

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

N601168190

<b>FACILITY:</b> MUSKEGON COUNTY SOLID WASTE FACILITY		<b>SRN / ID:</b> N6011
<b>LOCATION:</b> 9366 APPLE AVE, RAVENNA		<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> RAVENNA		<b>COUNTY:</b> MUSKEGON
<b>CONTACT:</b> Greg Leverage , Solid Waste Manager		<b>ACTIVITY DATE:</b> 06/21/2023
<b>STAFF:</b> Chris Robinson	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MAJOR
<b>SUBJECT:</b> FY '23 on-site inspection to determine the facility's compliance status with MI-ROP-N6011-2019.		
<b>RESOLVED COMPLAINTS:</b>		

**A) Introduction**

On June 21, 2023, staff Chris Robinson (CR) from Michigan's Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) conducted an inspection at Muskegon County Solid Waste Facility (MCSWF, SRN N6011) located at 9366 Apple Avenue, Ravenna, Michigan. The purpose of this inspection was to determine the facility's compliance status with the requirements of the federal Clean Air Act; Part 55 (Michigan's Air Pollution Control Rules) of Act 451 of the Natural Resources and Environmental Protection Act (NREPA); Renewable Operating Permit (ROP) MI-ROP-N6011-2019 and other applicable state and federal air quality rules and regulations.

This inspection immediately followed a State led Surface Emissions Monitoring (SEM) event. CR met with Gina McCann (EGLE-AQD), Jeff Benya (EGLE-AQD), Mike Kovalchick (EGLE-AQD), Tim Unsel (EGLE-Materials Management Division), Tyler Smith (Environmental Information Logistics, LLC.), and Greg Leverage (MCSWF Supervisor) prior to starting the SEM event. Once completed CR discussed the ROP and records with Tyler and Greg. After which Greg provided a quick tour of the wastewater treatment area and farming operations.

Weather conditions were fair with a temperature of approximately 83 degrees Fahrenheit and easterly winds at approximately 9 mph ([www.weatherunderground.com](http://www.weatherunderground.com)). No odors or visible emissions were noted offsite. Minor odors were noticed onsite and are discussed below in section D1 under EULANDFILL.

**B) Facility Description**

The MCSWF is a municipal solid waste (MSW) landfill located in Ravenna, Muskegon County, Michigan which began operation in 1973 and has a maximum design capacity of 3.76 million megagrams. There are currently four (4) closed waste cells, and two (2) active waste cells. Gases from the closed cells are collected through an active collection system and then controlled through an open flare. However, a landfill gas collection and control system is also required for the active cells.

**C) Regulatory Evaluation**

The landfill is subject to the following federal standards:

1. Emission Guidelines for existing Municipal Solid Waste Landfills promulgated under 40 CFR Part 60, Subparts A and Cf.
2. Federal Plan Requirements for Existing Municipal Solid Waste Landfills promulgated in 40 CFR Part 62, Subpart OOO. The Federal Plan will apply until a State Plan is approved or delegation of the Federal Plan approved.
3. The Maximum Achievable Control Technology Standards (MACT) for Municipal Solid Waste Landfills promulgated in 40 CFR Part 63, Subparts A and AAAA.
4. The National Emission Standard for Hazardous Air Pollutants (NESHAP) for Asbestos promulgated in 40 CFR Part 61, Subparts A and M. However, the facility claims to have never accepted asbestos waste which is also noted in previous inspection reports. This standard is not discussed any further below, however the facility should verify applicability since it has been noted in the past that they are subject.
5. Construction of new cells west of Cell 1 for the new lateral expansion, which began on March 21, 2023, triggered NSPS, Subpart XXX applicability for Municipal Solid Waste Landfills that commenced construction, reconstruction, or modification after July 17, 2014.

**D) Compliance Evaluation**

The County operates the landfill under ROP no. ROP-MI-N6011-2019 and Rule 201 permitting exemptions, which are discussed below.

**1) ROP-MI-N6011-2019**

All semi-annual and annual reports have been submitted as required in Special Condition VII for each ROP Emission Unit and Flexible Group table. This includes the ROP Certifications, Compliance Reports, deviation reports, SEMS reports, and SSM reports. Reports required by a single emission unit or Flex Group table are discussed in the appropriate sections below. The facility appears to be maintaining records for at least five (5) years as required by the ROP. Deviations have been noted, see FCE report.

