



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5**

**77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

NOV 21 2019

DATE:

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Arbor Hills Landfill, Northville, Michigan

FROM: Kenneth Ruffatto, Environmental Engineer
AECAB (IL/IN)

THRU: Nathan Frank, Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Arbor Hills Landfill

Facility Location: 10690 Six Mile Road, Northville, Michigan

Date of Inspection: October 22-24, 2019

EPA Inspector(s):

1. Kenneth Ruffatto, Environmental Engineer, Region 5
2. Vicky Mei, Environmental Engineer, Region 5

Other Attendees

1. Susan Thorneloe, Environmental Engineer, EPA Office of Research and Development
2. Scott Hamilton, Environmental Scientist, EPA Region 5
3. Justin Coughlin, Environmental Scientist, EPA Region 5
4. Mike Kovalchick, Senior Environmental Engineer, Michigan EGLE
5. Diane Kavanaugh-Vetort, Senior Environmental Quality Analyst, Michigan EGLE
6. Scott Miller, Supervisor/District Coordinator, Michigan EGLE
7. Brian Sanders, General Manager, Advanced Disposal Services (ADS)
8. Anthony Testa, Site Landfill Engineer, ADS
9. Todd Whittle, East Region Landfill Manager, ADS
10. Randy Frank, Lead Region Landfill Gas Manager, ADS
11. Arthur Mohr, Jr., Founder/CEO, Sniffer Robotics
12. Robert Dentzman, Co-Founder/CFO, Sniffer Robotics
13. David Barron, Co-Founder/CTO, Sniffer Robotics

14. Kyle Soule, Chief Pilot & Test Flight Engineer, Sniffer Robotics
15. Chris Shilling, Sniffer Robotics

Contact Email Address: Brian Sanders— Brian.Sanders@advanceddisposal.com; Anthony Testa— Anthony.Testa@advanceddisposal.com

Purpose of Inspection: CAA Inspection & Technology Assessment

Facility Type: Municipal Solid Waste (MSW) Landfill

Regulations Central to Inspection: NSPS Subpart WWW, NESHAP Subpart AAAA

Arrival Time: 10/22/2019 10:30AM

Departure Time: 10/24/2019 1:00PM

Inspection Type:

- ☐ Unannounced Inspection
- ☒ Announced Inspection

OPENING CONFERENCE

- ☒ Credentials Presented
- ☒ CBI warning to facility provided

The following information was obtained verbally from ADS staff unless otherwise noted.

Process Description:

The Arbor Hills Landfill (the Landfill) is an MSW landfill in Northville, Michigan. Waste is currently being disposed of at the top of the Landfill and is on average composed of 100-900 tons of construction and demolition (C&D) waste and 4,000-5,000 tons of MSW. The rest of the received waste is composed of contaminated soils. The Landfill took in over 9,000 tons of waste on October 21, 2019, made up of approximately 3,500 tons of MSW, 644 tons of C&D, 4,700 tons of contaminated soil, and 81 tons of special waste. ADS estimates that the Landfill takes in approximately 2-2.3 million tons of waste per year on average, but during this year, it has taken almost 3 million tons. Numerous air lines have been installed to assist in well dewatering. There has been a noticeable increase in liquid removal from the Landfill—last year, ADS removed, on average, approximately 60,000-70,000 gallons of liquid per day and is now removing up to 100,000 gallons of liquid per day.

The Landfill has over 400 landfill gas extraction wells. Thirteen more gas wells are expected to be installed this year. Arbor Hills Energy (AHE) is currently contracted to monitor and tune the wellfield. Caisson wells are used in areas near the active portions of the Landfill. Gas is routed from the wells to a landfill gas-to-energy plant (the Plant), operated by AHE, with four gas turbines and backup flares which include two enclosed flares and an open flare. The Plant has a capacity of 9,500 standard cubic feet per minute (scfm). There is also a 500-kW generator to run

the plant if DTE power goes down. The two enclosed flares were recently refurbished by John Zink which included new pilots, burner tips, new floor, thermocouples, and other repairs. The two enclosed flares can operate up to 3,700 scfm and 2,360 scfm and the candlestick up to 5,000 scfm. An automated system is used to start the flares when there is a drop in vacuum pressure so to maintain 80" vacuum. There are individual blowers for each flare rated at 4,000 scfm per blower and a startup/low flow blower rated at 2,000 scfm.

Staff Interview: One purpose of EPA's inspection was to observe the use of a new technology developed by Sniffer Robotics to perform surface emission monitoring. The technology utilizes a drone with an analyzer to monitor for methane concentrations along the surface of the Landfill. The technology was developed to comply with NSPS Subpart WWW and EPA Method 21. EPA observed the drone perform monitoring over a location just above a haul road on the west side of the Landfill. EPA performed monitoring (see Appendix C) over the same portion of the Landfill. This portion of the Landfill was chosen based on recent surface emission monitoring that showed elevated methane in the area. The Landfill was already aware of elevated methane around this portion of the Landfill and have been working to remedy it.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:

EPA toured the Landfill and was escorted around the boundary, the active area, and the composting area. EPA detected an odor in the blower building near the Plant, but this odor did not reach past the Plant area.

