

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B283832575

FACILITY: Veolia Energy Grand Rapids, LLC		SRN / ID: B2838
LOCATION: 156 W Fulton Ave, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: James Monterusso , General Manager		ACTIVITY DATE: 12/17/2015
STAFF: Steve Lachance	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled FCE for FY '016		
RESOLVED COMPLAINTS:		

On December 17, 2015, starting at about 1 PM, SL conducted a scheduled inspection of the Veolia district steam plant. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit (ROP) Number MI-ROP-B2838-2015. Responsible Official Mr. Jim Monterusso (616-356-2535) was not available this day, but the facility was represented by on-site personnel Mr. Larry Gephardt (operations) and Mr. Brent Buller (safety and environment).

FACILITY DESCRIPTION

The facility provides steam to meet the heating and cooling demands of a defined district/portion of downtown Grand Rapids. Steam is produced by four oil/gas-fired boilers. Three of the boilers are each designed to generate up to 100,000 pounds per hour of steam with a maximum heat input of 120 million Btu per hour. The fourth boiler is designed to generate up to 150,000 pounds per hour of steam with a maximum heat input of 180 million Btu per hour.

Operations began at this downtown Grand Rapids location in 1888 as the Grand Rapids Edison Light and Fuel Company. In the 1920's, Consumers Power Company rebuilt this source into a coal-fired steam plant with a back pressure turbine/generator. In 1964, Consumers Power Company installed three larger capacity boilers in December and replaced the fourth boiler in November, 1969. These (current) boilers could burn either natural gas or fuel oil. Kent County became the owner of the system in 1986. Veolia Energy Grand Rapids, LLC acquired the facility in late 2008.

The facility's service area is reportedly currently expanding, with Grand Rapids Community College, portions of GVSU's downtown campus, the MSU Medical School building and other downtown clients connecting to the district system for heating and/or cooling needs.

The stationary source is located in Kent County, which is currently designated by the U.S. Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR), Part 70, because the potential to emit carbon monoxide and nitrogen oxides exceeds 100 tons per year.

The stationary source is not considered to be a major source of Hazardous Air Pollutant (HAP) emissions because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112 is less than 10 tons per year and the potential to emit of all HAPs combined is less than 25 tons per year. As such, the stationary source equipment is subject to applicable Area Source MACT Rules (see below).

No emission units at the stationary source are currently subject to the Prevention of Significant Deterioration (PSD) regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451 or 40 CFR, Part 52.21 because the process equipment was constructed/installed prior to June 19, 1978, the promulgation date of the PSD regulations. Modifications of the process equipment at this stationary source may be subject to the PSD requirements for attainment pollutants.

The stationary source is not subject to any New Source Performance Standards (NSPS). The most recent permitting action enabling additional fuel flexibility was not considered to be a modification subject to NSPS, since the equipment had the existing ability to burn the fuel oil in question and there was no net increase in emissions due to the permitted change.

While natural gas is the primary fuel fired, the facility also has the capability to burn fuel oil in Units 1-3. There is

a 150,000-gallon tank located immediately south of the plant. This storage tank is exempt from a permit-to-install pursuant to Rule 336.1284(d).

Per the current version of the Boiler MACT for Area Sources (40 CFR 63, Subpart JJJJJJ), operations with oil are enforceably limited to levels (emergency use only; 48 hours per year for testing, etc.) that define the boilers as Gas1 units. The units are therefore exempted from regulation per this rule.

The facility recently (2012) installed a natural gas-fired emergency backup engine/generator set. This engine is subject to 40 CFR 60, Subpart JJJJ (which covers the requirements of the Reciprocating Internal Combustion Engine {RICE} MACT.) This is a certified engine and so testing will not be required.

The stationary source is not subject to Acid Rain permitting (40 CFR 72), the NOx Budget Trading program pursuant to Rules 802 through 816, or Rule 801.

No emission units are subject to the federal Compliance Assurance Monitoring rule under 40 CFR, Part 64, because all emission units at the stationary source either do not have a control device or those with a control device do not have potential pre-control emissions over the major source thresholds.

COMPLIANCE EVALUATION

The field portions of the evaluation were primarily completed on December 17, 2015. Various visible emissions evaluations have historically been completed, and no visible emissions (other than condensed water vapor) have been observed while operating on natural gas. Weather conditions during the on-site assessment were humid, overcast, about 35 degrees F, and with generally westerly winds of about 20 mph.

Prior to ambulatory arrival at the site, no visible emissions (other than condensed water vapor) or malodors attributable to the source were noted.

On-site inspection activities began at about 1 PM when SL presented himself at the facility's west door/buzzer. SL was greeted by, and conducted an entrance interview with, facility manager Mr. Larry Gephardt. SL provided DEQ's "Environmental Inspections; Rights and Responsibilities" brochure at this time.

- Mr. Gephardt indicated no known operational issues at this time.
- Only Unit 4 was operating at this time (and so natural gas combustion, only.)
- He indicated no known issues with the permit at this time.
- The facility again confirmed operations on natural gas only, with oil reserved only for emergency backup. No oil has reportedly been burned since the last inspection (2014).
- Responsible Official Mr. Monteruso had provided analytical results for on-site oil reserves at the last inspection. Heating value and sulfur-in-oil content are in expected value ranges. These results, in corroboration with previous DEQ sampling/test results of the oil on-site, and in conjunction with the firing of enforceably limited amounts of oil, and as supported by on-site records, are the basis for complying with any sulfur-in-oil and SO2 limitations within the permit.

