Douglas Road Landfill Superfund Site
Operations and Maintenance (O&M) Report
1st Quarter 2024
Mishawaka, Indiana
Patriot Project No. 22-0034-01E

Prepared For
Indiana Department of
Environmental Management
Office of Land Quality, Federal Programs
Indianapolis, Indiana 46204
Attn: Mr. Doug Petroff

Prepared By
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May 23, 2024

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DOUGLAS ROAD LANDFILL SUPERFUND SITE
MISHAWAKA, INDIANA
PATRIOT PROJECT NO. 22-0034-01E

1.0 INTRODUCTION

Patriot Engineering and Environmental, Inc. (Patriot) was retained by the Indiana Department of Environmental Management (IDEM) to oversee and implement activities related to post-closure operations and maintenance of the Douglas Road Landfill (DRL) Superfund Site located in Mishawaka, St. Joseph County, Indiana (Site). Figure 1 depicts the Site's location and general features. This report provides information about ongoing operation and maintenance (O&M) activities conducted at the Site for the reporting period of January 1, 2024, through March 30, 2024 (First Quarter 2024).

In mid-June 2017, Patriot took over O&M responsibility at the Site and has been contracted through December 28, 2025. O&M activities conducted this quarter included: inspection and air compliance monitoring of the landfill gas collection system and monitoring probes; compliance sampling and analysis of the exhaust from the landfill gas extraction system, monthly inspections of the perimeter fencing and site security, and monthly inspections of the landfill cap and drainage system. Inspection reports documenting the January, February, and March inspections are provided as **Attachment B**.

2.0 LANDFILL GAS COLLECTION SYSTEM

2.1 Monitoring Tasks

The Landfill Gas (LFG) collection system consists of a vacuum extraction blower with associated process piping, valves, and controls (Blower System), equipment shed, and 15 landfill gas (LG) vent wells: LG-1 through LG-15.

Monitoring tasks conducted this quarter on the LFG collection system included monthly inspections, checking the integrity of the equipment shed, quarterly gas compliance monitoring on the LG vent wells, and quarterly effluent vapor sampling from the blower discharge.

The vent wells are monitored on a quarterly basis for methane, carbon dioxide, and oxygen (measured in percentage). The First Quarter 2024 data was collected on

March 20, 2024, using an RKI Eagle 2 direct reading multiple gas meter. First Quarter 2024 readings can be found in **Attachment C** and are discussed further in Section 2.3.

The LFG collection system monitoring is conducted to evaluate trends in the LFG gas generation rate and to aid in determining if adjustments are needed in either the Blower System or Vent Wells to maximize gas removal and capture. The current and historical LFG vent well readings can be found in **Table 1**.

A quarterly effluent vapor sample from the blower discharge was collected on March 20, 2024, using a Summa® canister and an 8-hour regulator and submitted to Pace National Laboratory for Testing & Innovation (Pace National) in Mount Juliet, Tennessee for volatile organic compound (VOC) analysis per the Environmental Protection Agency (EPA) Method TO-15. The sampling was conducted to evaluate organic Hazardous Air Pollutants (HAPs) discharge to the atmosphere. HAPs discharge amounts are discussed further in Section 2.3.

2.2 Maintenance Tasks

No maintenance/repairs activities were performed during this reporting period.

2.3 System Evaluation

Methane was detected in 8 of the 15 LG wells sampled in March 2024. Methane concentrations ranged from 2% to greater than 100% of the lower explosive level (LEL). The highest methane concentration was 8.9% by volume in LG-7.

The Blower System effluent was sampled on March 20, 2024, using a Summa® canister and an 8-hour regulator. The quarterly Blower System effluent sample results (**Attachment D**) were used to estimate the HAPs emitted, in pounds per quarter (lbs/qtr.). The laboratory data was reviewed and validated following IDEM data validation guidelines and was determined to be acceptable for use in evaluating trends. The data validation memorandum is provided in **Attachment E**.

An air emission calculator was created in an Excel spreadsheet, using the ideal gas law to convert parts per billion (ppb) and flow (Q) to pounds emitted per quarter. The formula uses the molecular weight of each detected compound and the respective concentrations of those compounds to calculate the mass of each compound emitted. The result (in pounds per quarter) is obtained by multiplying this number by the discharge rate of the extraction system blower. For all calculations, a discharge rate of 90 standard cubic feet

per minute (SCFM) was used. This number is derived from the blower curve supplied by Carbonair Environmental Systems, Inc. as provided in the O&M Manual and represents the discharge rate of the blower based on actual vacuum readings.

Using the above referenced formula, approximately 21.45 pounds (0.011 tons) of VOCs were emitted during the first quarter of 2024, including a total of approximately 16.724 pounds (0.0083 tons) of HAPs. n-Hexane was the single greatest individual HAP emitted, totaling approximately 8.278 pounds (0.004 tons). The results indicated a lower emission rate than the previous sampling event conducted in December 2023. At that time, the total emissions were 86.87 pounds (0.043 tons) of VOCs, including a total of approximately 73.443 pounds (0.0367 tons) of HAPs.

Using an annual average, the total emissions continue to be well below the major source thresholds specified in 326 IAC 2-7-1(22) of 10 tons (20,000 pounds) per year of a single HAP, as defined under Section 112(b) of the Clean Air Act (CAA), and 25 tons (50,000 pounds) per year of any combination of HAPs for the calendar year.

3.0 LANDFILL GAS MONITORING SYSTEM

3.1 Monitoring Tasks

The LFG monitoring network consists of 18 perimeter LFG monitoring probes, GM-1 through GM-18. The monitoring probes are inspected monthly for integrity and monitored quarterly for methane, carbon dioxide, and oxygen levels (measured in percent). Quarterly gas monitoring was conducted on March 20, 2024, using an RKI Eagle 2 direct reading multiple gas meter. Monitoring is conducted to evaluate trends in gas migration and to document compliance with state and federal regulations. The current and historic GM monitoring probe readings can be found in **Table 2**.

Results are also used to determine if adjustments are needed in the LFG Collection System to maximize gas capture and ensure the safety of the surrounding properties. Results of monitoring activities from this quarter can be found in **Attachment D** and are discussed further in Section 3.3 below.

3.2 Maintenance Tasks

No maintenance/repairs activities were performed during this reporting period.

3.3 System Evaluation

During this monitoring event, the percent methane was 0.0% in the perimeter LFG GM monitoring probes. This is consistent with historical data, for all probes, which have been at or near 0%. The site-specific action level is 5% methane by volume. The percent CO_2 was between 0.0% and 2.6% and the percent oxygen was between 19.4% and 21.9% in the 18 perimeter GM probes.

4.0 LANDFILL COVER SYSTEM AND PERIMETER CONTROLS

4.1 Monitoring Tasks

The Landfill Cover System consists of a cap over the landfill, perimeter storm water ditches and associated drainage structures, a perimeter access road, and perimeter fencing with an entrance gate. Landfill cap, drainage system, access road, and fencing inspection activities were performed at the Site throughout this reporting period. Inspections were conducted monthly to ensure the landfill cover system was intact, free of debris, nuisance plants/animals, and erosion/settlement, and otherwise functioning properly. In addition, a detailed quarterly cap inspection was conducted on March 20, 2024.

4.2 Maintenance Tasks

Routine maintenance activities were performed throughout this quarter including removal and disposal of trash and debris found on the cap and along the fence line. In addition, debris from the storm water drop inlets located within the perimeter drainage ditches was removed as needed throughout the quarter.

The presence of nuisance animals, such as moles and groundhogs were not encountered; therefore, Patriot did not trap any nuisance animals during this quarter. However, multiple burrows were observed at the Site during the February 2024 inspection, which were filled in by Patriot personnel. The area will be monitored to determine if there are any animals on site that will need to be trapped.

Patriot performed repairs of a portion of perimeter fencing on the west side of the Site which had been damaged by off-Site construction activities on the adjacent property. A photo log documenting the fence repair activities is included in Attachment B.

4.3 System Evaluation

A detailed cap inspection was conducted on March 20, 2024. The Landfill Cover System has remained in generally good condition, with no animal burrows observed. A slight depression was noted on the north end of the cap near the driveway. Patriot will monitor this area during future monthly inspections. A copy of the inspection report is included in **Attachment B**.

5.0 CONSTRUCTED WETLANDS TREATMENT SYSTEM

5.1 Monitoring Tasks

The Wetlands Treatment System consists of four cells, of which three are lined, surface-flow wetlands that total 8.8 acres and the fourth is a 1.8-acre, unlined infiltration basin. GES discharge as well as precipitation for the entire 30-acre Site is directed into the wetland system. All wetland treated water was designed to be discharged back into the environment via two mechanisms; 1) through the wetland system's infiltration basin, and/or 2) into the City of Mishawaka storm sewer system that discharges into a filter strip near Juday Creek. Since the GES was shut down on February 4, 2015, no samples were collected this quarter.

5.2 Maintenance Tasks

The system was not operational during the quarter.

5.3 System Evaluation

The system was not operational during the quarter.

6.0 MONITORING WELL NETWORK

The annual monitoring well network groundwater sampling event was conducted in August 2023 and a report documenting the sampling event was submitted to the IDEM under separate cover on November 3, 2023. The next groundwater monitoring and sampling event is scheduled for the third quarter of 2024.

6.1 Maintenance Tasks

No maintenance/repairs activities were performed during this reporting period.

6.2 System Evaluation

The system was not operational during the quarter.

7.0 CONCLUSION

O&M activities were completed for the First Quarter 2024 which covers the period from January 1, 2024, through March 30, 2024. Activities conducted this quarter included operation, maintenance and monitoring of the gas collection system, landfill cover and perimeter controls, and compliance air sampling. The landfill cover remains in generally good condition.

Based on the results from the first quarter sampling event, the Site remains in compliance with the CAA, as no exceedances of air emissions or gas migration was encountered during the quarterly monitoring events. Approximately 21.45 pounds (0.011 tons) of VOCs were emitted during the first quarter of 2024, including a total of approximately 16.724 pounds (0.0083 tons) of HAPs. n-Hexane was the single greatest individual HAP emitted, totaling approximately 8.278 pounds (0.004 tons). The results indicated a lower emission rate than the previous sampling event conducted in December 2023.

Readings were taken from the landfill gas monitoring (GM) probes and from the landfill gas collector system (LG) probes on March 20, 2024. During this monitoring event, the percent methane was 0.0% in the perimeter LFG GM monitoring probes. Methane was detected in 8 of the 15 LG wells sampled in March 2024 with a highest concentration of 8.9 % by volume in LG-7.

If you have any additional questions or comments, please contact James Cody at (317) 576-8058 or jcody@patrioteng.com.

Respectfully submitted,

Patriot Engineering and Environmental, Inc.

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Robert S. Fedorchak, P.E.
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Figures

Figure 1 – Site Vicinity Map

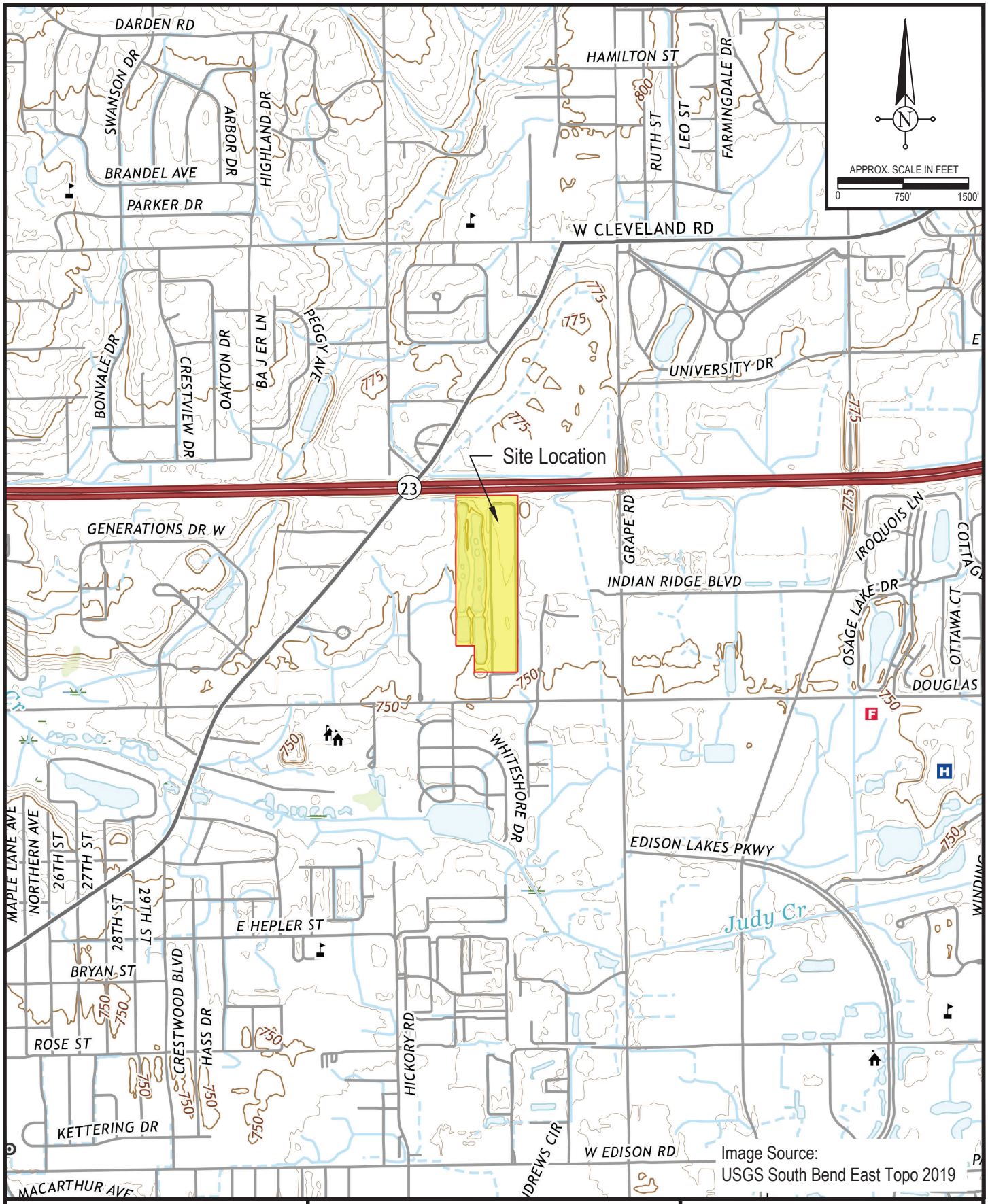

Image Source:
USGS South Bend East Topo 2019

Patriot Engineering & Environmental, Inc.

Project: Douglas Road Landfill Superfund Site
St. Joseph County
Mishawaka, Indiana

	Drawn By: J. DuMond
Project Number 22-0034-01	Approved: K. Gutowski
Date: April 6, 2022	DWG: 22-0034-01_site

Figure 1

Site Vicinity Map

Tables

Table 1 - Historical LFG Collector Vent Well Readings
Table 2 – Historical GM Monitoring Probe Readings

Table 1
Historical LFG Collector Vent Well Readings
1st Quarter 2024- Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-1	11/24/2007	4.0	14.7	0.0	Closed
	2/23/2008	9.2	7.9	0.0	Closed
	10/3/2009	4.3	14.9	0.1	Open for test & then closed 50%
	2/20/2010	15.0	5.9	0.1	Open for test & then closed 75%
	7/10/2010	12.7	7.3	0.3	Open for test & then closed 75%
	9/18/2010	10.5	9.5	0.0	Open for test & then closed
	12/4/2010	4.5	14.2	0.0	Open for test & then closed 50%
	3/19/2011	19.5	0.9	0.0	Open for test & then closed 75%
	6/11/2011	12.5	6.7	0.0	Open for test & then closed 75%
	9/17/2011	13.5	5.1	0.0	Open for test & then closed 75%
	12/10/2011	14.7	5.8	0.0	Open for test & then closed
	3/10/2012	16.8	4.5	0.0	Open for test & then closed
	6/23/2012	5.9	12.1	0.0	Open for test & then closed 75%
	9/15/2012	11.9	7.5	0.0	Open for test & then closed 75%
	12/8/2012	10.1	7.5	0.0	Open for test & then closed 50%
	3/16/2013	12.1	5.5	0.0	Open for test & then closed 75%
	6/8/2013	14.5	4.1	0.0	Open for test & then closed 50%
	5/3/2014	18.2	3.5	0.0	Open for test & then closed 100%
	9/20/201	2.8	3.5	0.0	Open for test & then closed 25%
	11/27/2014	2.2	3.1	0.0	Open for test & then closed 25%
	3/21/2015	8.1	8.1	3.6	Open for test & then closed 25%
	6/27/2015	4.6	3.1	0.0	Open for test & then closed 25%
	9/26/2015	3.0	14.5	0.0	Open for test & then closed 50%
	11/22/2015	3.5	16.5	0.0	Open for test & then closed 50%
	2/27/2016	2.8	13.2	0.0	Open 100% & then closed 75%
	9/26/2017	20.6	0.0	0.0	Open for test & then closed 100%
	12/1/2017	21.3	0.0	0.0	Valve open for test and closed
	3/6/2018	20.5	0.0	0.0	Valve open for test and closed
	6/26/2018	21.3	0.0	0.0	Valve open for test and closed
	9/27/2018	20.9	0.0	0.0	Valve open for test and closed
	11/28/2018	20.9	0.0	0.0	Valve open for test and closed
	3/22/2019	20.9	0.0	0.0	Valve open for test and closed
	6/11/2019	20.5	0.0	0.0	Valve open for test and closed
	12/11/2019	17.7	3.6	0.1	Valve open for test and closed
	3/19/2020	18.2	3.4	0.0	Valve open for test and closed
	6/24/2020	20.1	1.8	0.0	Valve open for test and closed
	9/14/2020	20.2	1.8	0.0	Valve open for test and closed
	12/14/2020	17.9	3.3	0.0	Valve open for test and closed
	3/25/2021	17.5	3.8	0.0	Valve open for test and closed
	6/14/2021	14.7	4.2	0.0	Valve open for test and closed
	9/29/2021	11.3	8.8	0.0	Valve open for test and closed
	1/20/2022	NM	NM	NM	Valve opened for test, but there was no flow for measurements
	5/2/2022	13.9	5.6	0.0	Valve opened for test and closed
	7/12/2022	17.8	2.9	0.0	Valve opened for test and closed
	10/27/2022	16.5	0.0	0.0	Valve opened for test and closed
	1/31/2023	22.9	0.0	0.0	Valve opened for test and closed
	5/18/2023	18.2	1.7	0.0	Valve opened for test and closed
	7/28/2023	20.9	0.0	0.1	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	18.0	2.3	0.0	Valve opened for test and closed

