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

N600471169

FACILITY: City of Midland Utilities Division		**SRN / ID:** N6004
LOCATION: 4311 E. Ashman St., MIDLAND		**DISTRICT:** Bay City
CITY: MIDLAND		**COUNTY:** MIDLAND
CONTACT: Scott O'Laughlin , Landfill Supt		**ACTIVITY DATE:** 03/13/2024
STAFF: Gina McCann	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: FCE inspection.		
RESOLVED COMPLAINTS:		

I (glm) conducted an on-site, scheduled inspection at the City of Midland Utilities Division. The purpose of the inspection was to determine compliance with ROP MI-ROP-N6004-2019a and air quality regulations. The facility was in compliance at the time of the inspection.

The Midland Utilities Division is located in Midland, Michigan, and owned and operated by the City of Midland. Midland Utilities Division is a Type II, municipal solid waste (MSW) landfill, with a bioreactor, active landfill gas collection and treatment system, and a landfill gas to energy facility. Landfill gas (LFG) generated at the site is treated and burned off-site, at the Wastewater Treatment Plant (WWTP) in two spark ignition reciprocating internal combustion engines (RICE) or, the gas is burned in an 2,000 scfm open flare on-site.

The landfill has an on-site gas treatment system which filters, dewaters, compresses, and cools the LFG prior to sending it via pipeline to two reciprocating internal combustion engines (RICE) located at the City of Midland wastewater treatment plant (WWTP). The landfill, LFG treatment system, and the RICE are part of the same stationary source. Any LFG not conditioned in the gas to energy system is burned in the open flare at Midland Utilities Division landfill. The RICEs use the conditioned gas as fuel for the generation of electricity for the power grid.

In addition to MSW, the landfill accepts inert wastes such as construction and demolition debris, low level contaminated soils, and asbestos containing waste. The solid waste is transported to the facility to an area (cell) where it is deposited on the working surface. Solid waste is handled by a variety of vehicles that potentially generate fugitive dust emissions. The deposited waste is covered daily with soil or other EGLE approved alternate cover. When a cell reaches its design capacity, a liner is installed covering the waste.

FGLANDFILL-AAAA/OOO-compliant

The NESHAP requires the landfill to meet quarterly methane, surface, emission limits of 500 ppm. I reviewed quarterly surface emission monitoring (SEM) reports from first quarter 2022 through second quarter 2023. The review provided the following results:

Q1 2022 no exceedances.

Q2 2022 exceedances.

On August 30, 2022, thirteen (13) exceedances were identified during an AQD, SEMs, audit. Corrective action identified in the quarterly report appears appropriate in addressing exceedances.

Q3 2022 no exceedances were identified.

Q4 2022 no exceedances identified.

Q2 2023 no exceedances were identified.

Q2 2023 no exceedances were identified.

Q3 no exceedances were identified.

Q4 three (3) exceedances identified at penetrations, ranging from 858 ppm to 2,067 ppm. Corrective actions were taken and the exceedances were "cleared during the 10-day re-check and subsequently on the 30-day monitoring event.

40 CFR 63.1960(c)(5) requires the owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis. I reviewed the monthly integrity logs from February 2022 through February 2024. In general, the technician will inform the landfill supervisor who then works to address the items noted through either internal means or hiring contractors, i.e. pest control, weed spraying.

Special condition (SC) FGLANDFILL-AAAA, VI.4. requires the landfill to maintain the current amount of solid waste in place, and the year-by-year-waste acceptance rate. As of Marh 29, 2024, the amount of solid waste in place was 3,951,140 cubic yards. Waste acceptance rates for 2022 and 2023 are shown in the table below.

WASTE ACCEPTANCE RATES

Year	Calculated Units *(short tons/year)*
2022	175,768
2023	126,029

40 CFR Part 62 Subpart OOO required the landfill to submit a liquids addition report by June 21, 2023. According to this report, the City of Midland Landfill did not add any liquids between June 2022 through May 2023.

FGACTIVECOLL-AAAA/OOO-COMPLIANT

This emission unit represents the active landfill gas collection system at the landfill that uses gas mover equipment to draw gas from the wells and moves the gas to the control equipment.

