

As part of a Full Compliance Evaluation (FCE), AQD staff conducted a compliance inspection of Venice Park Recycling and Disposal Facility (Venice Park RDF), 9536 Lennon Road, Lennon, Michigan 48449 on June 16, 2021. The last compliance inspection was on November 7, 2018 for Waste Management of Michigan, Inc. (WM) operations and North American Natural Resources (NANR) operations.

The facility operates per the conditions of Renewable Operating Permit (ROP) No. MI-ROP-N5910-2015a. The ROP has two sections. Section 1 covers processes owned and operated by WM which includes the landfill operations, landfill gas flare, a landfill gas treatment system, and landfill gas-fired engines EUWMENGINE1 and 2. Section 2 covers landfill gas-fired engines EUNANRENGINE7R, 8R, 9, and 10, and a landfill gas treatment system owned and operated by NANR.

Arrived: 8:55 am

Weather: 61°F, WSW @ 2 MPH, UV Index 2

Departed: 11:15 am

There were no odors from the landfill operations and no visible emissions from the engine stacks at the entrance of the landfill.

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Facility Description:

Venice Park RDF is classified as a Type II sanitary landfill, which is a Municipal Solid Waste (MSW) landfill. A "Municipal Solid Waste landfill" or a "Type II landfill" according to Act 451, Part 115, Solid Waste Management states: A landfill which receives household waste, incinerator ash or sewage sludge and which is not a land application unit, surface impoundment, injection well, or waste pile. A municipal solid waste landfill also may receive other types of solid waste, such as commercial waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial waste. Such a landfill may be publicly or privately owned.

Natural biological processes occurring in landfills transform the waste constituents producing leachate and landfill gas. Initially, decomposition is aerobic until the oxygen supply is exhausted. Anaerobic decomposition of buried refuse creates most of the landfill gas. Landfill gas consists mainly of methane (CH₄), carbon dioxide (CO₂), and nonmethane organic compounds (NMOC).

Operations owned and operated by WM and NANR comprise a single stationary source known as Venice Park RDF. WM owns Venice Park RDF which is an active landfill located in eastern Shiawassee County at 9536 East Lennon Road, Lennon, approximately three miles north of I-69. This is a rural site surrounded primarily by farm land with some residential housing located along roads.

An active landfill gas collection system has been installed to collect the landfill gas. This system utilizes gas mover equipment to rout the collected gas to the gas-to-electric plant and/or flare. Landfill gas produced from the landfill is used to fuel six (6) reciprocating internal combustion engines (RICE). Each engine turns a crankshaft that spins a generator's rotor in an electromagnetic field, generating an electric current that can be used for electricity. WM owns two engines (EUWMENGINE1 and 2) which were permitted on Permit to Install (PTI) 166-11. NANR had eight engines (EUNANRENGINE3 through 10), two of which (7R and 8R) were replaced with newer engines under PTI 123-11A. But have removed engines 3 – 6 from the facility due to low landfill gas production. When the landfill gas is not routed to the engines, such as during engine maintenance, it is burned in an open flare owned by WM. The open flare is used as a back-up control device to combust the landfill gas when the engines are not operating.

Regulatory Overview:

Venice Park RDF is currently a major Prevention of Significant Deterioration (PSD) source due to the potential to emit of greater than 250 tons per year (tpy) of any regulated air contaminant. Potential

emissions of carbon monoxide (CO) at this facility are greater than 250 tpy. The facility is also major for hazardous air pollutants (HAPs) with the potential to emit in equal or greater quantities of 10 tpy of any single HAP and 25 tpy of aggregate HAPs. The potential to emit of greenhouse gases (GHG) in carbon dioxide equivalents (CO₂e) is greater than 75,000 tpy. CO₂e is a calculation of the combined global warming potentials of six GHGs: CO₂, CH₄, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The facility is subject to the Title V - Renewable Operating Permit Program. An ROP renewal application was submitted on April 13, 2020 and is currently in the renewal process.

