

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

N363470202

FACILITY: HARLAND SANITARY LANDFILL/MANISTEE COUNTY LANDFILL		SRN / ID: N3634
LOCATION: 3890 CAMP ROAD, MANISTEE		DISTRICT: Cadillac
CITY: MANISTEE		COUNTY: MANISTEE
CONTACT: Justin Obermeyer , Environmental Manager		ACTIVITY DATE: 12/14/2023
STAFF: Rob Dickman	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection of this major source.		
RESOLVED COMPLAINTS:		

Harland's Sanitary Landfill is located at 3890 Camp Road, in Manistee, Michigan. The nearest residences are located to the north of the landfill along Lindeman Road and Camp Road. It is classified as a Type II sanitary landfill, which is a Municipal Solid Waste (MSW) Landfill. The facility currently accepts petroleum contaminated soils, sludge, municipal household waste, and other wastes. The facility does not accept asbestos containing waste materials. The landfill opened in 1977 and has an expected closure year of 2030.

Landfill gas is collected by an active gas collection and control system. This system consists of vertical extraction wells that are installed in the depths of the landfill refuse, and which remove landfill gas by vacuum that is applied to the well from the blower. The collected landfill gas is then routed to an open flare emissions control device.

The facility has a sulfur removal system which removes hydrogen sulfide (H₂S) from the landfill gas prior to the open flare emissions control device. The sulfur removal system reduces the amount of sulfur dioxide (SO₂) emissions from the open flare emissions control device. This control device was originally permitted in Permit to Install (PTI) Nos. 357-08, 357-08A, and 357-08B.

Testing conducted on August 13, 2019, indicated that the landfill had non-methane organic compounds (NMOC) emissions at or above 50 megagrams per year (Mg/yr). When actual NMOC emissions at Harland's Sanitary Landfill reached 50 Mg/yr, an approvable landfill gas collection and control system design plan was required under then applicable 40 CFR Part 60, Subpart WWW for MSW Landfills. Within 18 months after the design plan was submitted, the equipment specified in the approved design plan was required to be installed and operating properly. This equipment had been previously installed voluntarily several years ago.

I inspected this facility with respect to Renewable Operating Permit number MI-ROP-N3634-2022 issued to the facility in September of 2022. On September 21, 2023, an email was sent to Justin Obermeyer, Environmental Manager at the facility, requesting required records. A 12-month period of August 2022 through July of 2023 was requested (referred to in this report as the "review period"). These records were received on 10/13/2023. On December 14, 2023, I travelled to the facility and performed a walkthrough inspection of all applicable equipment on site.

Following are the findings of this inspection. Required testing and reporting has been previously reviewed and documented. Therefore, unless otherwise noted, these items are not addressed in this report.

EUOPENFLARE

Open flare is an open combustor without enclosure or shroud. The flare's capacity is 1200 cfm and burns landfill gas routed from the collection system and treated by a sulfur removal system. This flare was in operation at the time of the inspection.

Emission Limits

SO_x emissions from the flare are to be less than 36 tons per year based on a 12-month rolling time period. Compliance with this limit is through treatment of the gas by the sulfur removal system and weekly monitoring and recording of the hydrogen sulfide concentration of the treated gas and emissions calculations. Readings below 400 ppm for H₂S ensure the facility will stay below this limit. Records provided by the facility indicate weekly monitoring during the review period, was less than this limit. Calculations indicate the highest 12-month rolling time period emissions were 10.78 tpy in November of 2022.

Material Limits

Hydrogen sulfide concentration of the landfill gas going to the flare (post treatment) is not to exceed 400 ppm. Compliance with this limit is weekly monitoring and recording. Records provided by the facility indicate weekly monitoring during the review period, was less than this limit. The highest value measured during the review period was on 9/21/22 at 300 ppm H₂S. For the week of 12/11/2023 the inlet hydrogen sulfide concentration to the sulfur treatment system was measured at 28,000 ppm. Post treatment concentration to the flare was zero.

Process or Operational Restrictions

The facility is to only burn treated landfill gas in the flare except as provided in the malfunction abatement/operation & maintenance plan (MAP/O&M). The MAP/O&M allows for times when the sulfur removal system has malfunctioned or is taken down for maintenance. Compliance with this is through tracking of plant shutdowns and H₂S testing of the untreated gas. Records for this are being kept and a list of shutdowns was included in the records submission.

