

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

N599733954

FACILITY: Granger Wood Street Landfill		SRN / ID: N5997
LOCATION: 16980 Wood Road, LANSING		DISTRICT: Lansing
CITY: LANSING		COUNTY: CLINTON
CONTACT: Kimberly Smelker , Operations Manager		ACTIVITY DATE: 03/29/2016
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled PCE as part of an FCE to determine compliance with the Granger Wood St MI-ROP-N5997-2013 ROP.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow

Personnel Present (Granger Wood St Landfill):

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

Personnel Present (Granger Electric):

James Alexander  
Kim Smelker

Other Pertinent Personnel:

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

**Purpose:** Conduct an unannounced, scheduled, partial compliance evaluation (PCE) inspection of the Granger Wood Street Landfill and Granger Generating Station. Compliance was determined using Granger Wood Street's ROP, MI-ROP-N5997-2013. This activity was done as part of a full compliance evaluation (FCE).

**Facility Background/Regulatory Overview:** The Granger Wood Street Landfill is a municipal solid waste landfill with an associated gas-to-energy plant that is also operated by Granger. The primary activity of this source is accepting municipal solid waste, consisting mostly of residential and commercial waste materials, with occasional receipt of municipal solid sludge. 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 July 16, 1984, which initially made the landfill subject to 40 CFR 62 Subpart GGG, as it commenced construction before May 30, 1991. The landfill then received an expansion permit from the Office of Waste Management and Radiological Protection (OWMRP) after May 30, 1991, thus making the landfill subject to 40 CFR Part 60, Subpart WWW.

Kim Smelker said that Granger has deodorizing misters surrounding the perimeter of the landfill to control landfill odors and that they are spraying the deodorizer on the landfill throughout the night. In order to accommodate the operation of the misters overnight, K. Smelker said they've replaced the barrels of deodorizer with larger totes of deodorizer. They've been using the misters throughout the night for at least the past 2 winters she said. A portable diesel generator is used to operate the pump for spraying the mist deodorizer. K. Smelker said it is rated at 34,000 btu/hr. This engine is therefore exempt from a permit to install under Rule 285(g) for engines less than 10 MMbtu/hr.

There is a new NSPS EPA ruling for landfills that is currently on the path of being finalized. The comment period for this ruling ended 10/26/15. The new NSPS Subpart XXX will apply to all landfills that are modified, new, or reconstructed after July 17, 2014. For all other landfills, there is a proposed Emission Guideline (EG) NSPS Subpart Cf that applies to landfills accepting waste between November 8, 1987 and constructed, modified or new before July 17, 2015. These two regulations will replace NSPS Subpart WWW and NSPS Subpart Cc. The regulations are expected to be finalized in July 2016 and effective in August 2016.

Granger's four G3516 engines, EUICE1-4 (engines 1-4) of FGICE, although subject to the (RICE) MACT Standard 40 CFR Part 63, Subparts A and ZZZZ, have no requirements at this time. The 3 G3520 engines, EUICEENGINE1-3 (engines 5-6) of FGICEENGINES, are subject to the NSPS 40 CFR 60 Subpart JJJJ.

Both engine flexible groups contain formaldehyde emission limits. The current testing language in both flexible groups states that testing for formaldehyde on at least one of the engines in each flexible group is required within 180 days after the ROP is issued. This language was pulled directly from a PTI; however, the Lansing District Office (LDO) AQD acknowledges that this is not the typical language we would insert as a requirement for formaldehyde emissions testing in an ROP. Typically the AQD would, instead, include a testing condition that requires formaldehyde testing be conducted at least once per permitting cycle. Granger has not conducted formaldehyde testing according to the 180 day requirement; however, the LDO AQD has made the determination to allow Granger to test at least one engine from FGICE and at least one engine from

FGICEENGINES before the expiration date of their current ROP, May 2, 2018. Failure to conduct this testing prior to the end of this 5-year permitting cycle may result in a violation notice being issued.

**Inspection:** At approximately 1:00 p.m. on March 29, 2016 I met with Kim Smelker at the Wood St Landfill office for an unannounced, scheduled inspection of the landfill and electric plant. I offered K. Smelker a "DEQ Environmental Inspections: Rights and Responsibilities" brochure, which she declined because Granger has one already. I also provided her with the Boiler MACT brochure describing the Boiler MACT decision tool. Prior to arriving at the site, I did a quick odor survey of the areas south, east and north of the landfill, as complaints of landfill odors have been consistent over the past year or two and which OWMRP has managed. I detected no odors during the survey.

### EULANDFILL<50

Granger has a gas collection and control system that routes all collected landfill gas to the gas treatment system and subsequently to the Granger engines which burn the gas for electricity production, although at this time they are not required to install gas collection and control because their NMOC emission rates are less than 50 Mg per year. A flare is used to burn excess gas when there is more gas than the generators can burn at any given time.

