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WASTE MANAGEMENT

May 16, 2016

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Ms. Rebecca Loftus
Michigan Department of Environmental Quality
Southeast Michigan District Headquarters
Air Quality Division
27700 Donald Court
Warren, MI 48092-2793



RE: Pine Tree Acres, Inc. Landfill (SRN N5984)
Response to April 27, 2016 Violation Notice

Dear Ms. Loftus:

This correspondence is being submitted on behalf of Pine Tree Acres (PTA) in response to the April 27, 2016 Violation Notice. The Violation Notice cited an emission limit exceedance resulting from the compliance test conducted on February 8, 2016. Specifically, PTA's Engine #5 exceeded the carbon monoxide (CO) emission limit of 16.3 lbs./hr. required by PTI 160-14 and ROP MI-ROP-N5984-2013. The following provides Pine Tree's response to this Violation Notice.

RULE CITATION

The violation cites PTA for exceeding **both** of the following permitted CO emission limits for Engine #5:

- 3.3 g/bhp-hr, and
- 16.3 lbs./hr.

PTA wishes to clarify that the measured test result of 3.33 g/bhp-hr demonstrates compliance with the permitted emission limit of 3.3 g/bhp-hr based on the permit employing only two significant digits and conventional rounding practices. Nonetheless, PTA acknowledges exceeding the permitted lb./hr. limit. The permitted lb./hr. limit lists 40 CFR 52.21(d) – PSD and NAAQS as the underlying applicable requirements.

Compliance with these underlying applicable requirements is determined through dispersion modeling of the entire engine plant and cumulative CO emissions from all eight engines. Aside from the single, anomalous 2016 CO result for Engine #5, continuous compliance with all applicable emission limits for all eight engines has been demonstrated annually since 2012. The February 2016 compliance test results demonstrate the other seven engines are compliant with tested emissions, and are approximately 20% below their permitted CO emission limits. Engine #5's tested CO emission rate, approximately 3% higher than the permit limit, would not result in a modeled emission exceedance. Therefore, compliance with PSD and NAAQS is maintained for the overall engine plant emissions.

CAUSE OF VIOLATION

As an intermediate combustion product, carbon monoxide is formed in an engine's combustion chamber when the reaction of CO to CO₂ is somehow inhibited. Combustion factors contributing to excess CO are complex. Stoichiometric air-to-fuel ratios (lack of available oxygen), shortened residence time, lowered combustion temperature, insufficient turbulence, parts wear or a combination of these factors can contribute to an engine's excess CO emissions.

Prior to February's compliance test, all eight engines received routine maintenance (e.g. oil and filter changes, spark plug changes) and a top-end overhaul in accordance with WMRE's established Preventative Maintenance Plan. In the time leading up to the test, Engine #5's oil consumption was slightly elevated relative to the other seven engines, but still within tolerance.

CIRCUMSTANCES LEADING TO EXCEEDANCE DISCOVERY

The testing firm utilized an incorrect stack diameter to calculate emission rates both during testing and in preparing the DRAFT test report. This error was discovered through an internal Waste Management review of the DRAFT test report. Upon discovery, the testing firm was notified. The testing firm utilized the correct stack diameter to recalculate emissions, resulting in slightly higher levels being reported.

DURATION OF VIOLATION

As detailed in the April 22, 2016 permit deviation report, the potential duration of Engine #5's CO emission exceedance was 66 days. Engine #5 was initially tested on February 8, 2016, and the engine was shut down upon discovery of the emission exceedance on April 14, 2016. As previously discussed, a testing firm error in emissions calculations led to delayed notification to Waste Management and the resulting timeframe. All engines received routine maintenance during this period.

ACTION PLAN AND SCHEDULE

Following Engine #5's shutdown on April 14, 2016, mechanical diagnostics were performed and an in-frame maintenance service was completed, consisting of the replacement of:

- 20 remanufactured cylinder heads with new gaskets and spacer plates
- 20 pistons with new rings
- 20 new piston sleeves with new seals
- 20 new rod bearings
- Supporting gaskets and seals to re-assemble the coolant lines and oil lines
- All gaskets to install the oil pump, oil cooler and auxiliary pump
- Lubricating oil and filters
- Spark plugs
- Air filters

As you are aware, Engine #5 was retested for CO, NOx and VOC on 4/20/16 and demonstrated compliance with all applicable emission limits. To prevent a future emission violation, a thorough review of all maintenance activities will be performed, with specific focus on factors related to good combustion practices for the units. Please contact me at (586) 634-8085 with any questions you may have regarding this correspondence.

Sincerely,



Steve Walters
Environmental Engineer

Cc: Vic Saufley, WMRE
Pine Tree Acres Operating Record File