

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N268857466

FACILITY: Arbor Hills Landfill, Inc.		SRN / ID: N2688
LOCATION: 10690 W. SIX MILE RD, NORTHVILLE		DISTRICT: Jackson
CITY: NORTHVILLE		COUNTY: WASHTENAW
CONTACT: Anthony Testa , Landfill Site Engineer		ACTIVITY DATE: 03/25/2021
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Methane SEM survey and H2S survey of the north side of landfill		
RESOLVED COMPLAINTS:		

Major / ROP Source. Full Compliance Evaluation (FCE) and Partial Compliance Inspection (PCE) Which Consisted of an Abbreviated Methane SEM Survey

Company Contacts:

Anthony Testa Anthony.Testa@glfenv.com

Purpose:

On March 25, 2021, AQD conducted an announced compliance inspection of the Arbor Hills Landfill owned and operated by GFL (Company) located at 10690 West Six Mile Road, Northville, Michigan. The purpose of this inspection was to determine if this facility was in compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the conditions of Renewable Operating Permit (ROP) number MI-ROP-N2688-2011a; National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills 40 CFR Subpart AAAA; and the Federal New Source Performance Standard (NSPS) for Municipal Solid Waste Landfills 40 CFR Part 60, Subpart WWW.

Mike Kovalchick performed an abbreviated methane surface emission monitoring (SEM) survey. H2S measurements were also taken.

General Summary of the Results:

During the inspection, AQD performed an abbreviated surface emission monitoring (SEM) survey according to the standard and found 8 areas with surface methane concentrations greater than 500 ppm. AQD staff used a SEM 5000 methane detector device equipped with a NSPS Subpart XXX compliant sampling wand. Instrument specifications and calibration information are available in Section (1) while detailed spreadsheets/reports of the data collected have already been provided electronically to the Company via email. Section (2) provides an aerial image of the landfill showing the path followed during the survey and the locations of methane concentrations above 500 ppm.

The following table shows the results of the SEM survey conducted during the visit:

ID	Description	Location Lat (N)	Long (W)	Methane (ppm)
AQD 1	East side of Cell 4E at Separation Berm	42.40471017	-83.55555967	7658
AQD 2	200 feet NW of well manifold	42.4039105	-83.555529	776
AQD 3	30 feet NW of well manifold at 12" header/access riser	42.40361533	-83.55547517	3532
AQD 4	Just N of well manifold	42.4035085	-83.55537683	1076
AQD 5	Well 289-vaccum riser penetration	42.40356817	-83.55639583	2204
AQD 6	30 feet East of Well 407	42.4057165	-83.5613145	639
AQD 7	10 feet NW of Well 440	42.40488883	-83.5572025	844
AQD 8	75 feet West of Well 422	42.40508583	-83.55807817	1070

All methane concentrations above 500 ppm were marked with a red flag. Section 1 and 2 provide more detailed information on the SEM survey that was performed. Monitoring was conducted between 9:00 AM and 11:00 AM on March 25, 2021.

General SEM Survey Comments:

This was a follow-up SEM to previous AQD SEM surveys that were conducted on June 25, 2020 and October 28, 2020. During those surveys, an area of concern was noted near the active face on the northside of the landfill. This SEM survey focused on that area of concern previously noted.

A CAIRPOL H₂S monitoring device was also used during the survey in conjunction with the SEM5000. This device records readings as 1-minute averages over the distance walked during that one minute and measures in the part per billion (ppb) range.

Downwind methane reading as measured on Napier Road prior to the SEM survey was 13 ppm which is notable. The methane was in conjunction with a low intensity MSW odors. Cover integrity observed during the AQD SEM survey appeared to be in good shape with very few cover erosion features noted. Overall, it appears the landfill has improved cover in several areas since the last visit. Soil conditions were dry along nearly the entire survey route due to the lack of recent rains.

Observed gas collection well heads were generally in good condition. SEM hits detected were related to surface penetrations or in their vicinity. Several others SEM hits had no obvious source. A separation berm at the edge Cell 4E was also a source of a methane hit as was the case in the previous survey.

The results of the H₂S CAIRPOL survey resulted in the discovery of a small area in the NW corner of the landfill was found to elevated H₂S levels above 20 ppb.

SECTION 1:

Pursuant to 40 CFR 60.753(d), owners and operators of landfills are required to operate the gas collection and control system (GCCS) so that surface methane concentrations are less than 500 ppm.

To determine and demonstrate compliance with the surface methane concentration standard, 40 CFR 60.753(d) requires owners and operators to monitor surface methane concentrations around the perimeter of the collection area and along a pattern that traverses the landfill at 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover.

AQD used a SEM 5000 methane detector device equipped with tunable diode laser absorption spectroscopy and has GPS location accuracy of 2 to 4 meters. Monitoring was performed on a representative section of the landfill in accordance with EPA Method 21 and NSPS Subpart WWW. The instrument was calibrated using calibration gas of zero and 500 ppm of methane. All monitoring and calibration were done between 8:00 and 11:00 AM. Monitoring was observed by a Company representative.

Weather conditions with upwind and downwind methane concentrations at the start and end of the SEM provided in table below:

Weather Conditions	Start Time	End Time
Temperature	45° F.	53° F.
Relative Humidity	89%	77%
Wind Speed mph	3 mph	7 mph
Wind Direction	SW	S
Pressure/Trend	29.97" F	29.96" S
Sky Conditions	Sunny	M. Sunny
Soil Conditions	Dry	Dry
Background methane upwind	2 ppm taken on Chubb road.	
Background methane downwind	13 ppm taken on Napier Road.	

SECTION 2:

Pursuant to 40 CFR 60.755(c), any reading of 500 ppm or more above background at any location shall be recorded as a monitored exceedance and the actions specified in paragraphs (i) through (v) below shall be taken. If the specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d).

(i) The location of each monitored exceedance shall be marked, and the location recorded.

(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of the exceedance being detected.

(iii) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken, and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in 40 CFR 60.755 (c)(4)(v) shall be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) has been taken.

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 40 CFR 60.755 (c)(4)

(ii) or (iii) shall be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month re-monitoring shows an exceedance, the actions specified in paragraph (c)(4) (iii) or (v) shall be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the AQD for approval.

As provided in a previous table, 8 locations were found to have exceeded the 500 ppm above background threshold during the inspection. The attached aerial image of the AHL shows the path followed during the survey and the locations of methane concentrations above 500 ppm. It also shows the locations of where H₂S was measured to be above 20 ppb.



Image 1(SEM Survey) : SEM Survey Results Map

Mike Kovalchuk

NAME _____

DATE March 25, 2021

[Signature]
