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

N598654046

FACILITY: CARLETON FARMS LANDFILL		**SRN / ID:** N5986
LOCATION: 28800 CLARK RD, NEW BOSTON		**DISTRICT:** Detroit
CITY: NEW BOSTON		**COUNTY:** WAYNE
CONTACT: J. Bobby Reese , Environmental Manager		**ACTIVITY DATE:** 07/15/2020
STAFF: Jonathan Lamb	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled inspection, FY 2020		
RESOLVED COMPLAINTS:		

Carleton Farms:
DATES OF INSPECTION: July 15, 2020
INSPECTED BY: Jonathan Lamb, EGLE-AQD
PERSONNEL PRESENT: J. Bobby Reese, Environmental Manager - Republic Services; Brian Josupeit, Operations Manager - Republic Services
CONTACT PHONE NUMBER: 734-271-6147 (Mr. Reese); 248-887-7565 (Dana Oleniacz, consultant)

FACILITY WEBSITE: www.RepublicServices.com

Sumpter Energy:
DATE OF INSPECTION: July 1, 2020
INSPECTED BY: Jonathan Lamb, EGLE-AQD
PERSONNEL PRESENT: Jason Neumann, Mid-West Regional Manager – Aria Energy; Emily Zambuto, Manager of Environmental Programs – Aria Energy
FACILITY PHONE NUMBER: 734-654-2820
CONTACT PHONE NUMBER: 586-749-3581 (Mr. Neumann); 585-278-4773 (Ms. Zambuto)
FACILITY WEBSITE: www.ariaenergy.com

FACILITY BACKGROUND:
Carleton Farms Landfill consists of two facilities, Republic Services of Michigan I, LLC – Carleton Farms Landfill (Carleton Farms) and Sumpter Energy Associates at the Carleton Farms Landfill (Sumpter Energy), whose operations comprise a single stationary major source subject to the Title V permitting program. The facility was issued Renewable Operating Permit (ROP) No. MI-ROP-M5986-2015 on July 22, 2015.

Republic Services, Inc. owns and operates the solid waste landfill and is permitted under Section 1 of the ROP; this facility will be referred to as “Carleton Farms” in this report. The landfill started accepting waste in 1993 and was originally owned by City Management. Waste Management took over operations in 1997 until it was forced to divest itself of the site in 1999, at which time it was purchased by Republic Waste Services (now known as Republic Services, Inc.)

The landfill is in a largely rural area along the southern edge of Wayne County, bordering Monroe County. The property consists of 664 acres, though only 427 acres are permitted for waste disposal. The landfill is permitted for a capacity of 72,940,868 megagrams (Mg) of waste; the facility had 18,109,126 Mg of waste in place through 2019. Since the facility has a design permit which was modified after May 31, 1991, and a design capacity over 2.5 million Mg, the facility is subject to 40 CFR 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills and 40 CFR 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills; the facility is not subject to 40 CFR 60, Subpart XXX since it has not received a modification in design capacity after July 17, 2014. Since the non-methane organic compounds (NMOC) emissions were estimated to be greater than 50 Mgs per year, the facility was required to install a landfill gas (LFG) collection system and control system, pursuant to Subpart WWW. The facility is also subject to 40 CFR 61, Subpart M – National Emission Standard for Asbestos. There are currently 18 employees at the facility.

Sumpter Energy Associates owns and operates a landfill-to-gas energy facility at Carleton Farms Landfill; these operations are permitted under Section 2 of the ROP and will be referred to as "Sumpter Energy" in this report. Gas produced by the degradation of waste in the landfill is treated and then burned as fuel in gas engines to produce electricity. Sumpter Energy Associates is wholly owned by LES Project Holdings, LLC, which is a wholly owned subsidiary of Aria Energy, LLC. Most of the engines operated by Sumpter Energy at Carleton Farms are subject to 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. The facility operates 24 hours per day, 7 days per week. There are five employees at the facility.

PROCESS DESCRIPTION/INSPECTION NARRATIVE:

The landfill (EULANDFILL) currently accepts waste loads from 4:00 AM to 4:00 PM, Monday through Friday, and 4:00 AM to 12:00 PM on Saturday; the facility currently receives around 7,000-8,000 tons of waste per day. Waste is currently being disposed of in Cells 205 and 206, located in the northwest section of the landfill and expects to start filling Cell 214 by the end of the year. Of the waste received, approximately 60% is municipal solid waste, 20% is construction and demolition waste, and 20% is "special waste", mainly industrial waste, including slag and baghouse dust from U.S. Steel and water filtration solid waste. Of the municipal solid waste received, about 40-50% comes from Canada. The facility is permitted to dispose of asbestos waste, and asbestos-containing waste is accepted daily. Asbestos waste is disposed of throughout the landfill, not in any single segregated location. The disposal location and depth of all asbestos-containing waste is tracked using GPS and plotted on a map. The facility no longer accepts municipal wastewater sludge but does accept some industrial sludge. "Auto fluff" (non-metal material from shredded automobiles), soil, and old compost are used as daily cover for erosion and odor control.

There are two segregated disposal areas adjacent to the main landfill. To the southeast of the landfill is the ash monofill, which was used to dispose of non-hazardous fly ash from First Energy in Oxbow, Ohio. The facility ceased accepting fly ash on August 2, 2019, due to lack of economic viability and excessive leachate generation from the monofill. A turf/tarp cover was installed over the monofill in 2019 for erosion control and aesthetics. The monofill was initially created when the facility stopped adding fly ash waste to the landfill because it created exothermic reactions with the municipal solid waste, causing temperature exceedances in the wells. Just southwest of the landfill is a 14-acre area where the facility performed composting operations; the facility discontinued most of its composting operations in 2019, though it continues to accept small quantities of compost from Sumpter Township and still has old compost on site which is used for daily cover.

Leachate collected from the landfill is stored in either the "east leachate tank" or the "north leachate tank"; each tank has a capacity of 500,000 gallons. The new east leachate tank was installed in April 2020 as a replacement for two 80,000-gallon tanks which were previously used to store leachate on the east side of the landfill. These tanks are exempt per Rule 285(2)(aa) and are not subject to 40 CFR Part 60, Subpart Kb because the material in the tanks has a maximum true vapor pressure less than 3.5 kilopascals (kPa). All leachate collected in the tanks is trucked off-site to Republic Industrial and Energy Solutions in Romulus for disposal via deepwell injection. The company is considering installing a deepwell on site at the landfill for leachate disposal. The facility ceased using leachate for dust suppression in 2019 and now only uses water from ponds on site. The facility entered into a Consent Order with EGLE's Materials Management Division in 2020 to resolve violations for failing to properly manage leachate in 2018.

