

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

N599637790

FACILITY: Granger Grand River Avenue Landfill		SRN / ID: N5996
LOCATION: 8550 W. Grand River Avenue, GRAND LEDGE		DISTRICT: Lansing
CITY: GRAND LEDGE		COUNTY: CLINTON
CONTACT: Kimberly Smelker, PE , Operations Manager		ACTIVITY DATE: 12/01/2016
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled, announced compliance inspection to determine compliance with MI-ROP-N5996-2013.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow

Personnel Present: Craig Lehnert ([clehnert@grangernet.com](mailto:clehnert@grangernet.com)), Plant Operator for Granger Electric

Other Relevant Personnel:

Dan Zimmerman ([dzimmerman@grangernet.com](mailto:dzimmerman@grangernet.com)), Compliance & Safety Manager

Kim Smelker ([ksmelker@grangernet.com](mailto:ksmelker@grangernet.com)), Operations Manager

Todd Davlin ([tdavlin@grangernet.com](mailto:tdavlin@grangernet.com)), Director of Granger Energy Services Operations

**Purpose:** Conduct an announced, scheduled, partial compliance evaluation (PCE) inspection by determining compliance with Granger Grand River Avenue Landfill's ROP, MI-ROP-N5996-2013. This activity was done as part of a full compliance evaluation (FCE).

**Facility Background/Regulatory Overview:** The Granger Grand River Landfill is a municipal solid waste landfill with an associated gas-to-energy plant, both located in Grand Ledge, Clinton County, ½ mile south of I-96. The primary activity of this source is accepting municipal solid waste, consisting mostly of commercial waste materials, specifically asbestos-containing materials (ACM), which are subject to the NESHAP for asbestos, 40 CFR, Part 61, Subpart M. They also accept fly ash and contaminated soils occasionally, and will take large construction waste jobs when necessary. Their most recent job was receiving waste from the demolition of a Days Inn at the corner of Canal Rd and Saginaw Highway in Delta Township.

The landfill itself was installed November 6, 1981, making it subject to 40 CFR Part 62, Subpart GGG, as it has not been reconstructed or modified since before May 30, 1991. There are currently new New Source Performance Standards for landfills established by the EPA: NSPS Subpart XXX and NSPS Subpart Cf. NSPS Subpart XXX is for those landfills that have accepted waste after November 8, 1987 and did not commence construction, reconstruction, or modification after July 17, 2014; the Granger Grand River site has not constructed, modified or reconstructed after July 17, 2014 and is therefore subject to the new NSPS Subpart Cf guideline (40 CFR Part 62, Subpart GGG will remain in place as a regulation until the AQD incorporates the NSPS Subpart Cf into its SIP). Under the new NSPS guidelines, the nonmethane organic compounds (NMOCs) emission rate threshold is 34 Mg/year (compared to the 50 Mg previous threshold) for installing a gas collection and control system (GCCS). Per the 5/25/2016 Tier II NMOC test report, Granger Grand River is currently at 25.45 Mg/year as of 2015. The current design capacity is 7.4 million Mg.

Although the Granger Grand River Landfill has an uncontrolled emission rate below the 34 Mg NMOC per year threshold, an active landfill gas collection and control system (GCCS) has been installed to collect the landfill gas. The collection system includes a series of gas wells, a network of collection piping and headers, condensate drains and an open 1362 scfm, "candlestick" flare, which according to D. Zimmerman, does not emit, or emits negligible amounts of formaldehyde.

The Granger gas-to-energy plant has three G3516 engines that are subject to the reciprocating internal combustion engine (RICE) MACT Standard 40 CFR Part 63, Subpart ZZZZ, and have 3 associated exhaust stacks.

There is one candlestick flare used to flare off any methane gas that cannot be utilized to produce energy in the electric plant.

**Inspection:** At approximately 7:30 a.m. on December 1, 2016 I met with Craig Lehnert, the Plant Operator for Granger Electric Grand River, at the landfill, for an announced, scheduled compliance inspection. After the visit to the landfill I met with K. Smelker at the Granger Wood Street office for discussion of landfill compliance.