Table 1
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Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-2	11/24/2007	17.3	3.6	0.0	Closed
	2/23/2008	19.3	1.6	0.0	Closed
	10/3/2009	17.0	3.8	0.0	Open for test & then closed
	2/20/2010	20.7	1.2	0.0	Open for test & then closed
	7/10/2010	18.4	6.1	0.0	Open for test & then closed
	9/18/2010	18.0	2.6	0.0	Open for test & then closed
	12/4/2010	17.0	3.4	0.0	Open for test & then closed
	3/19/2011	19.5	0.9	0.0	Open
	6/11/2011	19.4	0.8	0.0	Open for test & then closed
	9/17/2011	19.7	0.5	0.0	Open for test & then closed
	12/10/2011	19.9	1.6	0.0	Open for test & then closed
	3/10/2012	20.7	0.1	0.0	Open for test & then closed
	6/23/2012	17.5	2.0	0.0	Open for test & then closed
	9/15/2012	17.1	2.9	0.0	Open for test & then closed
	12/8/2012	16.1	2.9	0.0	Open for test & then closed
	3/16/2013	18.1	4.9	0.0	Open for test & then closed
	6/8/2013	17.9	4.1	0.0	Open for test & then closed
	5/3/2014	20.5	1.4	0.0	Open for test & then closed 100%
	9/20/2014	16.5	1.4	0.0	Open for test & then closed 100%
	11/272014	16.5	1.4	0.0	Open for test & then closed 100%
	3/21/2015	15.0	2.9	0.0	Open for test & then closed 100%
	6/27/2015	16.0	3.0	0.0	Open for test & then closed 100%
	9/26/2015	17.0	3.4	0.0	Open for test & then closed 100%
	11/22/2015	19.0	1.5	0.0	Open for test & then closed 100%
	2/27/2016	16.8	4.2	0.0	Open for test & then closed 100%
	9/26/2017	20.8	0.0	0.0	Open for test & then closed 100%
	12/1/2017	21.4	0.0	0.0	Valve open for test and closed
	3/16/2018	20.0	0.0	0.0	Valve open for test and closed
	6/26/2018	21.4	0.0	0.0	Valve open for test and closed
	9/27/2018	20.7	0.6	0.0	Valve open for test and closed
	11/28/2018	20.3	1.0	0.0	Valve open for test and closed
	3/22/2019	20.3	0.0	0.0	Valve open for test and closed
	6/11/2019	20.5	0.0	0.0	Valve open for test and closed
	12/11/2019	19.9	1.2	0.1	Valve open for test and closed
	3/19/2020	20.2	0.8	0.0	Valve open for test and closed
	6/24/2020	18.2	3.2	0.0	Valve open for test and closed
	9/14/2020	18.1	3.4	0.0	Valve open for test and closed
	12/14/2020	19.8	1.1	0.0	Valve open for test and closed
	3/25/2021	19.5	1.5	0.0	Valve open for test and closed
	6/14/2021	19.2	0.9	0.0	Valve open for test and closed
	9/29/2021	15.7	4.6	0.0	Valve open for test and closed
	1/20/2022	NM	NM	NM	Valve opened for test, but there was no flow for measurements
	5/2/2022	17.7	2.0	0.0	Valve open for test and closed
	7/12/2022	20.3	1.2	0.0	Valve open for test and closed
	10/27/2022	19.1	0.0	0.0	Valve opened for test and closed
	1/31/2023	20.0	0.0	1.5	Valve opened for test and left open
	5/18/2023	20.8	0.7	0.0	Valve open for test and closed
	7/28/2023	20.9	0.0	0.0	Valve open for test and closed
	12/14/2023	19.4	1.1	0.0	Valve opened for test and closed
	3/20/2024	20.2	1.2	0.0	Valve opened for test and closed

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Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-3	11/24/2007	5.7	13.5	2.1	Open
	2/23/2008	6.5	10.0	1.2	Open
	10/3/2009	5.4	12.5	1.3	Open
	2/20/2010	7.8	11.2	0.6	Open
	7/10/2010	6.8	12.4	1.4	Open
	9/18/2010	3.8	13.8	1.3	Open
	12/4/2010	6.4	12.6	1.3	Open
	3/19/2011	7.7	10.3	1.1	Open for test & then closed
	6/11/2011	6.3	11.5	0.9	Open
	9/17/2011	5.5	12.6	1.2	Open
	12/10/2011	7.2	10.8	1.1	Open
	3/10/2012	8.6	10.1	0.8	Open
	6/23/2012	7.6	10.9	0.8	Open
	9/15/2012	5.8	10.9	1.5	Open
	12/8/2012	8.2	10.8	1.3	Open
	3/16/2013	9.5	9.4	0.9	Open
	6/8/2013	8.0	9.7	0.5	Open
	5/3/2014	9.5	10.4	1.2	Valve open 100%
	9/20/2014	7.5	10.9	0.7	Valve open 75%
	11/27/2014	6.4	12.1	1.2	Valve open 75%
	3/21/2015	14.1	12.1	5.4	Valve open 75%
	6/27/2015	7.0	13.4	0.9	Valve open 75%
	9/26/2015	8.4	9.8	0.6	Valve open 75%
	11/22/2015	7.9	10.8	0.6	Open for test & then closed 100%
	2/27/2016	0.9	13.4	0.5	Open 100% & then closed 50%
	9/26/2017	20.6	0.0	0.0	Open for test & then closed 100%
	12/1/2017	21.3	0.0	0.0	Valve open for test and closed
	3/16/2018	21.3	0.0	0.0	Valve open for test and closed
	6/26/2018	21.3	0.0	0.0	Valve open for test and closed
	9/27/2018	14.4	4.9	7.0	Valve open for test and closed
	11/28/2018	18.0	4.7	5.0	Valve open for test and closed
	3/22/2019	19.0	5.0	5.0	Valve open for test and closed
	6/11/2019	20.0	5.0	5.0	Valve open for test and closed
	12/11/2019	7.2	11.3	1.3	Valve open for test and closed
	3/19/2020	7.4	10.8	1.3	Valve open for test and closed
	6/24/2020	9.3	10.1	1.1	Valve open for test and closed
	9/14/2020	9.1	10.3	0.9	Valve open for test and closed
	12/14/2020	7.4	11.1	1.1	Valve open for test and closed
	3/25/2021	7.1	11.3	1.5	Valve open for test and closed
	6/14/2021	10.0	9.5	1.5	Valve open for test and closed
	9/29/2021	1.0	25.1	14.5	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	2.1	13.1	2.7	Valve open for test and closed
	7/12/2022	9.1	8.1	1.3	Valve open for test and closed
	10/27/2022	6.2	0.0	1.4	Valve opened for test and left open
	1/31/2023	10.1	8.1	0.0	Valve closed after test
	5/18/2023	10.4	6.8	0.7	Valve opened for test and left open
	7/28/2023	20.9	0.0	0.0	Valve open for test and closed
	12/14/2023	13.8	4.5	0.6	Valve opened for test and left open
	3/20/2024	14.0	6.3	0.0	Valve opened for test and closed

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LG-4	11/24/2007	0.7	19.6	20.0	Open
	2/23/2008	1.6	15.7	10.8	Open
	10/3/2009	0.0	20.1	16.4	Open
	2/20/2010	0.9	17.0	6.2	Open
	7/10/2010	11.3	18.4	0.5	Open
	9/18/2010	7.3	10.5	0.0	Open
	12/4/2010	0.0	18.4	12.7	Open
	3/19/2011	1.2	15.8	10.1	Open
	6/11/2011	1.1	17.7	11.7	Open
	9/17/2011	0.0	15.3	5.0	Open
	12/10/2011	0.9	16.9	8.5	Open
	3/10/2012	1.4	16.0	8.1	Open
	6/23/2012	1.0	18.0	7.0	Open
	9/15/2012	0.2	18.4	11.5	Open
	12/8/2012	0.6	17.0	10.6	Open
	3/16/2013	4.0	16.2	7.5	Open
	6/8/2013	1.5	16.0	6.7	Open
	5/3/2014	1.4	18.1	14.0	Valve open 100%
	9/20/2014	1.0	17.3	8.1	Valve open 100%
	11/27/2014	1.0	17.3	8.2	Valve open 100%
	3/21/2015	0.9	17.1	8.6	Valve open 100%
	6/27/2015	5.1	13.4	2.4	Valve open 100%
	9/26/2015	1.3	17.0	5.0	Valve open 100%
	11/22/2015	1.2	16.5	3.9	Valve open 100%
	2/27/2016	2.7	13.8	4.9	Valve open 100%
	9/26/2017	20.6	0.0	0.0	Open for test & then closed 100%
	12/1/2017	21.5	0.0	0.0	Valve open for test and closed
	3/16/2018	21.0	0.0	0.0	Valve open for test and closed
	6/26/2018	21.5	0.0	0.1	Valve open for test and closed
	9/27/2018	18.2	2.1	11.0	Valve open for test and closed
	11/28/2018	19.5	3.5	15.0	Valve open for test and closed
	3/22/2019	20.0	5.0	5.0	Valve open for test and closed
	6/11/2019	20.6	0.0	0.0	Valve open for test and closed
	12/11/2019	4.9	13.3	4.0	Valve open for test and closed
	3/19/2020	2.1	15.5	4.4	Valve open for test and closed
	6/24/2020	1.6	18.4	4.4	Valve open for test and closed
	9/14/2020	1.7	18.3	4.6	Valve open for test and closed
	12/14/2020	5.1	13.5	3.8	Valve open for test and closed
	3/25/2021	4.7	14.2	3.5	Valve open for test and closed
	6/14/2021	7.1	12.3	6.0	Valve open for test and closed
	9/29/2021	1.7	19.6	0.7	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	0.2	15.1	5.3	Valve open for test and closed
	7/12/2022	20.9	4.4	3.3	Valve open for test and closed
	10/27/2022	0.0	0.0	0.7	Valve opened for test and left open
	1/31/2023	1.5	100	11.0	Valve opened for test and left open
	5/18/2023	2.2	10	5.5	Valve opened for test and left open
	7/28/2023	0.6	0.0	6.5	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	3.1	15.6	5.0	Valve opened for test and left open

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Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-5	11/24/2007	9.0	11.0	1.7	Closed
	2/23/2008	11.6	7.2	1.2	Closed
	10/3/2009	9.2	10.4	0.6	Open for test & then closed 50%
	2/20/2010	13.2	6.6	0.3	Open for test & then closed 50%
	9/18/2010	0.9	18.2	9.1	Open
	12/4/2010	11.1	8.5	0.0	Open
	3/19/2011	12.2	6.4	0.1	Open for test & then closed 50%
	6/11/2011	10.6	7.8	0.1	Open for test & then closed 50%
	9/17/2011	9.7	7.3	0.2	Valve open for test and closed
	12/10/2011	12.6	6.7	0.0	Open for test & then closed 50%
	3/10/2012	1.4	5.7	0.1	Open for test & then closed 50%
	6/23/2012	12.4	6.9	0.0	Open for test & then closed 50%
	9/15/2012	10.4	9.7	0.2	Open for test & then closed 50%
	12/8/2012	12.4	6.8	0.2	Open
	3/16/2013	13.8	5.8	0.2	Open
	6/8/2013	12.4	5.7	0.0	Open 50%
	5/3/2014	14.4	6.2	0.1	Valve open 50%
	9/20/2014	11.6	7.9	0.0	Valve open 50%
	11/27/2014	13.1	6.8	0.0	Valve open 50%
	3/21/2015	13.1	6.8	1.2	Valve open 50%
	6/27/2015	6.7	6.8	13.2	Valve open 50%
	9/26/2015	13.0	6.0	0.0	Open % Test Closed 50%
	11/22/2015	13.2	7.2	0.1	Open % Test Closed 50%
	2/27/2016	11.3	8.4	0.0	Open 100% Test Closed 75%
	9/26/2017	20.5	0.0	0.0	Open 100% Test Closed 75%
	12/1/2017	21.5	0.0	0.0	Valve open for test and closed
	3/16/2018	21.5	0.0	0.0	Valve open for test and closed
	6/26/2018	21.5	0.0	0.0	Valve open for test and closed
	9/27/2018	20.9	0.0	0.0	Valve open for test and closed
	11/28/2018	19.9	0.1	0.0	Valve open for test and closed
	3/22/2019	19.9	0.1	0.0	Valve open for test and closed
	6/11/2019	19.9	0.0	0.0	Valve open for test and closed
	12/11/2019	10.8	8.3	0.5	Valve open for test and closed
	3/19/2020	11.8	7.1	0.5	Valve open for test and closed
	6/24/2020	11.0	8.4	0.2	Valve open for test and closed
	9/14/2020	11.2	8.1	0.3	Valve open for test and closed
	12/14/2020	10.9	8.5	0.3	Valve open for test and closed
	3/25/2021	10.6	9.1	0.5	Valve open for test and closed
	6/14/2021	7.8	9.3	1.0	Valve open for test and closed
	9/29/2021	0.7	26.1	18.0	Valve open for test and closed
	1/20/2022	NM	NM	NM	Valve opened for test, but there was no flow for measurements
	5/2/2022	2.6	12.1	0.1	Valve open for test and closed
	7/12/2022	9.9	7.9	0.1	Valve open for test and closed
	10/27/2022	8.6	0.0	0.0	Valve opened for test and closed
	1/31/2023	10.3	8.1	7.0	Valve opened for test and left open
	5/18/2023	10.0	7.5	0.0	Valve open for test and closed
	7/28/2023	20.5	0.0	0.1	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	16.4	4.3	0.0	Valve opened for test and closed

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LG-6	11/24/2007	4.2	21.0	24.7	Open
	2/23/2008	4.3	16.0	13.4	Open
	10/3/2009	0.0	0.0	0.0	no vacuum present
	2/20/2010	2.9	15.9	3.7	Open
	7/10/2010	2.2	17.7	8.3	Open
	9/18/2010	1.3	18.2	9.8	Open
	12/4/2010	1.9	17.8	11.6	Open
	3/19/2011	3.2	14.5	10.6	Open
	6/11/2011	2.5	15.8	10.9	Open
	9/17/2011	0.8	17.9	11.7	Open
	12/10/2011	2.8	15.9	9.6	Open
	3/10/2012	2.7	14.3	8.7	Open
	6/23/2012	2.9	16.0	5.7	Open
	9/15/2012	1.3	18.2	11.8	Open
	12/8/2012	3.3	15.9	10.0	Open
	3/16/2013	5.7	13.3	6.1	Open
	6/8/2013	3.8	13.6	5.2	Open
	5/3/2014	4.6	15.5	12.4	Valve open 100%
	9/20/2014	3.0	15.6	8.0	Valve open 100%
	11/27//2014	2.7	16.6	9.1	Valve open 100%
	3/21/2015	2.4	16.6	9.3	Valve open 100%
	6/27/2015	5.0	12.3	3.1	Valve open 100%
	9/26/201	3.2	15.6	4.2	Valve open 100%
	11/22/2015	3.9	16.1	5.5	Valve open 100%
	2/27/2016	5.6	12.9	6.1	Valve open 100%
	9/26/2017	20.4	0.0	0.0	Valve open 100%
	12/1/2017	21.4	0.0	0.0	Valve open for test and closed
	3/16/2018	20.0	0.1	0.0	Valve open for test and closed
	6/26/2018	21.4	0.0	0.0	Valve open for test and closed
	9/27/2018	20.9	0.0	2.0	Valve open for test and closed
	11/28/2018	20.9	0.0	2.0	Valve open for test and closed
	3/22/2019	20.9	2.0	2.0	Valve open for test and closed
	6/11/2019	20.9	2.0	2.0	Valve open for test and closed
	12/11/2019	3.8	15.4	8.1	Valve open for test and closed
	3/19/2020	4.4	13.9	7.5	Valve open for test and closed
	6/24/2020	4.9	14.5	6.0	Valve open for test and closed
	9/14/2020	4.2	4.1	6.1	Valve open for test and closed
	12/14/2020	4.1	15.7	7.6	Valve open for test and closed
	3/25/2021	3.7	16.1	8.1	Valve open for test and closed
	6/14/2021	5.1	16.0	8.5	Valve open for test and closed
	9/29/2021	1.7	24.3	19.5	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	1.4	14.0	5.3	Valve open for test and closed
	7/12/2022	8.8	11.1	5.5	Valve open for test and closed
	10/27/2022	2.3	0.0	5.0	Open
	1/31/2023	22.8	0.0	0.0	Valve closed after test
	5/18/2023	7.2	14.2	7.0	Valve opened for test and left open
	7/28/2023	4.3	15.4	5.0	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	13.2	6.6	0.5	Valve opened for test and left open

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Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-7	11/24/2007	0.3	16.7	2.2	Open
	2/23/2008	0.7	15.9	17.4	Open
	10/3/2009	2.3	15.6	0.0	Open
	2/20/2010	0.0	17.7	5.7	Open
	7/10/2010	3.9	14.7	0.2	Open
	9/18/2010	1.8	17.4	1.9	Open
	12/4/2010	0.8	16.9	0.5	Open
	3/19/2011	0.4	14.7	1.0	Open
	6/11/2011	0.8	17.1	3.1	Open
	9/17/2011	4.3	16.1	0.2	Open
	12/10/2011	4.6	13.0	0.0	Open
	3/10/2012	6.1	11.3	0.0	Open
	6/23/2012	3.0	15.5	0.0	Open
	9/15/2012	3.4	14.9	0.4	Open
	12/8/2012	3.6	14.2	0.1	Open
	3/16/2013	7.5	10.4	0.1	Open
	6/8/2013	4.9	12.0	0.0	Open
	5/3/2014	0.3	18.1	14.8	Valve open 100%
	9/20/2014	0.7	11.3	11.2	Valve open 100%
	11/27/2014	0.2	16.7	9.7	Valve open 100%
	3/21/2015	0.3	18.7	9.7	Valve open 100%
	6/27/2015	8.7	18.7	10.0	Valve open 100%
	9/26/2015	0.8	17.0	0.6	Valve open 100%
	11/22/2015	8.5	11.2	5.4	Valve open 100%
	2/27/2016	0.0	15.6	9.6	Valve open 100%
	9/26/2017	20.3	0.0	0.0	Valve open 100%
	12/1/2017	21.3	0.0	0.0	Valve open for test and closed
	3/16/2018	20.0	0.1	0.0	Valve open for test and closed
	6/26/2018	21.3	0.0	0.0	Valve open for test and closed
	9/27/2018	16.6	0.0	2.0	Valve open for test and closed
	11/28/2018	18.2	0.0	2.0	Valve open for test and closed
	3/22/2019	19.9	0.0	2.0	Valve open for test and closed
	6/11/2019	20.5	0.0	0.0	Valve open for test and closed
	12/11/2019	12.9	6.1	3.1	Valve open for test and closed
	3/19/2020	0.5	16.0	8.7	Valve open for test and closed
	6/24/2020	0.6	18.9	9.1	Valve open for test and closed
	9/14/2020	0.9	18.7	8.9	Valve open for test and closed
	12/14/2020	13.1	6.3	2.6	Valve open for test and closed
	3/25/2021	12.7	6.7	3.1	Valve open for test and closed
	6/14/2021	1.2	21.2	16.0	Valve open for test and closed
	9/29/2021	2.3	23.4	19.0	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	3.6	13.4	5.5	Valve open for test and closed
	7/12/2022	7.6	12.0	5.6	Valve open for test and closed
	10/27/2022	0.0	0.0	5.0	Valve opened for test and left open
	1/31/2023	0.0	10.9	15.1	Valve opened for test and left open
	5/18/2023	0.0	16.8	8.2	Valve opened for test and left open
	7/28/2023	1.5	14.8	8.0	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	2.5	16.1	8.9	Valve opened for test and open

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Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-8	11/24/2007	1.1	16.3	0.8	Open
	2/23/2008	12.5	5.9	0.2	Open
	10/3/2009	2.2	15.8	0.0	Open
	2/20/2010	14.6	15.5	0.0	Open for test & then closed 50%
	7/10/2010	4.1	14.7	0.2	Open for test & then closed 50%
	9/18/2010	0.9	17.9	0.5	Open
	12/4/2010	0.8	16.8	0.4	Open
	3/19/2011	2.8	13.4	0.2	Open
	6/11/2011	2.1	15.4	0.5	Open
	9/17/2011	1.3	17.9	0.4	Open
	12/10/2011	3.9	13.4	0.0	Open
	3/10/2012	6.3	11.3	0.0	Open
	6/23/2012	2.7	15.9	0.0	Open
	9/15/2012	0.6	17.6	0.5	Open
	12/8/2012	3.2	14.4	0.1	Open
	3/16/2013	7.4	10.4	0.1	Open
	6/8/2013	5.3	11.6	0.0	Open
	5/3/2014	15.7	5.0	0.0	Valve open 50%
	9/20/2014	12.3	6.9	0.0	Valve open 50%
	11/27/2014	13.1	6.4	0.0	Valve open 50%
	3/21/2015	12.1	9.4	0.7	Valve open 50%
	6/27/2015	10.3	8.4	0.0	Valve open 50%
	9/26/2015	2.5	15.3	0.2	Open for test & then closed 50%
	11/22/2015	12.5	8.9	0.2	Open 100% & then closed 100%
	2/27/2016	18.0	5.2	0.0	Open 100% & then closed 100%
	9/26/2017	20.2	0.0	0.0	Open 100% & then closed 100%
	12/1/2017	21.2	0.0	0.0	Valve open for test and closed
	3/16/2018	20.5	0.1	0.0	Valve open for test and closed
	6/26/2018	21.2	0.0	0.0	Valve open for test and closed
	9/27/2018	16.6	2.3	2.0	Valve open for test and closed
	11/28/2018	18.2	2.3	2.0	Valve open for test and closed
	3/22/2019	18.2	2.0	2.0	Valve open for test and closed
	6/11/2019	20.5	2.0	2.0	Valve open for test and closed
	12/11/2019	6.8	11.0	0.1	Valve open for test and closed
	3/19/2020	14.2	5.7	0.0	Valve open for test and closed
	6/24/2020	12.6	6.1	0.1	Valve open for test and closed
	9/14/2020	12.4	6.3	2.0	Valve open for test and closed
	12/14/2020	7.3	10.7	0.0	Valve open for test and closed
	3/25/2021	7.1	11.1	0.1	Valve open for test and closed
	6/14/2021	8.9	9.9	0.5	Valve open for test and closed
	9/29/2021	4.1	15.9	1.1	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	5.4	10.6	0.5	Valve open for test and closed
	7/12/2022	16.3	3.4	0.0	Valve open for test and closed
	10/27/2022	12.7	0.0	0.0	Valve opened for test and closed
	1/31/2023	16.5	0.0	2.9	Valve opened for test and left open
	5/18/2023	15.8	3.0	0.0	Valve opened for test and closed
	7/28/2023	13.6	3.1	0.1	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	17.2	3.6	0.0	Valve opened for test and closed

