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

N329454739

FACILITY: Ottawa County Farms Landfill		**SRN / ID:** N3294
LOCATION: 15550 68th Avenue, COOPERSVILLE		**DISTRICT:** Grand Rapids
CITY: COOPERSVILLE		**COUNTY:** OTTAWA
CONTACT: Justin Obermeyer , Environmental Manager		**ACTIVITY DATE:** 09/23/2020
STAFF: David Morgan	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

At 8:30 A.M. on September 23, 2020, Air Quality Division (AQD) staff Dave Morgan conducted a scheduled inspection of the Ottawa County Farms Landfill (OCFL) located at 15550 68th Avenue in Coopersville. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit No. MI-ROP-N3294-2019 and state and federal air pollution regulations. Accompanying AQD staff on the inspection of the OCFL was Justin Obermyer, Environmental Manager; and Rob Carr, Site Manager. Records were obtained and reviewed prior to the on-site inspection. PPE was worn in accordance with EGLE Covid procedures.

An inspection of Energy Developments Coopersville (EDC) located at 15352 68th Avenue in Coopersville was also conducted and is discussed below.

It is noted that a surface emission monitoring (SEM) event was to be conducted by AQD staff, Mike Kovalchick, on this day but was postponed due to personal reasons. An alternate day will be scheduled.

FACILITY INFO

The OCFL is a municipal solid waste landfill, with a design capacity of 13.0 million cubic meters. Since the stationary source was modified after July 17, 2014 and has a design capacity greater than 2.5 million cubic meters, it is subject to the New Source Performance Standard (NSPS) for Municipal Solid Waste Landfills promulgated in 40 CFR Part 60, Subparts A and XXX. The stationary source is also subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills promulgated in 40 CFR Part 63, Subparts A and AAAA. It is noted that the requirements under 40 CFR Part 60, Subpart WWW also apply to the stationary source because 40 CFR Part 63, Subpart AAAA adopts Subpart WWW requirements by reference until September 2021 when Subpart AAAA requirements will align with Subpart XXX requirements.

Because the NMOC emissions from OCFL are greater than 34 megagrams per year, the company is required to install a landfill gas collection and control system (GCCS). Currently gas from closed and active portions of the landfill are collected by an active gas collection system and directed to EDC where internal combustion engines burn the landfill gas to produce electricity. Excess gas is used by Resource Recovery Corporation (RRC) to recover metal and sand from used foundry sand. The OCFL and EDC are considered one stationary source and both are covered under ROP No. MI-ROP-N3294-2019. RRC is not considered part of the stationary source.

COMPLIANCE EVALUATION

Due to the fact that NESHAP, Subpart AAAA references NSPS, Subpart WWW there is overlap between the NSPS, Subpart XXX and WWW requirements. Overall the company will need to meet both of these requirements until September 2021 unless the company voluntarily accepts full compliance under the Subpart XXX requirements.

(FGLANDFILL-XXX, FGLANDFILL-WWW, FGACTIVECOLL-XXX, FGACTIVECOLL-WWW):
As stated, the landfill has an active GCCS on both closed and interim cover areas that was installed as required under Subpart WWW requirements. The company is now meeting the GCCS installation and operation schedule under Subpart XXX.

Under the ROP each interior wellhead be operated with a landfill gas temperature less than 131°F, a nitrogen level less than 20% or oxygen (O2) level less than 5%, and negative pressure. If a well exceeds one of these operating parameters, action is to be initiated to correct the exceedance within 5 calendar days. If the exceedance is not corrected within 15 calendar days of the first measured exceedance, then the gas collection system is to be expanded within 120 days of the initial exceedance to correct the problem or alternate compliance timeline requested. Under Subpart XXX any well where a temperature or pressure exceedance is not corrected within 60 days will need to have a root cause analysis conducted. OCFL conducts well monitoring/tuning and well maintenance on a monthly basis as required by the ROP. At a minimum, the vacuum pressure, O2 concentration and temperature at each wellhead is monitored and recorded.