FGLANDFILL-AAAA, SC III.2. requires the landfill to operate the collection system with negative pressure at each wellhead. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the landfill to demonstrate whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 63.1959 (b)(2)(ii)(B)(3), the permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If positive pressure exists, action shall be initiated to correct the exceedance within five calendar days. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the AQD for approval.

I reviewed wellhead data from February 2022 through February 2024. During this time period there were several wells that experienced positive pressure during the initial monitoring event but were resolved within the appropriate time frame.

FGTREATMENTSYS-AAAA/OOO-COMPLIANT

This emission unit treats landfill gas before it is used for subsequent use or sale. The treatment system removes particulate to at least the 10-micron level, compresses the landfill gas, and removes enough moisture to ensure good combustion of gas for subsequent use, therefore guaranteeing that the intent of the destruction of the NMOC will be maintained.

40 CFR 63.1983(b)(5)(i) required CML to prepare a site-specific treatment monitoring plan and submit prior to September 27, 2021. EGLE received the site-specific treatment monitoring plan on April 2, 2021. During the inspection we viewed the compressor building and the treatment system parameters outlined in the site-specific treatment monitoring plan. Required monitoring parameters were within the range of operation specified in the plan. Attached is a copy of the observed values during the inspection.

I reviewed the treatment system maintenance log and it appears routine maintenance is occurring. I also viewed the monthly treatment system monitoring logs from February 2022 through February 2024 and the monitoring parameters were within the range of operation specified in the site-specific treatment monitoring plan. Most documents had "no AOC" (no abnormal operating conditions) in the comments section.

EU-OPENFLARE-COMPLIANT

Open flare is an open combustor without enclosure or shroud. The initial performance testing for the open flare has already been performed and therefore is not required by this table. One open candlestick (utility) flare with a maximum design flow of 2,000 scfm.

The flare was initially tested February 21, 2011. The ROP renewed on December 20, 2023 included testing of the flare on a five-year basis. During the inspection, the flare was in operation for a short period of time. No visible emissions were noted, however a true Method 22 was not performed. The flare is required to verify visible

emissions, the net heating value, and exit velocity before June 20, 2024 and then every five years from the date of this test.

FGLANDFILL-AAAA, SC VI.2. requires the landfill to record continuous records of the indication of flow and gas flow rate to the control device. I reviewed data for February 2022 through February 2024. All deviations in the ROP certification reports appeared to be reported. During GTE (gas to energy) plant downtime the flare was in operation.

EULANDFILL-ASBESTOS-COMPLIANT

CML actively accepts asbestos waste and is therefore subject to 40 CFR Part 61 Subpart M. The NESHAP requires the landfill follow several operational restrictions cited in the site's ROP. When accepting asbestos containing waste the landfill requires a day's advanced notice. They require receipt of asbestos, properly contained, with proper paperwork, between 7-7:45 a.m. They do not allow other traffic anywhere near the asbestos load until it has been immediately covered; then any backlog of trucks is allowed to enter the area. Landfill staff minimize pushing the load and stay upwind wherever possible. Only personnel with an enclosed cab are allowed in the area. Asbestos is not placed near an outer slope or onto the cell floor liner system. The Superintendent documents location: information includes ticket and date info, which can be used to gather details of source, generator, hauler, volume, etc.

As part of the records request, I reviewed the waste shipment records for the last 5 loads of asbestos-containing material received. Specifically copies of the transport manifest with the volume, the company and the source information. The facility maintains a site map with x, y, z coordinates that correlate to the manifest number for the waste load. The facility produced records that satisfy the monitoring and recordkeeping requirements under special conditions VI.1.

EUFURNACE-COMPLIANT

This a used oil furnace rated at 245,000 BTU/hr heat input and 1.7 gallons of oil per hour fuel usage in the maintenance building used for comfort heat. Historically, the City used oil they collected from residents at curbside. This practice has been abandoned due to issues meeting the allowable levels for used oil specifications. The City now only uses spent oil from FGICENGINES. I have sent used oil samples for lab analysis during previous inspections but did not do so this time. SC VI.1. requires the City to keep records of non-certified visible emission checks when the furnace is in operation. I reviewed records from the 2022/2023 operating seasons. SC VI.3. requires the City to keep records for each calendar month of various information including, but not limited to the amount, type, sulfur content, generator name, etc. The facility was in compliance with this requirement.

