

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

N603352327

FACILITY: DAFTER SANITARY LANDFILL INC		SRN / ID: N6033
LOCATION: 3962 W 12 MILE ROAD, DAFTER		DISTRICT: Upper Peninsula
CITY: DAFTER		COUNTY: CHIPPEWA
CONTACT: TIM HARROW, SITE MANAGER		ACTIVITY DATE: 01/31/2020
STAFF: Michael Conklin	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Targeted inspection for FY 20.		
RESOLVED COMPLAINTS:		

Facility: Dafter Sanitary Landfill (SRN: N6033)
Location: 3962 W. 12 Mile Road, Dafter, MI 49724
Contact(s): Tim Harrow, Site Manager

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

Dafter Sanitary Landfill (DSL) is a municipal solid waste landfill that is owned and operated by Waste Management, Inc. (WM). WM is a major waste and environmental services company, headquartered in Houston, Texas, that serves residential, commercial, and industrial customers through collection, disposal, recycling and other waste collection services. The company owns several landfill sites throughout the United States, Canada, and Puerto Rico.

DSL is located at 3962 West 12 Mile Road, Dafter, Michigan, a rural area in Chippewa County that is currently in attainment for all criteria pollutants. The landfill is situated approximately two miles southwest of Dafter and is in a relatively flat area surrounded by forests and agricultural land. The source is categorized as a Type II landfill and currently has a design capacity greater than 2.5 million cubic meters. DSL accepts asbestos, biosolids, demolition debris, industrial waste, municipal waste, and naturally occurring radioactive material. The source receives on average 40 to 55 tons of waste per year. With being a Type II landfill, DSL does not accept hazardous waste. DSL has been accepting waste since 1981 and currently contains five landfill cells: A, B, C, D, and E. Cell A is closed and has 8 passive vents, while cells B, C, D, and E are active and have 23 passive vents. Of the 31 passive vents, 9 have self-igniting flares that are spark ignited to control odors.

On February 12, 2004, the DEQ Waste and Hazardous Materials Division issued a new Construction Permit to the Dafter Sanitary Landfill that increased the total permitted waste capacity from 1,322,000 cubic yards to 5,312,000 cubic yards. In accordance with Air Pollution Control Rule 211(1)(e), which requires that any municipal solid waste landfill that has a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters obtain and operate in compliance with a renewable operating permit (ROP), the facility submitted an application for an ROP and MI-ROP-N6033-2006 was issued on January 1, 2006. In addition, the source became subject to 40 CFR Part 60, Subpart WWW New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills that also requires subject sources to obtain a Part 70 permit.

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. DSL 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 is no purification of LFG at this source.

Emissions Reporting

DSL 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 2018.

Pollutant	Emissions (TPY)
CO	1.2
PM	<1
NMOC	<1
VOC	<1

Regulatory Analysis

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because EULANDFILL<50 is subject to 40 CFR Part 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills. DSL is subject to 40 CFR Part 60, Subpart WWW because the landfill's design capacity exceeds 2.5 million cubic meters. A landfill that is subject to this subpart is also subject to Part 70 permitting requirements. The source is currently permitted under MI-ROP-N6033-2015.

EUASBESTOS at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Asbestos promulgated in 40 CFR Part 61, Subparts A and M. The source has been accepting both friable and non-friable asbestos waste materials.

Compliance History

The facility has not received any violation notices in the past five years. The facility was last inspected in February 2018 and was found to be in compliance with all applicable air quality rules and federal regulations at that time.

Inspection

On January 31, 2020, I conducted an unannounced inspection on Dafter Sanitary Landfill. I arrived at the office building and met with Site Manager, Tim Harrow. I explained to Mr. Harrow that the purpose of the inspection was to ensure compliance with MI-ROP-N6033-2015 and all other applicable air pollution control rules and federal regulations. The inspection began by Mr. Harrow providing an overview of the landfill and the status of the current cells. Next, records were provided for the waste report and asbestos information. Mr. Harrow then provided a tour of the landfill before departure.

