

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

N821050142

<b>FACILITY:</b> Generate Fremont Digester, LLC		<b>SRN / ID:</b> N8210
<b>LOCATION:</b> 1634 LOCUST ST, FREMONT		<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> FREMONT		<b>COUNTY:</b> NEWAYGO
<b>CONTACT:</b> Daniel Meccariello , COO		<b>ACTIVITY DATE:</b> 08/15/2019
<b>STAFF:</b> Kaitlyn DeVries	<b>COMPLIANCE STATUS:</b> Non Compliance	<b>SOURCE CLASS:</b> MINOR
<b>SUBJECT:</b> The purpose of this inspection was to determine compliance with permit to install numbers 378-08, 378-08A, and other applicable air quality rules and regulations.		
<b>RESOLVED COMPLAINTS:</b>		

On Thursday August 15, 2019 Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) staff Kaitlyn DeVries (KD) conducted an unannounced, scheduled inspection of the Generate Fremont Digester, LLC located at 1634 Locust St. Fremont Michigan. The purpose of this inspection was to determine compliance with permit to install numbers 378-08, 378-08A, and other applicable air quality rules and regulations.

KD arrived on site around 10:30 am and met with Mr. Leon Scott, Facility Manager, who accompanied KD on the tour of the facility. In addition to the intention to conduct an inspection, KD also mentioned to Mr. Scott that she has been receiving numerous odor complaints regarding the facility operations. KD informed Mr. Scott that prior to arriving on site, KD had conducted odor observations and verified odors from the facility along Green Street, which is due west of the facility. KD had previously informed Mr. Scott and other Generate Fremont Digester (GFD) staff of Rule 901 and the requirements for frequency, intensity, and duration associated with the odor observations and applicability to Rule 901. This was not the first instance that KD had identified the odor off site near residential properties or equal distance to a residential property. A Rule 901 Violation was subsequently issued to the facility on August 21, 2018.

KD also noted that there was a lot of product located outside, to the west of the facility. Mr. Scott indicated that they had to slow down the processing due to the mechanical control issue with the biofilter that was reported to the AQD on August 9, 2019. This required a contractor to come on-site to repair the biofilter. This resulted in one (1) non-operational cell, therefore the decrease in processing. Mr. Scott informed KD that the non-operational cell was sealed off and the parts have been ordered. They have also started adding a mist to the biofilter exhaust to help control the odor. Mr. Scott went on to say that they had also received a particularly bad batch of product from Gerber the week prior and they have been working to process that product first, since it was already stinky when they received it. KD again reiterated that GFD should do everything possible to minimize odors, and if that meant turning away product that was already "bad" or stinky, they should do that. Mr. Scott stated that they would not be taking any product that was already "bad" moving forward.

### Facility Description

Generate Fremont Digester (GFD) is a complete mix anaerobic digester facility located in the City of Fremont, just north of Lake Fremont. The facility uses a variety of food waste materials as well as manure feed stock in the digesters to generate gas. The gas that is generated is combusted in the two (2) reciprocating internal combustion engines. The facility has the capability to also combust the gas in a boiler as well. The facility was previously owned and operated by Novi Energy; Novi Energy obtained the original permit, constructed the facility and operated it until 2015. The facility was idle until it was purchased by Generate Capital in 2016 and partnered with Dynamic Systems Management to manage the facility.

### Regulatory Analysis

GFD is currently a minor source, in respect to criteria pollutants, and is currently operating under two (2) permits to install (PTI). PTI No. 378-08 is for the digester and some other ancillary equipment, and PTI No. 378-08A is for the two (2) engines. The engines are subject to the Standards of Performance (NSPS) 40 CFR Part 60 Subpart JJJJ for Spark Ignition Internal Combustion Engines and to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart ZZZZ. Compliance with Subpart ZZZZ is demonstrated via compliance with subpart JJJJ.

### Compliance Evaluation

PTI No. 378-08

This permit covers the Digester related equipment and includes EUDIGESTER, EUWATERBOILER, EUGASFLARE, and EUWASWT\_TRANSFER. EUWATERBOILER and EUGASFLARE were included in the permit for completeness but rely on Rule 201 permitting exemptions. Each of these emission units will be fully evaluated below.

