

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

N776249787

FACILITY: RICHFIELD LANDFILL INC		SRN / ID: N7762
LOCATION: 11145 East MT MORRIS RD, DAVISON		DISTRICT: Lansing
CITY: DAVISON		COUNTY: GENESEE
CONTACT: Bill Roberts , Operations and Engineering		ACTIVITY DATE: 07/10/2019
STAFF: Julie Brunner	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection to determine compliance with ROP No. MI-ROP-N7762-2008, and as part of an FCE. Noncompliance with Section 1 of the ROP is on-going.		
RESOLVED COMPLAINTS:		

On July 10, 2019, I conducted a scheduled inspection of Richfield Landfill Inc. located in Davidson as part of a full compliance evaluation (FCE). This facility was last inspected on July 11, 2017.

Facility Contacts:

ROP Section 1 – No company contacts

ROP Section 2 – Mr. Bill Roberts, Blue Skies Energy, Vice President, Operations & Engineering, 810-631-4015, bsellc@frontier.com

Facility Description:

Richfield Landfill Inc. is classified as a Type II sanitary landfill, which is a Municipal Solid Waste (MSW) landfill. A “Municipal Solid Waste landfill” or a “Type II landfill” according to Act 451, Part 115, Solid Waste Management states: A landfill which receives household waste, incinerator ash or sewage sludge and which is not a land application unit, surface impoundment, injection well, or waste pile. A municipal solid waste landfill also may receive other types of solid waste, such as commercial waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial waste. Such a landfill may be publicly or privately owned.

Natural biological processes occurring in landfills transform the waste constituents producing leachate and landfill gas. Initially, decomposition is aerobic until the oxygen supply is exhausted. Anaerobic decomposition of buried refuse creates most of the landfill gas. Landfill gas consists mainly of methane (CH₄), carbon dioxide (CO₂), and nonmethane organic compounds (NMOC).

This landfill is located about six (6) miles north of Davison and just north of Holloway Reservoir. Numerous homes surround the reservoir, while the property surrounding the landfill is fairly rural with scattered homes and farms.

Richfield Landfill Inc. filed for bankruptcy in December of 2012 and stopped accepting waste in early 2013. Prior to closing, the landfill accepted all types of solid waste and also accepted recyclable materials and compost.

The landfill property is about 300 acres in size and contains 4 different landfill cells; “Old Fill Cell” (a.k.a. Act 87 area), Cell 1, Cell 2, and Cell 3. Cell 4 was proposed and permitted but was never constructed. Cells 1, 2, and 3 are adjacent to the Old Fill Cell.

The Old Fill Cell is as the name depicts, the oldest cell and was installed without a leachate collection system per regulations at the time; the liner is entirely made of clay without any sort of synthetic or plastic. Due to the lack of a quality liner and leachate collection system, there is a shallow aquifer groundwater impact that is being mitigated by both institutional controls as well as a groundwater extraction system. The groundwater extraction system is located between the landfill and Holloway Reservoir, and collects impacted groundwater and stores it in a 10,000 gallon tank. Approximately 2,000 gallons per day of impacted groundwater is produced at maximum, and disposed of at the Montrose Waste Water Treatment Plant (WWTP). A citizen group (the Holloway Lake Association) is established in the area.

Cell 1 has a synthetic bottom liner and a clay cap; a leachate collection system is installed. Cells 2 and 3 have synthetic bottom liner and synthetic caps; leachate collection systems are installed for both cells. Cell 4 was proposed for construction on the west side of Cells 1, 2, and 3 at the time of bankruptcy but was not built. Leachate collection for Cells 1-3 is completed by a series of pumps and piping which transfers the leachate to a series of tanks on the west side of the landfill. The leachate is hauled by tanker truck to the Montrose WWTP for disposal. Approximately 6,000 gallons per day of leachate is collected. Due to the lack of nearby sanitary sewer lines (nearest being 8 miles), hauling the leachate by tanker truck is the only option at this time. Gas collection appears to be conducted on all of the cells, yet only a few wells exist on the Old Fill area.

