

SUMPTER ENERGY ASSOCIATES

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September 9, 2015

Ms. Rebecca Loftus
Senior Environmental Quality Analyst
STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Quality Division
Southeast Michigan District Office
27700 Donald Ct.
Warren, MI 48092-2793

Subject: Response to Violation Notice
Sumpter Energy Associates at the Pine Tree Acres Landfill
State Registration No. N8004, Macomb County

Dear Ms. Loftus:

Sumpter Energy Associates / Aria Energy has prepared this correspondence to reply to the Violation Notice (VN) issued by the Michigan Department of Environmental Quality (MDEQ) Air Quality Division (AQD) on August 21, 2015 for the Sumpter Energy Associates (Sumpter Energy) landfill gas-to-energy facility located at the Pine Tree Acres Landfill in Lenox Township, Macomb County (SRN N8004).

The MDEQ-AQD conducted a site inspection on August 7, 2015. Following the inspection, the MDEQ-AQD issued a VN that alleges that Sumpter Energy:

1. Was unable to provide records during the MDEQ-AQD inspection for flexible emission group FGENGINE1 (Phase I installation Engine Nos. 1 through 7) and FGICENGINE2 (Phase II installation Engine Nos. 8 and 9).
2. Is not using the most recent landfill gas sulfur content sampling results for calculating monthly sulfur dioxide (SO₂) emissions.
3. May have exceeded the permitted SO₂ emission rate of 7.5 pounds per hour on three specific days in July and August 2015.

Emission Records Request

Based on our discussions with on-site operations staff, the MDEQ-AQD also performed an inspection of the adjacent Pine Tree Acres Landfill (Landfill) on August 7th. The Sumpter Energy Lead Operator (Jason Neumann) attended an informal meeting earlier that day with representatives of the MDEQ-AQD (Rebecca Loftus) and Landfill. The inspection of the Sumpter Energy facility was performed in the afternoon after the Landfill inspection was complete and was relatively brief.

According to Sumpter Energy operations staff, Ms. Loftus reviewed the sulfur monitoring procedures and the onsite SO₂ emission records, which appeared to be the focus of the inspection. It was discussed that other ROP compliance records would be sent by the company's Manager of Environmental Programs (Emily Zambuto) since was MDEQ-AQD preference to receive the records electronically.

MDEQ-AQD staff requested specific operations and maintenance records for the Sumpter Energy facility in an August 10th electronic mail message to Ms. Zambuto. Mr. Neumann followed up with a message on August 13th to notify the MDEQ-AQD that he'd learned Ms. Zambuto was on vacation at the time and offered to provide the records before her return if needed. The requested records were provided in entirety by Ms. Zambuto in an August 21st electronic message (and by express delivery).

Attachment 1 provides printouts of the specified communications.

Based on our discussions with on-site operations staff, a printout of the records were offered to the MDEQ-AQD at the time of the inspection. However, the MDEQ-AQD representative preferred to receive the records in electronic format (i.e., spreadsheet files). The requested electronic records were provided to the MDEQ-AQD within 10 business days of the request, which was approximately one week later than anticipated due to vacation schedules. As backup to Ms. Zambuto, we request that you please copy Mr. Dennis Plaster on any correspondence related to the site (Dennis.Plaster@AriaEnergy.com).

SO₂ Emission Calculations

As indicated in the VN, treated landfill gas sulfur monitoring and SO₂ emission records were reviewed by the regulatory agency during the August 7th inspection. The VN indicates that:

- Monthly SO₂ emission are being calculated using the initial sulfur sampling result that is taken at the beginning of the month.
- Sulfur concentrations above 500 ppm and 600 ppm are not being used in the SO₂ emission calculation.
- Weekly and daily sulfur monitoring results should be used when calculating monthly SO₂ emissions.

Condition FGICENGINE2, VI.4 of the Renewable Operating (RO) Permit specifies that *The SO₂ emission calculations shall be based on the most recent landfill gas sulfur content sampling results (per the sampling required under SC V.3) and the monthly landfill gas usage of the engines.*

Condition FGICENGINE2, V.2 specifies that *The permittee shall verify the hydrogen sulfide or total reduced sulfur content of the treated landfill gas burned in FGICENGINE2 on a monthly basis by gas sampling ... The permittee shall notify the Department at least seven (7) days prior to sampling.*

Sumpter Energy performs treated landfill gas sulfur analysis on a regular schedule (the first Monday of each month) and provides notification to the MDEQ-AQD prior to the sampling event as required by the Condition No. V.2. While sampling is usually performed on a more frequent basis (weekly) Sumpter Energy has historically calculated monthly SO₂ emissions based on the sampling event performed each month for which prior notification is provided to the MDEQ-AQD. The more frequent sulfur monitoring schedule was included as Appendix 2 of the most recent version of the RO Permit and did not clearly preempt the calculation procedure in Condition VI.4.