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Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-9	11/24/2007	2.7	15.8	3.6	Open
	2/23/2008	3.5	12.5	2.3	Open
	10/3/2009	1.6	16.6	2.6	Open
	2/20/2010	4.9	14.1	0.7	Open
	7/10/2010	3.4	15.7	1.6	Open
	9/18/2010	1.4	17.3	2.7	Open
	12/4/2010	2.9	16.8	3.7	Open
	3/19/2011	4.2	14.2	3.6	Open
	6/11/2011	3.7	15.5	2.7	Open
	9/17/2011	2.3	18.0	3.9	Open
	12/10/2011	3.8	14.4	12.7	Open
	3/10/2012	3.6	13.6	2.1	Open
	6/23/2012	3.9	15.3	2.0	Open
	9/15/2012	2.6	16.5	3.9	Open
	12/8/2012	4.3	14.9	3.2	Open
	3/16/2013	4.9	13.5	2.1	Open
	6/8/2013	4.5	12.9	1.4	Open
	5/3/2014	6.0	14.5	2.7	Valve open 100%
	9/20/2014	4.5	14.6	1.6	Valve open 100%
	11/27/2014	4.9	13.7	1.7	Valve open 100%
	3/21/2015	3.9	15.7	2.6	Valve open 100%
	6/27/2015	6.1	11.8	0.9	Valve open 100%
	9/26/2015	4.7	13.8	1.2	Valve open 100%
	11/22/2015	2.9	13.9	1.0	Valve open 100%
	2/27/2016	4.3	12.4	2.6	Valve open 100%
	9/26/2017	20.2	0.0	0.0	Valve open 100%
	12/1/2017	21.4	0.0	0.0	Valve open for test and closed
	3/16/2018	20.1	0.1	0.0	Valve open for test and closed
	6/26/2018	21.4	0.0	0.0	Valve open for test and closed
	9/27/2018	20.9	0.0	0.0	Valve open for test and closed
	11/28/2018	20.9	0.0	0.0	Valve open for test and closed
	3/22/2019	20.9	0.0	0.0	Valve open for test and closed
	6/11/2019	20.1	0.1	0.0	Valve open for test and closed
	12/11/2019	3.9	13.7	1.7	Valve open for test and closed
	3/19/2020	5.9	12.3	1.3	Valve open for test and closed
	6/24/2020	5.3	13.9	1.4	Valve open for test and closed
	9/14/2020	5.1	14.1	1.8	Valve open for test and closed
	12/14/2020	4.4	13.6	1.4	Valve open for test and closed
	3/25/2021	4.2	13.8	1.6	Valve open for test and closed
	6/14/2021	3.1	17.9	3.3	Valve open for test and closed
	9/29/2021	7.7	22.2	1.7	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	3.3	13.5	4.6	Valve open for test and closed
	7/12/2022	5.7	13.5	1.7	Valve open for test and closed
	10/27/2022	5.2	0.0	1.2	Valve opened for test and left open
	1/31/2023	22.9	0.0	0.0	Valve closed after test
	5/18/2023	4.8	12.2	0.9	Valve opened for test and left open
	7/28/2023	11.0	5.7	0.4	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	8.7	10.2	0.7	Valve opened for test and left open

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Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-10	11/24/2007	4.3	16.7	3.5	Open
	2/23/2008	12.3	7.1	0.1	Closed
	10/3/2009	9.6	11.4	3.7	Open for test & then closed 50%
	2/20/2010	11.3	8.7	1.2	Open for test & then closed 50%
	7/10/2010	19.0	1.2	0.2	Open for test & then closed 75%
	9/18/2010	5.1	11.4	4.0	Open
	12/4/2010	5.4	14.9	5.2	Open
	3/19/2011	10.6	8.6	4.5	Open for test & then closed 75%
	6/11/2011	9.7	9.6	3.3	Open
	9/17/2011	8.6	13.0	4.6	Open
	12/10/2011	4.2	14.9	5.8	Open
	3/10/2012	7.4	11.8	3.7	Open
	6/23/2012	15.1	4.1	1.2	Open 50%
	9/15/2012	7.6	14.6	4.0	Open
	12/8/2012	5.6	14.4	6.1	Open
	3/16/2013	13.6	8.0	2.5	Open
	6/8/2013	14.2	13.8	1.5	Open
	5/3/2014	11.8	18.7	3.0	Valve open 100%
	9/20/2014	8.5	13.1	2.1	Valve open 100%
	11/27/2014	4.7	14.4	3.0	Valve open 100%
	3/21/2015	3.7	16.1	3.9	Valve open 100%
	6/27/2015	7.1	11.9	1.0	Valve open 100%
	9/26/2015	11.0	9.0	0.2	Valve open 100%
	11/22/2015	23.0	0.1	0.0	No vacuum present/Valve open 100%
	2/27/2016	0.0	16.4	3.2	Valve open 100%
	9/26/2017	19.9	0.0	0.0	Open for test & then closed 100%
	12/1/2017	21.5	0.0	0.0	Valve open for test and closed
	3/16/2018	21.2	0.0	0.0	Valve open for test and closed
	6/26/2018	21.5	0.0	0.0	Valve open for test and closed
	9/27/2018	19.0	1.2	0.0	Valve open for test and closed
	11/28/2018	19.0	1.2	0.0	Valve open for test and closed
	3/22/2019	19.0	0.0	0.0	Valve open for test and closed
	6/11/2019	19.0	1.2	0.0	Valve open for test and closed
	12/11/2019	3.1	14.1	1.9	Valve open for test and closed
	3/19/2020	0.4	15.7	1.6	Valve open for test and closed
	6/24/2020	17.4	3.6	0.4	Valve open for test and closed
	9/14/2020	17.6	3.1	0.3	Valve open for test and closed
	12/14/2020	3.3	14.0	1.3	Valve open for test and closed
	3/25/2021	2.9	14.4	1.7	Valve open for test and closed
	6/14/2021	8.4	11.0	2.6	Valve open for test and closed
	9/29/2021	2.3	24.3	5.5	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	0.0	16.3	5.3	Valve open for test and closed
	7/12/2022	11.0	8.2	1.4	Valve open for test and closed
	10/27/2022	0.0	0.0	1.0	Open
	1/31/2023	23.0	0.0	0.0	Valve closed after test
	5/18/2023	2.0	12.1	1.0	Valve opened for test and left open
	7/28/2023	0.5	13.0	0.5	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	12.7	7.6	0.1	Valve opened for test and left open

Table 1
Historical LFG Collector Vent Well Readings
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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-11	11/24/2007	5.7	13.7	1.1	Closed
	2/23/2008	1.7	13.0	1.1	Closed
	10/3/2009	6.5	13.1	0.4	Open for test & then closed 50%
	2/20/2010	12.7	7.6	0.0	Open for test & then closed 50%
	7/10/2010	6.6	11.6	0.1	Open for test & then closed 75%
	9/18/2010	0.2	19.2	0.1	Open
	12/4/2010	6.7	12.9	0.0	Open
	3/19/2011	16.3	3.2	0.0	Open
	6/11/2011	17.4	2.0	0.0	Open for test & then closed 75%
	9/17/2011	6.5	2.0	0.0	Open for test & then closed 50%
	12/10/2011	12.2	7.7	0.2	Open for test & then closed 50%
	3/10/2012	18.4	3.3	0.0	Open for test & then closed 50%
	6/23/2012	11.7	6.3	0.1	Open for test & then closed 50%
	9/15/2012	15.4	47.5	0.0	Open for test & then closed 75%
	12/8/2012	18.7	10.2	0.0	Open for test & then closed 50%
	3/16/2013	16.5	4.1	0.1	Open for test & then closed 50%
	6/8/2013	11.1	7.2	0.7	Open for test & then closed 50%
	5/3/2014	8.7	11.7	0.3	Valve open for test and closed 50%
	9/20/2014	10.3	8.8	0.2	Valve open for test and closed 50%
	11/27/2014	14.5	5.9	0.2	Valve open for test and closed 50%
	3/21/2015	10.9	8.6	2.6	Valve open for test and closed 50%
	6/27/2015	7.1	11.9	0.1	Valve open for test and closed 50%
	9/26/2015	4.9	13.5	0.2	Open for test & then closed 100%
	11/22/2015	2.2	15.5	0.3	Valve open 100%
	2/27/2016	10.6	8.9	0.0	Valve closed 75%
	9/26/2017	20.1	0.0	0.0	Valve open 100%
	12/1/2017	21.3	0.0	0.0	Valve open for test and closed
	3/16/2018	21.3	0.0	0.0	Valve open for test and closed
	6/26/2018	21.3	0.0	0.0	Valve open for test and closed
	9/27/2018	18.4	3.3	0.0	Valve open for test and closed
	11/28/2018	18.2	2.3	2.0	Valve open for test and closed
	3/22/2019	19.0	2.0	2.0	Valve open for test and closed
	6/11/2019	19.9	2.0	2.0	Valve open for test and closed
	12/11/2019	7.6	11.1	0.4	Valve open for test and closed
	3/19/2020	8.6	9.9	0.2	Valve open for test and closed
	6/24/2020	11.3	7.5	0.2	Valve open for test and closed
	9/14/2020	11.5	7.3	0.1	Valve open for test and closed
	12/14/2020	7.8	11.3	0.2	Valve open for test and closed
	3/25/2021	8.1	11.5	0.4	Valve open for test and closed
	6/14/2021	3.4	15.9	0.9	Valve open for test and closed
	9/29/2021	1.7	21.0	1.7	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	1.9	13.8	2.2	Valve open for test and closed
	7/12/2002	11.4	7.8	0.3	Valve open for test and closed
	10/27/2022	9.0	0.0	0.4	Open
	1/31/2023	23.0	0.0	0.0	Valve open for test and closed
	5/18/2023	11.6	4.2	0.0	Valve open for test and closed
	7/28/2023	5.0	10.0	0.0	Valve open for test and closed
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	0.8	16.7	1.3	Valve opened for test and left open

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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-12	11/24/2007	0.8	21.0	18.1	Open
	2/23/2008	0.8	16.3	11.2	Closed
	10/3/2009	0.3	18.7	6.1	Open (valve broken)
	2/20/2010	2.3	16.7	2.5	Open (valve broken)
	7/10/2010	1.5	17.9	4.3	Open (valve broken)
	9/18/2010	2.5	18.3	5.2	Open
	12/4/2010	3.8	16.4	4.5	Open
	3/19/2011	3.0	15.1	4.3	Open
	6/11/2011	2.4	16.2	3.6	Open
	9/17/2011	3.2	16.8	3.9	Open
	12/10/2011	2.6	15.8	3.8	Open
	3/10/2012	3.0	14.6	2.6	Open
	6/23/2012	4.0	13.7	2.5	Open
	9/15/2012	2.3	17.8	4.5	Open
	12/8/2012	3.3	15.6	4.2	Open
	3/16/2013	4.2	15.0	3.0	Open
	6/8/2013	19.0	0.0	0.0	Open 25%
	5/3/2014	3.7	16.5	4.9	Valve open 100%
	9/20/2014	2.1	17.0	4.3	Valve open 100%
	11/27/2014	8.5	11.6	2.6	Valve open 100%
	3/21/2015	4.8	13.8	3.9	Valve open 100%
	6/27/2015	5.6	12.4	0.1	Valve open 100%
	9/26/2015	4.1	15.9	2.9	Valve open 100%
	11/22/2015	4.0	15.2	1.9	Valve open 100%
	2/27/2016	1.4	14.7	3.6	Valve open 100%
	9/26/2017	19.8	0.0	0.0	Valve open 100%
	12/1/2017	21.5	0.0	0.0	Valve open for test and closed
	3/16/2018	21.3	0.0	0.0	Valve open for test and closed
	6/26/2018	21.5	0.0	0.0	Valve open for test and closed
	9/27/2018	19.8	1.3	0.0	Valve open for test and closed
	11/28/2018	19.9	1.4	0.0	Valve open for test and closed
	3/22/2019	19.9	0.0	0.0	Valve open for test and closed
	6/11/2019	19.9	1.4	0.0	Valve open for test and closed
	12/11/2019	4.4	14.1	2.3	Valve open for test and closed
	3/19/2020	6.0	12.7	2.0	Valve open for test and closed
	6/24/2020	6.4	12.7	1.8	Valve open for test and closed
	9/14/2020	6.7	12.8	1.5	Valve open for test and closed
	12/14/2020	4.7	13.9	1.9	Valve open for test and closed
	3/25/2021	5.1	14.1	2.3	Valve open for test and closed
	6/14/2021	3.1	17.9	2.6	Valve open for test and closed
	9/29/2021	1.5	23.4	4.4	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	0.9	16.0	3.9	Valve open for test and closed
	7/12/2022	11.6	8.1	1.0	Valve open for test and closed
	10/27/2022	4.2	0.0	1.3	Valve opened for test and closed
	1/31/2023	5.1	12.2	10.0	Valve opened for test and left open
	5/18/2023	7.4	9.8	0.5	Valve opened for test and left open
	7/28/2023	9.0	5.0	0.3	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	7.1	12.5	1.4	Valve opened for test and left open

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Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-13	11/24/2007	0.8	10.6	11.0	Open
	2/23/2008	0.4	16.0	7.0	Open
	10/3/2009	0.0	20.4	3.8	Open
	2/20/2010	0.0	17.6	3.0	Open
	7/10/2010	0.0	0.0	0.0	No vacuum present
	9/18/2010	0.2	22.4	4.3	Open
	12/4/2010	0.1	21.7	9.8	Open
	3/19/2011	1.5	15.9	2.5	Open for test & then closed 50%
	6/11/2011	1.0	16.7	1.6	Open
	9/17/2011	0.0	18.5	3.6	Open
	12/10/2011	1.1	17.0	3.0	Open
	3/10/2012	14.6	1.5	1.5	Open
	6/23/2012	1.0	16.6	2.4	Open
	9/15/2012	0.1	20.2	4.1	Open
	12/8/2012	0.6	17.4	5.0	Open
	3/16/2013	2.2	15.1	1.5	Open
	6/8/2013	1.7	15.4	1.4	Open
	5/3/2014	0.0	18.0	2.5	Valve open 100%
	9/20/2014	0.4	20.1	8.4	Valve open 100%
	11/27/2014	0.1	18.8	8.1	Valve open 100%
	3/21/2015	0.1	20.8	8.3	Valve open 100%
	6/27/2015	5.6	12.4	1.7	Valve open 100%
	9/26/2015	1.0	18.0	2.6	Valve open 100%
	11/22/2015	0.6	17.3	2.1	Valve open 100%
	2/27/2016	0.0	15.3	3.4	Valve open 100%
	9/26/2017	20.0	0.0	0.0	Valve open 100%
	12/1/2017	20.5	0.0	0.0	Valve open for test and closed
	3/16/2018	0.2	0.0	0.0	Valve open for test and closed
	6/26/2018	20.0	0.0	0.0	Valve open for test and closed
	9/27/2018	6.8	11.8	0.0	Valve open for test and closed
	11/28/2018	14.7	3.9	4.0	Valve open for test and closed
	3/22/2019	14.5	3.0	3.0	Valve open for test and closed
	6/11/2019	15.5	3.0	3.0	Valve open for test and closed
	12/11/2019	0.0	18.4	5.2	Valve open for test and closed
	3/19/2020	0.9	17.3	2.8	Valve open for test and closed
	6/24/2020	1.2	19.2	2.1	Valve open for test and closed
	9/14/2020	1.5	18.9	1.7	Valve open for test and closed
	12/14/2020	0.2	18.2	4.9	Valve open for test and closed
	3/25/2021	0.7	17.2	5.2	Valve open for test and closed
	6/14/2021	19.2	0.0	0.0	Valve open for test and closed
	9/29/2021	NM	NM	NM	-
	1/20/2022	NM	NM	NM	Valve opened for test, but there was no flow for measurements
	5/2/2022	1.4	14.3	0.3	Valve open for test and closed
	7/12/2022	1.7	16.8	3.5	Valve open for test and closed
	10/27/2022	0.0	0.0	1.4	Open
	1/31/2023	23	0.0	0.0	Valve closed after test
	5/18/2023	2.9	11.1	0.7	Valve opened for test and left open
	7/28/2023	16.0	1.1	1.0	Valve opened for test and left open
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	13.6	6.6	0.0	Valve opened for test and closed

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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-14	11/24/2007	0.9	20.4	10.6	Open
	2/23/2008	0.0	15.6	6.3	Open
	10/3/2009	0.0	20.0	3.9	Open
	2/20/2010	0.0	17.4	2.9	Open
	7/10/2010	0.1	0.0	0.0	No vacuum present
	9/18/2010	5.7	21.1	1.3	Open
	12/4/2010	12.0	15.0	0.0	Open
	3/19/2011	10.7	7.1	0.0	Open for test & then closed 50%
	6/11/2011	6.4	8.1	0.0	Open for test & then closed 75%
	9/17/2011	12.1	12.8	0.0	Open for test & then closed 75%
	12/10/2011	14.7	8.2	0.0	Open for test & then closed 75%
	3/10/2012	11.3	6.2	0.0	Open for test & then closed 50%
	6/23/2012	0.8	7.2	0.1	Open for test & then closed 75%
	9/15/2012	10.4	16.3	0.1	Open for test & then closed 75%
	12/8/2012	13.5	9.5	0.1	Open for test & then closed 75%
	3/16/2013	12.9	6.3	0.1	Open for test & then closed 75%
	6/8/2013	0.0	5.5	0.0	Open for test & then closed 75%
	5/3/2014	0.0	18.1	2.5	Valve open 100%
	9/20/2014	7.7	18.1	2.5	Valve open 100%
	11/29/2014	6.2	17.6	0.0	Valve open 100%
	3/21/2015	9.7	14.6	2.1	Valve open 100%
	6/27/2015	11.0	8.8	0.0	Valve open 100%
	11/22/2015	0.3	9.7	0.0	Open 100% & test closed 50%
	2/27/2016	20.0	13.6	0.0	Open 100% & test closed 50%
	9/26/2017	21.2	0.0	0.0	Valve open 100%
	12/1/2017	21.3	0.0	0.0	Valve open for test and closed
	3/16/2018	21.3	0.0	0.0	Valve open for test and closed
	6/26/2018	21.2	0.0	0.0	Valve open for test and closed
	9/27/2018	14.7	3.9	4.0	Valve open for test and closed
	11/28/2018	14.3	4.9	3.0	Valve open for test and closed
	3/22/2019	14.5	3.0	3.0	Valve open for test and closed
	6/11/2019	19.9	2.0	2.0	Valve open for test and closed
	12/11/2019	8.9	10.9	0.1	Valve open for test and closed
	3/19/2020	11.9	8.9	0.0	Valve open for test and closed
	6/24/2020	9.2	9.8	0.0	Valve open for test and closed
	9/14/2020	10.1	9.5	0.0	Vave open for test and closed
	12/14/2020	8.7	11.1	0.3	Valve open for test and closed
	3/25/2021	10.1	11.4	0.7	Vave open for test and closed
	6/14/2021	5.3	13.8	0.0	Valve open for test and closed
	9/29/2021	1.3	21.2	0.2	Valve open for test and closed
	1/20/2022	NM	NM	NM	Valve opened for test, but there was no flow for measurements
	5/2/2022	9.3	8.8	0.0	Valve open for test and closed
	7/12/2022	13.4	6.0	0.0	Valve open for test and closed
	10/27/2022	11.2	0.0	0.0	Valve opened for test and closed
	1/31/2023	0.0	0.0	0.0	Valve opened for test and closed
	5/18/2023	13.4	4.3	0.0	Valve opened for test and closed
	7/28/2023	11.6	6.1	0.2	Valve opened for test and closed
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	14.4	4.3	0.5	Valve opened for test and left open