Due to the bankruptcy and the lack of a responsible party, emergency landfill maintenance activities are being overseen by EGLE-Materials Management Division (MMD). A new contract with DTMB for maintenance services was just issued. It includes gas probe monitoring to make sure gas is not migrating off-site and leachate collection. While MMD maintains the landfill with limited funding to minimize risk of public exposure, MMD is not responsible for the requirements in Section 1 of the ROP. Blue Skies Energy (BSE) collects the gas and fulfills the regulatory requirements in Section 2 of the ROP. Five to six new gas collection wells were installed in the last couple of years that BSE paid for because they want the gas. Should gas collection not be completed, the gas would be directly emitted to the air resulting in emissions of methane (CH₄), carbon dioxide (CO₂), hydrogen sulfide (H₂S), hazardous air pollutants (HAP) and other air toxics, and potentially causing odor issues for the area.

The stationary source is not subject to Prevention of Significant Deterioration (PSD) of Title 40 of the Code of Federal Regulations (40 CFR), Part 52.21, regulations because the potential to emit of each criteria pollutant is less than 250 tons per year (tpy). The stationary source is not considered a major 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 tpy and the potential to emit of all HAPs combined is less than 25 tpy.

The stationary source is subject to the federal plan requirements for MSW landfills promulgated in 40 CFR Part 62, Subpart GGG, which reference the requirements in 40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. Subpart WWW requires that a Part 70, renewable operating permit (ROP), be submitted for all new and existing landfills with a design capacity equal to or exceeding 2.5 million megagrams and 2.5 million cubic meters.

ROP No. MI-ROP-N7762-2008 was issued in July of 2008. An ROP renewal application was submitted in 2012 prior to the landfill owner/operator entering bankruptcy. An application shield was received. The ROP renewal is currently on hold and in legal limbo.

Applicable Regulations:

40 CFR 60 Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills - The provisions of this subpart apply to each municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991. The landfill gas collection and control system are subject to the requirements of Subpart WWW.

40 CFR 62 Subpart GGG, Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction Prior to May 30, 1991 and Have Not Been Modified or Reconstructed Since May 30, 1991. Subpart GGG references Subpart WWW for compliance.

40 CFR 63 Subpart AAAA, National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills - This subpart requires all subject landfills to meet the requirements of 40 CFR 60, Subpart Cc or WWW. This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of 40 CFR 63, Subpart A, General Provisions and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements.

40 CFR 61, Subpart M, Standards of Performance for Asbestos – Any active or inactive asbestos disposal site.

Michigan Air Emission Reporting (MAERS)

Richfield Landfill Inc. is required to report to MAERS as it is a Category I major source. MAERS reporting has not been submitted since 2012. A bill is generated using the 2012 MAERS and BSE pays it. AQD has ceased sending violation notices for failure to submit a MAERS report since the bill is paid.

Recent Complaints (within 2 years)

none

Inspection:

Arrived: 1:05 pm

Departed: 3:10 pm

Weather: 86°F, wind S 9 mph, UV Index 4

No visible emissions were observed from any of the facility exhaust stacks upon arrival. No odors were identified surrounding the facility.

A pre-inspection meeting was conducted with Mr. Bill Roberts, BSE Gas Plant Operations & Engineering. I gave a brief overview of the inspection process which was the purpose of my visit, and the facility operations were discussed. The inspection was announced and scheduled through Mr. Bill Roberts, who is the Responsible Official for Section 2 of the ROP.

ROP Section 1 – Richfield Landfill, Inc.

EMISSION UNITS – Landfill and Landfill Gas Collection

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Notes:
EULANDFILL	This emission unit represents the general Municipal Solid Waste (MSW) Landfill.	1/1/1974	Noncompliance
EUACTIVECOLL	This emission unit represents the active landfill gas collection system at the landfill that uses gas mover equipment to draw landfill gas from the wells and moves the gas to the control equipment.	5/6/2004	Noncompliance
EUASBESTOS	Any active or inactive asbestos disposal site.	1/1/1974	Noncompliance

The landfill owner/operator declared bankruptcy in 2012, and demonstrations of compliance with any of the requirements in Section 1 of the ROP is not happening. Monitoring, testing, recordkeeping, and ROP certification requirements have not been maintained for Section 1 since the bankruptcy.

