BEFORE THE HEARING BOARD OF THE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

In The Matter Of

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT,

Petitioner,

vs.

CHIQUITA CANYON, LLC a Delaware Corporation,
[Facility ID No. 119219]

Respondent.

Case No. 6177-4

EXHIBIT A TO DECLARATION OF PATRICK SULLIVAN, BCES, CPP, REPA

Health and Safety Code § 41700, and District Rules 402, 431.1, 3002, 203, 1150

Hearing Date:	June 4 and 17, 2025
Hearing Time:	9:30 A.M.
Place:	Hearing Board South Coast Air Quality Management District, 21865 Copley Drive Diamond Bar, CA 91765

March 3, 2025

Mr. Baitong Chen
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765

Subject: Reaction Committee Determination on TOX Usage
Chiquita Canyon Landfill – Castaic, California

Dear Mr. Chen:

In accordance with Condition No. 22 of the Stipulated Order of Abatement (SOFA) pertaining to the Chiquita Canyon Landfill (Landfill) (Case No. 6177-4), the Reaction Committee has reviewed the status of the existing portable thermal oxidizer (TOX) unit to assist in the processing and destruction of landfill gas (LFG) from the reaction area. Currently, the site operates one TOX unit: a Zeeco unit with the ability to process 4,700 standard cubic foot per minute (scfm) of LFG. For the reasons described in this letter, the Reaction Committee finds that additional backup capacity is needed for the Zeeco unit and therefore recommends that Chiquita Canyon, LLC (Chiquita) bring onsite and begin operating an additional TOX unit to serve as backup for the Zeeco unit.

The Reaction Committee previously concluded (by letter dated, February 15, 2024) that a smaller, lower flow Envent TOX unit (1,600 scfm) was no longer needed to process, control and destroy the LFG produced from the reaction area. The rationale stated as the basis for removing the Envent TOX was that the Landfill had sufficient LFG control capacity with the addition of Flare 3 and that the Zeeco unit could handle all of the reaction gas. Further, the flare station was able to act as back-up to the Zeeco unit and process the reaction gas when the Zeeco was offline.

Since that time, an extensive network of piping has been installed on the leachate tanks to remove leachate vapors from the tanks. Those vapors are routed to the flare station and contain very little methane, diluting the overall heat input to the flares. Over 1,000 scfm of leachate vapors are now being processed at the flare station. Because the reaction gas also has low methane content, when the Zeeco TOX is offline and the flares have to process both leachate vapors and reaction gas, they are not able to operate properly and experience more frequent downtime. As such, the flares can no longer operate as reliable backup for the Zeeco TOX.

Because of this new development, the Reaction Committee is now recommending that a second portable TOX unit be brought back on-site to supplement and act as back-up for the Zeeco unit. This will make for a more reliable control system and allow Chiquita to maintain vacuum on the reaction area when the Zeeco is offline for maintenance or other reasons. An additional TOX unit will also supplement the overall control capacity for the site.

There was no dissenting opinion among the Reaction Committee members regarding this determination.

Based on this recommendation, Chiquita is bringing an additional TOX unit on-site and will begin operation once it is on-site and installed. A permit application will be filed for this unit, reflecting the fact that it is initially being installed and operated without a permit to construct and Title V revision. The application will be submitted under accelerated permitting, with expedited processing requested and paid for.

Please contact either of the undersigned if you have questions or require additional information.

Sincerely,

Robert E. Dick, PE, BCEE
Senior Vice President
SCS Engineers

Patrick S. Sullivan, BCES, CCP
Senior Vice President
SCS Engineers

RED/PSS

cc: Nathaniel Dickel, SCAQMD
Christina Ojeda, SCAQMD
Pablo Sanchez Soria, PhD, CIH, CTEH
Neal Bolton, PE, Blue Ridge Services, Inc.
Richard Pleus, PhD, MS
Srividhya Viswanathan, PE, SCS Engineers

BEFORE THE HEARING BOARD OF THE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

In The Matter Of SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, Petitioner, vs. CHIQUITA CANYON, LLC a Delaware Corporation, [Facility ID No. 119219] Respondent.	**Case No. 6177-4** **EXHIBIT B TO DECLARATION OF PATRICK SULLIVAN, BCES, CPP, REPA** Health and Safety Code § 41700, and District Rules 402, 431.1, 3002, 203, 1150 Hearing Date: June 4 and 17, 2025 Hearing Time: 9:30 A.M. Place: Hearing Board South Coast Air Quality Management District, 21865 Copley Drive Diamond Bar, CA 91765

Landfill Operations Air Impact Study, Chiquita Canyon Landfill

Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, California 91384

SCS ENGINEERS

01204123.21 Task 22 | March 2025

3900 Kilroy Airport Way, Suite 300
Long Beach, CA 90806
562-426-9544

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Tables and Figures

This Landfill Operations Air Impact Study for the Chiquita Canyon Landfill, located at 29201 Henry Mayo Drive, Castaic, California, was prepared and reviewed by the following:

Quincy Laris
Staff Professional
SCS ENGINEERS

Raymond H. Huff, REPA
Project Director
SCS ENGINEERS

Patrick S. Sullivan, REPA, CPP, BCES
Senior Vice President
SCS Engineers

1.0 INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This document presents the results of a Landfill Operations Air Impact Study (AIS) for the Chiquita Canyon Landfill (Landfill), prepared by SCS Engineers (SCS) in collaboration with Chiquita Canyon, LLC (Chiquita), and in compliance with Condition No. 83 of the Modified Stipulated Order for Abatement (SOFA) (Case No. 6177-4).

This AIS presents the results of a seven-month study of specific landfill operational events and their potential emissions impacts to the surrounding community, as determined from an analysis of air quality data recorded at air monitoring stations MS-01 through MS-12, which are located around the perimeter of the Landfill and in the surrounding community.

1.2 BACKGROUND

1.2.1 Landfill Location and Topography

The Landfill is located at 29201 Henry Mayo Dr., Castaic, California, 91384 (SCAQMD Facility No. 119219), which is located approximately 2 miles west of the City of Santa Clarita in Los Angeles County, California. The Landfill is on undulating hills directly north of Highway 126 at milepost 3; it is also flanked by the Santa Clara River approximately 0.5 miles to the south and an un-named ephemeral drainage approximately 0.3 miles to the west. Elevations range from approximately 1,430 feet above mean sea level (msl) on the north to approximately 985 feet msl on the southern extent of the landfill, with an average elevation of 1,233 feet msl.

1.2.2 Study Duration

Per SOFA Condition No. 83, the duration of this AIS was seven months. The specific study period was from June 1, 2024 through December 31, 2024. During this period, there were a total of 214 days. This is the equivalent of a total of 308,160 minutes. There was also a total of 142 workdays (Monday through Friday, excluding holidays). These statistics will be used throughout the AIS.

1.2.3 Landfill Operational Events

Per SOFA Condition No. 83, the focus of this AIS is to evaluate the potential emission impacts of the following landfill operational events to the surrounding community:

- Leachate exposure to atmosphere via seeps, spills, and/or pressurized discharges;
- Landfill excavation activities; and
- Downtime or decreased operation of landfill gas (LFG) collection or control equipment resulting in a reduction of landfill gas flow rate to an instantaneous value of a landfill-wide total of 11,000 scfm, or a reduction of 10% or more of current operational flows.

This AIS is organized into sections summarizing each of these event types over the study period and providing comparison and analysis of air monitoring data collected during each of these events.

1.2.4 Air Monitoring Stations

The air monitoring data used in this study was collected from a network of 12 monitoring stations (MS), designated MS-01 through MS-12. Five stations, MS-01 through MS-05, are located around the perimeter of the Landfill, with the remaining 7 stations (MS-06 through MS-12) located in the community surrounding the Landfill.

Beginning in 2020, a combined gas analyzer and nephelometer were installed at MS-01 through MS-12, originally associated with the implementation of a Conditional Use Permit (CUP) for the Landfill, under the Community Air Monitoring Program (CAMP).

The CAMP is comprised of a network of 12 continuous air monitoring stations (designated MS-01 through MS-12), installed in 2020, which continuously monitor particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 micrometers of less ($PM_{2.5}$), and hydrogen sulfide (H_2S). In addition, each of these units was equipped with a meteorologic (MET) monitor, capable of continuously monitoring wind speed (WS), wind direction (WD), temperature (TEMP), relative humidity (RH), and barometric pressure (PRESS).

Starting in August 2023, Chiquita initiated the Enhanced Air Monitoring Program (EAMP), which added continuous monitoring of sulfur dioxide (SO_2) and methane (CH_4) to the existing monitoring stations, as well as select VOCs via dedicated micro gas chromatographs (Micro-GCs), first at two stations (MS-10 and MS-12), and later at a total of 10 stations (MS-01, MS-02, MS-03, MS-04, MS-06, MS-07, MS-08, MS-10, MS-11, and MS-12).

A timeline of monitoring components of the CAMP and EAMP is provided in **Table 1**, below.

Table 1. Chiquita Air Monitoring Timeline

Milestone	Program	Monitored Parameters	Completion Date (Mo/Yr)
Installation of On-Site Air Monitoring Stations (MS-01 through MS-05)	CAMP	H_2S $PM_{2.5}$ PM_{10}	May 2021
Installation of Off-Site Air Monitoring Stations (MS-06 through MS-12)	CAMP	H_2S $PM_{2.5}$ PM_{10}	Sep 2022
Addition of Monitoring Parameters to AQMs	EAMP	CH_4	Nov 2023
Addition of Monitoring Parameters to AQMs	EAMP	SO_2	Jun 2024
Installation of Micro-GC at MS-10 and MS-12	EAMP	VOCs	May 2024
Installation of Micro-GC at MS-01, MS-02, MS-03, MS-04, MS-06, MS-07, MS-08, and MS-11	EAMP	VOCs	Oct 2024
Upgrade of Micro-GCs to analyze for Acrolein	EAMP	VOCs	Feb 2025

A summary of the parameters monitored at each of the MS locations is provided in **Table 2**, below.

Table 2. Chiquita Continuous Monitoring Summary

Location/Analyte		MET	CH_4	H_2S	$PM_{2.5}$	PM_{10}	SO_2	VOCs[1]
On-Site	MS-01	X	X	X	X	X	X	X
	MS-02	X	X	X	X	X	X	X
	MS-03	X	X	X	X	X	X	X
	MS-04	X	X	X	X	X	X	X
	MS-05	X	X	X	X	X	X	
Off-Site	MS-06	X	X	X	X	X	X	X
	MS-07	X	X	X	X	X	X	X
	MS-08	X	X	X	X	X	X	X
	MS-09	X	X	X	X	X	X	
	MS-10	X	X	X	X	X	X	X
	MS-11	X	X	X	X	X	X	X
	MS-12	X	X	X	X	X	X	X

[1]VOC analysis is accomplished via micro-GC. List of analytes is included in **Table 3**.

A full list of monitoring constituents associated with Chiquita's air monitoring network is provided in **Table 3**, below.

Table 3. Continuous Monitoring Constituent List

Category	Analyte	CAS No.	Monitoring Unit	Detection Limit (parts per million)
MET	WS	N/A	MetOne – Met Station One	N/A
	WD	N/A		
	TEMP	N/A		
	RH	N/A		
	PRESS	N/A		
Particulate Matter	$PM_{2.5}$	N/A	AQM	$1\mu g/m^3$
	PM_{10}	N/A		
Other Gasses	CH_4	74-82-8		0.04
Sulfur Compounds	H_2S	7783-06-4		0.003
	SO_2	7446-09-5		0.2
	DMS	75-18-3	Micro-GC	0.0001
VOCs	Acetone	67-64-1		0.0001
	Acrolein[1]	107-02-8		0.0001
	Benzene	71-43-2		0.0001
	2-Butanone	78-93-3		0.0008
	Carbon Disulfide	75-15-0		0.0003
	Ethanol	64-17-5		0.0005
	Ethylbenzene	100-41-4		0.0001
	Hexane	110-54-3		0.0008
	Isopropyl Alcohol	67-63-0		0.0001
	Isopropyltoluene	99-87-6		0.0001
	Methanol	67-56-1		5
	Propene	115-07-1		0.0001
	Styrene	100-42-5		0.0001
	Tetrahydrofuran	109-99-9		0.0005
	Toluene	108-88-3		0.0001
	m,p-Xylene	1330-20-7		0.0001

[1]Acrolein was not a monitoring constituent during the study period (June 2024 through December 2024) because Micro-GCs were not upgraded to analyze acrolein until February 2025.

A map, showing the location of the various monitoring stations, is presented in **Figure 1.**

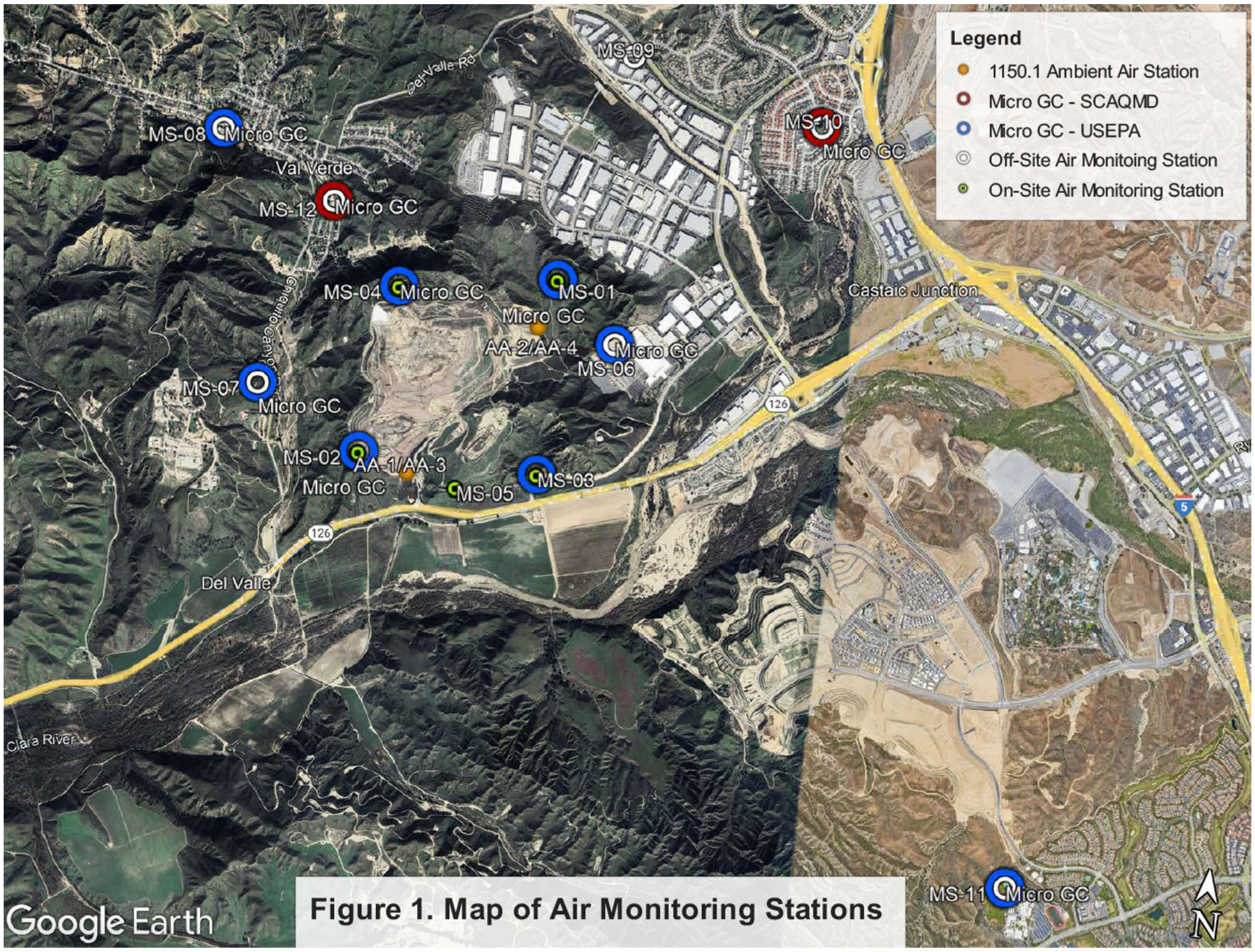


Figure 1. Map of Air Monitoring Stations.

1.2.4.1 Air Monitoring Data

During the study period, there were 19 different non-MET and non-PM analytes monitored continuously. A summary of the analytes, including detections, max/min, etc. are presented in **Table 4**, below.

