detroit renewable power

VIA CERTIFIED MAIL

December 12, 2018

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 November 21, 2018

Dear Mr. Zynda:

This correspondence is Detroit Renewable Power's (DRP) response to the Violation Notice (VN) dated November 21, 2018 for alleged violations based upon Michigan Department of Environmental Quality, Air Quality Division (AQD) review of the Second Quarter 2018 (2Q2018) Continuous Emissions Monitoring Systems (CEMS) Report.

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
Boilers 12 and 13	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 60, Subpart FFF, §62.14103(b)(1) ACO AQD No. 6-2017, Paragraph 13	Boiler 12 SO_2 emissions based on a 24-hour daily geometric mean exceeded 29 parts per million by volume (ppmv) on 8/11/18 (31 ppmv). Boiler 13 SO_2 emissions exceeded the geometric mean limit on 8/11/18 (39 ppmv).	The 31 ppmv value reported for boiler 12 on 8/11/18 is a partial block. As defined in the ROP, partial block averages are not compared to emissions limits. DRP agrees that boiler 13 did exceed the 24-hour daily geometric mean limit on 8/11/18.

Process Description	Rule/Permit Condition	Summary of AQD Comments	DRP Response
Boiler 11	ROP No. MI-ROP-M4148- 2011a, FGBOILERS011-013, SC I.11.a 40 CFR Part 60, Subpart Cb, §60.34b(a), Table 3 ACO AQD No. 6-2017, Paragraph 13	Boiler 11 CO emissions based on a 24-hour block average exceeded 200 ppmv on 7/8/18 (225 ppmv).	The 225 ppmv value reported for boiler 11 on 8/11/18 is a partial block. As defined in the ROP, partial block averages are not compared to emissions limits.
Boiler 11 and 12	ROP No. MI-ROP-M4148- 2011a, FGBOILERS011-013, SC I.11.b	Boiler 11 CO emissions based on a 1-hour block average exceeded 267 ppmv for two consecutive hours on 9/2/18 (11:00-13:00 – 750 ppmv and 310 ppmv) and 9/3/18 (11:00 to 13:00 – 403 ppmv and 359 ppmv). Boiler 12 CO emissions exceeded the 1-hour block average for two consecutive hours on 7/5/18 (4:00-6:00 – 304 ppmv and 281 ppmv).	Corrective actions were implemented in a timely manner as explained below and what appear to be consecutive or continuous emissions exceedances are actually spikes during adjacent hours of boiler operation.
Boiler 11	ROP No. MI-ROP-M4148- 2011a, FGBOILERS011-013, SC I.13.a	Boiler 11 NOx emissions based on a 1-hour block average exceeded 247 ppmv on 9/7/18 (0:00 to 1:00 – 248 ppmv)	Emissions exceeded the 247 ppmv limit; however, corrective actions were implemented to lower the emissions.

The following summarizes the response of each of the items listed in the above table.

Sulfur dioxide 24-hour Geometric Mean – FGBOILERS011-013, SC I.9.a

As previously discussed in DRP's August 10, 2018 response to the July 20 VN, and subsequent communications between AQD, DRP, and DRP's counsel, the instance noted above for boiler 12 on August 11, 2018 is a partial block period, in which the boiler in question operated less than 24 hours during the compliance period. As was also demonstrated in the August 10 response, DRP's ROP provides that emission standards or limitations applicable to block period (such as the 24-hour SO_2 and CO emission limits) are not applicable to partial block periods.

Specifically, the ROP defines "Partial Block Period (for block periods greater than one-hour)" as follows:

> A block period that does not have MSW continuously burning due to startup 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.)

As the definition of Partial Block Period clearly states, emission standards or limitations applicable to block periods are not applicable to partial block periods. Therefore, there were no emission exceedances on for boiler 12 on August 11, 2018.

DRP agrees that the emission limit was exceed for the SO_2 24-hour geometric mean for boiler 13 on August 11, 2018.

Carbon Monoxide 24-hour Block Average – FGBOILERS011-013, SC I.11.a

As explained in the previous section, the definition of Partial Block Period clearly states, emission standards or limitations applicable to block periods are not applicable to partial block periods. Therefore, there were no emission exceedances on for boiler 11 on July 8, 2018.

In addition, excluding the last three hours of the day (due to boiler shutdown) and the malfunction period in the middle of the day when the source was down due to the boiler tripping, the 24-hr block average is 190 ppmv, which is below the emission limit.

Carbon Monoxide 1-hour Block Average – FGBOILERS011-013, SC I.11.b

The attached minute date for boiler 11 on 9/2/2018 from 11:00 through 12:59 shows the elevated CO emissions resulted due to a broken idler coupling associated with the 11-2 auger. The auger malfunction resulted in an upset in the combustion fuel bed. Corrective actions were implemented as follows.