Photos and/or Videos: were taken during the inspection.

Photos and videos were taken and documented in Appendix A and B.

Field Measurements: were taken during this inspection.

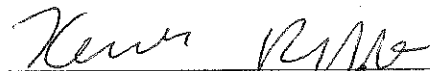
- Field measurements, as described in Appendix C, were taken using a TVA2020 at the Landfill surface.

CLOSING CONFERENCE

Compliance Assistance: During surface emission monitoring (SEM), EPA identified six areas of elevated methane above the 500 ppm standard. As a result, ADS is performing the corrective actions and re-tests required under the Landfills NSPS. Follow-up of actions taken to address these locations will be included in the 4th quarter SEM report.

SIGNATURES

Report Author:



Date:

11/21/2019

Section Chief:



Date:

11/21/19

Facility Name: Arbor Hills Landfill

Facility Location: 10690 Six Mile Road, Northville, Michigan

Date of Inspection: October 22-24, 2019

APPENDICES AND ATTACHMENTS

1. Appendix A: Digital Image Log
2. Appendix B: Digital Video Log
3. Appendix C: Surface Monitoring Results (Methane)

Facility Name: Arbor Hills Landfill

Facility Location: 10690 Six Mile Road, Northville, Michigan

Date of Inspection: October 22-24, 2019

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Vicky Mei	2. Date(s) of Inspection: October 22-24, 2019
3. Company/Facility Name: Arbor Hills Landfill	4. Street Address, City, State: 10690 Six Mile Road, Northville, Michigan
5. Number of Images: 8	6. Archival Record Location: CD-R labelled "Arbor Hills Landfill Inspection 10/22-24/2019"

Image No.	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	PA220001	10/22/2019 1:28 PM	Flare blowers
2	PA220003	10/22/2019 1:43 PM	Leachate treatment
3	PA240007	10/24/2019 9:44 AM	Surface location 1
4	PA240008	10/24/2019 10:59 AM	Surface location 2
5	PA240009	10/24/2019 11:05 AM	Surface location 3
6	PA240010	10/24/2019 11:08 AM	Surface location 4
7	PA240011	10/24/2019 11:13 AM	Surface location 5
8	PA240012	10/24/2019 11:18 AM	Surface location 6

Facility Name: Arbor Hills Landfill

Facility Location: 10690 Six Mile Road, Northville, Michigan

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APPENDIX B: DIGITAL VIDEO LOG

1. Inspector Name: Kenneth Ruffatto	2. Date(s) of Inspection: October 22-24, 2019
3. Company/Facility Name: Arbor Hills Landfill	4. Street Address, City, State: 10690 Six Mile Road, Northville, Michigan
5. Number of Videos: 3	6. Archival Record Location: CD-R labelled "Arbor Hills Landfill Inspection 10/22-24/2019"

Video Number	File Name	Date and Time (incl. Time zone and DST)	Description of Image
1	PA240004	10/24/2019 8:20 AM	Drone surface monitoring
2	PA240005	10/24/2019 8:21 AM	Drone surface monitoring
3	PA240006	10/24/2019 8:39 AM	Drone surface monitoring

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APPENDIX C: SURFACE MONITORING RESULTS (METHANE)

Results of EPA's surface emission monitoring at the Landfill for methane are shown below.

October 24, 2019

EPA used a Thermo Scientific TVA2020 Toxic Vapor Analyzer configured as a flame ionization detector (the TVA) on October 24, 2019 to measure surface methane concentrations on the Landfill. Monitoring was performed on a section of the west side of the Landfill above a haul road in accordance with EPA Method 21 and NSPS Subpart WWW. The monitoring location section was selected to compare monitoring results with the results from the drone SEM demonstration. All monitoring and calibration were done between 10:30 AM and 12:30 PM.

The instrument was calibrated by Kenneth Ruffatto using a calibration gas of zero and 500 ppm of methane. The following calibration data was collected for the calibration:

Trial	Meter Reading (ppm)	Difference from 500 ppm Calibration Gas (ppm)	Response Time (seconds to 90% of value)
1	497	3	4.3
2	496	4	4.3
3	502	2	3.3
Average		3	4.0

The calibration precision is 0.6% which is within the required 10% under Method 21. The average instrument response time is 4.0 seconds which also meets the requirement to be less than 30 seconds under Method 21.

The general weather on October 24, 2019 at Arbor Hills Landfill between 10:30 AM and 12:30 PM was 52°F and cloudy with no precipitation. The wind was from the NW at approximately 7-9 mph. The background concentration of methane upwind of the site was 0 ppm and downwind of the site was also 0 ppm with an average background of 0 ppm methane.

Monitoring was performed by Kenneth Ruffatto. The following six areas had concentrations greater than 500 ppm. Note that only the highest concentration detected is recorded, but additional monitoring was done around these points that also showed levels greater than 500 ppm.

#	GPS Coord		Corresponding Image No.	Methane (ppm)
	Lat	Long		
1	42.40223	-83.56171	3	700
2	42.40142	-83.56103	4	1800
3	42.40180	-83.56108	5	523
4	42.40180	-83.56084	6	655
5	42.40205	-83.56102	7	574
6	42.40227	-83.56102	8	3608