The sulfur removal system is to be in proper operation at all times except during periods of malfunction or maintenance. Proper operation includes operation per the approved MAP/O&M. Compliance with this is through tracking of plant shutdowns. Records for this are being kept and a list of shutdowns was included in the records submissions.

The flare is also to be in operation at all times except during periods of malfunction or maintenance. Flare flame and flow are monitored continuously. This flare is equipped with an auto ignition system. Records of this for the review period were included with the records submission. Any flare downtime is reported semiannually. This information has been previously reviewed and documented.

Design or Equipment Parameters

A device to measure landfill gas flow to the flare is to be installed and operating at all times. The flare is so equipped. Flare flame and flow are monitored continuously. Records of this for the review period were included with the records submission. Flow to the flare during the review period consistently declined from 42 Mcf/month to 29 Mcf/month. Any flare downtime is reported semiannually. This information has been previously reviewed and documented. An instant flow reading taken at the time of the inspection demonstrated 787 cubic feet per minute.

Monitoring and/or Recordkeeping Requirements

BTU content of the landfill gas is to be monitored and recorded monthly. Records included for the review period indicate this information is being kept and the average BTU content is approximately 400 BTU/cf (post control).

SO_x emissions are to be calculated monthly and on a 12-month rolling time period. Calculations for SO_x indicate the highest 12-month rolling time period emissions for the review period were 10.78 tpy in November of 2022.

H₂S concentrations of the treated gas are to be monitored and recorded weekly. Records provided by the facility indicate weekly monitoring during the review period, was less than this limit. The highest value measured during the review period was on 9/21/22 at 300 ppm H₂S. For the week of 12/11/2023 the inlet hydrogen sulfide concentration to the sulfur treatment system was measured at 28,000 ppm. Post treatment concentration to the flare was zero.

Records of when the sulfur treatment system is down. Compliance with this is through tracking of plant shutdowns. Records for this are being kept and a list of shutdowns was included in the records submissions. For the review period, a total of four incidents were noted.

Stack/Vent Restrictions

The stack on the flare is to have a maximum exit width of 42 inches and a minimum height of 29 feet. This stack appears to meet these criteria and does not appear to have been recently modified.

Other Requirements

The facility is required to comply with all provisions of the Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction on or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014 as specified in 40 CFR Part 62, Subpart OOO and all applicable provisions of the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as specified in 40 CFR Part 63, Subparts A and AAAA. By complying with the provisions listed in their Renewable Operating Permit, they are in compliance with these standards.

FGLANDFILL-OOO

This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR Part 62, Subpart OOO requirements. Emission units included in this group are: EULANDFILL, EUACTIVECOLL, EUOPENFLARE

Emission Limits

There are no emission limits associated with this group.

Material Limits

There are no material restrictions on this group.

Process or Operational Restrictions

There are no process or operational restrictions on this group.

Design/Equipment Parameters

The facility is required to install a landfill gas collection and capture system (GCCS). This system was installed voluntarily decades ago but became required in December of 2017 when Tier 2 testing and modelling for NMOC emissions from the facility were demonstrated to be above the regulatory threshold of 50 Mg/yr.

All collected landfill gas is required to be routed to the flare. Landfill gas is collected by the GCCS and sent to the sulfur treatment system. Post treatment, all gas from the system is sent to the flare.

Monitoring/Recordkeeping

The facility is required to keep records of the design capacity report that triggered applicability to Part 62. This report is dated December 20, 2018.

The current amount of solid waste in place is required to be kept. Records of this were submitted. The amount of waste in place is approximately six million cubic yards with approximately eight million cubic yards of permitted air space remaining.

The year-by-year waste acceptance rate was submitted as a year end summary for 2022. Total waste accepted during 2022 was 169,763 tons.

Stack/Vent Restrictions

There are no stack restrictions for this section.

Other Requirements

There are no additional requirements associated with this emission unit.

FGACTIVECOLL-OOO

This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR Part 62, Subpart OOO requirements.

Emission Limits

There are no emission limits associated with this group.

Material Limits

There are no material restrictions on this group.

Process or Operational Restrictions

There are no process or operational restrictions on this group.