According to company records from August 2019 to July 2020 wells H01, SC1, SC2, had O2 exceedances that occurred beyond the 15 day re-monitoring period. For the same time period, wells EW37A, EW38A, EW39B, EW65A, EW79A, EW80, EW81B, EW90A, EW96R had positive pressure that occurred beyond the 15 day re-monitoring period. All of these wells were approved for an alternate compliance timeline due to ongoing GCCS construction activities. These construction

activities would address the pressure exceedances by either redrilling or replacing lateral lines. Under Subpart XXX, a root cause analysis and corrective action implementation schedule was documented because pressure exceedances were not corrected within 60 days of the initial exceedance. A record of the root cause analysis was reviewed and is attached. AQD staff conducted observations in the southeast corner of the landfill (Phase 3 and 4) where many of the wells with exceedances were. Construction activities were finishing up while on site and approximately 40 acres had recently been seeded. No issues were observed while on site. Monthly well monitoring records are attached.

The surface concentration of methane is monitored on a quarterly basis in accordance with the ROP. A summary of quarterly surface monitoring reports over 2019 and 2020 is below. A copy of the results are attached. According to company records, all calibration was conducted prior to each surface monitoring event in accordance with the ROP.

Quarter	Exceedance Above 500ppm	10-day remonitoring	30-day remonitoring
Q3 2019	0	0	0
Q4 2019	19	0	0
Q1 2020	0	0	0
Q2 2020	9	4	0

Records pertaining to maximum design capacity, year-to-year acceptance rate, and amount of waste in place are maintained and available within four hours in accordance with the ROP. As of March 2020 there was 23,667,070 cubic yards of waste in place leaving 33,307,930 cubic yards of capacity remaining of the total permitted capacity of 56,975,000 cubic yards.

Enclosed Flare (EUENCLSDFLARE):
In 2008 a 3,700 scfm enclosed flare was installed to ensure that the landfill maintains compliance with the control requirements of the NSPS should EDC shutdown. The flare is only used as backup, but the enclosed flare is operated roughly twice per month for the OCFL. Each time the enclosed flare is fired-up, a startup report is created.

An initial performance test was conducted in November 2009 to verify the reduction efficiency for NMOC in accordance with applicable permit and NSPS requirements.

The company is keeping records of the 12-month rolling carbon monoxide (CO) emission rate, the landfill gas usage rate and the average Btu content of the landfill gas burned. According to company records for the period from August 2019 through July 2020, the CO emission rate was 0.93 tons (which is below the 97.3 ton permit limit), the total landfill gas burned was 15.2 million cubic feet. Records are attached. The equipment has a flow device which monitors gas flow as well as a heat sensing device to monitor the presence of the flame when it is operated. At the time of the inspection, the enclosed flare was not operating.

It is noted that OCFL is planning to submit an air use permit application to address sulfur dioxide emissions as a result of the sulfur concentration in the landfill gas being higher than AP-42 which was used in the original evaluation of the flare.

Asbestos Waste (EUASBESTOS):
OCFL continues to accept asbestos containing waste which is placed in designated locations within the landfill. The asbestos waste is placed in columns to eliminate the need to disturb those areas. The company also surveys the asbestos waste in the landfill for each lift of asbestos waste to get the best dimensional picture of the waste location. AQD staff reviewed survey records; no issues were identified. On the day of the inspection, no asbestos was being disposed; according to Mr. Obermeyer and Mr. Carr asbestos is generally deposited on Tuesday and Thursday. It is noted that the landfill has both natural barriers and fencing that deters access to the site by the general public; signage and site barriers were appropriate.

The landfill maintains all required asbestos shipment records, in accordance with the ROP. See attached records.

Cold Cleaner (EUCOLDCLEANER):
No non-compliance issues have been identified.

