

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

N160467605

FACILITY: Kent County Waste to Energy Facility		SRN / ID: N1604
LOCATION: 950 Market Ave SW, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Rachael Underwood , Environmental Manager		ACTIVITY DATE: 05/02/2023
STAFF: Kaitlyn DeVries	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: The purpose of the inspection was to determine compliance with MI-ROP-N1604-2018a.		
RESOLVED COMPLAINTS:		

On Tuesday May 2, 2023, Department of Environment Great Lakes and Energy (EGLE) Air Quality Division (AQD) Staff Kaitlyn DeVries (KD) and Eric Grinstern (EG) conducted an unannounced, scheduled inspection of the Kent County Waste-to-Energy Facility located at 950 Market Avenue, Grand Rapids, Michigan. The purpose of the inspection was to determine compliance with MI-ROP-N1604-2018a.

KD arrived on site around 9:00 am on Tuesday May 2, 2023, Staff met with Ms. Rachel Underwood Environmental Manager for Vicinity Energy, who served as the primary contact during the inspection.

FACILITY DISCRIPTION

The Kent County Waste-to-Energy (KWTE) Facility is a 625 ton per day waste-to-energy facility that burns municipal solid waste and natural gas. The plant is owned by the Kent County Department of Public Works and is operated by Vicinity Energy.

The facility was constructed in 1989 and started operations in 1990, with round the clock operations. The facility is rated for a total output of 18 megawatts (MW), with an actual output of 11-13 MW after parasitic consumption. The facility receives approximately 900-1,100 tons of waste per day, of which approximately 550 tons is burned; any excess waste received at the facility is sent to a landfill.

The facility operates two (2) identical municipal solid waste mass burn waterwall combustors that can be co-fired with natural gas. The two (2) combustors produce steam that is converted into electricity for power generation.

At the time of the inspection, only Unit 2 was in operation. Per Ms. Underwood Unit 1 was down for scheduled maintenance, but extended longer than usual due to some repairs that were discovered during the scheduled maintenance that were not planned. Unit 2 is scheduled to go down for scheduled maintenance once Unit 1 is brought back online.

REGULATORY ANALYSIS

KWTE is subject to the Title V program and is currently operating under Renewable Operating Permit (ROP) No. MI-ROP-N1604-2018a. The facility is a major source of Nitrogen Oxides (NOx), Sulfur Dioxides (SOx), Carbon Monoxide (CO), and Hazardous Air Pollutants (HAPs). The ROP is currently in house for renewal, and is being processed by AQD's ROP Central Unit.

The facility is subject to 40 CFR Part 60 Subpart Cb the New Source Performance Standards (NSPS) Emissions Guidelines and Compliance Times for Large Municipal Waste

Combustors, which are incorporated by reference in 40 CFR Part 62, Subpart FFF, the Federal Requirements for Large Municipal Waste Combustors. The updates to Subpart Cb were re-promulgated in 2019, thus the references to Subpart FFF in the ROP were removed and replaced with R 336.1973. The facility is also subject to the Maximum Achievable Control Technology Standards for Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63 Subpart ZZZZ and the NSPS for Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 60 Subpart IIII. Additionally, this source is subject to the provisions of 40 CFR Part 64 Compliance Assurance Monitoring. Each of these Federal regulations will be discussed in further detail in the Compliance Evaluation portion of this report.

COMPLIANCE EVALUATION

Source-Wide Conditions

The Source-Wide conditions require the implementation and maintenance of a Fugitive Dust Control Strategy and a Consolidated Plan for Waste and Odors (Handling of Hazardous or Unacceptable Waste/Odor Control Strategy Program). There have been no new updates to the Fugitive Dust Control Strategy, and the Consolidated Plan for Waste and Odors, which were most recently revised in October 2020. Per records, the facility is following these plans.

The Fugitive Dust Control Strategy specifies the potential sources of fugitive dust at the facility and the control strategies that are utilized to reduce and prevent fugitive dust. As part of the plan, weekly observations are conducted for fugitives from source points such as roadways, and the roof vent. No fugitive dust was observed during the inspection, including during the load out from the ash.

The Consolidated Plan for Waste and Odors outlines the sources strategy for controlling odors and is based upon three (3) elements: Handling incoming municipal solid waste (MSW), facility design, and operational procedures. The AQD has not received any recent odor complaints from the facility nor were any odors detected off property.

