

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

N603970566

FACILITY: K & W LANDFILL, INC		SRN / ID: N6039
LOCATION: 11877 HIGHWAY M-38, ONTONAGON		DISTRICT: Marquette
CITY: ONTONAGON		COUNTY: ONTONAGON
CONTACT: Madeline Schwerinski , Environmental Engineer		ACTIVITY DATE: 11/21/2023
STAFF: Joe Scanlan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Inspection to determine compliance with MI-ROP-N6039-2022.		
RESOLVED COMPLAINTS:		

REGULATORY AUTHORITY

Under the Authority of Section 5526 of Part 55 of NREPA, the Department of Environment, Great Lakes, and Energy may upon the presentation of their card, and stating the authority and purpose of the investigation, enter and inspect any property at reasonable times for the purpose of investigating either an actual or suspected source of air pollution or ascertaining compliance or noncompliance with NREPA, Rules promulgated thereunder, and the federal Clean Air Act.

FACILITY DESCRIPTION

K&W Landfill is located on State Highway M-38 nearest the community of Greenland in Ontonagon County. The area surrounding the landfill is rural and wooded. The area with the highest concentration of residential dwellings is located approximately one mile to the east of the landfill in Greenland.

K&W Landfill is owned and operated by Waste Management (WM). K&W Landfill is a Type II Municipal Solid Waste (MSW) landfill that began accepting waste in 1987. The landfill accepts sludge, asbestos containing material (ACM) waste, fly ash, industrial waste, miscellaneous solids, and municipal household waste.

PROCESS DESCRIPTION

A landfill consists of an area of land or an excavation in which wastes are placed for permanent disposal. The process begins with collected waste being transported to the landfill where it is dumped into an area (cell). A synthetic liner, such as high-density polyethylene, is used at the bottom to prevent contamination of leachate and landfill gas with ground water and soil. Heavy equipment then spreads the waste, compacts it, covers the waste with soil or alternate daily cover materials (ADCM), and further compacts it on a daily basis. When a cell is full, it is covered permanently with a liner cap and compacted soil.

EMISSIONS

Landfill gas is generated through bacterial decomposition of organic materials contained in solid waste. Initially, decomposition is aerobic until the oxygen supply is exhausted. With the solid waste being insulated from the atmosphere, decomposition then occurs anaerobically producing most of the landfill gas. Landfill gas (LFG) consists of 50% methane, 50% carbon dioxide, and less than 1% non-methane organic compounds (NMOC). The NMOC fraction consists of various organic hazardous air pollutants (HAP), greenhouse gases, and volatile organic compounds (VOC).

LFG can be collected through one of two methods: active and passive gas collection systems. K&W Landfill utilizes a passive system that relies on the pressure gradient created by the generation of LFG in the cells. Pipes in the cells collect the gas and move it from an area of high pressure to low pressure where it is emitted to the atmosphere through vents. There are 29 vents and 4 flares at K&W Landfill.

EMISSIONS REPORTING

K&W Landfill is required to report its annual emissions to Michigan Air Emissions Reporting System (MAERS). The following table lists the source total emissions for the reporting year 2022:

Pollutant	Emissions (TPY)
CO	1.77
PM10	0.62
PM2.5	0.08
NMOC	0.65
VOC	0.25

REGULATORY ANALYSIS

The facility operates under MI-ROP-N6039-2022. In May 2021, the facility became subject to the Federal Plan Requirements for Municipal Solid Waste Landfills, as promulgated in Title 40 of the Code of Federal Regulations (CFR), Part 62, Subpart OOO. The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because its design capacity exceeds 2.5 million Mg and 2.5 million cubic meters; however, no pollution control equipment is required at this time because actual NMOC emissions are less than 34 Mg/year.

The facility is a minor source of HAP emissions because the potential to emit of any single HAP regulated by the federal Clean Air Act, Section 112, is less than 10 tons per year and the potential to emit of all HAPs combined are less than 25 tons per year.

No emissions units at the facility are currently subject to the Prevention of Significant Deterioration regulations of Part 18, Prevention of Significant Deterioration of Air Quality of Act 451, because at the time of New Source Review permitting the potential to emit of carbon monoxide was less than 100 tons per year.