EULANDFILLOFFICEGENERATOR-COMPLIANT

Less than 10 MMBTU/hr, (65 hp, 3-liter displacement), diesel fired emergency generator installed January 2008 for use to provide power to landfill office during total power failure.

SC VI.2. requires the City to monitor and record the total hours of operation for EULANDFILLOFFICEGENERATOR on a monthly basis, and the hours of operation

during emergency and non-emergency service. The maintenance log showed times of maintenance performed. The generator had 408.1 hours on it and ran had only ran for hours checks the last two years.

SC II.1. limits sulfur content in the diesel fuel to less than 15 ppm and a centane index or 40 or more. SC VI.2. requires the landfill to maintain a fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in this generator to demonstrate compliance with the material limits. The City provided the most recent fuel supplier certification record which demonstrated compliance with the sulfur and centane limits.

EUCOMPRESSORGENERTOR-COMPLIANT

This is a diesel generator with a capacity of less than 10 MMBTU/hr, (755 hp, 400kW, 14.9 liter displacement). It was installed May 2010 for use to provide power to landfill compressor during total power failure.

SC II.1. limits sulfur content in the diesel fuel to less than 15 ppm and a centane index or 40 or more. SC VI.2. requires the landfill to maintain a fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in this generator to demonstrate compliance with the material limits. The City provided the most recent fuel supplier certification record which demonstrated compliance with the sulfur and centane limits.

SC III.1. restricts operation of the emergency RICE to less than 100 hour per year for maintenance checks and readiness testing and of that 50 hours per year for non-emergency situations. In addition, the landfill could use the generator up to 15 hours per year as part of a demand response program. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the landfill to maintain records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The records must document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. The City maintains this log and for the calendar year 2023, the generator operated for 11.5 hours for maintenance purposes.

SC V.1. requires the generator to conduct an initial performance test within one year of startup of the engine to demonstrate compliance with the emission limits in 40 CFR 60.4205 unless the engine has been certified by the manufacturer as described by 40 CFR Part 60, Subpart IIII. The City was able to provide a certification for the generator, however there is an expiration date on the certification. It was unclear what the expiration date on the certification means. EPA clarified the "expiration date" listed on the certificate means that the certificate is only valid for engines built before that date, it doesn't mean the certification expires after that date. The engine manufacturer has to get new certificates for each model year, even if the engine design doesn't change, so the expiration date ensures that the certificate is only valid for the model year for which it was issued. I also asked what happens after the "useful life" of the engine. The NSPS IIII rulemaking, comment and response 2.3.1. clarifies the useful life of a stationary diesel engine can last beyond the useful life as defined in 60.4219. The useful life period is designed to represent the time during which the engine manufacturer is responsible for the engine meeting the emission standards as long as the owner operates the engine according to the

manufacturer's specifications. After the useful life of the engine, it is the owner or operator's sole responsibility to ensure the engine continues to meet the emission standards.

EUWWTPGENERATOR-COMPLIANT

This generator is housed at the wastewater treatment plant (WWTP) near FGICENGINES. It is a diesel fired generator with a capacity of less than 10 MMBTU/hr, (1522 hp, 1,135 kW, 34.5-liter displacement). The City installed the generator in November 2002 to provide power to WWTP during total power failure.

SC III.1. restricts operation of the emergency RICE to less than 100 hour per year for maintenance checks and readiness testing and of that 50 hours per year for non-emergency situations. In addition, the landfill could use the generator up to 15 hours per year as part of a demand response program. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the landfill to maintain records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The records must document how many hours are spent for emergency operation; including what classified the operation as emergency and how many hours are spent for non-emergency operation. The City maintains this log and for the calendar year 2023, the generator operated for 11 hours for maintenance purposes.

SC V.1. requires testing and analyzing for various parameters in the oil if the landfill were using an oil analysis program to determine when the oil should be changed. The City last changed the oil in December of 2023.