Table 4. Continuous Monitoring Analyte Summary

Analyte	CAS No.	Total Samples	Total Detections	Frequency of Detection (%)	Maximum Detection (ppb)	OEHHA REL
CH_4	74-82-8	58,255	51,011	87.6%	166,660	N/A
H_2S	7783-06-4	55,050	27,390	49.8%	**106**	30
SO_2	7446-09-5	53,961	3,788	7.0%	20	N/A
DMS	75-18-3	26,202	2,862	10.9%	75	N/A
Acetone	67-64-1	26,203	23,198	88.5%	84	N/A
Benzene	71-43-2	26,203	14,679	56.0%	**26**	8
2-Butanone	78-93-3	26,200	15,241	58.2%	26	4,500
Carbon Disulfide	75-15-0	18,523	3,823	20.6%	51	N/A
Ethanol	64-17-5	26,199	17,613	88.5%	2,060	N/A

Ethylbenzene	100-41-4	26,199	2,667	10.2%	23	N/A
Hexane	110-54-3	18,519	1,909	10.3%	30	N/A
Isopropyl Alcohol	67-63-0	26,203	23,056	88.0%	61	1,300
Isopropyltoluene	99-87-6	14,234	2,646	18.6%	6	N/A
Methanol	67-56-1	25,872	2	0.01%	0.1	21,000
Propene	115-07-1	26,203	18,101	69.1%	50	N/A
Styrene	100-42-5	8,102	1,023	12.6%	1	N/A
Tetrahydrofuran	109-99-9	26,200	14,157	54.0%	68	N/A
Toluene	108-88-3	26,203	9,232	35.2%	25	1,300
m,p-Xylene	1330-20-7	25,878	3,101	12.0%	38	5,000

[1]OEHHA REL – State of California Office of Environmental Health Hazard Assessment, Acute Reference Exposure Level
[2]Bold text indicated exceedance of the OEHHA REL.

Based on review of Table 4, CH_4 is the most frequently detected compound, likely due to its presence in ambient background atmosphere. However, due to its significant composition in LFG (up to 50%), it will be used as an evaluation surrogate compound.

For other analytes monitored, only H_2S and benzene have been detected at concentrations above their respective reference exposure levels (RELs). Thus, these analytes are good indicators of air impacts as well as CH_4. However, it is important to note that benzene can be emitted from many sources, such as mobile sources, and is also present in background levels of air quality in the South Coast Air Basin, as documented by the SCAQMD Multiple Air Toxics Exposure Study V (MATES V).[1]

Air monitoring data utilized in this study originated from the public website/data repository. All air monitoring data used in this report is available at the following link.

1.2.5 Meteorological Setting

In the Santa Clarita area, average annual rainfall is approximately 13 inches. Temperatures range from approximately 70-100 degrees during the summer and 40-65 degrees during the winter, with an average temperature of 61 degrees.

Specific to the study period, with a total of 13 MET station readings available, SCS chose to use the Site MET station, located at the main flare station (flare), on-site, because it represents a centroid for the study, which had been established during previous MET studies to most consistently represent the regional wind conditions that drive pollutants into the community. Referencing the Site MET station, during the study period, rainfall ranged from 0 to 0.01 inches, and temperatures ranged from 37.5-110.2 degrees, with an average temperature of 68.6. Wind Speed had an average of 4.7 miles per hour (mph), with a low of 0 mph, and a high of 30 mph. Barometric pressure during the study ranged from 28.24 inches to 28.94 inches, with an average of 28.50 inches.

MET data utilized in this study originated from the Landfill MET station. A copy of the data from the study period is available at the following link.

2.0 LANDFILL OPERATIONS IMPACT ANALYSIS

Within this section, for each landfill operation event type, SCS will provide a summary of the number of events, as well as an evaluation of any air impacts associated with the events. The analysis of the event will include overall impacts to average air quality data from all monitoring stations, as well as a

[1] Refer to the SCAQMD Multiple Air Toxics Exposure Study (MATES) for additional information.

review of impacts to individual stations from certain events where specific stations are the most representative of downwind impact areas.

2.1 LEACHATE EXPOSURE EVENTS

For this study, a leachate exposure event is defined consistent with Condition No. 83 as an instance where leachate from the Landfill was exposed to the atmosphere via a leachate spill, a seep from the toe of a slope/side slope, or a pressurized discharge from a wellhead, the surface, or another conduit. During the study period, there were no pressurized releases. Spills and seeps are discussed in the sections below.

In addition, although there are numerous analytes that are monitored by the Chiquita air monitoring stations, benzene was selected as the most representative constituent for identification of leachate releases due to its presence in raw landfill leachate.

2.1.1 Leachate Spills

During the study period, records of leachate spills were available from September through December 2024. Based on available data, there were a total of 29 leachate spill events recorded. Details on each spill event (date, approximate time, location, and estimated quantity) are presented in Table 5, below.

Table 5. Leachate Spill Event Summary

Date	Time	Location	Est. Quantity (gal)
9/4/2024	23:00	Grid 150	900
9/5/2024	15:30	West Top Deck	200
9/7/2024	10:15	Grid 93	125
9/8/2024	17:00	South of Cell 8B	30
9/20/2024	16:45	Tank Farm 9	20
9/30/2024	15:35	West Side Slope	25
September Estimated Total			**1,300**
10/9/2024	10:50	Grid 156	40
10/14/2024	9:54	Grid 173	5
10/17/2024	7:20	Exit Scale	15
	13:00	Tank Farm 7	50
10/18/2024	8:17	Tank Farm 7	6,000
10/21/2024	8:45	Grid 173	100
10/22/2024	11:30	Tank Farm 7	200
10/23/2024	7:00	Exit Scale	2
10/24/2024	12:00	Grid 81	20
	2:00	Grid 247	2
10/25/2024	4:30	Grid 247	1
10/30/2024	15:00	Grid 220	50
10/31/2024	11:45	Grid 246	150
October Estimated Total			**6,635**

11/2/2024	12:40	Grid 150	20
11/6/2024	3:30	Tank Farm 7	20
11/11/2024	3:00	Exit Scale	20
11/26/2024	3:10	Exit Scale	0.5
	7:45	Tank Farm 7	5
November Estimated Total			**65.5**
12/10/2024	19:30	Grid 215	50
12/19/2024	15:00	Grid 81	10
12/23/202	7:35	Grid 183	200
12/26/202	8:06	Grid 157	200
12/28/2024	1:30	Grid 246	10
December Estimated Total			**470**

Leachate spill data utilized in this study originated from the public website/data repository. All air monitoring data used in this report is available at the following link.

To assess potential air impacts from leachate spill events to the surrounding community, SCS performed a comparative emissions analysis of benzene levels measured around the perimeter of the Landfill and compared this data to the leachate spill events. However, since the on-site Micro-GCs were not online until October 2024, comparative benzene analysis could only be done from October through December 2024. Since October 2024 was the month with the highest spill count and volume (6,635 gallons total, primarily because of an approximately 6,000-gallon spill of non-hazardous leachate into secondary containment), SCS selected this month for a more detailed analysis of potential air impacts from leachate spills. The results of the comparative analysis for October 2024 are provided in **Figure 2**, below. Note that due to the nature of spill events, **Figure 2** shows the intensity (i.e. quantity in gallons) of the spill versus a total duration.

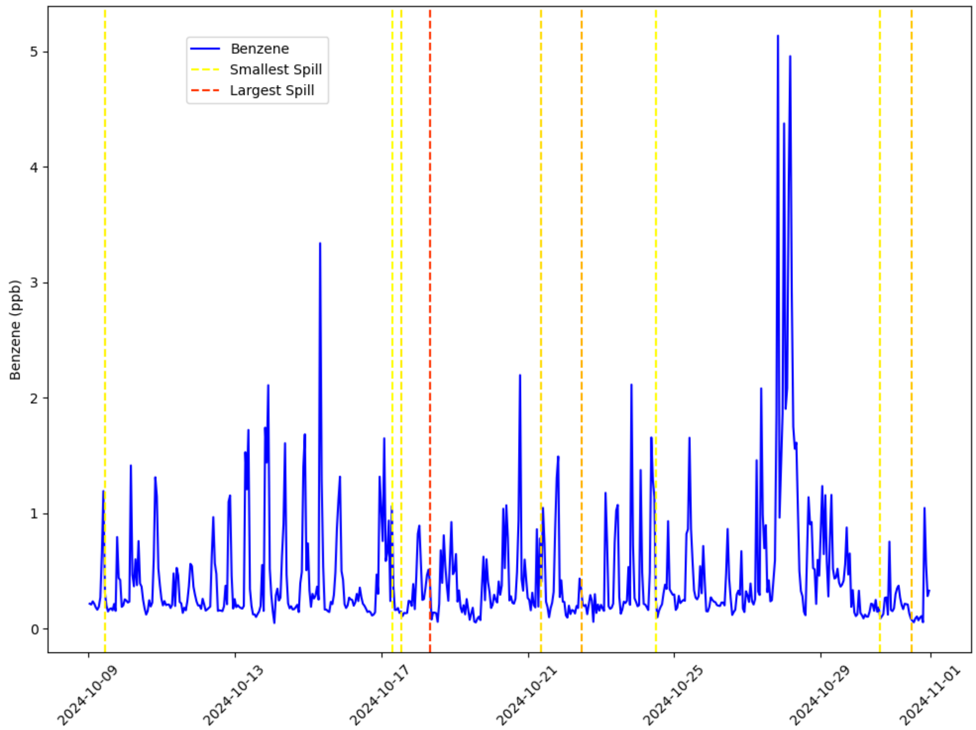


Figure 2. On-Site Benzene and Leachate Spill Events, October 2024.

As shown on **Figure 2**, although benzene was identified during October, there does not appear to be any correlation between the leachate spills and elevated benzene levels detected in the on-site monitoring stations.

2.1.2 Leachate Seeps

During the study period, there were a total of 36 leachate exposure events recorded that were the result of leachate seeps. Details on each seep event (date/time, location, estimated duration, estimated range of quantity, and odor index on a scale of 1 to 5) are presented in **Table 6**, below.

Table 6. Leachate Seep Event Summary

Date	Time	Grid Location	Est. Duration (hr)	Est. Quantity Range (gal)	Odor[1] (1-5)
06/10/2024	8:09	201	12	1-5	3
06/11/2024	13:14	201	17	21-50	4
06/16/2024	13:11	150	11	11-20	3
06/17/2024	15:28	150	48	21-50	3
06/18/2024	8:00	150	60	21-50	3
06/19/2024	8:05	150	6	6-10	2
07/05/2024	10:33	210	1	6-10	2
07/06/2024	9:23	206	4	81-100	3
07/12/2024	7:46	150	4	101-150	3
07/13/2024	6:38	150	1	<1	2
07/16/2024	7:53	210	8	21-50	3

	14:53	210	16	21-50	3
07/17/2024	8:12	210	36	11-20	3
07/25/2024	9:50	150	2	6-10	3
	16:31	150	10	6-10	3
08/16/2024	7:36	145	2	11-20	2
08/20/2024	6:50	145	8	11-20	3
08/22/2024	8:01	145	4	11-20	3
09/01/2024	7:30	145	5	6-10	3
09/08/2024	7:27	150	8	51-80	3
09/09/2024	7:24	150	8	21-50	2
09/12/2024	7:47	150	4	11-20	3
09/20/2024	14:46	210	2	6-10	2
09/24/2024	7:28	145	6	11-20	2
09/26/2024	7:30	145	3	6-10	2
09/27/2024	7:52	145	2	1-5	1
09/28/2024	7:46	145	4	6-10	2
10/01/2024	14:26	145	2	6-10	2
10/17/2024	7:31	150	5	21-50	3
10/21/2024	22:30	93	10	81-100	3
10/30/2024	7:45	210	6	11-20	2
12/02/2024	8:08	50	8	21-50	3
12/22/2024	7:23	78	4	81-100	4
12/24/2024	9:23	78	3	11-20	1
12/28/2024	8:00	78	6	21-50	2

[1]Odor Scale:

1 – Very Light Odor
2 – Light Odor
3 – Moderate Odor
4 – Strong Odor
5 – Very Strong Odor

Leachate seep data utilized in this study originated from the public website/data repository. All air monitoring data used in this report is available at the following link.

To assess potential air impacts from leachate seep events to the surrounding community, SCS performed a comparative emissions analysis of benzene levels measured around the perimeter of the Landfill and compared this data to the recorded leachate seep events. As discussed above, benzene was selected as a surrogate compound due to its presence in leachate, although it is present in Southern California ambient air as well. The perimeter stations were chosen for analysis since it is anticipated that any indication of off-site movement of benzene from leachate would be identified in the perimeter stations before it was identified in the community. Since the on-site Micro-GCs were not online until October 2024, comparative benzene analysis could only be done during the October and December timeframes (note there were no seep events in November). The results of the comparative analysis for October and December 2024 are provided in **Figures 3 and 4**, below, respectively.

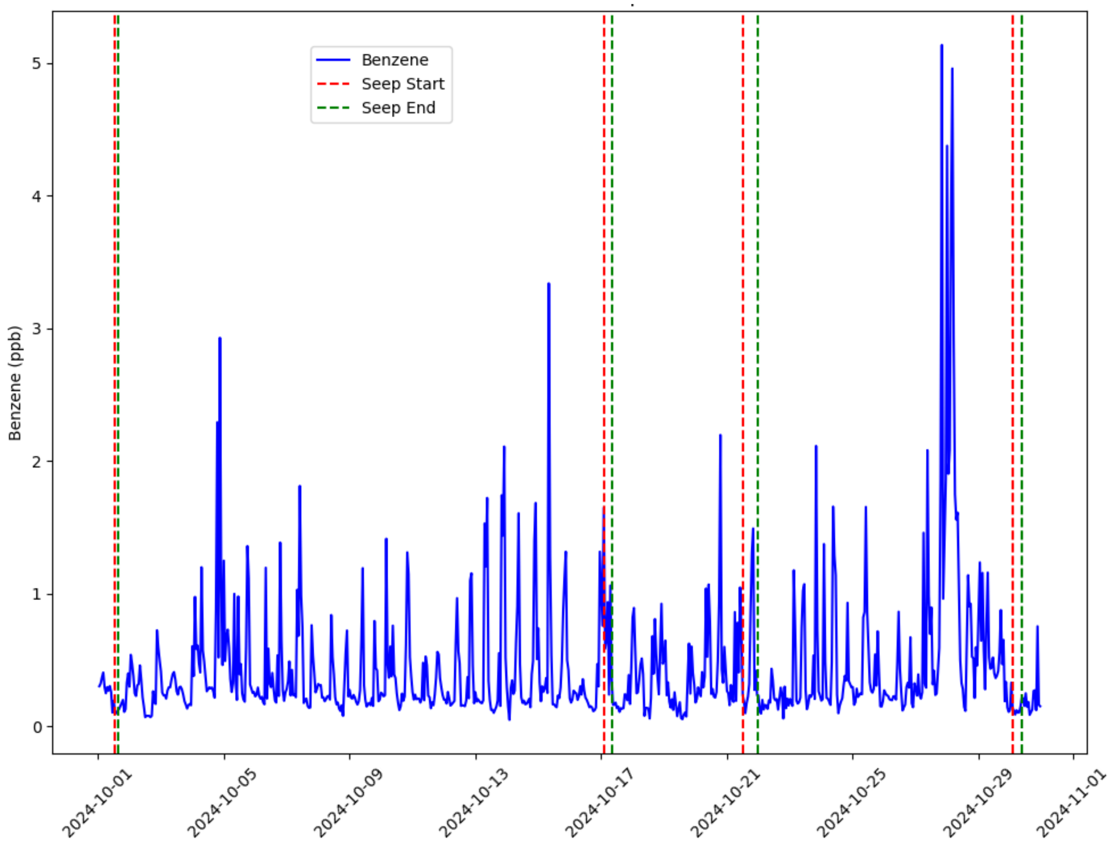


Figure 3. On-Site Benzene and Leachate Seep Events, October 2024.