Operations at Venice Park RFD are subject to the following federal regulations for air pollutants as discussed below.

40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills - The provisions of this subpart apply to each municipal solid waste landfill that commenced construction, reconstruction, or modification on or after May 30, 1991. The landfill gas collection and control system are subject to the requirements of Subpart WWW.

NEW - A Federal Plan in 40 CFR 62, Subpart OOO has been published with an effective date of June 21, 2021. The requirements in 40 CFR 60, Subpart WWW will no longer apply upon the effective date of 40 CFR 62, Subpart OOO. Venice Park RFD is considered a legacy landfill under 40 CFR 62, Subpart OOO.

40 CFR 60, Subpart JJJJ, Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE) - The provisions of this subpart apply to SI ICE that commence construction (ordered) after June 12, 2006. Four NANR engines 7R, 8R, 9, and 10 are subject to Subpart JJJJ.

40 CFR 61, Subpart M, Standards of Performance for Asbestos – The facility receives asbestos containing material for proper disposal.

40 CFR 63, Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills - This subpart requires all subject landfills to meet the requirements of 40 CFR 60, Subpart Cc or WWW, a State Plan or Federal Plan. This subpart did require such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of 40 CFR 63, Subpart A, General Provisions but now the standard applies at all times even during SSM. This subpart has been revised, and no later than September 27, 2021, landfills described in 40 CFR 63.1935 must meet the requirements of 40 CFR 60, Subpart WWW. A landfill may choose to meet the requirements identified in 40 CFR 63.1930(a) at any time before September 27, 2021. On and after September 28, 2021, the permittee must comply with all applicable provisions per 40 CFR 63.1930(b).

40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) – This subpart establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. WM engines, EUWMENGINE1 and 2, are subject as existing engines. NANR engines, EUNANRENGINE7R, 8R, 9, and 10, are subject to 40 CFR 63, Subpart ZZZZ as new engines.

Exempt Equipment:

Propane-fired space heaters exempt per Rule 282(2)(b)(i) are located in the east plant (NANR). There are two parts washers (cold cleaners). One is located in the shop and the other in the gas plant. These are included as FGCOLDCLEANER in the ROP. (The cold cleaner in the gas plant is serviced every 12 weeks.) There is also a flexible group, FGRULE290, but any equipment operating under a Rule 290 exemption has been removed from the facility.

The following is a list of emission units/flexible groups for Venice Park RDF:

ROP No. MI-ROP-N5910-2015a (Section 1):

EU / FG	Description (Install Date)	Federal Standards
EULANDFILL	This emission unit represents the general Municipal Solid Waste (MSW) Landfill. (12/13/95)	40 CFR 60, Subpart WWW => 40 CFR 62, Subpart OOO; 40 CFR 63, Subpart AAAA
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. (12/13/95)	40 CFR 60, Subpart WWW => 40 CFR 62, Subpart OOO; 40 CFR 63, Subpart AAAA
EUTREATMENTSYS1	Processing equipment that treats collected landfill gas for subsequent sale or use. (12/13/95)	40 CFR 60, Subpart WWW => 40 CFR 62, Subpart OOO; 40 CFR 63, Subpart AAAA
EUOPENFLARE	Open flare is an open combustor without enclosure or shroud. (5/8/2012)	40 CFR 60, Subpart WWW => 40 CFR 62, Subpart OOO; 40 CFR 63, Subpart AAAA
EUASBESTOS	Any active or inactive asbestos disposal site. (1/01/81)	40 CFR 61, Subpart M
EUWMENGINE1 / FGENGINES1-2	A 800 kW (1148 HP) CAT G3516 LE landfill gas generator engine. (5/8/2012)	40 CFR 63, Subpart ZZZZ, "existing"
EUWMENGINE2 / FGENGINES1-2	A 800 kW (1148 HP) CAT G3516 LE landfill gas generator engine. (5/8/2012)	40 CFR 63, Subpart ZZZZ, "existing"
FGRULE290	Any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 pursuant to Rules 278 and 290.	NA
FGCOLDCLEANER	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 281(h) or Rule 285(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.	NA