The landfill uses a gas collection and control system (GCCS), which consists of a system of vertical and horizontal wells installed throughout the landfill which collect landfill gas (LFG) produced during the decomposition of waste material. At the time of inspection, there were 339 active gas wells installed at the landfill. LFG collected by the wells is routed to a header system via a series of laterals from the wells. The header system sends the LFG to the Gas Treatment System for treatment prior to being used a fuel in the engines. The GCCS is permitted as EUACTIVECOLL.

There are diesel tanks used for fueling vehicles on site; these tanks are exempt from permitting per Rule 284 (2)(g)(i):
- One 10,000-gallon and one 8,000-gallon tank located near the maintenance building
- Two portable 250-gallon tanks which are moved around the landfill where needed.

The LFG Treatment System (EUTREATMENTSYS) consists of two identical systems, one for each phase of the engine plant, which conditions the LFG prior to combustion in the engines. The LFG Treatment System is included under Section 1 of the ROP and is owned by Republic Services, but the daily operation and maintenance is handled by Sumpter Energy. To begin treatment, the collected LFG passes through the primary filters to remove larger particulates and water from the gas stream. The filtered LFG is then compressed and cooled to remove more water before it is passed through a polishing filter, which removes any remaining particles down to 10 microns in diameter. At this point, the LFG is suitable to be burned as fuel in the engines.

The LFG engines are housed in two adjacent buildings known as Phase 1 and Phase 2. Phase 1 contains eight engines and is permitted as FGICENGINES1-8, and Phase 2 contains six engines and is permitted as FGICENGINES9-14; both engine groups normally run concurrently, and each phase has a flow meter to monitor the flow of LFG combusted in each phase. All 14 engines are identical models: Caterpillar G3516, which is a 1138 horsepower/800 kilowatt spark-ignited, 4-stroke lean burn, reciprocating internal combustion engine. LFG is used as fuel by the engines to produce electricity for the grid. Engines which are subject to Subpart ZZZZ have additional requirements under FGRICEMACT, though the facility operates all engines in accordance with Subpart ZZZZ.

Engines are routinely replaced when they reach a certain number of operating hours; Sumpter Energy replaces engines after 80,000 operating hours, though the engines may also be rebuilt on site. Engines may also be replaced due to catastrophic failure or major maintenance. [Note: Per “Air Quality Division Policy and Procedure AQD-023”, effective June 10, 2016, engines may be replaced with a “like-kind” engine of identical operating specifications without going through permitting under Rule 285(2)(a)(vi), as long as the replacement activity was conducted as part of a normal maintenance program.]

A detailed list of all engines currently on site, including model/serial number, specifications, and date of manufacture and installation/replacement was provided during the inspection and can be found in the orange facility file. I verified the serial number and total hours of operation of each engine during my walk-through of the facility:

PHASE 1				
Engine	Serial No.	Replacement Date	Manufacture Date	Total Operating Hours
EUICENGINE_1	4EK01552	02/28/2017	10/08/1997	178,069
EUICENGINE_2	4EK00960	03/07/2015	09/11/1992	42,310
EUICENGINE_3	CLT00337	06/08/2012	05/24/2002	179,088
EUICENGINE_4	4EK00575	06/23/2020	08/21/1995	36,085
EUICENGINE_5	4EK00969	09/16/2019	06/11/1996	6,135
EUICENGINE_6	3RC00389	08/24/2016	06/20/1997	26,578
EUICENGINE_7	3RC00467	07/23/2019	11/26/1991	6,764
EUICENGINE_8	4EK01591	09/05/2012	10/27/1997	222,833

PHASE 2				
Engine	Serial No.	Replacement Date	Manufacture Date	Total Operating Hours
EUICENGINE_9	4EK01537	07/06/2015	10/01/1997	36,487
EUICENGINE_10	4EK01299	05/08/2018	04/08/1997	219,496
EUICENGINE_11	3RC00437	09/06/2013	09/12/1991	52,353
EUICENGINE_12	4EK00283	04/26/2013	08/18/1994	55,820
EUICENGINE_13	4EK01546	03/29/2018	10/06/1997	16,638
EUICENGINE_14	4EK03328	4/10/2019	11/25/1991	9,686

Any landfill gas not burned in the engines is sent to either the open flare (EUOPENFLARE) or the enclosed flare (EUENCLOSEDFLARE) for combustion to control non-methane organic compounds (NMOCs); the open flare is also referred to as the “utility flare” in facility documents. The engine plant has a capacity to burn

up to 5,280 scfm when all 14 engines are running, but the landfill usually produces LFG at a lower rate so the engines burn almost all the landfill gas produced. The average LFG flow rate during the past year was around 5,000 scfm, an increase over the average of 3,700-3,800 scfm the previous year. In recent years, the flares have mainly been used when the engine plant is down or if there is a spike in LFG flow during construction events. However, the facility is considering adding an additional flare to accommodate an expected increase on LFG generation over the next several years.

The engine plant has 4,400-gallon tank for storing clean engine lube oil and a 3,000-gallon tank for storing used engine lube oil; these tanks are exempt per Rule 284(2)(c).

APPLICABLE RULES/ PERMIT CONDITIONS:
Carleton Farms Landfill was issued ROP No. MI-ROP-N5986-2015 on July 22, 2015. The ROP has two sections. Section 1 was issued to Republic Services of Michigan I, LLC – Carleton Farms Landfill for the processes related to the landfill operations, including gas treatment and flares. Section 2 was issued to Sumpter Energy Associates at the Carleton Farms Landfill for the landfill gas engines.

Carleton Farms Landfill was issued PTI No. 241-10 on March 3, 2011, for an enclosed flare. This flare was never installed and the permit was voided on October 22, 2014.

Sumpter Energy Associates was issued PTI No. 293-04A on June 29, 2011, for two LFG-fired engines and electric generator sets. This equipment was never installed and the permit was voided on October 22, 2014.

