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

N539758043

FACILITY: Peoples Landfill, Inc.		**SRN / ID:** N5397
LOCATION: 4143 E. Rathbun Rd., BIRCH RUN		**DISTRICT:** Bay City
CITY: BIRCH RUN		**COUNTY:** SAGINAW
CONTACT: John Davis , People's Site Engineer		**ACTIVITY DATE:** 04/21/2021
STAFF: Gina McCann	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Inspection of MI-ROP-N5397-2019a		
RESOLVED COMPLAINTS:		

I (glm) conducted an on-site announced site inspection at the People's Landfill (N5397). The purpose of the site inspection was to determine compliance with the facility's Renewable Operating Permit, MI-ROP-N5397-2019a and air quality regulations. At the time of the inspection the facility was in compliance with the requirements of the site's Renewable Operating Permit, MI-ROP-N5397-2019a.

Facility Description

People's Landfill is a municipal solid waste (MSW) landfill in Birch Run owned and operated by Waste Management. The facility is located in Saginaw County and began accepting waste in 1969. People's Landfill has a design capacity greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m3) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) of non-methane organic compounds. The landfill was modified since May 30, 1991. This stationary source includes a Type II sanitary landfill, active municipal solid waste landfill (MSW) with an active landfill gas collection system, and a gas-to-energy facility (owned and operated by North American Natural Resources-People's Generating Station) both of which are operated year round. Solid waste arrives in a variety of vehicles that have the potential to generate fugitive dust emissions. The primary standard industrial code is 4953 (Municipal Solid Waste Landfill).

Waste Management (WM) and NANR-People's Generating Station have a contractual agreement in which People's Landfill sells landfill gas (LFG) to NANR and NANR is dependent upon People's Landfill to provide landfill gas which is combusted in its six internal combustion engines. The contractual and spatial relationship of the two facilities establishes People's Landfill and NANR-People's Generating Station as a single stationary source based on the definition in Michigan's Rule 336.1119(r).

Compliance Determination-Section 1

I met with Mr. John Davis, P.E., WM site engineer and Mr. Ben Rodriguez, gas well technician, on-site to observe well head readings, flare operation and general landfill operations. Due to covid-19 restrictions and precautions the inspection was performed in two part. The on-site portion on April 21st and a records request, which was sent April 22nd with records received by AQD on April 26th, 2021.

EULANDFILL

This emission unit represents the general Municipal Solid Waste (MSW) Landfill in which the collected landfill gas is sent primarily to a treatment system. People's Landfill has design capacity greater than 2.5 million megagrams (Mg) and 2.5 million

cubic meters (m^3) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) of non-methane organic compounds. The landfill is subject to New Source Performance Standard (NSPS) in 40 CFR Part 60, Subpart WWW and the Maximum Achievable Control Technology (MACT) standard in 40 CFR Part 63, Subpart AAAA. The landfill gas from the landfill is routed to a treatment system and then to a gas-to-energy plant (owned and operated by North American Natural Resources, Inc. - People's Generating Station. Any untreated landfill gas is controlled by an open flare.

Special condition (SC) I.1. limits methane concentration to 500 ppm, above background, at the surface of the landfill on a quarterly basis. SC V.2. provides the procedures for determining compliance with the surface methane emission limit. SC VI.6 under EU-ACTIVECOLL requires the facility to keep records of all collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

On July 29, 2020, AQD staff performed an abbreviated methane surface emission monitoring survey. The survey results found (34) thirty-four locations with methane above the 500 ppm emission limit. The majority of the locations were associated with surface penetrations, which the facility had commented they do not routinely checked during quarterly SEM surveys unless they fall along the 30-meter interval pathway that their SEM consultant follows. AQD recommended the facility include all surface penetrations in future SEM surveys since they appear to be a significant source of methane emissions at their landfill and also due to pending applicability of the MACT AAAA, set to take affect September 27, 2021, which will specifically require that surface penetrations be surveyed (63.1958(d)(2)).

I reviewed fourth quarter 2020 and first quarter 2021. The facility reported (0) zero exceedances above the 500 ppm background limit. The reports state the technician monitored areas where visual observations indicated elevated concentrations of landfill gas such as, distressed vegetation and cracks or seeps in the cover, avoiding areas of safety concern.