ROP No. MI-ROP-N5910-2015a (Section 2):

EU / FG	Description (Install Date)	Federal Standards
EUTREATMENTSYS2	Processing equipment that treats collected landfill gas for subsequent sale or use. (12/13/95)	40 CFR 60, Subpart WWW => 40 CFR 62, Subpart OOO; 40 CFR 63, Subpart AAAA

EU / FG	Description (Install Date)	Federal Standards
EUNANREENGINE7R / FGENGINES7R-10, FGRICEMACT	A 1600 kW (2242HP) CAT G3520C landfill gas generator engine, manufactured after 2012. Equipped with an electronic air to fuel ratio controller. (2014)	40 CFR 60, Subpart JJJJ; 40 CFR 63, Subpart ZZZZ, "new"
EUNANREENGINE8R / FGENGINES7R-10, FGRICEMACT	A 1600 kW (2242HP) CAT G3520C landfill gas generator engine, manufactured after 2012. Equipped with an electronic air to fuel ratio controller. (2014)	40 CFR 60, Subpart JJJJ; 40 CFR 63, Subpart ZZZZ, "new"
EUNANREENGINE9 / FGENGINES7R-10, FGRICEMACT	A 1600 kW (2233HP) CAT G3520C landfill gas generator engine, manufactured in 2011. Equipped with an electronic air to fuel ratio controller. (5/8/2012)	40 CFR 60, Subpart JJJJ; 40 CFR 63, Subpart ZZZZ, "new"
EUNANREENGINE10 / FGENGINES7R-10, FGRICEMACT	A 1600 kW (2233HP) CAT G3520C landfill gas generator engine, manufactured in 2011. Equipped with an electronic air to fuel ratio controller. (5/8/2012)	40 CFR 60, Subpart JJJJ; 40 CFR 63, Subpart ZZZZ, "new"

Michigan Air Emission Reporting System (MAERS) - 2020 Reporting Year:

EULANDFILL:

NMOC* – 13.0 tpy

PM10, filterable – 13.2 tpy

* NMOC sample from landfill dated 2006 and needs to be updated for the 2021 MAERS.

EUOPENFLARE:

CO – 29 tpy

NOx – 0.64 tpy

PM10/2.5, primary – 0.18 tpy

Sulfur Dioxide (SO₂)* – 0.19 tpy

VOC – 0.065 tpy

* LFG gas sulfur concentration: 55 ppmv (9.1 lb/MMscf).

FGENGINES1-2:

CO – 18.4 tpy

NOx – 12.6 tpy

PM10, filterable – 1.3 tpy

SO₂* – 1.4 tpy

VOC – 3.8 tpy

* LFG gas sulfur concentration: 55 ppmv (9.1 lb/MMscf).

FGENGINES7R-10:

CO – 165.1 tpy

NOx – 28.8 tpy

PM10, filterable – 5.2 tpy

SO₂* – 3.9 tpy

VOC – 9.0 tpy

* LFG gas sulfur concentration: 55 ppmv (9.31 lb/MMscf). Result from June 24, 2021 landfill gas sampling.

Inspection – WM (ROP Section 1):

Mr. John Davis (WM Compliance Manager), Mr. Tony Lindner (WM RE Plant Manager) and Mr. John Gall (District Manager) were on-site for the inspection. A discussion of landfill operations and gas plant operations was conducted during the on-site inspection.

Solid waste was being placed in the landfill during the inspection. Odors from the operations were not evident until up by the open face of the landfill. There have been some odor complaints for this facility. The most recent odor complaint for this facility came through EGLE, Lansing District, MMD but a direct cause of the odor was never identified. Odor surveys are regularly done to identify and locate the source if odors are detected by staff with the potential to go off-site. Also, contract trash pickers are used to pick up trash out of the ditches and collect trash that had blown off the landfill face during operations.