11:00	CO emissions rise due to combustion upset
11:00-11:18	Auxiliary oil addition is increased to stabilize combustion
11:25-12:02	CO emissions are reduced to less than the 267 ppmv hourly emission limit (less than or equal to 200 ppmv for this period)
12:25-12:41	CO emissions return to elevated levels due to a second combustion upset; again auxiliary oil addition is increased to stabilize combustion
12:42	CO emissions are reduced to less than the 267 ppmv hourly emission limit for the remainder of the hour.

While it appears that the excess emissions continued for two hours, in actuality, the facility immediately responded to rising pollutant emissions and continued to implement corrective actions for the approximately 21 minutes of elevated emissions. In the second hour, another combustion upset occurred, which was also controlled by corrective actions and lasted 16 minutes. As noted in the

corrective action timeline, the reduction in two elevated periods of CO emissions were separated by more than one hour; however, because the average periods were adjacent it appeared that the elevated emissions extended for two consecutive hours.

The attached minute date for boiler 11 on 9/3/2018 from 11:00 through 13:14 shows the elevated CO emissions as a result of the stuck metering bin. The malfunction resulted in an uneven fuel bed and upset combustion. Corrective actions were implemented as follows.

11:17	CO emissions begin to rise above 267 ppmv
11:18	Auxiliary oil addition is increased to stabilize combustion
11:20	CO emissions decrease below the hourly emission limit
11:44	CO emissions again rise above 267 ppmv; auxiliary oil addition is increased to stabilize combustion concurrently
11:55	CO emissions decrease below the hourly emission limit
12:10	CO emissions again rise above 267 ppmv; auxiliary oil remains steady from previous corrective action level. Over the next 29 minutes, emissions oscillate above and below the 267 ppmv limit.
12:23	Auxiliary oil is increased further to stabilize combustion
12:39	CO emissions decrease below the hourly emission limit
12:51	CO emissions again rise above 267 ppmv; auxiliary oil addition is increased to stabilize combustion concurrently
13:14	CO emissions decrease below the hourly emission limit

Similarly to 9/2/18, while it appears that the excess emissions continued for two hours, in actuality, the facility immediately responded to rising pollutant emissions and continued to implement corrective actions for the approximately 40 minutes of cumulative elevated emissions over the two hours. While implementing troubleshooting to diagnose the cause of combustion upset, DRP implemented corrective actions which resulted in lower CO emissions until the malfunction was understood and repairs were implemented in the second adjacent hour.

The attached minute date for boiler 12 on 7/5/2018 from 4:00 through 5:59 shows the elevated CO emissions as a result of an auger plug associated with the 12-2 auger. The auger malfunction resulted in an upset in the combustion fuel bed. Corrective actions were implemented as follows.

04:07	CO emissions begin to rise above 267 ppmv; auxiliary oil addition is increased to stabilize combustion concurrently
04:20	CO emissions decrease below the hourly emission limit
04:33	CO emissions begin to rise above 267 ppmv; auxiliary oil addition is increased to stabilize combustion concurrently
04:40	CO emissions decrease below the hourly emission limit
04:52-04:55	CO emissions rise above 267 ppmv; auxiliary oil addition is increased to stabilize combustion concurrently
05:10-05:56	CO emissions oscillate above and below the hourly emission limit before stabilizing.

Similarly to the aforementioned examples, while it appears that the excess emissions continued for two hours, the facility immediately responded to rising pollutant emissions and continued to implement corrective actions for the individual combustion upsets within the two hours (23 cumulative minutes above the limit in the first hour and 35 minutes in the second hour). While implementing troubleshooting to diagnose the cause of combustion upset (auger plug) and clear the plug, DRP implemented corrective actions which resulted in lower CO emissions until the malfunction was corrected in the second adjacent hour.

DRP continues to evaluate the boiler operations and good combustion practices to minimize CO emissions. In addition, DRP is evaluating adjusting the CO one-hour emission limit through a permit to install modification.

Nitrogen Oxide 1-hour Block Average – FGBOILERS011-013, SC I.13.a

The elevated nitrogen oxide (NOx) emissions on 9/7/18 was the result of plugged augers and a high volume of ingress air. DRP decreased the RDF feed rate, added auxiliary oil, and reduced excess air to the boiler. Despite the facility's attempts to limit NOx emissions with corrective action, the hourly average was slightly above the emission limit.

As previously mentioned, DRP is reviewing permit to install modification options and plans to include the NOx emission limit in this review to adjust to the underlying applicable limit. According to Subpart Cb, the limit is 250 ppmv rather than 247 ppmv.

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, DRP
Jenine Camilleri, Enforcement Unit Supervisor, AQD, MDEQ

Enclosures
Minute Data
U11 9/2/2018
U11 9/3/2018
U12 7/5/2018