

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

N384534062

FACILITY: EAGLE VALLEY RECYCLE & DISPOSAL FACILITY		SRN / ID: N3845
LOCATION: 600 W. SILVER BELL RD., ORION TWP		DISTRICT: Southeast Michigan
CITY: ORION TWP		COUNTY: OAKLAND
CONTACT: Rich Paajanen , Engineering Manager		ACTIVITY DATE: 03/09/2016
STAFF: Rebecca Loftus	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

On March 9, 2016, I, Rebecca Loftus, Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an inspection of Eagle Valley Recycle and Disposal Facility (Eagle Valley), State Registration Number (SRN): M3845, located at 600 W. Silver Bell Road, in Orion Township, Michigan. The purpose of this inspection was to determine the facility's compliance with the Federal Clean Air Act, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act of 1994, PA 451, as amended, Michigan's Air Pollution Control Rules, and Renewable Operating Permit (ROP) No. MI-ROP-N3845-2015.

Upon arriving at the facility, I met with Mr. Rich Paajanen, Waste Management (WM) Engineering Manager. Below is a summary of my findings during my inspection and file review.

**Contacts**

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Jim Dunn, Power Plant Manager (Engines)  
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Bradly Brock, Gas Technician  
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Adam Stough, Gas Plant Manager/ Pipeline Operator  
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**Facility Overview**

Eagle Valley is a Type II Sanitary Landfill which accepts municipal solid waste and inert wastes such as construction and demolition debris, foundry sand, ash, and low level contaminated soils. Eagle Valley also accepts POTW sludge; this is mixed-in with other waste as it is landfilled. Presently, Eagle Valley does not accept friable asbestos wastes, but does accept non-friable asbestos material; this is also mixed-in with other waste as it is landfilled.

Eagle Valley, owns approximately 274 acres in total, of which 156 acres are dedicated to landfill activities and 45 acres are a wetland mitigation project/wildlife habitat. Eagle Valley has eleven constructed cells and on December 21, 2012 received a permitted expansion for another six cells covering 46.3 acres. The southern half of cell #12 was constructed in 2015 and the northern half is scheduled to be constructed this year (2016). Currently, the landfill is placing all waste in the southern half of cell #12; Eagle Valley started filling in cell #12 in November 2015. Belly collectors have also been installed and will be connected to the collection system at a later date.

The landfill gas (LFG) is collected through an active landfill gas collection system, which consists of wells, headers, and gas mover equipment. Currently, Eagle Valley is collecting LFG at flows rates of approximately 3700 scfm. The collected LFG can be sent to one of two flares, to WM's on-site LFG to energy engine plant, or sold off-site to the GM Orion Assembly Plant for combustion in their boilers/engines.

Eagle Valley is subject to the National Standards of Performance for Municipal Solid Waste Landfills, 40 CFR Part 60 Subpart WWW, and the National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills, 40 CFR Part 63 Subpart AAAA. In 2013, WM was asked to provide an updated potential to emit calculation using the new formaldehyde emission factors for the LFG-fired engines. Based on these calculations, Eagle Valley is now a major of Hazardous Air Pollutants (HAPs). Permit conditions have been established in Renewable Operating Permit (ROP) No. MI-ROP-N3845-2015 to address these regulations.

In 2010, Eagle Valley obtained Permit to Install (PTI) No. 116-10 to install two CAT G3520C IC Engines. The conditions of the PTI were combined into the ROP during the last renewal cycle. The engines at Eagle Valley are subject to the National Emission Standards for Hazardous Air Pollutant (NESHA) for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63 Subpart ZZZZ and the National Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, 40 CFR Part 60 Subpart JJJJ.

The ROP has enforceable limits/conditions for the following emission units/flexible groups: EULANDFILL, EUALGCS, FGTREATMENTSYS, FGENCLOSEDFLARES, FGICENGINES, FGRICEMACT, EUEMERGENCYGENEX, and EUASBESTOS.

Summaries of the permit/federal requirements, the records reviewed, and my inspection observations are provided in each section below.