*EUDIGESTER*

This emission unit is for an anaerobic digester system that is capable of converting organic waste products into biogas. Methane is the main component of this biogas and it has a design capacity of 700 cfm of biogas produced, while handling as much as 400 tons of waste products per day.

FCD is required to maintain and operate EUDIGESTER according to the procedures outlined in the preventative maintenance plan (PMP), and at a minimum include the items outlined in Appendix A of the PTI. The most recent PMP received by AQD was from 2012 while the facility was owned and operating under Novi Energy. KD asked Mr. Scott if this was the most recent PMP and if GFD was following it. He indicated he was not aware of that and they were likely not following it. KD also asked this question of Mr. Meccariello, COO, and Mr. Karl Crave, VP of Operations, during subsequent telephone conversations. Neither indicated that these plans were being followed; KD indicated to each person that new plans would be required. Additionally, during the Fiscal Year (FY) 2018 inspection, AQD made Mr. Scott and the GFD staff aware of this requirement. Since this plan has not been maintained and the digester operated in accordance with the PMP, this is a violation of PTI No. 3748-08 EUDIGESTER, Special Condition III.1.

EUDIGESTER is also required to have a plan as to how to minimize potentially odorous emissions during all startups, shutdowns, and malfunctions. A plan was submitted to AQD in 2018 as a result of the FY 2018 inspection. However, the AQD will request this plan be updated to include operating parameters for potential malfunctions and more detail as to how odors will be minimized during such events.

As Mr. Scott and KD were walking through the facility, near the dome that holds the gas collected from the digestion process, KD noted a particular odor, one she has detected before along Green St. Mr. Scott stated that they could dose the dome valve with some more of the odor eliminating liquid they have been using. KD asked what the frequency was that this was being dosed. Mr. Scott indicated that it was about every two (2) weeks or so. KD noted that if the odors are detected, GFD should increase the frequency of this practice.

*EUWATERBOILER*

This emission unit is for a small hot water heater/boiler having a maximum design capacity of 4 MMBTU/hr, primarily fueled by a mix of tail gas and natural gas. Mr. Scott indicated that they have only been operating this using natural gas and have not used it in a while. This unit is exempt from Rule 201 permitting under Rule 282(2)(b)(i). If this unit were to start using biogas again, it would need to meet the sulfur content requirement outlined in Rule 282(2)(b)(ii).

*EUGASFLARE*

This emission unit is for one (1) small flare. In normal operating mode, the maximum tail gas sent to the flare is 20,000 ft<sup>3</sup>/hr. This unit is exempt from Rule 201 permitting under Rule 282(2)(g) for sour gas-burning equipment, if the actual sulfur dioxide (SO<sub>2</sub>) emissions does not exceed 1 pound per hour (pph). KD requested documentation from the facility regarding the exhaust to the flare. Records indicate the flare operated for a total of 144.4 hours during the time frame of August 2018 through August 2019 exhausting a total of 865,465 cubic feet.

The facility has a desulfurization system that is designed to remove sulfur from the biogas stream prior to being burned in the engines or diverted to the flare. The H<sub>2</sub>S removal system has a designed removal efficiency of 93%. The facility took six (6) hydrogen sulfide (H<sub>2</sub>S) samples prior to the biogas entering the H<sub>2</sub>S treatment system on days where the flare was used, but did not take any samples post-system. SO<sub>2</sub> emissions were calculated for the six (6) days samples were collected, but were not calculated for any of the other days when the flare was operating.

During a visual inspection of the desulfurization system, KD noticed that none of the LCD screens or any of the components for the desulfurization system appeared to be on. KD asked Mr. Scott about this and he indicated