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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4	Valve Position
LG-15	11/24/2007	NM	NM	NM	Closed
	2/23/2008	0.0	NM	NM	Closed
	10/3/2009	0.0	20.3	4.0	Open
	2/20/2010	0.0	17.6	3.0	Open
	9/18/2010	0.0	19.1	3.5	Open
	12/4/2010	3.6	19.4	1.6	Open
	3/19/2011	4.0	12.4	0.1	Open
	6/11/2011	7.9	12.7	0.0	Open
	9/17/2011	3.5	10.3	1.7	Open
	12/10/2012	6.4	14.3	0.0	Open
	3/10/2012	4.0	10.7	0.0	Open
	6/23/2012	0.0	12.9	0.1	Open
	9/15/2012	3.1	19.1	0.6	Open
	12/8/2012	7.6	15.7	0.2	Open
	3/16/2013	6.9	10.6	0.1	Open
	6/8/2013	0.0	10.2	0.0	Open
	5/3/2014	0.4	18.1	2.6	Valve open 100%
	9/20/2014	9.5	18.9	1.7	Valve open 100%
	11/27/2014	1.4	10.1	1.5	Valve open 100%
	3/21/2015	1.8	16.2	1.7	Valve open 100%
	6/27/2015	5.6	11.4	0.7	Valve open 100%
	9/26/2015	3.9	0.0	0.0	Valve open 100%
	11/22/2015	0.0	14.1	1.9	Valve open 100%
	2/27/2016	20.0	15.0	0.5	Valve open 100%
	9/26/2017	21.3	0.0	0.0	Valve open 100%
	12/1/2017	21.3	0.0	0.0	Valve open for test and closed
	3/16/2018	21.3	0.0	0.0	Valve open for test and closed
	6/26/2018	21.4	0.0	0.0	Valve open for test and closed
	9/27/2018	8.9	9.6	2.0	Valve open for test and closed
	11/28/2018	19.9	0.1	0.0	Valve open for test and closed
	3/22/2019	19.9	0.0	0.0	Valve open for test and closed
	6/11/2019	20.0	0.1	0.0	Valve open for test and closed
	12/11/2019	0.0	17.6	0.6	Valve open for test and closed
	3/19/2020	7.7	11.0	0.1	Valve open for test and closed
	6/24/2020	6.8	11.5	0.1	Valve open for test and closed
	9/14/2020	10.3	9.3	0.1	Valve open for test and closed
	12/14/2020	0.1	17.4	0.8	Valve open for test and closed
	3/25/2021	3.1	16.9	1.1	Valve open for test and closed
	6/14/2021	7.7	11	0.6	Valve open for test and closed
	9/29/2021	4.9	17.7	1.6	Valve open for test and closed
	1/20/2022	NM	NM	NM	-
	5/2/2022	10.1	7.1	2.6	Valve open for test and closed
	7/12/2022	1.6	14.8	0.4	Valve open for test and closed
	10/27/2022	3.1	0.0	0.0	Valve opened for test and closed
	1/31/2023	0.0	0.0	0.0	Valve opened for test and closed
	5/18/2023	7.1	8.8	0.0	Valve opened for test and closed
	7/28/2023	6.2	3.4	0.0	Valve opened for test and closed
	12/14/2023	20.9	0.0	0.0	Valve opened for test and closed
	3/20/2024	8.0	11.3	0.0	Valve opened for test and closed

NM indicates not measured

Table 2
Historical GM Monitoring Probe Readings
1st Quarter 2024- Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-1	9/26/2017	20.8	0.0	0.1
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.2	0.0	0.0
	6/26/2018	20.8	0.0	0.1
	9/28/2018	20.9	0.2	0.0
	11/28/2018	20.9	0.2	0.0
	3/21/2019	10.9	0.1	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	12.9	6.6	0.1
	3/19/2020	17.0	3.2	0.0
	6/24/2020	11.2	6.9	0.0
	9/14/2020	11.4	6.7	0.0
	12/14/2020	13.2	6.3	0.0
	3/25/2021	13.7	5.9	0.0
	6/14/2021	7.7	12.1	0.0
	9/29/2021	6.6	14.3	0.0
	1/20/2022	10.8	6.1	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.4	0.0	0.0
	1/31/2023	21.3	0.0	0.0
	5/18/2023	20.8	0.0	0.0
	7/28/2023	10.7	0.3	0.0
	12/14/2023	19.2	1.1	0.0
	3/20/2024	19.4	2.6	0.0

Table 2
Historical GM Monitoring Probe Readings
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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-2	9/26/2017	20.6	0.0	0.1
	12/1/2017	21.4	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	20.6	0.0	0.1
	9/28/2018	12.2	4.2	0.0
	11/28/2018	16.2	3.3	0.0
	3/21/2019	20.9	0.1	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	17.4	4.4	0.1
	3/19/2020	19.8	1.9	0.0
	6/24/2020	20.7	0.0	0.0
	9/14/2020	20.8	0.0	0.0
	12/14/2020	17.9	4.2	0.1
	3/25/2021	18.1	5.9	0.2
	6/14/2021	10.9	8.1	0.0
	9/29/2021	2.0	23.5	0.0
	1/20/2022	13.1	5.4	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.5	0.0	0.0
	1/31/2023	21.4	0.0	0.0
	5/18/2023	21.0	0.0	0.0
	7/28/2023	19.0	0.5	0.0
	12/14/2023	20.2	0.4	0.0
	3/20/2024	21.9	0.4	0.0

Table 2
Historical GM Monitoring Probe Readings
1st Quarter 2024- Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-3	9/26/2017	20.4	0.0	0.1
	12/1/2017	21.4	0.0	0.0
	3/16/2018	21.4	0.0	0.0
	6/26/2018	20.4	0.0	0.1
	9/28/2018	17.2	1.3	0.0
	11/28/2018	16.2	1.3	0.0
	3/21/2019	20.9	0.1	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	19.1	2.4	0.1
	3/19/2020	21.1	0.5	0.0
	6/24/2020	10.0	1.8	0.0
	9/14/2020	19.5	1.5	0.0
	12/14/2020	18.9	2.6	0.1
	3/25/2021	19.1	2.8	0.1
	6/14/2021	16.6	2.2	0.0
	9/29/2021	15.1	4.4	0.0
	1/20/2022	17.1	2.5	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.3	0.0	0.0
	1/31/2023	21.2	0.0	0.0
	5/18/2023	21.0	0.0	0.0
	7/28/2023	19.1	0.8	0.0
	12/14/2023	20.7	0.5	0.0
	3/20/2024	21.6	0.6	0.0

Table 2
Historical GM Monitoring Probe Readings
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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-4	9/26/2017	20.2	0.0	0.1
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.3	0.0	0.0
	6/26/2018	20.2	0.0	0.1
	9/28/2018	20.9	0.0	0.0
	11/28/2018	20.9	0.0	0.0
	3/21/2019	20.9	0.0	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	18.8	0.3	0.1
	3/19/2020	20.7	1.0	0.0
	6/24/2020	18.8	1.2	0.0
	9/14/2020	19.1	1.0	0.0
	12/14/2020	18.7	0.5	0.0
	3/25/2021	18.9	0.3	0.0
	6/14/2021	17.7	1.4	0.0
	9/29/2021	15.8	3.7	0.0
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.4	0.0	0.0
	1/31/2023	21.1	0.0	0.0
	5/18/2023	20.9	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	21.3	0.5	0.0

Table 2
Historical GM Monitoring Probe Readings
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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-5	9/26/2017	20.1	0.0	0.1
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.3	0.0	0.0
	6/26/2018	20.1	0.0	0.1
	9/28/2018	20.9	0.0	0.0
	11/28/2018	20.9	0.0	0.0
	3/21/2019	20.9	0.0	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	20.9	0.1	0.1
	3/19/2020	21.3	0.3	0.0
	6/24/2020	19.7	0.7	0.0
	9/14/2020	19.6	0.8	0.0
	12/14/2020	20.8	0.0	0.1
	3/25/2021	20.6	0.0	0.2
	6/14/2021	19.1	0.8	0.0
	9/29/2021	18.2	1.8	0.0
	1/20/2022	19.4	1.1	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.1	0.0	0.0
	1/31/2023	21.2	0.0	0.0
	5/18/2023	20.8	0.0	0.0
	7/28/2023	20.8	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	21.4	0.3	0.0

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Historical GM Monitoring Probe Readings
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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-6	9/26/2017	20.0	0.0	0.1
	12/1/2017	21.5	0.0	0.0
	3/16/2018	21.4	0.0	0.0
	6/26/2018	20.0	0.0	0.1
	9/28/2018	18.9	1.2	0.0
	11/28/2018	20.9	0.0	0.0
	3/21/2019	20.9	0.0	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	20.8	0.3	0.1
	3/19/2020	21.3	0.3	0.0
	6/24/2020	20.5	0.0	0.0
	9/14/2020	20.6	0.0	0.0
	12/14/2020	20.9	0.2	0.1
	3/25/2021	20.7	0.2	0.1
	6/14/2021	18.8	1.1	0.0
	9/29/2021	17.8	2.5	0.0
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.2	0.0	0.0
	1/31/2023	21.0	0.0	0.0
	5/18/2023	20.8	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	19.9	0.4	0.0

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Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-7	9/26/2017	20.0	0.0	0.0
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.2	0.0	0.0
	6/26/2018	20.0	0.0	0.0
	9/28/2018	19.5	1.3	0.0
	11/28/2018	20.9	0.0	0.0
	3/21/2019	20.9	0.0	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	20.7	0.1	0.0
	3/19/2020	21.4	0.1	0.0
	6/24/2020	19.9	0.4	0.0
	9/14/2020	19.8	0.4	0.0
	12/14/2020	20.8	0.2	0.0
	3/25/2021	20.9	0.1	0.0
	6/1/2021	19.2	0.6	0.0
	9/29/2021	18.7	1.8	0.0
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.9	0.0	0.0
	1/31/2023	20.9	0.0	0.0
	5/18/2023	20.9	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	21.0	0.2	0.0

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Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-8	9/26/2017	19.9	0.0	0.0
	12/1/2017	21.2	0.0	0.0
	3/16/2018	20.2	0.0	0.0
	6/26/2018	19.9	0.0	0.0
	9/28/2018	20.9	0.1	0.0
	11/28/2018	20.9	0.1	0.0
	3/21/2019	20.9	0.1	0.0
	6/12/2019	20.9	0.1	0.0
	12/11/2019	20.5	0.3	0.0
	3/19/2020	21.1	0.4	0.0
	6/24/2020	19.6	0.8	0.0
	9/14/2020	19.8	0.6	0.0
	12/14/2020	20.4	0.2	0.0
	3/25/2021	20.3	0.3	0.0
	6/14/2021	19.1	0.7	0.0
	9/29/2021	18.3	2.1	0.0
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.9	0.1	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.8	0.0	0.0
	1/31/2023	20.9	0.0	0.0
	5/18/2023	21.0	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	20.9	0.3	0.0

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Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-9	9/26/2017	21.0	0.0	0.0
	12/1/2017	21.0	0.0	0.0
	3/16/2018	21.2	0.0	0.0
	6/26/2018	21.0	0.0	0.0
	9/28/2018	20.9	0.0	0.0
	11/28/2018	20.9	0.0	0.0
	3/21/2019	20.9	0.0	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	20.3	0.3	0.0
	3/19/2020	21.4	0.0	0.0
	6/24/2020	20.5	0.0	0.0
	9/14/2020	20.6	0.0	0.0
	12/14/2020	20.5	0.1	0.1
	3/25/2021	20.3	0.4	0.1
	6/14/2021	20.4	0.0	0.0
	9/29/2021	19.4	1.3	0.0
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.9	0.0	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	21.0	0.0	0.0
	1/31/2023	21.0	0.0	0.0
	5/18/2023	21.0	0.0	0.0
	7/28/2023	20.8	0.0	0.0
	12/14/2023	20.8	0.0	0.0
	3/20/2024	21.1	0.1	0.0

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Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-10	9/26/2017	21.2	0.0	0.0
	12/1/2017	21.2	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	21.2	0.0	0.0
	9/28/2018	19.8	0.1	0.0
	11/28/2018	19.5	0.4	0.0
	3/21/2019	19.5	0.5	0.0
	6/12/2019	19.5	0.5	0.0
	12/11/2019	19.8	0.4	0.2
	3/19/2020	21.4	0.0	0.0
	6/24/2020	20.5	0.0	0.0
	9/14/2020	20.5	0.0	0.0
	12/14/2020	19.7	0.3	0.3
	3/25/2021	19.4	0.5	0.5
	6/14/2021	20.0	0.2	0.0
	9/29/2021	18.8	1.3	0.1
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.9	0.2	0.0
	7/12/2022	20.9	0.3	0.0
	10/27/2022	20.9	0.3	0.0
	1/31/2023	21.2	0.0	0.0
	5/18/2023	20.9	0.0	0.0
	7/28/2023	20.4	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	19.8	0.1	0.0

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Historical GM Monitoring Probe Readings
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Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-11	9/26/2017	19.9	0.0	0.0
	12/1/2017	21.5	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	19.9	0.0	0.0
	9/28/2018	20.3	0.0	0.0
	11/28/2018	18.6	1.5	0.0
	3/21/2019	18.6	1.5	0.0
	6/12/2019	19.5	0.5	0.0
	12/11/2019	20.2	0.2	0.0
	3/19/2020	21.3	0.1	0.0
	6/24/2020	19.9	0.5	0.0
	9/14/2020	19.3	0.8	0.0
	12/14/2020	20.1	0.2	0.0
	3/25/2021	20.3	0.5	0.0
	6/14/2021	19.2	0.8	0.0
	9/29/2021	19.3	1.5	0.0
	1/20/2022	20.9	0.0	0.0
	4/25/2022	20.6	0.4	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.9	0.0	0.0
	1/31/2023	21.0	0.0	0.0
	5/18/2023	20.9	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	20.5	0.2	0.0

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Designation	Date	%O2	%CO2	%CH4
GM-12	9/26/2017	19.8	0.0	0.0
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.3	0.0	0.0
	6/26/2018	19.8	0.0	0.0
	9/28/2018	20.9	0.0	0.0
	11/28/2018	29.9	0.6	0.0
	3/21/2019	20.9	0.1	0.0
	6/12/2019	20.9	0.1	0.0
	12/11/2019	20.0	0.2	0.0
	3/19/2020	21.2	0.1	0.0
	6/24/2020	19.9	0.6	0.0
	9/14/2020	19.8	0.7	0.0
	12/14/2020	20.2	0.1	0.0
	3/25/2021	20.5	0.1	0.0
	6/14/2021	19.2	0.6	0.0
	9/29/2021	19.8	1.3	0.1
	1/20/2022	21.7	0.5	0.0
	4/25/2022	20.0	0.4	0.0
	7/12/2022	21.1	0.1	0.0
	10/27/2022	20.9	0.1	0.0
	1/31/2023	20.9	0.0	0.0
	5/18/2023	20.9	0.0	0.0
	7/28/2023	20.6	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	20.2	0.4	0.0

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Designation	Date	%O2	%CO2	%CH4
GM-13	9/26/2017	19.9	0.0	0.0
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.3	0.0	0.0
	6/26/2018	19.9	0.0	0.0
	9/28/2018	20.9	0.1	0.0
	11/28/2018	20.5	0.2	0.0
	3/21/2019	20.0	0.5	0.0
	6/12/2019	20.0	0.5	0.0
	12/11/2019	19.9	0.3	0.0
	3/19/2020	21.1	0.2	0.0
	6/24/2020	19.7	0.8	0.0
	9/14/2020	19.7	0.8	0.0
	12/14/2020	20.1	0.2	0.0
	3/25/2021	20.3	0.2	0.0
	6/14/2021	19.1	0.0	0.0
	9/29/2021	19.3	1.5	0.0
	1/20/2022	22.2	0.0	0.0
	4/25/2022	20.9	0.5	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.9	0.0	0.0
	1/31/2023	20.8	0.0	0.0
	5/18/2023	21.0	0.0	0.0
	7/28/2023	20.8	0.0	0.0
	12/14/2023	20.9	0.1	0.0
	3/20/2024	19.8	0.5	0.0

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Designation	Date	%O2	%CO2	%CH4
GM-14	9/26/2017	20.0	0.0	0.0
	12/1/2017	21.5	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	20.0	0.0	0.0
	9/28/2018	20.5	0.2	0.0
	11/28/2018	20.9	0.1	0.0
	3/21/2019	20.9	0.1	0.0
	6/12/2019	20.9	0.1	0.0
	12/11/2019	19.7	0.3	0.2
	3/19/2020	21.0	0.2	0.0
	6/24/2020	19.7	0.9	0.0
	9/14/2020	19.6	0.9	0.0
	12/14/2020	19.8	0.2	0.1
	3/25/2021	19.5	0.6	0.1
	6/14/2021	19.0	1.1	0.0
	9/29/2021	18.7	1.8	0.1
	1/20/2022	21.1	0.6	0.0
	4/25/2022	20.9	0.6	0.0
	7/12/2022	20.7	1.0	0.0
	10/27/2022	20.5	0.0	0.0
	1/31/2023	20.8	0.0	0.0
	5/18/2023	21.0	0.0	0.0
	7/28/2023	20.1	0.0	0.0
	12/14/2023	20.6	0.3	0.0
	3/20/2024	20.0	0.4	0.0

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Designation	Date	%O2	%CO2	%CH4
GM-15	9/26/2017	20.0	0.0	0.0
	12/1/2017	21.5	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	20.0	0.0	0.0
	9/28/2018	16.5	4.8	0.0
	11/28/2018	18.5	1.8	0.0
	3/21/2019	18.9	1.5	0.0
	6/12/2019	19.5	0.5	0.0
	12/11/2019	19.7	0.3	0.1
	3/19/2020	20.8	0.3	0.0
	6/24/2020	19.7	1.0	0.0
	9/14/2020	19.6	1.0	0.0
	12/14/2020	19.7	0.4	0.2
	3/25/2021	19.7	0.6	0.1
	6/14/2021	18.4	1.2	0.1
	9/29/2021	17.8	2.0	0.1
	1/20/2022	19.6	1.3	0.0
	4/25/2022	17.9	1.4	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.9	0.0	0.0
	1/31/2023	20.9	0.0	0.0
	5/18/2023	21.1	0.0	0.0
	7/28/2023	20.6	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	20.1	0.5	0.0

Table 2
Historical GM Monitoring Probe Readings
1st Quarter 2024- Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-16	9/26/2017	20.0	0.0	0.0
	12/1/2017	21.5	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	20.0	0.0	0.0
	9/28/2018	18.9	1.5	0.0
	11/28/2018	18.9	1.5	0.0
	3/21/2019	19.5	0.4	0.0
	6/12/2019	19.5	0.5	0.0
	12/11/2019	19.1	0.2	0.1
	3/19/2020	20.5	0.7	0.0
	6/24/2020	19.1	1.5	0.0
	9/14/2020	18.9	1.7	0.0
	12/14/2020	19.4	0.2	0.1
	3/25/2021	19.8	0.1	0.2
	6/14/2021	13.2	4.2	0.1
	9/29/2021	10.7	7.8	0.1
	1/20/2022	16.1	0.0	0.0
	4/25/2022	8.1	5.2	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.9	0.0	0.0
	1/31/2023	21.0	0.0	0.0
	5/18/2023	21.1	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.3	0.0
	3/20/2024	19.5	0.8	0.0