EULANDFILL<50

Since the landfill received a volume expansion from the department after May 30, 1991, it is subject to NSPS, Subpart WWW, and is required to conduct Tier 2 or Tier 3 testing for NMOC emissions. This testing is to be performed every five years. The source performs Tier 2 testing and conducted the most recent test on November 13, 2019. The 2019 Tier 2 testing established a site-specific NMOC concentration of 6.3 parts per million by volume (ppmv) as hexane, with an emission rate of 0.29 Mg/year. The projected annual NMOC emission rate was calculated as 0.29 Mg/year in the year 2025, assuming an annual average waste acceptance rate remains relatively constant. With DSL having an annual NMOC emission rate of less than 50 Mg/year, the source is not subject to the National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills promulgated in 40 CFR Part 63, Subparts A and AAAA, and is not required to install a landfill gas collection/control system.

As required under Special Condition VI.1, DSL keeps records of the design capacity for the facility. Reports were provided for fiscal years 2018 and 2019. For the periods of October 1, 2018, through September 30, 2019, the capacity at the start of the fiscal year was 3,470,999 cubic yards and the capacity at the end of the fiscal year was 3,424,424. The estimated capacity used during this reporting year was 46,575 cubic yards. With a total permitted capacity of 5,312,100 cubic yards, the landfill has an occupancy of 1,887,676 cubic yards as of September 30, 2019. DSL is also required to monitor and record the amount of waste brought in on a year-by-year basis. For fiscal years 2018 and 2019, the facility received 46,081 and 40,524 tons respectively.

SC VI.3 requires DSL to calculate the annual NMOC emission rates using methods in Appendix 7 or the most recent version of USEPA's Landfill Gas Emissions Model. The 2019 NMOC emission rate for the source was calculated using the equation from 40 CFR 60.754(a)(1)(ii).

$$M_{\text{NMOC}} = 2L_o R(e^{-kc} - e^{-kt}) C_{\text{NMOC}} (3.6 \times 10^{-9})$$

Where:

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, per year

t = age of landfill, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

c = time since closure, years; for active landfill $c = 0$ and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

NMOC Equation Values:

$k = 0.05$ per year (per 40 CFR 60.754(a)(1))

$L_o = 170 \text{ m}^3/\text{Mg}$ solid waste (per 40 CFR 60.754(a)(1))

$R = 43,500 \text{ Mg/year}$

$C_{\text{NMOC}} = 6.3 \text{ ppmv}$ as hexane NMOC concentration (2019 sampling data)

$c = 0$

$t = 38$ years

Total NMOC emission rate from the Dafter Landfill:

$$M_{\text{NMOC}} = 2(170 \text{ m}^3/\text{Mg})(43,500 \text{ Mg/yr})(1 - e^{-0.05(38)})(6.3 \text{ ppmv})(3.6 \times 10^{-9})$$

$$M_{\text{NMOC}} = 0.25 \text{ Mg/yr}$$

The facility has been prompt and complete in submitting an annual NMOC emission report with their annual certification of compliance for MI-ROP-N6033-2015. For 2018, the NMOC emission rate from the landfill was 0.37 Mg/yr.

EUASBESTOS

Upon entering the facility and during the tour, it was observed the perimeter of the landfill was completely fenced. Signs at the entrance state that the facility actively accepts asbestos material. The sign is at a location that is at least 330 ft from the first asbestos disposal site on the landfill. Mr. Harrow showed the 2019 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. Before a shipment is received, a 24-hour notice is provided that asbestos material will be incoming. After depositing the material, it is covered with 2 feet of waste and then covered with soil or ADCM within a 24-hour period.

DSL 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 in cubic yards. A receipt is provided to the generator of the waste. Also provided on the record sheet, is the latitude, longitude, and elevation of the disposal

site for asbestos material. There have been no records of request to disturb placed asbestos waste.

Miscellaneous

DSL has a 300,000-gallon leachate storage tank for collected leachate prior to recirculation into the landfill or transported to a municipal wastewater treatment plant. The landfill also has 9 self-igniting flares on existing vents. Though the NSPS for landfills does not require DSL to utilize gas collection and flaring, DSL installed gas collection and flaring systems to aid in odor control. Both the leachate storage tank and the LFG flaring are considered exempt under Michigan Air Pollution Control Rule 336.1285(2)(aa).

At the time of the inspection, no fugitive dust emissions were observed due to winter conditions. The source currently does not have a fugitive dust plan. Mr. Harrow stated that fugitive dust on roadways are controlled with a watering truck on an as-needed-basis.

