



September 13, 2024

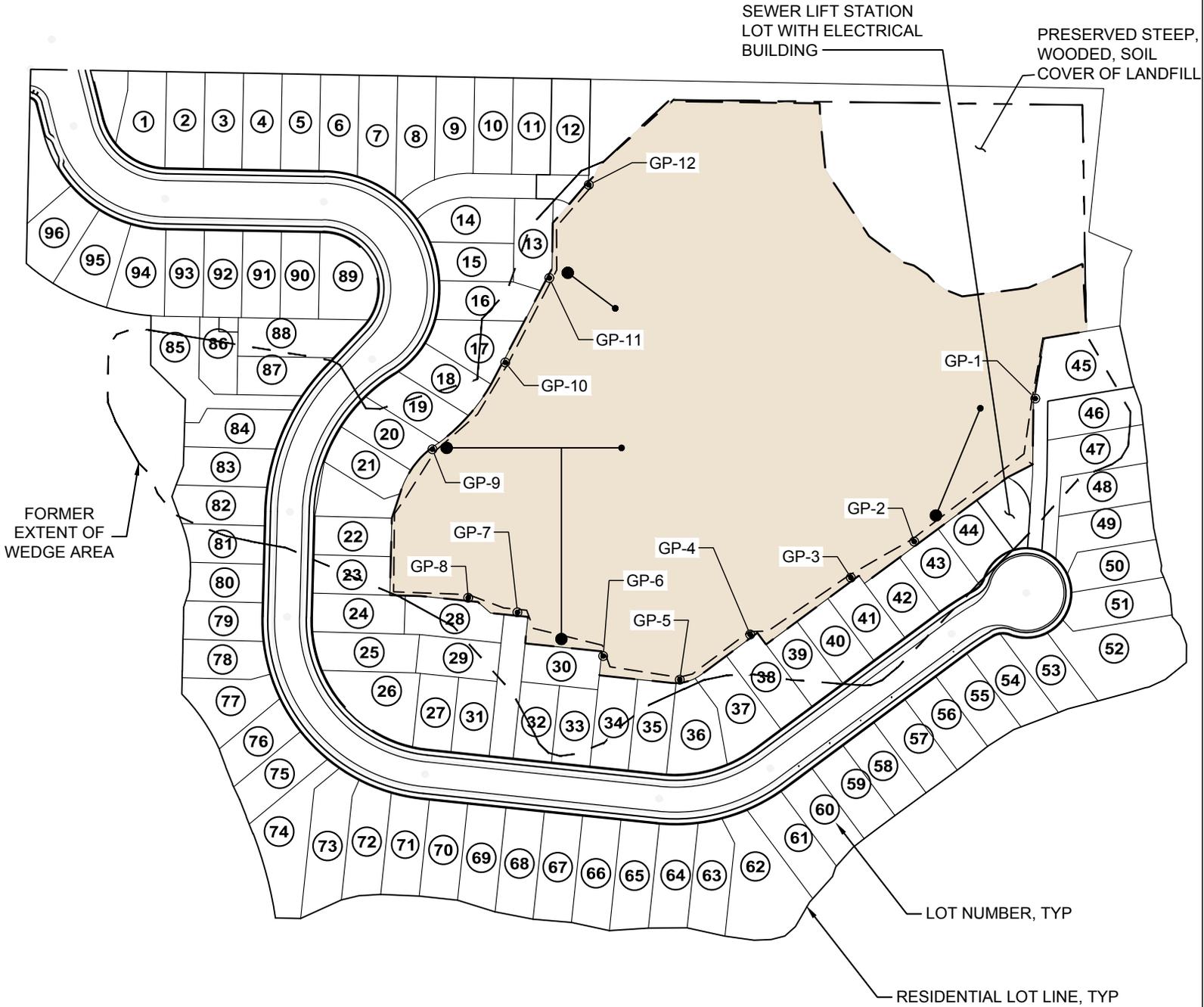
Alan Noell
Washington State Department of Ecology
15700 Dayton Avenue North
Shoreline, Washington 98133

Subject: Go East Landfill/Alpine Estates Landfill Gas Monitoring Data Update

Dear Mr. Noell:

As discussed in the Go East Landfill/Alpine Estate Landfill Gas Monitoring Data Update, dated June 14, 2024 (June 14 Letter), we had observed recent upward trends in methane levels at the landfill perimeter soil gas probes since we removed the soil vapor extraction unit from the landfill perimeter collection trench and individual probes in November of 2023. This most recent upward trend led us towards additional action to better control methane presence. In the June 14 Letter, five steps (if needed) were outlined to investigate the source and extent of methane on the Go East Landfill/Alpine Estates property and attempt to bring methane levels down in the soil gas surrounding the landfill boundary. The Go East Landfill/Alpine Estate Landfill Gas Monitoring Data Update, dated July 31, 2024 (July 31 Letter), presented the results of monitoring of step 1. This letter presents results of monitoring since step 2 was implemented on August 8, 2024.

Per step 2 of the June 14 Letter, the portable soil vapor extraction unit (blower) was kept installed and operating as it was previously near GP-7 to provide vacuum on the perimeter trench through the sump by GP-7. Discharge was routed through the Landfill Gas Vent connected to sumps by GP-7 and GP-9. Caps were added to the other two vent pipe connections at the sumps by GP-11 and GP-2 to prevent atmospheric air from being pulled into the trench and to try to increase vacuum influence on the landfill perimeter trench. Figure 1 shows a map of the site and the locations of the probes, sumps, and vents. Methane concentrations at the blower and probes were collected weekly when the barometric pressure was declining. Tables 1 through 12 in Attachment A are continuations of Table 3 from the February 8, 2024 Landfill Gas Monitoring Readiness at Go East Landfill/Alpine Estates Development technical memorandum, with updated data through September 4, 2024. Table 13 in Attachment A shows the reads collected at the blower. The blower reads represent the content of landfill gas collected from the perimeter collection trench with the dilution valve at the blower closed. The dilution valve is operated so that emissions via the Landfill Gas Vent connected to sumps by GP-7 and GP-9 are kept below the methane lower explosive limit of 5 percent.



LEGEND

- GP-# LANDFILL PERIMETER SOIL GAS PROBE
- LANDFILL GAS SUMP
- LANDFILL GAS VENT
- GRAVEL TRENCH WITH 2 IN PERF PIPE
- GRAVEL TRENCH WITH 2 IN PIPE
- CAPPED AND CLOSED LANDFILL AREA

Since the caps were added to the vent pipe connections at the sumps by GP-11 and GP-2 on August 8, 2024, monitoring results have shown reduced methane concentrations at the probes; however, the WAC 173-350-400 lower explosive limit of 5 percent methane is still not being met for all probes at the landfill boundary. As described in the June 14 Letter, if the methane concentrations at probes do not decline after a month of monitoring (or do not decline significantly), step 3 will be implemented. Because methane concentrations at the probes have been trending downward since the blower was installed and the caps were placed at the other vent pipes, we recommend continuing with Step 2. Step 2 requires keeping the blower running and keeping the caps on the vent pipe connections at the sumps by GP-11 and GP-2. 4 out of the 12 perimeter probes are still reading above 5 percent methane; however, this number of probes is down from 10 perimeter probes in June. Reads will be collected weekly when the barometric pressure is declining, and data and next steps will be reported once again after another month of monitoring.