SC VI.1. requires the facility to implement a program to monitor monthly for cover integrity and implement cover repairs as necessary. I received monthly cover integrity reports for July 2020 through March 2021. October through March identified areas where there were cover issues that were not corrected until April 19, 2021. Citing they couldn't get the heavy equipment on the side slopes. In general, the reports identified areas of erosion rills, animal holes and sloughing of material around wells.

SC VI.8 requires the landfill to submit an Odor Management Plan (OMP) for the site. The most recent OMP on file is from 2018, which says a daily odor log will be kept on -site for the past 12-months. I requested the facility send the last three months of records. I received December 2020, January 2021 and March 2021. According to an email received from Mr. Davis, the technician had been conducting the daily odor surveys when he is on site, which generally amounted to several days per week. However, on 1/14/2021 he was instructed by his manager to stop performing the daily surveys since there were no odor complaints. The manager was not aware that the daily readings were required by the Odor Management Plan. These daily readings

were re-started on 3/12/2021. Peoples plans to continue to perform daily odor surveys on site in accordance with the Odor Management Plan.

On March 10, 2021 the AQD received an odor complaint from a citizen neighboring the landfill. On March 11, 2021 I performed an odor evaluation, which identified a few areas of elevated gas odor from the landfill. The odor at each of these locations were below the threshold's we would consider in violation of R901. However, the daily odor surveys required per the OMP may have mitigated any unpleasant odors the complainant experienced. The AQD will continue to require the provisions in the OMP to be performed.

As part of the full compliance evaluation, I conducted an odor evaluation prior to the on-site inspection. Odors were not identified at a level of concern. See attached evaluation for full results.

EUACTIVECOLL

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

SC III.3 requires the landfill to operate the collection system with negative pressure at each wellhead except under specific conditions. SC III.4 requires the landfill to operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C and with an oxygen level less than 5%. SC VI.1 and VI.3 are the associated monitoring and recordkeeping requirements to record pressure, temperature and oxygen values at each wellhead on a monthly basis. I requested the last (6) six months of wellhead data. I received and reviewed wellhead data from November 2020 through April. The gas well data appeared to be in compliance with the NSPS WWW regulations.

While on-site I viewed live data for the following wells:

Wellhead ID	Oxygen (%)	Temperature (F)	Pressure (inches of water column)	Methane (%)	Flow (scfm)	Comments
HC-135	0.1	38.2	0.04	64.3	***	Variance approved 2-10- 2021 for O2 up to 10% a +pressure. Facility plan to install up to (4) vertic wells to replace this horizontal.
HC-136	13.6	***	-0.04	13.3	2.4	Variance approved 4-49- 2021 to operate O2 up to 10% and + pressure. Pla

						to install up to (3) three vertical wells to replace this horizontal.
88R	0.01	76.3	-35.25	58.4	***	Installed to replace HC-9
21	18.8	40.7	-4.6	4.6	***	May request variance if needed. Old waste.
HC-134	3.7	50.3	-0.29	45.8	15.6	

e***reading not recorded

SC VI.4 requires the facility to keep up-to-date records for the life of the control equipment of the flare, including the maximum expected gas generation flow rate and the density of wells, horizontal collectors, surface collectors, or other gas extraction devices. The landfill has an estimated maximum gas generation for the year 2032 at 3,572 cfm.

EUOPENFLARE

The flare is designed to control up to 2,000 scfm of LFG and is non-assisted. It operates mainly as a backup to the NANR gas to energy facility. During the inspection the flare was in operation, and no visible emissions were observed. The most recent stack test was conducted on June 3, 2010.

SC III.5. The stack test determined that the inlet gas net heating value is 18.96 MJ/scm (megajoule/standard cubic meter). The NSPS requirement is greater than 7.45 MJ/scm.

SC III.6. The stack test also determined that the average exhaust gas exit velocity is 70.0 fps (feet per second). The NSPS requirement is 60 fps, or less than the maximum permitted velocity, calculated to be 105.3 fps.

