M4469
MANUAL

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

M446950243

FACILITY: RIVERVIEW LAND PRESERVE		**SRN / ID:** M4469
LOCATION: 20863 GRANGE RD, RIVERVIEW		**DISTRICT:** Detroit
CITY: RIVERVIEW		**COUNTY:** WAYNE
CONTACT: Jeffrey Dobek , Assistant City Manager/Land Preserve Director		**ACTIVITY DATE:** 08/01/2019
STAFF: Jonathan Lamb	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Targeted inspection, FY 2019		
RESOLVED COMPLAINTS:		

Riverview Land Preserve:
DATE OF INSPECTION: August 1, 2019
INSPECTED BY: Jonathan Lamb, EGLE-AQD
PERSONNEL PRESENT: Jeffrey Dobek, Assistant City Manager/Land Preserve Director; Jennifer Bowyer, Project Manager - Cornerstone Environmental; Khalid Mahmood, Client Manager – Cornerstone Environmental; Charlie Anderson, Project Engineer – Cornerstone Environmental
CONTACT PHONE NUMBER: 734-785-5927 (Mr. Dobek)

Riverview Energy Systems:
DATE OF INSPECTION: July 31, 2019
INSPECTED BY: Jonathan Lamb, EGLE-AQD
PERSONNEL PRESENT: Rob Sanch, Environmental Supervisor – DTE Biomass Energy; Jeff Neumann, Facility Supervisor – Riverview Energy Systems
FACILITY PHONE NUMBER:
CONTACT PHONE NUMBER: 734-302-5383 (Mr. Sanch)

FACILITY BACKGROUND:

Riverview Energy Systems and Riverview Land Preserve are considered a single stationary major source subject to the Title V Program. The source was issued Renewable Operating Permit (ROP) No. MI-ROP-M4469-2015 on January 7, 2015, and the ROP was revised on September 18, 2017. The ROP is divided into two sections: Section 1 covers operations at Riverview Energy Systems; Section 2 covers operations at Riverview Land Preserve. The source is located within a mostly residential area of Riverview, bordering the cities of Trenton, Brownstown, and Woodhaven.

Riverview Land Preserve (RLP), located at 20863 Grange Rd., is a municipal solid waste landfill owned and operated by the City of Riverview. The landfill started accepting waste in December 1968 and comprises an area of roughly 300 acres with a design capacity of 39.26 million tons (35.38 million megagrams); current estimates show that the landfill is expected to reach capacity around 2031. Since the design capacity is over 2.5 million megagrams, the facility is subject to 40 CFR Part 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills and 40 CFR Part 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. The landfill accepts waste from 6:30 AM to 4:30 PM, Monday through Friday, and 7:00 AM to 11:30 AM on Saturdays. There are currently 23 employees on site.

Riverview Energy Systems (RES), located at 20000 Grange Rd., operates a landfill-to-gas energy facility at the Riverview Land Preserve. Gas produced by the degradation of waste in the landfill is treated and then burned as fuel in turbines to produce electricity. RES is co-owned by DTE Biomass Energy and Aria Energy, with DTE Biomass responsible for the daily operations of the facility. DTE Biomass Energy is a wholly-owned subsidiary of DTE Energy. There are two employees on site; the equipment operates 24 hours a day, 7 days per week, with staff on site 7:00 AM to 3:00 PM, Monday through Friday, and on call at all other times in case of equipment malfunction.

COMPLAINT/COMPLIANCE HISTORY:

Riverview Energy Systems

Following a review of emission records during the compliance evaluation performed on April 27, 2015, Riverview Energy Systems was issued a Violation Notice on May 11, 2015, citing numerous violations, including exceeding 12-month rolling sulfur dioxide (SO_2) emissions from the turbines starting in 2011, failure to obtain a Permit to Install prior to making a modification to the turbines, failure to report deviations and emission exceedances in the annual and semi-annual ROP certifications, and reporting inaccurate SO_2 emissions to the Michigan Air Reporting System (MAERS) from 2010 through 2014. Since Wayne County was in nonattainment with SO_2 at the time of the violation, the facility was also cited for not complying with the lowest achievable emission rate (LAER) for SO_2 and not providing emission reduction offsets for SO_2. As a result, the facility entered into Consent Order AQD No. 19-2016 on May 24, 2016. The Consent Order required the facility to install a sulfur control system to reduce sulfur in the landfill gas stream below 140 ppm prior to being used as fuel in the turbines. The Consent Order also required the facility to perform weekly sampling of the landfill gas, submit monthly SO_2 emission calculations to AQD. RES was also required to obtain a Permit to Install (PTI) modification to incorporate conditions of the Consent Order; PTI No. 250-00B was issued on December 20, 2016 to meet this requirement. Consent Order AQD No. 19-2016 was terminated on June 27, 2019.

Riverview Land Preserve

The landfill has a long history of odor complaints from residents of Riverview and Trenton due to fugitive emissions of landfill gas and general garbage odors. A class-action lawsuit filed by residents against Riverview Land Preserve for nuisance odors was settled in 2014. More recently, the facility has seen an increase in complaints, peaking in 2018:

Year	# Odor Complaints
2016	3
2017	36
2018	74
2019 (through August 30)	15

Violation Notices were issued to Riverview Land Preserve on January 3, 2018, and July 16, 2018, as a result of nuisance odors in violation of Rule 901 identified during complaint investigations. Due to ongoing complaints, these violations are considered to be unresolved.

Riverview Land Preserve was issued a Violation Notice, dated April 20, 2012, following the catastrophic failure of one turbine, which caused both turbines to become inoperable. The facility was cited for not having sufficient control to handle the landfill gas while the turbines were inoperable. As a result, the landfill installed a second temporary flare, which was replaced by a second permanent flare in 2013.

ADDITIONAL REGULATORY INFORMATION:

Riverview Land Preserve is licensed under Part 115 – Solid Waste Management through the Michigan Department of Environment, Great Lakes, and Energy – Materials Management Division (EGLE - MMD) as a municipal solid waste landfill. In July 2017, the City of Riverview submitted an application to Wayne County Land Resource Management Division to allow an expansion of the landfill capacity for an additional 45 horizontal acres of disposal area. Following a public meeting on September 14, 2017, during which time there was strong opposition to the proposed expansion by local residents and public officials, the Wayne County Facility Inclusion Committee determined that the facility's proposal was insufficient and needed to be resubmitted with additional information. In February 2018, the City of Riverview decided to withdraw the expansion proposal rather than resubmit the application.

Any expansion of the landfill would require approval through the Wayne County Department of Public Service's Land Resource Management Division for inclusion into the Wayne County Solid Waste Management Plan and a construction permit through the EGLE - MMD.

I notified Riverview Land Preserve and its consultants that if the facility does decide to re-apply for an expansion, the facility will be required to perform a potential-to-emit demonstration for NMOCs to determine if a Permit to Install modification is required. In addition, any increase in currently approved capacity would also make the site subject to 40 CFR Part 60, Subpart XXX – Standards of Performance for Municipal Solid Waste Landfills.

INSPECTION NARRATIVE:

The inspection was performed on July 31, 2019 (Riverview Energy Systems) and August 1, 2019 (Riverview Land Preserve).