Start-up, Shutdown, Malfunction:
The company maintains a start-up, shutdown, malfunction plan in accordance with 40 CFR Part 63, Subpart AAAA for Municipal Solid Waste Landfills. AQD staff reviewed records implemented as a result of the plan.

Miscellaneous:

A strong odor was observed on the highway and on the northern boundary of the landfill. The odor did not smell like trash or landfill gas. According to Mr. Obermeyer, the adjacent farm had been spreading manure.

There were no visible emissions from the site.

SUMMARY
OCFL appears to be in compliance with all applicable requirements at the time of this evaluation. Records are attached.

At 11:00 A.M. on September 23,2020, Air Quality Division (AQD) staff Dave Morgan conducted a scheduled inspection of Energy Developments Coopersville (EDC) LLC (Formerly the Ottawa Generating Station) located in Coopersville. The purpose of the inspection was to determine the facility's compliance with Renewable Operating Permit No. MI-ROP-N5890-2019 and state and federal air pollution regulations. Accompanying AQD staff on the inspection of EDC was Dan Young, Operator.

FACILITY DESCRIPTION
Currently gas from closed and active portions of OCFL are collected by an active gas collection system and directed to the EDC where internal combustion engines burn the landfill gas to produce electricity. Excess gas is burned in an open flare operated by EDC or used in process equipment at RRC to recover metal and sand from used foundry sand. EDC is subject to NSPS, Subparts XXX and WWW requirements and NESHAP, Subpart AAAA requirements due to treating landfill gas. The engines at the site are subject NSPS, Subpart JJJJ and NESHAP, Subpart ZZZZ requirements.

FGTREATMENTSYS-WWW and FGTREATMENTSYS-XXX (EUTREATSYS1 and EUTREATSYS2):
Under Subpart WWW and Subpart XXX, landfill gas may be controlled by routing the collected gas to a treatment system that processes the collected gas for subsequent sale or use. The USEPA considers de-watering, filtering through at least a 10 micron screen, and compression prior to the combustion of the gas in energy recovery devices such as boilers, process heaters, turbines, or internal combustion engines to satisfy the definition of treatment.

Each plant at EDC contains a landfill gas treatment system. The Plant 1 (EUTREATSYS1) treatment system consists of a 36-inch diameter condensate/liquids knockout tank for de-watering, a 42-inch diameter carbon steel scrubber tank with scrubber pad for de-watering, two AC compressors, two radiator style aftercoolers which cool the gas, a coalescing filter with 0.3-micron coalescing filters, and a fuel gas dryer for gas de-watering and temperature control. The Plant 2 (EUTREATSYS2) treatment system contains a 24-inch diameter condensate/liquids knockout tank for de-watering, a 42-inch diameter carbon steel scrubber tank with scrubber pad for de-watering, one AC compressor, one radiator style aftercoolers which cool the gas, a 0.3-micron coalescing filter, and a fuel gas dryer for gas de-watering and temperature control.

Preventative maintenance is conducted on the treatment systems in accordance with the company's maintenance plan which also includes monitoring parameters and frequencies required by Subpart XXX. On a daily basis the company is recording the differential pressure on the landfill gas scrubber and coalescing filters, as well as other parameters. Coalescing filters are changed once the pressure drop reaches 2.5 psi across the filters, generally. Upon inspection at Plant 1, the differential pressure drop on the filter was 0.0 psi and scrubber 0.2 inches of water. For Plant 2, the differential pressure drop on the filter was 0.2 psi and 0.2 inches of water for the scrubber. According to company records, the coalescing filter on Plant 1 was last replaced on January 21,2020 and Plant 2 on December 12, 2019. The engines are still operating during filter replacement.

The presence of a treatment system excludes the engines from the testing and control requirements contained in the NSPS, Subpart XXX or WWW. However, any atmospheric vent from the gas treatment system is subject to the requirements.