SC VI.1 requires the landfill to install, calibrate, maintain, and operate according to the manufacturer's specifications, a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

The flare has two thermocouples to monitor for the continuous presence of a flame one is at the pilot and the other is up higher, towards the middle of the flame. If the presence of a flame cannot be detected, the flare automatically shuts down. People's Landfill does not have a bypass of the control system. Therefore, LFG does not get discharged to ambient air. The facility has installed a measuring device that records temperature and the flow to the control device every 10 minutes.

According to the manufacturer of the flare, *"The thermocouples in question are Type K. Type K thermocouples have a temperature range of 32 to 2,300 °F (see attached General Thermocouple Material Specifications published by Pyromation). This type of thermocouple is comprised of a positive lead made of chromel and a negative lead comprised of alumel. These two dissimilar alloy wires are bonded together at the*

end of the thermocouple, and have a known thermoelectric voltage (output in mV) across the specified temperature range. The wires of the thermocouple assembly are inserted into an alloy sheath for protection. Due to the known output, there is no calibration requirement for the thermocouple assembly. However, it is necessary to replace the thermocouples when the bond between the wires breaks down. This is known as an "open" thermocouple, and you will see this on the input to your system. It is also possible to have an open thermocouple at operating temperature, and then find that the thermocouple reads in ambient conditions. This is due to thermal expansion and contraction. However, the thermocouple would still need to be replaced.

LFG Specialties, and many other manufacturers in the solid waste industry have been using this type of thermocouple for decades. The utility flare is designed to combust landfill gas with a methane concentration of 30-55% by volume, and utilizes natural draft to mix the landfill gas with ambient air. The amount of turbulence (i.e. mixing of the air and fuel) is dependent upon the exit velocity of the fuel and ambient conditions. The amount of turbulence and proximity of the thermocouple placement relative to the location and length of the flame will yield an array of temperatures throughout the full range of flare operation. As such, the thermocouple may be subject to temperatures ranging from 600 to 1,700 °F. Due to the design of the flare, it is impractical to get a stoichiometric mixture of air and landfill gas that would generate a flame temperature in the range of 2,275 and 2,789 °F (with methane concentration between 30 and 55% and oxygen content between 0 and 2%). Please note that oxygen content in the landfill gas that is greater than 2% will yield higher operating temperatures than those noted herein. As it is customary to operate the landfill gas system with less than 2% oxygen, it is unlikely that there would a significant amount of operational time above this point. However, there is still a potential to operate above this point. In that case, at an oxygen content of 10%, the predicted flame temperature would be less than 1900 °F, and still in the range of the selected Type K thermocouple range."

I requested the last (6) six months of records for the flare. The gas flow rate and pilot flame monitoring were provided for October 2020, November 2020, December 2020, January 2021, February 2021 and March 2021. The flare appeared to operate in compliance with the applicable requirements during these time periods.

EUASBESTOS

Any active or inactive asbestos disposal at the MSW landfill.

SC VI.1. requires the following records be maintained for asbestos containing shipments received:

i The name, address, and telephone number of the waste generator;

ii The name, address, and telephone number of the transporter(s);

iii The quantity of the asbestos-containing waste material in cubic meters (cubic yards);

iv The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or USEPA Regional office responsible for administering the asbestos

NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or USEPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report;

v The date of the receipt.

I reviewed the records associated with the last (5) five loads the landfill received, which were all associated with April 12, 2021. The landfill maintains a map with the location of deposited asbestos that correlates to the waste manifest. The landfill appears to keep the appropriate records for asbestos containing material.

FGCOLDCLEANERS

This flexible group consists of any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278, Rule 278a and Rule 281(2)(h) or Rule 285(2)(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.

The facility no longer has a cold cleaner on-site. They were paying to maintain it and not using it, so they removed the equipment.

Compliance Determination-Section 2

Section 2 covers the gas-to-energy portion of the stationary source, which is owned and operated by North American Natural Resources-People's Generating Station (NANR).