ROP Section 2 – Blue Skies Energy (BSE)

EMISSION UNITS – Landfill Gas Treatment System and the Flare

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Notes:
EUTREATMENTSYS	Processing equipment that treats collected landfill gas for subsequent sale or use.	5/6/2004	Compliance
EUOPENFLARE	Open flare is an open combustor without enclosure or shroud.	4/1/1974 2006	Compliance

The treatment system consists of water knockout, compression, and filtration. Collected landfill gas passes through a water knockout pot that separates moisture from the gas. The gas then passes through one of two multi-stage blowers which pressurize the gas. The gas is then compressed and cooled by passing through a chiller which reduces the temperature of the compressed gas. Next the gas passes through a series of coarse filters and coalescing filter which traps moisture before passing through a 0.5 micron particle filter.

The gas is then treated based on UOP Separex Membrane Technology™. This technology uses temperature and pressure differential across a semi-permeable membrane to separate the CH₄ in the landfill gas from the CO₂. The processed landfill gas taken from the landfill is sold into a local pipeline as natural gas. In the event that pipeline quality gas is not produced, it is combusted in the flare. Also, if the treatment system is not operational, the collected landfill gas is routed to an open flare.

Gas quality from the landfill has been running about 58% CH₄. Bill estimates that the gas quality should be good for about another three (3) years. The treatment system produces a high Btu content gas that meets the standards of pipeline quality natural gas. Part of the system monitoring is quality and quantity of gas to the pipeline. A spot reading showed flow of 1.0 mmcf/day to the pipeline. The gas plant is capable of processing up to 2.0 mmcf/day of landfill gas. The flow monitor to the pipeline is calibrated once per year. Also, a continuous measurement system is used to measure total sulfur (as H₂S) in the gas going to the pipeline. The system is a SulfurGard 9200 which uses a lead acetate technique to measure sulfur concentration. Gas chromatography is used to measure the methane content.

The day of the inspection, the gas plant was operating and the following is a short list of gas properties from the analyzer parameters screen:

Parameter	Plant Inlet	Plant Outlet (Sales)	Sales Specification
CO ₂	40.73%	1.61%	2.0%
CH ₄	58.39%	95.86%	--
Dry BTU	577	973	967
Total Sulfur (TS)	--	1.88 gr/100 SCF	20 gr/100 SCF
H ₂ S	--	0.15 gr/100 SCF	0.25 gr/100 SCF

EUTREATMENTSYS

The treatment system has had 97 to 98% availability for the past 5 years. In compliance with special condition (SC) III.1, the permittee operates the treatment system at all times when the collected gas is

routed to the treatment system. Records of the last 5-years (2015-2019) of production volumes were obtained (and attached). In 2018, 366.6 MMCF of pipeline quality gas was produced by BSE.

So far for this year (2019) there have been three (3) major malfunctions due to compressor and motor issues. When the treatment system was inoperable due to malfunctions, the open flare was manually switched on, turning on the blower. The blower draws gas from the hill, bypassing the treatment system, and the untreated landfill gas is combusted in the flare. There are electronic fail safe alarms and auto shutoffs to assure no gas leaks in the system in the event of a shutdown event. This is all in compliance with SC III.2 and SC III.3.

The treatment system has not been modified since installation, and compliance is demonstrated with SC IV.1 since the treatment system design was approved.

A startup, shutdown, or malfunction (SSM) plan is implemented and maintained in compliance with SC IX.2. The SSM plan was received on January 10, 2008 and no changes have been made to it since. Copies of the malfunction and startup report forms for the three (3) malfunction events in 2019 are attached. Procedures in the SSM plan were followed and there was no exceedance of any applicable emission limit in compliance with SC VI.1 and SC IX.1.