Riverview Energy Systems, July 31, 2019: I arrived at DTE Biomass and met with Rob Sanch, Environmental Engineer, and Jeff Neumann, Plant Operator. Mr. Neumann gave an overview of the system's operations. The media was last changed in the Sulfa-Treat system on October 9, 2018. Mr. Neumann said that the facility was scheduled to replace the media in the Sulfa-Treat tanks sometime in the next month or so; numerous bags of the media were already delivered on site. The facility was switching to a different media called "FerroSorp", which is a granular iron oxide-coated material which has a higher loading rate (40% compared to 20% for the previous media) and does not require the use of water sprays to keep the temperature down. I also visually inspected the turbines and reviewed operating and maintenance records while on site.

Riverview Land Preserve, August 1, 2019: I arrived at Riverview Land Preserve and met with Jeff Dobeck, Assistant City Manager and Land Preserve Director, and the facility's consultants, Jennifer Bowler, Khalid Mahmood, and Charlie Anderson of Cornerstone Environmental. We discussed current operations at the facility, including the proposed expansion of the landfill and recent construction and well installation. Active filling is taking place on the tops of Cells 4, 5, and 6, and in Phase 1 and 2 of Cell 7. The landfill is currently constructing Phase 3 of Cell 7, which is located in the southeast corner of the landfill; the facility expects to start active filling in this area sometime in the 4th quarter of 2019. The next well construction is scheduled for September 2019, which will include one new well and five replacement wells in Cells 2 and 3 and Cell A.

The landfill currently accepts approximately 40% municipal waste and 60% industrial and construction/demolition waste. Most of the municipal waste comes from Downriver communities, with limited waste coming from Canada. The landfill also recently started receiving additional waste from Detroit and other communities since the closure of Detroit Renewable Power in March 2019. The landfill does not accept asbestos waste, although it is permitted to do so. The landfill currently does not accept wastewater sludges, and no composting operations are performed on the property. Wastes are received throughout the day Monday through Friday and on Saturday mornings. We drove around the landfill, including the active filling areas of Cells 4, 5, 6, and 7, to monitor for odors and cover integrity before concluding the inspection. The facility is using soil and clay as the primary daily cover for odor and erosion control and appearance; the facility also uses limited quantity of shredded tires for daily cover.

PROCESS DESCRIPTION/EQUIPMENT:

Riverview Land Preserve (RLP)

Riverview Land Preserve uses a gas collection and control system (GCCS) which is designed to draw landfill gas (LFG) from the active fill areas, interim cover areas, and areas filled to final grade. The GCCS uses a series of interconnected wells, horizontal collectors, surface collectors and other gas extraction devices operating under negative pressure to collect LFG throughout the landfill and move the gas to the control system; two turbines (operated by RES) are the primary control, with two flares

used as back-up/secondary control. As of June 30, 2019, there were 178 vertical extraction wells, 24 horizontal collectors, 4 manholes, 18 cleanout risers, and 1 French drain installed in the final grade and active fill areas. The average spacing between vertical wells is 150-250 feet apart to provide adequate coverage for gas extraction. The two flares, EUOPENFLARE1 (2,131 cfm; installed in August 2004) and EUOPENFLARE2 (4,700 cfm; installed in January 2013), are operated by RLP and are used to burn LFG produced in excess of what the turbines can accommodate, or during times when the turbines are down. EUOPENFLARE2 is the main flare and operates almost continuously since the landfill is currently producing more gas than the turbines can accommodate; at present time, all cells are producing methane, and the LFG production rate is around 4,100 cfm. Approximately 3,700 cfm goes to RES to be burned as fuel in the turbines and the rest is burned in the flares. EUOPENFLARE1 is used as a back-up.

RLP also operates a BioGas System (EUBIOGASTREATSYS), which was installed in 2013. The system treats LFG to be used as a fuel for vehicles. Currently, this fuel is used for vehicles used at the facility and for some vehicles used by the City of Wyandotte. The process takes gas from the landfill and runs it through an adsorbent media to remove H_2S and then through a heating and chilling unit to remove moisture. The gas is sent through three charcoal filter vessels to remove VOCs and additional H_2S, then through a particulate filter to remove residual charcoal. At this point, the gas is approximately 95% methane. The gas is then heated and compressed to 4,200 psi, at which point it is ready to be dispensed and be used as fuel in vehicles.

The facility installed a leachate treatment system in 2015 to process leachate from Cells 1, 2, and 3, to reduce the PCB content to allow for discharge into the city sewer system. The leachate treatment system is able to treat up to 2,500 gallons of leachate per day and is located near the flares. The leachate is collected in one 20,000-gallon leachate collection tank located outside of the leachate treatment building. Leachate from the collection tank is pumped into the treatment building for processing. The treatment building consists of one 6,000-gallon leachate tank, one 4,000-gallon pre-filtration feed tank, and one 2,000-gallon backwash tank which are linked to a filtration system. After treatment, approximately 90% of the leachate is able to be discharged to the sewer system. The remainder of the leachate, including contents of the backwash tank, which has a PCB concentration too high to discharge in the sewer system, is hauled off-site for disposal by Usher Oil; approximately one or two tanker trucks per day is hauled off site. Any waste sludges are collected and hauled offsite for disposal at another landfill. Leachate produced from Cells 4, 5, and 6 has a low enough PCB content to be discharged directly to the city sewer system. The leachate treatment system is exempt from permitting requirements per Rule 285(2)(m).

There are two 500-gallon portable diesel tanks which are moved around the landfill to fuel vehicles on site. These tanks are exempt per Rule 284(2)(d).

There are five 550-gallon fluid tanks (hydraulic fluid, coolant, antifreeze, oil) in the maintenance building. These tanks are exempt per Rule 284(2)(i).

Riverview Energy Systems (RES)

LFG collected by the GCCS which is not flared is sent to RES to be used as fuel for the turbines to produce electricity. The LFG is fed from a common header to a sulfur control system ("H2S Plus" Hydrogen Sulfide Removal System designed by MV Technologies based on the "iron sponge" concept), which, as the name implies, removes hydrogen sulfide (H_2S) and mercaptans from the LGF prior to usage as fuel. This sulfur control system was installed in October 2016 and consists of four tanks in parallel under vacuum that are filled with a media (currently, wood chips coated with iron oxide but will switch to "FerroSorp" the next time the media is changed) which react with the sulfur compounds in the gas stream to form a pyrite (FeS_2), which is subsequently oxidized to elemental sulfur. The iron oxide and sulfur are adsorbed onto the surface of the wood chips, which results in the outlet gas to have a lower H_2S concentration when it is sent to the turbines. Since the reaction is

exothermic, the tanks are equipped with temperature monitors and alarms; if the temperature hits 125° F, water is pumped into the tanks from a sump well to reduce the temperature. During the inspection, the tanks were between 84.5°F and 86.5°F. A Draeger tube is used to check the H_2S concentration from the tank discharge every two weeks, or weekly if the H_2S discharge measures over 10 ppm. The differential pressure of the tanks is checked daily. The monitoring of the tank discharge and pressure differential is used to determine when the media is spent and needs to be replaced. Since installation, the media has been replaced every 12-14 months. The spent media is considered non-hazardous and can be disposed of in the landfill; since the H_2S adsorbed onto the media is converted to elemental sulfur, the disposed media does not re-introduce the H_2S back into the landfill.