For this inspection, records from June 2019 through June 2020 were reviewed in determining compliance with the conditions of ROP No. MI-ROP-N5986-2015 and any other applicable State and federal air regulations. Copies of some these records can be found in the facility file; some records were reviewed on site.

ROP No. MI-ROP-N5986-2015, applicable conditions:

SECTION 1: Republic Services of Michigan I, LLC – Carleton Farms Landfill

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 methane emissions. A review of the quarterly monitoring reports shows some readings of methane levels above 500 ppm over background levels, but these exceedances have been resolved following corrective actions. Per 40 CFR 60.755, if appropriate corrective actions are taken after an exceedance, the exceedance is not considered a violation of operational requirements. The following is a list of the quarterly monitoring methane exceedances and results of follow-up monitoring and/or corrective actions taken during the compliance period:

2019, Q3: Facility reported no exceedances during the quarter.
2019, Q4: Facility reported no exceedances during the quarter.
2020, Q1: Facility reported no exceedances during the quarter.
2020, Q2: 12 exceedances; all exceedances were resolved within 30 days.

Since the appropriate re-monitoring and corrective actions were taken to resolve the exceedances in accordance with the requirements of 40 CFR 60.755, this condition is determined to be in compliance.

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.
2. IN COMPLIANCE. Collected LFG is routed to a control system. Most of the gas is sent to Sumpter Energy and burned in the engines. Any excess gas not combusted in the engines is burned in the flares.

V. Testing/Sampling
1. IN COMPLIANCE. Surface emission monitoring is conducted quarterly to determine if methane concentrations exceed 500 ppm above background. Currently, Monitoring Control and Compliance, Inc. is contracted to perform the quarterly surface monitoring.
2. IN COMPLIANCE. Surface emission monitoring for methane is conducted in accordance with the procedures outlined in 40 CFR 60.753(d). Readings over 500 ppm above background are marked as exceedances and corrective actions are taken. The facility is then required to re-monitor the area and take additional corrective actions, if necessary, until the methane levels measure below 500 ppm. If the facility follows the corrective action and monitoring procedures within the time periods listed in this condition, then the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d). During this compliance period, the facility appears to be in substantial compliance with these requirements.
3. IN COMPLIANCE. Surface emission monitoring for methane is done with the instrumentation specifications and procedures required by 40 CFR 60.755(c).
4. IN COMPLIANCE. All required records of quarterly surface monitoring area 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 concentration of any reading above 500 ppm above background; and meteorological conditions at time monitoring was performed.
5. NOT APPLICABLE. This condition applies to closed landfills. Carleton Farms is an active landfill.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility implements a program to monitor cover integrity on a monthly basis and make repairs as needed. Records are maintained and were provided to AQD during this inspection. The most frequent issue noted in the monthly records was erosion in various areas throughout the landfill. I also visually observed some erosion rills on the east and north slopes during the inspection, though there was noticeable improvement compared to observations made during on-site inspections performed in 2018 and 2019.
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 were provided during the inspection. The design capacity is 72,940,868 Mgs; through 2019, the facility had 18,109,126 Mgs (19,961,894 short tons) of waste in place. The facility accepted 1,083,013 Mgs (1,193,817 short tons) of waste in 2019.
3. IN COMPLIANCE. NMOC emission rate is calculated and recorded on an annual basis. Facility reported NMOC emissions of 30.42 tons in its 2019 MAERS.
4. NOT EVALUATED. The facility ceased recirculating leachate in late 2018 and currently uses pond water for dust control. AQD did not evaluate this condition at the time of inspection. This condition, if applicable, will be evaluated during the next compliance inspection.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semi-annual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
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. Carleton Farms Landfill 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 performed during the compliance period.
2. IN COMPLIANCE. If surface monitoring shows methane exceedances, corrective actions are taken. If corrective actions are taken, 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 evaluated and either approved or denied by AQD in accordance with 40 CFR 60.752(b)(2). These requests and AQD's responses can be found in the orange facility file. Starting in December 2018, AQD has denied all requests for higher operating values exceeding 150?.
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.

EUACTIVECOLL – 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.

III. Process/Operational Restrictions
1. IN COMPLIANCE. If the collection or control system is inoperable, the gas mover system is automatically shut off and all valves contributing to venting of gas to atmosphere are closed within one hour. Records are maintained in the event this occurs. During the compliance period, there were no occurrences of gas being vented to atmosphere due to the gas collection or control system being inoperable.
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. Wellheads are monitored monthly, as per EUACTIVECOLL, SC VI.1. AQD considers the facility to be in substantial compliance with this condition. Wellheads are monitored monthly to verify that the gas control and collection system is operating under negative pressure. If wells demonstrate positive pressure, the wells are reported to AQD and corrective actions are taken to return the well to compliance. If the facility is unable to return the well to compliance within the required timeframes in 40 CFR 60.755, the facility may make a request to AQD for an extended timeline to get the well into compliance or expand the wellfield.
4. NOT IN COMPLIANCE. Facility is required to operate each wellhead at an LFG temperature less than 55? (131?), a nitrogen level less than 20%, and an oxygen level less than 5%, except for wells with higher operating values approved by AQD; please see the facility file for these approvals. AQD has approved most requests for higher operating values at or below 150? based on supporting monitoring data. However, due to the increasing number of wells operating at highly elevated temperatures at this site and evidence that these elevated temperatures are inhibiting methanogenesis, AQD notified the facility in January 2019 that requests for higher operating values over 150? would not be approved at this facility. Per 40 CFR 60.753(c), a higher operating value can be approved only if the supporting monitoring data shows that "the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens." The facility is currently operating numerous wells at temperatures exceeding 150? which have not been approved higher operating values by AQD; as such, the facility is determined to be in noncompliance 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
1. IN COMPLIANCE. The gas collection and control system appears to be designed to sufficiently handle the gas produced by the landfill and minimize off-site migration of subsurface gas.
2. IN COMPLIANCE. LFG is routed to a control system. Most of the gas is sent to the engines operated by Sumpter Energy (SECTION 2; FGICENGINES1-8 and FGICENGINES9-14) with two flares as secondary control (EUENCLOSEDFLARE and EUOPENFLARE).

