined that the

plant was still having opacity issues, and a decision was made to replace all the bags in the main baghouse. SMC has also decided to contract a new stack testing firm, which caused a delay in the test plan submittal. New stack testing firm has plans to address and mitigate contamination and artifact formation during the next test.

SMC plans on testing late August or September following the main baghouse bag replacement. We understand that this delay is not ideal, and we will work with EGLE to get the testing completed as soon as possible. We will also submit the stack test plan in advance of the 30-day submittal timeline.

As the EGLE is aware, SMC is undertaking significant plant upgrades which will result in better efficiency and lower emissions. SMC is committed to working with the EGLE to resolve these violations. If you have any questions or require additional information, please contact me at 231.237.1343.

Sincerely,

Matthew Simon
Operations Manager

By email
cc: Ms. Jenine Camilleri – EGLE
Ms. Stephanie A. Jarrett, PE – FTCH
Ms. Laurie Leaman – SMC
Mr. Ruben Plaza – Votorantim Cimentos
Mr. Fabio Garcia – Votorantim Cimentos