EU-ASHSYSTEM

This emission unit is for the ash storage and handling equipment. There is a separate ash handling system for each combustor. Bottom ash and fly ash are quenched before being combined and transported by a single covered vibrating conveyor to an inclined belt conveyor and then to an enclosed ash storage building. Rooftop ventilation of the enclosure is equipped with vent filters.

This emission unit has an emission limit of up to nine (9) minutes of visible fugitive ash emission per three (3) hour period. Any visible emissions are documented on the weekly environmental inspections form that the facility maintains, and a review of the records showed no fugitive dust from the roof vents were observed. No visible emissions were observed during the inspection either.

The facility is required to conduct visible emissions testing for fugitive dust from EU-ASHSYSTEM utilizing USEPA Method 22 – Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares, on an annual Basis. Testing was

most recently done during the annual testing in 2022. No visible emissions were observed at any point during the inspection.

The facility also has implemented and maintains a Malfunction Abatement Plan (MAP) for the roof vent filter.

EU-LIMESYSTEM

This emission unit is for the lime storage and handling equipment. Pebble lime is transferred from bulk trucks through an enclosed conduit to a vented storage silo, equipped with a filter to control particulate emissions from displaced silo air. The lime is used in the dry scrubber for acid gas control.

Particulate Matter (PM) emissions from EU-LIMESYSTEM are limited to 0.015 grains per dry standard cubic foot of exhaust gas and opacity is limited to 5% based upon a six (6) minute average. Compliance with the emission limits is based upon the proper operation of the bin vent filter on the storage silo. Monthly visual inspections for opacity, while in operation, are required. A review of the records indicated no visual emissions were observed during observations. Observations are being conducted during receipt of lime as well as observations of the lime silo on a weekly basis as part of the weekly environmental inspection report. No visible emissions were observed during the inspection.

The facility has properly implemented and maintains a MAP for this emission unit.

EU-COOLINGTOWER

This emission unit is the counter flow mechanical induced draft cooling tower with mist eliminators. KWTE is required to have the mist eliminators installed and operating. KWTE is required to conduct and record semi-annual inspections to confirm the mist eliminators are installed and properly operating. Per the records, KWTE is properly conducting these inspections, having most recently conducted an inspection in September 2022.

FG-COMBUSTORS

This flexible group includes two (2) identical Municipal Solid Waste (MSW) mass burn waterwall combustor units. Each unit is equipped with a baghouse, a dry scrubber, a carbon injection system, and a selective non-catalytic reduction (SNCR) system. The MSW combustors produce steam for process use, export, and for electrical generation. Each unit is rated at 312.5 tons per day MSW at a higher heating value of 4,800 BTU/lb. and 125 MMBTU per hour. The baghouses are subject to 40 CFR Part 64 for Compliance Assurance Monitoring (CAM), for PM emissions, which will be discussed in more detail below.

There are several emission limits imposed on each of the two (2) combustors, and compliance testing is required to be conducted annually, alternating between Unit 1 and Unit 2. The most recent testing was conducted in 2022 testing and was done on both units. KCWTE has submitted, a test plan for the required annual testing to be conducted in June of 2023. Table 1, below, outlines the emission limits set forth for each combustor and the most recent test results. The methodology used for testing is outlined in MI-ROP-N1604-2018a.

Table 1: Emission Limits for FG-COMBUSTORS

Pollutant	Limit (each Unit)	Averaging Times	Actual Emissions
Particulate Matter (PM)	25 mg/dry standard cubic meter (dscm), corrected to 7% oxygen	At all times while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a of this permit and 40 CFR 60.58b(a)(1) referenced by 40 CFR 60.38b	Unit 1: 1.75 mg/dscm corrected to 7% oxygen Unit 2: 3.26 mg/dscm corrected to 7% oxygen
Particulate Matter (PM)	0.010 grain/dry standard cubic foot (dscf), corrected to 7% oxygen	Based upon a 2-hour average	Unit 1: 0.000767 gr/dscf corrected to 7% oxygen Unit 2: 0.00142 gr/dscf corrected to 7% oxygen
Particulate Matter (PM)	2.6 pounds per hour (pph)	Based upon a 2-hour average	Unit 1: 0.193 pph Unit 2: 0.375 pph
Opacity	10%	6-minute average while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) referenced <i>And</i> 6-minute average	COMS readings on May 2, 2023 Unit 1: Unit down Unit 2: 0.7%
Sulfur Dioxide (SO ₂)	29 ppmv on a dry basis (ppmvd), or 25% of uncontrolled emissions, whichever is less stringent, corrected to 7% oxygen	Based on a 24-hour daily geometric mean, when firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1)	Unit 1: 2 ppmvd Unit 2: 2 ppmvd