After treatment in the sulfur control system, the lower-sulfur LFG is sent to the landfill gas treatment system (EU-TREATMENTSYS). The treatment system processes the collected landfill gas by removing particulates down to 10 microns, compressing the gas, and removing excess moisture prior to combustion in the turbines. Collected landfill gas is conveyed to a scrubber, which removes the particulate and condensate, before going through two identical compressor skids (Skid 500 and Skid 600), which compresses the gas to 160-185 psi. The skids are set up in parallel; both skids are usually used simultaneously but the treatment system can operate on one skid if the other is down for maintenance. The compression heats the gas up to 230-240°F, so the gas passes through a heat exchanger to remove the excess heat; outlet gas temperature at this point is around 100°F. This causes the formation of condensate in the gas stream, which must be removed by a dewatering system. The dewatered gas is then slightly heated back up to around 140°F before it is sent to the turbines for combustion.

There are two Solar Centaur 40 turbine engines, Turbine #1 (EUTURBINE1) and Turbine #2 (EUTURBINE2), which combust LFG to produce electricity. The turbines are rated at a heat input of 12 MMBtu/hr (3516 kWe) and operate at a maximum flow rate of 3.8 MMscf/day with an average heating value for LFG of 520 Btu/scf. Both turbines are permitted as a flexible group (FGTURBINES) and are subject to 40 CFR Part 60, Subpart GG – Standards of Performance for Stationary Gas Turbines, which applies to stationary gas turbines with a heat input greater than 10 MMBtu/hr that commenced construction, modification, or reconstruction after October 3, 1977.

I noted the following specifications of each turbine at the time of inspection:

Turbine #1:
Centaur 40 ver. 4701
Engine ID: EC471C-20GLR0T0
Serial No.: OHK15-C6184
Power: 3516/NA kWe

Turbine #2:
Centaur 40 ver. 4701
Engine ID: EC471C-20GLR0TO
Serial No.: OHI15-C3387
Power: 3516/NA kWe

According to Mr. Neumann, both turbines are scheduled to be swapped out during the 3rd Quarter of 2020; the facility routinely swaps out turbines at 40,000 operating hours. According to maintenance records, Turbine #1 was most recently replaced by a rebuilt unit and put into service on November 15, 2015, and Turbine #2 was most recently replaced with a rebuilt unit on September 23, 2015. [Note: In a meeting with AQD on June 11, 2012, DTE argued that turbine replacement did not constitute a reconstruction or modification because the cost of the rebuilt unit was below 50% of the cost to install a new unit, there was no emission increase or emissions of any new air contaminant, and that, at the time, RES was not considered a major source under PSD or nonattainment NSR regulations. A cost analysis was provided during the meeting. Based on that discussion and information provided for

review at that time, AQD accepted the facility's argument that the turbine replacement did not constitute a reconstruction or modification of an existing emission unit.]

Approximately 20% of the electricity produced by the turbines is used on site to power the compressor skid system while the remainder of the electricity goes to the grid for use on the open market.

APPLICABLE RULES/ PERMIT CONDITIONS:

Facility was issued Renewable Operating Permit (ROP) No. MI-ROP-M4469-2015a, on September 18, 2017, which was major modification to incorporate the conditions of Permit to Install (PTI) No. 250-00B into the Section 1 of the ROP. The ROP renewal applications were received by AQD on May 1, 2019 (Section 1 - RES) and June 20, 2019 (Section 2 - RLP).

Emission and production records from July 2017 through June 2019, in addition to semi-annual reports (including ROP Compliance Certification and Deviation reports, SSM reports, GCCS reports), were evaluated to determine compliance during this inspection. Records and report evaluations can be found in the orange facility file.

ROP No. MI-ROP-M4469-2015a, applicable Special Conditions:

SECTION 1: RIVERVIEW ENERGY SYSTEMS (RES)

B. Source-Wide Conditions

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly. Facility has not reported any deviations associated with applicable source-wide conditions.
2. IN COMPLIANCE. Semi-Annual Deviation Reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.

IX. Other Requirements
1. IN COMPLIANCE. Malfunction Abatement Plan is implemented and maintained.

C. Emission Unit Conditions

EU-TREATMENTSYS – Landfill gas treatment system

III. Process/Operational Restrictions
1. IN COMPLIANCE. Treatment system is operated at all times when the gas is routed to FGTURBINES.
2. IN COMPLIANCE. LFG collected in the treatment system are routed to the turbines and/or flares, required by 40 CFR 60.752(b)(2)(iii)(A) or (B).
3. IN COMPLIANCE. LFG collected in the treatment system is sent to either the turbines or flares for control, in accordance with the provisions of 40 CFR 60.753(e) and (f).

IV. Design/Equipment Parameters
1. IN COMPLIANCE. Treatment system is designed, installed, and operated as approved.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility maintains records of any control system exceedances. The facility has not recorded exceedances of the operational standards set in 40 CFR 60.753(e) and (f) for EU-TREATMENTSYS during the compliance evaluation period.
2. IN COMPLIANCE. Records of all maintenance activities are maintained and were reviewed during the inspection. Facility replaced the media in the sulfur treatment system in September 2018; the media is expected to be replaced in the fall of 2019.

3. IN COMPLIANCE. Facility submitted information describing the operation of the control device, operating parameters that would indicate proper performance, and appropriate monitoring procedures in a document titled "Treatment System Operation Overview", which was received by AQD on February 3, 2015.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly.
2. IN COMPLIANCE. Semi-Annual Deviation reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. IN COMPLIANCE. Facility provided information describing the operation of the control device, operating parameters that would indicate proper performance, and appropriate monitoring procedures to AQD within 30 days of issuance of this permit. Information was received on February 3, 2015.
5. IN COMPLIANCE. Landfill Gas Treatment System reports are sent to AQD on a semi-annual basis. The reports include a) value and length of time of any exceedances; b) description and duration of all periods when the gas stream is diverted from the treatment system through a bypass line; c) description and duration of all periods when the treatment system was not operating for a period exceeding one hour; and d) description and duration of all periods when the treatment system was not operated in accordance with the operating parameters and monitoring procedures as approved in EU-TREATMENTSYS, SC VII.4. During the compliance period, the facility has reported several occurrences of malfunction and shut-down events lasting over 1 hour during each semi-annual reporting period; most were the result of loss of power from the utility or due to maintenance activities and were of relatively short duration; no events lasted more than 9 hours during the compliance period. During these events, the flares were in operation, so there were no uncontrolled releases to the ambient air. A detailed review of each report can be found in the facility file. The facility is determined to be in substantial compliance with this condition.
6. IN COMPLIANCE. Startup, shutdown, and malfunction (SSM) report is submitted to AQD on a semi-annual basis. The facility reports the number of start-ups and shutdowns during each semi-annual period; during the compliance period, the facility reported that the SSM plan has been followed for all start-up and shutdown events. The facility reports the date, duration, and cause of each malfunction during the compliance period; reported malfunctions have been brief in duration (less than one hour). A detailed review of each report can be found in the facility file. The facility is determined to be in substantial compliance with this condition.

