

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

N384526030

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: Steve Walters, Environmental Engineer		ACTIVITY DATE: 07/03/2014
STAFF: Rebecca Loftus	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT:		
RESOLVED COMPLAINTS:		

On July 3, 2014, I, Rebecca Loftus, Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an inspection of Eagle Valley Recycle and Disposal Facility (Eagle Valley), 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, Permit to Install (PTI) No. 116-10, and Renewable Operating Permit (ROP) No. MI-ROP-N3845-2010.

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

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 sludge at approximately 40 tons per day; 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.

At Eagle Valley, WM currently owns approximately 274 acres, of which 101.5 acres are filled and 45 acres are a wetland mitigation project/wildlife habitat (see attached map). Eagle Valley has eleven constructed cells and five proposed; cell 12 construction is schedule for 2015. The landfill is currently filling above cells 3, 4, and portions of 5, 6, and 11.

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 3500-3700 scfm. The collected LFG can be sent one of two flares or to one of the treatment systems. The treated LFG is then sent WM's On-site LFG to energy engine plant or sold to the GM Orion Assembly Plant for combustion in their boilers and newly installed 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, and is permitted under ROP No. MI-ROP-N3845-2010. The ROP has enforceable limits/conditions for the following emission units: EULANDFILL, EUALGCS, EUTREATMENTSYS1, EUTREATMENTSYS2, EUENCLOSEDFLARE1, EUENCLOSEDFLARE2, and EUASBESTOS.

In 2010, Eagle Valley submitted a PTI application to install two CAT G3520C IC Engines. These engines are permitted under PTI No. 116-10. A modification notification form was submitted to Erik Gurshaw on September 29, 2011, however it appears the PTI was not rolled into the ROP as a modification. The ROP renewal is due between March 21, 2014 and March 21, 2015, and the PTI will be rolled into the ROP at that time. The engines at Eagle Valley are also are subject to the National Emission Standards for Hazardous Air Pollutant (NESHAP) 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.

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).

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 provided me with copies of the surface methane monitoring reports, monthly integrity checks, waste acceptance rates/design capacity, and the LFG NSPS parameters report. The records provided are needed to demonstrate compliance with the ROP and federal landfill regulations. Summaries of the reviewed reports have been provided below.

The 2nd and 3rd quarterly methane scans were conducted on March 18, 2014, and June 19, 2014 (see attached reports). Both reports indicate that there were no locations at Eagle Valley with a measured surface concentration of methane great than 500 part per million.

According to the records, WM conducts monthly integrity checks of the landfill cover (see attached summary). The records indicate the corrective action needed and when repairs occurred.

For 2013, Eagle Valley had the following acceptance rates: 365,705 Mg/year and 402,276 tons/year. The most recent permitted design capacity was approved by staff in DEQ's Office of Waste Management and Radiological Protection in December 2012 at 25,300,000 cubic yards.

Eagle Valley's wellfield currently consists of 121 collectors. On a monthly basis, WM monitors temperature, oxygen, and pressure for each NSPS subject well (see attached summary from July). 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).

In addition to these records, I reviewed the NSPS on-site inspection check list with WM staff (see attached). The only change from the previous inspection is in the materials used during construction. WM continues to use polyvinyl chloride (PVC) and high density polyethylene (HDPE) piping, but all new wells are constructed with PVC.

Treatment Systems

As part of the LFG collection and control system, Eagle Valley has two LFG treatment systems which filter particulate matter, remove moisture, and compress the LFG; these are designated in the ROP as EUTREATMENTSYS1 and EUTREATMENTSYS2. The first treatment system is used to treat the LFG prior to selling the gas to the GM Orion Plant. The second treatment system is used to treat LFG prior to combustion in the on-site engine plant. According to the records, the post compression air-to-air temperatures are below 120°F (see attached records). In addition to the temperatures, WM records the pressures and volumes sent to the engine plant and to GM Orion.

Flares

Eagle Valley currently operates 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. If the LFG treatment systems or other LFG control devices (WM engines, GM Orion Boilers, GM Orion Engines) were to fail, Eagle Valley currently has enough flare capacity to serve as a back-up control.

The flares are continuously monitored and the temperatures are recorded every 10 minutes (records available on-site). WM appropriately reports any flare downtime in their Annual/Semi-Annual reports.

During my inspection, I observe the following:

	Flow (scfm)	Total Flow (Mscf)	Temp (°F)	Compliance Temps* (°F)	High Temp Alarm (°F)
Flare 1	730	164,291	1483	1479	2000
Flare 2	1189	1,194,050	1770	1692	2020
GM	551	306,376	---	---	---

* established during stack test

In 2013, Eagle Valley installed the GolderWatch system, which allows them to monitor the flares and compressor remotely. This system also collects and stores greenhouse gas data.

Mr. Walters and Mr. Paajanen stated that WM plans to install two new flares in May/June 2015; one flare will have a capacity of 1000 cfm and the other 4000 cfm. Mr. Walters stated as the project becomes finalized, the appropriate paper work will be submitted to the AQD prior to the project (i.e. a permit application or a demonstration of why WM believes the installation is exempt from obtaining a permit).

Engines

In 2010, WM obtained a permit to operate two CAT 3520C RICE at Eagle Valley, PTI No. 116-10. PTI No. 116-10 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

The Malfunction Abatement/Preventative Maintenance Plans required by the permit were received by the AQD on September 1, 2011 (see file for documents).