		referenced by 40 CFR 60.38b	
Sulfur Dioxide (SO ₂)	50 ppmvd, or 25% of uncontrolled emissions, whichever is less stringent, but not to exceed 75 ppmvd, corrected to 7% oxygen	Based on an 8-hour block average	Unit 1: 3 ppmvd Unit 2: 3 ppmvd CEMS Observations from May 2, 2023 Unit 1: Unit down Unit 2: 1 ppmvd
Sulfur Dioxide (SO ₂)	15 pounds per hour, or 25% of uncontrolled emissions, whichever is less stringent, but not to exceed 22.45 pph	Based on an 8-hour block average	Unit 1: 0.889 pph Unit 2: 0.937 pph
Oxides of Nitrogen (NO _x)	205 ppmvd, corrected to 7% oxygen	Based on a 24-hour daily arithmetic average, when firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) reference	Unit 1: 137 ppmvd Unit 2: 176 ppmvd CEMS Observations made on May 2, 2023 Unit 1: Unit down Unit 2: 157 ppmvd
Oxides of Nitrogen (NO _x)	400 ppmvd, corrected to 7% oxygen	Based on a 1-hour block average, when firing MSW or a combination of MSW and sweet natural gas	Unit 1: 134 ppmvd Unit 2: 172 ppmvd CEMS Observations made on May 2, 2023 Unit 1: Unit down Unit 2: 135 ppmvd
			Unit 1:

Oxides of Nitrogen (NO _x)	86 pounds per hour when firing MSW	Based on a 1-hour block average, when firing MSW or a combination of MSW and sweet natural gas <i>And</i> Based on a 1-hour block average, when firing sweet natural gas only	30.4 pph Unit 2: 39.3 pph
Oxides of Nitrogen (NO _x)	350 ppmvd, corrected to 7% oxygen	Based on a 3-hour block average, when firing MSW or a combination of MSW and sweet natural gas	Unit 1: 132 ppmvd Unit 2: 171 ppmvd
Oxides of Nitrogen (NO _x)	75.25 pounds per hour when firing MSW	Based on a 3-hour block average, when firing MSW or a combination of MSW and sweet natural gas <i>And</i> Based on a 3-hour block average, when firing sweet natural gas only	Unit 1: 29.5 pph Unit 2: 39.9 pounds per hour
Carbon Monoxide (CO)	100 ppmvd, corrected to 7% oxygen	Based on a 4-hour block average, when firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) reference	Unit 1: 10 ppmvd Unit 2: 12 ppmvd CEMS Observations from May 2, 2023 Unit 1: Unit down Unit 2: 9 ppmvd
Carbon Monoxide (CO)	200 ppmvd, corrected to 7% oxygen	Based on a 1-hour block average, when firing MSW or a combination of MSW and sweet natural gas	Unit 1: 12 ppmvd Unit 2: 8 ppmvd
Carbon Monoxide (CO)	26.05 pph when firing MSW	Based on a 1-hour block average, when firing MSW or a combination of MSW and sweet natural gas <i>And</i> Based on a 1-hour block average, when firing sweet natural gas only	Unit 1: 1.66 pph Unit 2: 1.11 pph
Carbon Monoxide (CO)		Based on an 8-hour block average, when firing	Unit 1: 11 ppmvd