SC IX.3 requires a written preventative maintenance plan (PMP) for EUTREATMENTSYS. At a minimum, the plan shall include a schedule of maintenance activities consistent with manufactures recommendations, and the operating variables that will be monitored to detect a malfunction or failure.

Bill provided a basic list of maintenance items and timetables along with a checklist of items, parameters that are watched and notes of additional variables to check. Basically, a database of stored instrumentation data is used to monitor plant operation along with the HMI screens and physical instrument checks. A log book is kept of maintenance performed. Copies of the PMP procedures and HMI screens with monitored operating parameters are attached. Compliance with SC VI.3 by providing information on the operating parameters, and SC VI.2 and SC IX.3 for the PMP is demonstrated.

EUOPENFLARE

The open flare is a non-assisted, self-igniting, spark ignition flare designed and operated in accordance with 40 CFR 60.18. The flare is ignited using natural gas from a slip-stream. The flare was actually installed in 2006 with the treatment plant. The ROP lists the flare as installed in 1974 which appears to be a typo when the ROP was drafted. The flare was installed as backup to combust untreated landfill gas when the gas plant was not in operation. When the gas plant is in operation, it is used as a process vent that vents CO₂ from the treatment system when producing gas for the pipeline. A second flare was installed in 2008 (to add additional flare capacity) but has been decommissioned as a flare. It is still used as a process vent.

EUOPENFLARE complies with the requirements of SC III.1-9 and SC IV.1. In accordance with SC III.3, the flare shall be operated with no visible emissions, as determined by the methods specified in 40 CFR 60.18(f). The flare was not operating at the time of the inspection so there were no visible emissions.

Per SC V.1, the permittee was required to evaluate visible emissions from EUOPENFLARE per 40 CFR 60, Subpart WWW. Visible Emissions testing on the flare installed in 2006 was conducted in 2010 and 2011.

As required in SC V.2, the net heating value of the combusted landfill gas was determined as part of the flare testing in 2010, and the retest in 2011, which was conducted per the appropriate methods and regulatory requirements as indicated in the test review memo from AQD-TPU dated February 10, 2012.

For SC VI.1, a heat sensing device, thermocouple, is installed and indicates the presence of a flame when the flare is operating. A gas flow rate measuring device is installed to monitor gas flow to the

flare in compliance with SC VI.1.b.i. For SC VI.1.b.ii, a secure bypass line is in place in the event gas has to be diverted from EUTREATMENTSYS to EUOPENFLARE. The valve is manual so if the treatment system goes down, no gas is being drawn from the landfill until the bypass line is manually opened and the blower to draw gas to the flare is turned on.

For SC VI.2 and SC VI.3, records are to be maintained for the life of the open flare including performance tests, the flare type (non-assisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations; records of open flare flame monitoring and records of all periods of operations. The record for 2019 to date showing the gas volumes that were flared during periods when the treatment plant was down and when the flare was in service combusting untreated landfill gas is attached. The flare was in operation for 3 days in January, 5 days in February, and 5 days in June corresponding to the three (3) malfunction events.

Appropriate records required by SC VI.4 and VI.5 are being kept on-site.

An SSM plan is implemented and maintained in compliance with SC IX.2. The SSM plan was received on January 10, 2008 and no changes have been made to it since.

Semi-Annual Monitoring and Deviation Reports:

The last ROP report received was for the 2nd 2018 Semi-Annual report for Section 2 - Gas Treatment & Flare compliance report (ROP No. MI-ROP-N7762-2008), Responsible Official: Bill Roberts, Dir. of Eng. & Op., BSE. It included the SSM report for the gas plant and downtime duration for the reporting period. There were six (6) startup events, five (5) shutdown events, and one (1) malfunction event. No landfill gas was collected and sent to the control device when the treatment plant and flare were down. All actions taken were consistent with the SSM plan. Downtime and malfunctions exceeded 1 hour for 6 events, the longest was 9.75 hours for a control valve repair.

All records obtained in the course of this compliance inspection are attached to the file copy of the report.