Monitoring of surface emissions and house ventilation trench monitoring stations in the past month continues to show that the methane observed in the probes is not migrating to the surface or underneath houses.

Sincerely,

Herrera Environmental Consultants, Inc.



Tyson Wright, P.E.
Senior Engineer

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Attachment A

Monitoring Results

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Table 1. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 1.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	3.9	27.0	0.0	69.2	
11/23/2022	8.5	30.5	0.0	61	
1/13/2023	10.9	24.1	0.1	64.9	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	6.3	21.8	0.1	71.8	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	0.4	3.5	11.8	84.3	
3/10/2023	0.0	0.3	21.2	78.4	
3/22/2023	0.0	0.8	19.6	79.6	- Perimeter probe valve closed (3/22/2023–present)
4/1/2023	1.1	15.6	1.3	82	
5/9/2023	0.0	0	19.9	80.1	
6/15/2023	0.0	0.2	19.6	80.1	
6/27/2023	0.5	13.4	0.1	86	- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
7/5/2023	0.6	14.4	0.1	84.9	
8/21/2023	0.0	8.3	9.8	81.9	- Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023)
9/5/2023	0.0	7.3	11.6	81.1	- Vacuum extraction from methane trench (8/23/2023–11/10/2023)
9/22/2023	0.0	1.2	17.5	81.3	
10/21/2023	0.9	20.5	0.1	78.5	
11/1/2023	1.1	20.1	0.1	78.7	
11/10/2023	1.3	12.1	0.1	86.5	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	1.4	16.9	0.1	81.6	
11/30/2023	1.7	11.8	0.2	86.3	
12/8/2023	1.8	11.1	0.1	87.0	
1/3/2024	1.9	18.7	0.0	79.4	
3/15/2024	Not read due to construction blockage				
4/3/2024	Not read due to construction blockage				
5/1/2024	Not read due to construction blockage				
5/7/2024	Not read due to construction blockage				
5/15/2024	Not read due to construction blockage				
5/21/2024	Not read due to construction blockage				
5/31/2024	Not read due to construction blockage				
6/7/2024	Not read due to construction blockage				
6/25/2024	Not read due to construction blockage				
7/5/2024	Not read due to construction blockage				
7/12/2024	Not read due to construction blockage				
7/16/2024	Not read due to construction blockage				
7/26/2024	Not read due to construction blockage				
8/8/2024	Not read due to construction blockage				
8/20/2024	Not read due to construction blockage				
8/24/2024	Not read due to construction blockage				
8/29/2024	Not read due to construction blockage				
9/4/2024	Not read due to construction blockage				

Notes:

GP-1 was accidentally buried when construction on Lot 45 began. GP-1 will be uncovered and monitored again prior to Lot 45 occupancy.

Figure 1. Methane Content of Landfill Perimeter Soil Gas Probe #1.

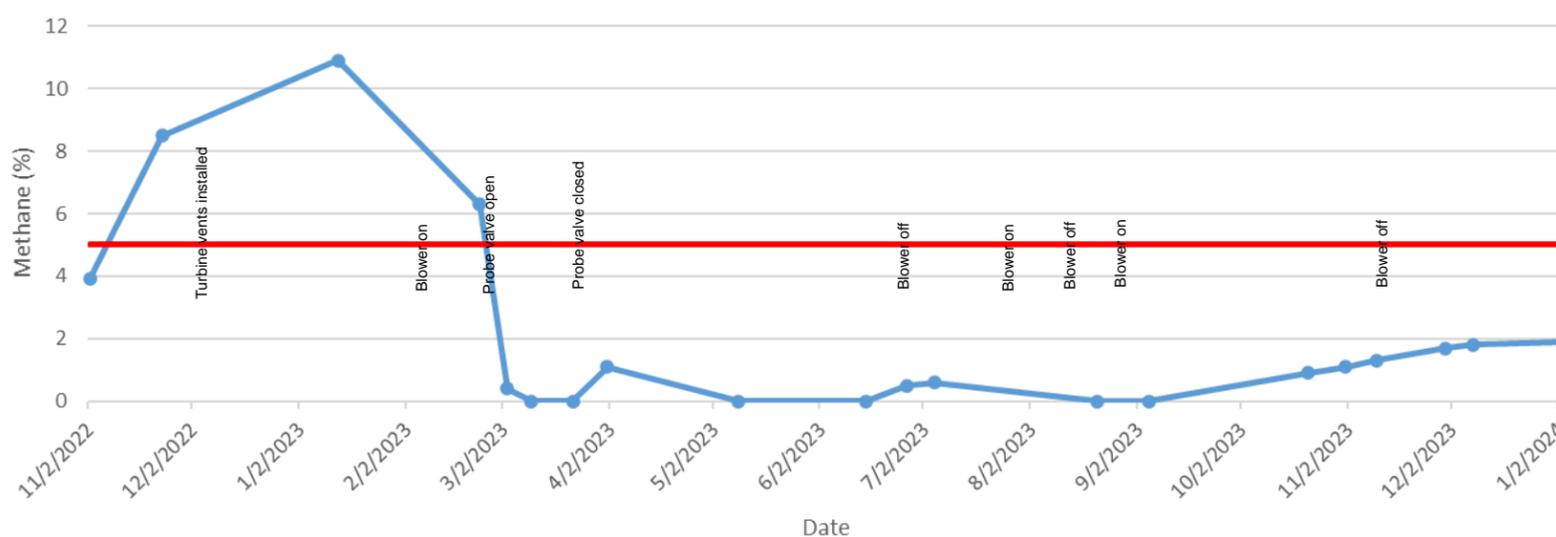


Table 2. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 2.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	12.3	29.2	0.0	58.4	
11/23/2022	14.1	26.9	0.0	39.1	
1/13/2023	15.7	25.2	0.1	59.1	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	16.4	24	0.1	59.6	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	0.0	1.8	17.7	80.5	
3/10/2023	0.0	0.2	21.3	78.4	
3/22/2023	0.0	0.2	20	79.9	- Perimeter probe valve closed (3/22/2023–present)
4/1/2023	0.6	9.9	1.5	87.9	
5/9/2023	0.0	0	20.1	79.8	
6/15/2023	0.0	0.5	19.7	79.8	
6/27/2023	0.0	13.5	0.4	86.1	- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
7/5/2023	0.2	15.6	0.1	84.2	
8/21/2023	0.1	22.7	0.1	77.1	- Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023)
9/5/2023	0.1	22.8	0.1	76.9	- Vacuum extraction from methane trench (8/23/2023–11/10/2023)
9/22/2023	0.0	21.4	0.1	78.4	
10/21/2023	0.9	22.2	0.1	76.9	
11/1/2023	0.9	21.6	0.1	77.4	
11/10/2023	1.3	21.2	0.1	77.4	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	1.5	20.1	0.1	78.3	
11/30/2023	1.6	20.3	0.1	78.1	
12/8/2023	1.5	19.8	0.0	78.6	
1/3/2024	0.3	18.3	0.0	81.4	
3/15/2024	Not read due to construction blockage				
4/3/2024	2.8	16.2	0.0	81	
5/1/2024	4.7	16.9	0.0	78.5	
5/7/2024	5.4	17.8	0.1	76.7	
5/15/2024	6.0	17.8	0.1	76.1	
5/21/2024	6.4	18	0.1	75.6	
5/31/2024	6.8	17.9	0.1	75.2	
6/7/2024	7.4	17.5	0.1	75.1	
6/25/2024	7.7	18	0.1	74.2	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	5.2	18	0.1	76.6	
7/12/2024	2.2	17.9	0.1	79.8	
7/16/2024	1.5	17.5	0.2	80.9	
7/26/2024	1.4	19.5	0.0	79.1	
8/8/2024	0	17.8	0.1	82.1	- Caps added to the other two vent pipe connections at sumps
8/20/2024	0.1	17.7	0.2	82	
8/24/2024	0	17.8	0.2	82.1	
8/29/2024	0	17	0.1	82.9	
9/4/2024	0	16.2	0.3	83.4	

Figure 2. Methane Content of Landfill Perimeter Soil Gas Probe #2.

