



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
JACKSON DISTRICT OFFICE



PHILLIP D. ROOS
DIRECTOR

August 22, 2023

VIA EMAIL

Joseph Read
Woodland Meadows Landfill
5900 Hannan Road
Wayne, Michigan 48184

Dear Joseph Read:

SUBJECT: SRN: M4449, Woodland Meadows Landfill, Wayne County

On August 9, 2023, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD) conducted an unannounced inspection of the Woodland Meadows Landfill owned and operated by WM (Company) located at 5900 Hannan Road, Wayne, 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-M4449-2012; the National Emission Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills, 40 CFR Part 63, Subpart AAAA; and the Federal New Source Performance Standard (NSPS) for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014, 40 CFR Part 60, Subpart XXX.

During the inspection, AQD performed an abbreviated surface emission monitoring (SEM) inspection according to the standard and found twenty (20) areas with surface methane concentrations greater than 500 ppm. Pursuant to 40 CFR 63.1958(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 two separate SEM 5000 methane detector devices. Instrument specifications and calibration information are available in Attachment (1) while detailed spreadsheets/reports of the data collected have already been provided electronically to Company via email. Attachment (2) provides an aerial image of the landfill showing the path followed during the survey, the locations of methane concentrations above 500 ppm, and separate images showing these locations depicted on a gas collection system map.

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

AQD ID	LAT	LON	ppm	Description
M1	42.262856	-83.430903	593	Erosion rill
M2	42.259531	-83.434652	594	Bare ground
M3	42.260048	-83.428445	6990	At penetration
M4	42.259416	-83.428052	2000	Dead grass
M5	42.259029	-83.42843	2850	Near penetration

M6	42.257363	-83.428055	832	Erosion rill
M7	42.25682	-83.428189	10,000+	At penetration in ditch. LEL Monitor alarmed preventing location from being fully sampled.
M8	42.260506	-83.427914	1940	At penetration
M9	42.261176	-83.428152	1085	Two side by side penetrations
JB1	42.260272	-83.4301198	9776	Surface penetration (186)
JB2	42.2595285	-83.43438	1506	Bare area (South elevation near haul road)
JB3	42.25976983	-83.4281087	573	Bare area (100 yards N of pond)
JB4	42.259027	-83.4280328	985	Exceedance
JB5	42.25859683	-83.4280648	519	Surface penetration (166)
JB6	42.258034	-83.4281177	575	Bare area (N of 175)
JB7	42.258024	-83.4281205	763	Surface penetration (165)
JB8	42.2577305	-83.4295322	51,879	Surface penetration (156)
JB9	42.25766017	-83.4312393	4843	Surface penetration (148)
JB10	42.25735933	-83.430087	533	Erosion feature (near HG39)
JB11	42.25730833	-83.4293435	584	Erosion feature (E of HG 40)

*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 10:00 AM and 1 PM on August 9, 2023. Available data for one of the SEM devices used was limited due to a hardware failure. Also, 2 SEM hits were not included due to erroneous GPS coordinates.

General SEM Survey Comments:

This was a follow up SEM inspection to one that was conducted on July 13, 2022, due to numerous surface methane detections above 500ppm detected and other concerns noted during that inspection. Also, this SEM inspection was conducted in conjunction with an EPA Region V inspection. (The results of their inspection will be reported out separately.) The inspection was unannounced so most of the documentation that is normally reviewed prior to a SEM inspection was not available.

Woodland Meadows is a large landfill so it is likely that a number of SEM inspections would be needed to fully explore/document conditions. Overall, it appeared the Company had made significant progress in resolving concerns identified during the July 13, 2022, SEM inspection. Specifically, fewer leaks from cover penetrations were noted and the condition of the landfill cover was improved.

Prior to the inspection, methane plumes detected by aircraft in 2022 as reported on the Carbon Mapper website were reviewed. 3 plumes were detected coming from the top/center of the landfill. The size of the plumes was estimated to be 8198 kg/hour in total of methane.

Cover integrity appeared to be good at the landfill although recent heavy rain events had created many erosion rills. Some areas of vegetative cover that were encountered was too tall/thick to take SEM readings. Soil conditions were mostly dry despite recent heavy rains.

Gas wellheads appeared to be in good condition. Total amount of landfill gas currently being generated is around 9600 scfm.