#### FGICE

The current ROP contains 5 G3516 RICEs; all are 4 stroke lean burn, greater than 500 hp, non-emergency, spark ignition engines at a major source of HAPs, and were constructed on or before December 19, 2002. As of 8/19/2015 there are no requirements currently under the RICE MACT Subpart ZZZZ for these engines. Although 5 engines are listed in the ROP, there are only 3 engines currently installed at the plant. C. Lehnert said that EUICE2 was removed for maintenance in 2012 but it was never brought back because it wasn't needed (not enough methane production; K. Smelker said engines need at

least 300 scfm to run optimally). Additionally, EUICE4 had a top-end (all heads replaced) on September 22, 2016 before it was removed in early October 2016, and C. Lehnert said, was then sent to Citizen's Landfill in Grand Blanc. He said that they won't replace EUICE4 unless the landfill produces more methane.

The following table lists all engines, which are specifically designed for biogas combustion (per D. Zimmerman) at the Grand River facility. The serial numbers, manufacture dates and date online were provided by C. Lehnert. All serial numbers were verified.

Table 1. Engine Summary

Engine	Serial No.	Manufacture Date	Date Online	Operating power on 12/1/2016	Comments
1	3RC00275	10/15/1990	8/2/2013	593 kW	The engine with serial no. 3RC00274 that was online 4/10/1991 and manufactured 11/15/1990 was swapped out for engine serial no. 3RC00275 on 6/1/2013. 3RC00274 was gone/being repaired during the 2013 inspection at Granger's shop on Wood Street in Lansing.
2	3RC00182	5/31/1989	4/10/1991	NA	Gone since 2012
3	4EK00132	12/16/1993	3/01/1994	663 kW	
4	4EK00437	2/14/1995	1/1/1996	NA	Gone since 10/2016
5	4EK00479	4/18/1995	9/23/1997	700 kW	

D. Zimmerman explained to me during the 2013 inspection that "top-ends" are considered routine maintenance, such as replacing spark plugs, changing the oil, or replacing the turbos and heads. He explained that "major overhauls" occur after so many hours of operation and involve replacing pistons, the drive shaft, resurfacing and cleaning the block, etc., which are all contained within the block. He said that the serial numbers stay the same, it's the same unit; the block stays the same. He said that the reason why they take the engines out for major overhauls is because they don't have the ability to perform the overhauls onsite.

K. Smelker and D. Zimmerman said the engines have to operate at a minimum of at least 65% of their rated capacity; otherwise, unnecessary wear and tear is being put on the engine. They also mentioned that the O<sub>2</sub> content of the gas must be kept at a bare minimum: the engines bring in their own oxygen, and additional oxygen could cause the engines to shut down. The same goes for a sudden drastic increase (10%) in methane content. C. Lehnert said that if the O<sub>2</sub>% reaches 4%, the plant will shut down and that anything close to 1% is not good for engine operation. During the 2015 inspection, it was noted that the 4 engines were not operating any lower than 800 kW (maximum rated output is 800 kW each). During this inspection, it was noted (see Table 1) that the engines were operating at a lower power output than what is routine, but none were operating lower than 74% of their rated capacity.

I looked at the meters/controller displaying the % methane and % O<sub>2</sub> in the landfill gas being delivered to the engines. The following table is a historical comparison of these parameters, including the snapshot taken during this inspection:

Table 2. Incoming gas parameters

Date	Mainline fuel temperature (° F)	Mainline fuel pressure (psi)	Mainline fuel flow (scfm)	Mainline fuel methane (%)	Mainline fuel oxygen (%)
12/1/2016	75	6.7	730	52.4	0.47
7/27/15	NA	NA	NA	54.3	0.44
1/17/2013	87	6.5	923	55.9	0.33
12/6/2011	91	6.5	1138	55.7	0.13

11/30/2010	86	6.3	1205	52.6	0.21
11/24/2009	84	6.3	937	52.9	0.22

The variability that is seen in the methane and oxygen contents is common because of fluctuations in the landfill gas production itself.

There were no visible emissions from any of the engines' exhaust stacks. The flare was not operating during the inspection, and C. Lehnert said it has not operated the entirety of 2016.

According to the ROP 2013 Staff Report, Granger possesses a Generac gasoline-fired generator (EUGENERATOR) that is exempt per Rule 285(g). This unit was not located at the Grand River site during the inspection. D. Zimmerman said that the generator is used to produce backup power for the office. K. Smelker said that it is a portable generator that is used occasionally at Grand River when the landfill staff need to fix or install something that is not near a power source.