Fugitive road dust is controlled with water application via water truck. Water from the on-site storm water run-off ponds is used. Fugitive dust was non-existent during the inspection.

The original Cells referred to as A – T, and Cells 1 & 2 are filled. Cells 3, 4, 5, & 6 make up the active landfill. There is active collection in all cells consisting of horizontal and vertical collectors. There is approximately 33 to 34 years of operating life (space) in the landfill. WM has plans to construct 3 more landfill cells on the property. The plan to start construction on Cell 8 has been pushed up to July 2021 if ordered construction materials arrive.

Type of Waste Accepted:

Residential – About 80% comes from the Flint area with the remainder coming from Lansing.

Commercial - Including front ends (restaurant waste from food chains like McDonalds, etc.)

Special wastes (non-hazardous) – About 20,000 gallons/day of liquid waste is received.

Some construction debris – More in the summer from construction and demolition projects.

An average of 800 tons per day of waste is taken in by the landfill. In the winter, this drops a little. About 600 to 700 scfm of LFG is currently produced by the landfill which is down. The cause may be bottle necks in the header and there are plans to increase the header to an 18". Dry weather is also affecting gas flow.

Leachate from the collection system on the landfill goes to Genesee County, Montrose wastewater treatment plant (WWTP). There are 2-discharge points in the landfill that the drains in the cells are connected to. About 40,000 gallons/day and 6-700,000 gallons/month of leachate is directly discharged to the WWTP. No leachate recirculation has taken place on-site since at least 2008 when the sewer hookup occurred.

Yard waste was accepted by the landfill. A pile of yard waste is located in the south east corner of the property and where it was turned in a composting type of process. The "composted" yard waste was used for alternative cover but this is being discontinued. A tarp or soil is used to cover the working face of the landfill.

Solidification of non-hazardous liquid prior to disposal in the active landfill cell is done on-site. The types of non-hazardous liquid waste that is accepted is paint sludge and industrial wastewater (i.e., Arkland, Dow (Coventa) are some of the customers that send non-hazardous liquid industrial waste). A change is being made in the method of solidification. The existing process that is being phase out consists of liquid waste being discharged into a tank that is buried into the grade. The liquid waste was then mixed with a combination of fly ash and auto shredder fluff that is manually fed into the tank using an excavator. After mixing, the solidified liquid waste is then loaded into a dump truck using an excavator for disposal at the working face.

The change is to incorporate a pug mill for the mixing operation and a change in some of the mixing materials. The liquids would be discharged into the tank buried into the grade just as they are now. The liquid would then be pumped into the pug mill. At the same time that the liquids are being loaded, a blend of auto shredder fluff, pozzolanic agent (steel slag), and polymer would be fed into a hopper which will

blend with the liquid waste. The pozzolanic agent and polymer will make up about 10% of the solidifying agent mix. The waste then comes out the back of the pug mill and is loaded in a dump truck to be taken to the working face. This new solidification process is in trial operation. The basics of this new process was discussed in a conference call with WM on 6/18/2020.

A diesel fuel-fired engine is used to power the new solidification process. The engine is exempt per Rule 285(2)(g) because it is less than 10 MMBtu/hr of heat input. It also will not be subject to 401 CFR 63, Subpart ZZZZ because it is considered mobile as the solidification process is on wheels so that it can be moved. As long as it changes location at a minimum every 12-months it is considered a non-stationary engine.

The solidification process is located to stay close to the open face of the landfill. It was operating, and liquid waste was being actively solidified at the time of the inspection. Solidification is done in an open top metal vault that is buried in the trash. The tank can hold about 4,500 gallons, and about 3,000 gallons of liquid waste can be processed (mixed with solids) at a time. When not in use, the vault is filled with solids (e.g., fluff). Solids are mixed in with the liquid waste by an operator on a backhoe. Steam can come off the pile of fluff as the operator scopes up the solids to deposit them in the tank. The pile of solids can get warm while sitting in the sun which produces steam when the pile is moved. No air emissions such as particulate were noted from the process when it was observed operating.