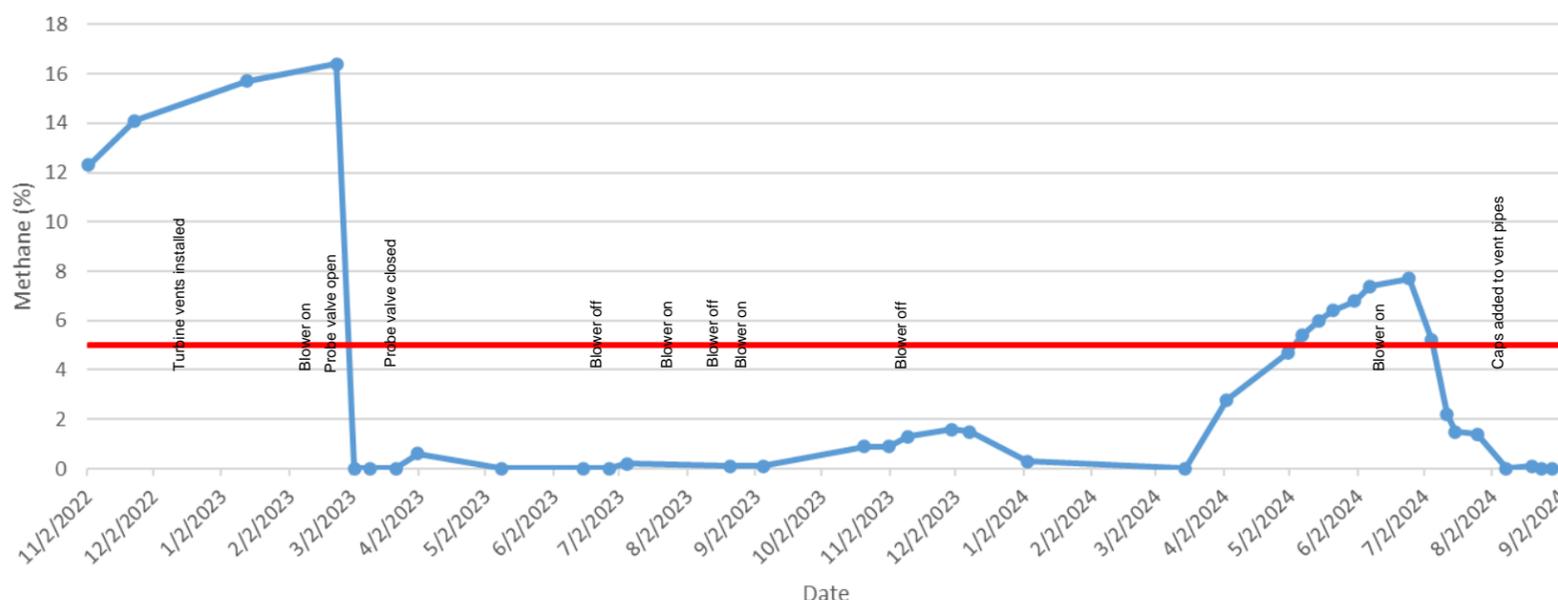


Table 6. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 6.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	0.0	0.3	21.8	77.8	
11/23/2022	82.0	18	0.0	0.0	
1/13/2023	35.0	18.5	0.0	46.5	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	35.4	15.4	0.2	49	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	17.6	13.4	3.3	65.8	
3/10/2023	22.2	22.2	0.2	55.5	- Vacuum extraction from soil gas probes (3/10/2023–6/16/2023)
3/22/2023	11.6	21.8	0.1	66.5	
4/1/2023	8.7	22.3	0.1	68.9	
5/9/2023	0.0	0.0	21	79	
6/15/2023	1.0	3.2	16	79.8	
6/27/2023	5.5	16.7	0.0	77.8	- Blower shut off (6/16/2023–6/17/2023) - Perimeter probe valve closed (6/16/2023 -6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Vacuum extraction from soil gas probes (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023) - Perimeter probe valve closed (6/26/2023 -7/24/2023)
7/5/2023	4.8	14.4	0.0	80.8	
8/21/2023	7.1	15.8	0.6	76.6	- Vacuum extraction from soil gas probes (7/21/2023–8/18/2023) - Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023) - Perimeter probe valve closed (8/18/2023 -8/23/2023)
9/5/2023	8.1	16.5	0.9	74.5	- Vacuum extraction from methane trench (8/23/2023–11/10/2023) - Vacuum extraction from soil gas probes (8/23/2023–11/10/2023)
9/22/2023	6.8	17.5	0.8	74.9	
10/21/2023	5.0	19.5	0.1	75.5	
11/1/2023	4.3	19.2	0.1	76.4	
11/10/2023	0.0	0.1	20.9	79	- Blower shut off (11/10/2023–6/19/2024) - Perimeter probe valve closed (11/10/2023–present)
11/17/2023	3.7	17.7	0.1	78.5	
11/30/2023	2.9	17.1	0.0	80.0	
12/8/2023	3.2	14.6	0.0	82.2	
1/3/2024	3.5	15.6	0.0	80.9	
3/15/2024	13.8	22.7	0.0	63.5	
4/3/2024	17.9	16.5	0.0	65.6	
5/1/2024	19.7	16.7	0.0	63.6	
5/7/2024	21.7	17.6	0.1	60.7	
5/15/2024	20.3	17	0.0	62.8	
5/21/2024	18.1	16.4	0.0	65.5	
5/31/2024	18.8	15.9	0.0	65.3	
6/7/2024	17.9	14.9	0.0	67.2	
6/25/2024	18.3	14.7	0.0	67	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	15.6	15.6	0.1	68.7	
7/12/2024	10.7	16.7	0.1	72.5	
7/16/2024	9.4	15.4	0.1	75.1	
7/26/2024	10.4	16.7	0.0	72.9	
8/8/2024	6	15.6	0.1	78.3	- Caps added to the other two vent pipe connections at sumps
8/20/2024	7.6	17.6	0.1	74.8	
8/24/2024	6.8	18.1	0.1	75	
8/29/2024	6.2	15.7	0.1	78.1	
9/4/2024	6.2	17	0.1	76.7	

Figure 6. Methane Content of Landfill Perimeter Soil Gas Probe #6.