The facility is subject to the asbestos regulations found in 40 CFR 61.154, because the facility accepts asbestos containing waste.

COMPLIANCE HISTORY

The facility was last inspected in February 2022 and was found to be in compliance with all applicable air quality rules and federal regulations at that time.

INSPECTION

On November 21, 2023, I conducted an announced inspection of K&W Landfill. I arrived at the office/maintenance building and met outside with WM District Manager, Clayton Hella, and WM Environmental Engineer, Madeline Schwerinski. It was explained to Clayton and Madeline that the purpose of the inspection was to ensure compliance with MI-ROP-N6039-2022 and all other applicable air pollution control rules and federal regulations.

WM staff escorted me on a visible inspection of the landfill, driving the access road surrounding the landfill. Following the tour, WM staff provided an overview of the landfill, detailed maps, and the status of the current cells. Records were provided for the landfill and asbestos information.

EULANDFILL<34

SC V.1, VI.2, SC IX.1: K&W Landfill is required to conduct Tier 2 testing for NMOC emissions. This testing is to be performed every five years.

Prior to May 2021, the facility was subject to 40 CFR, Part 60, Subpart WWW and was required to conduct NMOC testing similar to the requirements within 40 CFR, Part 62, Subpart OOO, which it is currently subject to. To preserve the 5-year NMOC emissions testing timeframe and still satisfy Subpart OOO NMOC determination requirements during this transition, K&W Landfill maintained the site-specific NMOC Concentration determined in 2021 using the Tier 2 sampling procedures under NSPS WWW 60.754(a)(3), which comply with the Federal Plan Subpart OOO Tier 2 sampling requirements in 40 CFR 62.16718(a)(3). The next NMOC Tier 2 testing for this facility is due June of 2026.

Results from the June 2021 Tier 2 testing showed site specific NMOC concentration (hexane) was determined to be 16.9 ppmv. For 2022, the facility reported actual emissions of 0.65 tons/yr NMOC to MAERS, which equates to 0.59 Mg/yr NMOC. This is lower than the NMOC emission rate of 1.08 Mg/yr as projected in the *Tier 2 Landfill Gas Sampling and Analysis Report* from August 2021. This same report offers a projected emission NMOC emission rate of 1.105 Mg/yr for 2023.

Due to an NMOC emission rate of less than 34 Mg/year, K&W Landfill is not required to implement an active landfill gas control/collection system.

SC VI.1: K&W Landfill keeps records of the design capacity for the facility. A 2021 report was provided. The total permitted capacity is 4,839,650 cubic yards. K&W Landfill is also required to monitor and record the amount of waste brought in on a year-by-year basis:

K&W Landfill	Tons Received	

		Waste in Place – End of Year (yd ³)
2022	91,737	3,901,233
2023	91,568	4,034,037

SC VII.1-6: A review of records from 2022 and 2023 show the facility has submitted timely annual NMOC emission reports with annual certifications of compliance for MI-ROP-N6039-2022.

EULANDFILL-ASBESTOS

SC III.1: During the tour of the landfill, signs were observed along the access road and at the office building that state “Asbestos Disposal Site” and warnings related to asbestos. The facility uses a combination of fencing and natural barriers to deter access by the general public.

SC VI.K&W Landfill keeps records of the name, address, and phone number of the waste generator and transporter for each shipment received on the Waste Shipment Record/Asbestos Manifest reports. The quantity of the asbestos-containing waste material is also recorded. Also provided on the record sheet, is the latitude, longitude, and elevation of the disposal site for asbestos material.

SC VI.2-4: WM staff provided an updated Asbestos Disposal Locations map that provides information on each asbestos shipment received with the point number, date, and elevation of where that shipment is deposited in the landfill. K&W requires a 24-hour notice prior to acceptance of any regulated asbestos-containing material (ACM). This allows staff to prepare a disposal site in order for the ACM waste to be deposited and covered as efficiently and quickly as possible.

SC IV.1, VII.6: K&W has not had to disturb placed asbestos waste for any reason, therefore no notifications for such activity have been submitted to AQD.