Design or Equipment Parameters

The facility is required to install a GCCS that meets several parameters described in the ROP. The facility began installing a GCCS decades ago and in December of 2018 submitted a GCCS Plan, reviewed and certified by a professional engineer, that would incorporate the GCCS in place and provide plans for future expansion in step with these requirements. This plan was reviewed by both AQD and MMD staff and approved in March of 2019.

Monitoring and/or Recordkeeping Requirements

The facility is required to keep records of when they chose to comply with Part 63, Subpart AAAAA. The facility notified the AQD of this in writing on September 29, 2021.

For the flare, the facility must keep records of the the maximum expected gas generation flow rate and the density of wells, horizontal collectors, surface collectors, or other devices including any supporting data and calculations. Records submitted indicate that during testing, the flow rate as measured by USEPA methodology was 966 scfm. The flare is rated for a maximum flow rate of 1200 scfm. Collector density is consistent with the approved 2018 GCCS plan.

For the GCCS a map showing each collector of all new collectors and documentation of all areas excluded from collection is required. The GCCS plan lists all of the collectors and contains mapping demonstrating their location in the landfill.

Stack/Vent Restrictions

There are not stack restrictions associated with this group.

Other Requirements

The facility is required to comply with all applicable provisions of the Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014 as specified in 40 CFR Part 62, Subpart OOO. By complying with the provisions of this ROP, they are complying with the Subpart.

FGOPENFLARE-000

This emission unit consists of an open (non-enclosed) flare is an open combustor without enclosure or shroud. This flexible group contains 40 CFR Part 62, Subpart OOO requirements.

Emission Limits

There are to be zero visible emissions from the flare except for periods not to exceed five minutes during any two consecutive hours. Compliance with this limit is through visible emissions testing via USEPA Method 22 every five years. This testing was last performed on November of 2020 and demonstrated compliance. At the time of the inspection, zero visible emissions was noted from the flare.

Material Limits

There are no material limits associated with this group.

Process or Operational Restrictions

The flare must be operated per 40 CFR 60.18 which requires zero visible emissions, net heating value testing, exit velocity testing, and a continuous flame. Compliance with this is through testing of the various parameters listed and recording when the flare is not in operation. This testing was last performed in November of 2020 and demonstrated compliance.

<u>Parameter</u>	<u>Result</u>	<u>Limit</u>
Visible Emissions	0%	0%
Heating Value	14.61 MJ/scm	>7.45 MJ/scm
Exhaust Exit Velocity	46.1 fps	<60 fps

Max Velocity	46.1 fps	<76.7 fps
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Design or Equipment Parameters

There are no design or equipment restrictions associated with this group.

Monitoring and/or Recordkeeping Requirements

The facility is required to keep all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, exit velocity determinations made, and continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent. These records were submitted for review. Flow rate is measured continuously via a flow meter. Exit velocity determination was determined by testing as listed above. Flare flow and flare flame temperature are recorded every two minutes.

The facility is required to keep records of when they chose to comply with Part 63, Subpart AAAA. The facility notified the AQD of this in writing on September 29, 2021.

Stack/Vent Restrictions

The stack on the flare is to have a maximum exit width of 42 inches and a minimum height of 29 feet. This stack appears to meet these criteria and does not appear to have been recently modified.

Other Requirements

The facility is required to comply with all applicable provisions of the Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014 as specified in 40 CFR Part 62, Subpart OOO. By complying with the provisions of this ROP, they are complying with the Subpart.

FGLANDFILL-AAAA

This flexible group represents the general MSW landfill with a required collection and control system. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

Emission Limits

Methane emissions are limited to less than 500 ppm above background level at the surface. Compliance with this limit is through quarterly surface emission monitoring (SEM). Four quarters of SEMs were submitted as part of records review.

<u>Quarter</u>	<u>Number of Exceedances</u>	<u>Resolved</u>
3 of 2022	4	<10 days
4 of 2022	0	NA
1 of 2023	0	NA
2 of 2023	9	<10 days

Material Limits

There are no material limits associated with this group.

Process or Operational Restrictions

The facility is required to operate in a manner consistent with good air pollution control practices for minimizing emissions. This facility has good compliance history that would indicate this is being performed.