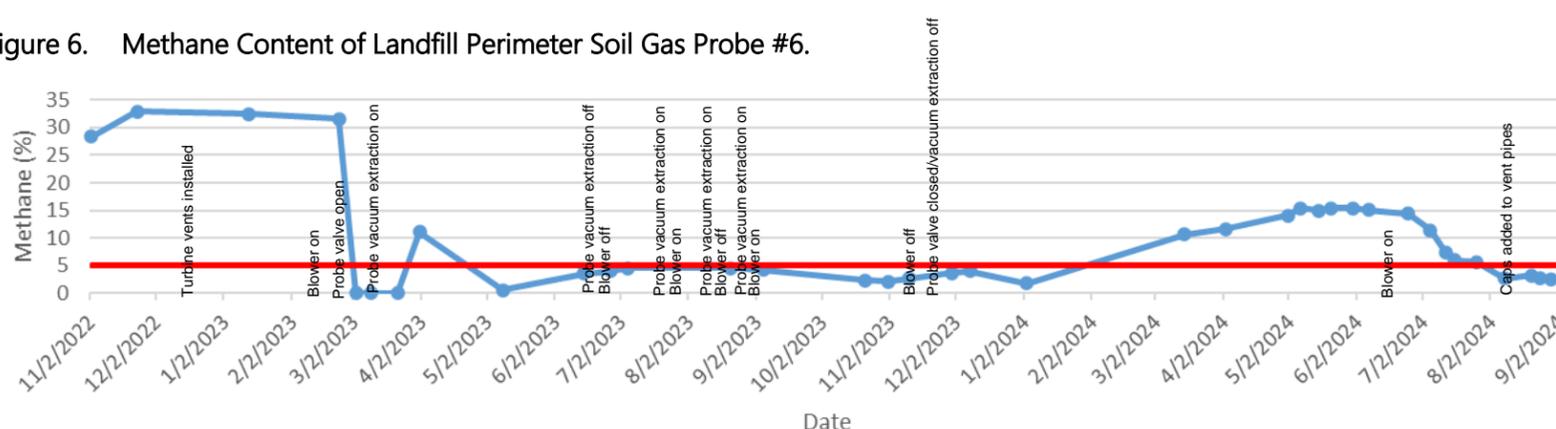


Table 7. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 7.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	35.5	20.7	0.0	43.4	
11/23/2022	38	20.0	0.0	42.6	
1/13/2023	36.4	20.6	0.1	43	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	37.9	19.6	0.1	42.4	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	13.1	6.1	12.7	68.2	
3/10/2023	26.7	18.3	3.1	51.9	- Vacuum extraction from soil gas probes (3/10/2023–6/16/2023)
3/22/2023	17.2	18.4	1.4	63	
4/1/2023	12.8	20.5	1.2	65.5	
5/9/2023	4.6	15.8	4.0	75.6	
6/15/2023	4.2	18.6	0.2	77	
6/27/2023	0.2	18.8	0.2	80.7	- Blower shut off (6/16/2023–6/17/2023) - Perimeter probe valve closed (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Vacuum extraction from soil gas probes (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023) - Perimeter probe valve closed (6/26/2023 -7/24/2023)
7/5/2023	2.3	16.2	0.0	81.5	
8/21/2023	0.7	14.9	0.3	84	- Vacuum extraction from soil gas probes (7/21/2023–8/18/2023) - Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023) - Perimeter probe valve closed (8/18/2023 -8/23/2023)
9/5/2023	8.1	17.9	0.1	73.9	- Vacuum extraction from methane trench (8/23/2023–11/10/2023) - Vacuum extraction from soil gas probes (8/23/2023–8/25/2023) - Perimeter probe valve closed and removed from vacuum extraction system (8/25/2023–present)
9/22/2023	8.5	17.9	0.1	73.5	
10/21/2023	7.4	19.1	0.1	73.4	
11/1/2023	6.6	19.2	0.0	74.1	
11/10/2023	7.3	20.3	0.1	72.4	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	6.8	18.7	0.1	74.5	
11/30/2023	6.7	20.5	0.0	72.7	
12/8/2023	6.8	19.2	0.0	74.0	
1/3/2024	8.5	18.2	0.0	73.3	
3/15/2024	14.5	21.7	0.0	63.8	
4/3/2024	16.5	14.3	0.0	69.2	
5/1/2024	18.6	16.7	0.0	64.7	
5/7/2024	16.8	17.5	0.1	65.5	
5/15/2024	18.3	18.7	0.0	63	
5/21/2024	20	19.5	0.1	60.4	
5/31/2024	19.8	20.7	0.1	59.5	
6/7/2024	20.2	19.9	0.1	59.8	
6/25/2024	22.5	17.7	0.3	59.5	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	19.6	17.1	0.2	63.1	
7/12/2024	13.2	16.2	0.1	70.4	
7/16/2024	11.0	15.5	0.1	73.4	
7/26/2024	11.7	17.2	0.0	71.1	
8/8/2024	5.6	15.8	0.1	78.5	- Caps added to the other two vent pipe connections at sumps
8/20/2024	4.4	16.1	0.3	79.3	
8/24/2024	7.5	17.2	0	75.3	
8/29/2024	7	17	0.1	75.9	
9/4/2024	5.6	16.5	0.1	77.8	

Figure 7. Methane Content of Landfill Perimeter Soil Gas Probe #7.