### Testing/Sampling

Granger uses Tier II testing to determine NMOC emission rates. The most recent NMOC report was received March 7, 2016. Granger reported an NMOC emission rate of 21.97 Mg for 2015, using an emission factor that was created based on gas sample collection that occurred in July 2011. Granger is required to test NMOC every 5 years using Tier 2 testing. Granger will be required to test again this year, 2016.

### Monitoring/Recordkeeping

Condition 2 requires that records of the current amount of solid waste in place and the year-by-year waste acceptance rate be kept onsite. The year-by-year acceptance rates are reported to OWMRP under the WDS database. These records are accessible to the public. The following link is for OWMRP's Annual Report year-by-year waste acceptance rate: <http://www.deq.state.mi.us/wdsp/SolidWaste/AnnualLandfillReports.aspx?w=470523>. Wood St's Facility number is 470523. The acceptance rate for 2015 was 1,525,275 yd<sup>3</sup>. The current amount of solid waste in place is 9,352,890 Mg, according to K. Smelker.

### Reporting

All reports (semi-annual and annual) were submitted timely since the 2014 inspection. Granger is in compliance with all reporting requirements for EULANDFILL at this time.

### EUASBESTOS

K. Smelker said that asbestos-containing material (ACM) is deposited into trenches at the landfill and that the majority of non-friable ACM is also deposited into the ACM trenches. She said they also will put dusty materials (saw dust, for example) into the trenches to prevent fugitive dust issues.

### Process/Operational Restrictions

Instead of ensuring that there are no visible emissions from the asbestos active disposal site, Granger has chosen the option to cover the ACM at the end of each operating day. The type of cover they use depends on the weather. K. Smelker said that they use 4-6" of dirt to cover the materials in the pit if there is rain or high winds. They will also use dirt on Saturdays. The other cover, which they had approved by MDEQ OWMRP, is a paper mache/newspaper substance that contains tackifier. This material is sprayed on during all days when there are no high winds or rain.

### Design/Equipment Parameters

All ACM trenches are excluded from gas collection. K. Smelker explained that the trenches are lined up in lines and on top of each other. They will not dig through these areas to add gas collectors (horizontal/verticals); therefore, gas collection is not occurring throughout these areas. She said that they also keep a perimeter surrounding the trenches of about 20' of waste to segregate the trenches from the rest of the landfill. Because they exclude the trenches from collection they are required by the NSPS to keep a map of the nature, date of deposition, location and amount of asbestos deposited in the area. This is also required by the Subpart M NESHAP and is part of Granger's responsibility for recordkeeping purposes. K. Smelker provided me with a copy of the map containing the most recent deposition of ACM (attached). The diagram includes the depth of the trench ("Top of Trench"- "Bottom of Trench"), the date of deposition (3/9/16), the location (northing and easting coordinates), and the quantity (180 yd<sup>3</sup>).

### Monitoring/Recordkeeping

Granger is required to keep waste shipment records containing the name, address, and phone number of the waste generator, transporter(s) and the quantity of asbestos-containing waste material in cubic yards. Tim Krause provided me with the 2 most recent waste manifests: 3/24/16 and 3/28/16. Both were labeled as non-friable ACM. The 3/28/16 manifest was specifically for piping and plastic pipe which may have contained ACM, the 3/24/16 manifest was for asbestos tile. The manifest contains the name, address and phone number of the waste generator, the transporter, the quantity of ACM in cubic yards and the date of receipt. K. Smelker said that the majority of the time Granger is the transporter and they have been trained to handle asbestos appropriately. They ensure that all bags are sealed prior to transportation. She also said that Granger has cameras set up at each of the gates to view what is in each of the loads entering the landfill. If the ACM quantity reported in the waste manifest does not appear to match the quantity of ACM in the manifest, they turn the trucks away. All

transporters take the ACM waste directly to the ACM trench upon entering Granger.

K. Smelker said the green copy of the signed waste manifests are sent back to the ACM generators at least once per month. The ROP requires that these be returned to the generator within 30 days of receipt.

Reporting

Granger is required to notify AQD at least 45 prior to excavating or disturbing ACM in the landfill. Currently Granger does not excavate or disturb their ACM waste and therefore does not need to notify AQD.

FGICEENGINES – EUICEENGINE1-3

The 3 engines represented in this flexible group are 3520C engines (Granger's ID Engines 5-7) rated at 1600 kW and 2233 BHP at 100% load.

There have been several swaps/replacements conducted for FGICEENGINES within the past year. J. Alexander explained that EUICEENGINE2-S1 (Engine 6) is an entirely new engine that replaced the existing engine that was stack tested last year (2015). The engine currently in EUICEENGINE3-S1 (Engine 7)'s spot is the old EUICEENGINE1-S1 (old engine 5). The engine that is currently in old engine 5's spot is a swapped engine from another plant.