During Startup/Shutdown and Malfunction (SSM) the facility is required to comply with work practices specified in the MACT. This consists of the gas mover system being shut in within one hour and the GCCS repairs to be initiated and completed in a timely manner.

Design or Equipment Parameters

The facility is required to install a GCCS that meets several parameters described in the ROP. The facility began installing a GCCS decades ago and in December of 2018 submitted a GCCS Plan, reviewed and certified by a professional engineer, that would incorporate the GCCS in place and provide plans for future expansion in step with these requirements. This plan was reviewed by both AQD and MMD staff and approved in March of 2019.

All collected landfill gas is required to be routed to the flare. Landfill gas is collected by the GCCS and sent to the sulfur treatment system. Post treatment, all gas from the system is sent to the flare.

Testing/Sampling

The facility is required to perform SEM testing quarterly and document the results of the testing. Records submitted indicated this is being performed.

Monitoring and/or Recordkeeping Requirements

The facility is required to keep records of SEM reporting. Records submitted indicated this is being performed.

Records of monthly cover integrity and cover repairs are to be kept. These records are kept monthly. For the review period, no issues were noted, and no repairs were made.

The current amount of solid waste in place is required to be kept. Records of this were submitted. The amount of waste in place is approximately six million cubic yards with approximately eight million cubic yards of permitted air space remaining.

The year-by-year waste acceptance rate was submitted as a year-end summary for 2022. Total waste accepted during 2022 was 169,763 tons.

Stack/Vent Restrictions

There are no stack or vent restrictions associated with this group.

Other Requirements

The facility is required to submit a revised design plan prior to expansion or if installing GCCS equipment that is not consistent with the current plan. This facility has not done either of these items in the last 12 months.

The facility has not capped or removed the GCCS and will not be for the foreseeable future.

The facility must comply with all applicable provisions of the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills as specified in 40 CFR Part 63, Subparts A and AAAA. By complying with the provisions of this ROP, they are complying with the Subpart.

FGACTIVECOLL-AAAA

This flexible group represents the active landfill gas collection system that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment. This flexible group contains 40 CFR Part 63, Subpart AAAA requirements.

Emission Limits

There are no emission limits associated with this group.

Material Limits

There are no material restrictions on this group.

Process or Operational Restrictions

There are no process or operational restrictions on this group.

Design or Equipment Parameters

The facility is required to install a GCCS that meets several parameters described in the ROP. The facility began installing a GCCS decades ago and in December of 2018 submitted a GCCS Plan, reviewed and certified by a professional engineer, that would incorporate the GCCS in place and provide plans for future expansion in step with these requirements. This plan was reviewed by both AQD and MMD staff and approved in March of 2019.

During Startup/Shutdown and Malfunction (SSM) the facility is required to comply with work practices specified in the MACT. This consists of the gas mover system being shut in within one hour and the GCCS repairs to be initiated and completed in a timely manner.

A sampling port and thermometer is to be installed at each wellhead in the GCCS. Records provided by the facility indicate weekly temperature, static pressure, and gas monitoring at each wellhead.

Monitoring and/or Recordkeeping Requirements

The facility must monitor gauge pressure in the gas collection header monthly, if positive pressure exists, corrective action must be taken. Records indicate no positive pressure readings during the review period.

The facility is required to keep records of when they chose to comply with Part 63, Subpart AAAAA. The facility notified the AQD of this in writing on September 29, 2021.

For the flare, the facility must keep records of the the maximum expected gas generation flow rate and the density of wells, horizontal collectors, surface collectors, or other devices including any supporting data and calculations. Records submitted indicate that during testing, the flow rate as measured by USEPA methodology was 966 scfm. The flare is rated for a maximum flow rate of 1200 scfm. Collector density is consistent with the approved GCCS plan.

For the GCCS a map showing each collector of all new collectors and documentation of all areas excluded from collection is required. The GCCS plan lists all of the collectors and contains mapping demonstrating their location in the landfill.

Stack/Vent Restrictions

There are not stack restrictions associated with this group.

Other Requirements

The facility is required to comply with all applicable provisions of the Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014 as specified in 40 CFR Part 62, Subpart OOO. By complying with the provisions of this ROP, they are complying with the Subpart.

At the time of the inspection, this facility was in compliance with their applicable air permitting.

NAME



DATE

1-31-24

SUPERVISOR