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, Carleton Farms requests approval from AQD, stating what the modification will be and the reason for the modification. Copies of these requests and AQD's responses 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.
5. IN COMPLIANCE. GCCS Design Plan is approved by an engineer in EGLE's Materials Management Division and an as-built site showing the location of the wells/collectors is maintained. Quarterly surface monitoring is performed to assure LFG is being collected by the gas collection system and not escaping through the surface.
6. IN COMPLIANCE. Gas collection devices are constructed of approved materials. Vertical wells are installed as to not damage underlying liners. Construction documentation records are maintained on site.
7. IN COMPLIANCE. Gas collection system 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. Wells are monitored monthly to verify they are operating under negative pressure. If positive pressure exists, the facility is required to take corrective actions within 5 days. If negative pressure cannot be obtained within 15 days of the initial measurement, the facility must either expand the gas collection system or obtain approval for an alternate corrective measure from AQD. If appropriate corrective actions are taken, the monitored exceedance is not considered a violation per 40 CFR 60.755, as long as the corrective actions do not cause exceedances of other operational standards. All positive pressure measurements or missed readings are reported to AQD. During the compliance period, the facility has requested alternative compliance timelines which have been approved by AQD. These requests and approvals can be found in the facility file. Facility has not reported any missed pressure readings during this compliance period.
2. NOT APPLICABLE. This condition no longer applies to this facility since the gas collection system was started up more than 180 days ago.
3. NOT IN COMPLIANCE. Wells are monitored monthly to verify temperature and oxygen concentration. If a well exceeds either parameter, the facility must take corrective action within 5 days. If correction of the exceedance cannot be achieved within 15 days after the first measurement, the facility must either expand the gas collection system within 120 days or obtain approval for an alternate corrective measure from AQD. If appropriate corrective actions are taken, the monitored exceedance is not considered a violation per 40 CFR 60.755, as long as the corrective actions do not cause exceedances of other operational standards. All exceedances and missed readings are reported to AQD. During the compliance period, the facility has requested alternative compliance timelines and/or higher operating values for wells; these requests and AQD's approval/denials can be found in the facility file. AQD. However, the facility is currently operating numerous wells at temperatures above 131? which have not been approved for higher operating values by AQD. As such, the facility is considered to be in noncompliance with this condition.
4. 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. A copy of the most recently updated map was provided during the inspection and can be found in the orange facility file.
6. IN COMPLIANCE. Facility maintains records of all gas collection and control system exceedances.
7. 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. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Semi-annual GCCS 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. NOT IN COMPLIANCE. If monitoring shows exceedances, corrective actions are taken. If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753 as long as the corrective actions do not cause exceedances of other operational standards. However, the facility is currently operating numerous wells at temperatures above 131? which have not been approved for higher operating values by AQD, as discussed in EUACTIVECOLL, SC III.4. As such, the facility is considered to be in noncompliance 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 for EUACTIVECOLL.
3. NOT APPLICABLE. The control system, as installed, meets the requirements of EUACTIVECOLL, SCs 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 EUACTIVECOLL.

EUTREATMENTSYS – This unit treats LFG before it is used for subsequent use or sale.

III. Process/Operational Restrictions
1. IN COMPLIANCE. Facility operates the treatment system at all times when the collected gas is routed to EUTREATMENTSYS.
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 is sent to either the turbines or flares for control, in accordance with the provisions of 40 CFR 60.753(e) and (f), and 40 CFR 60.756(d).

IV. Design/Equipment Parameters
1. IN COMPLIANCE. Treatment system is designed 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 EUTREATMENTSYS, SC IX.3.
3. IN COMPLIANCE. Facility provided sufficient information to AQD describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semi-annual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Semi-annual reports for the LFG treatment system, with the information listed in a. through d. of this condition, 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. 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 a written SSM Plan.
3. IN COMPLIANCE. Facility maintains and implements a written Preventative Maintenance Plan (PMP) for EUTREATMENTSYS.

EUENCLOSEDFLARE – Enclosed flare is an enclosed chamber which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. The design flow rate is 1,700 scfm.

I. Emission Limits
1. NOT DETERMINED. This condition requires NMOC emissions to be reduced by 98 weight-percent or to less than 20 ppmv, dry basis as hexane at 3% oxygen. Facility demonstrates compliance with this condition by demonstrating compliance with EUENCLOSEDFLARE, SC VI.1; however, the facility failed to perform the monitoring required in SC VI.1, so compliance status for this condition was unable to be determined at this time.

III. Process/Operational Restrictions
1. IN COMPLIANCE. EUENCLOSEDFLARE is operated at all times when collected LFG is routed to it.
2. IN COMPLIANCE. All collected landfill gas is vented to a control system designed and operated in accordance with 40 CFR 60.752(b)(2)(iii). If the gas collection or control system is inoperable, the gas mover system is shut down and all valves in the collection and control system contributing to venting of the gas to atmosphere is shut down within one hour. Records are maintained in the event this occurs. During the compliance period, the facility reported three occurrences when all controls were off for more than one hour, with the longest event lasting for 3 hours, 4 minutes. These occurrences were reported in the semi-annual certification reports, as required per 40 CFR 60.757(f)(3). During each of these events, the gas mover system was shut down until the control system was back in operation. The facility does not have a bypass of the control system, so no landfill gas from the collection system was discharged to atmosphere. The facility did not report any occurrences when the gas collection or control system was inoperable for more than five days; this reporting is required per 40 CFR 60.757(f)(4). As such, this condition is determined to be in substantial compliance.
3. IN COMPLIANCE. Facility routes all gas not treated to EUENCLOSEDFLARE or EUOPENFLARE. Facility operates EUENCLOSEDFLARE within the parameter ranges established during the initial performance testing performed on May 22, 2001, which demonstrated that NMOC emissions from the flare were 0.08 ppm, below the limit of 20 ppm. Compliance with EUENCLOSEDFLARE, SC VI.1 also demonstrates compliance with the control efficiency of EUENCLOSEDFLARE.

V. Testing/Sampling
1. NOT APPLICABLE. There is no recurring testing requirement for EUENCLOSEDFLARE. For historical documentation, it is noted that initial performance testing was performed on EUENCLOSEDFLARE on May 22, 2001. Results showed an NMOC emission rate of 0.08 ppm, dry basis as hexane at 3% oxygen.