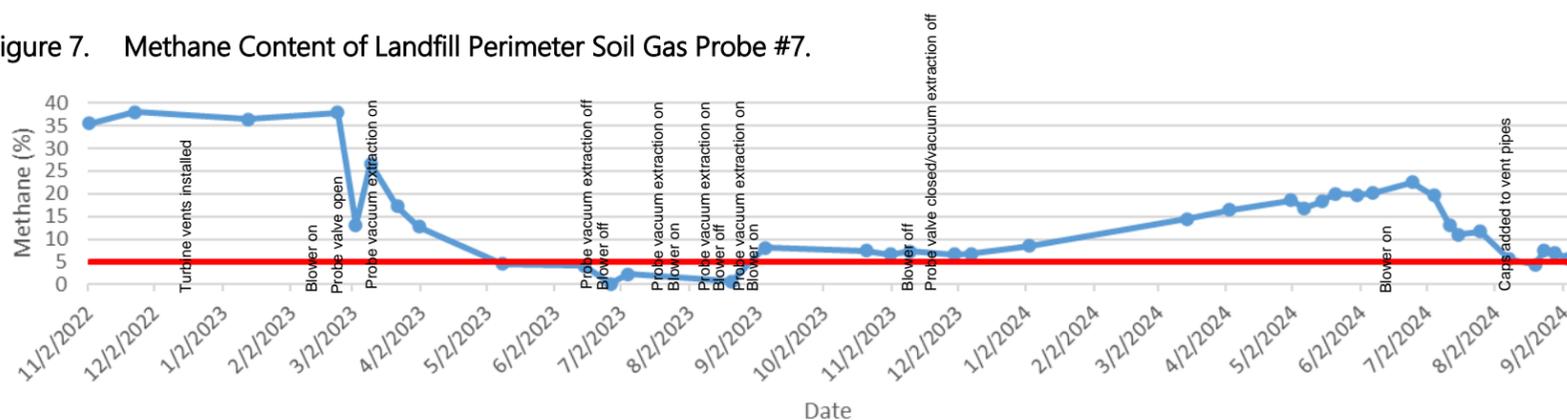


Table 8. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 8.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	35.6	23.7	0.0	40.7	
11/23/2022	37.4	21	0.0	41.6	
1/13/2023	37.1	21.3	0.0	41.6	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	30.7	22.7	0.2	46.4	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	9.8	2.5	16	71.8	
3/10/2023	0.3	0.2	16.2	83.3	- Vacuum extraction from soil gas probes (3/10/2023–6/16/2023)
3/22/2023	3.0	6.3	13.9	76.8	
4/1/2023	1.4	5.3	16.2	77.2	
5/9/2023	0.0	5.4	14.6	80	
6/15/2023	0.0	2.5	17.4	80.1	
6/27/2023	0.0	4.1	13.6	82.3	- Blower shut off (6/16/2023–6/17/2023) - Perimeter probe valve closed (6/16/2023 -6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Vacuum extraction from soil gas probes (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023) - Perimeter probe valve closed (6/26/2023 -7/24/2023)
7/5/2023	0.0	8.1	4.0	87.9	
8/21/2023	0.0	6.3	8.4	85.3	- Vacuum extraction from soil gas probes (7/21/2023–8/18/2023) - Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023) - Perimeter probe valve closed (8/18/2023 -8/23/2023)
9/5/2023	0.0	4.1	14.8	81.1	- Vacuum extraction from methane trench (8/23/2023–11/10/2023) - Vacuum extraction from soil gas probes (8/23/2023–8/25/2023) - Perimeter probe valve closed and removed from vacuum extraction system (8/25/2023–present)
9/22/2023	0.0	5.5	13.7	80.8	
10/21/2023	0.0	5.5	15.1	79.4	
11/1/2023	0.0	4.5	16.6	78.9	
11/10/2023	3.1	12.9	2.9	81	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	0.0	10.6	8.1	81.3	
11/30/2023	2.4	14.0	0.0	83.5	
12/8/2023	0.0	11.2	3.0	85.8	
1/3/2024	3	11.1	0.0	85.9	
3/15/2024	8.2	14.9	0.0	76.9	
4/3/2024	9.3	9.9	0.0	80.8	
5/1/2024	16.2	13.6	0.0	70.2	
5/7/2024	14.8	14.0	0.1	71.2	
5/15/2024	13.9	14.5	0.0	71.5	
5/21/2024	18	16.0	0.1	66	
5/31/2024	16	16.6	0.1	67.3	
6/7/2024	16.3	16.4	0.1	67.1	
6/25/2024	0.0	5.1	15.8	79.1	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	0.0	3.6	17.4	79	
7/12/2024	0.0	2.4	18.1	66.5	
7/16/2024	0.0	2.0	16.5	70.5	
7/26/2024	0.1	1.6	16.7	81.7	
8/8/2024	0	1.8	18.8	72.1	- Caps added to the other two vent pipe connections at sumps
8/20/2024	0.1	1.9	19.2	78.8	
8/24/2024	0	2.3	18.8	78.9	
8/29/2024	0	2.6	18.6	78.8	
9/4/2024	0	2.5	17.1	80.5	

Figure 8. Methane Content of Landfill Perimeter Soil Gas Probe #8.

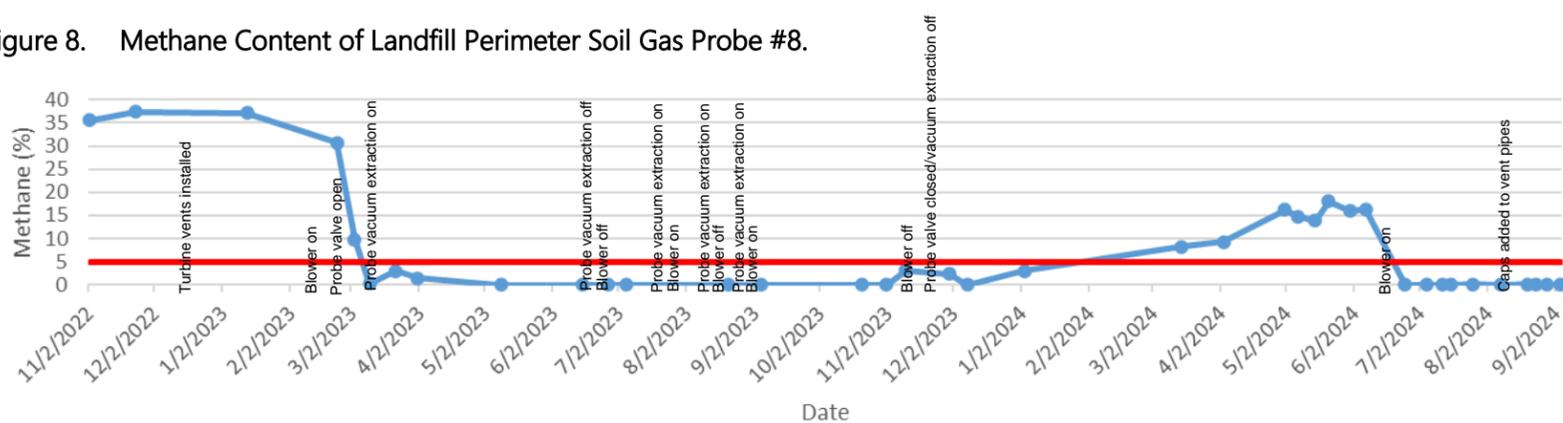


Table 9. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 9.

Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	NR	NR	NR	NR	
11/23/2022	4.2	0.1	14	81.7	
1/13/2023	5.8	0.1	3.2	90.9	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	NR	NR	NR	NR	- Vacuum extraction from methane trench (2/10/2023–6/16/2023)
3/3/2023	NR	NR	NR	NR	
3/10/2023	0.1	0.1	21.4	78.5	
3/22/2023	0.1	0.0	21.2	78.7	
4/1/2023	2.4	0.1	2.2	95.3	
5/9/2023	3.1	0.1	0.2	96.6	
6/15/2023	0.0	3.1	13.6	83.3	
					- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
6/27/2023	0.0	6.2	5	88.8	
7/5/2023	0.1	8.8	4.7	86.4	
					- Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023)
8/21/2023	NR	NR	NR	NR	
9/5/2023	NR	NR	NR	NR	- Vacuum extraction from methane trench (8/23/2023–11/10/2023)
9/22/2023	NR	NR	NR	NR	
10/21/2023	NR	NR	NR	NR	
11/1/2023	NR	NR	NR	NR	
11/10/2023	0.0	6.5	4.9	88.6	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	0.0	6.5	4.9	88.6	
11/30/2023	0.0	6.5	4.9	88.6	
12/8/2023	0.0	6.5	4.9	88.6	
1/3/2024	0.0	4.7	8.4	86.9	
3/15/2024	0.0	5.5	5.9	88.6	
4/3/2024	0.2	7.8	6.1	86.1	
5/1/2024	0.1	5.6	6.7	87.7	
5/7/2024	0.0	7.2	6.3	86.5	
5/15/2024	0.4	6.3	7.6	86.1	
5/21/2024	0.2	7.9	6.8	85.3	
5/31/2024	0.1	8.6	5.3	86.1	
6/7/2024	0.2	8.2	6.5	85.3	
6/25/2024	0.0	8.5	5.2	86.3	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	0.0	7.9	6.7	85.4	
7/12/2024	0.0	8.1	6.2	85.7	
7/16/2024	0.1	7.6	6.6	85.8	
7/26/2024	0.1	7.7	6.5	85.8	
8/8/2024	0	7.6	6.6	85.8	- Caps added to the other two vent pipe connections at sumps
8/20/2024	0.1	7.6	6.7	85.7	
8/24/2024	0	7.7	6.5	85.8	
8/29/2024	0	8	6.5	85.5	
9/4/2024	0	7.9	6.6	85.5	

Notes:
 NR = Not Read

Figure 9. Methane Content of Landfill Perimeter Soil Gas Probe #9.