MISCELLANEOUS

At the time of the inspection, no fugitive dust emissions were observed. K&W Landfill is currently operating in cell 5. This cell became active in May 2021. Cells 3 and 4 were capped in the summer of 2022.

COMPLIANCE

Based on this inspection, K&W Landfill appears to be in compliance with MI-ROP-N6039-2022 and all other applicable regulations.

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
1987	0	0	0	0	0	0
1988	5.533E+02	3.022E+05	2.031E+01	3.684E-02	1.028E+01	6.905E-04
1989	1.080E+03	5.897E+05	3.963E+01	7.187E-02	2.005E+01	1.347E-03
1990	1.580E+03	8.632E+05	5.800E+01	1.052E-01	2.935E+01	1.972E-03
1991	2.056E+03	1.123E+06	7.548E+01	1.369E-01	3.819E+01	2.566E-03
1992	2.509E+03	1.371E+06	9.211E+01	1.671E-01	4.661E+01	3.132E-03
1993	2.940E+03	1.606E+06	1.079E+02	1.958E-01	5.461E+01	3.669E-03
1994	3.350E+03	1.830E+06	1.230E+02	2.230E-01	6.222E+01	4.181E-03
1995	3.740E+03	2.043E+06	1.373E+02	2.490E-01	6.947E+01	4.667E-03
1996	4.111E+03	2.246E+06	1.509E+02	2.737E-01	7.635E+01	5.130E-03
1997	4.464E+03	2.439E+06	1.638E+02	2.972E-01	8.291E+01	5.571E-03
1998	4.799E+03	2.622E+06	1.762E+02	3.195E-01	8.914E+01	5.989E-03
1999	5.591E+03	3.055E+06	2.052E+02	3.723E-01	1.039E+02	6.978E-03
2000	6.252E+03	3.416E+06	2.295E+02	4.163E-01	1.161E+02	7.803E-03
2001	6.619E+03	3.616E+06	2.429E+02	4.407E-01	1.229E+02	8.260E-03
2002	6.977E+03	3.811E+06	2.561E+02	4.645E-01	1.296E+02	8.707E-03
2003	7.516E+03	4.106E+06	2.759E+02	5.004E-01	1.396E+02	9.380E-03
2004	8.378E+03	4.577E+06	3.075E+02	5.578E-01	1.556E+02	1.046E-02
2005	9.420E+03	5.146E+06	3.458E+02	6.272E-01	1.750E+02	1.176E-02
2006	1.019E+04	5.564E+06	3.739E+02	6.782E-01	1.892E+02	1.271E-02
2007	1.089E+04	5.943E+06	3.993E+02	7.243E-01	2.021E+02	1.358E-02
2008	1.160E+04	6.338E+06	4.259E+02	7.725E-01	2.155E+02	1.446E-02
2009	1.205E+04	6.581E+06	4.422E+02	8.020E-01	2.238E+02	1.503E-02
2010	1.241E+04	6.779E+06	4.555E+02	8.261E-01	2.305E+02	1.549E-02
2011	1.276E+04	6.972E+06	4.684E+02	8.496E-01	2.370E+02	1.593E-02
2012	1.317E+04	7.197E+06	4.835E+02	8.771E-01	2.447E+02	1.644E-02
2013	1.393E+04	7.612E+06	5.115E+02	9.277E-01	2.588E+02	1.739E-02
2014	1.410E+04	7.703E+06	5.176E+02	9.388E-01	2.619E+02	1.760E-02
2015	1.420E+04	7.758E+06	5.213E+02	9.455E-01	2.638E+02	1.772E-02
2016	1.430E+04	7.813E+06	5.250E+02	9.522E-01	2.656E+02	1.785E-02
2017	1.447E+04	7.906E+06	5.312E+02	9.635E-01	2.688E+02	1.806E-02
2018	1.469E+04	8.026E+06	5.393E+02	9.781E-01	2.729E+02	1.834E-02
2019	1.500E+04	8.197E+06	5.508E+02	9.990E-01	2.787E+02	1.873E-02
2020	1.540E+04	8.411E+06	5.651E+02	1.025E+00	2.860E+02	1.921E-02
2021	1.581E+04	8.639E+06	5.805E+02	1.053E+00	2.937E+02	1.974E-02
2022	1.621E+04	8.857E+06	5.951E+02	1.079E+00	3.011E+02	2.023E-02
2023	1.659E+04	9.064E+06	6.090E+02	1.105E+00	3.082E+02	2.071E-02
2024	1.695E+04	9.261E+06	6.223E+02	1.129E+00	3.149E+02	2.116E-02
2025	1.730E+04	9.448E+06	6.348E+02	1.152E+00	3.212E+02	2.158E-02
2026	1.762E+04	9.627E+06	6.468E+02	1.173E+00	3.273E+02	2.199E-02
2027	1.793E+04	9.796E+06	6.582E+02	1.194E+00	3.331E+02	2.238E-02
2028	1.706E+04	9.318E+06	6.261E+02	1.136E+00	3.168E+02	2.129E-02
2029	1.623E+04	8.664E+06	5.956E+02	1.080E+00	3.014E+02	2.025E-02
2030	1.543E+04	8.432E+06	5.665E+02	1.028E+00	2.867E+02	1.926E-02
2031	1.468E+04	8.020E+06	5.389E+02	9.775E-01	2.727E+02	1.832E-02
2032	1.397E+04	7.629E+06	5.126E+02	9.298E-01	2.594E+02	1.743E-02
2033	1.328E+04	7.257E+06	4.876E+02	8.845E-01	2.467E+02	1.658E-02
2034	1.264E+04	6.903E+06	4.638E+02	8.413E-01	2.347E+02	1.577E-02
2035	1.202E+04	6.567E+06	4.412E+02	8.003E-01	2.233E+02	1.500E-02
2036	1.143E+04	6.246E+06	4.197E+02	7.613E-01	2.124E+02	1.427E-02