IX. Other Requirements
1. IN COMPLIANCE. Facility follows the requirements of 40 CFR Part 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills for EU-TREATMENTSYS.
2. IN COMPLIANCE. Facility maintains and implements a written SSM Plan in accordance with 40 CFR 63.6(e)(3) for EUTREATMENTSYS.
3. IN COMPLIANCE. Facility maintains and implements a Preventative Maintenance Plan for EUTREATMENTSYS.

D. Flexible Group Conditions

FGTURBINES (EUTURBINE1 and EUTURBINE2) - Two 520-BTU/scf Solar gas turbines.

I. Emission Limits:

Pollutant	Limit	Highest Actual	Compliance Status
1.NOx	EUTURBINE1: 0.0194% (by volume) at 15% oxygen[1] EUTURBINE2: 0.0194% (by volume) at 15% oxygen[1]	EUTURBINE1: 0.0029% (by volume) at 15% oxygen[3] EUTURBINE2: 0.0030% (by volume) at 15% oxygen[3]	IN COMPLIANCE
2. NOx	64.6 tons per 12-month rolling; each turbine	EUTURBINE1: 25.7 tons (12-month rolling time period ending Dec. 2017) EUTURBINE2: 29.1 tons (12-	IN COMPLIANCE

		month rolling time period ending Dec. 2017)	
3. SO_2	0.015% at 15% oxygen; each turbine	Not Applicable	IN COMPLIANCE[2]
4. SO_2	32.0 tons per 12-month rolling for FGTURBINES	11.1 tons (12-month rolling time period ending April 2019)	IN COMPLIANCE
5. CO	15.78 pph; each turbine	EUTURBINE1: 2.6 pph[3] EUTURBINE2: 2.7 pph[3]	IN COMPLIANCE
6. HCl	2.05 pph for FGTURBINES	FGTURBINES: 0.00497 pph (based on Dec. 2017 sampling)	IN COMPLIANCE
7. HCl	9.0 tons per 12-month rolling for FGTURBINES	FGTURBINES: 1.1 tons (December 2017)	IN COMPLIANCE

[1]Required to be calculated once per term of the ROP based on most recent stack test data in accordance with the formula listed in Appendix 7-1(1). Facility provided documentation supporting its calculations.
[2]Facility demonstrates compliance with the sulfur dioxide standard in Subpart GG by maintaining a total sulfur in fuel content below 0.8 percent by weight, as allowed in 40 CFR 60.333. Compliance with the 0.8% limit is found in FGTURBINES, Special Condition II.3.
[3]Based on the results of emissions testing performed on December 14, 2017.

II. Material Limits
1. IN COMPLIANCE. Daily records of LFG combustion were reviewed on site during this inspection. Daily LFG throughput is recorded every morning when operators are on site based on total LFG flow from the previous reading; however, since staff is not on site every day (ie, weekends and holidays), some totals are based on multiple days. Due to this, I was unable to determine the highest daily throughput during the compliance period, but based on the turbine operating records for these multiple day periods and the fact that the facility is constantly burning LFG when in operation, the records seem to sufficiently demonstrate that the facility is in compliance with the permit limit of 7.6 MMscf per day of LFG combusted. Based on daily records, the turbines typically burn under 5 MMscf/day when both turbines are in operation.
2. IN COMPLIANCE. The total sulfur in the treated LFG did not exceed the permit limit of 140 ppm by volume. Sulfur content is monitored on a weekly basis using Draeger tubes; the highest sulfur content reported during the compliance period was 130 ppm by volume in the sample taken on July 14, 2018.
3. IN COMPLIANCE. The facility samples the LFG for sulfur content twice per year (first and third quarters) for lab analysis. The most recent sample, taken on March 22, 2019, showed a sulfur content of 0.01% by weight in the LFG burned as fuel in the turbines following treatment in the sulfur treatment system, below the permit limit of 0.8% sulfur by weight.

III. Process/Operational Restrictions
1a. IN COMPLIANCE. All collected LFG not combusted in FGTURBINES is routed to the two open flares, in compliance with 40 CFR 60.752(b)(2)(iii)(A).
2. IN COMPLIANCE. Facility follows the preventative maintenance plan (PM)/malfunction abatement plan (MAP) for the sulfur control system, which was submitted to AQD on January 20, 2017. The plan was reviewed and approved by AQD staff.

IV. Design/Equipment Parameters
1. IN COMPLIANCE. The sulfur control system has been maintained and operated in a satisfactory manner since installation in October 2016.

V. Testing/Sampling
1. IN COMPLIANCE. Samples of LFG are analyzed to determine the total chlorine concentration of the LFG once every 5 years, as allowed per this condition since HCl emissions are below 75% of permit limits. The most recent sample was obtained during testing on December 14, 2017. Results of this sample show a total chlorine inlet concentration of 1.71x10-8 lb/ft3 and an HCl emission rate of 0.00497 pph.

2. IN COMPLIANCE. Facility determines the sulfur concentrations in fuel in accordance with the EPA approved custom fuel monitoring plan included as Appendix 9-1. Sampling is conducted twice per year during the first and third quarters of each year, per Appendix 9-1, Sulfur Monitoring 2c. According to the approved fuel monitoring plan, RES does not have to sample for nitrogen since previous testing showed no fuel-bound nitrogen in the landfill gas.
3. NOT EVALUATED. Facility is required to test for NOx and CO emission rates by December 20, 2019, and every five years thereafter.
4. IN COMPLIANCE. Facility monitors the total sulfur content of the LFG on a weekly basis, as required. Facility has not reported a sulfur content over 140 ppm, so more frequent monitoring has not been required.
5. IN COMPLIANCE. Facility performs the weekly sulfur monitoring required in FGTURBINES, SC V.4 using Draeger tubes to perform the monitoring, as approved by AQD in the facility's Gas Sampling Plan.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Consumption of LFG and hours of operation of FGTURBINES is recorded on a daily basis. Daily LFG throughput is recorded every morning when operators are on site based on total LFG flow from the previous reading; however, since staff is not on site every day (ie, weekends and holidays), some totals are based on multiple days but this appears sufficient to demonstrate compliance.
2. IN COMPLIANCE. Facility calculates and records the following information:
a. NOx emission rate per Appendix 7-1, based on stack test results, once per term of the ROP.
b. Monthly and 12-month rolling total NOx emissions for each turbine on a monthly basis.
c. Monthly record of hourly CO emissions for each turbine based on most recent stack test result.
e. HCl hourly emission rate for FGTURBINES, based on testing data.
f. Monthly and 12-month rolling total HCl emissions, calculated per Appendix 7-1(2) based on testing data.
3. IN COMPLIANCE. All records of sampling data to determine the sulfur concentration of the LFG is recorded and maintained.
4. IN COMPLIANCE. Facility calculates and records SO_2 emissions from FGTURBINES on a monthly and 12-month rolling basis, per Appendix 7-1(3), based on actual gas usage, actual hours of operation, and most recent gas sampling data.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to General Conditions 21 and 22 of Part A.
2. IN COMPLIANCE. Semi-Annual Deviation reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. IN COMPLIANCE. Facility submits LFG sampling data and SO_2 emission calculations to AQD within seven days after the end of each calendar month.