In the records provided the MDEQ-AQD on August 21st, the monthly SO₂ emissions are consistently based on the first sampling event of each month as required by Condition Nos. V.2 and VI.4 regardless of the measured concentration. The statement in the VN that sulfur concentrations above 500 ppm and 600 ppm are not being used in the SO₂ emission calculation is factually incorrect. There are many instances in which the sulfur content used in the calculation exceeds 500 ppm and twice in 2014 in which an analytical result exceeding 600 ppm was used.

We disagree with the MDEQ-AQD that the calculation procedure followed by Sumpter Energy and described in the previous paragraphs is a permit deviation since the permit does not clearly specify one method over another. However, in response to MDEQ-AQD's comments in the VN, we are agreeable to using a monthly average to characterize the treated landfill gas sulfur content for the monthly and 12-month rolling total SO₂ emission calculation.

Sumpter Energy has reviewed the monthly and weekly sulfur sampling results beginning January 2014 through August 2015. Table 1 at the end of this document presents a comparison of the initial sampling result for each month to the average for that month. The initial reading and monthly average values are comparable with the exception of the most recent two months (July and August 2015) in which the landfill gas sulfur content varied appreciably throughout the month. Included with this document are revised SO₂ monthly and 12-month rolling emission calculations based on the monthly average sulfur concentration value. The calculated 12-month SO₂ emission total is within 1 ton of the previously calculated emission rate (i.e., using the monthly average sulfur content as opposed to the initial monthly reading does not significantly change the calculated 12-month total SO₂ emissions).

Landfill Gas Sulfur Monitoring Procedures

The monthly and more frequent (weekly, daily) landfill gas sulfur content measurements are performed by Sumpter Energy plant operations staff according to the sulfur monitoring plan that has been submitted to the MDEQ-AQD. Only the notification and reporting is performed by a consultant (Derenzo Environmental Services).

The landfill gas sulfur content analysis is performed using a hand-held gas analyzer equipped with an electrochemical cell for sulfur detection. The unit is zeroed and calibrated prior to use and the measured sulfur content is adjusted according to the calibration response. As indicated in the VN, the facility ran low on calibration gas near the beginning of July 2015. While waiting for a new calibration gas bottle to be delivered, the unit was not calibrated prior to each sampling event in July and August and the analyzer measurements were compared against measurements obtained using

Drager gas detection (stain) tubes to verify the accuracy of the analyzer. These instances were noted in the sulfur monitoring log.

We agree that calibration data should not have been used to adjust the analytical measurement for these specific monitoring events in July and August. The calibration data in the monitoring log for these events were apparently inadvertently carried over by the operator when rows were copied down to extend the spreadsheet.

Included with this document is a revised sulfur monitoring spreadsheet in which calibration data were removed for monitoring events between July 10, 2015 and August 27, 2015 when the facility ran low on calibration gas. For these events, the average measured sulfur content is used as the final concentration value with no calibration adjustment. Regular analyzer calibrations resumed on August 27 using a new bottle of calibration gas. To prevent any future potential issues with only having one bottle of calibration gas, a second bottle of calibration gas will be ordered and kept onsite.

SO₂ Emission Limits

The VN indicates that Sumpter Energy is not consistently following its Sulfur Monitoring and Engine Curtailment Plan and that SO₂ emissions may have exceeded the permit limit of 7.5 lb/hr on three separate days (July 15, July 31 and August 1, 2015) when the recorded treated landfill gas sulfur content exceeded 700 ppm.

Condition FGICENGINE2, VI.4 of the Renewable Operating (RO) Permit specifies that *The SO₂ emission calculations shall be based on the most recent landfill gas sulfur content sampling results (per the sampling required under SC V.3) and the monthly landfill gas usage of the engines.*

The Revised Sulfur Monitoring and Engine Curtailment Plan (Plan) prepared by Sumpter Energy dated November 13, 2014 was received and reviewed by AQD (email correspondence from Rebecca Loftus to Mr. Dennis Plaster and Mr. Charles Scamp dated April 3, 2015). The revised plan contained a chart that operators use a guide for determining when to curtail engine operations (reduce fuel flowrate) in response to increased gas sulfur content. The April 3, 2015 email correspondence received from Ms. Loftus, specified that any future engine curtailments would be addressed using the revised SO₂ emission chart found in the plan. Operating according to the Plan provides assurance that calculated SO₂ emissions would be below the permitted value of 7.5 lb/hr when determined at the end of the month pursuant to Condition VI.4.

