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

N280450094

FACILITY: CENTRAL SANITARY LANDFILL		**SRN / ID:** N2804
LOCATION: 21545 CANNONSVILLE RD, PIERSON		**DISTRICT:** Grand Rapids
CITY: PIERSON		**COUNTY:** MONTCALM
CONTACT: Roger Rockburn , Landfill Manager		**ACTIVITY DATE:** 08/29/2019
STAFF: David Morgan	**COMPLIANCE STATUS:** Non Compliance	**SOURCE CLASS:** MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

At 9:30 A.M. on August 29, 2019, Air Quality Division (AQD) staff Dave Morgan and Heidi Hollenbach conducted a scheduled inspection of the Central Sanitary Landfill (CSL) and the North American Natural Resources (NANR) - Central Generating Station located in Pierson. The purpose of the inspection was to determine the facility's compliance with state and federal air pollution regulations as well as Renewable Operating Permit (ROP) No. MI-ROP-N2804-2014 and Permit to Install No. 45-17A. Accompanying AQD staff on the inspection was Roger Rockburn, CSL Landfill Manager; Stan Thompson, CSL Operations Technician; and Scott Hill, NANR plant operator.

FACILITY DESCRIPTION

The CSL is a solid waste landfill which accepts municipal waste, non-hazardous special waste, and construction and demolition debris and has a design capacity of 13.0 million cubic meters. Because the design capacity was increased after May 30, 1991, the landfill is considered a new source with respect to the requirements of 40 CFR Part 60, Subpart WWW and an existing source with respect to the requirements of the new Municipal Solid Waste Landfill Emission Guidelines under Subpart Cf. On January 31, 2017, a Tier II calculation was provided for the CSL which showed estimated NMOC emissions of 59.44 MG/year (see regulatory discussion in Activity Report No. N280438629). A subsequent NMOC estimate was made which documented that NMOC emissions were below 50 Mg/year and therefore landfill gas collection and control is not required under NSPS Subpart WWW. The company may be required to operate the gas collection and control system under Subpart Cf if NMOC emissions exceed 34 Mg/year. It is noted that the requirements of Subpart WWW are still applicable until a state or federal plan to implement the Subpart Cf rule is developed.

COMPLIANCE EVALUATION

EULANDFILL<50:

Because NMOC emissions were determined to be less than 50 megagrams, the company is not required to install a landfill gas collection and control system under Subpart WWW. The company does have an existing active gas collection and control system installed prior to Subpart WWW requirements that consists of approximately 48 vertical and horizontal wells, and an open flare. The company does monitor and balance the gas collection system at least once per month, but no methane surface monitoring is conducted.

AQD staff toured the site. CSL continues to address landfill gas odors in the southwest corner of the landfill by adding more horizontal wells and temporary cover measures. During the inspection, strong landfill gas odors were observed on top of the landfill near GW75 and GW77R. Mr. Rockburn hopes that the additional measures will mitigate the landfill odor. It is noted that no landfill gas odors were observed off-site and AQD has not received any recent complaints regarding the landfill.

The company is maintaining all recordkeeping on-site and in accordance with the ROP. These records include the year-by-year waste acceptance rate, waste in place records, the design capacity report, and cover inspection records. As of 2019, the estimated waste in place was 8,628,933 cubic yards.

All semi-annual and annual certification reports have been submitted in accordance with the ROP and Subpart WWW.

EUOPENFLARE:

CSL operates an open flare with a rated capacity of 4,700 scfm to control captured landfill gas. According to Mr. Rockburn, the gas flow to the flare ranges from around 450 to 500 cfm since the engines were installed. At the time of the inspection, flow to the flare was around 467 scfm.

The flare is fully operational and operates on a continuous basis. No visible emissions were observed from the flare during the inspection. The company electronically monitors and records the gas flow rate and presence of the pilot flame by monitoring the flame temperature as specified in the ROP. For the period from January 2019 through July 2019 company records show there were five instances where records showed flow to the flare with a temperature indicative of no flare operation. It is noted that on July 20, 2019, no data was recorded. In each case, CSL believes that the flare was operational. After the inspection, CSL contracted with APTIM to inspect the control

system and conduct system integrity tests. APTIM verified that the gas flow to the flare was shutdown, as designed, when the flare did not have a flame. APTIM also adjusted scaling of the flow meter. On September 18th, AQD staff had follow-up meeting with CSL. Essentially, the company acknowledges problems with data recording and is continuing to investigate the problem and determine a solution. Since this is an ongoing issue, a violation notice will be sent. Attached to this report are flare downtime records. During the inspection, the thermocouple on the flare showed a temperature above 1,250°F and a flame was present as required by the ROP. If there is no flame, a sensor is tripped and attempts to relight the flare are made.

The company has an operations manual on site for proper maintenance and operation. The company conducts daily observations, as well as weekly and monthly maintenance. All maintenance activities are recorded in a log book which was reviewed on site.

EUAIRSTRIPPER:
There is a groundwater air stripping unit (QED Environmental Systems Model EZ12.6SS) installed under Rule 290. Exhaust air is vented through a stack with a 6 inch diameter and 7 foot height from the ground. No visible emissions were observed from the air stripper during the inspection.

The company conducts semi-annual monitoring of the VOC concentration in the influent and effluent of the air stripper in order to calculate emissions. On a monthly basis, the company calculates VOC emissions using the semi-annual VOC concentrations. From January 2019 through June 2019 records show VOC emissions were calculated to be no higher than 1.0 pounds per month which is below the 1,000 pound per month limit In addition, all emissions are below 20 pound per month thus meeting emission limits for constituents with an applicable ITSL or IRSL. Records are attached.