VIII. Stack/Vent Restrictions
1 and 2. IN COMPLIANCE. Turbine stack dimensions appear to meet permit specifications.

IX. Other Requirements
1. IN COMPLIANCE. Facility is in compliance with the applicable provisions of Subpart A and Subpart GG of the New Source Performance Standards.
2. IN COMPLIANCE. A vacuum sweeper is used to sweep paved roads and parking lots, as necessary.
3. IN COMPLIANCE. Unpaved roads and lots are treated with dust suppressant, as needed.

FGCOLDCLEANERS-S1

NOT APPLICABLE. There are no cold cleaners at Riverview Energy Systems, so conditions associated with this flexible group were not evaluated.

SECTION 2: RIVERVIEW LAND PRESERVE (RLP)

B. Source-Wide Conditions

VII. Reporting
1. IN COMPLIANCE. Deviations are reported promptly.
2. IN COMPLIANCE. Semi-Annual Deviation Reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certifications are submitted by March 15 of each year.

IX. Other Requirements
1. IN COMPLIANCE. Facility maintains and implements a Malfunction Abatement Plan (MAP), which includes actions taken to correct and prevent recurrence of an abnormal condition or malfunction, including odors.

C. Emission Unit Conditions

EULANDFILL – Municipal Solid Waste (MSW) Landfill

I. Emission Limits
1. IN COMPLIANCE. Facility performs quarterly surface monitoring of the landfill to determine if methane concentrations exceed 500 ppm over background levels, as required in EULANDFILL, SC V.2. The following quarterly monitoring results were reported to AQD in the semi-annual reports:

Quarter	Number of Readings >500 ppm over background	10-day	1 month	Notes
3Q, 2017	6	2	0; late	One month re-check performed one week late - AQD notified. No exceedances noted during 1- month follow up monitoring.
4Q, 2017	0	NA	NA	No exceedances noted.
1Q, 2018	0	NA	NA	No exceedances noted.
2Q, 2018	9	7	0; late	Increased vacuum, added cover; 1-month monitoring late – AQD notified; no exceedances noted during one month follow up
3Q, 2018	10	0	0	No exceedances noted during 10-day and 1-month follow up monitoring.
4Q, 2018	2	1	0	No exceedances noted during 1-month recheck.
1Q, 2019	2	0; late	0	Re-graded line; 10-day recheck was one day late – AQD notified; no exceedances during 10-day and 1-month recheck
2Q, 2019	1	0	0	Added additional cover; no exceedances during 10-day and 1-month rechecks

A review of the quarterly monitoring reports during the compliance evaluation period show readings of methane levels above 500 ppm over background levels; most were corrected prior to 10-day re-monitoring, all were corrected by 1-month monitoring. Per 40 CFR 60.755, if appropriate corrective actions are taken after an exceedance to bring the bring the surface methane levels below 500 ppm of background, then the exceedance is not considered a violation of operational requirements. 1-month monitoring was performed late during the 3rd Quarter 2017 and 2nd Quarter 2018; AQD was notified of the missed readings and readings were performed within 10 days of the due date and showed no exceedances. 10-day monitoring was performed late during the 1st Quarter 2019; AQD was notified of the late readings and the monitoring was performed within one day of the deadline and showed no exceedances. Since the missed readings were performed in a timely manner and showed no exceedances, this condition is considered to be in substantial compliance. However, the facility was

notified that continued late readings would result in noncompliance with this condition.

III. Process/Operational Restrictions
1. IN COMPLIANCE. Facility complies with the requirements in 40 CFR 63.1955(b) and 40 CFR 63.1960 through 63.1980. Compliance is demonstrated through testing and monitoring of the LFG collection system, continuous monitoring of the control device, recordkeeping, and reporting.

IV. Design/Equipment Parameters
1. IN COMPLIANCE. LFG collection and control system is installed and maintained.
2a. and c. IN COMPLIANCE. Collected LFG is routed to either a.) open flares or to c.) a landfill gas treatment system which processes the collected gas for use as fuel in turbines.

V. Testing/Sampling
1. IN COMPLIANCE. Surface emission monitoring is conducted quarterly along the perimeter and 30-meter intervals traversing the landfill to determine if methane concentrations exceed 500 ppm above background.
2a. through c. IN COMPLIANCE. Surface emission monitoring for methane is conducted in accordance with the monitoring procedures outlined in 40 CFR 60.753(d).
2d.i. through v. IN COMPLIANCE. Readings over 500 ppm above background are marked as exceedances and, after corrective actions are taken, the area is re-monitored within 10 days. If the area exceeds 500 ppm during re-monitoring, additional corrective actions are performed and the area is re-monitored again within 10 days. If no exceedances are noted during the 10-day re-monitoring, the area is monitored again after 1 month. If no exceedances are noted at that time, then no further action is required. If any exceedances are noted during the 10-day or 1-month re-monitoring, then the facility must take additional corrective actions and follow up with additional 10-day and 1-month re-monitoring. During the compliance period, the facility reported three occurrences where either the 10-day or 1-month monitoring was performed late; however, AQD was promptly notified of the missed readings and the readings were performed within a reasonable time frame after the due date and showed no exceedances. Therefore, the facility is determined to be in substantial compliance with this condition.
3a through d. IN COMPLIANCE. Surface emission monitoring for methane is done with the instrumentation and procedures required by 40 CFR 60.755(c). Facility uses a portable FID to monitor for surface emissions.
4a. through c. IN COMPLIANCE. Records of quarterly surface monitoring are maintained, as required. These records include: the route traversed during monitoring; areas not monitored and the reason why they were not monitored; visual observations indicating elevated levels of LFG; location and concentrations of any reading above 500 ppm above background; and meteorological conditions at time monitoring was performed.
5. IN COMPLIANCE. Facility performs surface methane monitoring according to the instrument specifications and procedures specified in 40 CFR 60.755(d).

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility implements a program to monitor cover integrity on a monthly basis and make repairs as needed. Written records of cover integrity reports are maintained and were reviewed during the inspection.
2. IN COMPLIANCE. Facility maintains up-to-date records of design capacity, amount of solid waste in-place, and yearly waste acceptance rate. These records are maintained on site and were provided for review during the inspection. The landfill has a design capacity of 39.26 million tons (35.38 million megagrams). Based on MAERS reporting, the landfill accepted 416,220 megagrams of waste in 2017 and 702,922 megagrams of waste in 2018. The facility had 17.42 million megagrams of waste in-place through 2018.
3. NOT APPLICABLE. This condition applies to landfills trying to demonstrate a capacity less than 2.5 million megagrams or 2.5 million cubic meters. Riverview Land Preserve's design capacity is greater than 2.5 million megagrams/2.5 million cubic meters.
4. IN COMPLIANCE. NMOC emission rate is calculated and recorded on an annual basis and reported to MAERS. In the MAERS reports submitted for 2017 and 2018, the facility reported

controlled mass emissions of NMOC to be 42.9 tons in 2017 and 43.3 tons in 2018, which is consistent with recent years. Uncontrolled NMOC emissions for 2017 and 2018 were estimated at 161.9 tons and 163.2 tons, respectively.
5. NOT APPLICABLE. No liquids other than leachate were added to the waste during the compliance period.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly.
2. IN COMPLIANCE. Semi-Annual Deviation Reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. NOT APPLICABLE. Facility has not removed or ceased operation of any control equipment.
5. NOT APPLICABLE. This condition applies to landfills which are closing. Riverview Land Preserve is an active landfill.
6. IN COMPLIANCE. Semi-Annual methane exceedance reports are submitted by March 15 and September 15 of each year.
7. IN COMPLIANCE. Semi-Annual SSM Reports are submitted by March 15 and September 15 of each year.