VI. Monitoring/Recordkeeping
1. NOT IN COMPLIANCE. The enclosed flare is equipped with a device to monitor and record temperature on a continuous basis and flow to/bypass of the control device. During the compliance period, the facility has reported several periods where the monitoring was not recorded on a continuous basis due to malfunction or power failure. These events included a 436 hour, 16 minute period from February 28 through March 18, 2019 and a 204 hour, 50 minute period from June 21 through June 30, 2019, during which time the flow rate was not recorded due to a malfunctioning flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of this condition.

2. NOT IN COMPLIANCE. The facility failed to maintain records of the flow rate, as noted in EUENCLOSEDFLARE, SC VI.1. As such, the facility is determined to be in noncompliance with this condition.
3. NOT IN COMPLIANCE. The facility failed to maintain records of the flow rate, as noted in EUENCLOSEDFLARE, SC VI.1. As such, the facility is determined to be in noncompliance with this condition.
4. IN COMPLIANCE. The facility records and maintains a record of the average combustion temperature and percent reduction of NMOC. The facility reported nine events during the compliance period when the data was not maintained due to loss of power or maintenance; one event lasted 28 hours, 14 minutes while the rest were under four hours. Based on the duration and frequency of these events, AQD has determined the facility to be in substantial compliance with this condition.
5. IN COMPLIANCE. Facility maintains records of all control system exceedances of the operational standards of 40 CFR 60.753.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Semi-annual reports for the GCCS system are submitted by March 15 and September 15 of each year.
5. NOT APPLICABLE. EUENCLOSEDFLARE has not been removed from the facility.
6. IN COMPLIANCE. Semi-annual SSM Reports are submitted by March 15 and September 15 of each year.

XI. Other Requirements
1. NOT 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 several malfunctions exceeding 1 hour for this process during the compliance evaluation period, including a 436 hour, 16 minute period from February 28 through March 18, 2019 and a 204 hour, 50 minute period from June 21 through June 30, 2019, during which time the flow rate was not recorded due to a malfunctioning flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of this condition.
2. NOT IN COMPLIANCE. Facility is required to demonstrate 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, and other credible evidence. Facility maintains and implements a written SSM Plan for EUENCLOSEDFLARE. However, the facility reported several malfunctions exceeding 1 hour for this process during the compliance evaluation period, including a 436 hour, 16 minute period from February 28 through March 18, 2019 and a 204 hour, 50 minute period from June 21 through June 30, 2019, during which time the flow rate was not recorded due to a malfunctioning flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of this condition.

EUOPENFLARE – Open flare is a flare without enclosure or shroud. The open flare is non-assisted with a maximum design flow rate of 2,000 scfm.

I. Emission Limits
1. IN COMPLIANCE. The highest 12-month rolling total CO emissions during the compliance period was 3.03 tons in the 12-month period ending June 2019, in compliance with the permit limit of 89.9 tons CO per 12-month rolling time period. The 12-month rolling CO emissions were 2.55 tons for July 2020.

II. Material Limits
2. IN COMPLIANCE. The highest 12-month rolling total heat input during the compliance period was 16,608 MMBtu in the 12-month period ending April 2020, in compliance with the permit limit of 480,924 MMBtu per 12-month rolling time period. The 12-month rolling total heat input for July 2020 was 13,781.

III. Process/Operational Restrictions
1. IN COMPLIANCE. EUOPENFLARE is operated in accordance with 40 CFR 60.18. Records are maintained to demonstrate compliance.
2. IN COMPLIANCE. EUOPENFLARE is operated at all times when collected LFG is routed to it. Operation records are maintained to demonstrate compliance.
3. IN COMPLIANCE.EUOPENFLARE is operated with no visible emissions, as determined by the methods specified in 40 CFR 60.18(f).
4. IN COMPLIANCE. EUOPENFLARE is operated with the flame present at all times as determined by the methods specified in 40 CFR 60.18(f).
5. IN COMPLIANCE. Gas combusted in EUOPENFLARE has a heating value greater than 200 Btu/scf. Records show that the lowest heating value of the gas burned in EUOPENFLARE during the compliance period was 460 Btu/scf in November 2019. During the compliance period, the heating value of the LFG ranged from 460 Btu/scf to 572 Btu/scf.
6. IN COMPLIANCE. Results from the initial performance testing performed on May 7, 2009, showed an exit velocity of 43.91 ft/sec, meeting the performance requirement of 40 CFR 60.18, which limits the exit velocity to less than 60 ft/sec.
7. IN COMPLIANCE. EUOPENFLARE is operated at all times when LFG is routed to it to comply with the provisions of 40 CFR 60 Subpart A.
8. IN COMPLIANCE. All collected landfill gas is vented to a control system designed and operated in accordance with 40 CFR 60.752(b)(2)(iii). If the gas collection or control system is inoperable, the gas mover system is shut down and all valves in the collection and control system contributing to venting of the gas to atmosphere is shut down within one hour. Records are maintained in the event this occurs.

V. Testing/Sampling
1. NOT APPLICABLE. There is no recurring testing requirement for EUOPENFLARE. For historical documentation, it is noted that initial performance testing was performed on EUOPENFLARE on May 7, 2009. Results showed 0% visible emissions, an average net heating value of 15.73 megajoules per standard cubic meter, and an average stack exit velocity of 43.91 ft/sec., demonstrating compliance with the performance criteria set in 40 CFR 60.18.