Summary:

Noncompliance with the conditions of ROP No. MI-ROP- N7762-2008, Section 1 were identified during the inspection. No instances of noncompliance with the conditions of ROP No. N7762-2008, Section 2 were identified during the inspection.

Due to the lack of responsible parties to cite, a violation letter for the Section 1 conditions will not be sent.

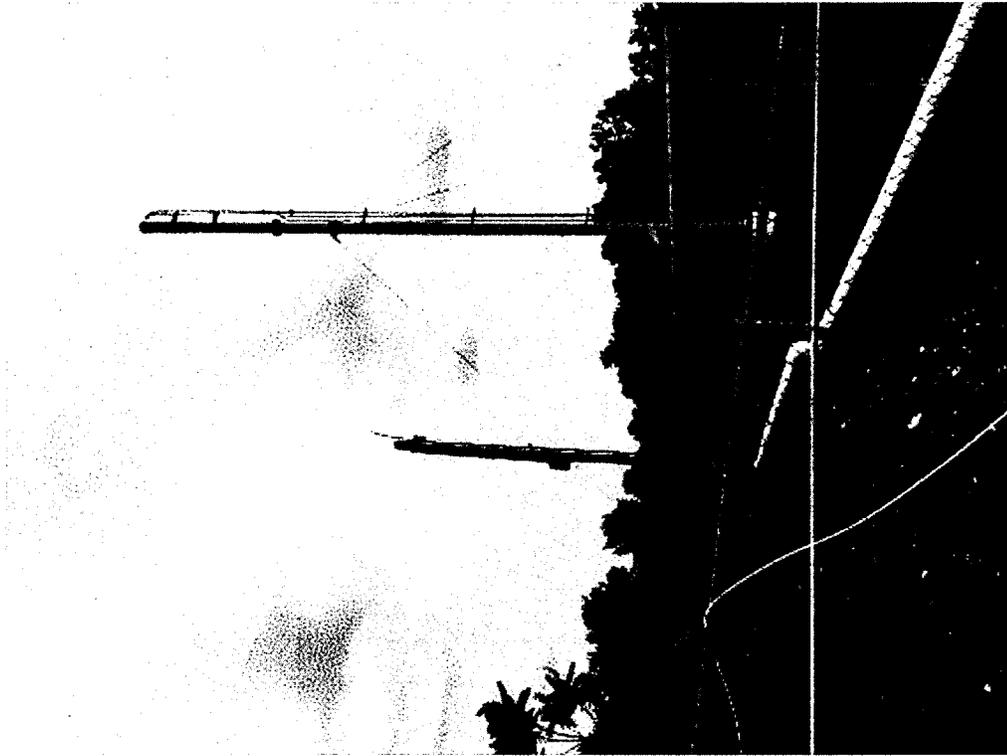


Image 1(7) : EUOPENFLARE in the back and a flares installed in 2008 that is now a CO2 vent.