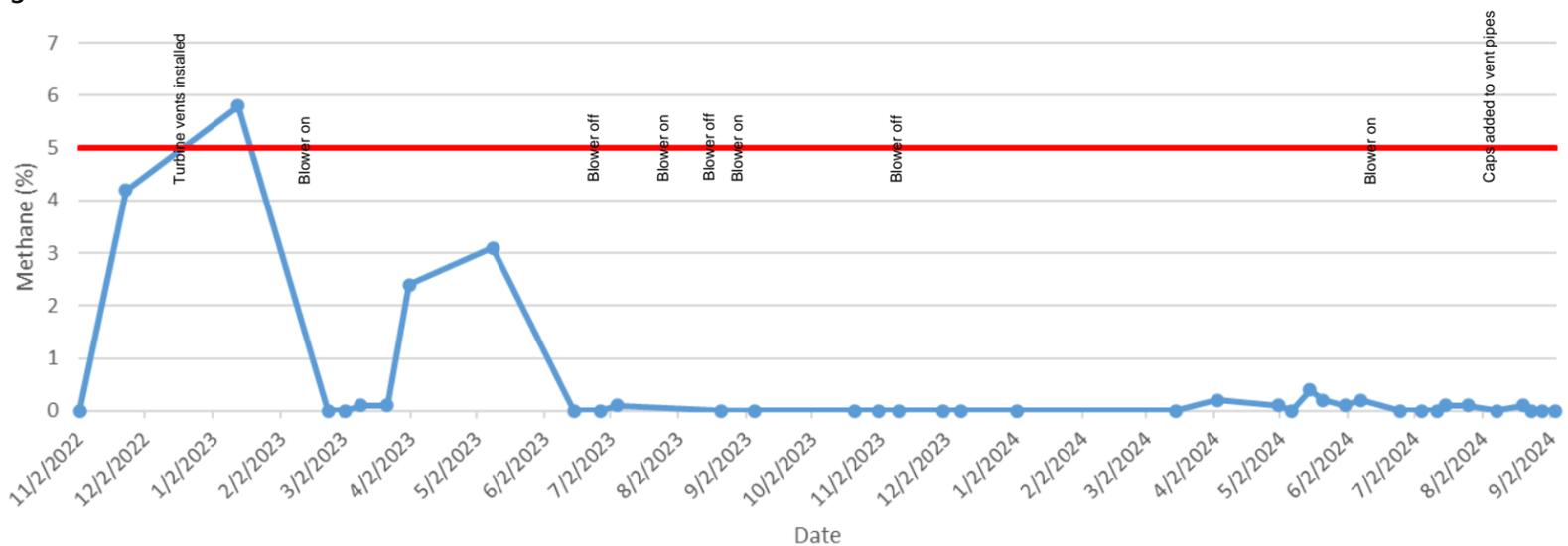


Table 10. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 10.

Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	35.9	56.4	0.0	7.7	
11/23/2022	39.3	53.6	0.0	6.9	
1/13/2023	41.9	55.3	0.1	2.7	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	30.4	40.5	0.0	29	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	32.5	31.1	0.1	36.3	
3/10/2023	0.0	0.1	21.9	78	
3/22/2023	0.0	0.1	21.1	78.8	- Perimeter probe valve closed (3/22/2023–7/21/2023)
4/1/2023	12.6	15.1	0.0	72.3	
5/9/2023	0.0	0.1	20.4	79.5	
6/15/2023	0.0	0.0	21.1	78.9	
6/27/2023	3.3	15.3	0.0	81.4	- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
7/5/2023	6.4	19.1	0.0	74.5	
8/21/2023	9.4	31.3	0.1	59.2	- Vacuum extraction from soil gas probes (7/21/2023–8/18/2023) - Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023) - Perimeter probe valve closed (8/18/2023 -8/23/2023)
9/5/2023	10.1	30.6	0.1	59.2	- Vacuum extraction from methane trench (8/23/2023–11/10/2023) - Vacuum extraction from soil gas probes (8/23/2023–11/10/2023)
9/22/2023	9.3	28.8	0.1	61.8	
10/21/2023	9.7	28.3	0.1	61.9	
11/1/2023	10.3	27.7	0.0	62	
11/10/2023	10.0	27.5	0.1	62.4	- Blower shut off (11/10/2023–6/19/2024) - Perimeter probe valve closed (11/10/2023–present)
11/17/2023	10.7	27.6	0.0	61.7	
11/30/2023	15.5	31.3	0.0	53.1	
12/8/2023	16.3	32.2	0.0	51.5	
1/3/2024	21.4	35.3	0.0	43.3	
3/15/2024	27.5	37.3	0.0	35.2	
4/3/2024	30.7	38.5	0.0	30.7	
5/1/2024	30.6	35	0.0	34.4	
5/7/2024	31.8	38.9	0.1	29.2	
5/15/2024	30.4	38.5	0.0	31.1	
5/21/2024	31.8	39	0.1	29.1	
5/31/2024	30.9	38.6	0.0	30.5	
6/7/2024	31.4	38.5	0.1	30.0	
6/25/2024	29.1	37.8	0.2	32.9	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	25.4	36	0.1	38.4	
7/12/2024	19.2	32.9	0.1	47.9	
7/16/2024	17.4	32.1	0.1	50.4	
7/26/2024	18.8	35	0.0	46.2	
8/8/2024	11.5	30.8	0.1	57.6	- Caps added to the other two vent pipe connections at sumps
8/20/2024	13	30.4	0.1	56.5	
8/24/2024	NR	NR	NR	NR	
8/29/2024	10.5	29.2	0.1	60.3	
9/4/2024	10.1	28.9	0.1	60.9	

Notes:

NR = Not Read

Figure 10. Methane Content of Landfill Perimeter Soil Gas Probe #10.