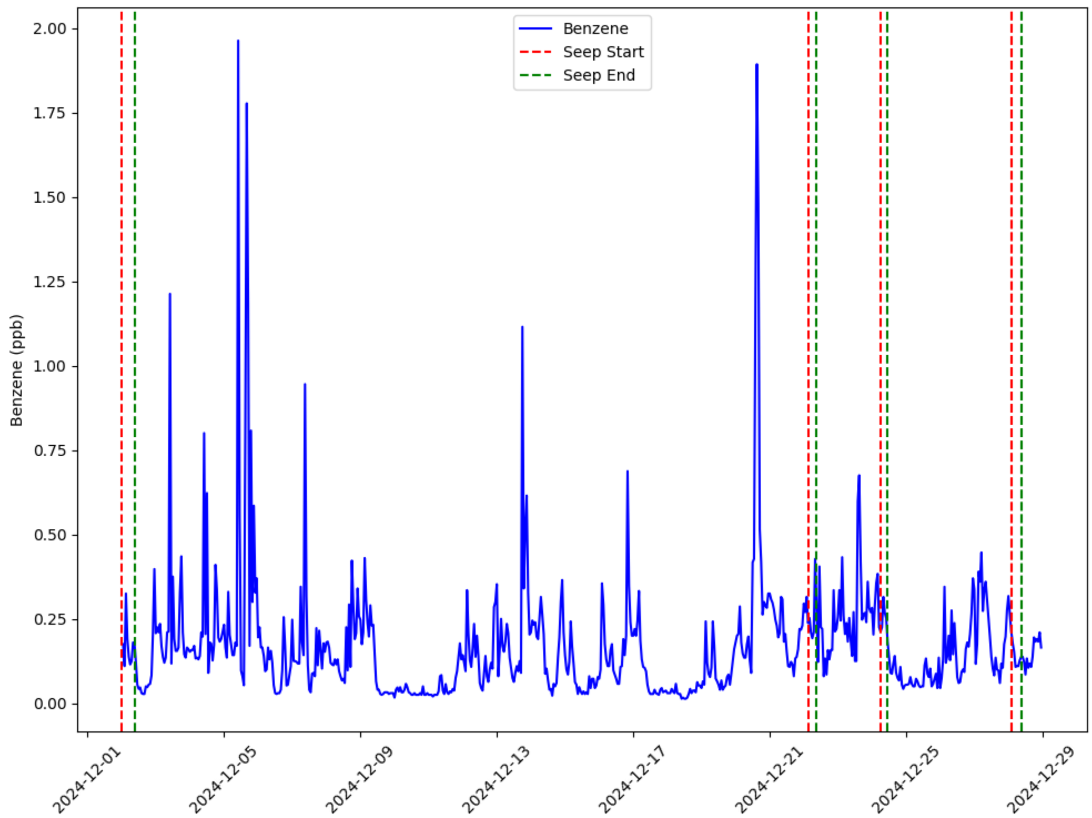


Figure 4. On-Site Benzene and Leachate Seep Events, December 2024.

As shown on **Figures 3 and 4**, although benzene was identified in ambient air during October and December 2024, there does not appear to be a direct correlation between the seeps and elevated benzene levels detected in the on-site monitoring stations, since there are benzene peaks during non-seep times. Nevertheless, SCS selected the two highest volume leachate seep events from a period where the Micro GCs were online for further analysis. These are the October 21, 2024 seep event and the December 22, 2024 event. Detailed analysis of both of these events is presented below.

2.1.2.1 October 21, 2024 Seep

The October 21, 2024 seep was discovered at 10:30 pm in Grid 93, just to the north of the main flare station. The seep was present for an estimated duration of 10 hours, with an estimated volume of 81 to 100 gallons, impacting an area of approximately 50 square feet (sq. ft.). The odor intensity of this seep was characterized as a moderate odor (Odor Rank 3). At the time of the seep, the Landfill MET station was offline. Wind speed and direction data from MS-06, located off-site and to the east/northeast of the seep location, indicated an average hourly wind direction from the west/southwest during the duration of the seep. Hourly wind speed was approximately 1.6 to 2.1 mph during the event.

During the estimated duration of the seep, benzene levels ranged from 0.12 to 0.44 parts per billion (ppb), on a generally decreasing trend at MS-06. CH_4 ranged from 1.5 to 3.6 parts per million (ppm), on a decreasing trend as well. H_2S ranged from <2 to 3 ppb. CH_4 and benzene concentrations are provided in **Figure 5** below.

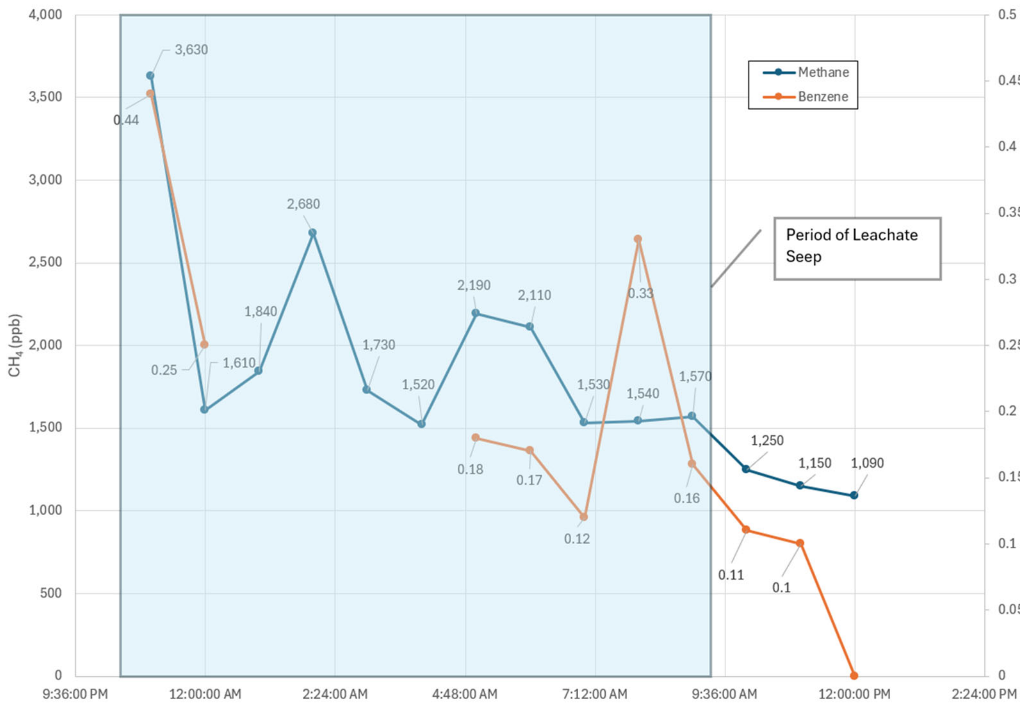


Figure 5. MS-06 CH_4 and Benzene Levels, 10/21/24-10/22/24

As shown in **Figure 5**, benzene levels detected at MS-06 generally decreased between 10:30 pm October 21, 2024 and 8:30 am October 22, 2024. This indicates that the October 21, 2024 leachate seep did not contribute to an air impact in the community.

2.1.2.2 December 22, 2024 Seep

The December 22, 2024 seep was discovered at 7:23 am in Grid 78, located along the northeastern boundary of the landfill refuse footprint. The seep lasted for an estimated duration of 4 hours, with an estimated volume of 81 to 100 gallons of leachate, impacting an area of approximately 300 sq. ft. The odor intensity of this seep was characterized as a strong odor (Odor Rank 4). At the time of the seep, wind was generally from the east/northeast, with wind speeds ranging from 0 to 7 mph. The closest downwind Micro GC to this event was MS-04, located due west of the seep event location.

During the estimated duration of the seep, at MS-04, benzene levels ranged from <0.10 to 1.26 ppb, on a generally decreasing trend. CH_4 ranged from 1.5 to 3.6 part per million (ppm), on a decreasing trend as well. H_2S ranged from <2 to 3 ppb. CH_4 and benzene concentrations are provided in **Figure 6** below.

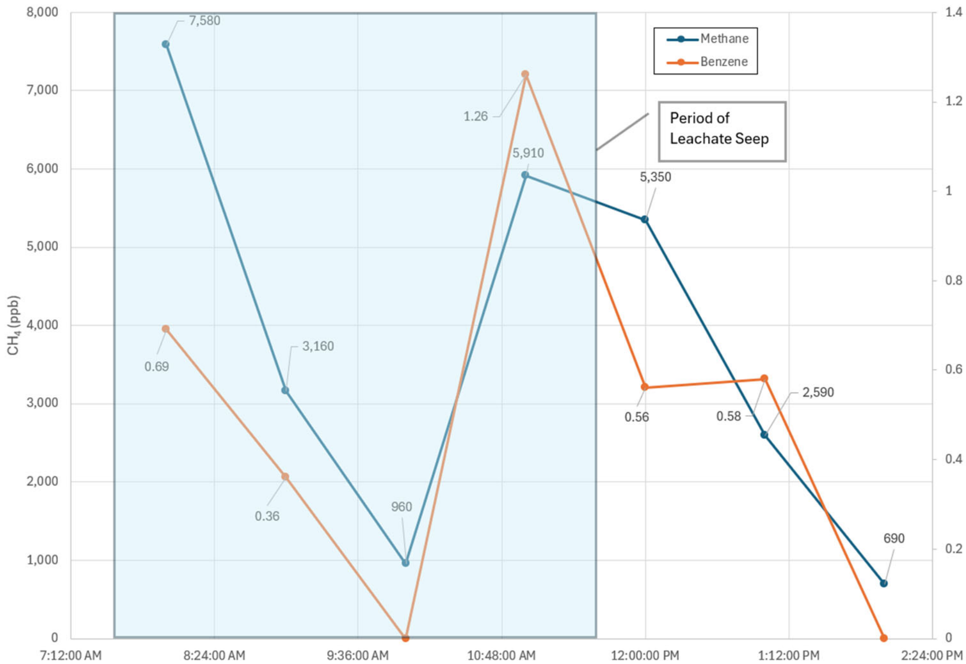


Figure 6. MS-04 CH_4 and Benzene Levels, 12/22/24

As shown in **Figure 6**, benzene levels detected at MS-04 generally decreased between 8:00 am and 10:00 am. There was an increase in benzene and CH_4 levels at 11:00 am, toward the end of the leachate seep event, but this rise in concentration fell during the hours subsequent to the duration of the seep, thus suggesting that the December 22, 2024 leachate seep did not contribute to an air impact in the community.

SCS cross-referenced this timeline with GCCS operational records and identified that the GCCS was operational during the entire seep event timeline. Excavation records were also cross-referenced and there is no record of excavation activities occurring on December 22, 2024.

2.2 LANDFILL EXCAVATION EVENTS

For the purpose of this study, a landfill excavation event is defined as any time that the landfill cover was partially excavated, regardless of whether waste was encountered. This definition is different from, and broader than, excavation as defined by the SCAQMD. Based on available information, during the study period, the window of excavation activities at the Landfill ranged from August 24, 2024 through October 25, 2024. During this period, there were a total of 40 days of planned excavation, but only 25 days where excavation events, as defined herein, took place, which represents 11.7% of the study period. Further, excavation events only occurred during the typical work week (Monday through Friday). No excavation events were performed during weekends. A table providing the dates of excavation events during the study period is provided in **Table 7**, below.

Table 7. Landfill Excavation Event Summary

August Excavation Dates	September Excavation Dates	October Excavation Dates
8/26/2024	9/2/2024	10/1/2024
8/27/2024	9/3/2024	10/2/2024
8/28/2024	9/4/2024	10/17/2024
8/29/2024	9/5/2024	10/18/2024
8/30/2024	9/6/2024	10/21/2024
	9/9/2024	10/22/2024
	9/10/2024	10/23/2024
	9/11/2024	10/24/2024
	9/12/2024	
	9/16/2024	
	9/17/2024	

Landfill excavation data utilized in this study originated from the public website/data repository. All air monitoring data used in this report is available at the following link.

To assess potential air impacts from excavation events, as defined herein, to the surrounding community, SCS performed a comparative emissions analysis of excavation workday CH_4 impacts and weekend CH_4 impacts, as measured at the on-site stations (MS-01 through MS-05). These stations were selected as their proximity to the Landfill would provide the most conservative impact tracking for this operational activity. CH_4 was used as a surrogate/tracer compound, as it is the largest constituent component of LFG and all monitoring stations have the ability to monitor for CH_4. With regard to the sample selection, since no excavation events were conducted during weekends during the study period, SCS performed a comparative analysis of workday (9am to 5pm) average CH_4 levels to weekend average CH_4 levels during the same time period. The results of the comparative analysis are provided in **Figure 7**, below.

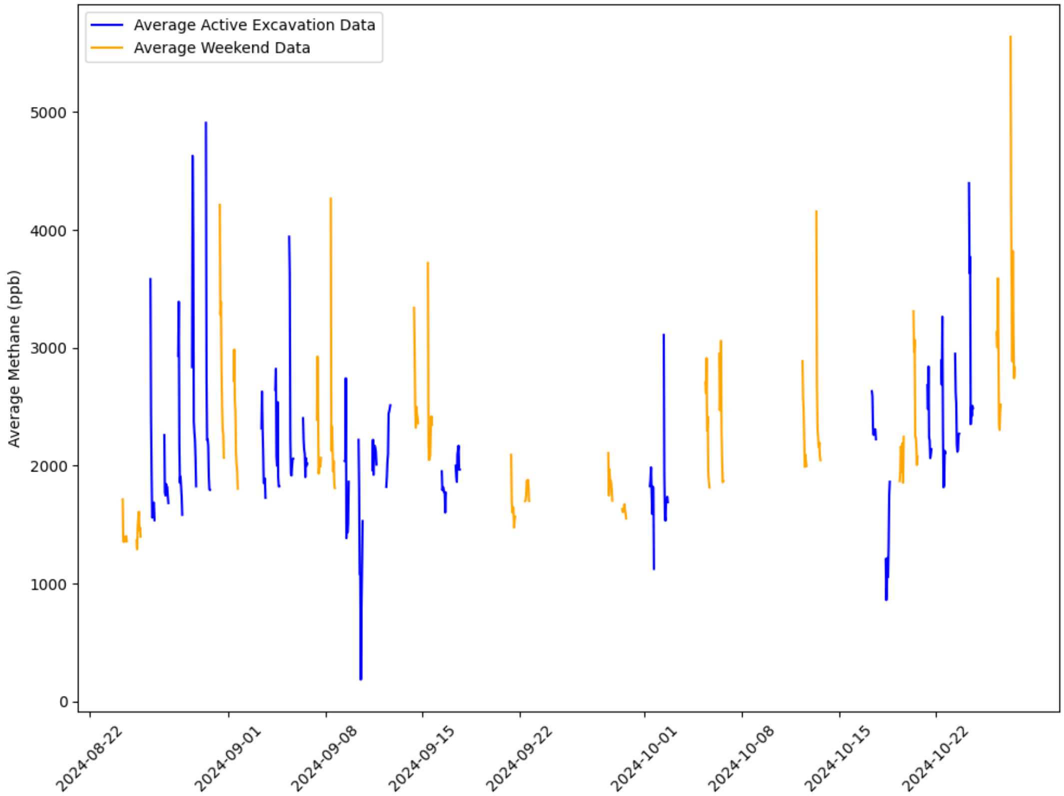


Figure 7. Average On-Site CH4 Over Time (9am-5pm).

As shown in **Figure 7**, based on the comparative analysis, the average methane during excavation periods does not significantly vary from the average methane from weekends, when there were no excavation activities happening. In fact, in some instances, weekend methane data (this is the period where no excavation activities occurred) are higher than the weekday methane data (refer to the latter part of **Figure 7**).

However, to further determine if excavation events resulted in a measurable difference in methane concentrations, we compared days when excavation was performed to weekends when excavation was not performed. In pursuit of this comparison, SCS performed a statistical T-test. A T-test is used to compare the means of two groups and determine whether any observed differences are statistically significant. The T-test compares the sample size, mean, and variance to help assess whether the difference between groups is due to random variation or a meaningful underlying effect.

Using the standard 5% significance level SCS has determined that there is no statistical evidence that methane concentrations are different between days with excavation and weekend days without excavation, suggesting landfill excavation did not result in detectable impacts at air quality monitoring stations.

2.3 LANDFILL GAS EQUIPMENT EVENTS

For the purpose of this study, a landfill gas equipment event is defined as any time there was a downtime or decreased operation of LFG collection or control equipment that resulted in a reduction of the LFG flow rate to an instantaneous value of a landfill-wide total of below 11,000 standard cubic feet per minute (scfm), when LFG flows are above 11,000 scfm, or when there was a reduction of 10% or more in LFG flows, when LFG flows are above 11,000 scfm. The 10% reduction in flow rate was determined based on total LFG flow rate data trends; comparing the current total hourly LFG flow rate to the prior week's average LFG flow rate and the prior day's average LFG flow rate, consistent with Condition No. 83. A 10% reduction in comparison to the weekly or daily average value was considered and analyzed as an operational event, also consistent with Condition No. 83.

LFG flow data utilized in this study originated from the Landfill GCCS. A copy of the data from the study period is available at the following link.

To assess the potential air impacts from LFG equipment events to the surrounding community, SCS collected LFG flow data from the LFG collection and control system (GCCS) during the study period. This data was compared to both the 11,000 scfm threshold and subjected to the 10% reduction evaluation, for times when the flow rate was above 11,000 scfm. A discussion of each of these evaluations is provided below.

