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

N169946768

FACILITY: City of Flushing		SRN / ID: N1699
LOCATION: 200 Industrial Drive, FLUSHING		DISTRICT: Lansing
CITY: FLUSHING		COUNTY: GENESEE
CONTACT:		ACTIVITY DATE: 10/26/2018
STAFF: Daniel McGeen	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MINOR
SUBJECT: Inspection of facility with digester, and permitted boiler. AQD does not have any record of having inspected this facility before.		
RESOLVED COMPLAINTS:		

On 6/21/2019 the Michigan Department of Environmental Quality, now the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), conducted an unannounced, scheduled inspection of the City of Flushing wastewater treatment plant (WWTP) and digester.

Environmental contacts:

Doug Parkinson, Superintendent

Facility description:

This is a waste water treatment -plant (WWTP) for the City of Flushing, located at 200 Industrial Drive, Flushing. It uses a digester as part of the sewage treatment process, and the digester produces methane gas, which is used to fuel a boiler.

Emission units:

Emission unit* description	Permit to Install (PTI) No., or exemption rule	Federal regulations, if applicable	Compliance status
250,000 Btu/hr hot water boiler, fueled by digester gas or natural gas	PTI No. 814-87	Possibly 40 CFR Part 63, Subpart JJJJJJ	Compliance
Clarifiers	285(m)	NA	Compliance
Secondary clarifiers	285(m)	NA	
Primary digester (installed 1957) with fixed roof	285(m), possibly grandfathered	NA	Compliance
Secondary digester (installed 1957) with floating roof	285(m), possibly grandfathered	NA	Compliance
Flare ("waste gas burner")	PTI No. 814-87, or 282(g)	NA	Compliance

* An emission unit is any part of a stationary source that emits or has the potential to emit an air contaminant.

Regulatory overview:

This facility is considered to be a true minor source, rather than a major source of air emissions. A major source has the potential to emit (PTE) of 100 tons per year (TPY) or more, of one of the criteria pollutants. Criteria pollutants are those for which a National Ambient Air Quality Standard exists, and include carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide, volatile organic compounds (VOCs), lead, particulate matter smaller than 10 microns, and particulate matter smaller than 2.5 microns.

It is also considered a minor, or area source, for Hazardous Air Pollutants (HAPs), because it is not known to have a PTE of 10 TPY or more for a single HAP, nor to have a PTE of 25 TPY or more for combined HAPs.

The facility has an active Permit to Install (PTI) No. 814-87, approved on 12/30/1987, for a 250,000 Btu/hr hot water boiler. The purpose of the boiler was to provide heat for the sludge digester onsite. The boiler was to be fueled with methane gas produced by the treatment plant, and also by natural gas.

The above dual fuel-fired boiler may potentially be subject to 40 CFR Part 63.

The wastewater and sewage treatment equipment currently operating at the facility is considered to meet relevant exemption criteria from the requirement of Michigan Air Pollution Control Rule 201 to obtain a permit to install. The relevant exemptions are Rule 285(m), for processes installed prior to the 12/20/2016 revisions to the exemption rules, and Rule 285(2)(m), for processes installed on or after 12/20/2016.

Rule 285(m), for pre-12/20/2016 processes, exempts:

- (m) Lagoons, process water treatment equipment, wastewater treatment equipment, and sewage treatment equipment, except for any of the following:
 - (i) Lagoons and equipment primarily designed to treat volatile organic compounds in process water, wastewater, or groundwater, unless the emissions from the lagoons and equipment are only released into the general in-plant environment.
 - (ii) Sludge incinerators and dryers.
 - (iii) Heat treatment processes.
 - (iv) Odor control equipment.

Rule 285(2)(m), which became effective on 12/20/2016, exempts the following:

- (m) Lagoons, process water treatment equipment, wastewater treatment equipment, and sewage treatment equipment, except for any of the following:
 - (i) Lagoons and equipment primarily designed to treat volatile organic compounds in process water, wastewater, or groundwater, unless the emissions from the lagoons and equipment are only released into the general in-plant environment.
 - (ii) Sludge incinerators and dryers.
 - (iii) Heat treatment processes.

The exclusion of odor control equipment was eliminated by Rule 285(2)(m).

The digester is said to have been installed in 1957. This predates Act 348, the Michigan Air Pollution Control Act, which later became Part 55 of the Michigan Natural Resources and Environmental Protection Act, P.A. 451 of 1994. Therefore, the digester may be grandfathered and not need any exemption, provided it has not been reconstructed or modified since then.

Fee status:

This facility is not considered fee-subject. It is not considered a major source for criteria pollutants, and so is not Category I fee-subject. It is not considered Category II fee-subject, because it is not a major source for HAPs, nor is it subject to a federal New Source Performance Standard. Lastly, it is not considered category III fee-subject, because it is not subject to a Maximum Achievable Control Technology standard.

This facility is not required to report to the Michigan Air Emissions Reporting System. AQD Operational Memorandum No. 13 requires reporting in MAERS if emissions thresholds have been exceeded, but Flint WPC is not known to have exceeded these thresholds.