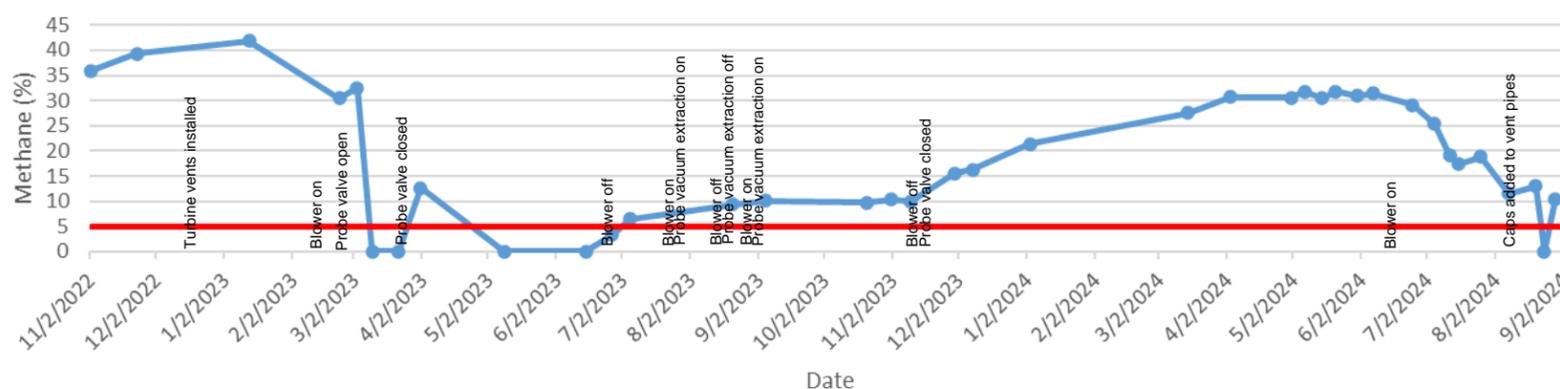


Table 11. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 11.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	0.0	16.2	8.2	75.7	
11/23/2022	0.6	22.9	2.8	73.7	
1/13/2023	38.4	48	0.1	13.5	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	33.3	36.3	0.0	30.4	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	30.9	27	0.1	42	
3/10/2023	0.0	0.3	21.8	77.9	
3/22/2023	0.0	0.2	21.3	78.5	- Perimeter probe valve closed (3/22/2023–7/21/2023)
4/1/2023	19.1	25	0.5	55.4	
5/9/2023	0.0	0.7	20	79.3	
6/15/2023	1.5	20.8	0.9	76.8	
6/27/2023	9.9	27.2	0.4	62.5	- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
7/5/2023	17.2	33.6	0.1	49	
8/21/2023	7.6	26.3	0.4	65.7	- Vacuum extraction from soil gas probes (7/21/2023–8/18/2023) - Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023) - Perimeter probe valve closed (8/18/2023–8/23/2023)
9/5/2023	3.1	24	0.5	72.5	- Vacuum extraction from methane trench (8/23/2023–11/10/2023) - Vacuum extraction from soil gas probes (8/23/2023–11/10/2023)
9/22/2023	1.6	21.9	1.8	74.7	
10/21/2023	3.0	25.2	1.6	70.2	
11/1/2023	4.2	27	0.6	68.2	
11/10/2023	3.9	26.1	1.2	68.8	- Blower shut off (11/10/2023–6/19/2024) - Perimeter probe valve closed (11/10/2023–present)
11/17/2023	2.6	21.4	0.1	75.9	
11/30/2023	17.3	33.4	0.1	49.2	
12/8/2023	21.7	25.8	0.0	52.4	
1/3/2024	18.0	29.8	0.4	51.7	
3/15/2024	18.2	32.5	0.0	49.3	
4/3/2024	20.5	30.3	0.0	49.2	
5/1/2024	17.7	28	0.1	54.2	
5/7/2024	10.2	27.4	0.6	61.7	
5/15/2024	19.5	30.6	0.4	49.5	
5/21/2024	22.1	32.6	0.2	45.1	
5/31/2024	20.9	32.2	0.2	46.7	
6/7/2024	18.1	31	0.2	50.7	
6/25/2024	6.7	26.3	0.9	66.1	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	3.0	22.7	1.0	73.3	
7/12/2024	1.9	22.2	1.0	74.9	
7/16/2024	4.1	22.8	1.0	72.1	
7/26/2024	7.7	27.3	0.6	64.5	
8/8/2024	6.3	25.4	0.9	67.4	- Caps added to the other two vent pipe connections at sumps
8/20/2024	8.7	25.5	1	64.9	
8/24/2024	10	26.3	1.1	62.6	
8/29/2024	8	25.5	0.3	66.2	
9/4/2024	10.2	26.5	0.5	62.8	

Figure 11. Methane Content of Landfill Perimeter Soil Gas Probe #11.

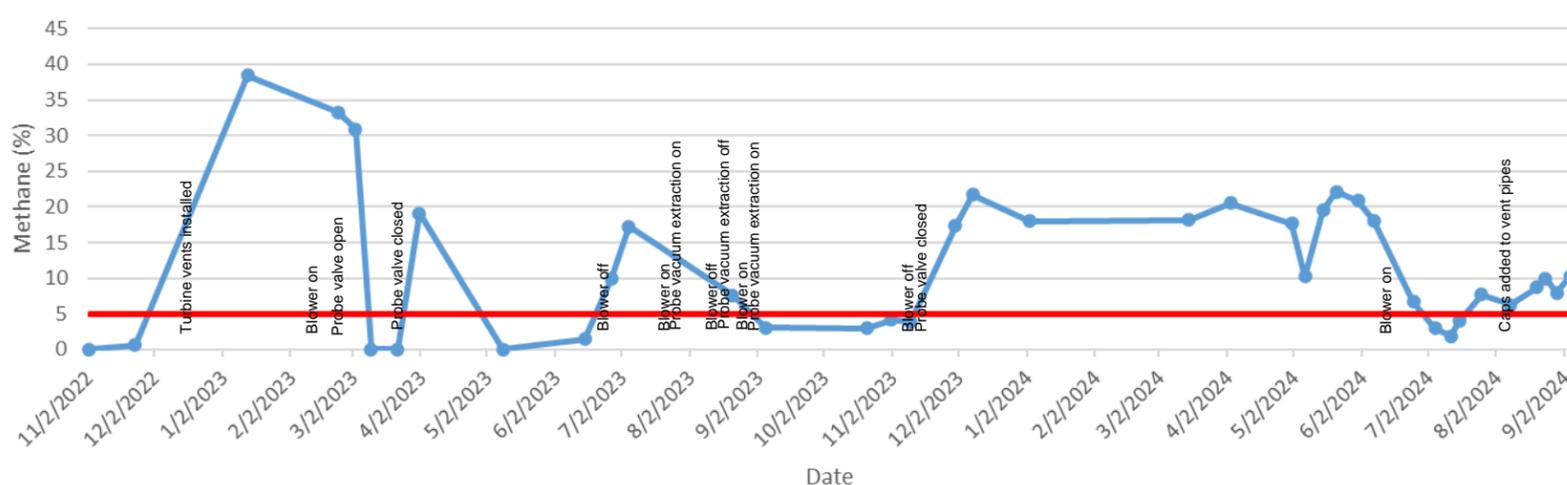


Table 12. Monitoring Results for Landfill Perimeter Soil Gas Probe Number 12.

Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	22.8	40.6	0.8	35.1	
11/23/2022	0.0	0.2	21.4	78.4	
1/13/2023	27.9	42.9	0.3	29	- Turbine vents installed on landfill gas vent (12/12/2022–present)
2/23/2023	27	42.2	0.0	30.8	- Vacuum extraction from methane trench (2/10/2023–6/16/2023) - Perimeter probe valve left open to vent (2/23/2023–3/22/2023)
3/3/2023	12.8	24.9	0.1	62.2	
3/10/2023	0.0	0.1	22	77.9	
3/22/2023	0.0	0.8	20.1	79.1	- Perimeter probe valve closed (3/22/2023–present)
4/1/2023	17.7	36.1	0.0	46.2	
5/9/2023	0.0	0.0	20.4	79.6	
6/15/2023	0.0	2.0	16.7	81.3	
6/27/2023	2.6	26.3	0.4	70.7	- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
7/5/2023	3.1	27.9	0.2	68.7	
8/21/2023	4.3	30.4	0.3	65.1	- Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023)
9/5/2023	4.3	31.1	0	64.5	- Vacuum extraction from methane trench (8/23/2023–11/10/2023)
9/22/2023	4.1	30.4	0.8	64.6	
10/21/2023	3.2	31.6	0.1	65	
11/1/2023	2.8	27.9	1.8	67.5	
11/10/2023	3.4	30.3	0.1	66.2	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	3.4	30.4	0.0	66.2	
11/30/2023	7.2	32.4	0.0	60.4	
12/8/2023	7.2	32.5	0.0	60.4	
1/3/2024	8.5	32.8	0.0	58.7	
3/15/2024	10.7	34.1	0.0	55.2	
4/3/2024	11.7	31.5	0.0	56.8	
5/1/2024	12.4	29.4	0.0	58.2	
5/7/2024	13.6	32	0.1	54.4	
5/15/2024	11.9	30.7	0.0	57.4	
5/21/2024	12.3	31.3	0.0	56.4	
5/31/2024	11.7	30.6	0.1	57.6	
6/7/2024	11.9	30.1	0.1	58	
6/25/2024	9.2	28.5	0.1	62.3	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	6.8	27	0.1	66.1	
7/12/2024	5.0	25.5	0.1	69.4	
7/16/2024	4.0	24.2	0.2	71.5	
7/26/2024	4.8	26.5	0.0	68.7	
8/8/2024	2.8	24.1	0.3	72.8	- Caps added to the other two vent pipe connections at sumps
8/20/2024	4.9	24.8	0.1	70.2	
8/24/2024	4.8	25.4	0	69.8	
8/29/2024	NR	NR	NR	NR	
9/4/2024	4.4	24.6	0.1	70.9	