### **EULANDFILL**

EULANDFILL is subject to a methane concentration of 500 ppm limit (Special Condition (SC) I.1), above background which is determined by conducting quarterly surface scans as required by SC V.1-5. Records have been provided by the facility for January 1, 2021, through June 30, 2023, indicating one (1) event above 500 ppm. Based on the records this exceedance was addressed and re-monitored as required with methane levels below 500 ppm. The AQD led SEM event conducted on June 21, 2023, identified 25 areas with surface methane concentrations greater than 500 ppm above background. The facility conducted their most recent quarterly SEMS on June 20, 2023, and found no areas with methane above 500ppm. AQD SEMS results were provided to the facility in a letter dated June 27, 2023, with several recommendations including the following:

*“Investigate how existing quarterly SEM surveys are being conducted. In particular, meeting this NESHAP AAAA standard: “where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover.” (Several of the survey team’s SEM hits were visually obvious and should have been identified by previous SEM surveys.)”*

A gas collection and control system has been installed as required by SC IV.1 and the gas is routed as required in SC IV2, which is either to an open flare (either the permitted flare or temporary flare) or the treatment system. Monthly cover integrity inspections are being conducted (SCVI.1) and were received for the time period of January 2021 through June 2023. Records indicate minimal issues with any identified being repaired in a timely manner. However, observations during the AQD lead SEMS activity did not seem to match past cover inspections including the one conducted 5 days before the AQD SEMS event on June 16, 2023. For instance, the AQD SEMS report dated June 27, 2023, noted the following:

*“Cover integrity was reviewed. Much of the cover was satisfactory. Despite very dry conditions, surface cracking wasn’t prevalent likely due to the sandy soil. Erosion rills were minimal. However, some cover problems were found. Cell 5 had areas of overgrown vegetation that were too thick to traverse/survey, sandy bare areas and circles of dead vegetation caused by leaking landfill gas. Also, uncovered trash was found in several areas of Cell 4 & 5 centered around well EW-50 that lacked adequate cover. The Cell 2 gap area around the periphery of the active area waste mass at the edge of the exposed rain flap appeared not to be receiving adequate daily cover with uncovered trash encountered.”*

*“A second area of concern was encountered at the Cell 2 “gap” active area. Cell 2 gap is separately lined on final covered areas of Cell 2 (east slope) and Cell 1 (west slope). There is a double liner in the Cell 2 gap (active area). Trash has been accumulating in this cell since July 2021. Currently, no GCCS is present in this cell with plans for one in 2024. The survey team completed a circle of this 10-acre area at/near the perimeter of the current extent of the existing GCCS and encountered nearly continuous elevated methane levels along the entire route. The methane was sampled near the edge of the cell over-liner in the space between the rain flap and the edge of the active area trash were little or no daily cover was present. Numerous SEM hits were recorded along with 2 additional leachate outbreaks.”*

The County will need to address the areas of concern for both cover and elevated methane and respond to the June 27, 2023, letter. Regarding cover integrity the letter also recommended that the facility *“Ensure that daily/interim cover requirements are being met for all landfill cells. In particular, the margins of the Cell 2 “gap” waste mass where excessive methane is being released.”*

In addition to the reports mentioned above in section D1, the facility is required to submit an equipment removal (SC V.4) and/or a closure report (SC VII.5). No equipment has been removed and the landfill is still in operation so neither report is required at this time. Semi-annual SSM reports were received on time.

It is noted that currently the County is filling waste in Cell 5 and will be to final grade soon. A gap fill cell has been constructed between closed cells one (1) and two (2). This gap cell allowed for additional waste volumes to be accepted before the site had to expand. The gap cell did not affect NSPS, Subpart XXX applicability. However, construction of new cells west of Cell 1 for the lateral expansion triggered NSPS, Subpart XXX applicability once construction began on March 21, 2023. Since the facility is now subject to this federal standard those requirements must be included in the ROP renewal.

### **EUACTIVECOLL**

Because the County calculated non-methane organic compound (NMOC) emissions above 50 Mg/year, the County was required and has installed a landfill gas collection and control system in accordance with the ROP. Wells EW47R, EW48, EW49, EW50, EW51,

EW53, EW54, and EW55 were installed in 2022. Well, EW52 was installed in November 2022 and well EW47 was decommissioned on October 20, 2022.

All collection wells are placed with sufficient density to control surface gas emissions as certified by a professional engineer. All wells are constructed of schedule-80 PVC pipe with HDPE well heads.

The ROP requires that each interior wellhead be operated with a landfill gas temperature less than 131°F, an oxygen level less than 5%, and negative pressure. The County is monitoring static pressure, oxygen (O<sub>2</sub>) concentration, and temperature on a monthly basis in accordance with the ROP using an Elkins Envision gas meter. All wells are equipped with required sampling ports. From June 2022 through May 2023 records showed that positive pressure was observed in wells EW-12R, EW13R2, EW47R, EW48, EW49, EW50, EW51, EW53, EW54, EW55, and OC-1. These exceedances were documented, and valves adjusted. Re-monitoring showed pressure values returned to negative the same day.