2.3.1 Instantaneous Flow Threshold

The GCCS at the Landfill records flow data in two-minute intervals. Therefore, for the purposes of this study, a two-minute reading drop below 11,000 scfm was considered an exceedance of the 11,000 scfm threshold, even though there may not have been an actual exceedance. The results of this evaluation are provided in Figure 8, below.

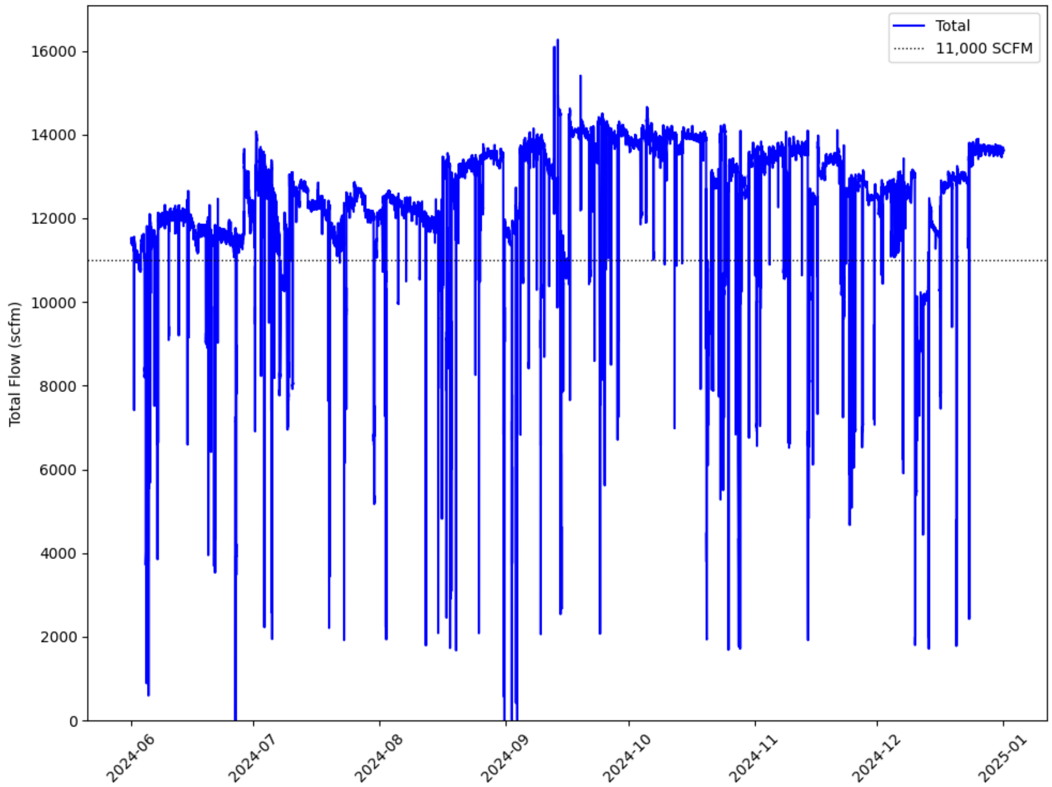


Figure 8. Instantaneous Threshold Exceedance.

In total, out of the 154,080 two-minute intervals (308,160 minutes total) that occurred during the study period, the 11,000 scfm threshold, as defined herein, was exceeded 16.006 times. This represents approximately 10.4% of the study period

In order to evaluate the significance of the flare flow dropping below the 11,000 scfm threshold, SCS organized the data into events starting when the flare flow dropped below the threshold and ending when the flare flow returned above the threshold. To evaluate the potential severity of each event, SCS calculated the area of the graph under the 11,000 threshold for the five most significant events during the study period. The highest severity events being the ones that are farthest below the threshold for the longest duration. The five highest severity events according to these calculations are summarized in **Table 8**, below.

Table 8. Five Most Significant Flow Reduction Events

Event Ranking	Start	End	Duration below 11,000 scfm (hours)
1	12-10-2024 07:26	12-13-2024 17:18	83
2	06-04-2024 06:32	06-05-2024 11:16	29
3	10-20-2024 03:26	10-21-2024 08:54	30
4	10-27-2024 20:58	10-28-2024 12:14	15
5	11-25-2024 05:00	11-25-2024 17:00	12

To better understand the potential air impacts of GCCS flow rate on the surrounding community, SCS analyzed the data from the five most significant GCCS operational events, as provided in **Table 8.** Each of these events are discussed in detail below.

2.3.1.1 Flow Reduction Event 1

Flow Reduction Event (FRE) #1 occurred from 07:26 on December 10, 2024 through 17:18 on December 13, 2024. During this period, flow started decreasing, from approximately 13,000 scfm to a low of approximately 2,000 scfm, due to a failure of three of the four control devices that comprise the GCCS. Flows were not back above 11,000 scfm until December 13, 2024 at approximately 17:18. During this event, there was a slightly less than 2-hour period where total GCCS flows were below 2,000 scfm.

During FRE #1, winds were generally from the east and east/northeast, with afternoon winds from the west and northwest. Based on this information, MS-02 and MS-07 were selected as the downwind monitoring stations for comparison.

During the 83-hour event duration, at MS-02, benzene levels ranged from <0.10 to 1.09 ppb, CH_4 ranged from <2 to 47.9 ppm, and H_2S ranged from <2 to 26 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 9** below.

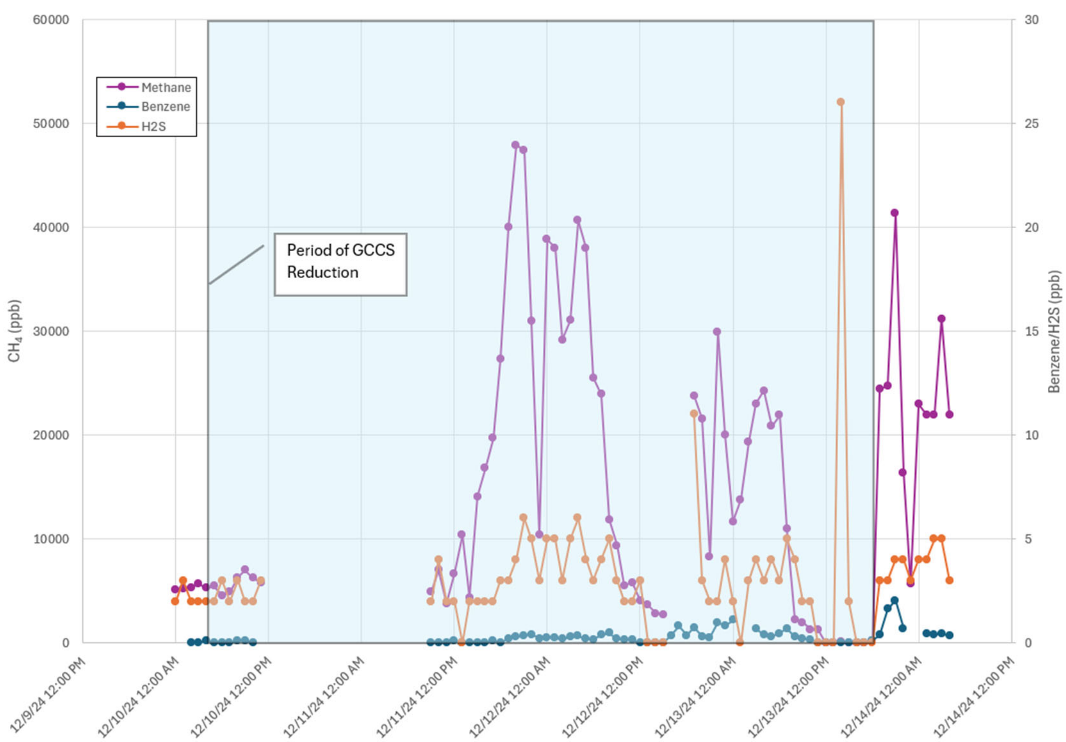


Figure 9. FRE #1 CH_4, H_2S, and Benzene Levels at MS-02.

As shown in **Figure 9**, CH_4, H_2S, and benzene levels increase and decrease in correlation during the FRE #1 event at MS-02. This illustrates a correlation between CH_4, H_2S, and benzene levels during FRE # 1. It should be noted, however, that this correlation is only meant to include FRE #1. There are other instances where no correlation between CH_4 and H_2S is evident.

During FRE #1, at MS-07, benzene levels ranged from <0.10 to 0.94 ppb, CH_4 ranged from <2 to 7.7 ppm, and H_2S ranged from <2 to 3 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 10** below.

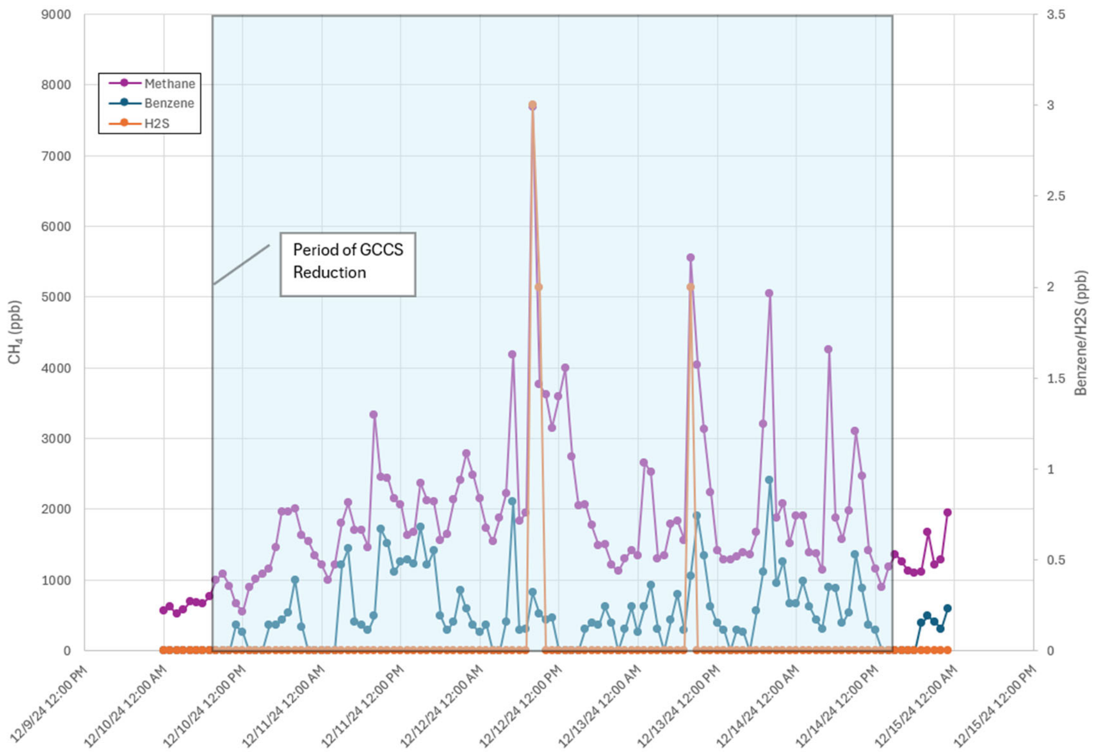


Figure 10. FRE #1 CH_4, H_2S, and Benzene Levels at MS-07.

As shown in **Figure 10**, there appears to be an increase in CH4 and benzene at MS-07 during FRE #1 that decreases at the end of the event. With regard to H_2S, there were only two detections during the event. This data indicates that the analyte levels were potentially impacted by the event.

2.3.1.2 Flow Reduction Event #2

FRE #2 occurred from 06:32 on June 4, 2024 through 11:16 on June 5, 2024. During this period, flow started decreasing, from approximately 11,000 scfm to a low of approximately 600 scfm, due to a failure of one of the four control devices that comprise the GCCS. Flows were not back above 11,000 scfm until June 5, 2024 at approximately 11:16. During this event, there was a combined total of six minutes where total GCCS flows were below 2,000 scfm.

During FRE #2, winds were generally from the south/southwest and north/northwest, with afternoon winds from the west and northwest. Based on this information, MS-06 was selected as the downwind monitoring station for comparison.

FRE #2 pre-dates the installation of the Micro GC at MS-06, which came online in October 2024. During FRE #2, the AQM units at MS-06 were equipped with H_2S and CH_4 monitoring modules. During the 29-hour event duration, at MS-06, CH4 ranged from <2 to 30 ppm and H_2S ranged from <2 to 7 ppb. CH_4 and H_2S concentrations are provided in **Figure 11** below.

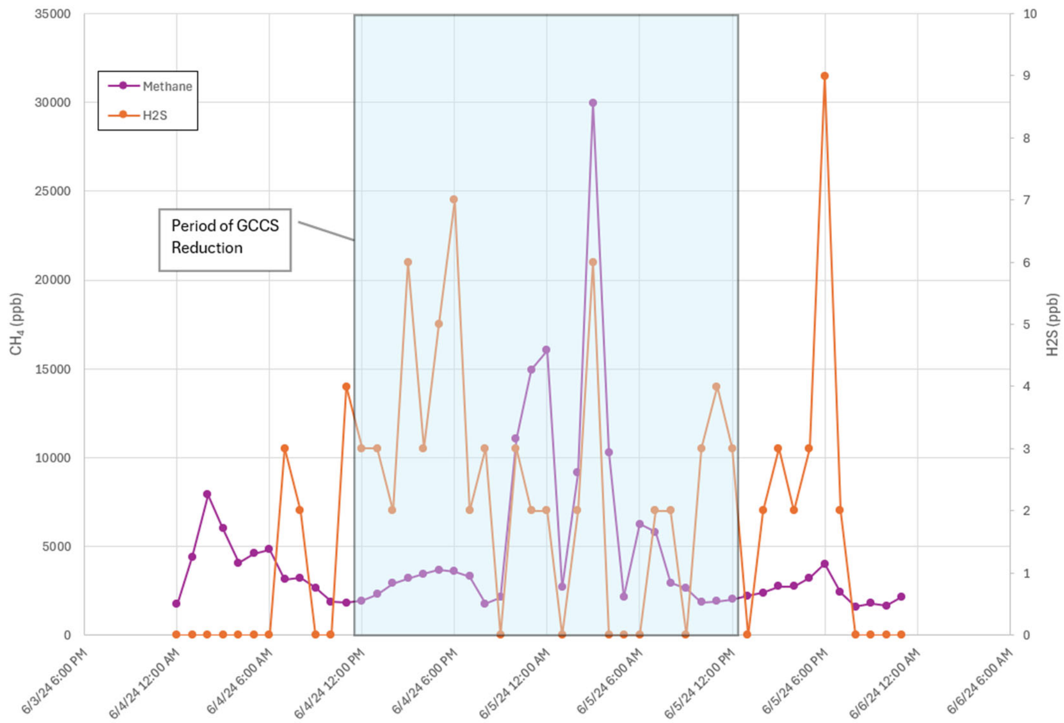


Figure 11. FRE #2 CH_4 and H_2S Levels at MS-06.

As shown in **Figure 11**, although H_2S levels tended to fluctuate during the duration of FRE #2, at the middle of the event, the spike in H_2S matched the spike in CH_4. This is indicative of a correlation between H_2S and CH_4 levels, but not necessarily that the emissions originated from FRE #2. In addition, note that on the ends of the data graph, both the CH_4 and H_2S were at "nominal" levels, meaning ambient levels of CH_4 that are present throughout Southern California. This is indicative of a return to steady-state conditions. Therefore, it appears that MS-06 may have been observing the impact of FRE #2.

2.3.1.3 Flow Reduction Event #3

FRE #3 occurred from 05:26 on October 20, 2024 through 09:28 on October 21, 2024. During this period, flow started decreasing, from approximately 11,000 scfm to a low of approximately 1,900 scfm, due to intermittent failure of two of the four control devices that comprise the GCCS. Flows were not back above 11,000 scfm until October 21, 2024 at approximately 08:54. During this event, there was a total of 72 minutes where total GCCS flows was below 2,000 scfm.

During FRE #3, winds were generally from the east/northeast overnight and in the morning, with afternoon winds from the southwest and northwest. Based on this information, MS-02 was selected as the downwind monitoring station for comparison during the night and morning. MS-06 was selected for the daytime comparison. However, both stations were used for the entire FRE #3 period.

During FRE #3, at MS-02, benzene levels ranged from <0.10 to 0.96 ppb, CH_4 ranged from <0.4 to 52.8 ppm, and H_2S ranged from <2 to 6 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 12** below.