Figure 12. Methane Content of Landfill Perimeter Soil Gas Probe #12.

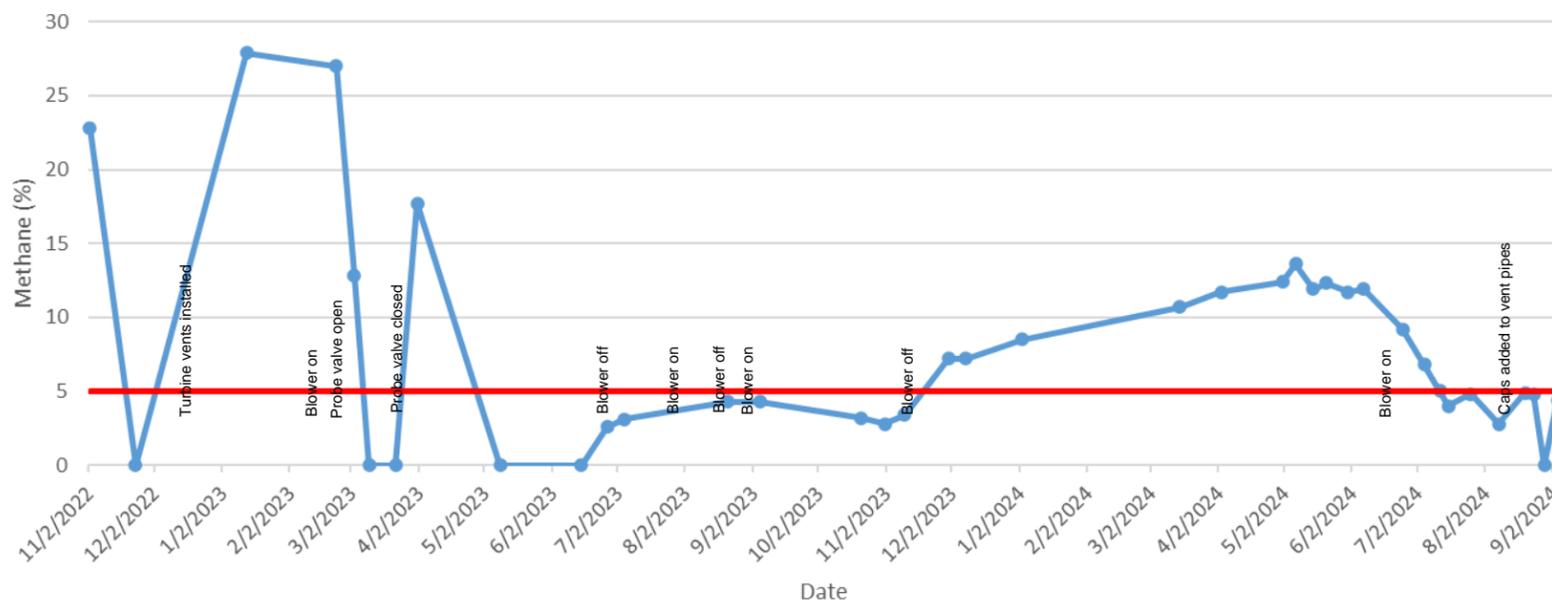


Table 13. Monitoring Results for Soil Vapor Extraction Unit.					
Date	% Methane	% Carbon Dioxide	% Oxygen	% Balance	Actions / Key Dates
11/2/2022	-	-	-	-	- Blower not installed (11/2/2022–2/10/2023)
11/23/2022	-	-	-	-	
1/13/2023	-	-	-	-	
2/23/2023	NR	NR	NR	NR	- Vacuum extraction from methane trench (2/10/2023–6/16/2023)
3/3/2023	23.8	19.7	1.6	54.9	
3/10/2023	20.7	19.8	4.2	55.3	
3/22/2023	11.1	17.8	4.7	66.5	
4/1/2023	8.7	19	4.5	67.8	
5/9/2023	3.3	13.8	4.9	78	
6/15/2023	3.2	11.5	7.9	77.3	
6/27/2023	-	-	-	-	- Blower shut off (6/16/2023–6/17/2023) - Vacuum extraction from methane trench (6/17/2023–6/26/2023) - Blower shut off (6/26/2023–7/24/2023)
7/5/2023	-	-	-	-	
8/21/2023	-	-	-	-	- Vacuum extraction from methane trench (7/24/2023–8/18/2023) - Blower shut off (8/18/2023–8/23/2023)
9/5/2023	6.0	14.6	6	73.4	- Vacuum extraction from methane trench (8/23/2023–11/10/2023)
9/22/2023	NR	NR	NR	NR	
10/21/2023	4.8	15.7	6.6	72.9	
11/1/2023	4.6	16.5	5.1	73.8	
11/10/2023	3.8	13.6	8.3	74.3	- Blower shut off (11/10/2023–6/19/2024)
11/17/2023	-	-	-	-	
11/30/2023	-	-	-	-	
12/8/2023	-	-	-	-	
1/3/2024	-	-	-	-	
3/15/2024	-	-	-	-	
4/3/2024	-	-	-	-	
5/1/2024	-	-	-	-	
5/7/2024	-	-	-	-	
5/15/2024	-	-	-	-	
5/21/2024	-	-	-	-	
5/31/2024	-	-	-	-	
6/7/2024	-	-	-	-	
6/25/2024	15.4	14.3	5.2	65.1	- Vacuum extraction from methane trench (6/19/2024–present)
7/5/2024	11	13.8	5.8	69.4	
7/12/2024	7.0	13.4	7.1	72.4	
7/16/2024	6.0	12.7	6.6	74.8	
7/26/2024	7.1	14.8	6.7	71.4	
8/8/2024	3.9	12.4	7.7	76	- Caps added to the other two vent pipe connections at sumps
8/20/2024	6	13.9	6.9	73.2	
8/24/2024	6	15.4	5.6	73	
8/29/2024	5.7	15	5.9	73.4	
9/4/2024	5.4	14.3	6	74.3	

Notes:

- = blower not running

NR = Not Read

Reads represent content of gas with dilution valve closed. Dilution valve at blower is operated to keep emissions below the methane lower explosive limit of 5%.

Figure 13. Methane Content at Blower.