Startup, Shutdown, Malfunction:
EDC maintains a start-up, shutdown, malfunction plan as required by Subpart AAAA, for all equipment. It is noted however, that an SSM plan is not required for the engines or the flare under Subpart AAAA because the treatment system is installed prior to both.

RICE Engines:
Plant 1 consists of five Caterpillar G3516LE internal combustion engines that were originally installed in 1992 under Rule 285 (2)(g) permit exemption because each engine has a heat input capacity of 8.6 Million Btu/hr which is below the permitting threshold of 10 Million Btu/hr.

Plant 2 consists of one Caterpillar G3520C internal combustion engine (EURICEENGINE7) which was initially installed in 2006. Engine 7 was replaced in August 2014 with a rebuilt engine with new serial number and manufacture date. The following table is a summary of each engine at the plant.

Engine Slot	Type	Serial #	Rating	Manufacture	Online	Installed under	Known	NSPS	MACT	Last Top end date

				Date	Date	PTI/Rule	Replacement	JJJJ	ZZZZ	Major date
Engine 1	Caterpillar G3516LE	4EK00134	800 Kw (1148 hp)	12/16/1993	6/21/1994	Rule 285(2)(g)		N	Y	6/9/20 NA
Engine 3	Caterpillar G3516LE	4EK00126	800 Kw (1148 hp)	12/10/1993	6/21/1994	Rule 285(2)(g)		N	Y	12/12/18 NA
Engine 4	Caterpillar G3516LE	4EK00136	800 Kw (1148 hp)	12/16/1993	6/21/1994	Rule 285(2)(g)	Removed 1-23-14 and replaced 2-3-14	N	Y	9/16/20 NA
Engine 5	Caterpillar G3516LE	4EK00135	800 Kw (1148 hp)	12/17/1993	6/21/1994	Rule 285(2)(g)		N	Y	10/14/19 NA
Engine 6	Caterpillar G3516LE	~~4EK00467~~ 3RC00889	800 Kw (1148 hp)	~~3/23/1995~~ 10/26/1993	6/21/1994	Rule 285(2)(g)	Replaced 5-12-20	N	Y	1/9/20 5/11/20
Engine 7	Caterpillar G3520C	GZJ00681	1600 kW (2233 hp)	9/1/2005 & 2/17/2010	8/2014	173-05 (subsequently revised as 173-05A)	Replaced 7-31-14	Y	Y	5/22/19 NA

EDC monitors the gas flow rate from the main header as well as the gas flow rate into the engines on a continuous basis and the gas is analyzed at regular intervals to verify the quality of the gas. At the time of the inspection, the following operating parameters were recorded:

Parameter	Plant 1	Plant 2
Methane %	53.1%	52.3%
O2 %	0.94%	1.1%
Flow	1,260 scfm	824 scfm

Engine 7 is limited to a landfill gas feed rate of 264.4 million cubic feet per year based on a 12-month rolling time period as determined at the end of each month. From August 2019 through July 2020, the unit had a gas feed rate of 238.48 million cubic feet which is below the applicable permit limit of 264.4 million cubic feet. The unit has also operated 8,075 for the same time period.

Records are maintained on-site in accordance with with the preventative maintenance plan. A daily record sheet is used to record various engine and treatment system parameters including kilowatt output, fuel flow, landfill gas quality, coalescing filter pressure drop and others. It is noted that the company uses non-resettable hours meters to record engine hours. The company maintains appropriate records to determine compliance with the ROP.

Based on facility records and EDC personnel, a preventative maintenance program is conducted. Routine maintenance is conducted on the engines in accordance with manufacturer and company specifications which include replacing engine spark plugs, oil, and lubrication. Maintenance is also conducted on an as needed basis. In addition, "top-end" overhauls, which includes replacing/cleaning cylinder heads, turbochargers and valves, are conducted on each engine after approximately 10,000 hours of operation. This is typically completed on site. A record of engine maintenance is attached. No issues were identified.