### **Landfill/Gas Collection System**

Eagle Valley's ROP has two sections covering the landfill and gas collection system, EULANDFILL and EUALGCS. During my inspection, WM had the following information/reports readily available on-site or provided them via email: surface methane monitoring reports, monthly integrity checks, waste acceptance rates, updated design capacity, daily/monthly GCCS parameters report, a copy of the SSM Plan, a copy of the GCCS design plan, and a copy of the Regulatory Analysis for the 2012 Expansion. The records provided are needed to demonstrate compliance with the ROP and federal landfill regulations. Summaries of the reviewed reports have been provided below.

All 2015 quarterly methane scans were available for review. The 3rd and 4th quarterly methane scans indicated five areas that had initial measured surface concentration of methane greater than 500 part per million. Most of these areas were near W39 and were remedied by expanding the well field and applying additional cover. Note this is the same area of the landfill connected to the complaints received by the AQD in December 2015. All noted areas were below 500ppm at the 10 day recheck and cleared at the 30 day recheck.

According to the records, WM conducts monthly integrity checks of the landfill cover (see attached summaries for 2015 and 2016). The records identify the corrective action needed and when repairs occurred.

For 2015, Eagle Valley accepted 447,128 tons (405,632 Mg) of waste and the waste in place records indicate a total of 10,912,108 tons (9,899,399 Mg) from 1986 to 2015 (see attached). The most recent permitted design capacity was approved by staff in DEQ's Office of Waste Management and Radiological Protection (OWMRP) in December 2012 at 25,300,000 cubic yards.

Eagle Valley's wellfield currently consists of 141 collectors. The daily GCCS operating records are available on-site; Mr. Brock provided a copy of a completed form from November 2015 (see attached). On a monthly basis, WM monitors temperature, oxygen, and pressure for each NSPS subject well (see CD for 2015 well data). According to these records and Eagle Valley's semi-annual reports, WM properly documents instances in which wells have temperature, oxygen, and/or pressure exceedances. In the instances in which an exceedance cannot be corrected within 15 days, WM has requested higher operating variance, alternative timelines, and/or to decommission wells (see file for individual request).

As required by the ROP, Eagle Valley has a Startup, Shutdown, and Malfunction Abatement Plan (SSM) for the gas collection and control system (GCCS). A copy of the SSM plan was provided during the 2015 ROP renewal; the plan was last revised on February 23, 2015 (see file for a copy of the plan).

The original GCCS Design Plan was submitted in June 1997, and a revised plan was submitted in February 2004. On March 8, 2016, CTI submitted a revised GCCS Design Plan to the AQD and Waste Division. The purpose of the revision is to include the 46.3 acre expansion approved by DEQ's Waste Division in December 2012 (construction began in 2015). Greg Morrow and I will review the revised plan and provide WM with a written correspondence.

Mr. Paajanen provided a copy of the Regulatory Analysis for the 2012 Expansion conducted by Lori Myott, NTH consultants. The analysis assumes a total gas collection of 3700 scfm and addresses different scenarios for future expansion. According to the analysis, the source is an existing minor source of air contaminants under NSR requirements and increase in emissions (above baseline emissions) from the expansion does not exceed major source thresholds. The report also provides information to WM on the applicable requirements if, in the future, they decided to install another two LFG-fired engines (see attached report for details).

### **Treatment Systems**

Eagle Valley, as part of the LFG collection and control system, has two LFG treatment systems/blower skids: EUTREATMENTSYS1 (for flares/gas sold to GM) and EUTREATMENTSYS2 (for on-site engine plant). Each system filters particulate matter down to 10 micros, removes moisture, and compress the LFG. Mr. Paajanen and Mr. Brock provided a copy of the LFG flow diagram and the weekly/monthly/yearly maintenance schedule for the GCCS including the treatment system (see attached documents).

During my inspection, WM staff explained the following: the average LFG temperature coming into the system is 144°F and after the cooler is around 98°F; there is a max temp alarm of 120°F; when the new flares were installed, WM also installed a new gas skid (EUTREATMENTSYS1).

According to the records, the post compression air-to-air temperatures are below 120°F. In addition to the temperatures, WM records the pressures and volumes sent to the engine plant and to GM Orion.

The provided Preventative Maintenance Plan (PMP), list the operating parameters and recommended maintenance for the gas treatment system, blower skid, and flares (see attached). WM also provided a list of maintenance task that are required on a weekly, monthly, 3 month, 6 month, and yearly basis (see attached).