VI. Monitoring/Recordkeeping
1. NOT IN COMPLIANCE. The open flare is equipped with a device to monitor and record the flow to the flare. During the compliance period, the facility reported several instances when the flare data was not recorded due to maintenance, power failure, or similar issues. Most of these occurrences were for relatively short duration (8 hours or less); however, the facility reported that the flow rate was not recorded for a total of 485 hours, 14 minutes from June 1 through June 21, 2019. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of this condition.
2. NOT IN COMPLIANCE. Facility maintains up-to-date records of the flare type, visible emission readings, heat content determination, flow rate/bypass flow rate measurements, and exit velocity determinations made during the initial performance test performed on May 7, 2009. However, the facility failed to maintain records of the flow rate, as noted in EUOPENFLARE, SC VI.1. As such, the facility is determined to be in noncompliance with this condition.
3. NOT IN COMPLIANCE. The facility failed to maintain records of the flow rate, as noted in EUOPENFLARE, SC VI.1. As such, the facility is determined to be in noncompliance with this condition.
4. NOT IN COMPLIANCE. The facility reported that the flow rate was not recorded for a total of 485 hours, 14 minutes from June 1 through June 21, 2019 due to a malfunction of the flow meter. Therefore, the flow records were not recorded on a continuous basis and maintained for five years, as required.
5. IN COMPLIANCE. Facility maintains records indicating presence of the flare pilot flame, net heating value of LFG, exit velocity, and maximum permitted velocity.
6. IN COMPLIANCE. Facility monitors and records the Btu content of LFG burned in EUOPENFLARE on a monthly basis.
7. IN COMPLIANCE. Facility calculates and maintains records of CO emissions for EUOPENFLARE on a monthly and 12-month rolling time period basis.
8. IN COMPLIANCE. Facility calculates and maintains records of heat input for EUOPENFLARE on a monthly and 12-month rolling time period basis.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Semi-annual reports for the GCCS system are submitted by March 15 and September 15 of each year.
5. NOT APPLICABLE. EUOPENFLARE has not been removed from the facility.
6. IN COMPLIANCE. Semi-annual Start-up, Shutdown, and Malfunction (SSM) Reports are submitted by March 15 and September 15 of each year.

XI. Other Requirements
1. NOT 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 several malfunctions exceeding 1 hour for this process during the compliance evaluation period. The facility reported that the flow rate was not recorded for a total of 485 hours, 14 minutes from June 1 through June 21, 2019 due to a malfunction of the flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of this condition.
2. NOT IN COMPLIANCE. The facility reported that the flow rate was not recorded for a total of 485 hours, 14 minutes from June 1 through June 21, 2019 due to a malfunction of the flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of 40 CFR Part 60 Subpart A and Subpart WWW – Standard of Performance for Municipal Solid Waste Landfills as they apply to EUOPENFLARE.
3. NOT IN COMPLIANCE. The facility reported several malfunctions exceeding 1 hour for this process during the compliance evaluation period. The facility reported that the flow rate was not recorded for a total of 485 hours, 14 minutes from June 1 through June 21, 2019 due to a malfunction of the flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of 40 CFR Part 63 Subpart A and Subpart AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as they apply to EUOPENFLARE.
4. NOT IN COMPLIANCE. Facility is required to demonstrate compliance with 40 CFR Part 63 Subpart A and AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills through performance testing, monitoring of the collection system, continuous parameter monitoring and other credible evidence. Records are maintained to demonstrate compliance. Facility has developed and implements an SSM Plan for EUOPENFLARE. However, the facility reported several malfunctions exceeding one hour for this process during the compliance evaluation period. The facility reported that the flow rate was not recorded for a total of 485 hours, 14 minutes from June 1 through June 21, 2019 due to a malfunction of the flow meter. AQD has determined this failure to monitor the operational parameters of the flare to be excessive and in violation of this condition.

EUASBESTOS – The landfill is actively accepting or has accepted asbestos waste in the past.

III. Process/Operational Restrictions
1. IN COMPLIANCE. Landfill disposes of asbestos-containing waste in a manner consistent with the requirements of 40 CFR 61.154 by covering the waste with a non-asbestos material on a daily basis.

IV. Design/Equipment Parameters
1. NOT APPLICABLE. The facility does not have segregated asbestos disposal areas.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility maintains the required records for all asbestos-containing material received, including the name, address, and phone number of the generator and transporter, and the date and quantity of

asbestos-containing waste received. Any improperly transported asbestos-containing waste, if received, would be reported to the proper regulatory agency.
2. IN COMPLIANCE. Facility maintains records of the location, depth and area, and quantity in cubic meters of asbestos-containing waste material within the disposal site on a plot map with GPS coordinates.
3. NOT APPLICABLE. Facility does not exclude gas collection wells in areas containing asbestos-containing waste.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. NOT APPLICABLE. Facility is still an active landfill, so this condition does not currently apply.
5. IN COMPLIANCE. All records required by 40 CFR Part 61 are made available upon request by AQD.
6. IN COMPLIANCE. Since the landfill performs frequent excavation and drilling in areas where asbestos-containing waste has been disposed, the facility submits notification on an annual basis to the AQD-Technical Programs Unit (TPU). No violations of the Asbestos NESHAP have been issued during the compliance period.

D. Flexible Group Conditions

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

Carleton Farms uses Safety Kleen as the cleaning solution in FGCOLDCLEANERS, which contains no VOCs or HAPs and none of the halogenated compounds listed in this condition. Since a “cold cleaner” is defined in R.336.1103(aa) as “a tank containing organic solvent with a volatile organic compound content of 5 % or more, by weight, and at a temperature below its boiling point that is used to spray, brush, flush, or immerse metallic and/or plastic objects for the purpose of cleaning or degreasing”, the tanks used at Carleton Farms do not meet the definition of a cold cleaner and the conditions of FGCOLDCLEANERS do not apply. These washing tanks are exempt per Rule 281(2)(e).

Appendix 7-1:

IN COMPLIANCE. Facility determines NMOC emissions from nonproduction areas and the net heating value of gas combusted in flares in accordance with the procedures listed in Appendix 7-1.

Appendix 9-1:

IN COMPLIANCE. Facility implements the Preventative Maintenance Plan (PMP) required in EUTREATMENTSYS, SC IX.3, as approved by AQD.

SECTION 2: Sumpter Energy Associates at the Carleton Farms Landfill

FGICENGINES1-8: Eight spark ignition, 4 stroke lean burn, reciprocating internal combustion engines (Caterpillar G3516, 1138 hp/800 kW) for combusting treated landfill gas to produce electricity. Associated Emission Unit IDs: EUICENGINE_1 through EUICENGINE_8.

I. Emission Limits
1. IN COMPLIANCE. Testing performed on June 30, 2020, on EUICENGINE_8 showed a NOx emission rate of 2.5 pph, demonstrating compliance with the permit limit of 5.02 pph allowed for each engine in FGICENGINES1-8. Based on the approved testing protocol in accordance with FGICENGINES1-8, SC V.1, EUICENGINE_8 was determined to be the “worst case” engine and results were applied to all engines in FGICENGINES1-8.