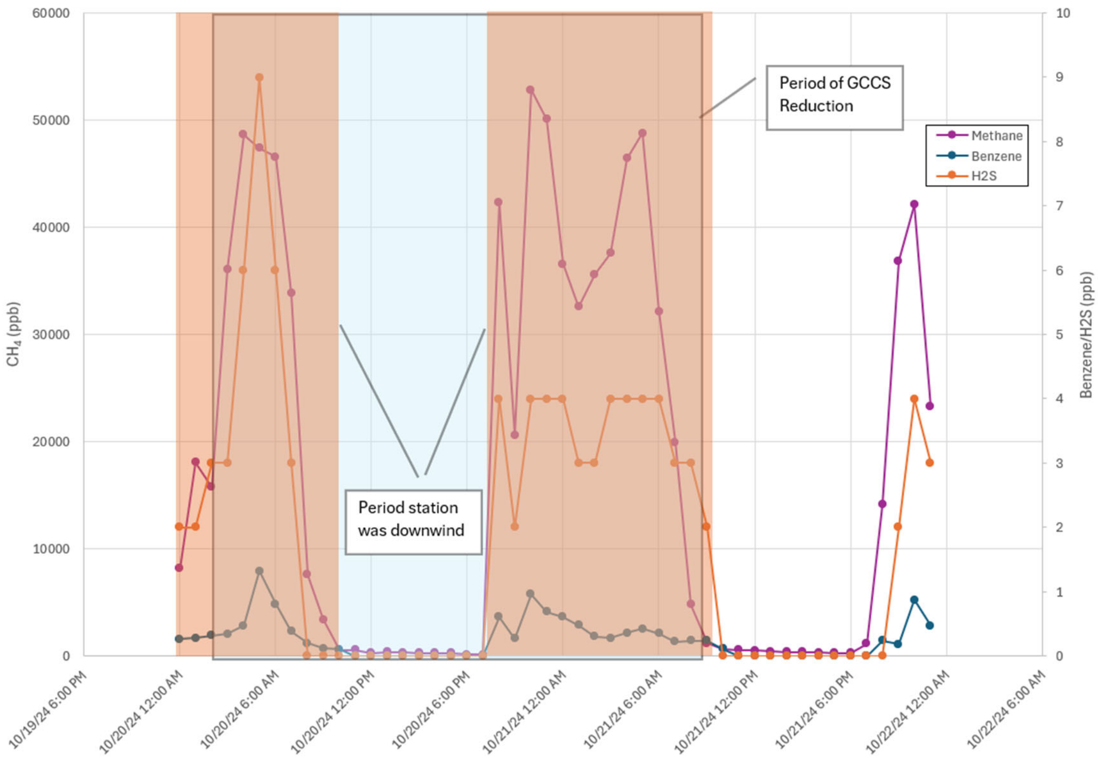


Figure 12. FRE #3 CH_4, Benzene, and H_2S Levels at MS-02.

As shown on **Figure 12**, during the period where MS-02 was downwind form FRE #3, there appear to be an increase in CH_4, benzene, and H_2S. This indicates a potential correlation between FRE #3 and air impacts.

During FRE #3, at MS-06, benzene levels ranged from <0.10 to 1.98 ppb, CH_4 ranged from 1 to 22 ppm, and H_2S ranged from <2 to 3 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 13** below.

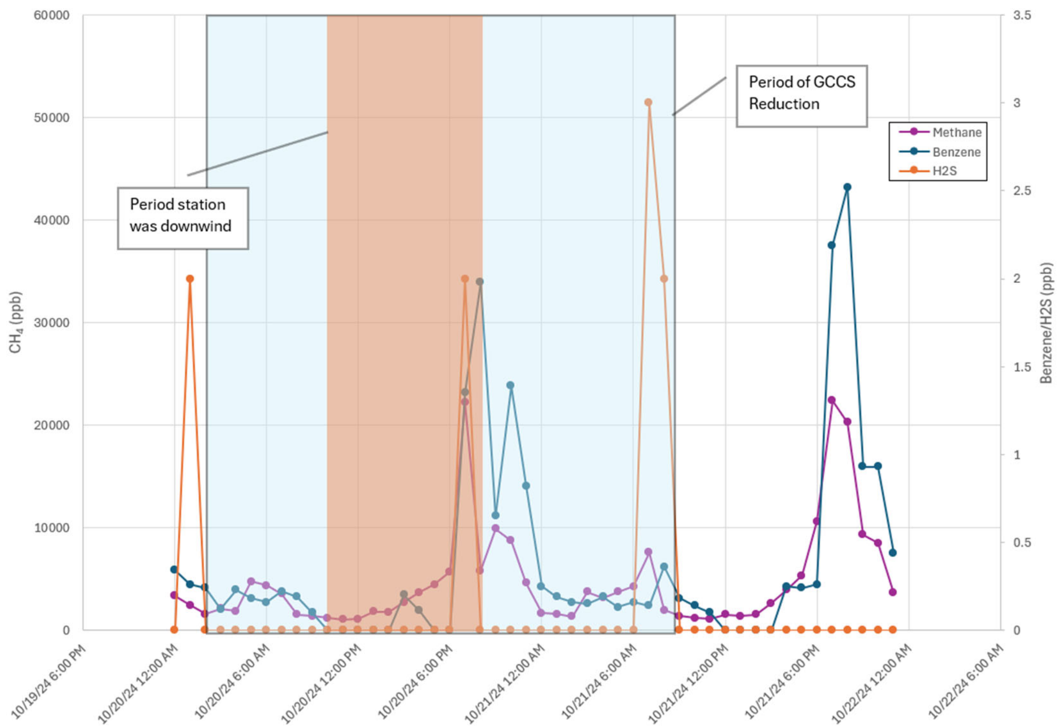


Figure 13. FRE #3 CH_4, Benzene, and H_2S Levels at MS-06.

As shown in **Figure 13**, CH_4, H_2S, and benzene concentrations all started to increase once the wind direction shifted from blowing toward MS-02 (**Figure 12**) to blowing toward MS-06. This further indicates the potential correlation between this flow reduction event and air impacts.

2.3.1.4 Flow Reduction Event #4

FRE #4 occurred from 20:58 on October 27, 2024 through 12:14 on October 28, 2024. During this period, flow started decreasing, from approximately 12,000 scfm to a low of approximately 1,700 scfm, due to intermittent failure of two of the four control devices that comprise the GCCS. Flows were not back above 11,000 scfm until October 28, 2024 at approximately 12:14. During this event, there was a total of 120 minutes where total GCCS flows was below 2,000 scfm.

During FRE #4, winds were generally from the east/northeast overnight and in the morning, with some western variability overnight. Based on this information, MS-02 was selected as the downwind monitoring station for comparison.

During FRE #4, at MS-02, benzene levels ranged from <0.10 to 8.46 ppb, CH_4 ranged from 0.6 to 49 ppm, and H_2S ranged from <2 to 6 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 14** below.

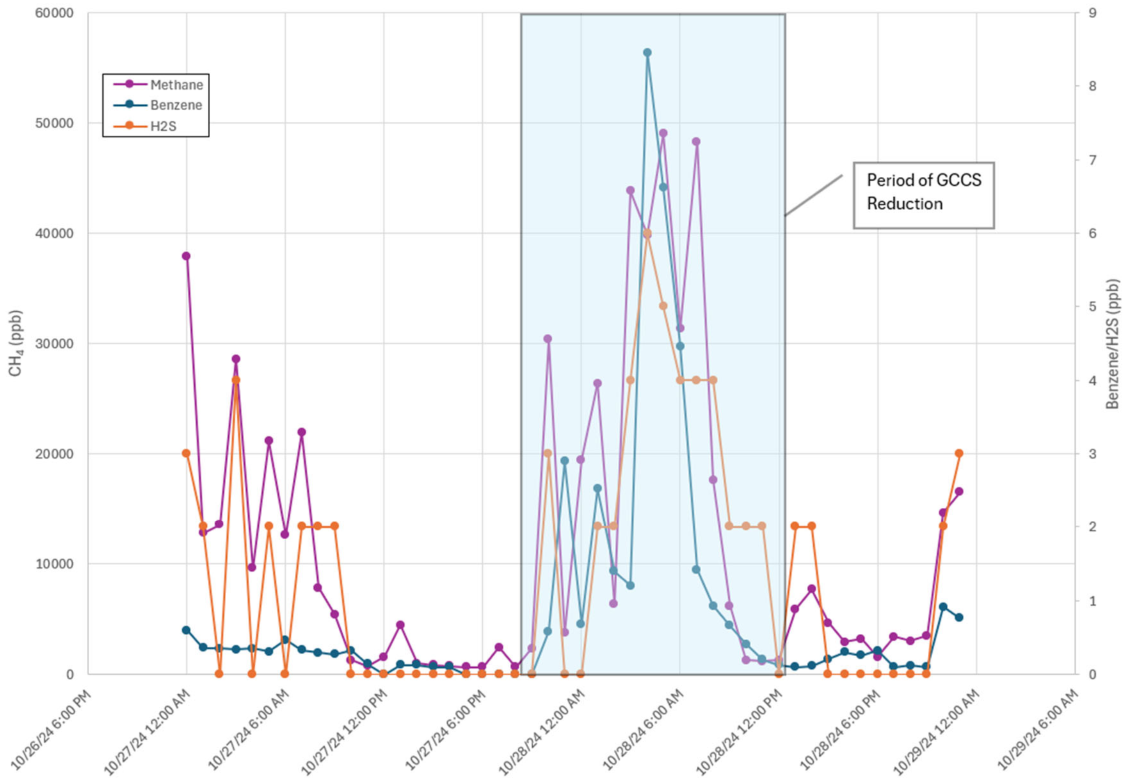


Figure 14. FRE #4 CH_4, Benzene, and H_2S Levels at MS-02.

As shown in **Figure 14**, increased CH_4, H_2S, and benzene levels at MS-02, downwind of the Landfill, appear to directly correlate with the reduced flow event FRE #4.

2.3.1.5 Flow Reduction Event #5

FRE #5 occurred from 05:20 on November 25, 2024 through 17:46 on November 25, 2024. During this period, flow started decreasing, from approximately 13,000 scfm to a low of approximately 6,000 scfm, due to intermittent failure of two of the four control devices that comprise the GCCS. Flows were not back above 11,000 scfm until November 25, 2024 at approximately 17:46.

During FRE #5, winds were generally from the east/northeast in the morning and from the west and northwest in the afternoon. Based on this information, MS-02 was selected as the downwind monitoring station for comparison during the morning. MS-06 was selected for the afternoon comparison. However, both stations were used for the entire FRE #5 period.

During FRE #5, at MS-02, benzene levels ranged from <0.10 to 0.63 ppb, CH_4 ranged from 2.2 to 64 ppm, and H_2S ranged from <2 to 5 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 15** below.

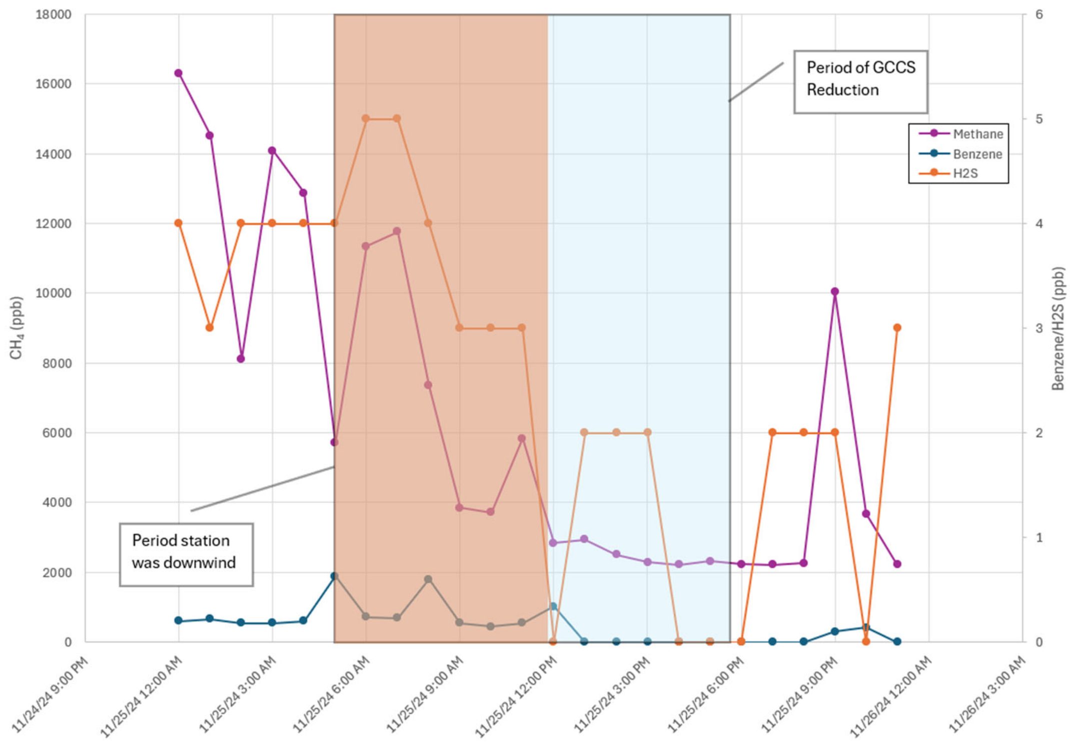


Figure 15. FRE #5 CH_4, Benzene, and H_2S Levels at MS-02.

As shown in **Figure 15**, CH_4 and H_2S, while elevated during FRE #5, were actually trending down from an earlier elevated event. However, the readings during FRE #5 do indicate a slight increase from the general down-trend in CH_4 and H_2S. There were slight increases in benzene during the downwind period for MS-02 from FRE #5, but they do not appear to be significant. Based on this data, FRE #5 does not appear to have any significant air impacts.

During FRE #5, at MS-06, benzene levels ranged from 0.11 to 1.26 ppb, CH_4 ranged from 2.3 to 19.8 ppm, and H_2S ranged from <2 to 6 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 16** below.

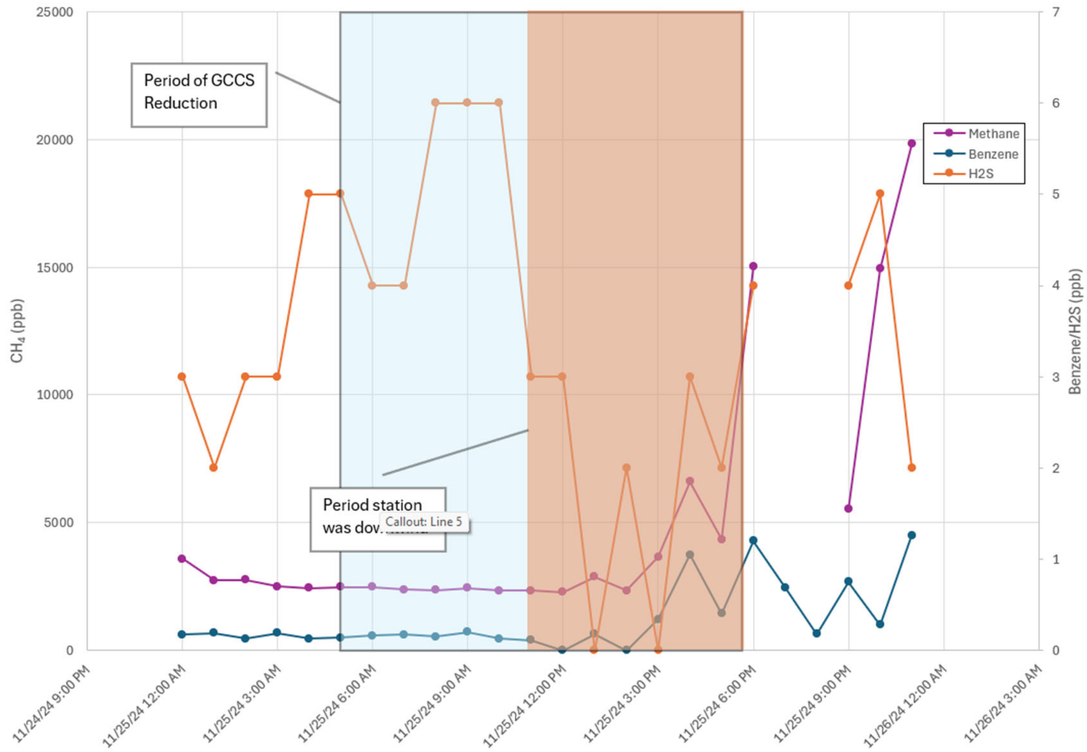


Figure 16. FRE #5 CH_4, Benzene, and H_2S Levels at MS-06.