	50 ppmvd, corrected to 7% oxygen	MSW or a combination of MSW and sweet natural gas	Unit 2: 9 ppmvd CEMS Observations from May 2, 2023 Unit 1: Unit down Unit 2: 9 ppmvd
Carbon Monoxide (CO)	6.51 pph when firing MSW	Based on an 8-hour block average, when firing MSW or a combination of MSW and sweet natural gas <i>And</i> Based on an 8-hour block average, when firing sweet natural gas only	Unit 1: 1.43 pph Unit 2: 1.37 pph
Hydrogen Chloride (HCl)	29 ppmvd, or 5% of uncontrolled emissions, whichever is less stringent, corrected to 7% oxygen	At all times while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) referenced by 40 CFR 60.38b	Unit 1: 22.0 ppmvd Unit 2: 5.59 ppmvd
Hydrogen Chloride (HCl)	8.55 pph	Based on a 3-hour block average	Unit 1: 3.93 pph Unit 2: 1.05 pph
Total Fluorides	2.5 milligrams per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: <0.0795 milligrams per dscm Unit 2: <0.0810 milligrams per dscm
Total Fluorides	0.28 pph	Based on a 2-hour average	Unit 1: <0.00908 pph Unit 2: <0.000944 pph
Non-methane Hydrocarbons	8.3 milligrams per dscm, corrected to 7% oxygen	Based on a 1-hour average	Unit 1: 0.763 milligrams per dscm

			Unit 2: 0.605 milligrams per dscm
Non-methane Hydrocarbons	0.94 pph	Based on a 1-hour average	Unit 1: 0.0886 pph Unit 2: 0.0751 pph
Lead (Pb)	0.400 milligram per dscm, corrected to 7% oxygen	At all times while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) referenced by 40 CFR 60.38b	Unit 1: 0.00695 milligram per dscm Unit 2: 0.00486 milligram per dscm
Lead (Pb)	0.87 milligram per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: 0.00695 milligram per dscm Unit 2: 0.00486 milligram per dscm
Lead (Pb)	0.10 pph	Based on a 2-hour average	Unit 1: 0.000768 pph Unit 2: 0.000558 pph
Mercury (Hg)	0.050 milligram per dry standard cubic meter, or 15% of potential emissions, whichever is less stringent, corrected to 7% oxygen	At all times while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) referenced by 40 CFR 60.38b	Unit 1: <0.000545 milligram per dscm Unit 2: <0.000500 milligram per dscm
Mercury (Hg)	0.61 milligram per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: < 0.000545 milligram per dscm Unit 2:

			< 0.000500 milligram per dscm
Mercury (Hg)	0.07 pph	Based on a 2-hour average	Unit 1: < 0.0000602 pph Unit 2: < 0.0000576 pph
Sulfuric Acid Mist	39 milligrams per dscm, corrected to 7% oxygen	Based on a 1-hour average	Unit 1: 0.0603 milligrams per dscm Unit 2: <0.0308 milligrams per dscm
Sulfuric Acid Mist	4.4 pph	Based on a 1-hour average	Unit 1: 0.00707 pph Unit 2: <0.00380 pph
Arsenic (As)	6.2 micrograms per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: 0.203 micrograms per dscm Unit 2: <0.160 micrograms per dscm
Arsenic (As)	7.0×10^{-4} pph	Based on a 2-hour average	Unit 1: 2.24×10^{-5} pph Unit 2: < 1.84×10^{-5} pph
Beryllium (Be)	0.16 microgram per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: <0.0417 microgram per dscm Unit 2: <0.0401 microgram per dscm
Beryllium (Be)	1.83×10^{-5} pph	Based on a 2-hour average	Unit 1: < 4.60×10^{-6} pph Unit 2: < 4.61×10^{-6} pph
Cadmium (Cd)	35 micrograms per dscm, corrected to 7% oxygen	At all times while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and	Unit 1: 0.635 micrograms per dscm Unit 2:

		malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) referenced by 40 CFR 60.38b	0.490 micrograms per dscm
Cadmium (Cd)	37 micrograms per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: 0.635 micrograms per dscm Unit 2: 0.490 micrograms per dscm
Cadmium (Cd)	4.17×10^{-3} pph	Based on a 2-hour average	Unit 1: 7.01×10^{-5} pph Unit 2: 5.63×10^{-5} pph
Hexavalent Chromium	4.2 micrograms per dscm, corrected to 7% oxygen	Based on a 2-hour average	Unit 1: 1.69 micrograms per dscm Unit 2: <0.0732 micrograms per dscm
Hexavalent Chromium	4.69×10^{-4} pph	Based on a 2-hour average	Unit 1: 1.87×10^{-4} pph Unit 2: < 8.37×10^{-6} pph
Municipal Waste Combustor Organic Compounds, expressed as total mass dioxins/furans	30 nanograms per dscm, corrected to 7% oxygen	At all times while firing MSW or a combination of MSW and sweet natural gas, except during periods of startup, shutdown, and malfunction, as explained in Appendix 1a and 40 CFR 60.58b(a)(1) referenced by 40 CFR 60.38b	Unit 1: 8.25 nanograms per dscm Unit 2: 2.66 nanograms per dscm
Total Polychlorinated Dibenzo-p-dioxins (PCDD) and Total Polychlorinated Dibenzo-furans (PCDFs) including all tetra through octa isomers	3.0 nanograms per dscm, expressed as 2,3,7,8 TCDD toxic equivalents using factors in Appendix 5, corrected to 7% oxygen	Based on a 4-hour average	Unit 1: 0.00478 nanograms per dscm Unit 2: 0.0129 nanograms per dscm