Table 2
Historical GM Monitoring Probe Readings
1st Quarter 2024- Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-17	9/26/2017	20.1	0.0	0.0
	12/1/2017	21.5	0.0	0.0
	3/16/2018	21.5	0.0	0.0
	6/26/2018	20.1	0.0	0.0
	9/28/2018	20.9	0.0	0.0
	11/28/2018	20.9	0.0	0.0
	3/21/2019	20.9	0.1	0.0
	6/12/2019	20.9	0.0	0.0
	12/11/2019	19.6	1.0	0.1
	3/19/2020	20.5	0.4	0.0
	6/24/2020	19.7	1.2	0.0
	9/14/2020	19.5	1.0	0.0
	12/14/2020	19.7	0.9	0.2
	3/25/2021	20.1	0.6	0.1
	6/14/2021	19.2	0.2	0.0
	9/29/2021	18.7	1.9	0.1
	1/20/2022	20.9	0.0	0.0
	4/25/2022	19.0	0.9	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.9	0.0	0.0
	1/31/2023	21.0	0.0	0.0
	5/18/2023	21.4	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.0	0.0
	3/20/2024	20.1	0.1	0.0

Table 2
Historical GM Monitoring Probe Readings
1st Quarter 2024- Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

Designation	Date	%O2	%CO2	%CH4
GM-18	9/26/2017	20.0	0.0	0.0
	12/1/2017	21.3	0.0	0.0
	3/16/2018	21.3	0.0	0.0
	6/26/2018	20.0	0.0	0.0
	9/28/2018	18.6	1.5	0.0
	11/28/2018	18.6	1.5	0.0
	3/21/2019	20.5	0.3	0.0
	6/12/2019	20.0	0.5	0.0
	12/11/2019	20.4	0.2	0.1
	3/19/2020	21.1	0.5	0.0
	6/24/2020	19.1	1.9	0.0
	9/14/2020	19.4	1.6	0.0
	12/14/2020	20.5	0.1	0.1
	3/25/2021	20.3	0.3	0.1
	6/14/2021	16.8	2.4	0.0
	9/29/2021	14.2	5.6	0.0
	1/20/2022	17.4	0.0	0.0
	4/25/2022	17.3	1.8	0.0
	7/12/2022	20.9	0.0	0.0
	10/27/2022	20.4	0.0	0.0
	1/31/2023	20.8	0.0	0.0
	5/18/2023	21.3	0.0	0.0
	7/28/2023	20.9	0.0	0.0
	12/14/2023	20.9	0.3	0.0
	3/20/2024	19.5	0.6	0.0

NM indicates not measured

Attachment A

PM Performed Field Tasks (DRL-11)

PATRIOT ENGINEERING

FORM: DRL-11
PM Performed Field Tasks
Douglas Road Landfill (DRL) Superfund Site
Patriot Project No. 22-0034-01E

Employee James Cody	**Week ending: January 21, 2024**							
Project #:22-0034-01E	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**Total**
Tasks and Description	**Mon**	**Tue**	**Wed**	**Thrs**	**Fri**	**Sat**	**Sun**	**Hours**
B.1 – Site Security & Fence Inspections (1 x per month) Form DRL-1			2					
B.2 – Perimeter Security Fence/Post/Barbed Wire – All Repair (as needed)								
B.3 – Perimeter Fence Veg Control & Removal (Yearly Event)								
C.1 – Landfill Cap & Drainage System Inspections (2 x per month) Form DRL-3								
C.2 – Detailed Landfill Cap/Cover Inspections (Quarterly) Form DRL-3			2					
C.3.1 – Mow Southern Half of Drainage Ditches, Landfill Cap and Perimeter (Spring Quarter)								
C.3.2 – Mow other Half, of Drainage Ditches, Landfill Cap and Perimeter (Fall Quarter)								
C.3.3 – Mow All Perimeter Areas of Wetland Treatment System (Spring Quarter)								
C.4 – Vegetative Growth Control on Access Road and Drainage Ditches Ditch (Yearly Event)								
C.5 – Nuisance Animal Control (as needed, up to 10 events)								
D.1 – Landfill Gas System Inspections (2 x per month) Form DRL-2			2					
D.2 – Landfill Gas System Maintenance and Repairs (as needed)								
D.3.1 – Landfill Gas System Building Painting and Sealing (one event)								
D.3.2 – Landfill Gas System Building Maintenance and Repair (two events)								
E.1 – Landfill Compliance Monitoring (Quarterly) Form DRL- 4 and DRL-5								
E.2 – Landfill Compliance Sampling – Collect 8-hr Air Exhaust Samples (Quarterly)								
F.1 – Groundwater Monitoring Network Inspection and Maintenance (1Q and 3Q/ Year) Form DRL-7								
F.2 – Groundwater Monitoring Water Level Measurement and Sampling (1Q and 3Q/ Year) Form DRL-8								
F.5.1 – Monitoring Well Redevelopment (up to 4 wells)								
F.5.2 – Monitoring Well Abandonment (up to 4 wells)								
G.1 – Utility Support Services (up to 8 events)								
G.2 – Utility Systems Repair & Maintenance (up to 8 events)								
Total by Day:			6					

PATRIOT ENGINEERING

FORM: DRL-11
PM Performed Field Tasks
Douglas Road Landfill (DRL) Superfund Site
Patriot Project No. 22-0034-01E

Employee James Cody	**Week ending: February 11, 2024**							
Project #:22-0034-01E	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Total**
Tasks and Description	**Mon**	**Tue**	**Wed**	**Thrs**	**Fri**	**Sat**	**Sun**	**Hours**
B.1 – Site Security & Fence Inspections (1 x per month) Form DRL-1				2				
B.2 – Perimeter Security Fence/Post/Barbed Wire – All Repair (as needed)								
B.3 – Perimeter Fence Veg Control & Removal (Yearly Event)								
C.1 – Landfill Cap & Drainage System Inspections (2 x per month) Form DRL-3				2				
C.2 – Detailed Landfill Cap/Cover Inspections (Quarterly) Form DRL-3								
C.3.1 – Mow Southern Half of Drainage Ditches, Landfill Cap and Perimeter (Spring Quarter)								
C.3.2 – Mow other Half, of Drainage Ditches, Landfill Cap and Perimeter (Fall Quarter)								
C.3.3 – Mow All Perimeter Areas of Wetland Treatment System (Spring Quarter)								
C.4 – Vegetative Growth Control on Access Road and Drainage Ditches Ditch (Yearly Event)								
C.5 – Nuisance Animal Control (as needed, up to 10 events)								
D.1 – Landfill Gas System Inspections (2 x per month) Form DRL-2				2				
D.2 – Landfill Gas System Maintenance and Repairs (as needed)								
D.3.1 – Landfill Gas System Building Painting and Sealing (one event)								
D.3.2 – Landfill Gas System Building Maintenance and Repair (two events)								
E.1 – Landfill Compliance Monitoring (Quarterly) Form DRL- 4 and DRL-5								
E.2 – Landfill Compliance Sampling – Collect 8-hr Air Exhaust Samples (Quarterly)								
F.1 – Groundwater Monitoring Network Inspection and Maintenance (1Q and 3Q/ Year) Form DRL-7								
F.2 – Groundwater Monitoring Water Level Measurement and Sampling (1Q and 3Q/ Year) Form DRL-8								
F.5.1 – Monitoring Well Redevelopment (up to 4 wells)								
F.5.2 – Monitoring Well Abandonment (up to 4 wells)								
G.1 – Utility Support Services (up to 8 events)								
G.2 – Utility Systems Repair & Maintenance (up to 8 events)								
Total by Day:				6				

PATRIOT ENGINEERING

FORM: DRL-11
PM Performed Field Tasks
Douglas Road Landfill (DRL) Superfund Site
Patriot Project No. 22-0034-01E

Employee Cole Baird	**Week ending: March 24, 2024**							
Project #:22-0034-01E	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**Total**
Tasks and Description	**Mon**	**Tue**	**Wed**	**Thrs**	**Fri**	**Sat**	**Sun**	**Hours**
B.1 – Site Security & Fence Inspections (1 x per month) Form DRL-1			1					
B.2 – Perimeter Security Fence/Post/Barbed Wire – All Repair (as needed)								
B.3 – Perimeter Fence Veg Control & Removal (Yearly Event)								
C.1 – Landfill Cap & Drainage System Inspections (2 x per month) Form DRL-3								
C.2 – Detailed Landfill Cap/Cover Inspections (Quarterly) Form DRL-3			1					
C.3.1 – Mow Southern Half of Drainage Ditches, Landfill Cap and Perimeter (Spring Quarter)								
C.3.2 – Mow other Half, of Drainage Ditches, Landfill Cap and Perimeter (Fall Quarter)								
C.3.3 – Mow All Perimeter Areas of Wetland Treatment System (Spring Quarter)								
C.4 – Vegetative Growth Control on Access Road and Drainage Ditches Ditch (Yearly Event)								
C.5 – Nuisance Animal Control (as needed, up to 10 events)								
D.1 – Landfill Gas System Inspections (2 x per month) Form DRL-2			1					
D.2 – Landfill Gas System Maintenance and Repairs (as needed)								
D.3.1 – Landfill Gas System Building Painting and Sealing (one event)								
D.3.2 – Landfill Gas System Building Maintenance and Repair (two events)								
E.1 – Landfill Compliance Monitoring (Quarterly) Form DRL- 4 and DRL-5			7.25					
E.2 – Landfill Compliance Sampling – Collect 8-hr Air Exhaust Samples (Quarterly)			2.5					
F.1 – Groundwater Monitoring Network Inspection and Maintenance (1Q and 3Q/ Year) Form DRL-7								
F.2 – Groundwater Monitoring Water Level Measurement and Sampling (1Q and 3Q/ Year) Form DRL-8								
F.5.1 – Monitoring Well Redevelopment (up to 4 wells)								
F.5.2 – Monitoring Well Abandonment (up to 4 wells)								
G.1 – Utility Support Services (up to 8 events)								
G.2 – Utility Systems Repair & Maintenance (up to 8 events)								
Total by Day:			12.75					

Attachment B

Monthly Fence Inspections (DRL-1)
Monthly Landfill Cap and Drainage System Inspection (DRL-2)
Monthly Landfill Gas System Inspection (DRL-2)
Quarterly Landfill Cap/Cover Inspection (DRL-3)

Form DRL-1
Douglas Road Landfill Superfund Site
Site Security and Fence Perimeter Inspections
Monthly Inspection Checklist (Task B.1)
Patriot Project Number 22-0034-01E

Inspection Date: Q1. 08. 2024

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	51° - 70°	**71° - 90°**	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Preformed By: Cole Baird
Title: Staff Scientist
Company: Patriot Eng. & Env.
Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

Site Security and Fence Perimeter Inspections (Task B.1)

- Are the perimeter fence and gates in satisfactory conditions and free of debris in and around the foot of the fence? Yes ☒ No ☐

  Notes and/or Recommendations for Actions: Previously documented damaged/falling fence on west property boundary was repaired during visit.

- Are locks on the gate and shed functioning properly? Yes ☒ No ☐

  Notes and/or Recommendations for Actions:

- Are there any signs of vandalism, forced entry, or breaching of the fence or shed?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

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Form DRL-2
Douglas Road Landfill Superfund Site
Landfill Cap & Drainage System Inspections (Task C.1)
and Landfill Gas System Inspections (Task D.1)
Monthly Inspection Checklist
Patriot Project Number 22-0034-01E

Inspection Date: 02.08.2024

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	51° - 70°	71° - 90°	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Preformed By: Cole Baird
Title: Staff Scientist
Company: Patriot Eng. & Env.
Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

Landfill Cap Cover and Perimeter Drainage Ditch Inspections (Task C.1)

- Are there any holes, burrows, or other disturbances of the cap by animals or trespassers (especially any break 1.5 ft or more in depth)?

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions:
  2 holes/burrows found. 1 on South side of cap on edge of drainage. 1 on East side of cap on edge of drainage. Both holes/burrows ~1' bgs. Both holes/burrows filled with soil and compacted during site visit. See photos.

- Are there any depressions, general or localize, or evidence of standing water?

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions:
  Depressions: North end of cap as previously documented. See photos.

  Note: Water in drainage is from recent/ Continuing Snow melt.

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- Are there any signs of abnormal or excessive erosion within the main areas of the cap?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Is there a lack of vegetation due to either natural or manmade causes?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Are the storm drains within the perimeter ditch and the perimeter ditch itself free of debris?

  Yes ☒ No ☒ ok

  Notes and/or Recommendations for Actions: Ditch is free of debris.

- Is there excessive standing water (greater than 20%) in the perimeter ditch?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

Landfill Gas System Inspections (Task D.1)

Landfill Gas Collection System

- Are the vent wells in satisfactory condition? Note any signs of aging such as cracking and/or discoloration and any obstructions.

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions:

- Are there any depressions or other signs of surface material eroding into the collector trenches, such as cracks in the soil overlying the trench?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Verify operations of rotron blower, check for any abnormal sounds and collect readings from all gauges.

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions: Filter cleaned - should be replaced next inspection.

  Blower Gauge @ -20 " H_2O KO Tank Gauge @ -9 " H_2O

- Drain the moisture separator if there is more than 6" of liquid present and pull and clean or replace air filter element as necessary. No liquid. Filter cleaned -- See above.

  Yes ☒ No ☒

  Notes and/or Recommendations for Actions:

Landfill Gas Monitoring System

- Are the monitoring probes in satisfactory condition? Note any signs of aging such as cracking and/or discoloration and any obstructions.

Yes ☒ No ☐

Notes and/or Recommendations for Actions:

- Are there any signs of subsidence around the monitoring probes?

Yes ☐ No ☒

Notes and/or Recommendations for Actions:

Form DRL-1
Douglas Road Landfill Superfund Site
Site Security and Fence Perimeter Inspections
Monthly Inspection Checklist (Task B.1)
Patriot Project Number 22-0034-01E

Inspection Date: 01/17/24

-- 10°, Windchill ~6°, ~6-8" snow on ground

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	51° - 70°	**71° - 90°**	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Preformed By: Cole Baird
Title: Staff Scientist
Company: Patriot Eng. & Env.
Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

Site Security and Fence Perimeter Inspections (Task B.1)

- Are the perimeter fence and gates in satisfactory conditions and free of debris in and around the foot of the fence? Yes ☒ No ☐

  Notes and/or Recommendations for Actions: No new signs of damage not already documented.

- Are locks on the gate and shed functioning properly? Yes ☒ No ☐

  Notes and/or Recommendations for Actions:

- Are there any signs of vandalism, forced entry, or breaching of the fence or shed?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

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Form DRL-2
Douglas Road Landfill Superfund Site
Landfill Cap & Drainage System Inspections (Task C.1)
and Landfill Gas System Inspections (Task D.1)
Monthly Inspection Checklist
Patriot Project Number 22-0034-01E

Inspection Date: 01/17/24

-- 10°, Wind Shield -6°, ~6-8" Snow on ground

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	51° - 70°	71° - 90°	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Preformed By: Cole Baird
Title: Staff Scientist
Company: Patriot Eng. & Env.
Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

Landfill Cap Cover and Perimeter Drainage Ditch Inspections (Task C.1)

- Are there any holes, burrows, or other disturbances of the cap by animals or trespassers (especially any break 1.5 ft or more in depth)?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

  No visual disturbances w/ snow cover. No signs of animal disruption -- minimal animal tracks on cap.

- Are there any depressions, general or localize, or evidence of standing water?

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions:

  - Slight depression on N. Central cap.
  - Covered in snow --
    No standing water

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- Are there any signs of abnormal or excessive erosion within the main areas of the cap?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

  Observations limited due to snow cover.

- Is there a lack of vegetation due to either natural or manmade causes?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Are the storm drains within the perimeter ditch and the perimeter ditch itself free of debris?

  Yes ☒ No ☒

  Notes and/or Recommendations for Actions: No debris in drainage ditch

- Is there excessive standing water (greater than 20%) in the perimeter ditch?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions: Snow cover - No melt

Landfill Gas System Inspections (Task D.1)

Landfill Gas Collection System

- Are the vent wells in satisfactory condition? Note any signs of aging such as cracking and/or discoloration and any obstructions.

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions:

- Are there any depressions or other signs of surface material eroding into the collector trenches, such as cracks in the soil overlying the trench?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Verify operations of rotron blower, check for any abnormal sounds and collect readings from all gauges.

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions: Checked – No abnormal sounds

  Blower Gauge @ -22 " H_2O KO Tank Gauge @ -10 " H_2O

- Drain the moisture separator if there is more than 6" of liquid present and pull and clean or replace air filter element as necessary.

  Yes ☒ No ☒

  Notes and/or Recommendations for Actions:

Landfill Gas Monitoring System

- Are the monitoring probes in satisfactory condition? Note any signs of aging such as cracking and/or discoloration and any obstructions.

Yes ☒ No ☐

Notes and/or Recommendations for Actions:

- Are there any signs of subsidence around the monitoring probes?

Yes ☐ No ☒

Notes and/or Recommendations for Actions:

Form DRL-1
Douglas Road Landfill Superfund Site
Site Security and Fence Perimeter Inspections
Monthly Inspection Checklist (Task B.1)
Patriot Project Number 22-0034-01E

Inspection Date: 03.20.24

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	51° - 70°	**71° - 90°**	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Preformed By: Cole Baird
Title: Staff Scientist
Company: Patriot Engineering & Environmental
Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

Site Security and Fence Perimeter Inspections (Task B.1)

- Are the perimeter fence and gates in satisfactory conditions and free of debris in and around the foot of the fence? Yes ☒ No ☐

  Notes and/or Recommendations for Actions:
  - Storm damage sticks/logs need cleaned up.

- Are locks on the gate and shed functioning properly? Yes ☒ No ☐

  Notes and/or Recommendations for Actions: Functioning

- Are there any signs of vandalism, forced entry, or breaching of the fence or shed?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

PATRIOT ENGINEERING

Form DRL-2
Douglas Road Landfill Superfund Site
Landfill Cap & Drainage System Inspections (Task C.1)
and Landfill Gas System Inspections (Task D.1)
Monthly Inspection Checklist
Patriot Project Number 22-0034-01E

Inspection Date: 03.20.24

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	51° - 70°	71° - 90°	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Preformed By: Cole Baird
Title: Staff Scientist
Company: Patriot Engineering & Environmental
Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

Landfill Cap Cover and Perimeter Drainage Ditch Inspections (Task C.1)

- Are there any holes, burrows, or other disturbances of the cap by animals or trespassers (especially any break 1.5 ft or more in depth)?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Are there any depressions, general or localize, or evidence of standing water?

  Yes ☒ No ☐

  Notes and/or Recommendations for Actions:

  - Previously noted depression NW corner of cap
  - minimal standing water in drainage

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- Are there any signs of abnormal or excessive erosion within the main areas of the cap?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Is there a lack of vegetation due to either natural or manmade causes?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

- Are the storm drains within the perimeter ditch and the perimeter ditch itself free of debris?

  Yes ☒ No ☒

  Notes and/or Recommendations for Actions:

- Is there excessive standing water (greater than 20%) in the perimeter ditch?

  Yes ☐ No ☒

  Notes and/or Recommendations for Actions:

Landfill Gas System Inspections (Task D.1)

Landfill Gas Collection System

- Are the vent wells in satisfactory condition? Note any signs of aging such as cracking and/or discoloration and any obstructions.

Yes ☒ No ☐

Notes and/or Recommendations for Actions:

- Working order

- Are there any depressions or other signs of surface material eroding into the collector trenches, such as cracks in the soil overlying the trench?

Yes ☐ No ☒

Notes and/or Recommendations for Actions:

- Verify operations of rotron blower, check for any abnormal sounds and collect readings from all gauges.

Yes ☒ No ☐

Notes and/or Recommendations for Actions:

Blower Gauge @ -20 " H_2O KO Tank Gauge @ -8 " H_2O

- Drain the moisture separator if there is more than 6" of liquid present and pull and clean or replace air filter element as necessary.

Yes ☒ No ☐

Notes and/or Recommendations for Actions:

- filter cleaned

Landfill Gas Monitoring System

- Are the monitoring probes in satisfactory condition? Note any signs of aging such as cracking and/or discoloration and any obstructions.

Yes ☒ No ☐

Notes and/or Recommendations for Actions:

- Clear connector tubing showing signs of age (discoloration)
- Still in working order

- Are there any signs of subsidence around the monitoring probes?

