

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

N599630646

<b>FACILITY:</b> Granger Grand River Avenue Landfill		<b>SRN / ID:</b> N5996
<b>LOCATION:</b> 8550 W. Grand River Avenue, GRAND LEDGE		<b>DISTRICT:</b> Lansing
<b>CITY:</b> GRAND LEDGE		<b>COUNTY:</b> CLINTON
<b>CONTACT:</b> Dan Zimmerman , Compliance & Safety Manager		<b>ACTIVITY DATE:</b> 07/27/2015
<b>STAFF:</b> Michelle Luplow	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> Announced, scheduled compliance inspection.		
<b>RESOLVED COMPLAINTS:</b>		

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

**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. This site also accepts asbestos-containing materials (ACM) and is subject to the NESHAP for asbestos, 40 CFR, Part 61, Subpart M. 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. This site generates less than 50 Mg of nonmethane organic compounds (NMOCs) and currently has a design capacity of 8,163,393 Mg.

Although the Granger Grand River Landfill has an uncontrolled emission rate below the 50 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 four G3516 engines that are subject to the reciprocating internal combustion engine (RICE) MACT Standard 40 CFR Part 63, Subpart ZZZZ, and have 4 associated exhaust stacks.

**Inspection:** At approximately 7:45 a.m. on July 27, 2015 I met with Craig Lehnert, the Plant Operator for Granger Electric. A copy of the DEQ "Environmental Inspections: Rights and Responsibilities" brochure was provided during the 2013 inspection to K. Smelker and D. Zimmerman.

**FGICE**

According to the ROP, Granger Grand River Landfill operates 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 4 engines at the plant. C. Lehnert said that one of the engines was removed for maintenance but it was never brought back because it wasn't needed (not enough methane production).

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	Serial No.	Manufacture Date	Date Online	Operating power on 7/27/15	Comments
1	3RC00275	10/15/1990	8/2/2013	830 kW	The engine with serial no. 3RC00274 that was online 4/10/1991 and manufactured 11/15/1990 was swapped out for the current engine with 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	Engine has been gone since 2012, per C. Lehnert
3	4EK00132	12/16/1993	3/01/1994	830 kW	
4	4EK00437	2/14/1995	1/1/1996	Not operating	Not operating because not enough landfill gas to run. K. Smelker said, during 2013 inspection that engines need at least 300 scfm to operate optimally.
5	4EK00479	4/18/1995	9/23/1997	830 kW	

As decided in the Landfill Gas-to-Energy Stakeholder Workgroup Final Report Draft (12/9/2014), engines that are like-for-like swapped out are exempt from obtaining a PTI per Rule 285(a)(vi) if the company maintains emissions calculations, stack test data or other information which demonstrates that emissions do not exceed the thresholds in Rule 278, as well as, at a minimum, the following records are kept:

- engine manufacturer
- model
- model year
- date of manufacture
- maximum engine power and displacement
- engine family
- serial number
- engine type (rich burn or lean burn)
- date of initial startup
- date engine was removed from service at the stationary source

The swap-out for engine 1 occurred in 2013, prior to the stakeholder workgroup decision, thus the exemption demonstration will not be necessary at this time. All future swap-outs, however, will be held to the 278 demonstration and the recordkeeping mentioned above.

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 also 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.

I looked at the meters/controller displaying the % methane and % O<sub>2</sub> in the landfill gas being delivered to the engines. The snapshot reading of the landfill gas content coming into the engines through a mainline was 54.3% methane and 0.44% O<sub>2</sub>. The following table is a historical comparison of these parameters:

Table 2.

Date	Mainline fuel temperature (° F)	Mainline fuel pressure (psi)	Mainline fuel flow (scfm)	Mainline fuel methane (%)	Mainline fuel oxygen (%)
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.