The facility accepts both friable and non-friable asbestos. Friable asbestos is buried as soon as possible. The location of the friable asbestos pit is surveyed. Gas collection systems are not installed in areas where this has been buried. Non-friable asbestos can be put into the working face of the landfill. Asbestos comes in with a manifest (waste shipment record) and the requirements of 40 CFR 61, Subpart M are followed per the special conditions in EUASBESTOS. The last asbestos notification pursuant to 40 CFR 61.154(j) for the 2021 construction season was submitted April 28, 2021. A start date of no earlier than June 11, 2021 and end date of December 31, 2021 was listed. The notification is typically sent in annually at the start of the construction season. They provided notice that asbestos containing material may potentially be disturbed during installation of gas extraction wells in Cells 1, and 3 through 6. Maps of the surveyed in location of the asbestos and volume placed in Cells 1, 3 and 4 for 8/2018 to 11/2020 were obtained.

Diesel tanks to refuel off-road vehicles were noted. These are occasionally moved around the landfill operations for refueling of vehicles. There are 2 – 1,000 gallon tanks up by the landfill working face and 1 – 500 gallon tank of on-road diesel located by the shop.

Surface scans of the landfill are done quarterly as required by the NSPS and the ROP. The gas collection and control system (GCCS) plan includes the routes for surface scans and closure plans. The last quarterly surface scan was done June 4, 2021. There were no locations at Venice Park RDF where surface concentrations of methane (CH₄) were greater than 500 ppm.

The NSPS WWW requires that wellheads on collection systems operate at below required temperature and O₂ levels, and at negative pressure. Requests for variances from operating parameters for specific wells could be made as the gas quality decreases in wells. When monitoring shows that the operating parameters are not being met, an alternative timeline to address the issue can be requested to tune and/or identify the issue. Requests could be made to abandon or decommission wells. A number of alternative timeline requests and requests to decommission wells have been made since the last inspection. A Higher Operating Value (HOV) of 140°F for gas well VPL177R2, as allowed by 40 CFR 60.753(c) was approved on 11/18/2020. Also, an HOV of 140°F for gas well VPL160R2, as allowed by 40 CFR 60.753(c) was approved on 6/17/2021. Both gas wells will be operated with a temperature below 140°F and an oxygen content of less than 3%. As proposed, if a gas well has a measured temperature greater than 140°F and an oxygen content greater than 3%, the vacuum will be immediately reduced. The well will then be re-monitored within 15 days to determine if the temperature and oxygen concentration have been reduced. This monitoring will continue until either the temperature is below 140°F or the oxygen is below 3%.

They have had off-site gas migration issues, and there are monitoring wells located along the edge of the property where this has occurred. South side migration and PFAS issues have been identified. MMD is the lead on these issues.

WM Gas Plant:

The gas plant consists of two buildings: the east and west plant. The west plant has two engines, EUWMENGINE1 and EUWMENGINE2 owned by WM, the landfill gas (LFG) flare, and did house EUNANRENGINE3 owned by NANR which has been removed. The west plant was constructed in the 1992 to 1993 timeframe. The landfill gas flare is strictly used as backup to the gas plant engines. If the WM engines aren't operating, then the gas goes to NANR and they will operate more engines. The flare is the last resort in order to maintain a vacuum on the landfill.

The gas is treated prior to combustion in any engine. The permit conditions for the gas treatment system are in EUTREATMENTSYS1. Moisture is removed from the LFG and the gas is filtered in order to not damage the engines. LFG routed to the flare is untreated except for removal of moisture prior to combustion. There are three (3) orifice flow meters that measure the volume of LFG. One meter measures the volume to the WM engines, and one measures flow to the NANR engines in the east plant. The flow meters are calibrated annually. The flare also has a flow meter and it is calibrated every 18-months.