Yes ☐ No ☒

Notes and/or Recommendations for Actions:

Form DRL-3
Douglas Road Landfill Superfund Site
Detail Landfill Cap/Cover Inspection (Task C.2)
Quarterly Inspection Checklist
Patriot Project Number 22-0034-01E

Inspection Date: 03.20.24

Weather	Sunny	Partly Cloudy	Overcast	Rain	Snow
Temperature	32° or below	33° - 50°	**51° - 70°**	71° - 90°	90° or above
Winds	5 - 20 mph	20 - 40 mph	40 - 60 mph	60 mph +	
Humidity	Dry	Medium	Humid		

Inspection Performed By: Cole Baird

Title: Staff Scientist

Company: Patriot Engineering & Environmental

Additional Attendees: N/A

Photos Taken: Yes ☒ No ☐

General Conclusions on the Condition of the Landfill Cap:

Cap in Satisfactory Condition. No holes/burrows breaking cap. No erosion of cap. Vegetation height ≤ 6 in. Depression on NW corner, but no standing water or erosion

Report Prepared By:

(Signature): Cole Baird Date: 03.20.24

PATRIOT ENGINEERING

Landfill Cap and Vegetation (Task C.2)

The landfill cap should be inspected by traversing the entire site and observing the surface of the cap. The final design grading and topography of the landfill cap is shown in Sheets 9 & 10, Appendix B of the O&M Manual. Items to note include:

Are there any depressions, general or localize or evidence of standing water? Yes ☒ No ☐

- Noted depression on NW corner of cap - No standing water on Cap.

Are there any holes, burrows, or other disturbances of the cap by animals or trespassers (especially any breach 2.5 feet or more in depth)? Yes ☐ No ☒

Has adequate maintenance been performed (e.g. should mowing frequency be increased or decreased)? Yes ☒ No ☐

Vegetation (grass) at good height for time of year. Old + new grass < 6".

Have previously recommended repairs been made? Yes ☐ No ☐

Not Applicable. No repairs to the cap have been recently recommended.

Is there a lack of vegetation due to either natural or manmade activities? Yes ☐ No ☒

Are there any signs of abnormal or excessive erosion on the main areas of the cap? Yes ☐ No ☒

Notes and/or Recommendations for Actions:

Landfill Gas Venting System (Task C.2)

The landfill gas venting system should be inspected when the landfill cap and vegetation are inspected. Observations should be included in the quarterly inspection report. The landfill gas venting system consist of a series of shallow gas collector trenches (about 5 feet deep) within the middle portion of the landfill. The collector trenches contain 6-inch diameter corrugated and perforated horizontal HDPE gas collection pipes that have been backfilled with coarse aggregate. The 6-inch diameter HDPE gas collection pipes are connected to 6-inch diameter vertical polyvinyl chloride (PVC) gas vents that extend about 7 feet above the final landfill grade. The locations of the collector trenches and PVC gas vents are shown in the O&M Manual. Typical sections through collector and interceptor trenches and the PVC gas vent details are also shown. Inspection of the system should include walking the ground surface along the length of the collector and interceptor trenches and observing PVC gas vents. Items to note include:

Are the PVC gas vents in satisfactory condition? Yes ☒ No ☐

Are there any signs on the PVC gas vents that show aging such as cracking, and/or discoloration? Yes ☒ No ☐

- Discoloration on clear tubing extending off horizonal pipes. Still functional.

Are there any obstructions around the vent caps? Yes ☐ No ☒

Are there any depressions or other signs of surface material eroding into the collector trenches, such as cracks in the soil overlying the trench? Yes ☐ No ☒

Notes and/or Recommendations for Actions:

Other Items (Task C.2)

The perimeter of the landfill is fenced for security purposes. The fence and each of the three gates should be inspected and observations should be included in the quarterly inspection report. Items to include:

Are the perimeter fence and gates in satisfactory condition? Yes ☒ No ☐

- Each gate shuts and locks.

Are all locks functioning properly? Yes ☒ No ☐

Are there signs of vandalism, forced entry, or breaching of the fence? Yes ☐ No ☒

Is there any evidence of debris collection in or around the foot of the fence? Yes ☒ No ☐

- minimal storm debris of sticks/logs.

Are the gravel paths graded and free of vegetation? Yes ☐ No ☐

- Gravel paths are free of vegetation on tread width driving lane. Vegation in the middle of lane from absence of driving.

Notes and/or Recommendations for Actions:

PATRIOT ENGINEERING and Environmental, Inc.
Consulting Environmental, Geotechnical and Construction Materials Engineers

Site Photographs

	Photo Date:	Project:	Project #
	February 8, 2024	Douglas Road Landfill - Fence Repair	22-0034-01E

Photo #1

View of damaged fence on western property boundary.

Photo #2

View of damaged fence on western property boundary.

PATRIOT ENGINEERING and Environmental, Inc.
Consulting Environmental, Geotechnical and Construction Materials Engineers

Site Photographs

	Photo Date:	Project:	Project #
	February 8, 2024	Douglas Road Landfill - Fence Repair	22-0034-01E

Photo #3

View of damaged fence on western property boundary.

Photo #4

View of fence after Patriot performed repairs.

Attachment C

Landfill Gas (LG) Vent Wells and Gas Monitoring (GM) Probes Results (DRL-4 and DRL-5)

PATRIOT ENGINEERING

FORM: DRL-4
DOUGLAS ROAD LANDFILL
LANDFILL GAS COLLECTOR READINGS

Technician: Cole Baird Date: 03.20.24

Weather: Ambient Temperature: 34°F

Atmospheric Pressure: 29.90 inHg

General Conditions: Partly cloudy, 30-36°F, light (10-15mph) winds

Instrument: Gem 5000 Serial No.: B2081413

Location	Time	CH_4 (%)	Oxygen (%)	CO_2 (%)	CH_4 (% LEL)	Notes: Flow - Dyer s. 471
LG-1	1147	0.0	18.0	2.3	0	308
LG-2	1141	0.0	20.2	1.2	0	299
LG-3	1136	0.0	14.0	6.3	0	269
LG-4	1134	5.0	3.1	15.6	100	318
LG-5	1130	0.0	16.4	4.3	0	227
LG-6	1125	0.5	13.2	6.6	10	296
LG-7	1122	8.9	2.5	16.1	178	316
LG-8	1118	0.0	17.2	3.6	0	257
LG-9	1113	0.7	8.7	10.2	14	389
LG-10	1103	0.1	12.7	7.6	2	286
LG-11	1059	1.3	0.8	16.7	26	302
LG-12	1051	1.4	7.1	12.5	28	350
LG-13	1044	0.0	13.6	6.6	0	344
LG-14	1040	0.5	14.4	4.3	10	278
LG-15	1035	0.0	8.0	11.3	0	230
INSIDE OF SHED	1153	0.0	22.9	0.1	0	—

Cole Baird
Signature of Technician

03.20.24
Date

NOTES:

PATRIOT ENGINEERING

FORM: DRL-5
DOUGLAS ROAD LANDFILL
LANDFILL GAS MONITORING PROBE READINGS

Technician: Cole Baird Date: 03.20.24

Weather: Ambient Temperature: 35°F

Atmospheric Pressure: 29.90 in Hg

General Conditions: Partly Cloudy, 30-36°F, light (10-15mph) winds

Instrument: Gem 5000 Serial No.: B208 1413

Location	Time	CH_4 (%)	Oxygen (%)	CO_2 (%)	CH_4 (% LEL)	Notes: ~~Flow - Dyer S. 471~~
GM-1	1349	0.0	19.4	2.6	0	
GM -2	1344	0.0	21.9	0.4	0	
GM -3	1339	0.0	21.6	0.6	0	
GM -4	1333	0.0	21.3	0.5	0	
GM -5	1328	0.0	21.4	0.3	0	
GM -6	1322	0.0	19.9	0.4	0	
GM -7	1316	0.0	21.0	0.2	0	
GM -8	1311	0.0	20.9	0.3	0	
GM -9	1304	0.0	21.1	0.1	0	
GM -10	1259	0.0	19.8	0.1	0	
GM -11	1252	0.0	20.5	0.2	0	
GM -12	1245	0.0	20.2	0.4	0	
GM -13	1241	0.0	19.8	0.5	0	
GM -14	1236	0.0	20.0	0.4	0	
GM -15	1231	0.0	20.1	0.5	0	
GM -16	1226	0.0	19.5	0.8	0	
GM -17	1222	0.0	20.1	0.1	0	
GM -18	1217	0.0	19.5	0.6	0	

Cole Baird 03.20.24

Signature of Technician Date

NOTES:

Attachment D

Landfill Gas Effluent Analytical Report

ANALYTICAL REPORT

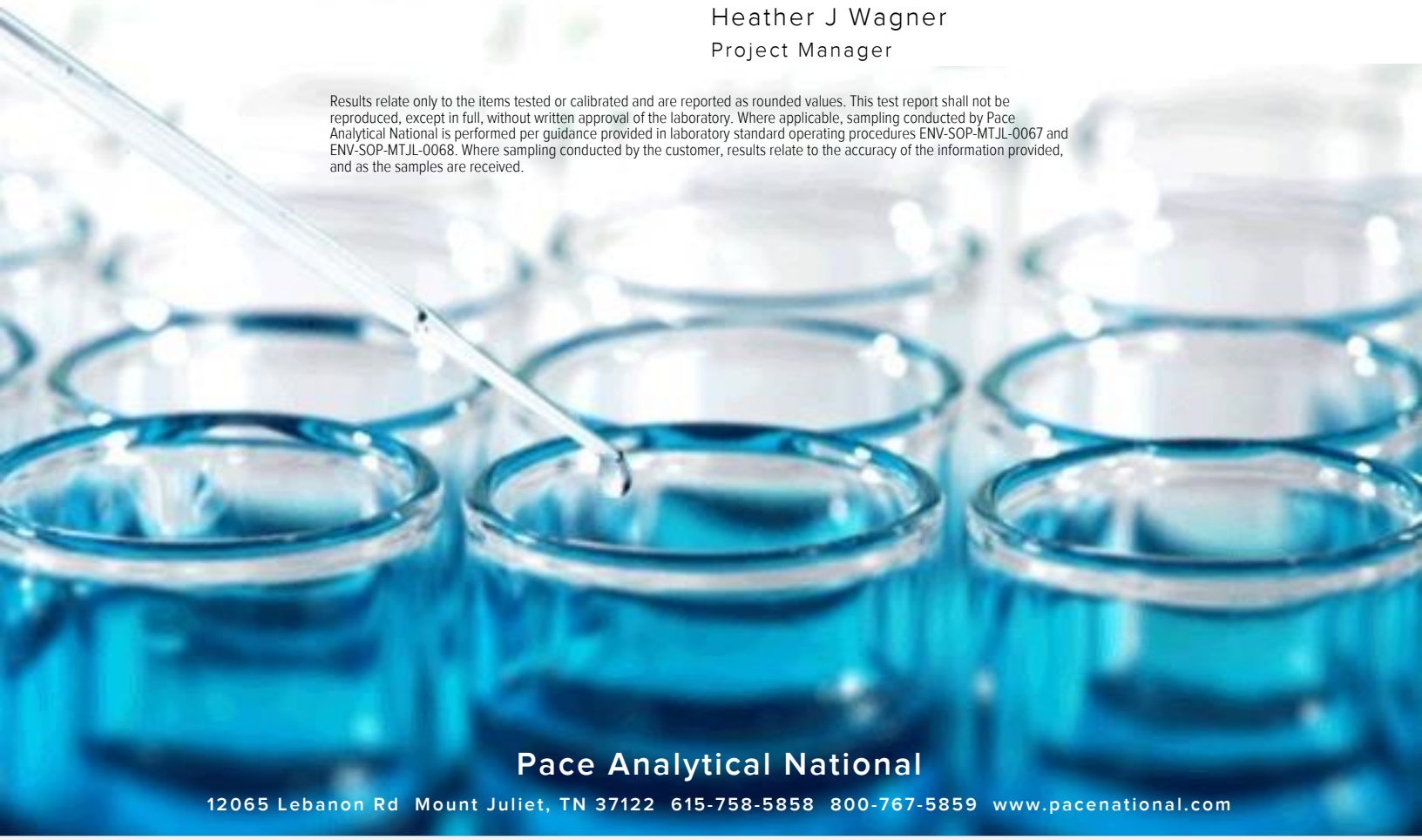
March 26, 2024

Patriot Engineering - Ft. Wayne

Sample Delivery Group:	L1717478
Samples Received:	03/21/2024
Project Number:	22-0034-01E
Description:	Douglas Landfill
Site:	MISHAWAKA, IN
Report To:	James Cody 6150 E. 75th Street Indianapolis, IN 46250

Entire Report Reviewed By:

Heather J Wagner
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

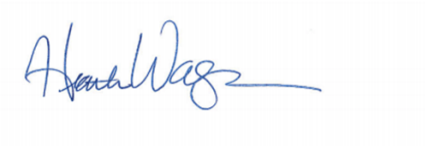
SHED L1717478-01 Air

			Collected by	Collected date/time	Received date/time
			Cole Bird	03/20/24 14:52	03/21/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2252543	1	03/23/24 20:03	03/23/24 20:03	DAH	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2252957	100	03/24/24 20:50	03/24/24 20:50	DBB	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Heather J Wagner
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	8.27	19.7		1	WG2252543
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG2252543
Benzene	71-43-2	78.10	20.0	63.9	218	696		100	WG2252957
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG2252543
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG2252543
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG2252543
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG2252543
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG2252543
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG2252543
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG2252543
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG2252543
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG2252543
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG2252543
Chloromethane	74-87-3	50.50	0.200	0.413	ND	ND		1	WG2252543
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG2252543
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG2252543
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG2252543
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG2252543
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG2252543
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG2252543
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG2252543
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG2252543
1,1-Dichloroethane	75-34-3	98	0.200	0.802	72.8	292		1	WG2252543
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG2252543
cis-1,2-Dichloroethene	156-59-2	96.90	20.0	79.3	165	654		100	WG2252957
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG2252543
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG2252543
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG2252543
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG2252543
1,4-Dioxane	123-91-1	88.10	0.630	2.27	ND	ND		1	WG2252543
Ethanol	64-17-5	46.10	2.50	4.71	ND	ND		1	WG2252543
Ethylbenzene	100-41-4	106	20.0	86.7	288	1250		100	WG2252957
4-Ethyltoluene	622-96-8	120	0.200	0.982	9.12	44.8		1	WG2252543
Trichlorofluoromethane	75-69-4	137.40	20.0	112	195	1100		100	WG2252957
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	2.58	12.8		1	WG2252543
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG2252543
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG2252543
Heptane	142-82-5	100	20.0	81.8	759	3100		100	WG2252957
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG2252543
n-Hexane	110-54-3	86.20	63.0	222	3080	10900		100	WG2252957
Isopropylbenzene	98-82-8	120.20	0.200	0.983	4.97	24.4		1	WG2252543
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG2252543
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG2252543
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG2252543
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG2252543
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG2252543
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG2252543
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG2252543
2-Propanol	67-63-0	60.10	1.25	3.07	ND	ND		1	WG2252543
Propene	115-07-1	42.10	1.25	2.15	ND	ND		1	WG2252543
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG2252543
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG2252543
Tetrachloroethylene	127-18-4	166	0.200	1.36	28.4	193		1	WG2252543
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG2252543
Toluene	108-88-3	92.10	50.0	188	1450	5460		100	WG2252957
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG2252543

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG2252543
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG2252543
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG2252543
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	9.64	47.3		1	WG2252543
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	5.67	27.8		1	WG2252543
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG2252543
Vinyl chloride	75-01-4	62.50	20.0	51.1	310	792		100	WG2252957
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG2252543
Vinyl acetate	108-05-4	86.10	0.630	2.22	ND	ND		1	WG2252543
Xylenes, Total	1330-20-7	106.16	60.0	261	588	2550		100	WG2252957
m&p-Xylene	179601-23-1	106	40.0	173	497	2150		100	WG2252957
o-Xylene	95-47-6	106	20.0	86.7	90.8	394		100	WG2252957
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*108*				WG2252543
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*95.4*				WG2252957

Method Blank (MB)

(MB) R4049219-2 03/23/24 08:34

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.584	1.25
Allyl chloride	U		0.114	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0702	0.200
Bromoform	U		0.0732	0.600
Bromomethane	U		0.0982	0.200
1,3-Butadiene	U		0.104	2.00
Carbon disulfide	U		0.102	0.200
Carbon tetrachloride	U		0.0732	0.200
Chlorobenzene	U		0.0832	0.200
Chloroethane	U		0.0996	0.200
Chloroform	U		0.0717	0.200
Chloromethane	U		0.103	0.200
2-Chlorotoluene	U		0.0828	0.200
Cyclohexane	U		0.0753	0.200
Dibromochloromethane	U		0.0727	0.200
1,2-Dibromoethane	U		0.0721	0.200
1,2-Dichlorobenzene	U		0.128	0.200
1,3-Dichlorobenzene	U		0.182	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0700	0.200
1,1-Dichloroethane	U		0.0723	0.200
1,1-Dichloroethene	U		0.0762	0.200
trans-1,2-Dichloroethene	U		0.0673	0.200
1,2-Dichloropropane	U		0.0760	0.200
cis-1,3-Dichloropropene	U		0.0689	0.200
trans-1,3-Dichloropropene	U		0.0728	0.200
1,4-Dioxane	U		0.0833	0.630
Ethanol	U		0.265	2.50
4-Ethyltoluene	U		0.0783	0.200
Dichlorodifluoromethane	U		0.137	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0793	0.200
1,2-Dichlorotetrafluoroethane	U		0.0890	0.200
Hexachloro-1,3-butadiene	U		0.105	0.630
Isopropylbenzene	U		0.0777	0.200
Methylene Chloride	U		0.0979	0.200
Methyl Butyl Ketone	U		0.133	1.25
2-Butanone (MEK)	U		0.0814	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0765	1.25
Methyl methacrylate	U		0.0876	0.200

Method Blank (MB)

(MB) R4049219-2 03/23/24 08:34

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
MTBE	U		0.0647	0.200
Naphthalene	U		0.350	0.630
2-Propanol	U		0.264	1.25
Propene	U		0.0932	1.25
Styrene	U		0.0788	0.200
1,1,2,2-Tetrachloroethane	U		0.0743	0.200
Tetrachloroethylene	U		0.0814	0.200
Tetrahydrofuran	U		0.0734	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0736	0.200
1,1,2-Trichloroethane	U		0.0775	0.200
Trichloroethylene	U		0.0680	0.200
1,2,4-Trimethylbenzene	U		0.0764	0.200
1,3,5-Trimethylbenzene	U		0.0779	0.200
2,2,4-Trimethylpentane	U		0.133	0.200
Vinyl Bromide	U		0.0852	0.200
Vinyl acetate	U		0.116	0.630
(S) 1,4-Bromofluorobenzene	*98.1*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4049219-1 03/23/24 08:00 • (LCSD) R4049219-3 03/23/24 09:32

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	3.75	4.85	4.89	129	130	70.0-130			0.821	25
Allyl chloride	3.75	3.53	3.39	94.1	90.4	70.0-130			4.05	25
Benzyl Chloride	3.75	3.67	3.65	97.9	97.3	70.0-152			0.546	25
Bromodichloromethane	3.75	3.55	3.42	94.7	91.2	70.0-130			3.73	25
Bromoform	3.75	3.43	3.44	91.5	91.7	70.0-130			0.291	25
Bromomethane	3.75	3.30	3.33	88.0	88.8	70.0-130			0.905	25
1,3-Butadiene	3.75	3.43	3.41	91.5	90.9	70.0-130			0.585	25
Carbon disulfide	3.75	3.69	3.59	98.4	95.7	70.0-130			2.75	25
Carbon tetrachloride	3.75	3.54	3.42	94.4	91.2	70.0-130			3.45	25
Chlorobenzene	3.75	3.58	3.53	95.5	94.1	70.0-130			1.41	25
Chloroethane	3.75	3.35	3.56	89.3	94.9	70.0-130			6.08	25
Chloroform	3.75	3.52	3.52	93.9	93.9	70.0-130			0.000	25
Chloromethane	3.75	3.43	3.35	91.5	89.3	70.0-130			2.36	25
2-Chlorotoluene	3.75	3.67	3.57	97.9	95.2	70.0-130			2.76	25
Cyclohexane	3.75	3.51	3.41	93.6	90.9	70.0-130			2.89	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4049219-1 03/23/24 08:00 • (LCSD) R4049219-3 03/23/24 09:32