Oxygen concentrations of greater than 5% were observed at wells EW-23R, EW-39, OC-1, and OC-2. These were documented and the valves were adjusted for wells EW39 and OC-1. Re-monitoring showed oxygen values returned to less than 5% the same day. Well OC-1 and OC-2 were installed on leachate collection points to address odors from the site. However, based on EPA determinations, these wells are required to be monitored in accordance with NSPS requirements. OC-2 has been operating with an alternate compliance operating parameter since 2013. No adjustments were made to well EW23R and the oxygen concentration was 0.0% during the following month's monitoring. Although the 5% operating standard remains in the County's ROP this standard is no longer required per NESAHF AAAA which will be updated during the next ROP renewal.

No temperature exceedances were observed.

### **EUTREATMENTSYS**

A landfill gas treatment and compressor system are installed to allow landfill gas to be burned in off-site combustion units (at Eagle Alloy and Sun Chemical). In the process, landfill gas captured from the field is sent into the compressor station. The gas passes through a knockout tank that contains a demister pad to remove any condensed liquid and then through a filter section to remove particulates.

The filtered gas then goes through an electric compressor to compress the gas to 20psig which will result in an outlet temperature of 200°F. The gas is then cooled to 100°F through an air-to-air heat exchanger. Following the cooler, liquids are removed by a moisture separator (cyclone) to remove any free liquid. The gas is dried to a dew point of 40°F using a refrigeration dryer and the temperature of the gas cooled to 40°F by a refrigeration system using R22 gas. Treated gas is metered, analyzed, and transported to the end user(s) via the pipeline. All operating conditions including gas flow, temperatures, and pressures are monitored using a computer monitoring system. The treatment system has been down for repairs since March 2022. Since then, all landfill gas has been routed to a temporary flare which was operating at the time of the inspection with a flow of approximately 850scfm. The permit exemption for this flare is discussed below.

As required by SC IX.3 the County has an acceptable preventative maintenance plan on site. In accordance with that plan, County personnel conduct daily inspections of the treatment system components and document any maintenance activities performed or equipment notes.

### **EUOPENFLARE**

This is a 600 scfm non-assisted, open flare used to burn landfill gas generated by the landfill. At the time of the inspection the treatment system was down for repairs. Since there is no bypass line on the flare, all gas burned in this flare has to go through the treatment system. Therefore, this flare has not been operating. In addition, due to additional cell construction the gas flow rate has increased from 456 scfm, as noted during the 6/23/2021 inspection, to 850 scfm. Since the gas flow now exceeds the capacity of this flare a temporary 1,500 scfm open flare was brought in to combust all of the gas while the facility's new flare is being constructed. The County has claimed both the temporary and future new flare as being exempt from Rule 201 permitting requirements per Rule 285(2)(aa) for "*Landfills and associated flares and leachate collection and handling equipment*". A demonstration was provided by the facility.

The flare is equipped with an ultraviolet sensor that continuously monitors flame presence. In addition, the County installed a pilot flame system fueled by a propane tank in which the temperature is also monitored. Upon flare outage, the flame controller shuts down the blower and main well field valve until the flame is relighted. Re-ignition of the flare is conducted automatically; however, it can be done manually. The flame outage procedure is also dependent on whether gas is diverted to the other users. The County is recording the presence of flame by monitoring the temperature of the flame when the flare is operating and the temperature of the pilot flame. All flare outages are being recorded in accordance with the ROP and SSM plan for both flares and the initial performance test for EUOPENFLARE was conducted on July 1, 2004.

### **EUASBESTOS**

The County does not accept asbestos containing material; therefore, this section of the ROP will not be discussed further.

**2) Rule 201 Permitting Exemptions**

An FGCOLDCLEANERS table is included in the ROP. Per discussions there are no cold cleaners onsite. Therefore, this table should be removed from the ROP during the next renewal.

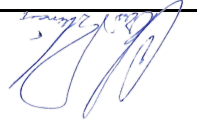
**3) MAERS**

Report submittal certification form was received on time (March 13, 2023) and was reviewed by AQD on March 31, 2023, and found to be acceptable. Source-wide emissions as reported are listed below.

Pollutant	Amount (tons)
CO	18.04
NMOC	6.53
NOX	3.96
PM10, FLTRBLE	3.60
PM10, PIMARY	0.20
PM2.5, PRIMARY	0.20
SO2	6.73
VOC	0.37

**E) Conclusion**

At the time of this inspection, based on observations, discussions and a records review Muskegon County Solid Waste Facility appears to be operating in compliance with applicable air quality rules and regulations including MI-RQP-N6011-2019. Corrective action is still required in order to address the outstanding issues identified during AQD's SEMs event conducted concurrently with this inspection. An update on these issues is being requested.

NAME \_\_\_\_\_  


DATE 7/27/2023

SUPERVISOR \_\_\_\_\_  