Location:

The facility is on the outskirts of the City of Flushing, in an area with a small number of businesses. There is a dense residential neighborhood about 450 feet east of the WWTP lagoons and other processes. There are occasional houses about 300 feet to the west of the WWTP processes.

History:

PTI No. 814-87 was approved on 12/30/1987, for the methane-fueled boiler. No records could be found in

AQD files of an inspection ever having been conducted here.

Safety apparel required:

I would encourage safety glasses with side shields, as a precaution for visiting any industrial site.

Arrival:

On 10/26/2019, I checked for odors prior to arriving at the site. Weather conditions were cloudy and 50 degrees F, with winds 10-15 miles per hour out of the southeast. I could not detect any wastewater or sewage odors offsite.

I arrived at a locked gate at the end of industrial drive. Via a speaker with keypad at the gate, I was able to contact the plant, and explain the reason for my visit. I was allowed in, and met with Mr. Doug Parkinson, Superintendent of the WWTP. Per AQD procedures, I provided my identification/credentials.

The purpose for my visit to today, I explained, was to inspect a facility which AQD has no record of visiting before, and to learn more about digester operations, to help with a recent complaint situation in another community.

Inspection:

WWTP: Rule 285(m):

Mr. Parkinson informed me that 5.8 million gallons of water is the largest volume the facility has ever processed. He explained the operations to me, as follows:

At the grit building, at the top of the hill, grit and other heavy items, such as egg shells, get settled out, and go to a dumpster for disposal. The water continues to the clarifiers, where solids settle to the bottom. The solids go directly to the digester. Effluent from the primary clarifiers goes to biological treatment, or secondary treatment. This is followed by secondary clarifiers. The treated water then goes to ultraviolet (UV) light treatment, for disinfection.

I was shown each of the above processes. I was also shown a sequencing batch reactor, which was described as almost a separate wastewater treatment plant.

Primary digester with fixed roof; 285(m), possibly grandfathered:

I was shown the primary digester, which was installed in 1957, as I understand it, and may be grandfathered from the requirement of Michigan Air Pollution Control Rule 201 to obtain a permit to install, even without an exemption. If the unit has been modified or reconstructed since 8/15/1967, it could use the Rule 285(m), for changes prior to 12/20/2016. For changes on or after 12/20/2016, the new Rule 285(2)(m) exemption could be used.

I was told that this unit is always full, always heated, and always mixed. I was told that as some sludge leaves the primary digester for the secondary digester, more sludge comes in. I was told that gas is stored in the primary lid, and excess gas is pushed to the secondary digester's lid, which has the floating roof. I detected neither visible emissions nor odors from the primary digester.

Secondary digester with floating roof; 285(m), possibly grandfathered:

I was shown the secondary digester, which may be grandfathered, but could use Rule 285(m) or Rule 285(2)(m) if it has been modified or reconstructed since 8/15/1967. It has a floating roof, which may qualify as an internal floating roof (IFR).

I was told that the secondary digester is always kept full. I detected neither visible emissions nor odors

from the secondary digester.

250,000 Btu/hr hot water boiler, fueled by methane or natural gas; PTI No. 814-87:

I was shown the boiler, which was running, with no visible emissions from the stack, only heat waves. It is a Burnham 3 pass generator boiler, I was told. It burns both natural gas and methane, under the PTI. The dual fuel capability could potentially subject it to 40 CFR Part 63, Subpart JJJJJ, the boiler regulation for area sources of HAPs.

The boiler was producing hot water at 131 degrees F, at 7 psi, for the digester. The goal is to heat the digester to 95 degrees F, I was told, although in the winter, at 80 degrees F, it still digests.

I noted that the boiler has a rain cap. Modern AQD permits to install will require that exhaust gases be discharged unobstructed vertically upwards, for better dispersal of air pollutants. This 1987-vintage permit does not prohibit the rain cap, however. I was told that the only change since 1987 to the boiler has been replacing the actuator.

The only conditions in PTI No. 814-87, aside from 13 general conditions, are Special Conditions Nos. 14 and 15.

SC No. 14 states: There shall be no visible emissions from the boiler.

RESULT: COMPLIANCE. There were no visible emissions detected from the boiler today, only heat waves.

SC No. 15 states: Applicant shall not substitute any fuels for those described in this permit application which would result in any appreciable change in the quality or any appreciable increase in the quantity of the emission of an air contaminant without prior notification to and approval by the Air Quality Division.

RESULT: COMPLIANCE. There was no evidence of any fuel other than digester gas (methane) or natural gas being used in the boiler today.

Flare; RPTI No. 814-87, or Rule 282(g):

The flare or waste gas burner, is referenced in the permit application, but is not mentioned in the special conditions of the PTI. It is used if the boiler is not available, or if there is excess methane beyond what the boiler can combust. It was running, with no visible emissions.

RESULT: COMPLIANCE. Rule 310 limits visible emissions to 20% over a 6-minute average, and the facility was at 0% today.

Conclusion:

No instances of noncompliance were identified. However, AQD needs to determine if the biogas-fired boiler could potentially be subject to 40 CFR Part 63, Subpart JJJJ, as dual fuel-fired boiler. AQD will look into this, as time and resources allow.

NAME 

DATE 9/30/2019

SUPERVISOR B.M.