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*

C. Lehnert said that the Grand River Avenue Landfill is closed and that it only accepts waste by appointment. Jim Arduin of DEQ OWMRP said that Grand River has not accepted C & D (Construction & Demolition) waste for quite some time. K. Smelker said that they currently accept small amounts of waste every day. All other previously accepted waste, including accepting waste directly from individuals, will be transferred to the Wood Street Landfill.

As of February 2012, the Tier 2 NMOC rate is 11.5 Mg/year, according to the Tier 2 NMOC Emission Rate Calculations submitted to the AQD on February 29, 2012. The 2011 concentration of NMOC was 70.39 ppm-v, which was used in the NMOC rate calculation. Tier 2 testing is required to be conducted every 5 years at a minimum.

According to Granger Grand River Avenue Landfill's ROP, MI-ROP-N5996-2013, they 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. K. Smelker said the total combined waste of both Grand River Landfill's closed landfill and open landfill is 7,408,235 Mg compared to the total waste in place last year: 7,329,736 Mg. 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 1,337,584 Mg compared to the total inert waste in the open landfill last year: 1,106,893 Mg. The total amount of waste in place for the open section of the landfill is 4,871,148 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/wdsp/SolidWaste/AnnualLandfillReports.aspx?w=397449&ct=100\\_Body\\_ReportList=0\\*0\\*1\\*0](http://www.deq.state.mi.us/wdsp/SolidWaste/AnnualLandfillReports.aspx?w=397449&ct=100_Body_ReportList=0*0*1*0)) She also provided me with year-by-year waste accepted from 2013 and 2014 in units of Mg. These numbers include recyclables which she said accounts for approximately 1000 yd or less, which she deemed as insignificantly contributing to the total annual waste accepted.

Table 3.

Year	Waste Accepted (Mg) Oct 1 – Sept 31
2012	5,919
2013	33,777
2014	112,022

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*

ROP No. MI-ROP-N5996-2013 has Emission Unit Conditions for EU-ASBESTOS. The following is a check of compliance with the EUASBESTOS conditions:

##### III. Process/Operational Restrictions

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 earthen material (clean soil from their site or from outside sources) in most areas and a mix of earthen material with chipped wood in a smaller area.

Warning signs are not required to be used at this site because the asbestos is covered at the end of every day. K. Smelker said the trench itself is not filled in until it is full or if odors emitting from the trench are unacceptable. K. Smelker said the trenches can be open up to a month before being filled to ground level.

##### VI. Monitoring/Recordkeeping

Granger is required to maintain waste shipment records that include waste 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.

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 included 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 July 28, 2015; the diagram represents the disposal of the July 28, 2015 ACM received. 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 that in 2014 12 vertical wells were drilled but that per company policy, all identified ACM is located within a trench or specified area, surveyed, and recorded electronically. These trenches, according to K. Smelker, will not and have not been drilled through. She said they strategically place the asbestos areas to limit the areas of the landfill that are off-limits to gas collection.

**EXEMPT EMISSION UNITS**

The following are exempt emission units which K. Smelker has identified are onsite and which are included in the MI-ROP-N5996-2013 ROP Staff Report dated 2/11/13. I did not look at these units during the inspection.

Exempt Emission Unit ID	Description of Exempt Emission Unit	Rule 212(4) Exemption	Rule 201 Exemption
EUPROPHEAT	Two propane space heaters served by two 500 gallon propane tanks located at the maintenance barn and air stripper building.	212(4)(b)	282(b)(i)
EUPORTCOMP	One 150 psi Sullair portable air compressor	212(4)(d)	285(g)
EUCOMPRESSOR	One 5 HP Polar Air 18 cfm 60 gallon air compressor	212(4)(d)	285(g)
EUUNLEADGAS	One 275 gallon unleaded gasoline tank AST	212(4)(c)	284(g)

At this time Granger Grand River Landfill is in compliance with all state and federal regulations.

NAME Michelle Lupton DATE 8-28-15 SUPERVISOR B. M.