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dibromochloromethane	3.75	3.45	3.40	92.0	90.7	70.0-130			1.46	25
1,2-Dibromoethane	3.75	3.59	3.47	95.7	92.5	70.0-130			3.40	25
1,2-Dichlorobenzene	3.75	3.66	3.67	97.6	97.9	70.0-130			0.273	25
1,3-Dichlorobenzene	3.75	3.85	3.71	103	98.9	70.0-130			3.70	25
1,4-Dichlorobenzene	3.75	3.97	3.93	106	105	70.0-130			1.01	25
1,2-Dichloroethane	3.75	3.63	3.45	96.8	92.0	70.0-130			5.08	25
1,1-Dichloroethane	3.75	3.56	3.50	94.9	93.3	70.0-130			1.70	25
1,1-Dichloroethene	3.75	3.78	3.76	101	100	70.0-130			0.531	25
trans-1,2-Dichloroethene	3.75	3.57	3.42	95.2	91.2	70.0-130			4.29	25
1,2-Dichloropropane	3.75	3.37	3.38	89.9	90.1	70.0-130			0.296	25
cis-1,3-Dichloropropene	3.75	3.47	3.45	92.5	92.0	70.0-130			0.578	25
trans-1,3-Dichloropropene	3.75	3.53	3.45	94.1	92.0	70.0-130			2.29	25
1,4-Dioxane	3.75	3.39	3.33	90.4	88.8	70.0-140			1.79	25
Ethanol	3.75	3.08	3.33	82.1	88.8	55.0-148			7.80	25
4-Ethyltoluene	3.75	3.79	3.67	101	97.9	70.0-130			3.22	25
Dichlorodifluoromethane	3.75	3.35	3.35	89.3	89.3	64.0-139			0.000	25
1,1,2-Trichlorotrifluoroethane	3.75	3.64	3.98	97.1	106	70.0-130			8.92	25
1,2-Dichlorotetrafluoroethane	3.75	3.47	3.48	92.5	92.8	70.0-130			0.288	25
Hexachloro-1,3-butadiene	3.75	3.82	3.72	102	99.2	70.0-151			2.65	25
Isopropylbenzene	3.75	3.63	3.53	96.8	94.1	70.0-130			2.79	25
Methylene Chloride	3.75	3.52	3.54	93.9	94.4	70.0-130			0.567	25
Methyl Butyl Ketone	3.75	3.53	3.44	94.1	91.7	70.0-149			2.58	25
2-Butanone (MEK)	3.75	3.54	3.35	94.4	89.3	70.0-130			5.52	25
4-Methyl-2-pentanone (MIBK)	3.75	3.62	3.45	96.5	92.0	70.0-139			4.81	25
Methyl methacrylate	3.75	3.68	3.51	98.1	93.6	70.0-130			4.73	25
MTBE	3.75	3.62	3.47	96.5	92.5	70.0-130			4.23	25
Naphthalene	3.75	4.13	4.01	110	107	70.0-159			2.95	25
2-Propanol	3.75	3.78	3.75	101	100	70.0-139			0.797	25
Propene	3.75	3.43	3.32	91.5	88.5	64.0-144			3.26	25
Styrene	3.75	3.49	3.47	93.1	92.5	70.0-130			0.575	25
1,1,2,2-Tetrachloroethane	3.75	3.64	3.59	97.1	95.7	70.0-130			1.38	25
Tetrachloroethylene	3.75	3.55	3.41	94.7	90.9	70.0-130			4.02	25
Tetrahydrofuran	3.75	3.52	3.40	93.9	90.7	70.0-137			3.47	25
1,2,4-Trichlorobenzene	3.75	3.95	3.81	105	102	70.0-160			3.61	25
1,1,1-Trichloroethane	3.75	3.46	3.50	92.3	93.3	70.0-130			1.15	25
1,1,2-Trichloroethane	3.75	3.46	3.40	92.3	90.7	70.0-130			1.75	25
Trichloroethylene	3.75	3.63	3.52	96.8	93.9	70.0-130			3.08	25
1,2,4-Trimethylbenzene	3.75	3.85	3.70	103	98.7	70.0-130			3.97	25
1,3,5-Trimethylbenzene	3.75	3.86	3.74	103	99.7	70.0-130			3.16	25
2,2,4-Trimethylpentane	3.75	3.50	3.48	93.3	92.8	70.0-130			0.573	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4049219-1 03/23/24 08:00 • (LCSD) R4049219-3 03/23/24 09:32

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl Bromide	3.75	3.59	3.56	95.7	94.9	70.0-130			0.839	25
Vinyl acetate	3.75	3.82	3.35	102	89.3	70.0-130			13.1	25
(S) 1,4-Bromofluorobenzene				*101*	*101*	*60.0-140*				

Method Blank (MB)

(MB) R4049851-2 03/24/24 09:29

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Benzene	U		0.0715	0.200
cis-1,2-Dichloroethene	U		0.0784	0.200
Ethylbenzene	U		0.0835	0.200
Trichlorofluoromethane	U		0.0819	0.200
Heptane	U		0.104	0.200
n-Hexane	U		0.206	0.630
Toluene	U		0.0870	0.500
Vinyl chloride	U		0.0949	0.200
Xylenes, Total	U		0.135	0.600
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
(S) 1,4-Bromofluorobenzene	*96.0*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4049851-1 03/24/24 08:59 • (LCSD) R4049851-3 03/24/24 10:53

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	3.75	4.04	4.10	108	109	70.0-130			1.47	25
cis-1,2-Dichloroethene	3.75	4.00	4.05	107	108	70.0-130			1.24	25
Ethylbenzene	3.75	4.01	4.14	107	110	70.0-130			3.19	25
Trichlorofluoromethane	3.75	4.16	4.28	111	114	70.0-130			2.84	25
Heptane	3.75	4.03	4.04	107	108	70.0-130			0.248	25
n-Hexane	3.75	3.95	4.04	105	108	70.0-130			2.25	25
Toluene	3.75	3.92	4.01	105	107	70.0-130			2.27	25
Vinyl chloride	3.75	4.22	4.37	113	117	70.0-130			3.49	25
Xylenes, Total	11.3	12.3	12.6	109	112	70.0-130			2.41	25
m&p-Xylene	7.50	8.15	8.40	109	112	70.0-130			3.02	25
o-Xylene	3.75	4.10	4.16	109	111	70.0-130			1.45	25
(S) 1,4-Bromofluorobenzene				*99.4*	*98.3*	*60.0-140*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier | Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Pace* Location Requested (City/State):

Air CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR code for instructions

Company Name: Patriot Engineering - Ft. Wayne	Contact/Report To: James Cody
Street Address: 6150 E. 75th Street Indianapolis, IN 46250	Phone #: 317-558-5060
	E-Mail: jcody@patrioteng.com
City, State Zip:	Cc E-Mail:
Customer Project #: 22-0034-01E	Invoice to: Accounts Payable
Project Name: Douglas Landfill	Invoice E-Mail: AP@patrioteng.com
Site Collection Info/Facility ID (as applicable): PATENGFW-DOUGLAS LF MISHAWAKA, IN	Purchase Order # (if applicable):
Time Zone Collected: [ ]AK [ ]PT [ ]MT [ ]CT [X]ET	Quote #:
Data Deliverables: [X] Level II [ ] Level III [ ]Level IV [ ] EQUIS [ ] Other	Regulatory Program (CAA, RCRA, etc.) as applicable:
	State origin of sample(s): IN
	Rush (Pre-approval required): 2 Day 3 day 5 day Other Standard
	Permit # as applicable:
	Date Results Requested:
	Units for Reporting: (ug/m³) PPBV mg/m³ PPMV

* Matrix Codes (Insert in Matrix box below): Ambient (A), Indoor (I), Soil Vapor (SV), Other (O)

Customer Sample ID	Matrix *	Summa Canister ID	Flow Controller ID	Begin Collection Date	Begin Collection Time	End Collection Date	End Collection Time	Field Information: Canister Pressure / Vacuum Start Pressure / Vacuum (in Hg)	Canister Pressure / Vacuum End Pressure / Vacuum (in Hg)	PUF / FILTER Duration (minutes)	PUF / FILTER Flow Rate m³/min or L/min	PUF / FILTER Total Volume Sampled m³ or L	Analyses Requested: TO-15 Summa	Lab Use Only	Sample Comment
Shed	O	024138	014165	03.20.24	0743	03.20.24	1952	-29	-4	480		6L	X		-01

Sample Receipt Checklist

COC Seal Present/Intact: Y N — Airs
COC Signed Accurate: Y N — Size: 1L 6L 1.4L
Bottles arrive intact: Y N — Tage Color: G W P B
Correct bottles used: Y N — Tubing Shunt
T/P#:

Proj. Manager: 873 - Heather J Wagner

AcctNum / Client ID: PATENGFW

Table #: J010

Profile / Template: T133757

Prelog / Bottle Ord. ID: P1061748

L171478

Customer Remarks / Special Conditions / Possible Hazards:

Collected By:
Printed Name: Cole Baird
Signature: Cole Baird

Additional Instructions from Pace®:

Coolers: Thermometer ID: Correction Factor (°C): Obs. Temp. (°C): Corrected Temp. (°C):

Relinquished by/Company: (Signature) Cole Baird / Patriot	Date/Time: 3.20.24 / 1722	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Delivered by: In- Person Courier
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 3-21-24 0900	FedEX UPS Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: 1 of: 1

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

Attachment E

Landfill Gas Effluent Data Validation Memo

May 23, 2024

RE: Validation of Analytical Results for the
Douglas Road Landfill Superfund Site #7500008
First Quarter 2024

The analytical results for the effluent vapor sample collected from the Douglas Road Landfill Superfund Site #7500008 in Mishawaka, Indiana on March 20, 2024, have been validated according to the criteria contained in Section 1.5 of the project specific Quality Assurance Project Plan (QAPP), dated March 3, 2022, and the Sampling and Analysis Plan (SAP), dated April 8, 2022. Quality Assurance/Quality Control (QA/QC) data quality objectives (DQO) were evaluated in terms of precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Reasons that the data are qualified are explained below.

GENERAL COMMENTS

The purpose of this event was to evaluate the total volatile organic compound (VOC) discharges to the atmosphere from the landfill gas extraction system. The effluent vapor sample identified as “Shed”, which was collected from the blower discharge at the site on March 20, 2024, was shipped on March 20, 2024, via overnight delivery and was received by Pace Analytical National Center for Testing and Innovation (Pace National), in Mt. Juliet, Tennessee on March 21, 2024. The analytical data are presented in an Analytical Report package (Sample Delivery Group L1717478, analytical batch WG2252543, and WG2252957 that covers one investigative sample (Shed) and laboratory QC samples. The sample was analyzed for VOCs using Air Method, Toxic Organics-15 (TO-15) and by mass spectrometry (MS). No VOC constituents were diluted, except for benzene, cis-1,2-dichloroethane, ethylbenzene, trichlorofluoromethane, heptane, n-hexane, toluene, vinyl chloride, total xylenes, m&p-Xylene, and o-xylene which were diluted with a 100 times dilution factor.

The chain-of-custody (COC) was completed by the field sampling personnel. The laboratory indicated on the chain-of-custody form that the sample arrived intact, in the proper container, and with sufficient volume. The laboratory report also stated that the sample aliquots were received in laboratory supplied containers for the specified analysis and methodology of each COC and within method-specified holding times.

PRECISION

Field Precision

No duplicate was collected; therefore, field precision cannot be determined.

Laboratory Precision

Precision of the laboratory analyses are evaluated based upon the results of the laboratory control sample (LCS) / laboratory control sample duplicate (LCSD) analyses. Precision is reported as a relative percent difference (RPD) between the LCS and the LCSD. The RPDs ranged from 0.000% to 8.92%, all of which are well below the 25% acceptance criteria for the RPD.

ACCURACY

Field Accuracy

Trip blanks are used to assess field accuracy. The trip blank samples provide a measure of potential cross contamination of samples by VOCs during shipment and handling. For a TO-15 air analyses, a trip blank is not customary and as a result, a trip blank was not collected during this sampling event. Therefore, the occurrence of VOC cross-contamination cannot be determined.

Laboratory Accuracy

Laboratory accuracy was assessed by determining percent recoveries of a surrogate compound from the effluent vapor sample and the laboratory method blank, and percent recoveries of the spike amounts from the LCS and LCSD samples. Surrogate recovery of 1,4-bromo fluorobenzene was 101 parts per billion by volume (ppbv) which is within the acceptable limits of 60 to 140 ppbv. The surrogate recovery for the method blank was 96 which is within the acceptable limits of 60 to 140 ppbv. The spike recoveries for the LCS and LCSD samples were also within the acceptable limits of 60.0 to 140 ppbv.

Method blanks are used to assess potential for contamination from laboratory instruments or procedures. The laboratory ran one method blank for the sample batch that contained the exhaust air sample. All target analytes were qualified as not detected (U). Therefore, the method blank is considered free of contamination.

REPRESENTATIVENESS

Representativeness is dependent upon the proper design of the sampling program and is accomplished by ensuring that the QAPP, the SAP, and standard procedures are followed. The goal is to have all samples and measurements representative of the media sampled. A review of the field notes and the chain-of-custody indicated that sampling protocols as outlined in the QAPP and SAP were followed during the sampling event.

COMPLETENESS OF DATA SET

Completeness is defined as the total number of usable results (results that were not rejected during data validation) divided by the total results reported by the laboratory. The field completeness goal stated in the QAPP is to have 90% of all samples be valid data. Completeness was assessed by comparing the number of valid (usable) sample results to the total possible number of results within a specific sample matrix or analysis. There was only one sample, which was determined to be valid. Therefore, the results reported by the laboratory were 100% complete.

COMPARABILITY

The current sampling event was based on similar objectives, standardized methods, and set remedial goals. The same target analytes as historical results were reported. Previous sampling events identified the following number of target analytes detected:

- 2nd Quarter 2020 sampling event: 24 target analytes detected.
- 3rd Quarter 2020 sampling event: 32 target analytes detected.
- 4th Quarter 2020 sampling event: 29 target analytes detected.
- 1st Quarter 2021 sampling event: 26 target analytes detected.
- 2nd Quarter 2021 sampling event: 29 target analytes detected.
- 3rd Quarter 2021 sampling event: 25 target analytes detected.
- No sampling event was performed during the 4th Quarter of 2021
- 1st Quarter 2022 sampling event[1]: 8 target analytes detected.
- 2nd Quarter 2022 sampling event: 26 target analytes detected.
- 3rd Quarter 2022 sampling event: 18 target analytes detected.
- 4th Quarter 2022 sampling event: 21 target analytes detected.
- 1st Quarter 2023 sampling event: 25 target analytes detected.
- 2nd Quarter 2023 sampling event: 31 target analytes detected.
- 3rd Quarter 2023 sampling event: 31 target analytes detected.
- 4th Quarter 2023 sampling event: 37 target analytes detected.
- 1st Quarter 2024 sampling event: 19 target analytes detected.

Note 1: The data from the 1st quarter 2022 was determined to be invalid. It was determined that there was a canister failure, most likely due to a leak in the canister.

The comparison between the quarterly detections can be seen in the attached table, VOCs, and Hazardous Air Pollutants (HAPs) Discharge Summary Comparison.

The total emissions for the 1st Quarter 2024 were estimated at 21.45 pounds of total VOCs and 16.724 pounds of HAPs, compared to 86.87 pounds of total VOCs and 73.433 pounds of HAPs in the 4th Quarter 2023. N-hexane had the highest concentration during this sampling event.

SENSITIVITY

The quantitation limits for the sample data were reviewed to ensure that the sensitivity of the analyses was sufficient to achieve the Site Closure Goal. The laboratory reported detection limits (RDLs) are based on the method detection limit (MDL) adjusted for sample size and dilution. The RDLs adjusted for dilution ranged from 51.1 to 261 micrograms per cubic meter (ug/m^3). All the adjusted RDLs are greater than the MDLs specified in **Table 2** of the QAPP.

Since the RDLs were greater than the MDLs specified in **Table 2** of the QAPP during this sampling event, Patriot recommends taking a split gas-sample during the next quarterly sampling event. Patriot recommends taking a split sample in order to run an analysis for a clean and dirty column run, to limit the high dilution factors. By limiting the high dilution factors, potentially the RDLs would remain under the MDLs.

CONCLUSIONS

The data review process involved evaluating sample receipt, holding times, laboratory duplicate results, laboratory spike and spike duplicate results, laboratory control sample results, and surrogate recoveries. After evaluating these parameters, an overall assessment with respect to the quantitative and qualitative data quality assurance parameters of accuracy, precision, completeness, comparability, and representativeness was formulated. Based on the evaluation, it has been determined that the results are acceptable for use. Although sample dilution resulted in laboratory RDLs outside of the RDLs outlined in the QAPP, the data are still acceptable for the stated purpose of evaluating trends in the LFG vapor generation rates and evaluating the discharge of organic HAPs to the atmosphere. The calculated organic HAPs to the atmosphere is potentially bias low due to the high RDLs this quarter, but emissions would still be well below the allowable annual HAPs discharge.

If you have any additional questions or comments, please contact James Cody at (317) 576-8058 or jcody@patrioteng.com.

Respectfully submitted,

Patriot Engineering and Environmental, Inc.

James J. Cody
Project Manager

Robert S. Fedorchak
Senior Project Engineer, P.E.

Attachment:
Table of Quarterly Detected Compounds

Attachment

VOCs and HAPs 2020 through 2024 Discharge Summary Comparison Table

HAPs Discharge Summary Comparison
Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