For the WM gas plant, the last "like-kind" engine replacement or engine swapping was for EUWMENGINE2. Notification of a like-kind replacement of EUWMENGINE2 per the guidance in Policy & Procedure No. AQD-023 was received via an email dated June 3, 2020. The replacement was done on June 15, 2020 (start-up on 6/16/2020) and is considered a major overhaul that is part of a regular maintenance program. Major overhauls are done on an engine if it is using too much oil or based roughly on a clock time of 80,000 to 90,000 hours of operation since the last major. In-frame overhauls are done roughly between 40,000 to 50,000 hours of operation.

EUWMENGINE1 and EUWMENGINE2 were operating. No visible emissions were observed from the engine exhaust stacks. Each stack had a muffler/silencer.

The following data was collected on the engines:

EUWMENGINE1

Serial No. 4EK00234

Mfg. Date – 6/17/1994 (engine bought used in 2014)

Output – 831 kWH (during inspection)

EUWMENGINE2

Serial No. 3RC00419

Mfg. Date – 8/12/1991

Output – 831 kWH (during inspection)

Utility output for the WM plant was a total of 1581.973 kW during the inspection.

Daily the quality of the LFG using a gas chromatograph (GC) is checked. The GC was last calibrated and performance evaluated on 2/16/2021. A copy of the calibration results report is attached.

For June 16th (day of inspection), the gas content in normalized values were:

CH₄ = 49.25658%

CO₂ = 36.85545%

Nitrogen = 12.85534%

Oxygen = 1.03263%

At a minimum of annually, bag samples of the LFG are collected and analyzed for sulfur content. It is part of the contract with NANR to provide them with the results. The last sampling was done on 6/24/2021. The total reduced sulfur (TRS) content for the LFG sampled was 52 ppmv and 60 ppmv.

EUWMENGINE1 and EUWMENGINE2 were last tested for compliance with the emission limits for CO, NOx, PM2.5, VOC, and formaldehyde in May of 2014. The testing is "Upon request of the District Supervisor". Compliance with the emission limits Special Condition (SC) I.1 to I.5 is assumed based on the last stack testing and the engine maintenance program.

Daily maintenance checks on the engines include noting engine operating hours, oil temperature, oil pressure, oil levels, etc. EUWMENGINE1 and EUWMENGINE2 maintenance logs showed replacement of spark plugs, adjustments for valves and bridges, oil/filter changes, and top ends (at the last inspection). The requirements of the PM/MAP in SC III.2 are being followed. The current PM/MAP on file is dated 3/7/2016. The logs of all maintenance activities fulfill the requirements in SC VI.7.

Records Review:

EULANDFILL – A copy of the report of the last quarterly surface scans is **attached for Q1 and Q2 2021**

1. Current amount of waste in-place: **13,370,088 cubic yards of waste in-place as of 1/1/2021**
2. The annual acceptance rate for the 2019 and 2020 years as required by Special Condition (SC) VI.2 is as follows:

Material Summary Report (01/01/2019 12:00 AM to 12/31/2019 11:59 PM)

MSW - 143,948.13 tons
C&D - 7,764.14 tons
Special Waste - 55,826.53 tons
TOTAL - 207,538.80 tons

Material Summary Report (01/01/2020 12:00 AM to 12/31/2020 11:59 PM)

MSW – 134,869.64 tons
C&D – 14,145.35 tons
Special Waste – 56,710.84 tons
TOTAL - 205,725.83 tons

3. Records of liquids added to the waste mass and percent moisture as required by SC VI.4. **No recirculation has taken place on site since at least 2008 when sewer hookup occurred (2008 is the last discharge permit (electronic copy), but it could be earlier than that).**
4. Records of the amount of waste solidified and solidification days for 2019 and 2020 were obtained.