This stationary source takes raw LFG from People's Landfill and treats the gas for use as fuel in the six RICEs (5 – Caterpillar G3516 and 1 – Caterpillar G3516LE). The LFG is collected at the People's Landfill facility by an active gas collection system (owned and operated by WM) through a series of vertical extraction wells that are installed into the depths of the landfill refuse, which remove landfill gas by vacuum applied to the well from a blower. The LFG is then routed to NANR – People's Generating Station for treatment and generation of electricity. Any excess LFG, or when the NANR facility is down, is routed to the open flare (owned and operated by WM). The collection system is periodically modified by adding a gas well and/or collection piping as needed when sections of the landfill begin to produce significant gas quantities.

Only (5) five engines were on-site during the inspection. EUICE#2 was off-site having maintenance performed.

During the on-site portion of the inspection, I met with Mr. Rich Spranger and Mr. Cory Richardson.

EUTREATMENTSYS

The collected landfill gas is filtered, dewatered, compressed, and cooled prior to use as fuel in one of five generators owned and operated by NANR. On March 25, 2004, the AQD provided a site specific NSPS applicability determination that the system treating LFG from People's gas collection and control system (GCCS) meets the

requirements of 40 CFR 60.752(b)(2)(iii)(C) for a treatment system. During the site visit the treatment system was operating and all required monitoring and recordkeeping were being performed. A copy of the Startup, Shutdown and Malfunction (SSM) plan as well as a copy of the Preventative Maintenance Plan (PMP) are kept onsite and were available for review.

SC VI.3 requires the facility to maintain a description of the operating parameters that would indicate proper performance and appropriate monitoring procedures. Mr. Spranger, sent the PMP for the treatment system in an email on April 20, 2021. According to the plan the plant is monitoring the following parameters daily:

> **The Scrubber Vessel is monitored with a differential gauge and a site tube. If condensate is at a level of 50 % Site tube or 50 % of the differential gauge the vessel is drained and an inspection of the up-stream knock out system will be performed and a corrective action will be done.**
>
> **The Compressor is inspected daily, checking the oil level and checking for leaks. If oil levels are under 2 gallons and operating temperatures are above 250 degrees, the compressor will be shut down to investigate and repair failed parts which are in on site inventory.**
>
> **The Water Separator and Oil Separator are drained as needed as indicated by gauges which are monitored daily.**
>
> **The Coalescing Filters are replaced as needed as indicated by differential pressure gauges which are monitored daily. If differential gauge across the inlet and outlet of vessel show more than a 2 psig loss the .4 micron filters will be change .**
>
> **The Gas Cooler runs at an inlet max temp of 250 degrees and a max temp of 140 outlet temp. If any temps exceed these manufactured limitations the system will be shut down and corrective action will be done by plant operator.**

During the inspection we viewed the scrubber vessel and I was able to verify the condensate in the site gauge was below 50%. I also viewed the water separator and oil separator gauges. Both levels appeared to be empty. The differential pressure on the coalescing filters was at 1 psig.

FGRICEENG

This flexible group contains (5) five Caterpillar G3516 (EUICE#1, EUICE#2, EUICE#3, EUICE#4, EUICE#6), 1145 horsepower (HP) RICEs that use treated LFG to generate electricity that is fed to the power grid.

SC I.1-7. requires the plant to show compliance with NOx, CO and VOC hourly emission rates. SC VI.6 is the associated monitoring and recordkeeping requirement that requires the plant to maintain these records. I reviewed emissions records from January 2020 through March 2021. The facility was in compliance with the applicable emission limits at the time of the inspection. SC I.8 has a 12-month rolling time period emission limit for SO2 as determined at the end of each calendar month. This requirement was added into the ROP, in December 2020, when PTI 13-20 was rolled in. Therefore, the plant does not yet have a 12-month rolling emission rate for SO2.

The most recent tests of the engines were conducted on June 29, 2015. NOx, CO, HCl and VOC emission rates from all four engines were below permit limits and NSPS JJJJ limits. The Department will again request NOx, CO, HCl and VOC emissions testing from all four engines within five years of the last test date. No visible emissions were observed at the time of the inspection.

SC V. requires the plant to verify the H2S or total reduced sulfur (TRS) content of the landfill gas burned in FGRICEENG monthly by gas sampling and semi-annually by gas sampling using an EPA approved method and laboratory analysis. If the H2S concentration of th landfill gas sample exceeds 315 ppmv, the plant shall take action specified in the ROP. I reviewed records for December 2020 through March 2021 and the H2S concentration of the landfill gas was never above the 315 ppmv.