As shown in **Figure 16**, while H_2S concentrations were generally decreasing during the period where MS-06 was downwind from FRE #5, all three compounds (CH_4, H_2S, and benzene) start to trend upwards later into the period where MS-06 was downwind from FRE #5. Average wind speed during FRE #5 was approximately 1.8 mph. This slow wind speed may account for a delay in the increased detections for MS-06.

2.3.2 Flow Reduction Threshold

As discussed previously, the 10% reduction in flow rate threshold was determined based on total LFG flow rate data trends; comparing the current total hourly LFG flow rate to the prior week's average LFG flow rate and the prior day's average LFG flow rate, consistent with Condition No. 83. A 10% reduction in comparison to the weekly or daily average value was considered and analyzed as an operational event, also consistent with Condition No. 83.

During the study period, a summary of the reduction threshold exceedances (day and week average) is provided in **Table 9** below.

Table 9. Reduction Threshold Exceedance Summary

Threshold	Number of Exceedances
10% Drop from Daily Average	38
10% Drop from Weekly Average	61
Total Threshold Exceedances	99
Subtract the # of Times both Thresholds Exceeded	22
Total 10% Threshold Exceedances	77

Based on review of **Table 8**, there are a total of 77 threshold exceedance events using the 10% reduction method. These instances are graphed in **Figure 17**, below.

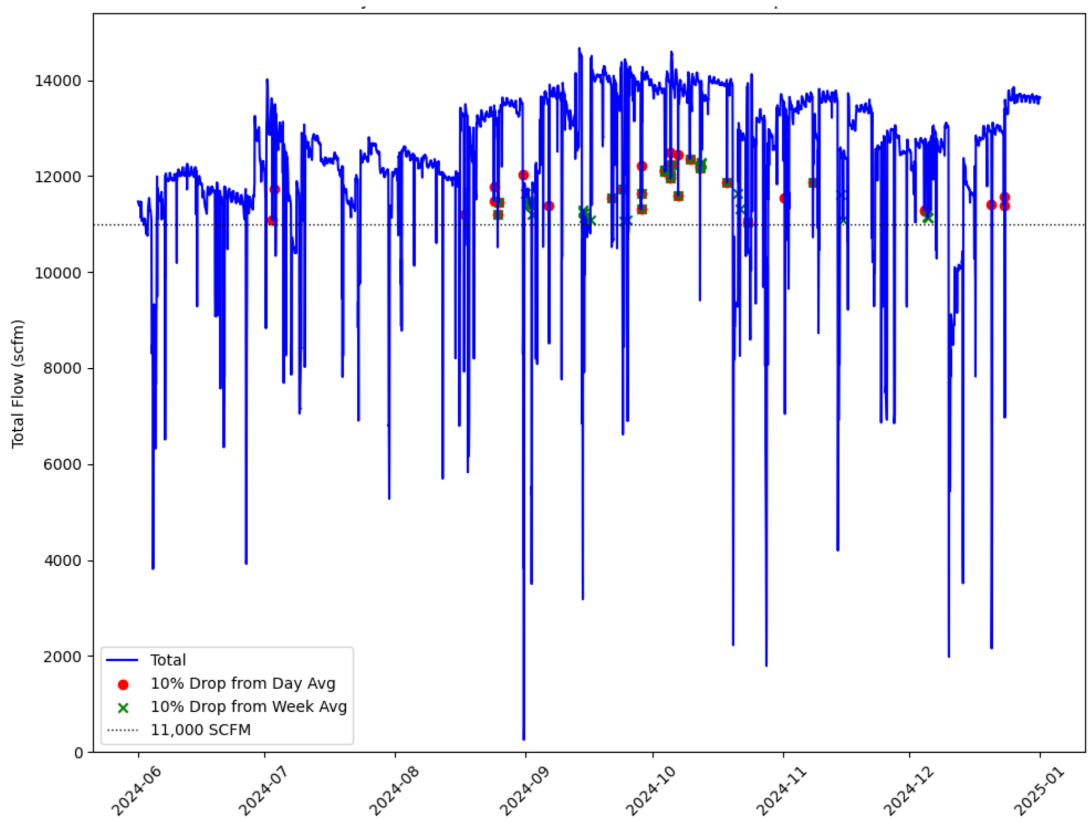


Figure 17. Hourly Flow and 10% Reduction Thresholds.

For the most part, instances of hourly 10% reduction threshold exceedances were coupled with instantaneous threshold exceedances, meaning that hourly average flow that are reduced by more than 10% generally also involved a drop in instantaneous flow below the instantaneous threshold.

In reviewing the 77 instances of the 10% flow reduction threshold exceedance, the two highest exceedance events that did not have flows reduced below 11,000 scfm occurred on September 19, 2024 and October 3, 2024. Both of these events are discussed in detail below.

2.3.2.1 September 2024 Threshold Event

The September threshold event occurred during the morning of September 19, 2024, from approximately 5 am to 9 am. During this period, flow dropped from approximately 13,000 scfm down to just over 12,000 scfm. This was due to the failure of one (Thermal Oxidizer, aka TOX) of the four control devices that comprise the GCCS.

During this event, winds were generally from the west and south, with wind speed averaging less than 1 mph. Based on this information, MS-06 was selected for comparison.

During his event, the Micro GC had not been installed at MS-06 at this time. However, CH_4 and H_2S data are available. At MS-06, CH_4 ranged from 1.0 to 10.5 ppm and H_2S ranged from <2 to 3 ppb. CH_4 and H_2S concentrations are provided in **Figure 18** below.

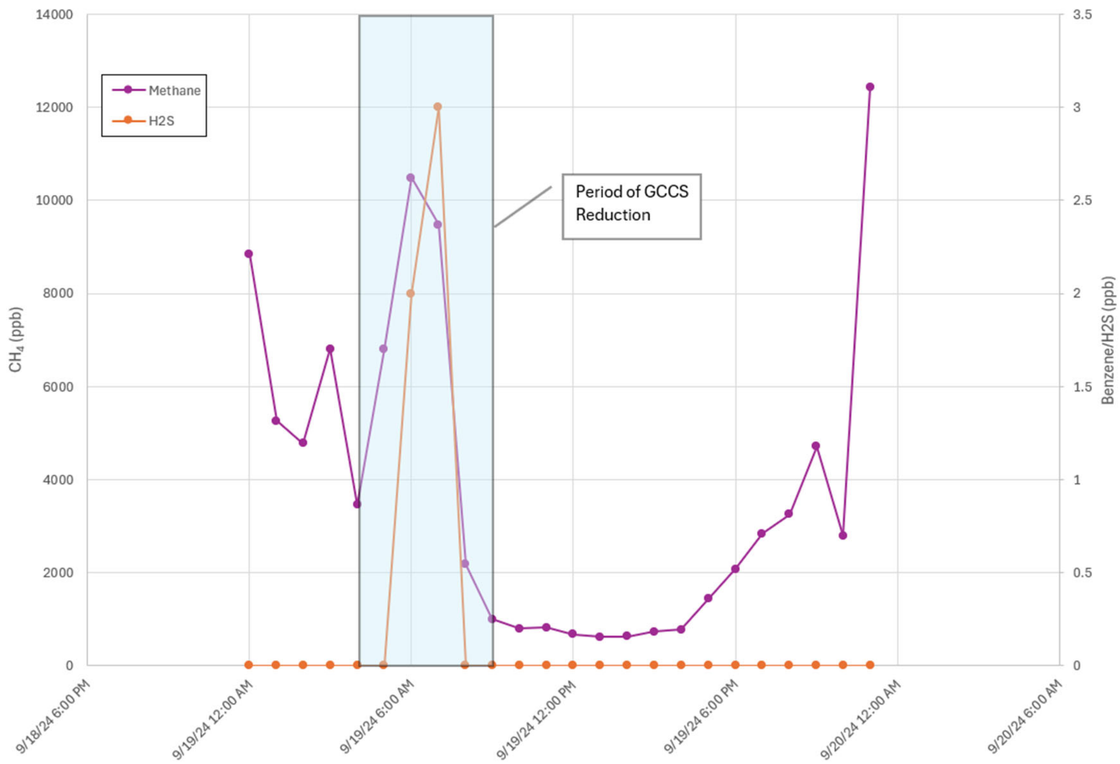


Figure 18. 10% Reduction Threshold Exceedance, September 19, 2024 – MS-06.

Based on **Figure 18**, it would appear that there may be a correlation between a reduction in flow and an increase in H_2S levels at MS-06.

2.3.2.2 October 2024 Threshold Event

The October threshold event occurred from 22:38 on October 3, 2024 through 07:28 on October 4, 2024. During this period, flow dropped from approximately 14,000 scfm down to just over 12,000 scfm. This was due to the failure of one (TOX) of the four control devices that comprise the GCCS.

During this event, winds were generally from the east and northeast, with wind speed averaging around 1.5 mph. Based on this information, MS-02 was selected for comparison.

During the October event, at MS-02, benzene levels ranged from 0.18 to 2.95 ppb, CH_4 ranged from 0.9 to 33.8 ppm, and H_2S ranged from 11 to 143 ppb. CH_4, H_2S, and benzene concentrations are provided in **Figure 19** below.

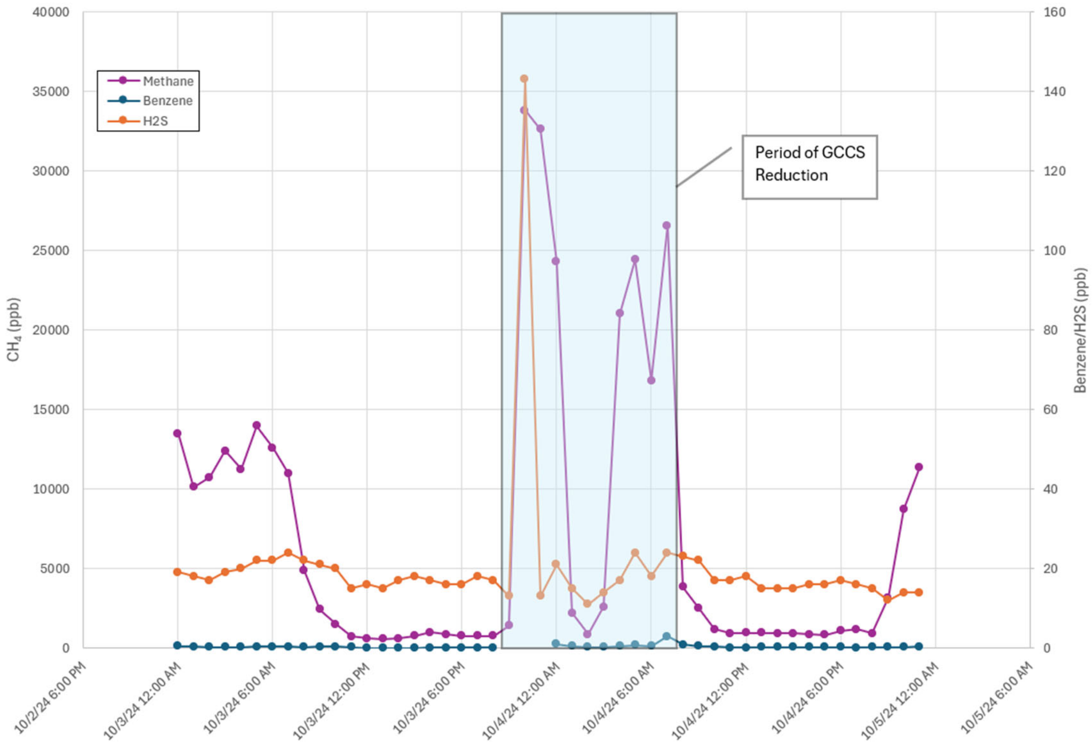


Figure 19. 10% Reduction Threshold Exceedance, October 2024 – MS-02.

Based on **Figure 19**, it would appear that there may be a correlation between the October reduction in flow event and an increase in CH_4 and H_2S levels at MS-02. During the beginning of the October event, it should be noted that the Micro GC was in self-calibration mode, so no benzene results are available during that period.

2.3.3 Summary

Both the instantaneous and 10% reduction thresholds have shown that there may be air impacts associated with a reduction in flow to the existing GCCS. The magnitude of the impacts is more pronounced for reduction in flow below the 11,000 scfm threshold, but are also noticeable in GCCS changes above 11,000 scfm flow, specifically, continued operation of the TOX, which was a common element in the two threshold exceedances evaluated above.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

3.1.1 Leachate Exposure Events

Based on the data reviewed as a part of this AIS, both leachate seep and spill data were available for the study duration. There were no pressurized releases of leachate during the study period. Based on the available data, there does not appear to be any correlation between leachate spills and air impacts. This is likely due to the relatively small quantities of leachate that were spilled and/or the chemical mechanisms involved in volatilization of VOCs from leachate spills.

This said, it should be noted that there were inconclusive correlations between leachate seeps and air impacts. Per Figure 6, the levels of benzene in air increased during the December 22, 2024 leachate seep event. SCS recommends additional review of leachate seep information during the next study period, focusing on larger seeps (larger than 80 gallons), with an odor level of 4, or higher..

3.1.2 Landfill Excavation Events

Analysis of Landfill excavation events show that there are minimal to no air impacts associated with landfill excavation activities.

3.1.3 Landfill Gas Equipment Events

Based on the analysis of leachate events, excavation events, and GCCS events, as defined herein, it appears that the strongest correlation exists between Landfill gas equipment events and air impacts. This is evident by review of the increase in monitored analytes concurrent with reduced/no flow from the GCCS. Further, it should be noted that benzene and CH_4 are the most prevalent in LFG at the Landfill and would thus be more likely to impact the air.

3.2 RECOMMENDATIONS

Based on the identified correlation between GCCS operations and air impacts, and in accordance with Condition 83 of the Stipulated Order, SCS recommends extending the study by an additional six months to evaluate the impacts of recent increased GCCS uptime and continuous operation, based on the following proposed scope.

3.2.1 Scope of Additional Study

In order to further our understanding of the relationship between landfill operations and air impacts, SCS recommends the following:

- Elimination of landfill excavation activity tracking as a component of the air impact investigation. This has shown to not have a significant impact on air quality.
- Continue to evaluate leachate seeps as a potential source of air impacts. The data that exists is inconclusive. Additional tracking of leachate seep data (larger than 80 gallons and odor of 4, or greater) will provide further clarification on a potential connection between leachate seeps and air impacts. Also, if any pressurized releases of leachate occur during the second study period, those should be evaluated as well.
- Further evaluation of GCCS operational events to assess/evaluate impacts versus length and magnitude of GCCS downtime.
- Add GCCS leak testing events, as detected by leak detection monitoring, operational issues (new flares, relocating flares, piping, wellheads, etc.), and cover integrity monitoring (including flux chamber studies), etc.

SCS estimates the extended study would last through June 2025, depending on when SCAQMD approves the proposed scope of the study, and will be able to incorporate the impact, if any, associated with the closure of the landfill on operational emissions.

BEFORE THE HEARING BOARD OF THE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

In The Matter Of SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, Petitioner, vs. CHIQUITA CANYON, LLC a Delaware Corporation, [Facility ID No. 119219] Respondent.	**Case No. 6177-4** **EXHIBIT C TO DECLARATION OF PATRICK SULLIVAN, BCES, CPP, REPA** Health and Safety Code § 41700, and District Rules 402, 431.1, 3002, 203, 1150 Hearing Date: June 4 and 17, 2025 Hearing Time: 9:30 A.M. Place: Hearing Board South Coast Air Quality Management District, 21865 Copley Drive Diamond Bar, CA 91765

April 30, 2025

Baitong Chen, Air Quality Engineer, bchen@aqmd.gov
Nathaniel Dickel, Senior Air Quality Engineer, ndickel@aqmd.gov
Christina Ojeda, Air Quality Inspector, cojeda@aqmd.gov
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765-4182

Subject: Updated Landfill Gas Generation and Control Capacity Report Pursuant to Stipulated Order for Abatement (Case No. 6177-4), Chiquita Canyon Landfill (Facility ID 119219), Castaic, California

To Whom It May Concern:

SCS Engineers (SCS), on behalf of Chiquita Canyon, LLC (Chiquita), hereby provides the South Coast Air Quality Management District (SCAQMD) with an updated report on Chiquita's current and projected landfill gas (LFG) generation and control capacity per Condition No. 96 of the Stipulated Order for Abatement (SOFA) (Case No. 6177-4), as modified on April 16, 2025 (Modified SOFA), for the Chiquita Canyon Landfill (CCL or Landfill). On June 28, 2024, Chiquita submitted a revised LFG generation and control capacity report; this document serves as an update of that report per Condition No. 96 of the modified SOFA. Chiquita has prepared this additional revised LFG generation and control capacity report to take into account the closure of the landfill and its resulting reduction in LFG generation.