EUOPENFLARE -

1. Records of the flare type, all visible emission readings, heat content determination, flow rate, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18; continuous records of the open flare pilot flame or open flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent as required by SCs VI.1 and 2. **Performance test conducted 2/12-14/2002; continuous records of pilot flame monitoring including gas flow to flare and flare temperature for 2019 and 2020 obtained, flare flowmeter calibration on 7/25/2020.**
2. Monthly and 12-month rolling time period NOx emission calculation records for Jan-2019 to April-2021 were obtained. **As of April-2021, NOx emissions were 0.372 tpy below the permit limit of 27.3 tpy (SC I.1).**

FGENGINES1-2 –

1. Total landfill gas usage records including Btu content and any air/fuel adjustments on a monthly and 12-month rolling time period for Jan-2019 to April-2021 as required by SCs VI.3, 4, 5, and 6. **The 12-month rolling MMBtu data up to April-2021 was 147,640 MMBtu/12-month rolling. The highest 12-month rolling MMBtu heat input occurred in March-2021 and was 148,316 MMBtu/12-month**

rolling. The LFG usage limit is 158,832 MMBtu/12-month rolling (SC II.1). FGENGINES1-2 is in compliance with this permit limit.

2. Last landfill gas flow meter calibration record performed on 2/16/2021.
3. Daily LFG quality report for the 6/16/2021 obtained.
4. Results of the last sulfur content analysis of the LFG on 6/24/2021 obtained.

EUASBESTOS – Site maps of the surveyed in location of the asbestos placed in the cells for the 2019 and 2020 years. The denoted (surveyed in) areas should correspond with waste manifests that indicate x,y coordinates, elevations, and amounts. **Asbestos logs and maps sent for CY's 2019 and 2020.**

All records obtained in the course of this compliance inspection are with the file copy of the report in Content Manager.

Inspection – NANR (ROP Section 2):

The east plant is comprised of the following engines: EUNANRENGINE7R, EUNANRENGINE8R, EUNANRENGINE9, and EUNANRENGINE10. EUNANRENGINE3, EUNANRENGINE4, EUNANRENGINE5, and EUNANRENGINE6 were removed from the facility because the landfill was not producing enough gas for all NANR engines to operate economically. The ROP mod to remove the engines from the ROP has been processed and issued. The facility is now operating under ROP No. MI-ROP-N5910-2015a.

NANR staff on-site was Dave Terry (plant operator) and the supervisor, Mr. Richard Spranger on the day of the inspection.

Three (3) of the engines in the east plant were operating at the time of inspection. The following data from the digital meters were recorded at the time of inspection:

EUNANRENGINE7R – 0 kWH
EUNANRENGINE8R – 1203 kWH
EUNANRENGINE9 – 1183 kWH
EUNANRENGINE10 – 1201 kWH

Performance testing of the engines is required by ROP No. MI-ROP-N5910-2015a. Stack testing for EUNANRENGINE7R, EUNANRENGINE9, and EUNANRENGINE10 for CO, NOx, and VOC pursuant to 40 CFR 60, Subpart JJJJ and ROP No. MI-ROP-N5910-2015a was last done on 10/20-21/2020. Results indicate compliance with the emission limits while operating at near 100% load conditions for each engine. Stack testing of EUNANRENGINE8R for CO, NOx, and VOC pursuant to 40 CFR 60, Subpart JJJJ and ROP No. MI-ROP-N5910-2015a was last done on 7/30/2019. Results indicate compliance with the emission limits while operating at near 100% load conditions for each engine. EUNANRENGINE7R and EUNANRENGINE8R were tested for formaldehyde emissions on 10/4-5/2016 and were found to be in compliance. The permittee is required to verify formaldehyde emission rates from one or more engines every 5 years. A test for formaldehyde emissions from an engine will be needed by October 2021.

NANR had emissions testing scheduled for EUNANRENGINE8R on July 27, 2021 and postponed the testing. They have had some issues with the engine and at this time it is not operational. NANR will work on getting the unit up and running. The tentative plan right now will be to hold off on testing until the October/November timeframe. They have 2 other engines that will be up for testing then and will probably test all 3 during the same testing event. The landfill gas production is low enough that they can idle EUNANRENGINE8R until the October/November timeframe to preserve hours and not exceed the 8,760 hour limit.