Odors were minimal over most of the route that was followed with one notable exception. Prior to the start of the SEM at around 7:30 am, strong sewage-like odors were encountered along Hannan Road just north of a manufactured home subdivision. Based on a WSW wind direction, the odors were coming from the western side of a newly opened cell on the south side of the landfill. This area lies about 1900 feet to the west of a residential subdivision. During the SEM inspection later in the day, in the same general area, the odors were much less evident likely due to better atmospheric mixing conditions. This odor issue has already been documented by EGLE-AQD in the form of two Violation Notices (VN). Although the Company has taken several steps to mitigate the odors but thus far, it appears that issue has yet to be resolved.

During the SEM, surface methane concentrations above 500 ppm were recorded at 20 locations. Most of the hits were at surface penetrations, spots of dead grass, and erosion rills. Some of the hits might have been a result of watered in wells based on review of well data from 2022. The Company noted during a pre inspection meeting that they are taking steps to address changes in Michigan's Part 115 Material Management regulations that will require monitoring of liquid levels in gas wells and addressing as needed starting in 2024.

Four areas of concern were documented. The top of the landfill lacks vertical collection wells with the Company continuing to rely on horizontal collectors in this area. This is not consistent with the GCCS plan for the landfill. A second area of concern was noted on the SW edge of the top of the hill. Visually, it appeared that large volumes of C & D waste possibly mixed with MSW-type waste were not receiving daily cover. It appeared that hundreds of truckloads of waste had been disposed with no cover material. A third area of concern was a new waste cell that was in the process of transitioning from daily cover to interim cover. This cell only has three "belly" horizontal collectors at the base of the cell. Just these three collectors alone are pulling in a combined 1000 SCFM of gas which is a very high volume of gas from such limited number of collection wells. Waste towers 40 to 60 feet above these collectors so it would be expected to be out of the radius of influence of the wells. Also, excess ambient air methane was encountered at the edge of the cell, which is also suggestive of additional gas collection being needed. Further supporting the need for additional gas collection in this area, a pocket of gas was encountered on the NE edge of this cell in a ditch at the edge of a haul road which set off the LEL alarm monitors that were being worn by EGLE staff and a Company representative. Finally, as previously mentioned, another area of concern is the sewage-like odors that are migrating offsite.

It is recommended that the landfill:

- Address/fix all 20 SEM hits per federal requirements.
- Upgrade the Gas Collection and Control System (GCCS) on the top of the hill and the new waste cell as soon as possible.
- Investigate/work with MMD regarding daily cover practices that are occurring on the SW corner of top plateau like portion of the landfill.
- Abate sewage odors migrating offsite.

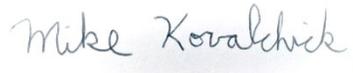
Joseph Reed
Woodland Meadows Landfill
August 22, 2023
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Pursuant to the federal National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills 40 CFR Part 63 Subpart AAAAA, §63.1981(h), a semi-annual report is required to be filed with AQD that includes results of the required quarterly SEM pursuant to the operational standards in §63.1958(d)(1).

As a response to this letter, please provide a copy of the Woodland Meadows Semi-Annual NESHAP report to the Jackson and Detroit District Offices as required. 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 63.1960(c) and the actions taken to clear the identified exceedances.

Thank you for your attention to addressing the results of the SEM inspection above and for the cooperation that was extended to us during our inspection of your landfill. If you have any questions regarding this letter or the actions necessary to address the referenced exceedances, please contact me at the number listed below.

Sincerely,



Mike Kovalchick
Senior Environmental Engineer
Air Quality Division
517-416-5025

cc: Emma Leeds, EPA Region V
Scott Miller, EGLE
April Wendling, EGLE
Brad Myott, EGLE
Jeff Benya, EGLE
Gina McCann, EGLE
Robert Joseph, EGLE
Carolyn Parker, EGLE

Attachment (1)

Pursuant to 40 CFR 63.1958(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 63.1958(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 two SEM 5000 methane detector devices 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 XXX. The instruments were calibrated using calibration gas of zero and 500 ppm of methane. All monitoring and calibration were done between 7:30 AM and 12:30 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	67 ° F.	80 ° F.
Relative Humidity	84 %	55 %
Wind Speed mph	5 mph	8 mph
Wind Direction	SW	SW
Pressure/Trend	29.85" F	29.90" R
Sky Conditions	M. Sunny	M. Sunny
Background methane upwind	3 ppm	
Background methane downwind	3 ppm	

Attachment (2)

Pursuant to 40 CFR 63.1960, 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 63.1958.

(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 63.1960 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 63.1960 (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 Table 1, twenty (20) locations were found to have exceeded the 500 ppm above background threshold during the inspection. This aerial image of the Woodland Meadows Landfill below shows the locations of methane concentrations above 500 ppm and areas of concern.