IX. Other Requirements
1. NOT APPLICABLE. No capping or removal of the collection and control system was required during the compliance period.
2. IN COMPLIANCE. If surface monitoring shows methane exceedances, corrective actions are taken are taken and the area is re-monitored within 10 days and 1 month. Corrective actions include adding surface cover and fine-tuning wells. If corrective actions are taken and resolve the exceedance, the monitored exceedance is not a violation of the operational requirements, per 40 CFR 60.755.
3. IN COMPLIANCE. Alternatives to the operational standards requested by the facility were approved by AQD in accordance with 40 CFR 60.752(b)(2). These requests and AQD's approvals can be found in the orange facility file.
4. IN COMPLIANCE. Facility conducted operations, monitoring, testing, reporting, and recordkeeping in accordance with the requirements of 40 CFR Part 60, Subpart WWW.
5. IN COMPLIANCE. Facility conducted operations, monitoring, testing, reporting, and recordkeeping in accordance with the requirements of 40 CFR Part 63, Subpart AAAA.
6. NOT APPLICABLE. Facility is required to apply controls as specified in 40 CFR 60.752(b)(2)(v) of Subpart WWW; therefore, the facility remains subject to 40 CFR Part 63, Subpart AAAA.

EU-ASBESTOS – The landfill is licensed to accept asbestos waste

NOT EVALUATED. Riverview Land Preserve has not accepted and does not currently accept asbestos waste, so these conditions were not evaluated during this inspection. These conditions were added to the permit to allow the landfill the flexibility to accept asbestos waste, if it decides to do so in the future.

EUALGCS – Active landfill gas collection system at the landfill

III. Process/Operational Restrictions
1. IN COMPLIANCE. Gas collection system is automatically shut off within one hour if the control device is shutdown. Records are maintained in the event this occurs. During the compliance period, the facility reported no occurrences where the gas collection system was shut down and no occurrences of venting to atmosphere.
2. IN COMPLIANCE. Gas collection and control system operates in all active cells with waste in place for 5 or more years and closed cells with waste in place for 2 or more years. Details are maintained in the GCCS Design Plan.
3. IN COMPLIANCE. Facility operates the collection system with negative pressure at each wellhead, except as noted in the compliance evaluation of EUALGCS, SC VI.1. Wellheads are monitored monthly, as per EUALGCS, SC VI.1. AQD considers the facility to be in substantial compliance with

this condition.
4. IN COMPLIANCE. Facility operates each wellhead at a LFG temperature less than 55°C (131°F), a nitrogen level less than 20%, and an oxygen level less than 5%, except as noted in the compliance evaluation of EUALGCS, SC VI.3, and for wells with approved higher operating values, as approved by AQD; please see the facility file for these approvals. AQD considers the facility to be in substantial compliance with this condition.
5. IN COMPLIANCE. Gas collection and control system is operated in accordance with the provisions of 40 CFR 60.753, 40 CFR 60.755, 40 CFR 60.756, and the AQD approved gas collection and control system approved on May 30, 2006.

IV. Design/Equipment Parameters
1a. through d. IN COMPLIANCE. The gas collection and control system appears to be installed in accordance with the approved design plan and sufficient to extract the gas produced by the landfill and minimize off-site migration of subsurface gas.
2. IN COMPLIANCE. LFG is routed to a control system (EU-TREATMENTSYS/FGTURBINES, with EUOPENFLARE1 and EUOPENFLARE2 as back-up control).
3. IN COMPLIANCE. The gas collection and control system is routinely modified with the installation, re-drilling, and decommissioning of wells, horizontal collectors, and other collection devices, to assure sufficient gas collection as the production of landfill gas evolves over time. Prior to making any modifications, RLP requests approval from AQD, stating what the modification will be and the reason for the modification. Copies of these requests and AQD's approvals can be found in the orange facility file.
4. IN COMPLIANCE. Wellheads are equipped with a sampling port and temperature measuring device to monitor operating parameters.
5a. through c. IN COMPLIANCE. GCCS Design Plan is approved by an engineer in EGLE's Materials Management Division and an as-built site map is maintained showing the location of the wells. Wells are generally installed approximately 150-250 feet apart. Quarterly surface monitoring is performed to verify that the LFG is being sufficiently collected by the gas collection system and not escaping through the surface.
6a. through c. IN COMPLIANCE. Gas collection devices are constructed of approved materials; lateral and header pipes are made of high-density polyethylene (HDPE). Vertical wells are installed as to not damage underlying liners. Construction documentation records are maintained on site.
7a. IN COMPLIANCE. Facility uses an existing gas collection system which appears sufficiently designed to handle the maximum LFG flow rate to the control system. Flow rate of LFG is recorded.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Wellheads are monitored monthly to verify that the gas collection and control system is operating under negative pressure. If wells demonstrate neutral or positive pressure, the facility is required to take corrective actions within 5 days to get the wells into compliance and perform re-monitoring to verify the wells are operating in compliance within 15 days of initial exceedance. If corrective actions do not return the well to compliance, the facility must expand the wellfield within 120 days of initial exceedance; alternatively, the facility may submit a request to AQD for an extended timeline to get the well into compliance. In its 2018 1st Semi-Annual Compliance Certification report, the facility reported that Wells 1008 and 1011R exhibited positive pressure during the January 2018 monitoring, but corrective actions were not taken within 5 days of initial exceedance. The wells were brought back into compliance on January 31 and February 16, respectively. The facility reported these as deviations in the semi-annual report. All other monitored wells which exhibited positive pressure were either brought into compliance within 15 days of initial exceedance or were granted alternative timelines with AQD approval. All requests for alternative timelines, along with supporting documentation for the requests and AQD's conditions for approval, can be found in the facility file. AQD considers the facility to be in substantial compliance with this condition.
2. NOT APPLICABLE. The gas collection and control system was installed in 1988.
3. IN COMPLIANCE. Wellheads are monitored monthly to verify they are operating at a LFG temperature less than 55°C (131°F), a nitrogen level less than 20%, and an oxygen level less than 5%. If a well exceeds either of these parameters, the facility records and reports the date, duration,