EU_Unit-05

The Kohler natural gas-fired, emergency-use (only) engine serving the 185 kW generator is exempt from state permitting per Rule 285(g). The 10-cylinder engine is nominally subject to the RICE MACT (40 CFR 63, Subpart ZZZZ), but this category points to the NSPS, 40 CFR 60, Subpart JJJJ for requirements. This is a certified engine (see 2012 Inspection Report) and so no further testing will be required per this rule.

The required hour meter on this engine indicated 59.5 hours of use (compared to 54 in August 2014); the engine was installed in late 2012. No maintenance requirements have reportedly been triggered, yet.

FG-UNITS-01-04

Boiler Units 1 through 3 have a maximum steam capacity of 100,000 pounds per hour (pph), while Unit 4 has a maximum steam capacity of 150,000 pph. Unit 4 (the largest and most frequently used) fires only natural gas. Each unit is too small for regulation under Part 8.

Applicable requirements are outlined in Table "FG-UNITS-01-04" of the ROP. Other than stack and reporting requirements, all applicable requirements are based on the use of compliant fuel oil and associated monitoring/recordkeeping.

Emission Limits

Each of the applicable Sulfur Dioxide (SO₂) emission limits (pounds per mmBtu and pph) is based on the use of compliant oil. Use of natural gas only guarantees compliance with these limits.

The current oil inventory is the same as that which was on-site during the 2007 inspection. As part of that inspection, SL sampled and tested this oil, and the DEQ Laboratory indicated 0.32% sulfur and 17,800 Btu/pound, for emissions equating to about 0.36 pounds SO₂/mmBtu heat input. This oil easily complies with these sulfur limits. See A-GR-11684 in MCDS.

Lab results previously supplied by Mr. Monterusso ([see 2014 report](#)) indicate similar compliant values: 0.33% sulfur and about 17,871 Btu/pound.

The facility is also subject to a general opacity requirement (20% for a 6-minute average with the exception of one value per hour not to exceed 27% opacity.) All previous Method 9 observations by AQD have indicated 0% opacity; all have been completed during operations on natural gas only.

Material Limits

The facility only burns natural gas and oil.

Process/Operational Restrictions

SL previously confirmed that all startups use natural gas only.

Design/Equipment Parameters

The facility uses supplier certification as the basis for documenting compliant oil. Per A-GR-11684 and sample results discussed above, laboratory results substantiate these specifications.

Monitoring/Recordkeeping

The facility maintains daily records of fuel use. These are electronically archived, including daily heat input and steam production. See [attached](#) for an example daily log; these were current and readily available.

Current operating conditions observed were:

EU-UNIT -4

- 115 kpph steam produced at 212 psi
- 77% "throttle"/capacity
- 132,300 scf/hr (natural gas, only)
- 2.9% O₂

ECONOMIZER

- 263 degrees F air IN
- 120 degrees F air OUT
- 77 degrees F water in

- 161 degrees F water out
- 11.2 mmBtu/hr fuel savings

(The heat recovered is indicated in the increased temperature of water for steam production. Units 2 and 4 are connected to the economizer; a mechanical demister has been installed, too.)

Mr. Gephardt was formerly Method 9 certified, and Mr. Brent Buller is currently Method 9 certified. While the facility is not in the practice of burning oil currently, personnel observe for emissions during startup and during periods of oil combustion (should they occur), and Method 9 readings are required if opacity were to exceed 20% (such as during any oil firing.)

Reporting

Per the FCE Summary Report attached to this, the facility has submitted each of the required periodic emissions reporting and certification reports; there has been no recent action required by AQD based on the contents of these reports.

Stack/Vent Restrictions

Each of the stacks appears to be constructed in accordance with these exhaust and height dimensions. Note, with the economizer project, Unit 4 has received an identical stack (post economizer) with the existing stack remaining as a by-pass.

FG-PARTSCLEANERS

The unit uses an aqueous "Aquawash" solvent; same as in previous inspection(s). Based on this, the unit may in fact be unregulated, but the facility has elected to maintain this flexible group in their permit so as to allow operational flexibility (solvent used, number of machines, etc.)

REALITY CHECK

SL reviewed the current gas meter readings. These were 15608066 and 15689415 **ccf**, and so correspond well to the 12/16/15 end-of-day readings (attached.) SL used the current daily log and confirmed the math behind "24-Hour, Total ccf" and daily "MMBtu" estimates. The MMBtu estimate incorporates the monthly "Gas Btu/ccf" estimate provided by DTE as well as the "ccf" component of the meter. SL confirmed the day's MMBtu estimate.

SL also compared the current gas meter readings to those observed on August, 2014; and the combined difference of the AQD meter readings between August 2014 and December 2015 (16 months) generally correspond to the throughputs of natural gas reported in MAERS for 2014. The comparison is not direct or exact, but demonstrates that the proper recordkeeping is in place and the observed values (meters, monitors, as reported, etc.) are realistic.

USEFUL SITE ACCESS INFO

The facility is manned 24/7. The direct PLANT ACCESS NUMBER is 616-456-7438. There's a buzzer at the west-side entry door. Each should be answered at any time.

EVALUATION SUMMARY

As delivered to Mr. Gephardt at the exit interview, based on all information reviewed, SL considers the facility to be in compliance with applicable air use rules, permit requirements and regulations at the time of the inspection.

ATTACHMENT

- Daily Log for 12/16/15

NAME



DATE



SUPERVISOR