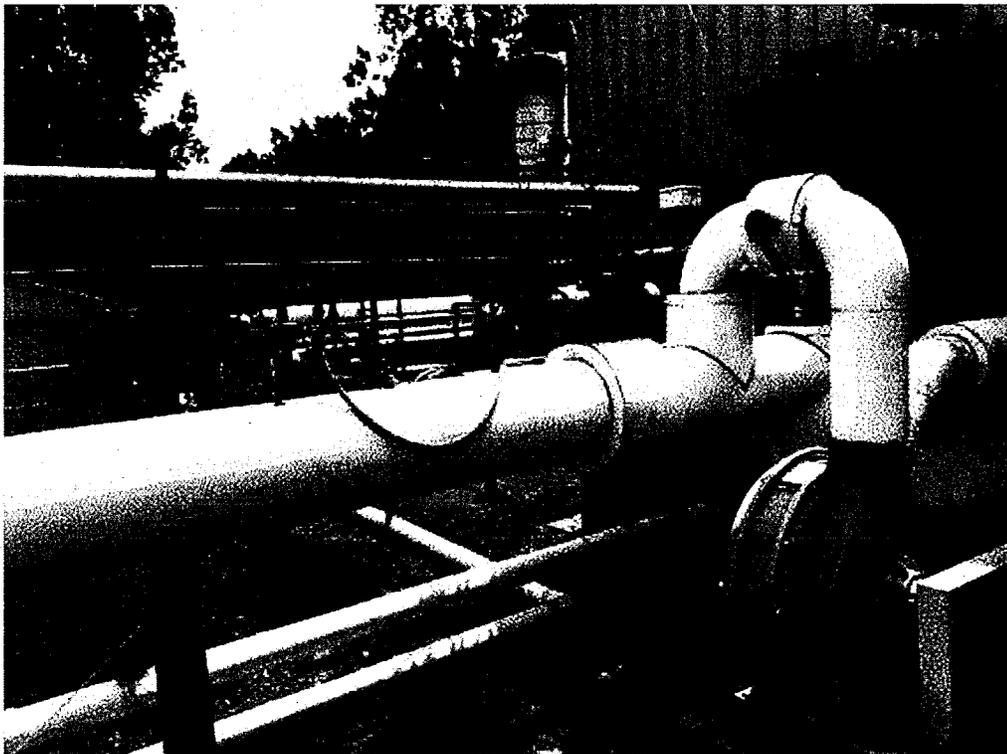


Image 2(8) : Header to gas plant and bypass switch.

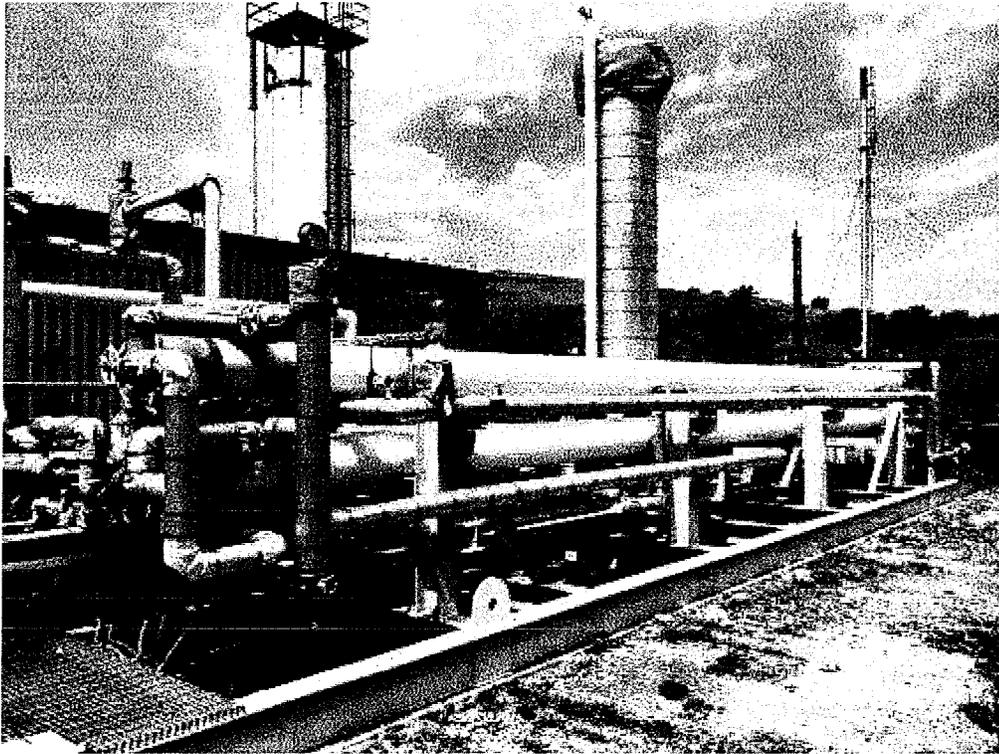


Image 3(13) : Outside of gas plant.

NAME Michael Brown

DATE 8/16/19

SUPERVISOR [Signature]