"Major" overhauls are conducted every 50,000 to 100,000 hours of operation. Major overhauls includes all of the work of a top end overhaul plus disassembling all of the bearings, seals, gaskets, and components that wear and may even include replacing the crankshaft. When an engine is due for a major overhaul, it is swapped out with another overhauled engine. When the engine is swapped, it is removed from the facility and either replaced with an engine with a different serial number and manufacture date or the same unit is brought back after being rebuilt and will have the same serial number and

manufacture date. Swapping engines in this manner is an industry standard for maintaining the engines. According to Mr. Young engines with serial numbers 4EK00134, 4EK00126, and GZJ00681 are due for major overhauls.

It is noted that EDC is planning to submit an air use permit application to address sulfur dioxide emissions as a result of the sulfur concentration in the landfill gas being higher than AP-42 which was used in the original evaluation of the engines.

Stack Testing:
A stack test was last performed on February 25, 2020 pursuant to ROP No. MI-ROP-N3294-2019, Special Condition No. V.1 and 40 CFR Part 60, Subpart JJJJ. Per Subpart JJJJ, affected engines are also to be tested every 8,760 hours or three years which ever comes first. NOx emissions were 1.97lb/hr (4.92 lb/hr limit) and 0.40 g/bhp-hr (1.0 g/ghp-hr limit); CO emissions were 14.7 lb/hr (16.2 lb/hr limit) and 2.98 g/bhp-hr (3.30 g/bhp-hr limit); and VOC emissions were 1.0 lb/hr (3.2 lb/hr) and 0.20 g/bhp-hr (0.65 g/bhp-hr limit). All emissions were within applicable limits. Testing was performed at 1,599kW for the test period. Maximum operating is 1,600 kW +/- 10%). All emissions were within applicable limits.

Stack dimensions for EURICEENGINE7 appear to meet the minimum height of 25 feet above ground and a maximum diameter of 14.5 inches.

40 CFR Part 60, Subpart JJJJ:
Engine 7 is subject to the requirements of 40 CFR Part 60, Subpart JJJJ based on the engine installation and manufacture date. The company submitted an initial notification on June 6, 2012. The company performed an initial performance test for Subpart JJJJ on April 14, 2011 which was within 180 days of the Engine 7 installation date of October 2010. The most recent performance test was conducted in February 2018. EDC appears to be meeting other applicable requirements of Subpart JJJJ at this time.

40 CFR Part 63, Subpart ZZZZ:
In May 2012 it was determined that the potential to emit of formaldehyde from Engines 1 through 7 is 28.9 tons which is above the major source threshold of 10 tons for a single HAP. Because the engines are considered a major source of HAPs and were installed after December 12, 2002, they are subject to the requirements of 40 CFR Part 63, Subpart ZZZZ. The company submitted an initial notification on June 6, 2012. EDC appears to be meeting Subpart ZZZZ requirements at this time.

Open Flare (EUOPENFLARE):
EDC also operates an open flare which is used when there is extra gas that the engines cannot process, or in the event of a catastrophic failure of the engines and bypass is needed. Since the flare is installed after the treatment system, the flare is not subject to the testing and control requirements. Gas going to the flare is sent though the treatment system in Plant 2. At the time of the inspection, the flare was operating due to an engine being down. The landfill gas to the flare was around 300 scfm and the temperature of the flare was around 415 °F. The company has a separate monitor on the gas flow rate to the flare and thermocouple to measure temperature when it is used, but does not monitor the presence of a pilot flame. A pilot flame is not lit continuously in the flare. Monitored parameters are recorded to a data recorder.

SUMMARY
EDC appears to be in compliance with applicable requirements at the time of this evaluation. Records obtained during the inspection are included in AQD files.

NAME David L. Ryan DATE 9/30/2020 SUPERVISOR HH