Dan Zimmerman will be providing me with a Rule 278/285(a)(vi) exemption demonstration by May 1, 2016 for the installation of the 3 engines. The demonstration will include a description of where each engine in engines spots 5-7 came from, which ones had overhauls conducted on them prior to being installed at Granger Wood St, and the manufacture dates of the 3 previously installed engines at the site. The demonstration will also include all installation dates (including the day and the month of installation); a demonstration of whether the activity results in an increase of actual emissions greater than significance as mentioned in Rule 278; and the model type; max engine power and displacement; the engine family and engine type for each engine. I will provide documentation under a separate cover for this demonstration in MACES.

In order to use the 285(a)(vi) exemption for routine replacement of engines, facilities must include the swapping and replacement of engines as part of their Preventative Maintenance Plan. By conducting routine overhauls and maintenance on these engines Granger is able to ensure that the engines are meeting their permitted emission limits for NOx, CO, and VOC. D. Zimmerman updated Granger Wood St's MAP/PMP to include a paragraph explaining that engines due for major overhauls are swapped out with other engines. The replacement engine will have a different serial number and/or manufacture date. It is also possible that the engine that was previously removed for overhaul will be placed back in its original spot. Swapping engines in this manner is an industry standard for maintaining the engines. A copy of the MAP/PMP is attached.

Granger also has plans for expansion within the next year to add an additional engine. J. Alexander said that currently the gas plant's associated flare runs on and off but that there should be enough gas production to fuel an additional engine.

The following table lists some of the engine specifications and operating parameters recorded during the inspection. The operational data indicates maximum routine conditions for each of the engines.

	Total Plant	Engine 5	Engine 6	Engine 7
Serial Number		GZJ00429	GZJ00692	GZJ00388
Manufacture Date		2/17/2010	11/22/2014	4/7/2008
Installation Date		2015	2016	2015
Kilowatts (kW)		1500	1660	1610
Flow rate (lb/hr)		2060	2283	2216
CH4% (total entering the plant for engines 1-4)	55.6			
O2% (total entering the plant for engines 1-4)	0.27			

Emission Limits

Stack tests were conducted on Engines 5-7 on March 21, 2016 for NO<sub>x</sub>, CO, and VOC emission rates. Results will be reviewed, checked for compliance, and recorded in MACES when the stack test report is received from Derenzo, who conducted the testing.

Material Limits

Engines 5-7 have a collective landfill gas throughput limit of 848.82 MMscf/year. During the stack test in March, Dan Zimmerman pointed out that their CAT ET data logger computer program for continuous monitoring of the landfill gas flow rate/monitoring of the engines' functions now records the flow rate in lb/hr instead of scfm. This logger system is separate from the flow meters and PLC which record flow for compliance purposes. D. Zimmerman provided me with the 12-month rolling landfill gas usage for Engines 5-7 combined (see attached). The total 12-month rolling usage from March 2015 – February 2016 was 742.95 MMscf. Granger Wood St is in compliance with their material limits at this time.

#### Process/Operational Restrictions

The air:fuel ratio for each engine is automatically adjusted by each engine depending on the quality of the gas coming into the plant. During the inspection all 3 engines were operating at their maximum design output.

#### Testing/Sampling

Granger Wood St was required, per the ROP, to conduct formaldehyde emission rate testing on at least one of the engines in FGICE within 180 days after issuance of the permit. This condition was rolled into the ROP directly from PTI 357-07A issued in August 2012. Granger tested the formaldehyde emissions in September 2012, which fell within the 180 day time period required in the PTI to test at least one of the 3520C engines. Granger was in compliance with their formaldehyde emissions at that time. Typically the requirement to test formaldehyde emissions is not written in this way for ROP's, and AQD would require testing to be done within each ROP renewal cycle. Granger Wood St.'s ROP expires May 2, 2018. Although the ROP states testing should be done w/in 180 days of permit issuance (ROP issuance) AQD would like to remain consistent and allow testing to be done within the 5-year renewal cycle. That said, Granger Wood St. has until May 2, 2018 to test formaldehyde emissions from at least one of their engines in FGICE. Failure to do so within this time period will result in a violation notice being issued. I have notified Dan Zimmerman of this requirement.

#### Monitoring/Recordkeeping

All maintenance activities conducted according to the MAP/PMP are required to be recorded. D. Zimmerman provided me with ~1.5 months of maintenance logs (2/19/16 – 4/2/16) which show both preventative and downtime maintenance for all 3 engines. Granger is in compliance with this requirement at this time.

