

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

N539754200

FACILITY: Peoples Landfill, Inc.		SRN / ID: N5397
LOCATION: 4143 E. Rathbun Rd., BIRCH RUN		DISTRICT: Saginaw Bay
CITY: BIRCH RUN		COUNTY: SAGINAW
CONTACT: John Davis , People's Site Engineer		ACTIVITY DATE: 07/29/2020
STAFF: Gina McCann	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Mike Kovalchick, Jackson District, performed an abbreviated SEM of landfill. Nathanael Gentle and Gina McCann were also present from AQD. Report was written by M. Kovalchick, but he was not able to enter being from a different district.		
RESOLVED COMPLAINTS:		

Major / ROP Source. Abbreviated Methane SEM Survey**Company Contacts:**

John Davis jdavis61@wm.com

Purpose:

On July 29, 2020, AQD conducted an announced inspection of the People's Landfill (PL) owned and operated by Waste Management (Company) located at 4143 East Rathbun Road, Birch Run, 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-N5397-2019; 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 with AQD performed an abbreviated methane surface emission monitoring (SEM) survey while Nathaniel Gentle with AQD performed some hydrogen sulfide (H₂S) monitoring at the same time. Gina McCann was also present for AQD.

General Summary of the Results:

During the inspection, AQD performed an abbreviated surface emission monitoring (SEM) survey according to the standard and found thirty-four areas with surface methane concentrations greater than 500 ppm. 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. 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 in an attachment 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*		Methane (ppm)
		Lat (N)	Long (W)	
AQD 1	Near well HC-6.	43.278985	-83.8714665	3389
AQD 2	Near HC-5.	43.2790275	-83.872137	2837
AQD 3	Near leachate clean out pipe. Part of large area of elevated methane.	43.27825633	-83.87325233	24,011
AQD 4	See AQD 3.	43.27827617	-83.873136	1937
AQD 5	70 feet SE of leachate clean out pipe. See AQD 3.	43.27814167	-83.87304217	7233
AQD 6	Access riser to header penetration hit.	43.2779575	-83.87295017	6954

AQD 7	GW-50 penetration hit.	43.27811567	-83.87287333	1588
AQD 8	Just W. of leachate LCR-10.	43.27826833	-83.87284183	657
AQD 9	Bare ground just NE of GW-116.	43.27828533	-83.87148533	1457
AQD 10	GW-77R2 penetration hit.	43.27832433	-83.871093	5115
AQD 11	Near GW-122 in washout ditch.	43.27860833	-83.87075017	33,384
AQD 12	Bare ground just SW of GW-58R2.	43.27861917	-83.87024383	3998
AQD 13	In tire track.	43.27877917	-83.86999283	977
AQD 14	Near GW-56R2 from crack.	43.27844617	-83.86915067	7420
AQD 15	Near GW-118 just off maintenance road.	43.27824533	-83.86903667	783
AQD 16	Near GW-95R from crack.	43.277381	-83.8687345	3327
AQD 17	Between GW-97 and GW-98. Part of larger area of elevated methane.	43.277777	-83.86748617	692
AQD 18	Next to new well GW-90R that has yet to be turned on.	43.277331	-83.867219	678
AQD 19	Next to new GW-87R that has yet to be turned on.	43.277407	-83.86564133	1342
AQD 20	Near new well GW-87R in erosion feature.	43.27755383	-83.86560767	722
AQD 21	40 feet W. of GW-66.	43.27819233	-83.865536	3640
AQD 22	30 feet E. of GW-114.	43.27848767	-83.86645017	2045
AQD 23	S. of GW-63R in bare spot.	43.27874933	-83.86690633	6140
AQD 24	20 to 30 feet S. of GW-64R.	43.27893767	-83.86617483	31,233
AQD 25	HC-17 penetration hit.	43.27894283	-83.8659765	741
AQD 26	Next to 2" riser pipe at landfill toe area.	43.27929817	-83.86587483	1221
AQD 27	Leachate riser penetration hit with no vegetation.	43.27935317	-83.86608767	2206
AQD 28	Isolation valve pipe penetration hit.	43.27933367	-83.86633717	15,680
AQD 29	LCR-7 penetration hit.	43.27922533	-83.86632133	11,997
AQD 30	Just N. of GW-62R in dead vegetation. Part of 4 hits in a short line.	43.27920033	-83.86754167	1860
AQD 31	See AQD 30.	43.2792575	-83.86757583	926
AQD 32	See AQD 30.	43.27933167	-83.8675935	4260
AQD 33	Leachate riser penetration hit. See AQD 30.	43.27937383	-83.86761983	2524
AQD 34	E. of GW-61 next to pipe in ground.	43.279137	-83.868144	1849