FGICENGINES-COMPLIANT

This flexible group consists of two reciprocating internal combustion engines (RICE) that only combust treated landfill gas and digester gas for fuel. Each engine drives an associated generator set for producing electricity.

	Engine #1 (during 3/13/2024 inspection)	Engine #1 (date of last test 9/27/2022)	Engine #2 (during 3/13/2024 inspection)	Engine #2 (date of last test 9/27/2022)
Serial Number	GZJ00431	GZJ00431	GZJ00432	GZJ00432
Hours	58,595	52,731	51,347	44,632

During the inspection, the engines were operating as follows:

Total fuel flow	**467.0 scfm**

% Methane **52.13%**

Air/Fuel Ratio **8.4**

Digester Gas **57.3 scfm**

The engines have CO, NOx, and VOC emission limits and are required to test each engine every 8760 hours of operation or three years, whichever occurs first, to demonstrate compliance with these limits. The City last tested each engine on September 27, 2022. Engine #1 had 52,731 hours on it and Engine #2 had 44,632 hours on it. During the inspection Engine #1 had 58,595 hours on it and Engine #2 had 51,347 hours, below the 8760 hours allowed before testing. The table below provides the results from that test. The City has plans to test again in June 2024.

Table 2.2 Average measured emission rates for each engine (three-test average)

	CO		NOx		VOC	
Emission Unit	(lb/hr)	(g/bhp-hr)	(lb/hr)	(g/bhp-hr)	(lb/hr)	(g/bhp-hr)
EUICEENGINE1	13.9	2.9	3.14	0.65	0.70	0.14
EUICEENGINE2	11.8	2.5	3.16	0.66	0.51	0.11
Permit Limit	-	***4.2***	-	***1.0***	-	***1.0***

SC III.2. restricts operation of FGICENGINES unless the City has an approved malfunction abatement plan (MAP). SC VI.2. is the associated monitoring and recordkeeping requirement that requires the landfill to log all maintenance activities conducted according to the MAP. The City addresses crankcase filter changes in the MAP. Records are maintained accordingly.

SC IV.2. and SC IV.3. require each engine in FGICENGINES to be equipped with a device to monitor and record the hours of operation and the total daily fuel usage of the engines. SC VI.3. and VI.4. are the associated monitoring and recordkeeping requirements that require the landfill to monitor and record the hours of operation and the total digester gas and landfill gas usage of FGICENGINES. The City is maintaining these records.

As part of the inspection, I reviewed monitoring downtime for FGICENGINES. The monitoring downtime from the second semi-annual report from 2023 are in the table below. The City was missing flow data due to software issues with the GTE recorder. The software has been replaced by a new one and a more robust system has been implemented to reduce periods of missing data in the future.

GTE Engine and Open Flare Missing Flow Data Periods

Device	Start	End	Duration (hr:min)	Comments
GTE	07/10/23 08:05	07/10/23 15:05	07:00	Recorder Software Malfunction
GTE	07/12/23 04:10	07/12/23 07:10	03:00	Recorder Software Malfunction
GTE	07/13/23 02:10	07/13/23 09:05	06:55	Recorder Software Malfunction
GTE	07/13/23 10:25	07/13/23 11:15	00:50	Recorder Software Malfunction
GTE	07/13/23 11:30	07/13/23 19:52	08:22	Recorder Software Malfunction
GTE	07/13/23 20:25	07/14/23 13:25	17:00	Recorder Software Malfunction
GTE	12/13/23 17:45	12/13/23 21:20	03:35	Maintenance

FG-RICEMACT-COMPLIANT

Two reciprocating internal combustion engines (RICE) greater than 500 hp fueled with landfill/digester gas, located at a major source of HAPs. Construction or reconstruction commenced on or after December 19, 2002.

SC VI.1. requires the engines in FG-RICEMACT, which fire landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, must monitor and record the daily fuel usage with separate fuel meters to measure the volumetric flow rate of each fuel.

Daily fuel usage is recorded and then calculated into a monthly flow spreadsheet. The City maintains records to demonstrate compliance with this condition.

NAME Dina L. McFarlane DATE 3-29-2024 SUPERVISOR Chris Hare