that they were having some issues with this system and that Mr. Karl Crave had been working on the system. KD asked how the plant knows if this system was working, and he indicated he did not know. KD subsequently phoned Mr. Karl Crave, who is based out of Wisconsin in their corporate office. Mr. Crave stated that the control panel will go off if an oxygen alarm is tripped and it must manually be reset. KD followed up stating then how does GFD know the system is working. Mr. Crave stated that the pumps still run, so it is working. However, if the system needs to be manually reset, and Mr. Scott, the facility manager who runs the day to day operations of the facility has no indication of the operational status of the equipment and there are no test results to validate the H<sub>2</sub>S removal efficiency of the system, compliance with the 1 pound per hour (pph) emission limit identified in the Rule 201 permit exemption cannot be verified. Additionally, based upon pph SO<sub>2</sub> emission calculations using the pre-treatment sulfur content, without verification of the removal efficiency, the calculated SO<sub>2</sub> emissions from April 18, 2019 exceed the 1 pph allowed under the exemption at 2.3 pph. Since the removal efficiency cannot be verified and no post treatment samples were collected to verify the emissions, the exemption cannot be used. Since the exemption cannot be used, this is a Violation of Rule 201 – failure to obtain a permit to install. This will be included in the Violation Notice as well as a request to test the biogas post H<sub>2</sub>S removal system.

Additionally, since desulfurization equipment is a control device and must be maintained and operated and KD could not verify the operational status of this unit during this inspection a Rule 910 Violation will be included in the Violation Notice for failure to maintain and operate a control device.

#### EUWASTE\_TRANSFER

This emission unit is for the waste transfer station with biofilter control. This transfer station is comprised of a basic building for receiving the trucks which pump, or dump, the waste feedstock into the digester receiving system. The building is to be operated under slight negative pressure during truck unloading operations and the evacuated air is routed to the biofilter.

The facility also has an unpacking area that receives product, which needs to be unpacked prior to being put into the digester receiving system. KD noted odors in this area, and that both overhead doors were open. KD suggested to keep the doors closed to minimize odors. Mr. Scott indicated that they needed to have one (1) of the doors open for worker safety reasons. KD re-emphasized that GFD should do everything possible to minimize odors from every place in the process, as this unpacking area is not controlled by the biofilter and is not part of EUWASTE\_TRANSFER.

Similar to EUDIGESTER, EUWASTE\_TRANSFER requires a PMP to be maintained and operated in accordance with. Since GFD staff indicated they are not using this plan, this is a Violation of PTI No. 378-08 Special Condition III.1.

EUWASTE\_TRANSFER also requires a plan for how odors will be minimized during all startups, shutdowns, and malfunctions. AQD will be requesting that this plan be updated to include more specific details as to how the odors will be minimized during these times.

EUWASTE\_TRANSFER requires that the biofilter be installed, maintained, and operated in a satisfactory manner. As previously mentioned, the filter had some mechanical issues requiring one cell to be blocked off. This does not constitute proper installation, maintenance, and operation of the biofilter. This is a Violation of PTI No. 378-08 EUWASTE\_TRANSFER SC IV.1. This will be included in the Violation Notice.

#### PTI No. 378-08A

This permit is comprised of two (2) emission units in the flexible group FGICENGINES. The emission units (EUCENGINE1 and EUCENGINE2) are spark ignition internal combustion engines for combusting biogas to produce electricity. The engines have an approximate gross electrical output of 3 MW. These engines are subject to the provisions of NSPS 40 CFR Part 60 Subpart JJJJ, and to the provisions of 40 CFR Part 63 Subpart ZZZZ. Compliance with Subpart ZZZZ is demonstrated via compliance with Subpart JJJJ.

Each engine has emission limits for Carbon Monoxide (CO), Nitrogen Oxides (NO<sub>x</sub>), and Volatile Organic Compounds (VOCs); these emission limits are outlined in Table 1. Testing to verify the emission rates from the engines was to have occurred no later than December 2018 and January 2019 for Engines 1 and 2, respectively, due to the start-up of the units after being idle prior to the GFD being purchased from Novi Energy. A Violation Notice was issued to GFD for the failure to test. Testing was subsequently conducted on May 6 and May 7, 2019. Table 1, below, shows the results of the May 2019 testing.

Table 1: Emission Limits for FGICENGINES

Engine Number	Pollutant	Emission Limit	Actual Emissions
Engine 1	CO	2.6 g/bhp-hr	2.34 g/bhp-hr
	NOx	0.6 g/bhp-hr	0.32 g/bhp-hr
	VOC	1.0 g/bhp-hr	0.17 g/bhp-hr
Engine 2	CO	2.6 g/bhp-hr	2.25 g/bhp-hr
	NOx	0.6 g/bhp-hr	0.35 g/bhp-hr
	VOC	1.0 g/bhp-hr	0.18 g/bhp-hr

Testing will be required again after 8760 hours of operation, or every three (3) years, whichever comes first, to ensure continual compliance with the emission limits.