*All methane concentrations above 500 ppm were marked with a red flag. Attachments 1 and 2 provide more detailed information on the SEM survey that was performed. Monitoring was conducted between 9:00 AM and 12:00 PM on July 29, 2020.

General SEM Survey Comments:

The last SEM survey conducted by the Company at the PL occurred on May 21, 2020 with 0 excess methane hits detected. (The Company's 3rd quarter SEM survey was on-going during the AQD SEM.) Historically, few if any SEM exceedances have been recorded. Cover integrity observed during the AQD SEM survey appeared to be variable. Much of the higher elevations of the north and east sides of the land were not vegetated with scattered small erosion features observed. Soil conditions was moist to occasionally muddy due to overnight rain after a long dry period. SEM hits detected were related to

surface penetrations such as at wellheads, leachate collection system pipes, cracks in the ground, in ditches/erosion features and a couple next to new wells that had yet to be turned on. Overall, the number of methane hits associated with surface cover penetrations was found to be higher than normal. Discussions with Company officials after the AQD SEM revealed that surface penetrations are not routinely checked during quarterly SEM surveys unless they fall along the 30-meter interval pathway that their SEM consultant follows. I recommended to the Company that they include all surface penetrations in future SEM surveys since they appear to be a significant source of methane emissions at their landfill and also due to pending applicability of NSPS Subpart XXX which will specifically require that surface penetrations be surveyed. During the AQD SEM, hydrogen sulfide (H₂S) was also surveyed using a Jerome H₂S meter at locations where H₂S odors were detected. Only very low concentrations were noted. Company officials commented that average H₂S levels as measured going into the energy plant were currently only about 60 ppm with the current average landfill gas flow rate of about 1200 SCF. Collected landfill gas is trending up. Also had a discussion with Company officials regarding the presence of liquid in the GCCS system. They estimated about 50% of all the vertical gas wells at the landfill have pumps installed which are powered by electricity. They use the 50% open well screen criteria on the decision on whether to install a pump or not. They have found that there is little benefit in capturing more gas if they open more than 50% screen partially due to sediment issues in the wells which makes it more likely that the pump will not function properly. They regularly check well liquid levels and even have had a consultant do 3-D modeling of the liquid in the landfill which showed a highly chaotic pattern of liquid present. Overall, I did not get the impression that high liquid levels were the main cause of the numerous SEM exceedances noted during the survey.

Pursuant to the federal National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills Subpart AAAA 40 CFR 63.1980(a), in order to comply with SEM reporting requirements in 40 CFR 60.757(f), a semi-annual report is required to be filed with AQD that includes results of the required quarterly SEM.

A results letter is being sent to the Company. They will be required to submit a copy of the Company's 3rd quarterly NSPS SEM report to the Jackson District office and the Bay City District office no later than 6 weeks after the end of the quarter. That report should include the methane exceedances detected by the AQD during this SEM inspection and at a minimum, the results of the required re-monitoring completed pursuant to 40 CFR 60.755(c) and the actions taken to clear the identified exceedances.

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 am and 12:00 PM. Monitoring was observed by Company representatives.

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	70° F.	76° F.
Relative Humidity	87%	73%
Wind Speed mph	7 mph	7 mph
Wind Direction	SW	W
Pressure/Trend	29.90" S	29.90" S
Sky Conditions	Sunny	Pt. Sunny
Soil Conditions	Moist	Moist

Background methane upwind	2 ppm taken on Pettit road SW of landfill.
Background methane downwind	3 ppm taken on E. Rathbun road just NE of the landfill.

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, thirty-four locations were found to have exceeded the 500 ppm above background threshold during the inspection. See attached aerial image of the PL shows the path followed during the survey and the locations of methane concentrations above 500 ppm.

NAME 

DATE 7/29/20

SUPERVISOR 