	Detected Components																HAPs Emissions													
Compound	**1Q2020 C (ppmv)**	**2Q2020 C (ppmv)**	**3Q2020 C (ppmv)**	**4Q2020 C (ppmv)**	**1Q2021 C (ppmv)**	**2Q2021 C (ppmv)**	**3Q2021 C (ppmv)**	**2Q2022 C (ppmv)**	**3Q2022 C (ppmv)**	**4Q2022 C (ppmv)**	**1Q2023 C (ppmv)**	**2Q2023 C (ppmv)**	**3Q2023 C (ppmv)**	**4Q2023 C (ppmv)**	**1Q2024 C (ppmv)**	**1Q2020 ER (lb/qtr)**	**2Q2020 ER (lb/qtr)**	**3Q2020 ER (lb/qtr)**	**4Q2020 ER (lb/qtr)**	**1Q2021 ER (lb/qtr)**	**2Q2021 ER (lb/qtr)**	**3Q2021 ER (lb/qtr)**	**2Q2022 ER (lb/qtr)**	**3Q2022 ER (lb/qtr)**	**4Q2022 ER (lb/qtr)**	**1Q2023 ER (lb/qtr)**	**2Q2023 ER (lb/qtr)**	**3Q2023 ER (lb/qtr)**	**4Q2023 ER (lb/qtr)**	**1Q2024 ER (lb/qtr)**
Allyl Chloride	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.008**	0.000	0.000	**0.001**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	**2.010**	**0.261**	**0.498**	**0.059**	**6.040**	**0.089**	**0.365**	**0.053**	**0.365**	**0.365**	**0.643**	**0.084**	**0.274**	**0.401**	0.000	**4.894**	**0.636**	**1.213**	**0.144**	0.015	**0.216**	**0.889**	**0.128**	**0.889**	**0.880**	**1.570**	**0.200**	**0.670**	**0.976**	**0.531**
Benzyl Chloride	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.218**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bromoform	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bromomethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,3-Butadiene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Carbon disulfide	0.000	0.000	**0.001**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.001**	**0.001**	0.000	0.000	0.000	**0.002**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.002**	0.000
Carbon Tetrachloride	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.001**	0.000
Chlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	**0.043**	0.000	0.000	0.000	0.000	**0.017**	0.000	**0.031**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.153**	0.000	0.000	0.000	0.000	**0.040**	0.000	**0.109**	0.000
Chloroethane	**0.203**	0.000	**0.089**	**0.006**	0.000	**0.044**	**0.164**	0.000	0.000	0.000	0.000	**0.038**	**0.077**	**0.109**	0.000	**0.408**	0.000	**0.178**	**0.012**	0.000	0.088	**0.330**	0.000	0.000	0.000	0.000	**0.080**	**0.150**	**0.219**	0.000
Chloroform	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chloromethane	0.000	0.000	**0.003**	0.000	0.448	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.001**	**0.002**	0.000	0.000	0.000	**0.005**	**0.001**	**0.001**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.220**	**0.220**
2-Chlorotoluene	0.000	0.000	0.000	0.000	0.000	**0.001**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,4-Dichlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,2-Dichloroethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.560**	0.000	0.000
1,1-Dichloroethane	**0.788**	**0.083**	**0.280**	**0.038**	**43.400**	**0.077**	**0.426**	**0.225**	**0.288**	**0.288**	**0.296**	**0.053**	**0.184**	**0.190**	**0.073**	**2.408**	**0.254**	**0.856**	**0.116**	**0.053**	0.234	**1.302**	**0.687**	**0.880**	**0.610**	**0.900**	**0.160**	0.000	**0.581**	**0.222**
1,1-Dichloroethene	**0.010**	0.000	**0.004**	**0.001**	**17.200**	**0.003**	0.000	**0.005**	0.000	0.000	**0.004**	**0.001**	**0.002**	**0.004**	0.000	**0.031**	0.000	**0.011**	**0.002**	0.000	**0.009**	0.000	**0.015**	0.000	0.000	**0.010**	0.000	**0.010**	**0.012**	0.000
1,2-Dichloropropane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.165**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,4-Dioxane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	**1.400**	**0.392**	**1.040**	**0.082**	**3.590**	**0.082**	**0.799**	**0.029**	**0.542**	**0.542**	**2.86**	**0.15**	**0.741**	**0.917**	**0.288**	**4.636**	**1.298**	**3.444**	**0.273**	**0.042**	0.273	**2.646**	**0.096**	**1.791**	**2.420**	**9.450**	**0.500**	**2.450**	**3.031**	**0.952**
n-Hexane	**12.300**	**0.709**	**8.740**	**0.865**	**23.300**	**1.660**	**7.450**	**4.350**	**7.260**	**7.260**	**15.0**	0.0	**5.600**	**8.030**	**3.080**	**33.057**	**2.215**	**23.490**	**2.325**	**0.182**	4.461	**20.023**	**11.691**	**19.512**	**18.710**	**40.310**	0.000	**15.050**	**21.580**	**8.278**
Isopropylbenzene	**0.039**	**2.760**	**0.017**	**0.001**	**67.800**	**0.005**	**0.014**	**0.001**	0.000	0.000	**0.018**	**0.003**	**0.097**	**0.017**	**0.005**	**0.147**	**7.418**	**0.063**	**0.005**	0.000	**0.018**	**0.052**	**0.003**	0.000	**0.098**	**0.066**	**0.010**	**0.036**	**0.065**	**0.019**
Methylene Chloride	**0.470**	0.000	**0.092**	**0.008**	**0.000**	**0.086**	**0.175**	**0.081**	0.000	0.000	**0.28**	**0.09**	**0.173**	**0.156**	0.000	**1.244**	0.000	**0.243**	**0.022**	**0.007**	0.227	**0.463**	**0.214**	0.000	**1.380**	**0.740**	**0.240**	**0.460**	**0.413**	0.000
2-Butanone (MEK)	**2.720**	**0.058**	**1.030**	**0.021**	**2.790**	**0.033**	0.065	**0.014**	**0.520**	**0.520**	**1.130**	**0.156**	**0.893**	**1.070**	0.000	**6.114**	**0.154**	**2.315**	**0.047**	0.000	**0.075**	0.000	**0.031**	**1.169**	**1.430**	**2.540**	**0.350**	**2.010**	**2.405**	0.000
4-Methyl-2-Pentanone (MIBK)	**0.066**	**0.506**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Methyl methacrylate	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Naphthalene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Styrene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.002**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.010**	0.000	0.000	0.000
Tetrachloroethylene	**0.058**	**0.024**	**0.031**	**0.006**	**4.300**	**0.023**	**0.038**	**0.018**	**0.053**	**0.053**	**0.035**	**0.013**	**0.025**	**0.169**	**0.024**	**0.300**	**0.126**	**0.162**	**0.033**	**0.022**	**0.121**	**0.198**	**0.091**	**0.276**	**0.340**	**0.180**	**0.070**	**0.130**	**0.875**	**0.875**
Toluene	**21.300**	**4.280**	**16.300**	**0.986**	**264.000**	**1.920**	**9.650**	**1.100**	**5.570**	**5.570**	**13.90**	**2.34**	**10.100**	**11.200**	**1.450**	**61.164**	**12.290**	**46.806**	**2.831**	**0.758**	**5.513**	**27.710**	**3.159**	**15.995**	**21.623**	**39.915**	**6.719**	**29.003**	**32.160**	**4.164**
1,2,4-Trichlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,1,1-Trichloroethane	**0.861**	**0.094**	**0.313**	**0.072**	**54.800**	**0.078**	**0.518**	**0.265**	0.000	0.000	0.000	**0.067**	0.000	**0.039**	0.000	**3.570**	**0.389**	**1.298**	**0.300**	**0.227**	**0.321**	**2.148**	**1.099**	0.000	0.000	0.000	**0.276**	0.000	**0.163**	0.000
1,1,2-Trichloroethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethylene	**0.122**	**0.024**	0.000	**0.010**	**4.160**	**0.038**	**0.070**	**0.027**	0.000	0.000	0.000	**0.016**	0.000	**0.046**	0.000	**0.498**	**0.096**	0.000	**0.040**	**0.017**	**0.157**	**0.286**	**0.109**	0.000	0.000	0.000	**0.070**	0.000	**0.190**	0.000
2,2,4-Trimethylpentane	**0.897**	**0.196**	**0.288**	**0.051**	**14.000**	0.000	0.000	0.000	**0.441**	**0.441**	**0.521**	0.000	**0.242**	**0.331**	0.000	**3.194**	**0.698**	**1.025**	**0.181**	0.050	0.000	0.000	0.000	**1.570**	**1.210**	**1.860**	0.000	**0.860**	**1.180**	0.000
Vinyl Chloride	**1.440**	**0.168**	**0.359**	**0.093**	**5.340**	**0.125**	**0.576**	**0.276**	**0.503**	**0.503**	**0.544**	**0.062**	**0.176**	**0.401**	**0.310**	**2.806**	**0.327**	**0.700**	**0.181**	**0.010**	**0.244**	**1.122**	**0.538**	**0.980**	**0.640**	**1.060**	**0.120**	**0.340**	**0.780**	**0.604**
Vinyl Bromide	0.000	0.000	0.000	0.000	**0.321**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.001**	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl acetate	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
m&p-Xylene	**3.570**	**0.960**	**2.880**	**0.246**	**67.000**	**0.176**	**2.980**	**0.135**	**1.440**	**1.440**	**5.40**	**0.56**	**2.180**	**2.140**	**0.588**	**11.799**	**3.173**	**9.518**	**0.813**	**0.221**	**0.582**	**9.849**	**0.446**	**4.759**	**5.750**	**17.850**	**1.850**	**7.200**	**7.073**	**0.572**
o-Xylene	**1.830**	**0.192**	**0.581**	**0.050**	**19.400**	**0.071**	**0.696**	**0.054**	**0.306**	**0.306**	**0.708**	**0.159**	**0.491**	**0.426**	**0.497**	**6.048**	**0.635**	**1.920**	**0.165**	**0.064**	**0.235**	**2.300**	**0.177**	**1.011**	**1.080**	**2.340**	**0.530**	**1.620**	**1.408**	**0.287**
Total Emissions (lbs)																142.32	29.71	93.25	7.49	1.67	12.78	69.47	18.484	48.833	56.171	118.791	11.225	60.549	73.443	16.724
Total Emissions (tons)																0.071	0.015	0.047	0.004	0.0008	0.0064	0.0347	0.0092	0.0244	0.0281	0.0593955	0.0056125	0.0302745	0.0367215	0.008362

Notes: Concentration of 0 indicated no laboratory detection during this sampling event
4Q2021 Not Sampled -- Between contracts with IDEM
1Q2022: Sample data determined to be invalid

VOCs Discharge Summary Comparison
Operation and Maintenance Report
Douglas Road Landfill Superfund Site
Mishawaka, Indiana

	Detected Components															VOC Emission Rate												
Compound	1Q2020 C (ppmv)	2Q2020 C (ppmv)	3Q2020 C (ppmv)	4Q2020 C (ppmv)	1Q2021 C (ppmv)	2Q2021 C (ppmv)	3Q2021 C (ppmv)	2Q2022 C (ppmv)	3Q2022 C (ppmv)	4Q2022 C (ppmv)	1Q2023 C (ppmv)	2Q2023 C (ppmv)	3Q2023 C (ppmv)	4Q2023 C (ppmv)	1Q2024 C (ppmv)	1Q2020 ER (lb/qtr)	2Q2020 ER (lb/qtr)	3Q2020 ER (lb/qtr)	4Q2020 ER (lb/qtr)	1Q2021 ER (lb/qtr)	2Q2021 ER (lb/qtr)	3Q2021 ER (lb/qtr)	2Q2022 ER (lb/qtr)	3Q2022 ER (lb/qtr)	4Q2022 ER (lb/qtr)	1Q2023 ER (lb/qtr)	2Q2023 ER (lb/qtr)	3Q2023 ER (lb/qtr)	4Q2023 ER (lb/qtr)	1Q2024 ER (lb/qtr)
Acetone	0.368	0.133	0.089	0.006	4.990	28.500	0.000	0.056	0.652	0.654	0.243	0.046	0.069	0.508	0.083	0.667	0.241	0.161	0.011	0.009	51.627	0.000	0.102	1.181	1.185	0.440	0.083	0.127	0.920	0.010
Allyl Chloride	0.000	0.000	0.0008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	2.010	0.261	0.498	0.059	6.040	0.089	0.365	0.053	0.365	0.363	0.643	0.084	0.274	0.401	0.218	4.894	0.636	1.213	0.144	0.015	0.216	0.889	0.128	0.889	0.880	1.57	0.200	0.670	0.980	0.530
Benzyl Chloride	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bromoform	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Bromomethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,3-Butadiene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Carbon disulfide	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Carbon Tetrachloride	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.0434	0.000	0.000	0.000	0.000	0.017	0.000	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.153	0.000	0.000	0.000	0.000	0.040	0.000	0.110	0.000
Chloroethane	0.203	0.000	0.089	0.006	0.000	0.044	0.164	0.000	0.000	0.000	0.000	0.038	0.203	0.109	0.000	0.408	0.000	0.178	0.012	0.000	0.088	0.330	0.000	0.000	0.000	0.000	0.080	0.150	0.220	0.000
Chloroform	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Chloromethane	0.000	0.000	0.003	0.000	0.448	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.005	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.220
2-Chlorotoluene	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cyclohexane	2.700	0.639	1.650	0.301	0.000	0.479	1.72	1.070	2.190	1.630	3.31	0.350	4.300	1.630	0.000	7.088	1.678	4.332	0.790	0.000	1.257	4.515	2.809	5.749	4.280	8.690	0.920	3.280	4.280	0.000
Dibromochloromethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,2-Dibromoethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,2-Dichlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,3-Dichlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,4-Dichlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,2-Dichloroethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.900	0.160	0.000	0.000	0.220
1,1-Dichloroethane	0.788	0.083	0.280	0.038	43.4	0.077	0.426	0.225	0.288	0.199	0.296	0.053	0.738	0.190	0.073	2.408	0.254	0.856	0.116	0.114	0.234	1.302	0.687	0.880	0.610	0.010	0.000	0.560	0.580	0.000
1,1-Dichloroethene	0.010	0.000	0.004	0.001	17.2	0.003	0.000	0.005	0.000	0.000	0.004	0.001	0.000	0.004	0.000	0.031	0.000	0.011	0.002	0.053	0.009	0.000	0.015	0.000	0.000	0.000	0.000	0.010	0.010	0.000
Cis-1,2-Dichloroethene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.098	0.000	0.000	0.000	0.059	0.000	0.161	0.165	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.295	0.668	0.000	0.000	0.178	0.000	0.486	0.498
trans-1,2-Dichloroethene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.005	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.010	0.000
1,2-Dichloropropane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropene	0.707	0.099	0.333	0.042	0.000	0.057	0.296	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.136	0.299	1.006	0.125	0.000	0.172	0.894	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
trans-1,3-Dichloropropene	0.006	0.000	0.001	0.001	22.6	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.002	0.002	0.068	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,4-Dioxane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ethanol	0.000	0.100	0.022	0.006	0.376	0.002	0.000	0.003	0.930	4.640	0.019	0.006	0.012	0.025	0.000	0.000	0.144	0.031	0.009	0.001	0.004	0.000	0.004	1.337	6.669	0.027	0.009	0.009	0.036	0.000
Ethylbenzene	1.400	0.392	1.040	0.082	3.590	0.082	0.799	0.029	0.542	0.732	2.860	0.152	3.210	0.917	0.288	4.636	1.298	3.444	0.273	0.005	0.273	2.646	0.096	1.791	2.420	9.450	0.500	2.450	3.030	0.950
4-Ethyltoluene	0.070	0.000	0.032	0.002	12.6	0.008	0.00609	0.002	0.000	0.000	0.031	0.001	0.081	0.030	0.009	0.263	0.000	0.118	0.009	0.042	0.029	0.023	0.008	0.000	0.000	0.000	0.010	0.060	0.110	0.030
Trichlorofluoromethane	0.574	0.057	0.263	0.097	0.980	0.159	0.757	0.767	0.455	0.258	0.296	0.076	0.601	0.125	0.195	2.459	0.214	1.127	0.415	0.004	0.681	3.243	3.286	1.949	1.11	1.27	0.330	0.460	0.540	0.840
Dichlorodifluoromethane	0.005	0.073	0.004	0.002	125	0.006	0.0084	0.003	0.000	0.000	0.007	0.001	0.010	0.003	0.003	0.020	0.313	0.014	0.006	0.535	0.023	0.032	0.013	0.000	0.000	0.025	0.004	0.008	0.010	0.010
1,1,2-Trichlorotrifluoroethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,2-Dichlorotetrafluoroethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Heptane	2.340	0.000	2.040	0.221	1.410	0.346	1.66	0.452	1.300	1.490	4.37	0.418	5.400	1.740	0.759	7.310	0.000	6.373	0.690	0.005	1.081	5.186	1.409	4.053	4.650	13.630	1.300	4.120	5.430	2.370
Hexachloro-1,3-butadiene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
n-Hexane	12.300	0.709	8.740	0.865	23.3	1.66	7.45	4.350	7.260	6.960	15.00	0.00	19.70	8.03	3.080	33.057	2.215	23.490	2.325	0.073	4.461	20.023	11.691	19.512	18.71	40.31	0.000	15.05	21.58	8.280
Isopropylbenzene	0.039	2.760	0.017	0.001	67.8	0.005	0.014	0.001	0.000	0.262	0.018	0.003	0.478	0.017	0.005	0.147	7.418	0.063	0.005	0.182	0.018	0.052	0.003	0.000	0.098	0.066	0.010	0.036	0.065	0.019
Methylene Chloride	0.470	0.000	0.092	0.008	0.000	0.086	0.175	0.081	0.000	0.520	0.279	0.090	0.601	0.156	0.000	1.244	0.000	0.243	0.022	0.000	0.227	0.463	0.214	0.000	1.380	0.740	0.240	0.460	0.410	0.000
Methyl Butyl Ketone	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2-Butanone (MEK)	2.720	0.058	1.030	0.021	2.790	0.033	0.1	0.014	0.520	0.636	1.13	0.156	2.630	1.070	0.000	6.114	0.154	2.315	0.047	0.007	0.075	0.000	0.031	1.169	1.430	2.540	0.350	2.010	2.410	0.000
4-Methyl-2-Pentanone (MIBK)	0.066	0.506	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.205	1.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Methyl methacrylate	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MTBE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Naphthalene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2-Propanol	0.000	1.170	0.000	0.000	0.000	0.000	0.000	0.000	11.400	5.000	0.186	0.000	0.004	0.004	0.000	0.000	2.217	0.000	0.000	0.000	0.000	0.000	0.000	21.362	9.370	0.350	0.000	0.000	0.010	0.010
Propene	0.177	0.000	0.056	0.011	0.000	0.080	0.137	0.000	0.000	0.000	0.000	0.020	0.697	0.697	0.000	0.232	0.000	0.074	0.014	0.000	0.105	0.180	0.000	0.000	0.000	0.000	0.030	0.050	0.910	0.910
Styrene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000
1,1,2,2-Tetrachlororethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Tetrachloroethylene	0.058	0.024	0.031	0.006	4.300	0.023	0.0382	0.018	0.053	0.065	0.035	0.013	0.169	0.169	0.028	0.300	0.126	0.162	0.033	0.022	0.121	0.198	0.091	0.276	0.340	0.180	0.070	0.130	0.870	0.870
Tetrahydrofuran	0.000	0.000	0.000	0.000	0.000	0.000	0.198	0.000	0.000	0.000	0.000	0.060	0.463	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.450	0.000	0.000	0.000	0.000	0.140	0.350	0.560	0.000
Toluene	21.300	4.280	16.300	0.986	264	1.920	9.65	1.100	5.570	7.530	13.90	2.34	38.00	11.20	1.450	61.164	12.290	46.806	2.831	0.758	5.513	27.710	3.159	15.995	21.623	39.915	6.719	29.003	32.161	4.164
1,2,4-Trichlorobenzene	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1,1,1-Trichloroethane	0.861	0.094	0.313	0.072	54.8	0.078	0.518	0.265	0.000	0.000	0.000	0.067	0.000	0.039	0.000	3.570	0.389	1.298	0.300	0.227	0.321	2.148	1.099	0.000	0.000	0.000	0.280	0.000	0.000	0.000
1,1,2-Trichloroethane	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160	0.000
Trichloroethylene	0.122	0.024	0.000	0.010	4.160	0.038	0.07	0.027	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.498	0.096	0.000	0.040	0.017	0.157	0.286	0.109	0.000	0.000	0.000	0.070	0.000	0.190	0.000
1,2,4-Trimethylbenzene	0.046	0.059	0.024	0.003	1.250	0.008	0.0221	0.002	0.000	0.059	0.021	0.003	0.054	0.021	0.010	0.172	0.219	0.091	0.010	0.005	0.032	0.083	0.006	0.000	0.220	0.080	0.010	0.040	0.080	0.040
1,3,5-Trimethylbenzene	0.030	0.022	0.016	0.002	0.801	0.007	0.0168	0.003	0.000	0.000	0.013	0.003	0.038	0.014	0.006	0.114	0.082	0.059	0.006	0.003	0.027	0.063	0.011	0.000	0.000	0.050	0.010	0.030	0.050	0.020
2,2,4-Trimethylpentane	0.897	0.196	0.288	0.051	14.000	0.000	0.000	0.000	0.441	0.340	0.521	0.000	1.130	0.331	0.000	3.194	0.698	1.025	0.181	0.050	0.000	0.000	0.000	1.570	1.210	1.860	0.000	0.860	1.180	0.000
Vinyl Chloride	1.440	0.168	0.359	0.093	5.340	0.125	0.576	0.276	0.503	0.327	0.544	0.062	0.450	0.401	0.310	2.806	0.327	0.700	0.181	0.010	0.244	1.122	0.538	0.980	0.640	1.060	0.120	0.340	0.780	0.600
Vinyl Bromide	0.000	0.000	0.000	0.000	0.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl acetate	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
m&p-Xylene	3.570	0.960	2.880	0.246	67.0	0.176	2.98	0.135	1.440	1.740	5.40	0.561	9.450	2.140	0.497	11.799	3.173	9.518	0.813	0.221	0.582	9.849	0.446	4.759	5.750	17.850	1.850	7.200	7.070	0.570
o-Xylene	1.830	0.192	0.581	0.050	19.4	0.071	0.696	0.054	0.306	0.328	0.708	0.159	2.130	0.426	0.091	6.048	0.635	1.920	0.165	0.064	0.235	2.300	0.177	1.011	1.080	2.340	0.530	1.620	1.410	0.290
Total Emissions (lbs)																163.00	36.25	106.64	9.58	2.49	67.82	84.14	26.43	85.13	83.66	143.35	14.25	69.08	86.87	21.45
Total Emissions (tons)																0.082	0.018	0.053	0.005	0.001	0.034	0.042	0.013	0.043	0.042	0.072	0.007	0.035	0.043	0.011

Notes: Concentration of 0 indicated no laboratory detection during this sampling event
4Q2021 Not Sampled -- Between contracts with IDEM
1Q2022: Sample data determined to be invalid