detroit renewable power

VIA CERTIFIED MAIL

March 29, 2019

Todd Zynda, Environmental Engineer
Michigan Department of Environmental Quality
Air Quality Division
3058 W. Grand Boulevard, Suite 2-300
Detroit, MI 48202-6058

RE: M4148 Detroit Renewable Power – Response to Violation Notice dated February 25, 2019

Dear Mr. Zynda:

This correspondence is Detroit Renewable Power's (DRP) response to the Violation Notice (VN) dated February 25, 2019 for alleged violations based upon Michigan Department of Environmental Quality, Air Quality Division (AQD) review of the Fourth Quarter 2018 Continuous Emissions Monitoring System (CEMS) report, Rule 912 Notification for January 31, 2019, and hourly emissions data submitted for January 31 following a request for these records by AQD.

The following table summarizes the AQD alleged violations along with DRP's response to each event. Explanation of the causes and corrective actions implemented, as applicable, is provided after the table.

Process Description	Rule/Permit Condition	Summary of AQD Comments	DRP Response
Boiler 12	ROP No. MI-ROP-M4148-2011a, FGBOILERS011-013, SC I.9.a 40 CFR Part 60, Subpart Cb, §60.33b(b)(3)(i) 40 CFR Part 62, Subpart FFF, §62.14103(b)(1) ACO AQD No. 6-2017, Paragraph 9.A.3	Boiler 12 SO2 emissions based on a 24-hour daily geometric mean exceeded 29 parts per million by volume (ppmv) on 12/6/18 (37 ppmv).	This excess emission was primarily due to the malfunction of key equipment which resulted in a loss of lime slurry flow and elevated readings throughout the day. Following SOPs, DRP located the malfunctioning portion of the equipment and made repairs to mitigate SO2 emissions; however, the daily geometric average was already exceeded.

Process Description	Rule/Permit Condition	Summary of AQD Comments	DRP Response
Boiler 12	ROP No. MI-ROP-M4148-2011a, FGBOILERS011-013, SC I.11.a 40 CFR Part 60, Subpart Cb, §60.38b, Table 3 ACO AQD No. 6-2017, Paragraph 0.A.2	Boiler 12 CO emissions based on a 24-hour block average exceeded 200 ppmv on 1/31/19 (367 ppmv)	Boiler 12 was down for 2 hours during the morning of 1/31/19 (2:00 and 3:00), tripped during the 6:00 hour and the 11:00 hour was flagged as bad data by the CEMS. These hours resulted in a partial block average which is excluded from comparison to the 24-hour block average according to the ROP.
Boiler 12	ROP No. MI-ROP-M4148-2011a, FGBOILERS011-013, SC I.11.b	Boiler 12 CO emissions based on a 1-hour block averaged exceeded 267 ppmv for two consecutive hours or more on 1/31/19 (9:00 to 11:00 – 466 ppmv and 397 ppmv and 14:00 – 17:00 – 1055 ppmv, 383 ppmv, and 316 ppmv).	During the hours of 9:00 and 10:00 frozen refuse derived fuel (RDF) bridged over the metering bin and also plugged chutes resulting in an uneven fuel bed and upset combustion. Due to the extreme cold weather and unavailability of other units, load was dropped as much as possible on Boiler 12 and auxiliary oil was added to stabilize combustion. After the RDF was unbridged from the metering bin and chutes were unplugged, combustion was brought back into control. During the 14:00-17:00 hours, a similar malfunction occurred due to the extreme cold temperatures and frozen RDF.

Process Description	Rule/Permit Condition	Summary of AQD Comments	DRP Response
Boiler 11 – Fourth Quarter 2018	ROP No. MI-ROP-M4148-2011a, FGBOILERS011-013, SC VI. 26 and 27 40 CFR Part 60, Subpart Cb, §60.38b 40 CFR Part 60, Subpart Eb, §60.58b(i)(10)	Failure to maintain valid continuous monitoring system hourly averages (carbon monoxide) for 90% of the operating hours per calendar quarter. CO monitor downtime for the Fourth Quarter 2018 was 25.72% of the operating time.	The relative accuracy test audit (RATA) was completed for Boiler 11 on October 16, 2018; however, the results failed to meet audit standards for CO and resulted in a period of out-of-control operation for the CO monitor. Due to an unusually early cold snap, steam was required to prevent system failures and to provide heat for hospital and other customers' well-being. Other boilers were unavailable during this time period due to repairs and/or malfunctions.