and suspected cause of the exceedance. The facility is required to take corrective actions within 5 days to get the wells into compliance within 15 days of initial exceedance. If initial corrective actions do not return the well to compliance, the facility must expand the wellfield within 120 days of initial exceedance; alternatively, the facility may submit a request to AQD for either an extended timeline to get the well into compliance or an approved higher operating value to allow the well to operate at a higher temperature, nitrogen, or oxygen level, if the facility is able to demonstrate that the elevated parameter does not cause fires or inhibit anaerobic decomposition. In its 2017 2nd Semi-Annual Compliance Certification report, the facility reported that Well 1119 exhibited oxygen levels above 5% beyond 120 days of initial exceedance; as a corrective action, the well was re-drilled in January 2018 and brought into compliance. This was reported as a deviation in the semi-annual compliance certification. All other monitored wells which exhibited noncompliance with either temperature or oxygen requirements were brought into compliance within 5 days or were granted alternative timelines or higher operating values with AQD approval. All requests for alternative timelines and higher operating values, along with supporting documentation for the requests and AQD's conditions for approval, can be found in the facility file. AQD considers the facility to be in substantial compliance with this condition.
4a. and b. IN COMPLIANCE. Facility maintains records of the control system, including gas generation flow rate and density of wells, horizontal collectors, surface collectors, and other extraction devices.
5. IN COMPLIANCE. Facility maintains records of the gas collection system, including a plot map showing each existing and planned collector in the system, and the installation date and location of each newly installed collector. The facility will be providing an updated map to AQD following the next construction project scheduled to begin in September 2019.
6. IN COMPLIANCE. Facility maintains records of all gas collection and control system exceedances, including results of re-monitoring and location of exceedances. Records were reviewed during this compliance evaluation.
7a. though g. IN COMPLIANCE. Facility maintains the initial and updated GCCS Plan, including the following information: a) map of the collection system showing all wells and collectors; b) density of wells, collectors, and other gas extraction devices; c) documentation of any asbestos or nondegradable waste; d) sum of gas generation flow rates from excluded areas; e) provisions for increasing gas mover equipment capacity, if necessary; f) provisions for the control of off-site migration; and g) dates of well installations, age of the waste in which the wells were installed, and date of initial waste placement in each portion of the landfill.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly.
2. IN COMPLIANCE. Semi-Annual Deviation reports are submitted by the March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. IN COMPLAINCE. Semi-Annual gas collection and control system reports are submitted by March 15 and September 15 of each year.
5. IN COMPLIANCE. Semi-Annual SSM reports are submitted by March 15 and September 15 of each year.

IX. Other Requirements
1. IN COMPLIANCE. Facility failed to take corrective actions within the required time frames on two occasions during the compliance period. However, based the compliance evaluation of EUALGCS, SC VI.1 and VI.3, AQD considers the facility to be substantially in compliance with this condition.
2. IN COMPLIANCE. The provisions of 40 CFR Part 60, Subpart WWW apply at all times, except during periods of start-up, shutdown, or malfunction, provided the duration of the start-up, shutdown, or malfunction does not exceed 5 days. The facility reported no start-up, shutdown, or malfunctions exceeding 5 days during the compliance evaluation period.
3. NOT APPLICABLE. The control system, as installed, meets the requirements of EUALGCS, SC IV.5, IV.6, and IV.7, so the facility has not requested an alternate control system design.
4. IN COMPLIANCE. Facility maintains and implements an SSM Plan for EUALGCS.

EUBIOGASTREATSYS – This unit treats LFG before it is used in the biogas conditioning system (BioCNG) to produce biogas-based fuel to power compressed natural gas (CNG) vehicles.

III. Process/Operational Restrictions
1. IN COMPLIANCE. Facility operates the treatment system at all times when the collected gas is routed to the BioCNG system.
2. IN COMPLIANCE. Emissions from the treatment system are routed to the control system, as required by 40 CFR 60.752(b)(2)(iii)(A) or (B).
3. IN COMPLIANCE. Emissions from the treatment system are sent to either the turbines or flares for control, in accordance with the provisions of 40 CFR 60.753(e) and (f).

IV. Design/Equipment Parameters
1. IN COMPLIANCE. Treatment system is designed, installed, and operated as approved by AQD.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility maintains records of all control system exceedances of the operational standards in 40 CFR 60.753(e) and (f).
2. IN COMPLIANCE. Facility maintains records of all preventative maintenance performed in accordance with the Preventative Maintenance Plan pursuant to EUBIOGASTREATSYS, SC IX.3.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly. Facility has not reported any deviations associated with this process.
2. IN COMPLIANCE. Semi-Annual Deviation Reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. IN COMPLIANCE. Semi-Annual reports for the landfill gas treatment system are submitted by March 15 and September 15 of each year.

IX. Other Requirements
1. IN COMPLIANCE. The provisions of 40 CFR Part 60.755 apply at all times, except during periods of start-up, shutdown, or malfunction, provided the duration of the start-up, shutdown, or malfunction does not exceed 1 hour. The facility reported no start-up, shutdown, or malfunctions exceeding 1 hour for this process during the compliance evaluation period.
2. IN COMPLIANCE. Facility maintains and implements an SSM Plan.
3. IN COMPLIANCE. Facility maintains and implements a Preventative Maintenance Plan (PMP) for EUBIOGASTREATSYS, dated May 2013.

EUOPENFLARE1 – 2,131 CFM non-assisted open flare for the control of LFG

I. Emission Limits
1. IN COMPLIANCE. Visible emissions testing using USEPA Method 22 was performed on September 21, 2004, showed no visible emissions for the flare. No visible emissions were observed during the inspection.

II. Material Limits
1. IN COMPLIANCE. Net heating value of LFG is greater than 200 BTU/scf. Performance testing on September 21, 2004, showed a heating value of 452.5 BTU/scf (16.86 MJ/scm).

III. Process/Operational Restrictions
1. IN COMPLIANCE. EUOPENFLARE1 is operated in accordance with 40 CFR 60.18. Records are maintained to demonstrated compliance and were reviewed during the inspection.
2. IN COMPLIANCE. EUOPENFLARE1 is operated at all times when collected LFG is routed to it.
3. IN COMPLIANCE. EUOPENFLARE1 is designed for and operated with no visible emissions. No visible emissions were observed from the flare during my inspection.

4. IN COMPLIANCE. EUOPENFLARE1 is operated with the flame present at all times.
5. IN COMPLIANCE. Net heating value of LFG is greater than 200 BTU/scf (7.45 MJ/scm). Performance testing on September 21, 2004, showed a heating value of 452.5 BTU/scf (16.86 MJ/scm).
6. IN COMPLIANCE. Exit velocity of the flare is less than 60 ft/sec. Performance testing on September 21, 2004, demonstrated an exit velocity of 57.42 ft/sec.
7. NOT APPLICABLE. EUOPENFLARE1 is not air-assisted.
8. IN COMPLIANCE. EUOPENFLARE1 is operated whenever LFG is routed to it.
9. IN COMPLIANCE. Control system meets requirements of 40 CFR 60.752(b)(2)(iii). Gas collection system automatically shuts down if the control system is inoperable.

V. Testing/Sampling
1. IN COMPLIANCE. Net heating value of LFG was determined using USEPA Method 3C during performance testing on September 21, 2004.
2. IN COMPLIANCE. Visible emissions observations using USEPA Method 22 was performed on September 21, 2004.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. EUOPENFLARE1 is equipped with a heat sensing device to indicate the continuous presence of a flame.
2 and 3. IN COMPLIANCE. Information and records relating to the design and operation of EUOPENFLARE1 are maintained as required. These records include flare type, VE readings, heat content determination, flow rate measurements, exit velocity determinations made during the performance test, and monitoring of pilot flame.
4a. through e. IN COMPLIANCE. The following records are maintained for EUOPENFLARE1: a) records indicating presence of flare pilot flame; b) net heating value of gas being combusted; c) actual exit velocity of the flare; d) maximum permitted velocity; and e) maximum permitted velocity for air-assisted flares.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly. Facility has not reported any deviations associated with this process.
2. IN COMPLIANCE. Semi-Annual Deviation Reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. IN COMPLIANCE. Semi-annual reports for the landfill gas treatment system are submitted by March 15 and September 15 of each year.
5. IN COMPLIANCE. Semi-annual SSM Reports are submitted by March 15 and September 15 of each year.
6. NOT APPLICABLE. Facility has not removed EUOPENFLARE1.