## Flares

Previously Eagle Valley operated two enclosed flares; the first was installed in 1993 and has a capacity of 1700 scfm and the second was installed in 2005 and has a capacity of 3500 scfm. In 2015, WM replaced these flares with two new enclosed flares. Similar to the previous flares, WM monitors the flares through the GolderWatch system; this allows them to monitor the flares and compressor remotely, and collects and stores greenhouse gas data.

	Install Date	Design Capacity (scfm)	Compliance Temps* (°F)	High Temp Alarm (°F)
Flare 3	October 16, 2016	4000	*	2000
Flare 4	October 16, 2016	1000	*	2000

\* will be established during stack test scheduled for the week of April 4, 2016.

During my inspection, both flares were not operating because WM was installing wind shields on the dampers. All LFG was being routed to the engine plant and GM. If the LFG treatment systems or other LFG control devices (WM engines, GM Orion Boilers, GM Orion Engines) were to fail, these new flares provide Eagle Valley with enough flare capacity to serve as a back-up control for all LFG collected.

The flares are continuously monitored and the temperatures are recorded every 5 minutes (records available on-site). WM appropriately reports any flare downtime in their Annual/Semi-Annual reports. On March 16, 2016, Mr. Paajanen provided the flare data for March 8, 2016. Based on my review of the data, I noted the following:

	Flare 3	Flare 4
Min Temp (°F)	1427	199
Max Temp (°F)	1655	265
Ave Temp (°F)	1583	231
Min Flow (scfm)	1167	0
Max Flow (scfm)	2757	38
Ave Flow (scfm)	1906	0

On March 16, 2016, Mr. Paajanen provided a copy of the permit exemption/278a demonstration for the new flares. NTH Consultants prepared the report which states the flare project was not subject to PSD and WM did not have to apply for permit to install pursuant to Rule 285(aa). See attached report for details.

The ROP also requires a SSM and PMP plan for the flares. During my inspection, I reminded Mr. Paajanen to update the previous SSM and PMP with the new flare specifications and information gather during the upcoming flare stack test.

On March 8, 2016, the AQD received a Stack Test Protocol for the Verification of NMOC control efficiency for the two enclosed flares. This is an initial test required per 40 CFR, Part 60, Subpart WWW and is scheduled to take place April 5-7, 2016.

## Engines

In 2010, WM obtained a permit to operate two CAT 3520C RICE at Eagle Valley, PTI No. 116-10. The conditions of PTI No. 116-10 have been incorporated into the ROP as FGICENGINES. FGICENGINES has emission limits for CO, NOx, and VOC, and special conditions for testing, recordkeeping, maintenance activities, and operational restrictions.

The engine specifications are as follows:

Emission Unit ID	Make	Model	Model Year	Fuel	Serial #	Max Engine Power (bhp)
EUICENGINE1	Lean Burn; 4 stroke	CAT G3520C	2010	LFG	GZJ00471	2333
EUICENGINE2	Lean Burn; 4 stroke	CAT G3520C	2010	LFG	GXJ00470	2333

A copy of the Malfunction Abatement/Preventative Maintenance Plan was provided during the 2015 ROP renewal; the plan was last revised on August 24, 2011 (see attached copy).

During my inspection, Mr. Jim Dunn, Engine Plant Manager, provided copies of the following records: daily readings for all engine parameters, daily readings for LFG parameters/flow, monthly operating reports for each engine, and maintenance activity logs for each engine (see attached records). In addition the SSM Reports for 2015/2016 and the engine shut down/maintenance log notebooks were available on-site.

The engines are subject to the National Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, 40 CFR Part 60 Subpart JJJJ (NSPS JJJJ) and the National Emission Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63 Subpart ZZZZ (NESHAP ZZZZ). The initial notification for NSPS JJJJ was received on February 28, 2011, and the initial notification for NESHAP ZZZZ was received on January 11, 2013. The 2016 annual report was received with the Annual ROP certification reports on March 14, 2016.

The last stack test for the engines occurred on September 30, 2015. The following results indicate the engines are in compliance with the permit and NSPS limits.