Total Polychlorinated Dibenzo-p-dioxins (PCDD) and Total Polychlorinated Dibenzo-furans (PCDFs) including all tetra through octa isomers	3.38. x 10 ⁻⁷ pph, expressed as 2,3,7,8 TCDD toxic equivalents using factors in Appendix 5	Based on a 4-hour average	Unit 1: 5.63 x 10 ⁻⁰⁹ pph Unit 2: 1.62 x 10 ⁻⁰⁹ pph
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It should be noted that the data presented for Hexavalent Chromium for Unit 1 reflects the results from simultaneous reference EPA Method 29 for total Chromium. The results of the Hexavalent Chromium using SW846 Method 0061 resulted in higher emission than the total Chromium under EPA Method 29, by a factor of seven (7) based on the concentration. The approval letter issued by the AQD allowed for the use of total Chromium emissions from the Method 29 testing instead of reporting Hexavalent Chromium.

In addition to emission limits, KWTE has some material limits for FG-COMBUSTORS. The steam load for each of the combustors is limited to 81,000 pounds of steam per hour, based upon a four-hour block average. Federal Regulation 40 CFR Part 60 Subpart Eb the Standards of Performance for Large Municipal Waste Combustors further limit the steam flow to 10% greater than what is achieved during stack testing. However, since the maximum four-hour block average plus 10% is greater than the limit of 81,000 pounds per steam per hour, the 81,000 pounds of steam per hour is the maximum allowable steam rate. At the time of the inspection, Unit 2 had a steam flow of 76,400 pounds per hour. As previously mentioned, Unit 1 was down at the time of the inspection. Records for the previous 12 months, indicate that the 4-hour block averages are below the maximum 81,000 pounds per hour.

Natural gas usage is limited to 59,524 cubic feet per hour, per unit and to 104,000,000 cubic feet per calendar year, per unit. Records indicate that a total of 6,016,400 cubic feet for Unit 1, and 5,416,100 cubic feet for Unit 2. Both are for calendar year 2022. Only sweet natural gas is burned.

As previously mentioned, each of the units has a baghouse used for PM control. The maximum baghouse temperature is established during stack testing, based upon a 4-hour arithmetic average, with the allowed maximum not more than 30°F above. The temperature that was established was 352°F for both units 1 and 2. Records indicate compliance with this limit.

Similarly, the average carbon mass feed rate is established during stack testing, based upon an 8-hour block average. During the inspection, the carbon feed rate was 10.4 pounds per hour on an 8-hour average, for both units. 10.4 pounds per hour was the established rate during previous performance testing. A review of the records for the carbon injection system indicated the injection rate is at or above 10.4 pounds per hour. For the previous four (4) quarters, a total of 171,277 pounds of carbon was injected. KWTE is properly tracking the carbon usage, as required.

During the inspection all of the control devices, including, the dry scrubbers, baghouses, SNCR, and carbon injection system were properly operating, for Unit 2. The baghouse had

differential pressures of 14.5 inches of water column ("WC). The PM emissions from the baghouses are subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). KWTE has been properly submitting the required CAM reports.

The scrubber for Unit 2 was also properly operating. A review of the records for both the baghouses and the scrubbers for each unit indicate that they have been properly operating. In addition to monitoring the differential pressure of the baghouses and scrubbers, KWTE monitors and records the inlet temperature for the baghouses and the outlet temperature of the scrubbers. The outlet temperature for Unit 2 scrubber was 320°F.

As mentioned above, Unit 1 was down, and the scrubber associated with the unit was being repaired. According to Ms. Underwood, the inside casing of the scrubber needed maintenance repairs, and this was the unexpected repairs that were prolonging the Unit 1 outage.