XI. Other Requirements
1. IN COMPLIANCE. EUFLARE1 did not have any start-up, shutdown, or malfunctions exceeding 1 hour during the compliance evaluation period.
2. IN COMPLIANCE. Facility demonstrates compliance with 40 CFR Part 63 Subpart AAAA and 40 CFR Part 60 Subpart WWW through testing, monitoring of the collection system, continuous parameter monitoring. Facility maintains and implements a written SSM Plan for EUOPENFLARE1.

EUOPENFLARE2 – 4,700 CFM non-assisted open flare for control of LFG

I. Emission Limits
1. IN COMPLIANCE. Visible emissions testing using USEPA Method 22 was performed on June 24, 2013, showed no visible emissions for the flare. No visible emissions were observed during my inspection.

II. Material Limits

1. IN COMPLIANCE. Net heating value of LFG is greater than 200 BTU/scf. Performance testing on June 24, 2013, showed a heating value of 463.8 BTU/scf (17.28 MJ/scm).

III. Process/Operational Restrictions
1. IN COMPLIANCE. EUOPENFLARE2 is operated in accordance with 40 CFR 60.18. Records are maintained to demonstrate compliance.
2. IN COMPLIANCE. EUOPENFLARE2 is operated at all times when collected LFG is routed to it. Operation records are maintained to demonstrate compliance.
3. IN COMPLIANCE. EUOPENFLARE2 is designed for and operated with no visible emissions. No visible emissions were observed from the flare during my inspection.
4. IN COMPLIANCE. EUOPENFLARE2 is operated with the flame present at all times.
5. IN COMPLIANCE. Net heating value of LFG is greater than 200 BTU/scf (7.45 MJ/scfm). Performance testing on June 24, 2013, showed a heating value of 463.8 BTU/scf (17.28 MJ/scm).
6. IN COMPLIANCE. Exit velocity of the flare is less than 60 ft/sec. Performance testing on June 24, 2013, demonstrated an exit velocity of 24.8 ft/sec.
7. NOT APPLICABLE. EUOPENFLARE2 is not air-assisted.
8. IN COMPLIANCE. EUOPENFLARE2 is operated at all times when LFG is routed to it to comply with the provisions of 40 CFR 60 Subpart A.
9. IN COMPLIANCE. Control system meets requirements of 40 CFR 60.752(b)(2)(iii). Gas collection system automatically shuts down if the control system is inoperable.

V. Testing/Sampling
1. IN COMPLIANCE. Net heating value of LFG was determined using USEPA Method 3C, Alternate 42 during performance testing on June 24, 2013. Alternate 42 allows for one 30-minute sample supplemented by two methane readings from a hand-held combustible gas meter. Request to use Alternate 42 was approved by AQD.
2 and 3. IN COMPLIANCE. Visible emissions observations using USEPA Method 22, Alternate 42 was performed on June 24, 2013. Alternate 42 allows for a 30-minute visible emission reading for LFG. Request to use Alternate 42 was approved by AQD.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. EUOPENFLARE2 is equipped with a heat sensing device to indicate the continuous presence of a flame.
2 and 3. IN COMPLIANCE. Information and records relating to the design and operation of EUOPENFLARE2 are maintained as required. These records include flare type, VE readings, heat content determination, flow rate measurements, exit velocity determinations made during the performance test, and monitoring of pilot flame.
4a. through e. IN COMPLIANCE. The following records are maintained for EUOPENFLARE2: a) records indicating presence of flare pilot flame; b) net heating value of gas being combusted; c) actual exit velocity of the flare; d) maximum permitted velocity; and e) maximum permitted velocity for air-assisted flares.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly. Facility has not reported any deviations associated with this process.
2. IN COMPLIANCE. Semi-Annual Deviation reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.
4. IN COMPLIANCE. Semi-Annual reports for the landfill gas treatment system are submitted by March 15 and September 15 of each year.
5. IN COMPLIANCE. Semi-Annual SSM Reports are submitted by March 15 and September 15 of each year.

XI. Other Requirements
1. IN COMPLIANCE. EUOPENFLARE2 did not have any start-up, shutdown, or malfunctions exceeding 1 hour during the compliance evaluation period.

2. IN COMPLIANCE. Facility demonstrates compliance with 40 CFR Part 63 Subpart AAAA and 40 CFR Part 60 Subpart WWW through testing, monitoring of the collection system, continuous parameter monitoring. Facility maintains and implements a written SSM Plan for EUOPENFLARE2.
3. IN COMPLIANCE. Facility maintains compliance with 40 CFR Part 60 Subpart A and WWW ("Standard of Performance for Municipal Solid Waste Landfills"). Records are maintained to demonstrate compliance.
4. IN COMPLIANCE. Facility maintains compliance with 40 CFR Part 63 Subpart A and AAAA ("National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills"). Records are maintained to demonstrate compliance.

D. Flexible Group Conditions

FGCOLDCLEANERS-S2 – Any cold cleaner that is grandfathered or exempt from Rule 201.

II. Material Limits
1. IN COMPLIANCE. Facility uses a product called "Safety-Kleen Premium Solvent (Virgin and Recycled)" in EUCOLDCLEANER-S2. According to the MSDS, this contains 100% petroleum distillates and no halogenated compounds. The permit does not allow more than 5% (by weight) of several halogenated compounds, so this condition is in compliance.

III. Process/Operational Restrictions
1. IN COMPLIANCE. According to the facility, proper cleaning procedures are followed.
2. IN COMPLIANCE. According to the facility, routine maintenance is performed in accordance with manufacturer recommendations.

IV. Design/Equipment Parameters
1. IN COMPLIANCE. Cold cleaner is used to clean metal parts and emissions are released to the general in-plant environment.
2. IN COMPLIANCE. Cold cleaner is equipped with an area to drain parts.
3. IN COMPLIANCE. Cold cleaner is equipped with a lid and the lid was closed during the inspection.
4. IN COMPLIANCE. Lid is mechanically assisted.
5. IN COMPLIANCE. Facility maintains records to demonstrate compliance with this condition.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility states that temperatures are monitored and recorded when solvent is heated.
2. IN COMPLIANCE. Appropriate records are maintained.
3. IN COMPLIANCE. Written operating procedures are maintained and posted.
4. IN COMPLIANCE. Waste solvent disposed of in a proper manner.

VII. Reporting
1. IN COMPLIANCE. Any deviations are reported promptly. Facility has not reported any deviations associated with this process.
2. IN COMPLIANCE. Semi-Annual Deviation reports are submitted by March 15 and September 15 of each year.
3. IN COMPLIANCE. Annual ROP Certification Reports are submitted by March 15 of each year.

FINAL COMPLIANCE DETERMINATION:

Based on this inspection, Riverview Land Preserve and Riverview Energy Systems are determined to be in substantial compliance with ROP No. MI-ROP-M4469-2015a and applicable State and federal air rules, although the violations for nuisance odors remains unresolved at this time.

NAME _____ DATE 9-27-19 SUPERVISOR JK