SC VI.4 requires the plant to maintain records laid out in the ROP for engines on-site. According to Mr. Richardson, the following information is for the engines on-site:

Engine ID	KW Output	Serial Number	Model
1	818	4EK00422	3516
2	Out for service	4EK00414	3516
3	835	4EK00424	3516
4	825	4EK00415	3516
5	790	4EK03001	3512
6	Not operating	4EK00893	3516

FGRICENSPS

Non-emergency engine(s) greater than 500 hp, fueled with landfill/digester gas subject to 40 CFR Part 60,
Subpart JJJJ. This flexible group included EUICE#6.

On April 27, 2021 EUICE#6 had NSPS JJJJ testing performed. See separate activity report for information on testing.

SC VII.5. requires the facility to submit an initial notification as required by 40 CFR 60.7(a)(1) for each engine in FGRICENSPS if the engine(s) installed is/are not certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231. The

notification shall include the information below, as specified in 40 CFR 60.4245 (c)(1) through (5):

a. Name and address of the owner or operator; a- North American Natural Resources, Inc., 300 North Fifth Street, Ann Arbor, MI 48104

b. The address of the affected source; b- 4516 Rathbun Road, Birch Run, Michigan 48415

c. Engine information including make model, engine family, serial number, model year, maximum engine power, and engine displacement; c- Caterpillar Model G3516, Serial Number: 4ek00893, Model Year: 1996, 1148 bhp, 4210 in3 displacement

d. Emission control equipment; No control equipments

e. Fuel used. Landfill gas

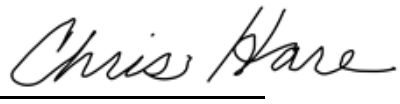
The permittee shall submit the initial notification to the AQD District Supervisor in an acceptable format within 30 days of commencing construction of any engine in FGRICENSPS.

Installation was completed on February 11, 2021. The engine has a Serial Number of 4ek00893 and a build date of 4-18-1996.

FGRICEMACT

New, existing, and reconstructed non-emergency engines 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. This flexible group contains EUICE#6.

Additional conditions required under FGRICEMACT, not contained in other ROP conditions is SC VII.4, which requires the facility to submit an annual report for FGRICEMACT in accordance with Table 7 of 40 CFR Part 63, Subpart ZZZZ to the appropriate AQD district office by no later than January 31. The following information shall be included in this annual report. EUICE#6 was not installed until February 11, 2021, therefore the first annual report will be due in 2022.

NAME  DATE 5/24/2021 SUPERVISOR 

Source Name: People's Landfill				Inspector: G. McCann
Source Address:				Date: 4/21/2021
Sky Conditions: Partly cloudy				Temperature: 28° F
Wind Speed: ~5mph		Wind Direction: N ~5mph		Source of Meteorological Data: weather underground
Location (attach map, if available)	Time	Odor Scale (See below)	Characteristic (See below)	Comments (Observations that will aid in the determination of the source & properties of the odor.)
1	7:56A	0		Calm - no wind
2	7:59	0		
3	8:06	0		
4	8:09	0		
5	8:13	2	Wood smoke	
6	8:17	1	LF gas	barely detectable then gone
7	8:19	1	LF gas + garbage	wind N/NW changing faint odor
8	8:22	0		
9	8:24	0		
10	8:30	0	—	corner of Rathbun & Marshall wind from NW ~5mph
11	8:33	0		
12	8:36	0		By gas plant drive
13	8:38	1	LF?	very brief then gone

Odor Scale	Odor characteristic examples:
0 - Non-Detect	Paint-like
1 - Just barely detectable	Musty, moldy
2 - Distinct and definite odor	Burnt, smoky
3 - Distinct and definite objectionable odor	Tar-like, asphalt
4 - Odor strong enough to cause a person to attempt to avoid it completely	Cut grass
5 - Odor so strong as to be overpowering and intolerable for any length of time	Citrus fruit


Waste Management
- Peoples Landfill
Silver Creek
Silver Creek
Silver Creek
Marshall
Canada Rd.
1
2
3
4
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6
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10
11
12

4/21/21

N