There are no significant changes planned for the facility in the near future. The capping of cell B is likely to occur in the summer of 2021.

Compliance

Based on this inspection, Dafter Sanitary Landfill is in compliance with MI-ROP-N6033-2015 and all other applicable regulations.

NAME Michael Holm

DATE 2/6/20

SUPERVISOR ELJ

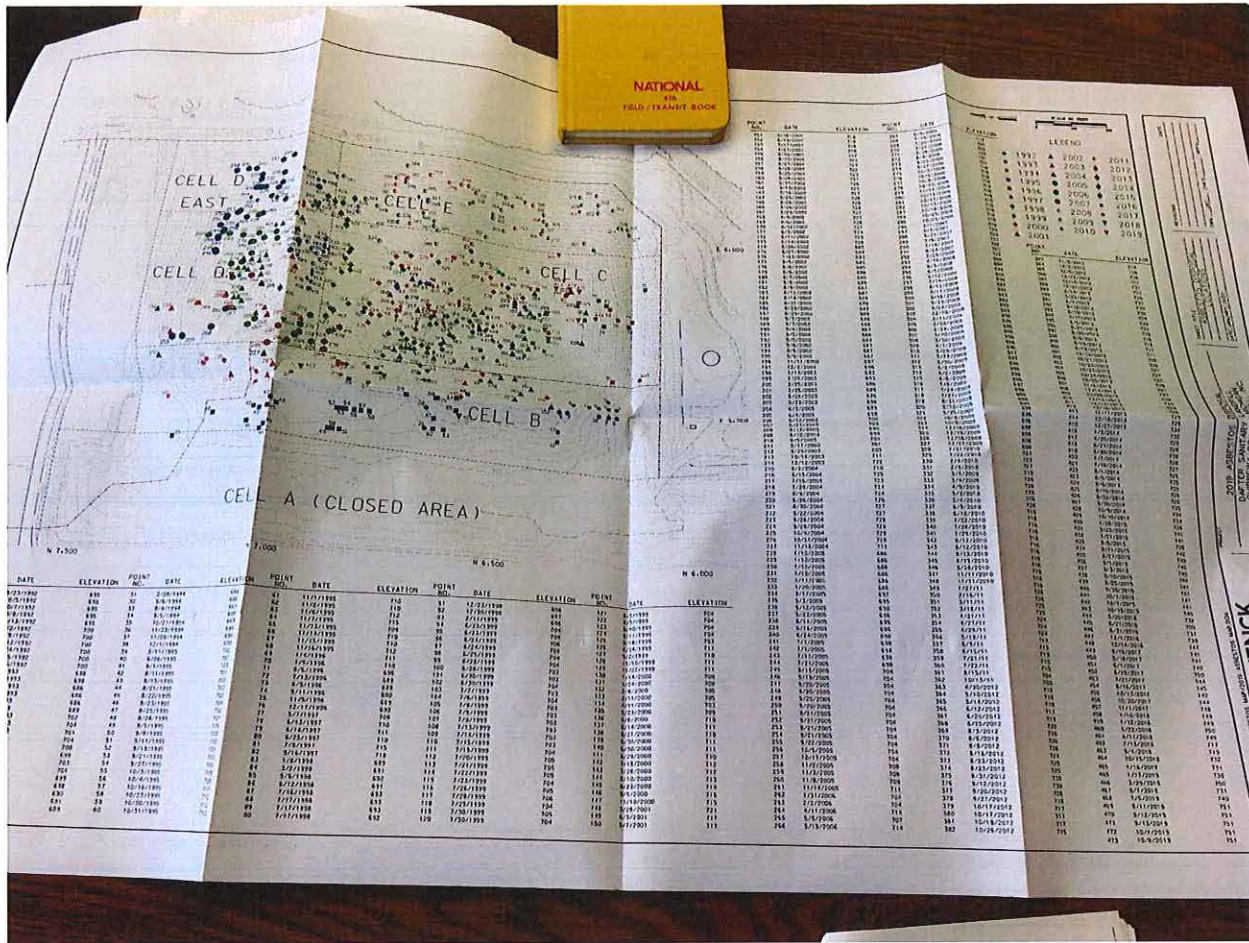


Image (1): Asbestos map information.