	NOx (g/bhp-hr)	CO (g/bhp-hr)	VOC (g/bhp-hr)
Engine 1	0.54	2.46	0.11
Engine 2	0.68	2.59	0.08
Permit Limit	0.9	4.13	1.0
NSPS JJJJ	2.0	5.0	1.0

The following engine parameters were observed during my inspection. The engines appeared to be operating similarly to how they were operating during the last stack test and the recorded parameters were consistent with the record keeping provided by Mr. Dunn. Based on my review of the records provided and my observations during the inspection, Eagle Valley appears to be in compliance with the conditions of FGICENGINES.

	Engine No. 1	Engine No. 2
	Date: 3/9/2016	Date: 3/9/2016
	Time: 1:00pm	Time: 1:10pm
	Serial #: GZJ00471	Serial #: GZJ00470
Total Engine Hours	39020.17	38985.4
Actual Engine Speed (rpm)	1200	1200
Generator Total Real Power (Kw)	1655	1654
Engine Load Factor (%)	98	99
Actual Engine Ignition Timing (Deg.)	28	28
Dentation	0 - 1	0 - 1
Actual Oxygen (sensor)	Not used	Not used
Inlet Manifold Air Pressure ABS (psi)	46.3	47.3
Inlet Air Temperature (°F)	136	142
Engine Oil Temp (°F)	199	199
Engine Coolant Temp (°F)	226	226
Desired Engine Speed (rpm)	1200	1200
Throttle Actuator Position %	49.31	50.57
Engine Droop %	0	0
Battery Voltage	24	24.5
Air Flow Intake Manifold (scfm)	4387	4488
Air to Fuel Ratio	8.8	9.1
Gas Fuel Flow (scfm)	497	490
Fuel Valve %	54	54
Fuel Pressure (psi)	16	16
Fuel Gas Temp (°F)	93	91
Fuel Quality (Btu)	488	488
Frequency (Hz)	60.0	60.0
Generator Ave RMS Voltage	4247	4248
Generator Total RMS current (Amps)	671	687
Power Factor	0.994	0.995
Air to Fuel Ratio (Rounded)	9	9
Fuel Quality (Btu) PLC/ET	514/488	515/488
Unit Base Load Set Point (Kw)	1640	1640
Cylinder Ignition Timing (Deg)	28	28
Total Plant (Kw)	3166	3166
Cylinder Temperature Ranges	1153-1188	1153-1188
Total Plant Fuel (scfm)	997	997

**Emergency Generator**

Eagle Valley has one 20KW Dayton, natural gas-fueled, stationary emergency generator located on-site. The generator is permitted in the ROP under EUEMERGENCYGENEX. During my inspection, Mr. Paajanen explained the generator has been locked out/tagged out because the battery has been removed and they are temporarily using a portable generator if needed. I also received a copy of the operating and maintenance log for the generator (see attached). Based on these records, Eagle Valley appears to be in compliance with the conditions of EUEMERGENCYGENEX.

**Asbestos**

At this time, Eagle Valley does not accept friable asbestos waste. The flexible group conditions are listed in the ROP because in the past asbestos waste may have been accepted.

**MAERS**

For 2015, Eagle Valley reported the following emissions:

2015	
Pollutant	Tons
CO	181.68
NMOC	23.90
NOx	56.53
PM10	27.74
PM2.5	7.67
SO2	7.29
VOC	6.14

The reported emissions appear to be consistent with the records reviewed. Note, formaldehyde emissions from the engines were not included in the reported VOC emissions.

**Conclusions**

Based on information gathered during the inspection and records reviewed, Eagle Valley appears to be in compliance with the Federal Clean Air Act, Michigan's Air Pollution Control Rules, and the conditions of ROP No. MI-ROP-N3845-2015.

**UPDATE**

On June 6, 2016, the AQD received a copy of Eagle Valley's Stack Test Report for the flares and the verification of NMOC control efficiency. Based on the results of the test, the minimum enclosed flare combustion temperature for flare #3 is 1546°F and for Flare #4 is 1550°F (see attached results). The AQD will evaluate compliance with these newly established operating temperatures at future inspections.

NAME Rebecca J. Hillis      DATE 4/4/16      SUPERVISOR CJE  
 updated: 6/22/16