Below is a listing of the serial numbers and manufacture dates of the engines located on-site at the time of inspection:

Engine EU	Serial Number	Manufacture Date
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Engine EU	Serial Number	Manufacture Date
EUNANRENGINE7R	GZJ00628	10/26/2012
EUNANRENGINE8R	GZJ00626	10/12/2012
EUNANRENGINE9	GZJ00538	10/26/2011
EUNANRENGINE10	GZJ00539	10/26/2011

NANR doesn't practice engine swap outs for major overhauls. They send the engine out for the major overhaul and get the same engine back. No NANR engines on-site have under gone a major overhaul according to the records. Maintenance records for each engine show oil and filter changes, top ends, cleaning of spark plugs, replacement of various parts, etc. EUNANRENGINE7R underwent a top-end on 10/14/2020 at 34,308 hours. EUNANRENGINE8R underwent a top-end on 10-26-2018. EUNANRENGINE9 underwent a top-end on 9/24/2020 at 36,539 hours. EUNANRENGINE10 underwent a top-end on 10/6/2020 at 64,950 hours.

An electronic copy of the maintenance records was obtained for the following:

Engine EU	Record Dates	Hours
EUNANRENGINE7R	12/26/19 to 6/14/21	27,718 to 37,958
EUNANRENGINE8R	11/17/19 to 6/3/21	25,789 to 30,484
EUNANRENGINE9	12/3/19 to 6/8/21	29,615 to 41,715
EUNANRENGINE10	10/10/19 to 6/4/21	56,753 to 4,963*

* Hour meter reset to zero on 11/1/20. Hours prior to reset at 65,794.

The requirements of the PM/MAP in SC III.2 are being followed. The current PM/MAP on file is dated 9/10/2019. The logs of all maintenance activities fulfills the requirements in SC VI.3.f.

For each engine, continuous and daily monitoring of kilowatt output and landfill gas usage is conducted meeting the requirements in SC VI.2 and 3. NANR has monitors that measure fuel flow to the east and west plants, and is meeting the requirements in FGRICEMACT, SC IV.1 since only LFG is combusted in the engines. Compliance with all the permit terms and conditions for FGENGINE57R-10 and FGRICEMACT was demonstrated.

The gas is treated prior to combustion in any engine. NANR has their own treatment system: EUTREATMENTSYS2. Moisture is removed from the LFG and the gas is filtered in order to not damage the engines. LFG routed to the flare is untreated except for removal of moisture prior to combustion.

Records Review:

FGENGINE57R-10

1. Total landfill gas usage records and hours of operation per engine on a monthly and 12-month rolling time period for 1/1/2017 to 6/1/2021 as required by SCs VI.3 obtained.
2. Logs of all maintenance activities conducted on the engines as required by SC VI.3.
3. Last landfill gas flow meter calibration record provided by WM.
4. Results of the last sulfur content analysis of the LFG. (Total sulfur content of the landfill gas burned is required to be tested annually if less than 400 ppm per SC V.3.)

All records obtained in the course of this compliance inspection are with the file copy of the report in Content Manager.

Summary:

No instances of noncompliance with the conditions of ROP No. MI-ROP-N5910-2015a, Sections 1 and 2 were identified during the inspection.

Regarding 40 CFR 62, Subpart OOO which was effective as of June 21, 2021, WM is working on templates for compliance procedures. The requirements in 40 CFR 60, Subpart WWW will no longer apply but are still in the ROP. For the ROP renewal, WM and NANR do have the option to comply with 40 CFR 62, Subpart OOO and 40 CFR 63, Subpart AAAA or opt-in to comply with 40 CFR 63, Subpart AAAA only. Opting in to 40 CFR 63, Subpart AAAA eliminates putting requirements for 40 CFR 62, Subpart OOO in the ROP at renewal.