During my inspection, Mr. Jim Dunn, Engine Plant Manager, was unavailable, however he had provide 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). Based on my review of these records and my observations during the inspection, Eagle Valley appears to be in compliance with the conditions of PTI. No 116-10.

In addition to the permit requirements, 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 and annual report for NESHAP ZZZZ were received on January 11, 2013.

The last stack test for the Engines occurred on October 15, 2013. 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	0.76	2.65	0.10
Engine 2	0.61	2.49	0.11
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.

	Engine No. 1	Engine No. 2
	Date: 7/3/14	Date: 7/3/15
	Time: 3:40pm	Time: 3:30pm
	Serial #: GZJ00471	Serial #: GZJ00470
Actual Engine Speed (rpm)	1201	1200
Generator Total Real Power (Kw)	1707	1647
Engine Load Factor (%)	101	98-100
Actual Engine Ignition Timing (Deg.)	28	28
Dentation	0 - 1	1 - 1
Actual Oxygen (sensor)	Off line	Off line
Inlet Manifold Air Pressure ABS (psi)	47.7	47.4
Inlet Air Temperature (°F)	128	127
Engine Oil Temp (°F)	198	196
Engine Coolant Temp (°F)	226	226
Desired Engine Speed (rpm)	1200	1200
Throttle Actuator Position %	53-54	49-50
Engine Droop %	0	0
Air Flow Intake Manifold (scfm)	4540	4496
Air to Fuel Ratio	8.3	8.4
Gas Fuel Flow (scfm)	546	541
Fuel Valve %	57	56
Frequency (Hz)	59.9	59-60
Generator Ave RMS Voltage	4249	4243
Generator Total RMS current (Amps)	692	688
Power Factor	0.996	0.996
Total Engine Hours	24794.26	24728.4
Air to Fuel Ratio (Rounded)	8	8
Fuel Quality (Btu) PIC/ET	462	462
Fuel Gas Temp (°F)	91.4	91.4
Unit Base Load Set Point (Kw)	1620	1620
Total Plant (Kw)	3172	3172
Battery Voltage	24.5	24.5

	Engine No. 1	Engine No. 2
	Date: 7/3/14	Date: 7/3/15
	Time: 3:40pm	Time: 3:30pm
Cylinder #1 Temp. (°F)	1132	1137
Cylinder #3 Temp. (°F)	1153	1126
Cylinder #5 Temp. (°F)	1123	1128
Cylinder #7 Temp. (°F)	1141	1137
Cylinder #9 Temp. (°F)	1125	1143
Cylinder #11 Temp. (°F)	1128	1130
Cylinder #13 Temp. (°F)	1119	1157
Cylinder #15 Temp. (°F)	1121	1114
Cylinder #17 Temp. (°F)	1112	1141
Cylinder #19 Temp. (°F)	1119	1132
Cylinder #2 Temp. (°F)	1101	1119
Cylinder #4 Temp. (°F)	1092	1128
Cylinder #6 Temp. (°F)	1107	1125
Cylinder #8 Temp. (°F)	1105	1135
Cylinder #10 Temp. (°F)	1119	1137
Cylinder #12 Temp. (°F)	1099	1112
Cylinder #14 Temp. (°F)	1092	1132
Cylinder #16 Temp. (°F)	1094	1123
Cylinder #18 Temp. (°F)	1105	1121
Cylinder #20 Temp. (°F)	1121	1141
Right Bank Turbine Inlet	1252	1252
Right Bank Turbine Outlet	928	945
Left Bank Turbine Inlet	1207	1261
Left Bank Turbine Outlet	914	939
Right Bank Exhaust Port	1126	1134
Left Bank Exhaust Port	1103	1126
Engine Ave Exhaust Port	1114	1130

MAERS

For 2013, Eagle Valley reported the following emissions:

Pollutant	Tons
CO	172.93
NMOC	22.86
NOx	50.54
PM10	26.60
PM2.5	4.95
SO2	5.36
VOC	6.08

Note: Formaldehyde emissions from the engines were not included in the reported VOC emissions.

Additional Information

During my inspection, Mr. Paajanen and I discussed the LFG off-site migration issues occurring near Cell #1, a clay line cell. WM has recorded higher levels of methane in probe #5 (near the entrance) and probe #3. Initially, wells W83 and W84 were installed at depths of 20-35ft to help collect additional gas and control the off-site migration. In October 2013, WM created a deep trench with collectors TW117 and TW118, re-drilled W18R (70ft depth) and replaced W1R2 with W121. As the off-site migration issues continued over the winter, WM installed 10 new wells, connected GV-2 to the gas collection system, and completed drainage work to address water in older wells. In April 2014, pumps were installed on the well heads to automatically address water concerns.

At the time of my inspection, Wells 83, 84, 117, and 118 were closed with no flow. These wells were closed because as additional vacuum was applied to the wells, oxygen levels were approaching 10% (due to ambient air infiltration) and there was no changes observed in the off-site migration. Mr. Paajanen stated the next step was for WM to install additional monitoring wells across Silver Bell Road on GM property to determine the boundaries/reach of the off-site migration.

Elizabeth Garver and Greg Marrow, from DEQ's Office of Waste Management and Radiological Protection, are aware of the off-site migration. The OWMRP is the appropriate authority to address compliance and remediation actions associated with this issue. I will continue to work with Ms. Garver and Mr. Marrow as WM tries to remedy the off-site migration.

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, the conditions of PTI No. 116-10, and the conditions of ROP No. MI-ROP-N3845-2010.

NAME



DATE

7/16/14

SUPERVISOR

CJE