Condition No. 96 of the Modified SOFA provides in relevant part:

> *96. By April 30, 2025, update the prior estimates of current and projected landfill gas generation prepared pursuant to Condition No. 70 based on the Landfill ceasing to accept external waste for disposal as of December 31, 2024, including any internal degradable waste disposed of since that date, and submit an updated report on the landfill's current and project landfill gas generation through the end of calendar year 2029. Landfill gas generation shall be estimated through use of U.S. EPA's LandGEM, and the Reaction Committee's analysis for additional landfill gas generated as a result of the ongoing reaction. The report shall include the items listed in Condition No. 70(a)-(c).*

The Landfill is a landfill/solid waste disposal facility located at 29201 Henry Mayo Dr., Castaic, California, 91384 (SCAQMD Facility No. 119219). The Landfill ceased accepting external waste for disposal as of December 31, 2024. In connection with the Landfill, Chiquita operates an LFG collection and control system (GCCS). The GCCS includes vertical LFG extraction wells, conveyance piping and LFG control devices (i.e., flares).

LANDFILL GAS GENERATION

Per Condition 70(a), the attached LandGEM gas generation model shows the associated inputs, assumptions and results for the estimated LFG generation for Chiquita (see **Attachment A**).

Per Condition 70(b) of the SOFA, the Reaction Committee reviewed the analysis for additional LFG generated as a result of the ongoing reaction. Specifically, the Reaction Committee reviewed the

Monthly Reaction Committee Determination on Reaction Area Boundary report, dated April 10, 2025. No changes to the additional LFG generated are required at this time.

The total current and projected estimated LFG generation and control capacity, per Condition 70(c) is presented in the attached table and shows an expected maximum generation of 17,676 scfm in 2025 and 16,319 scfm in 2029 (including the additional estimated LFG generated as a result of the ongoing reaction, but not including the 6,000 scfm redundancy) (see **Attachment B**).

CONTROL CAPACITY DISCUSSION

The Landfill currently has a control capacity of 18,000 scfm between the three (3) existing flares (Flares FL-1995, FL-2009, and FL-2023) and the two (2) existing portable thermal oxidizers (TOX) at 2,000 scfm (Zeeco) and 2,000 scfm (Parnel). Please note that in prior reports the control capacity for the Zeeco has been reported as 4,700 scfm, and Parnel as 2,500 scfm. Based on recent actual field conditions, it appears that these devices are operating at a maximum capacity of 2,000 scfm each and are not currently reaching full rated capacity. The limiting factor on these units has been the deflagration arrestor, which limits the amount of gas that can be pushed through each device. These TOX units cannot utilize a standard flame arrestor because the hydrogen in the LFG mandates additional safety measures. Additionally, for the Parnel TOX, the gas quality can cause flame failure even with continuous propane injection. For these reasons, we feel it is necessary to downgrade the current control capacities of the TOX units. The Landfill will review modifications, if any, to improve utilization of these two (2) devices in the future. Based on the above, the Reaction Committee has adjusted the 'Landfill Gas Generation and Control Capacity Chart' set forth in Attachment B to reflect the same, reducing the overall control capacity for 2025 from 21,200 scfm to 18,000 scfm and reducing the control capacities of the two TOX units going forward.

The Landfill has submitted a permit application to SCAQMD for an additional 6,000 scfm flare (Flare 4). The Landfill further anticipates submitting another permit application to SCAQMD for Flare 5. For the purposes of this report, Flare 5 is listed at a control capacity of 6,000 scfm. However, with the Landfill closure, a smaller capacity may be capable of meeting the redundancy criteria in future years. The Reaction Committee reviews LFG generation and overall control capacity routinely and will recommend adjustments to the control capacity as needed.

Flare 4 is anticipated to come online in early 2026, increasing the overall control capacity to 24,000 scfm. Flare 5 is anticipated to come online in mid-2027, and it is assumed Flare 1 (FL-1995) will be decommissioned once Flare 5 is fully operational. In 2027, the Landfill is expected to have an overall control capacity of 26,000 scfm. For this discussion, it is assumed that the third-party LFG-to-energy plant will continue to remain offline and not be a portion of the control capacity.

The attached table shows the maximum expected LFG generation without reduction for collection efficiency and the addition of two (2) 6,000 scfm flares (Flares 4 and 5) to provide control redundancy of the largest control device on-site. Based on this study and table, Chiquita will have adequate capacity to control the estimated LFG generation plus redundancy starting 2026. While Chiquita needs to install and begin operating Flare 4, due to the changes in the control capacity of the TOX units, it appears that Flare 5 is still necessary in order to have redundancy of its largest control device (6,000 SCFM).

Chiquita has already begun the procurement process for Flare 4 despite not having received the approved permit for Flare 4, the application for which was submitted to the SCAQMD on October 30, 2023. Chiquita intends to wait to construct and operate Flare 4 until after it receives the permit.

If there are changes to the LFG control capacity through the addition or revisions of flares or thermal oxidizers, Chiquita will submit an updated version of this report.

CLOSING

If you have any questions or need any additional information, please contact the undersigned at (303) 519-4503.

Sincerely,

Srividhya Viswanathan, P.E.
Senior Vice President
SCS Engineers

Bill Haley, P.E.
Project Director
SCS Engineers

Enclosures

cc: Steve Cassulo, Chiquita Canyon
Pat Sullivan, SCS Engineers
Bob Dick, SCS Engineers
Srividhya Viswanathan, SCS Engineers
Gabrielle Stephens, SCS Engineers

Summary Report

Landfill Name or Identifier: Chiquita Canyon Landfill

Date: Thursday, April 24, 2025

Description/Comments:

NMOC concentration from Flare No. 2, December 20, 2022 Source Test, 7,925 ppmv, as methane to 1,475 as hexane. Actual tonnages 2010 - 2022.

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} k L_o \left(\frac{M_i}{10} \right) e^{-kt_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation *(m^3/year)*

i = 1-year time increment

n = (year of the calculation) - (initial year of waste acceptance)

j = 0.1-year time increment

k = methane generation rate (*year*$^{-1}$)

L_o = potential methane generation capacity (*m^3/Mg*)

M_i = mass of waste accepted in the i^{th} year (*Mg*)

t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1970**	
Landfill Closure Year (with 80-year limit)	**2024**	
Actual Closure Year (without limit)	***2024***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity		*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	*$year^{-1}$*
Potential Methane Generation Capacity, L_o	**170**	*m^3/Mg*
NMOC Concentration	**1,475**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**NMOC**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**Methane**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1970	369,632	406,595	0	0
1971	369,632	406,595	369,632	406,595
1972	369,632	406,595	739,263	813,190
1973	369,632	406,595	1,108,895	1,219,785
1974	369,632	406,595	1,478,527	1,626,380
1975	369,632	406,595	1,848,159	2,032,974
1976	369,632	406,595	2,217,790	2,439,569
1977	369,632	406,595	2,587,422	2,846,164
1978	369,632	406,595	2,957,054	3,252,759
1979	369,632	406,595	3,326,686	3,659,354
1980	369,632	406,595	3,696,317	4,065,949
1981	369,632	406,595	4,065,949	4,472,544
1982	369,632	406,595	4,435,581	4,879,139
1983	369,632	406,595	4,805,212	5,285,734
1984	369,632	406,595	5,174,844	5,692,329
1985	369,632	406,595	5,544,476	6,098,923
1986	369,632	406,595	5,914,108	6,505,518
1987	369,632	406,595	6,283,739	6,912,113
1988	369,632	406,595	6,653,371	7,318,708
1989	420,184	462,202	7,023,003	7,725,303
1990	509,735	560,709	7,443,186	8,187,505
1991	659,835	725,819	7,952,922	8,748,214
1992	542,202	596,422	8,612,757	9,474,033
1993	360,609	396,670	9,154,959	10,070,455
1994	479,124	527,036	9,515,568	10,467,125
1995	393,677	433,045	9,994,692	10,994,161
1996	405,285	445,814	10,388,369	11,427,206
1997	724,025	796,428	10,793,655	11,873,020
1998	1,031,471	1,134,618	11,517,680	12,669,448
1999	1,177,197	1,294,917	12,549,151	13,804,066
2000	1,249,617	1,374,579	13,726,348	15,098,983
2001	1,283,945	1,412,339	14,975,965	16,473,562
2002	1,355,419	1,490,961	16,259,910	17,885,901
2003	1,401,165	1,541,282	17,615,329	19,376,862
2004	1,416,686	1,558,355	19,016,495	20,918,144
2005	1,408,262	1,549,088	20,433,181	22,476,499
2006	1,399,063	1,538,969	21,841,443	24,025,587
2007	1,402,853	1,543,138	23,240,505	25,564,556
2008	1,367,811	1,504,592	24,643,358	27,107,694
2009	625,195	687,714	26,011,169	28,612,286

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	(short tons/year)	(Mg)	(short tons)
2010	990,725	1,089,797	26,636,364	29,300,000
2011	1,209,375	1,330,312	27,627,088	30,389,797
2012	842,605	926,866	28,836,463	31,720,109
2013	935,751	1,029,326	29,679,068	32,646,975
2014	1,009,278	1,110,206	30,614,819	33,676,301
2015	977,637	1,075,401	31,624,097	34,786,507
2016	1,288,789	1,417,668	32,601,735	35,861,908
2017	1,355,931	1,491,524	33,890,524	37,279,576
2018	1,391,054	1,530,160	35,246,455	38,771,100
2019	1,541,862	1,696,048	36,637,509	40,301,260
2020	1,711,799	1,882,978	38,179,370	41,997,307
2021	1,835,140	2,018,654	39,891,169	43,880,286
2022	1,818,756	2,000,632	41,726,309	45,898,940
2023	1,970,950	2,168,045	43,545,066	47,899,572
2024	1,970,955	2,168,050	45,516,016	50,067,617
2025	0	0	47,486,970	52,235,667
2026	0	0	47,486,970	52,235,667
2027	0	0	47,486,970	52,235,667
2028	0	0	47,486,970	52,235,667
2029	0	0	47,486,970	52,235,667
2030	0	0	47,486,970	52,235,667
2031	0	0	47,486,970	52,235,667
2032	0	0	47,486,970	52,235,667
2033	0	0	47,486,970	52,235,667
2034	0	0	47,486,970	52,235,667
2035	0	0	47,486,970	52,235,667
2036	0	0	47,486,970	52,235,667
2037	0	0	47,486,970	52,235,667
2038	0	0	47,486,970	52,235,667
2039	0	0	47,486,970	52,235,667
2040	0	0	47,486,970	52,235,667
2041	0	0	47,486,970	52,235,667
2042	0	0	47,486,970	52,235,667
2043	0	0	47,486,970	52,235,667
2044	0	0	47,486,970	52,235,667
2045	0	0	47,486,970	52,235,667
2046	0	0	47,486,970	52,235,667
2047	0	0	47,486,970	52,235,667
2048	0	0	47,486,970	52,235,667
2049	0	0	47,486,970	52,235,667

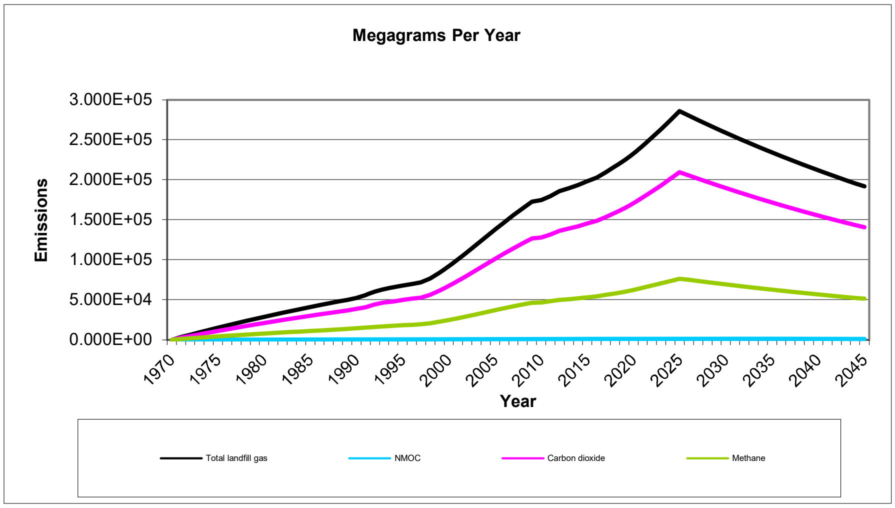
Pollutant Parameters

	Gas / Pollutant Default Parameters:			User-specified Pollutant Parameters:	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

	Gas / Pollutant Default Parameters:			User-specified Pollutant Parameters:	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs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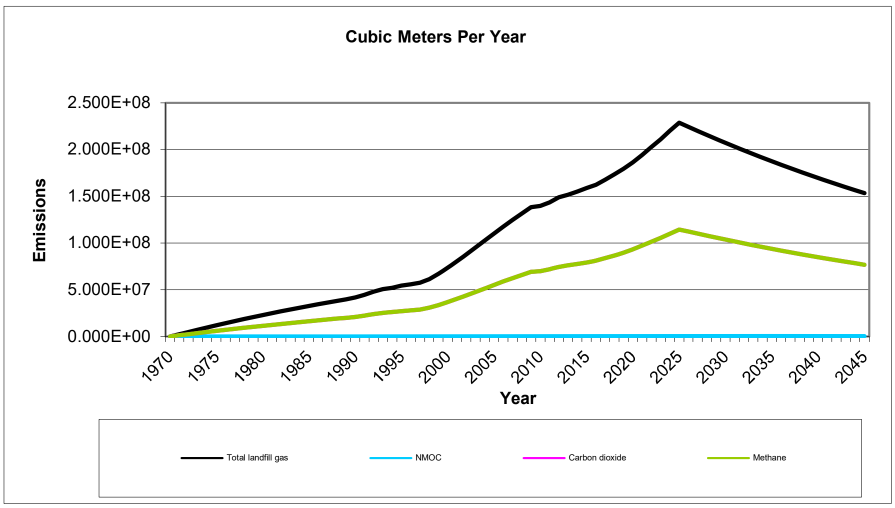
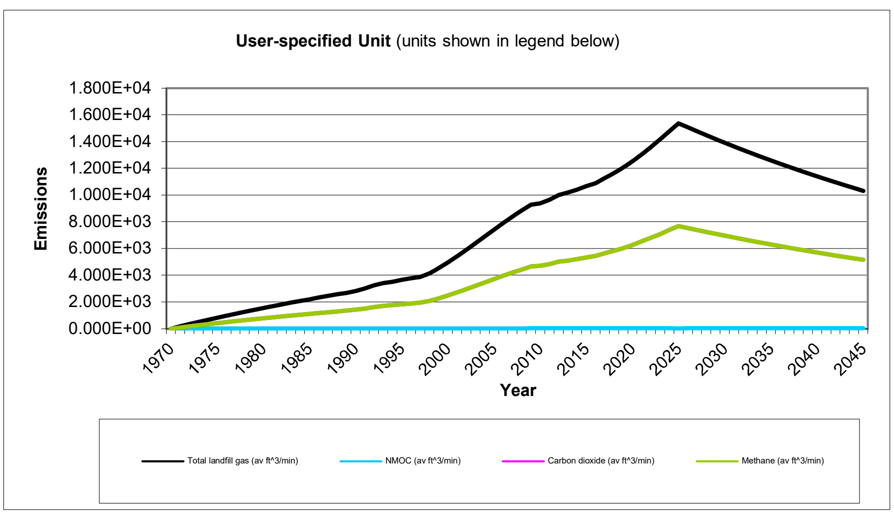
3.000E+05
2.500E+05
2.000E+05
1.500E+05
1.000E+05
5.000E+04
0.000E+00
Emissions
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045
Year
Total landfill gas
NMOC
Carbon dioxide
Methane


Cubic Meters Per Year
2.500E+08
2.000E+08
1.500E+08
1.000E+08
5.000E+07
0.000E+00
Emissions
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045
Year
Total landfill gas
NMOC
Carbon dioxide
Methane


User-specified Unit (units shown in legend below)
1.800E+04
1.600E+04
1.400E+04
1.200E+04
1.000E+04
8.000E+03
6.000E+03
4.000E+03
2.000E+03
0.000E+00
Emissions
1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045
Year
Total landfill gas (av ft^3/min)
NMOC (av ft^3/min)
Carbon dioxide (av ft^3/min)
Methane (av ft^3/min)