2. IN COMPLIANCE. Testing performed on June 30, 2020, on EUICENGINE_8 showed a CO emission rate of 6.2 pph, demonstrating compliance with the permit limit of 7.28 pph allowed for each engine in FGICENGINES1-8. Based on the approved testing protocol in accordance with FGICENGINES1-8, SC V.1, EUICENGINE_8 was determined to be the "worst case" engine and results were applied to all engines in FGICENGINES1-8.
3. IN COMPLIANCE. Based on testing performed on June 30, 2020, the average hydrogen chloride (HCl) emission rate for each engine in FGICENGINES1-8 was 0.59 lb HCl/MMcf LFG combusted, demonstrating compliance with the permit limit of 5.6 lb HCl/MMcf LFG combusted. Based on the approved testing protocol in accordance with FGICENGINES1-8, SC V.1, EUICENGINE_8 was determined to be the "worst case" engine and results were applied to all engines in FGICENGINES1-8.

II. Material Limits
1. IN COMPLIANCE. The highest 12-month rolling total amount of LFG fed to FGICENGINES1-8 was 1.15 billion cubic feet for the 12-month rolling time period ending May 2020, demonstrating compliance with the permit limit of 1.51 billion cubic feet of LFG per 12-month rolling time period.

III. Process/Operational Restrictions
1. IN COMPLIANCE. Only treated LFG is burned in FGICENGINES1-8.

IV. Design/Equipment Parameters
1. IN COMPLIANCE. FGICENGINES1-8 is equipped with a device to monitor and record the total volume of LFG consumed on a monthly basis.

V. Testing/Sampling
1. IN COMPLIANCE. Testing to determine the NOx and CO emission rates from FGICENGINES1-8 was performed on June 30, 2020. Testing demonstrated compliance with the allowable NOx and CO emission rates.
2. IN COMPLIANCE. Testing to determine the HCl emission rate from FGICENGINES1-8 was performed on June 30, 2020. Testing demonstrated compliance with the allowable HCl emission rate.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Total flow of LFG from the landfill to FGICENGINES1-8 is continuously monitored and recorded. Records were provided to AQD via email on June 29, 2020.
2. IN COMPLIANCE. Facility calculates and records the total cubic feet of LFG fed to FGICENGINES1-8 on a monthly and 12-month rolling basis. Records were provided to AQD via email on June 29, 2020.
3. IN COMPLIANCE. Btu content of the LFG is monitored and recorded on a monthly basis. Records were provided to AQD via email on June 29, 2020.
4. IN COMPLIANCE. Facility monitors and records the temperature of air/fuel mixture at least once per day. AQD reviewed the daily records during the inspection while on site.
5. IN COMPLIANCE. A review of daily temperature records did not show any occurrences of temperature exceedances greater than 5°F over the maximum air/fuel mixture temperature observed during the most recent performance test. EUICENGINE_3 tested at 175°F during the performance test conducted on July 27, 2010, and therefore no engine in FGICENGINES1-8 can exceed 180°F during operation. Based on the approved testing protocol in accordance with FGICENGINES1-8, SC V.1, EUICENGINE_3 was determined to be the "worst case" engine and results were applied to all engines in FGICENGINES1-8. Note: EUICENGINE_8 tested at 128? during testing performed on June 30, 2020, setting the maximum temperature at 133? for all engines in FGICENGINES1-8 effective the date of testing.
6. IN COMPLIANCE. Facility maintains records of the identification and specification of each engine in FGICENGINES1-8, as required in this condition. These records were provided to AQD via email on June 29, 2020.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.

2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Facility is required to notify AQD of any engine replacement within 30 days of replacement, including the engine identification and specifications required in this condition. Notification was made to AQD within 30 days following the replacement of EUICENGINE_5 on September 19, 2019 and EUICENGINE_4 on June 23, 2020.

VIII. Stack/Vent Restrictions
IN COMPLIANCE. According to facility documentation and visual observation, stacks SV_ENGINE1 through SV_ENGINE8 appear to meet permit specifications.

FGICENGINES9-14: Six spark ignition, 4 stroke lean burn, reciprocating internal combustion engines (Caterpillar G3516, 1138 hp/800 kW) for combusting treated landfill gas to produce electricity. Associated Emission Unit IDs: EUICENGINE_9 through EUICENGINE_14.

I. Emission Limits
1. IN COMPLIANCE. Testing performed on July 1, 2020, on EUICENGINE_9 showed a NOx emission rate of 2.0 pph, demonstrating compliance with the permit limit of 4.52 pph allowed for each engine in FGICENGINES9-14. Based on the approved testing protocol in accordance with FGICENGINES9-14, SC V.1, EUICENGINE_9 was determined to be the “worst case” engine and results were applied to all engines in FGICENGINES9-14.
2. IN COMPLIANCE. Testing performed on July 1, 2020, on EUICENGINE_9 showed a CO emission rate of 6.0 pph, demonstrating compliance with the permit limit of 7.28 pph allowed for each engine in FGICENGINES9-14. Based on the approved testing protocol in accordance with FGICENGINES9-14, SC V.1, EUICENGINE_9 was determined to be the “worst case” engine and results were applied to all engines in FGICENGINES9-14.
3. IN COMPLIANCE. Based on testing performed on July 1, 2020, the average hydrogen chloride (HCl) emission rate for each engine in FGICENGINES9-14 was 0.70 lb HCl/MMcf LFG combusted, demonstrating compliance with the permit limit of 5.6 lb HCl/MMcf LFG combusted. Based on the approved testing protocol in accordance with FGICENGINES9-14, SC V.1, EUICENGINE_9 was determined to be the “worst case” engine and results were applied to all engines in FGICENGINES9-14.

II. Material Limits
1. IN COMPLIANCE. The highest 12-month rolling total amount of LFG fed to FGICENGINES9-14 was 0.88 billion cubic feet for the 12-month rolling time period ending May 2020, demonstrating compliance with the permit limit of 1.13 billion cubic feet of LFG per 12-month rolling time period.

III. Process/Operational Restrictions
1. IN COMPLIANCE. Only treated LFG is burned in FGICENGINES9-14.

IV. Design/Equipment Parameters
1. IN COMPLIANCE. FGICENGINES9-14 is equipped with a device to monitor and record the total volume of LFG consumed on a monthly basis.