The monitoring data for July and August 2015 indicate an unusual amount of variability in the gas sulfur content. Facility operators followed the Plan by performing daily sulfur monitoring beginning July 10th when a measured sulfur content of near 600 ppm was observed. Daily monitoring continued throughout July and August.

In compliance with the Plan, the gas flowrate is recorded at the same time the sulfur content measurements are performed. Sumpter Energy is required to perform landfill gas (LFG) sulfur content monitoring for its Phase II facility (FGICENGINE2) on a monthly basis as required by the

Condition No. V.2 The Plan is not part of the emission recordkeeping program. The purpose of the Plan is to provide facility operators with a guide for responding to increases in gas sulfur content and maintaining compliance with the permitted SO₂ emission limit as specified in the RO Permit. Facility operators are aware of the Plan and referenced it in a July 15th electronic mail communication when they were monitoring a spike in gas sulfur content. Attachment 2 provides printouts of these messages.

The RO Permit does not specify an instantaneous SO₂ emission limit and it was never our understanding that the Plan, nor individual monitoring events, would be used to substantiate noncompliance with the permitted SO₂ emission limit. Compliance with the limit is based on calculations performed at the end of the month calculation as required by the permit conditions; the calculated SO₂ emission rate for July and August 2015 are below the permitted rate of 7.5 lb/hr. Updated SO₂ emission records are provided with this document.

Response Summary and Corrective Actions

Based on our discussion with Sumpter Energy operations staff, there may have been a misunderstanding in regards to the MDEQ-AQD's information request during the August 7th inspection. The VN indicates that 'Sumpter Energy was unable to produce the requested recordkeeping and emission records'. Sumpter Energy's staff maintains the compliance recordkeeping onsite in both electronic and hardcopy format and was willing and able to immediately provide a printout of the requested records during the inspection. However, it was our staff's understanding that Ms. Loftus was agreeable to, and even preferred to, receive the operations and maintenance records via electronic mail similar to what had been done for previous inspection events. The requested records were provided electronically to the MDEQ-AQD on August 21st.

Monthly SO₂ emission calculations have historically been based on the first landfill gas sulfur sampling event of each month. Sumpter Energy provides notification to the MDEQ-AQD prior to the sampling event and sends a report following the sampling event. Sumpter Energy's monitoring and emission calculation procedure is in compliance with the procedure required by Condition Nos. V.2 and VI.4 of the RO Permit for FGICENGINE2 which requires that the SO₂ emission calculations are based on the most recent landfill gas sulfur content sampling results (per the sampling required under SC V.3) and the monthly landfill gas usage of the engines. However, the permit language does not preclude using a monthly average and we are agreeable to using a monthly sulfur content average in our monthly SO₂ emission calculations. Revised calculations are provided with this document.

The statement in the VN that sulfur concentrations above 500 ppm and 600 ppm were not being used in the SO₂ emission calculation is factually incorrect. There were many instances in which the sulfur content used in the calculation exceeds 500 ppm and twice in 2014 in which an analytical result exceeding 600 ppm was used.

Based on our review of the sulfur monitoring log maintained by facility operators, we agree that analyzer calibration data should not have been used for monitoring events between July 10, 2015 and

August 27, 2015 when calibration gas was unavailable. The treated landfill gas sulfur sampling spreadsheet has been revised accordingly and provided with this document.

Facility operators implement and follow the Sulfur Monitoring and Engine Curtailment Plan by increasing the gas sulfur content monitoring frequency based on the gas sulfur content measurements. Gas (fuel) flowrate is reduced as appropriate to maintain SO₂ emissions below 7.5 lb/hr as determined at the end of the month. The Plan is not part of the emission calculation program. Compliance with the permitted SO₂ emission rate is determined based on the amount of gas used for the month, which is specified in the RO Permit, as opposed to instantaneous emission calculations.

We appreciate your review and consideration of the VN corrective actions presented in this correspondence. Please contact us at (585) 948-8580 if you require additional information.

Sincerely,

SUMPTER ENERGY ASSOCIATES



Emily Zambuto
Manager of Environmental Programs

Attachments