Image 1(KW1) : Projected (not actual) NMOC rates from the August 2021 Tier 2 Landfill Gas Sampling and Analysis Report



Image 2(KW2) : Google Earth image 7/01/22

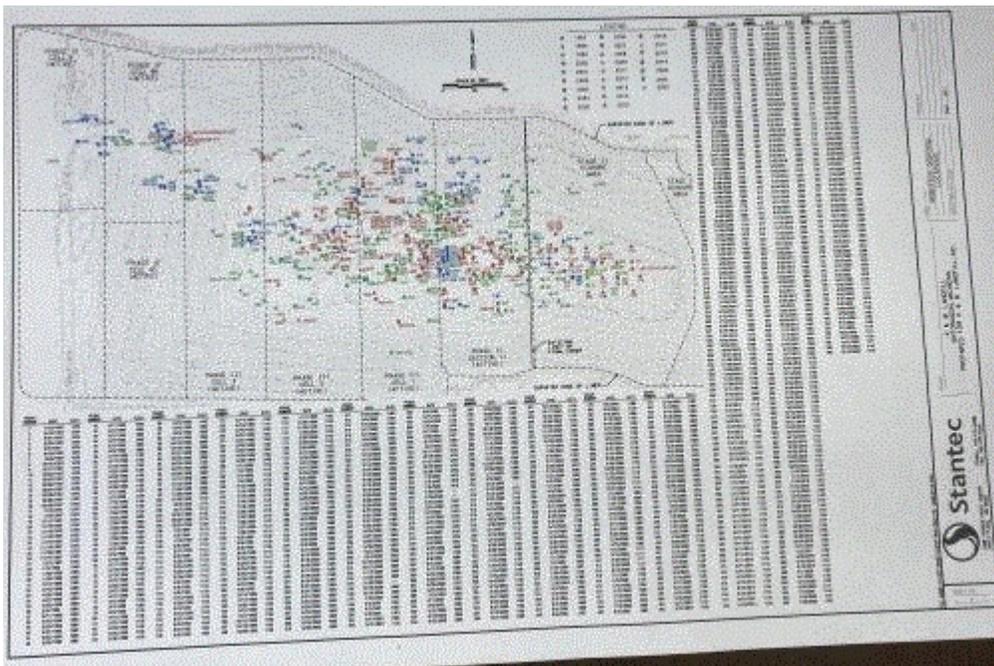


Image 3(KW3) : Asbestos deposit map