V. Testing/Sampling
1. IN COMPLIANCE. Testing to determine the NOx and CO emission rates from FGICENGINES9-14 was performed on July 1, 2020. Testing demonstrated compliance with the allowable NOx and CO emission rates.
2. IN COMPLIANCE. Testing to determine the HCl emission rate from FGICENGINES9-14 was performed on July 1, 2020. Testing demonstrated compliance with the allowable HCl emission rate at that time.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Total flow of LFG from the landfill to FGICENGINES9-14 is continuously monitored and recorded. Records were provided to AQD via email on June 29, 2020.

2. IN COMPLIANCE. Facility calculates and records the total cubic feet of LFG fed to FGICENGINES9-14 on a monthly and 12-month rolling total basis. Records were provided to AQD via email on June 29, 2020.
3. IN COMPLIANCE. Btu content of the LFG is monitored and recorded on a monthly basis. Records were provided to AQD via email on June 29, 2020.
4. IN COMPLIANCE. Facility monitors and records the temperature of air/fuel mixture at least once per day. AQD reviewed the daily records during the inspection while on site.
5. IN COMPLIANCE. A review of daily temperature records did not show any occurrences of temperature exceedances greater than 5? over the maximum air/fuel mixture temperature observed during the most recent performance test. EUICENGINE_13 tested at 149°F during the performance test conducted on July 21, 2010, and therefore no engine in FGICENGINES9-14 can exceed 154°F during operation. Based on the approved testing protocol in accordance with FGICENGINES9-14, SC V.1, EUICENGINE_13 was determined to be the “worst case” engine and results were applied to all engines in FGICENGINES9-14. Note: EUICENGINE_9 tested at 121? during testing performed on July 1, 2020, setting the maximum temperature at 126? for all engines in FGICENGINES9-14 effective the date of testing.
6. IN COMPLIANCE. Facility maintains records of the identification and specification of each engine in FGICENGINES9-14, as required in this condition. These records were provided to AQD via email on June 29, 2020.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Facility is required to notify AQD of any engine replacement within 30 days of replacement, including the engine identification and specifications required in this condition. No engines were replaced in EUICENGINES9-14 during the compliance period.

VIII. Stack/Vent Restrictions
IN COMPLIANCE. According to facility documentation and visible observation, stacks SV_ENGINE9 through SV_ENGINE14 appear to meet permit specifications.

FGRICEMACT – New and reconstructed non-emergency engines greater than 500 hp fueled with landfill/digester gas, located at a major source of HAPs. The ROP identifies the following engines as having been constructed or reconstructed on or after December 19, 2002: EUICENGINE_3, EUICENGINE_4, EUICENGINE_7, EUICENGINE_8, EUICENGINE_9, EUICENGINE_10, EUICENGINE_11, EUICENGINE_12, EUICENGINE_13, EUICENGINE_14. Note: Since the issuance of ROP No. MI-ROP-N5986-2015, EUICENGINE_1, EUICENGINE_2, EUICENGINE_5, and EUICENGINE_6 have been replaced with new or reconstructed engines and are now also subject to the conditions of 40 CFR Part 63, Subpart ZZZZ (RICE MACT).

III. Process/Operational Restrictions
1. IN COMPLIANCE. Each engine in FGRICEMACT is operated in a manner to reasonably minimize HAP emissions by properly operating and maintaining the equipment.
2. IN COMPLIANCE. Each engine in FGRICEMACT is operated in a manner which minimizes time spent idle at startup and minimize the startup time to a period needed for appropriate and safe loading of each engine, not to exceed 30 minutes. Based on conversations with plant personnel during past inspections, startup usually takes about 10 minutes before the engine is able to burn LFG.

IV. Design/Equipment Parameters
1. IN COMPLIANCE. FGRICEMACT only burns LFG and is equipped with a fuel meter to monitor and record the daily fuel usage and volumetric flow rate of the LFG used.

VI. Monitoring/Recordkeeping
1. IN COMPLIANCE. Facility monitors and records the daily fuel usage for each engine in FGRICEMACT.

VII. Reporting
1. IN COMPLIANCE. Deviations are reported pursuant to GC 21 and 22 of Part A.
2. IN COMPLIANCE. Semiannual reports of monitoring and deviations are submitted by March 15 (for reporting period July 1 through December 31) and September 15 (for reporting period January 1 through June 30) each year, as required per GC 23 of Part A.
3. IN COMPLIANCE. Annual compliance certification is submitted by March 15 for the previous calendar year, as required per GC 19 and 20 of Part A.
4. IN COMPLIANCE. Facility submits an annual report by no later than January 31 of each year in accordance with Table 7 of 40 CFR Part 63, Subpart ZZZZ. This report includes fuel flow rate and heating values used in calculations and any deviations of the operating or monitoring parameters of FGRICEMACT. The most recent annual compliance report for the time period January 1 through December 31, 2018, was received on January 29, 2020. The facility reported 100% heat input to the engines was provided by LFG with 1,142,409,000 scf burned in Phase I and 849,244,419 scf burned in Phase II. Average heat value of the LFG ranged from 466 to 527 Btu/scf. The facility reported no deviations from operating limits in the annual compliance reports for 2019.

IX. Other Requirements
1. IN COMPLIANCE. Facility complies with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart ZZZZ, as they apply to each engine in FGRICEMACT.

FINAL COMPLIANCE DETERMINATION:

Section 1: At the time of inspection, Republic Services of Michigan I, LLC – Carleton Farms Landfill was determined to be in noncompliance with the following conditions of ROP No. MI-ROP-N5986-2015, Section 1. Specifically, the facility was out of the compliance with the following conditions:

- EUACTIVECOLL, Special Conditions III.4; VI.3; and IX.1: Operating wells above 131 °F without an approved higher operating value from AQD.

- EUENCLOSEDFLARE, Special Conditions VI.1 through 3; XI. 1 and 2: Failure to monitor and record flow rates.

- EUOPENFLARE, Special Conditions VI.1 through VI.4; XI. 1 through 4: Failure to monitor and record flow rates.

Section 2: At the time of inspection, Sumpter Energy Associates at the Carleton Farms Landfill was determined to be in substantial compliance with ROP No. MI-ROP-N5986-2015, Section 2.

NAME _____ DATE 8-19-2021 SUPERVISOR JK