

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

B283868167

FACILITY: Vicinity Energy Grand Rapids, LLC		SRN / ID: B2838
LOCATION: 156 W Fulton Ave, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Leon Wardell , Plant Manager		ACTIVITY DATE: 06/27/2023
STAFF: Michael Cox	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Unannounced Inspection		
RESOLVED COMPLAINTS:		

On Tuesday June 27, 2023, Department of Environment, Great Lakes, and Energy Air Quality Division (AQD) staff Michael Cox (MTC) conducted an unannounced, scheduled inspection of Vicinity Energy Grand Rapids, LLC located at 156 W. Fulton Ave, Grand Rapids, Michigan. The purpose of the inspection was to determine compliance with Renewable Operating Permit MI-ROP-B2838-2020 and other applicable air quality rules and regulations. MTC arrived at the facility at approximately 1:00 pm. Prior to entrance into the facility, odor and visible emissions observations were taken. No odors or visible emissions were noted. MTC met with Mr. Leon Wardell, Plant Manager, who provided records on site and answered site specific questions. Accompanying MTC on the facility walkthrough was Mr. Allen Spencer, Chief Engineer, who also answered site specific questions.

Facility Description

Vicinity Energy Grand Rapids, LLC (Vicinity) is a district heating and cooling facility that provides steam to meet the heating and cooling demands of a defined portion of downtown Grand Rapids, Michigan. The service area is expanding, but includes Grand Valley State University's downtown campus, Michigan State University's Campus, and St. Mary's Hospital. Vicinity has four (4) boilers that are permitted to burn either natural gas or fuel oil to produce the steam. It was noted that the boilers are no longer capable of burning fuel oil and all associated equipment has been removed. Due to the current incapability to fire fuel oil, the boilers are considered natural gas only boilers as an area source under the National Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63, Subpart JJJJJJ for Industrial, Commercial, and Institutional Boilers, and is no longer subject to those provisions. EU-UNIT-05 is subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart JJJJ, the Standards of Performance for Reciprocating Internal Combustion Engines (RICE) as well as NESHAP 40 CFR Part 63 Subpart ZZZZ for Reciprocating Internal Combustion Engines.

Regulatory Analysis

Vicinity is subject to the Title V program, and currently holds MI-ROP-B2838-2020. Vicinity is a major source of carbon monoxide (CO) and nitrogen oxides (NO_x) emissions. Vicinity is not currently subject to the Prevention of Significant

Deterioration (PSD) regulations of Part 18 since the process equipment was constructed prior to June 19, 1978. However, if there are modifications of the process equipment, the source may be subject to the PSD requirements in the future.

Compliance Evaluation

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EU-UNIT-05:

This emission unit is an EPA Certified Kohler Power Systems natural gas fired emergency generator that is used for back-up in the event of a power failure. This unit was not in operation at the time of the inspection.

The 184-kW emergency generator is exempt from Rule 201 permitting under Rule 285 (2)(g). This unit is, however, subject to NSPS 40 CFR Part 60 Subpart JJJJ, the Standards of Performance for Reciprocating Internal Combustion Engines (RICE). This engine is also subject to NESHAP 40 CFR Part 63, Subpart ZZZZ for Reciprocating Internal Combustion Engines. Compliance with NSPS 40 CFR Part 60, Subpart JJJJ demonstrates compliance with NESHAP 40 CFR Part 63, Subpart ZZZZ.

The certification ensures compliance with the emission limits of 2 g/hp-hr for NO_x, 4 g-hp-hr for CO, and 1 g/hp-hr for VOC (excluding HCHO). A non-resettable hour meter is installed on the unit. The hours of operation were noted to be 93.5, which is consistent with the hours of operation records provided on site. It was noted that all hours of operation were for the purposes of maintenance and readiness testing. Since the total operational hours of the engine is 93.5 hrs., the engine is compliant with the operational restriction of no more than 100 hours per calendar year. Maintenance records were also requested and provided for EU-UNIT-05. The most recent maintenance conducted on the engine was noted to have occurred on June 25, 2023.

FG-UNITS-01-04:

This flexible group consists of four (4) natural gas/fuel oil-fired boilers. Units 1, 2, and 3, are rated at 120 mmBTU/hr, capable of producing 100,000 pounds of steam per hour. Unit 4 is rated at 180 mmBTU/hr, capable of producing 150,000 pounds of steam per hour. Units 1, 2, and 4 were in operation at the time of the inspection, with unit 3 offline.

As stated above, fuel oil is no longer used in the boilers. Mr. Wardell stated that the fuel oil tank was emptied on August 30, 2018. The pipes for the fuel oil tank were

disconnected on September 4, 2018, and then the pipes and fuel oil tank were removed from the site location on September 7, 2018. Since no fuel oil has been used, no sulfur content records, or associated fuel oil records were evaluated. Prior to going to the boilers, the process water used gets treated to remove any impurities. The treatment process includes going through a reverse osmosis (RO) system, and pH adjustment. The treatment of the process water is exempt from Rule 201 permitting per Rule 285(2)(m).

Vicinity properly tracks the monthly and 12-month rolling natural gas usage for each boiler, and records of the 12-month natural gas usage were reviewed on site. The current 12-month rolling usage for all boilers combined was noted to be 777,368 ft³. It should be noted that there is no limit for the amount of natural gas used by the facility. Vicinity also tracks the corresponding natural gas BTU content from each bill received from the supplier. In conjunction with tracking the natural gas usage, Vicinity tracks emissions data for natural gas, steam production, and the daily heat input. All records are kept on a daily basis. The emissions reported are consistent with what has been reported for the 2022 MAERS cycle.

The boilers are tuned annually to achieve maximum operating capacity and efficiency. Units 1, 2, 3, and 4 were tuned in the fall of 2022. Mr. Wardell and Mr. Spencer both stated that Unit 4 had been rebuilt in 2021 but did not trigger reconstruction due to being less than 50% of the capital cost of a new unit. The Unit4 rebuild was addressed during a previous inspection and no compliance issues were noted at that time.

Units 2, 3, and 4 are exhausted through an economizer, which increases each unit's efficiency. The economizer recovers the heat from the air, gets put into the water, which is then recirculated back through the system, thus allowing the overall system to be at least 10% more efficient.

Four (4) stacks are listed in association with this flexible group. The stacks were observed venting unobstructed vertically. The stacks appeared to be consistent with the dimensions listed in MI-ROP-B2838-2020.

EU-PARTSCLEANER:

This emission unit has been incorporated into the ROP to allow for flexibility if the facility were to choose to install one of these units. However, presently there are not any emission units at the facility subject to these provisions.

Compliance Determination

Based on the observations made during the inspection and a subsequent review of the records, it appears Vicinity Energy Grand Rapids, LLC is in compliance with MI-ROP-B2838-2020 and all other applicable air quality rules and regulations.

NAME Michael T. Cox

DATE 7/13/2023

SUPERVISOR HH