The kilowatt output is required to be recorded a minimum of once per day, excluding holidays and weekends. I requested 2 weeks of records (3/15/16 – 3/31/16) of kW output for Engines 5, 6, and 7, which D. Zimmerman provided. Attached is the first page of this data as an example. The data is logged approximately every 10 minutes. Kilowatt output for the 3 engines stays within 1400+ to 1600+ kW, which is within the range the engines run at during stack tests, demonstration routine operating conditions.

A record of the monthly and 12-month rolling hours of operation from each engine is also required. Granger keeps track of operation hours per engine within the same spreadsheet that is used to record monthly and 12-month rolling landfill gas usage records. For engines 5, 6 and 7 the 12-month rolling hours were 8,440; 8,224; and 8,391 hours, respectively.

#### FGICE – EUICE1-4

The engines in FGICE are the four 3516 CAT engines subject to the RICE MACT ZZZZ. Granger has numbered these as Engines 1-4. Each engine is rated at 800 kW. The following table contains the operating status of each of the engines during the inspection. All engines were running at the time of the inspection. The flare was also running during the inspection; there were no signs of opacity.

	Total Plant	Engine 1	Engine 2	Engine 3	Engine 4
Serial Number		3RC000640	3RC00273	3RC00655	4EK00655
Operating hours		93416	85666	76400	Did not record
Kilowatts (kW)		850	820	900	840
Flow rate - scfm (total entering the plant for engines 1-4)	1267				
CH4% (total entering the plant for engines 1-4)	53.7				
O2% (total entering the plant for engines 1-4)	0.23				

#### Testing/Sampling

Granger Wood St was required, per the ROP, to conduct formaldehyde emission rate testing on at least one of the engines in FGICE within 180 days after issuance of the permit. This condition was rolled into the ROP directly from PTI 357-07A issued in August 2012. Granger tested the formaldehyde emissions in September 2012, which fell within the 180 day time period

required in the PTI to test at least one of the 3516 engines. Granger was in compliance with their formaldehyde emissions at that time. Typically the requirement to test formaldehyde emissions is not written in this way for ROP's, and AQD would require testing to be done within each ROP renewal cycle. Granger Wood St.'s ROP expires May 2, 2018. Although the ROP states testing should be done w/in 180 days of permit issuance (ROP issuance) AQD would like to remain consistent and allow testing to be done within the 5-year renewal cycle. That said, Granger Wood St. has until May 2, 2018 to test formaldehyde emissions from at least one of their engines in FGICE. Failure to do so within this time period will result in a violation notice being issued. I have notified Dan Zimmerman of this requirement.

The September 25-26, 2012 formaldehyde testing showed a result of 0.70 lb/hr of formaldehyde.

#### FGPAINTBOOTH

This FG is used for all coating exempt under Rule 287(c). Granger has 1 paint booth that they use to repaint roll-off trash canisters or to repaint garbage truck parts. K. Smelker said that their paint purchase order for the entire year, 2015, for the trash canisters was approximately 1000 gallons of coating minus water, and for the truck parts a total of no more than 4 gallons per month is used. K. Smelker provided me with the following table to show the break-down of coating minus water per month used for 2015. She said 2015 has been the biggest painting year.

Month	Gallons
January	101
February	101
March	51
April	52
May	52
June	52
July	152
August	104
September	59
October	66
November	57
December	65

Filters are also required to be installed properly. In the booth, there were 2-3 filters that did not completely cover the vents. I mentioned this to K. Smelker and that these must be installed properly in the future. Included on the paint booth recordkeeping sheet, K. Smelker has also included a smaller table that will be used to record filter change dates, as Granger was not entirely sure when the filters had last been replaced and conceded that the filters appeared not to have been changed in some time. Prior to this inspection Granger did not have a recordkeeping system in place.

#### FGNEWCOLDCLEANERS

Granger has 2 cold cleaners on their property in the maintenance shop where the garbage trucks are serviced. They are both approximately 1.5' x 3' for a total air:vapor interface of ~4.5 ft<sup>2</sup>. These cold cleaners are exempt from a PTI per exemption Rule 281(h).

#### Material Limits

Only up to 5% of various halogenated compounds are allowed in the cold cleaner solvent. K. Smelker said they only use mineral spirits in these units, which is 100% petroleum distillates according to the SDS that is attached; it does not contain any halogenated compounds.

#### Design/Equipment Parameters

Both cold cleaners had lids to cover the units when not in use; however, neither of them were closed. I informed K. Smelker that these must be closed at all times when they are not in use. She closed the lid on one of them; the other unit was being used intermittently by an employee.

#### Monitoring/Recordkeeping

Condition 3 requires that written operating procedures be maintained for each cold cleaner and located conspicuously near the cleaner. Both cold cleaners have operating procedures located on the inside of the lid.

NAME Melvin Spivey

DATE 5/27/16

SUPERVISOR B. M.