EUASBESTOS:
The CSL does not accept asbestos waste and there is no documentation that the site has accepted it in the past. This section of the ROP should be revisited during the next ROP renewal period.

EUCOLDCLEANER:
Operating procedures were posted. There are no issues with the cold cleaner.

MISCELLANEOUS:
There are several liquid storage tanks at the facility which are exempt from permitting under Rule 284.

EVAUATION SUMMARY:
CSL will be sent a Violation Notice for the violation identified above. Records obtained as part of the inspection are attached.

The NANR Central Generating Station is a landfill gas treatment and electric generating facility where landfill gas produced at the CSL is routed through a pipe where the gas is filtered, dewatered, compressed, and cooled prior to being burned in internal combustion engines to produce electricity. Any gas not treated in the system is burned in the CSL open flare.

Gas Treatment System:

The gas entering the treatment system first goes through a knockout scrubber vessel, then through a compressor, then an after-cooler system which cools the gas to a temperature around 90°F. At the time of the inspection, the temperature going into the cooler was around 113°F and exit temperature was around 90°F. There are no atmospheric vents or emissions from the landfill gas conditioning system.

The treatment system's only filter mechanism for particulates is the knockout scrubber. There was no pressure difference across the scrubber, however, the filter is less than one year old. Preventative maintenance is conducted on the treatment system in accordance with a facility maintenance plan and a log book of all maintenance activities is kept on site.

The facility is to develop a site-specific treatment system monitoring plan which the company has developed as part of the facility's overall preventative maintenance plan. According to that plan (attached), parameters are monitored for treatment system operation which consist of the scrubber vessel differential pressure and condensate site tube level, the compressor oil level and maximum operating temperatures, the water/oil separator gauges, and the gas cooler maximum inlet and outlet temperatures. NANR will be asked to update the preventative maintenance plan and further define recordkeeping parameters for the treatment system.

FGRICEENG:

The following is a summary of facility engines:

Engine Slot	Type	Serial #	Rating	Manufacture Date	Installed under PTI/Rule	Total Operating Hours	NSPS JJJJ	MACT ZZZZ	comment
Engine 1	Caterpillar G3516	ZBA00709	900 kW (1148 hp)	2007	45-17A	~73,299	N	Y	a non-resettable hours meter is installed
Engine 2	Caterpillar G3520C	GZJ00282	1600 kW (2233 hp)	2007	45-17A	~83,431	N	Y	a non-resettable hours meter is installed

The company began full production in September 4, 2018.

The NANR electric generating plant is permitted under PTI No. 45-17A for one Caterpillar 3516LE and one Caterpillar 3520C internal combustion engine used to generate electricity from burning landfill gas. The 3516LE engine has a capacity of 1,148 brake-horsepower and the 3520C engine has a capacity of 2,242 brake-horsepower. A permit for an additional 3520 engine is pending and a construction waiver has been approved. The engines generally operate 24 hours per day, 7 days per week, however whether a particular engine is running is dependent on the amount of gas that the landfill is generated from the landfill. Both engines were operating at the time of the inspection with a total gas fuel flow rate around 873 cfm.

NANR monitors on a continuous basis, many parameters for engine operation including gas flow rate from the main header, gas flow rate into the engines, gas quality, electricity production, and hours of operation. Each engine can process approximately 400 to 500 cubic feet of landfill gas per minute. At the time of the inspection, the following parameters were noted:

Parameter	Total for Both Engines
Methane %	52.4%
O2 %	0.1%
Flow	873 scfm
Kilowatt Output	2,515 kw

Records are maintained on-site in accordance with PTI No. 45-17A and in accordance with the preventative maintenance plan. A daily record sheet is used to record various engine and treatment system parameters.

The following table is a summary of emission and material limits. Records for the period from September 2018 through July 2019 are attached.

Equipment	Parameter	Emissions	Limit	Stack test Date	Compliance	Comments
EUENGINE1	CO	10.0 pph	20.9 pph	9/2018	Yes	
	NOx	2.73 pph	9.9 pph	9/2018	Yes	
	SOx	3.6 pph	5.78 pph	9/2018	limit changed	
	Formaldehyde	1.62 pph	2.1 pph	9/2018		
EUENGINE2	CO	2.99 pph	7.9 pph	9/2018	Yes	
	NOx	0.75 pph	5.1 pph	9/2018	Yes	
	SO2	1.90 pph	3.32 pph	9/2018	Yes	
	Formaldehyde	0.53 pph	0.71 pph	9/2018	Yes	

FGRICEENG	SO2	11.2 MMcf/year	39.9 tpy (12-month rolling)	NA	Yes	Only 11 months since startup
	Landfill gas usage	302.0 MMcf/year	480 MMcf/year (12-month rolling)	NA	Yes	Only 11 months since startup

NANR has been verifying the hydrogen sulfide (H2S) content of the gas using Draegar Tubes in accordance with the permit. Draeger tube results indicate H2S concentrations have not exceeded 800 ppm in the past twelve months and H2S concentrations have actually been decreasing over time. AQD staff observed spent Draeger tubes which are kept on site. It is noted that a permit modification was obtained in April 2019 due to high sulfur concentrations.

The company conducts appropriate engine maintenance in accordance with a malfunction abatement/preventative maintenance plan. All engine maintenance activities are maintained in a logbook located on site which was reviewed by staff. There were no apparent issues identified with the engine maintenance records.

No visible emissions were observed during the site visit and all stack heights appeared to meet the permitted dimensions.

EVALUATION SUMMARY

NANR appears to be in compliance with all applicable requirements. Records obtained during the inspection including maintenance and engine operating records are attached.

NAME _____ DATE 9/20/19 SUPERVISOR _____