The SNCR uses ammonia to control NOx emissions. The ammonia injection rate was 14.4 pounds per hour. As previously mentioned, the carbon feed rate was 10.4 pounds per hour.

A lime slurry is used for acid gas control. The lime slurry feed system is automatically modulated and interfaces with the SO₂ CEMS, automatically increasing the injection rate when there is an increase in SO₂ emissions. The lime slurry feed rate has an established feed rate of twenty (20) pounds of lime per ton of waste fed, for both units. This rate is based on controlling the pH in the ash. KWTE monitors the specific gravity of the lime slurry, at least once per day, and adjusts the flow as needed to maintain the twenty (20) pounds of lime per ton of waste. Based on the records, the specific gravity of the lime is between 1.09 and 1.15.

The facility relies on a Continuous Opacity Monitoring System (COMS) for opacity, Continuous Emissions Monitoring Systems (CEMS) for SO₂, CO, NOx, and O₂. Each of the units have all of these systems. The CEMS data is used to calculate and evaluate compliance with the emission limits outlined in Table 1 of this report (see above). The CEMS and the COMS units passed their daily calibrations, and the daily calibrations are attached to this report. The emissions records from the CEMS and the COMS units were reviewed during this full compliance evaluation and are reviewed as part of the excess emissions reports that KWTE is required to submit. All reports have been submitted in a timely manner.

KWTE has implemented and maintains a MAP, with the most version being revised in October 2020. KWTE did report a couple of malfunctions, which resulted in some emissions exceedances, but all were previously reported, and reported appropriately, in compliance with the requirements of FGCOMBUSTORS SC VI. 48.

Additionally, there were periods of time where no certified shift supervisor was present on site. KWTE has properly reported this, and KD asked Ms. Underwood about those periods of time. Ms. Underwood ensured KD that Vicinity would work to make sure that enough operators are certified and made available on site. The AQD will continue to monitor this.

While the stacks were not explicitly measured, the two (2) identical stacks appeared to be of correct dimensions.

FG-CIRICEMACT

This flexible group covers one (1) emergency compression ignition internal combustion engine (EU-PUMPHOUSE-1) that is subject to the provisions of 40 CFR Part 63 Subpart ZZZZ. Due to the installation date of this engine, it is not subject to the NSPS requirements.

Hours of operation for the engine are limited to 100 hours per year. During the previous 12 months, the engine operated for a total of 42 hours

Routine maintenance is conducted on the engine including inspections of the air cleaner, hoses and belts; the most recent maintenance records are attached to this report.

FG-CIRICENSPS

The facility currently has one (1) emission unit in this flexible group, EU-PUMPHOUSE-2, which is an existing emergency compression ignition internal combustion engine that is less than 500 HP. This emission unit is subject to the RICE MACT, 40 CFR Part 63 Subpart ZZZZ and to NSPS 40 CFR Part 60 Subpart IIII. Compliance with Subpart ZZZZ is demonstrated via compliance with Subpart IIII.

This is a Certified engine and runs for the purposes of maintenance checks and readiness testing. As a Certified Diesel fired engine, it meets the emission requirements of 10.5 g/KW-hr for NMHC+NOx, 5.0 g/KW-hr for CO, and 0.80 g/KW-hr for PM. So long as this is a certified engine, testing is not required to verify the emissions.

The sulfur content of the diesel fuel is limited to a maximum content of 1,000 ppm. Per records from the supplier, the sulfur content of the diesel fuel is less than 15 ppm.

Hours of operation for the engine are limited to 100 hours per year. During the previous 12 months, the engine operated for a total of 25.3 hours.

Routine maintenance is conducted on the engine; the most recent maintenance records are attached to this report.

FG-COLDCLEANERS

This flexible group covers any cold cleaner that is grandfathered or exempt from Rule 201 permitting pursuant to Rule 278, 278(a) and Rule 281(2)(h) or Rule 285(2)(r)(iv). Per Ms. Underwood, KCWTE has two (2) units. These units were recently replaced, are maintained by Safety Kleen, and are kept closed when not in use.

Compliance Determination

Based upon the observations made during the inspection and a subsequent review of the records it appears that Kent County Waste-to-Energy Facility is in compliance with applicable air quality rules and regulations at the time of the inspection.

NAME *Kaitlyn DeVries*

DATE 6/2/2023

SUPERVISOR *HH*