Boiler 12 SO_2 24-hour Daily Geometric Mean

On December 6, 2018, the SO_2 24-hour daily geometric mean for boiler 12 exceeded 29 ppmv (37 ppmv). This exceedance was primarily caused by a malfunction of the lime slurry feed system. The slaker grate screen provides a means to separate granular pebble lime from the emulsified lime slurry which is fed via pipe to the Spray Dryer Absorbers. Following an inspection of the slaker grate screen on December 1, 2018 in accordance with the weekly SDA preventative maintenance checks, the grate failed on December 6 resulting in plugged lime slurry feed lines from the slaker due to this excess pebble lime particle size. This is evident in the abrupt decreases in lime slurry flow recorded by the CEMS at the 7:00 through 10:00 hours as well as the 16:00 – 21:00. After lime slurry feed was restored, SO_2 emissions were mitigated by the control equipment, but the daily geometric mean had already been exceeded during the malfunction periods. According to 60.58b(a)(1) as referenced by the ROP, periods of up to 3 hours of startup, shutdown and malfunction shall be dismissed or excluded form compliance calculations. These hours should be excluded from comparison with the permit limit due to the malfunction of the lime slurry feed equipment thus resulting in a partial block average. As defined in Appendix 1b, partial block averages should not be compared to emission limits:

> *A block period that does not have MSW continuously burning due to start up or shutdown or the unit being off line, or which has an exemption of data use due to startup, shutdown, or* ***malfunction exclusion*** *provisions under the Emission Guidelines. The exemption of data use under the Emission Guidelines may create a partial block period. Emission standards or limitations applicable to block periods are not applicable to partial block periods.* [Emphasis added]

Therefore, this period was not an excess emission according to the malfunction exclusion provision under SC.I.9.a and the definition of a partial block pursuant to the ROP.

During troubleshooting the malfunctioning control equipment, DRP also changed atomizer units several times. Pursuant to FGBOILERS011-013 SC.I.9.b, the SO2 emission limit during atomizer scrubber unit replacements is 359 ppmv. Based on a review of minute date for 12/6/18, this limit was not exceeded.

Boiler 12 CO 24-hour Daily Arithmetic Average
As provided above and as shown in the hourly data provided to AQD following a request for this data after the Rule 912 report submission, Boiler 12 was down for 2 hours in the morning, tripped during the 6:00 hour and bad data was flagged for the 11:00 hour. This resulted in a partial block average for the 24-hour daily arithmetic average. As previously explained, this partial block is excluded from comparison with the emission limit and is not an exceedance of the limit.

Boiler 12 CO 1-hour Block Average
On January 30 and 31, 2019, the Detroit area experienced a Polar Vortex weather phenomenon, which resulted in temperatures in Detroit with a high of 2 and 3 degrees Fahrenheit, respectively, with lows dipping to -12 degrees Fahrenheit on both days (this also broke the record lowest recorded temperature in Detroit and corresponding wind-chill estimated to be -40 degrees Fahrenheit). At these dangerously cold temperatures, DRP balanced the need to maintain safe operating conditions to provide steam heat to hospital customers and other sensitive receptors along with managing frozen fuel, plugged lines, and bridged metering bins. Due to the need to provide an adequate supply of steam to the system and after boiler trips in the morning, DRP scrambled to unplug RDF chutes and un-bridge metering bins to maintain a stable and even supply of RDF to the boiler. These malfunctions were managed by lowering the steam load as much as possible while maintaining a sufficient steam load for the safety of their sensitive customers such as the hospital, adding auxiliary fuel to stabilize combustion, and adding excess air; however, the inability to maintain an even combustion bed due to the uneven fuel feed resulted in several hours of excess emissions.

Boiler 11 CO Analyzer Downtime
As described above, the CO analyzer for Boiler 11 did not pass the RATA on October 16, 2018. Due to the low temperatures reaching below freezing and the low 30's during this time period and unavailability of other steam production, DRP was obligated to operate Boiler 11 to maintain a safe and operable steam supply to its sensitive customer base. When other steam production was available on October 26, Boiler 11 was brought down until the CO analyzer malfunction could be tested and corrected with a passing RATA.

If you have questions concerning this response, please feel free to contact Mark Fletcher at (313) 963-3394.

Sincerely,

Detroit Renewable Power

Robert Suida, Plant Manager

cc: Mark Fletcher, EHS Manager
Jenine Camilleri, Enforcement Unit Supervisor, AQD, DEQ