**EULANDFILL**

K. Smelker said that the Grand River Avenue Landfill only accepts waste by appointment, and on average have 6 customers per week, compared to the ~300 trucks per day received at Granger Wood St. She also said that they predominantly accept asbestos waste, especially asbestos waste that was originally targeted to be landfilled at the Granger Wood Street location. As of 2014 all asbestos waste for both Granger Wood Street and Granger Grand River are being taken to Granger Grand River. She explained that by not taking in asbestos at the Wood Street location, there will not be a need to dig asbestos trenches, thus reducing the potential of odors from opening up the landfill. This was proactive on Granger's part because of the prevailing odor issues Wood Street has been having over the past few years.

Granger Grand River must keep records of the current amount of solid waste in place and the year-by-year waste acceptance rate and make them available upon request. Ash/Contaminated soil within the open landfill is considered inert and not part of the combined landfill totals; the current ash/contaminated soil total is 1,345,193 Mg compared to the total inert waste in the open landfill last year: 1,337,584 Mg. The total amount of waste in place for the open section of the landfill through 2015 is 6,076,474 Mg. K. Smelker provided me with a link to the DEQ Granger Grand River Landfill Annual Landfill Reports which show how much waste is accepted on an annual basis in yd<sup>3</sup> (from October 1 through September 30) (attached, [http://www.deq.state.mi.us/wdspi/SolidWaste/AnnualLandfillReports.aspx?w=397449&cti00\\_Body\\_ReportList=0\\*0\\*1\\*0](http://www.deq.state.mi.us/wdspi/SolidWaste/AnnualLandfillReports.aspx?w=397449&cti00_Body_ReportList=0*0*1*0)) She also provided me with year-by-year waste accepted in Mg, also attached, seen in Table 3.

Table 3. Year-by-Year Waste Acceptance Rates (Oct 1 – Sept 31)

Year	Waste Accepted (Mg)	Ash/Contam. Soil (Mg)
2012	51,774	119,574
2013	12,304	10,842
2014	923	9,390
2015	5,823	7,609

Windmills are located in the "valley" of the landfill. K. Smelker said these are used to pump the landfill's leachate. She said leachate, in moderation, assists in the methanogens' productivity.

**EUASBESTOS**

Rather than comply with the requirement to ensure that there be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, Granger has chosen to comply with the option of covering the asbestos-containing material with at least 6 inches of non-asbestos-containing material. K. Smelker said Granger is currently covering the waste with at least 6 inches of earthen material (clean soil from their site or from outside sources), and it is applied at the end of the work day. K. Smelker said they are approved to use an alternative cover material, but don't.

Granger is required to maintain waste shipment records that include water generator and transporter information, the quantity of ACM in cubic yards, and the date of receipt. Waste shipment records are kept at the Granger Wood Rd Landfill office. K. Smelker said during the 2013 inspection that any load with asbestos that enters the facility has to have a manifest. The manifest includes the name, address and telephone number of the waste generator; the name address and telephone number of the transporter; the date the ACM was shipped; the quantity of ACM in the shipment in cubic yards (it is recorded as "yards" but K. Smelker said this represents cubic yards); and the date of receipt. She explained that companies call to make an appointment to bring in the asbestos loads and an onsite employee, Fred, is responsible for ensuring the asbestos is contained properly. The trucks will then dump directly into the asbestos trench.

Granger is also required to maintain records of the location, depth and area, and quantity in cubic yards of ACM within the disposal site on a map or diagram. K. Smelker provided me a diagram of the ACM within their landfill. This includes the location, depth and area of the ACM, as well as the quantity of ACM in cubic yards. The dimensions of the trenches, according to K. Smelker, are typically 25' x 34'. She said the last time Grand River accepted asbestos waste was October 7 2016 and the attached diagram represents the disposal of this ACM. Granger Grand River is currently in compliance with the asbestos monitoring/recordkeeping requirements at this time.

#### VII. Reporting

Granger is required to notify the AQD at least 45 days prior to excavating or disturbing any of its ACM waste. K. Smelker said per company policy, all identified ACM is located within a trench or specified area, surveyed, and recorded electronically. These trenches are never drilled through. She said they strategically place the asbestos areas to limit the areas of the landfill that are off-limits to gas collection.

At this time Granger Grand River Landfill is in compliance with MI-ROP-N5996-2013.

NAME Michelle M. Sporn DATE 1-11-17 SUPERVISOR R. M.