GFD is required to have a MAP/PMP for the engines. The plans that AQD has for each of these is from August 2012, both of which were submitted by Novi Energy. According to the Fiscal Year 2018 Inspection report, FGD was developing more up to date plans. As of the date of this plan AQD has not received an updated MAP or PM plan. The current PMP states that several maintenance items will be done on a daily basis. Based upon the operational hours, and the records provided, the daily maintenance records are not conducted on a regular basis and the daily maintenance is not documented. The preventative maintenance plan requires periodic testing of the gas to ensure the biogas meets the specifications required by the engine. According the records, the inlet sulfur concentration of the biogas has been sampled six (6) times during the previous 12 months while the outlet gas concentration (post desulfurization) was not sampled during the previous 12 months. Since daily maintenance logs are not being conducted and neither is the proper evaluation of the biogas to ensure it meets specifications required for use in the engines as identified in the PMP, this is a Violation of PTI 378-08A FGENGINE Special Conditions III.1 and VI.2 These violations will be included in the Violation Notice.

The engines are also required to have an air/fuel ratio controller, and an hour meter for recording the number of hours the units have operated. The facility is required to keep track of the hours of operation for each engine. Records indicate Engine 1 operated for a total of 2,315.4 hours, and Engine 2 operated for a total of 2,128.3 hours. During a visual inspection of the engines, KD noticed some discoloration in one of the engine areas. Mr. Scott stated that this discoloration all occurred in one day and was due to an issue with a flange, which was repaired.

The stack dimensions were not explicitly measured during this inspection.

#### *Miscellaneous equipment*

GFD has on (1) 40 hp EPA Certified natural gas emergency generator. This emission unit appears to be exempt from rule 201 permitting under Rule 282(2)(b)(i). This unit was manufactured in 2012 and is therefore subject to the provisions of 40 CFR Part 60 Subpart JJJJ the New Source Performance Standards for Spark Ignition Internal Combustion Engines. This unit is also subject to the Area Source Requirements of the National Emissions Standards for Hazardous Air Pollutants 40 CFR Part 63 Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines (RICE). Compliance with Subpart ZZZZ is demonstrated via Compliance with Subpart JJJJ.

GFD has one (1) cold cleaner that is exempt from Rule 201 permitting under Rule 281(2)(h). At the time of the inspection this unit was open, but not in use. KD told Mr. Scott that this unit should be kept closed when not in use; Mr. Scott quickly had a GFD staff person close the unit. KD provided Mr. Scott with an EGLE cold cleaner sticker to put by the unit to remind GFD staff that this unit needs to be kept closed to minimize emissions.

#### **Compliance Determination**

Based upon the observations made during the time of the inspection and a subsequent review of the records it appears Generate Fremont Digester is not in compliance with PTI No. 378-08 and PTI No. 378-08A. A Violation Notice will be issued for the following:

1. PTI No. 378-08 EUDIGESTER Special Condition III.1 – Failure to maintain and operate EUDIGESTER in accordance with a Preventative Maintenance Plan.
2. PTI No. 378-08 EUWASTE\_TRANSFER Special Condition III.1 - Failure to maintain and operate EUWASTE\_TRANSFER in accordance with a Preventative Maintenance Plan.

3. PTI No. 378-08 EUWASTE\_TRANSFER Special Condition IV.1 – Failure to maintain and operate the biofilter associated with EUWASTE\_TRANSFER
4. EUGASFLARE – Rule 201 - failure to obtain a permit to install.
5. Desulfurization Equipment – Failure to maintain and operate a control device.
6. PTI No. 378-08A FGENGINES Special Condition III.1 – Failure to maintain and operate FGENGINES in accordance with the Preventative Maintenance Plan.
7. PTI No. 378-08A FGENGINES Special Condition VI.2 – Failure to maintenance a log of all maintenance activities in accordance to the Preventative Maintenance Plan.

NAME Kandem D. A.

DATE 9/3/19

SUPERVISOR 