Results

Year	Total landfill gas			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
1970	0	0	0	0	0	0
1971	3.111E+03	2.491E+06	1.674E+02	1.317E+01	3.674E+03	2.469E-01
1972	6.160E+03	4.933E+06	3.314E+02	2.608E+01	7.276E+03	4.889E-01
1973	9.149E+03	7.326E+06	4.922E+02	3.873E+01	1.081E+04	7.261E-01
1974	1.208E+04	9.672E+06	6.499E+02	5.114E+01	1.427E+04	9.586E-01
1975	1.495E+04	1.197E+07	8.044E+02	6.330E+01	1.766E+04	1.186E+00
1976	1.777E+04	1.423E+07	9.558E+02	7.521E+01	2.098E+04	1.410E+00
1977	2.052E+04	1.643E+07	1.104E+03	8.689E+01	2.424E+04	1.629E+00
1978	2.323E+04	1.860E+07	1.250E+03	9.834E+01	2.744E+04	1.843E+00
1979	2.588E+04	2.072E+07	1.392E+03	1.096E+02	3.057E+04	2.054E+00
1980	2.848E+04	2.280E+07	1.532E+03	1.206E+02	3.364E+04	2.260E+00
1981	3.102E+04	2.484E+07	1.669E+03	1.313E+02	3.664E+04	2.462E+00
1982	3.352E+04	2.684E+07	1.804E+03	1.419E+02	3.959E+04	2.660E+00
1983	3.597E+04	2.880E+07	1.935E+03	1.523E+02	4.248E+04	2.854E+00
1984	3.837E+04	3.072E+07	2.064E+03	1.624E+02	4.532E+04	3.045E+00
1985	4.072E+04	3.261E+07	2.191E+03	1.724E+02	4.809E+04	3.231E+00
1986	4.302E+04	3.445E+07	2.315E+03	1.821E+02	5.082E+04	3.414E+00
1987	4.528E+04	3.626E+07	2.436E+03	1.917E+02	5.348E+04	3.594E+00
1988	4.750E+04	3.803E+07	2.555E+03	2.011E+02	5.610E+04	3.769E+00
1989	4.967E+04	3.977E+07	2.672E+03	2.103E+02	5.866E+04	3.941E+00
1990	5.222E+04	4.181E+07	2.810E+03	2.211E+02	6.168E+04	4.144E+00
1991	5.547E+04	4.442E+07	2.985E+03	2.349E+02	6.552E+04	4.402E+00
1992	5.993E+04	4.799E+07	3.224E+03	2.537E+02	7.078E+04	4.756E+00
1993	6.331E+04	5.069E+07	3.406E+03	2.680E+02	7.477E+04	5.024E+00
1994	6.509E+04	5.212E+07	3.502E+03	2.756E+02	7.688E+04	5.165E+00
1995	6.783E+04	5.432E+07	3.649E+03	2.872E+02	8.012E+04	5.383E+00
1996	6.980E+04	5.589E+07	3.755E+03	2.955E+02	8.244E+04	5.539E+00
1997	7.183E+04	5.752E+07	3.865E+03	3.041E+02	8.484E+04	5.700E+00
1998	7.650E+04	6.126E+07	4.116E+03	3.239E+02	9.036E+04	6.071E+00
1999	8.367E+04	6.700E+07	4.502E+03	3.542E+02	9.882E+04	6.640E+00
2000	9.192E+04	7.360E+07	4.945E+03	3.892E+02	1.086E+05	7.295E+00
2001	1.006E+05	8.057E+07	5.413E+03	4.260E+02	1.188E+05	7.985E+00
2002	1.094E+05	8.762E+07	5.888E+03	4.633E+02	1.292E+05	8.684E+00
2003	1.187E+05	9.502E+07	6.385E+03	5.024E+02	1.402E+05	9.417E+00
2004	1.281E+05	1.026E+08	6.893E+03	5.424E+02	1.513E+05	1.017E+01
2005	1.375E+05	1.101E+08	7.398E+03	5.821E+02	1.624E+05	1.091E+01
2006	1.466E+05	1.174E+08	7.889E+03	6.208E+02	1.732E+05	1.164E+01
2007	1.555E+05	1.245E+08	8.366E+03	6.583E+02	1.837E+05	1.234E+01
2008	1.642E+05	1.315E+08	8.836E+03	6.953E+02	1.940E+05	1.303E+01
2009	1.725E+05	1.381E+08	9.280E+03	7.302E+02	2.037E+05	1.369E+01
2010	1.743E+05	1.396E+08	9.379E+03	7.381E+02	2.059E+05	1.383E+01
2011	1.792E+05	1.435E+08	9.642E+03	7.588E+02	2.117E+05	1.422E+01
2012	1.858E+05	1.488E+08	9.999E+03	7.868E+02	2.195E+05	1.475E+01
2013	1.893E+05	1.515E+08	1.018E+04	8.013E+02	2.235E+05	1.502E+01
2014	1.934E+05	1.549E+08	1.040E+04	8.187E+02	2.284E+05	1.535E+01
2015	1.981E+05	1.586E+08	1.066E+04	8.385E+02	2.339E+05	1.572E+01
2016	2.024E+05	1.620E+08	1.089E+04	8.567E+02	2.390E+05	1.606E+01
2017	2.092E+05	1.675E+08	1.126E+04	8.857E+02	2.471E+05	1.660E+01
2018	2.165E+05	1.733E+08	1.165E+04	9.165E+02	2.557E+05	1.718E+01
2019	2.239E+05	1.793E+08	1.205E+04	9.479E+02	2.644E+05	1.777E+01

Results (Continued)

Year	Total landfill gas			NMOC		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2020	2.324E+05	1.861E+08	1.251E+04	9.840E+02	2.745E+05	1.845E+01
2021	2.422E+05	1.940E+08	1.303E+04	1.026E+03	2.861E+05	1.922E+01
2022	2.529E+05	2.025E+08	1.361E+04	1.071E+03	2.987E+05	2.007E+01
2023	2.632E+05	2.107E+08	1.416E+04	1.114E+03	3.108E+05	2.089E+01
2024	2.746E+05	2.199E+08	1.477E+04	1.162E+03	3.243E+05	2.179E+01
2025	2.857E+05	2.288E+08	1.537E+04	1.210E+03	3.375E+05	2.267E+01
2026	2.801E+05	2.243E+08	1.507E+04	1.186E+03	3.308E+05	2.222E+01
2027	2.745E+05	2.198E+08	1.477E+04	1.162E+03	3.242E+05	2.178E+01
2028	2.691E+05	2.155E+08	1.448E+04	1.139E+03	3.178E+05	2.135E+01
2029	2.637E+05	2.112E+08	1.419E+04	1.117E+03	3.115E+05	2.093E+01
2030	2.585E+05	2.070E+08	1.391E+04	1.094E+03	3.053E+05	2.052E+01
2031	2.534E+05	2.029E+08	1.363E+04	1.073E+03	2.993E+05	2.011E+01
2032	2.484E+05	1.989E+08	1.336E+04	1.052E+03	2.934E+05	1.971E+01
2033	2.435E+05	1.950E+08	1.310E+04	1.031E+03	2.876E+05	1.932E+01
2034	2.386E+05	1.911E+08	1.284E+04	1.010E+03	2.819E+05	1.894E+01
2035	2.339E+05	1.873E+08	1.259E+04	9.903E+02	2.763E+05	1.856E+01
2036	2.293E+05	1.836E+08	1.234E+04	9.707E+02	2.708E+05	1.820E+01
2037	2.247E+05	1.800E+08	1.209E+04	9.515E+02	2.655E+05	1.784E+01
2038	2.203E+05	1.764E+08	1.185E+04	9.327E+02	2.602E+05	1.748E+01
2039	2.159E+05	1.729E+08	1.162E+04	9.142E+02	2.550E+05	1.714E+01
2040	2.117E+05	1.695E+08	1.139E+04	8.961E+02	2.500E+05	1.680E+01
2041	2.075E+05	1.661E+08	1.116E+04	8.784E+02	2.450E+05	1.646E+01
2042	2.034E+05	1.628E+08	1.094E+04	8.610E+02	2.402E+05	1.614E+01
2043	1.993E+05	1.596E+08	1.072E+04	8.439E+02	2.354E+05	1.582E+01
2044	1.954E+05	1.565E+08	1.051E+04	8.272E+02	2.308E+05	1.551E+01
2045	1.915E+05	1.534E+08	1.030E+04	8.108E+02	2.262E+05	1.520E+01
2046	1.877E+05	1.503E+08	1.010E+04	7.948E+02	2.217E+05	1.490E+01
2047	1.840E+05	1.473E+08	9.900E+03	7.790E+02	2.173E+05	1.460E+01
2048	1.804E+05	1.444E+08	9.704E+03	7.636E+02	2.130E+05	1.431E+01
2049	1.768E+05	1.416E+08	9.512E+03	7.485E+02	2.088E+05	1.403E+01
2050	1.733E+05	1.388E+08	9.323E+03	7.337E+02	2.047E+05	1.375E+01
2051	1.699E+05	1.360E+08	9.139E+03	7.191E+02	2.006E+05	1.348E+01
2052	1.665E+05	1.333E+08	8.958E+03	7.049E+02	1.967E+05	1.321E+01
2053	1.632E+05	1.307E+08	8.781E+03	6.909E+02	1.928E+05	1.295E+01
2054	1.600E+05	1.281E+08	8.607E+03	6.773E+02	1.889E+05	1.269E+01
2055	1.568E+05	1.256E+08	8.436E+03	6.638E+02	1.852E+05	1.244E+01
2056	1.537E+05	1.231E+08	8.269E+03	6.507E+02	1.815E+05	1.220E+01
2057	1.507E+05	1.206E+08	8.105E+03	6.378E+02	1.779E+05	1.196E+01
2058	1.477E+05	1.182E+08	7.945E+03	6.252E+02	1.744E+05	1.172E+01
2059	1.447E+05	1.159E+08	7.788E+03	6.128E+02	1.710E+05	1.149E+01
2060	1.419E+05	1.136E+08	7.633E+03	6.007E+02	1.676E+05	1.126E+01
2061	1.391E+05	1.114E+08	7.482E+03	5.888E+02	1.643E+05	1.104E+01
2062	1.363E+05	1.092E+08	7.334E+03	5.771E+02	1.610E+05	1.082E+01
2063	1.336E+05	1.070E+08	7.189E+03	5.657E+02	1.578E+05	1.060E+01
2064	1.310E+05	1.049E+08	7.047E+03	5.545E+02	1.547E+05	1.039E+01
2065	1.284E+05	1.028E+08	6.907E+03	5.435E+02	1.516E+05	1.019E+01
2066	1.258E+05	1.008E+08	6.770E+03	5.327E+02	1.486E+05	9.986E+00
2067	1.233E+05	9.877E+07	6.636E+03	5.222E+02	1.457E+05	9.788E+00
2068	1.209E+05	9.681E+07	6.505E+03	5.119E+02	1.428E+05	9.595E+00
2069	1.185E+05	9.489E+07	6.376E+03	5.017E+02	1.400E+05	9.405E+00
2070	1.162E+05	9.302E+07	6.250E+03	4.918E+02	1.372E+05	9.218E+00

Results (Continued)

Year	Total landfill gas			NMOC		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
2071	1.139E+05	9.117E+07	6.126E+03	4.821E+02	1.345E+05	9.036E+00
2072	1.116E+05	8.937E+07	6.005E+03	4.725E+02	1.318E+05	8.857E+00
2073	1.094E+05	8.760E+07	5.886E+03	4.631E+02	1.292E+05	8.682E+00
2074	1.072E+05	8.586E+07	5.769E+03	4.540E+02	1.267E+05	8.510E+00
2075	1.051E+05	8.416E+07	5.655E+03	4.450E+02	1.241E+05	8.341E+00
2076	1.030E+05	8.250E+07	5.543E+03	4.362E+02	1.217E+05	8.176E+00
2077	1.010E+05	8.086E+07	5.433E+03	4.275E+02	1.193E+05	8.014E+00
2078	9.899E+04	7.926E+07	5.326E+03	4.191E+02	1.169E+05	7.855E+00
2079	9.703E+04	7.769E+07	5.220E+03	4.108E+02	1.146E+05	7.700E+00
2080	9.510E+04	7.615E+07	5.117E+03	4.026E+02	1.123E+05	7.547E+00
2081	9.322E+04	7.465E+07	5.016E+03	3.947E+02	1.101E+05	7.398E+00
2082	9.137E+04	7.317E+07	4.916E+03	3.869E+02	1.079E+05	7.251E+00
2083	8.957E+04	7.172E+07	4.819E+03	3.792E+02	1.058E+05	7.108E+00
2084	8.779E+04	7.030E+07	4.723E+03	3.717E+02	1.037E+05	6.967E+00
2085	8.605E+04	6.891E+07	4.630E+03	3.643E+02	1.016E+05	6.829E+00
2086	8.435E+04	6.754E+07	4.538E+03	3.571E+02	9.963E+04	6.694E+00
2087	8.268E+04	6.621E+07	4.448E+03	3.500E+02	9.765E+04	6.561E+00
2088	8.104E+04	6.489E+07	4.360E+03	3.431E+02	9.572E+04	6.431E+00
2089	7.944E+04	6.361E+07	4.274E+03	3.363E+02	9.383E+04	6.304E+00
2090	7.786E+04	6.235E+07	4.189E+03	3.297E+02	9.197E+04	6.179E+00
2091	7.632E+04	6.112E+07	4.106E+03	3.231E+02	9.015E+04	6.057E+00
2092	7.481E+04	5.991E+07	4.025E+03	3.167E+02	8.836E+04	5.937E+00
2093	7.333E+04	5.872E+07	3.945E+03	3.105E+02	8.661E+04	5.819E+00
2094	7.188E+04	5.756E+07	3.867E+03	3.043E+02	8.490E+04	5.704E+00
2095	7.045E+04	5.642E+07	3.791E+03	2.983E+02	8.322E+04	5.591E+00
2096	6.906E+04	5.530E+07	3.716E+03	2.924E+02	8.157E+04	5.481E+00
2097	6.769E+04	5.420E+07	3.642E+03	2.866E+02	7.995E+04	5.372E+00
2098	6.635E+04	5.313E+07	3.570E+03	2.809E+02	7.837E+04	5.266E+00
2099	6.504E+04	5.208E+07	3.499E+03	2.754E+02	7.682E+04	5.161E+00
2100	6.375E+04	5.105E+07	3.430E+03	2.699E+02	7.530E+04	5.059E+00
2101	6.249E+04	5.004E+07	3.362E+03	2.646E+02	7.381E+04	4.959E+00
2102	6.125E+04	4.905E+07	3.295E+03	2.593E+02	7.234E+04	4.861E+00
2103	6.004E+04	4.808E+07	3.230E+03	2.542E+02	7.091E+04	4.765E+00
2104	5.885E+04	4.712E+07	3.166E+03	2.491E+02	6.951E+04	4.670E+00
2105	5.768E+04	4.619E+07	3.104E+03	2.442E+02	6.813E+04	4.578E+00
2106	5.654E+04	4.528E+07	3.042E+03	2.394E+02	6.678E+04	4.487E+00
2107	5.542E+04	4.438E+07	2.982E+03	2.346E+02	6.546E+04	4.398E+00
2108	5.432E+04	4.350E+07	2.923E+03	2.300E+02	6.416E+04	4.311E+00
2109	5.325E+04	4.264E+07	2.865E+03	2.254E+02	6.289E+04	4.226E+00
2110	5.219E+04	4.179E+07	2.808E+03	2.210E+02	6.165E+04	4.142E+00

Results (Continued)

Year	Carbon dioxide			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
1970	0	0	0	0	0	0
1971	2.280E+03	1.246E+06	8.369E+01	8.309E+02	1.246E+06	8.369E+01
1972	4.515E+03	2.466E+06	1.657E+02	1.645E+03	2.466E+06	1.657E+02
1973	6.705E+03	3.663E+06	2.461E+02	2.444E+03	3.663E+06	2.461E+02
1974	8.852E+03	4.836E+06	3.249E+02	3.226E+03	4.836E+06	3.249E+02
1975	1.096E+04	5.986E+06	4.022E+02	3.993E+03	5.986E+06	4.022E+02
1976	1.302E+04	7.113E+06	4.779E+02	4.745E+03	7.113E+06	4.779E+02
1977	1.504E+04	8.217E+06	5.521E+02	5.482E+03	8.217E+06	5.521E+02
1978	1.702E+04	9.300E+06	6.249E+02	6.205E+03	9.300E+06	6.249E+02
1979	1.897E+04	1.036E+07	6.962E+02	6.913E+03	1.036E+07	6.962E+02
1980	2.087E+04	1.140E+07	7.661E+02	7.607E+03	1.140E+07	7.661E+02
1981	2.274E+04	1.242E+07	8.346E+02	8.287E+03	1.242E+07	8.346E+02
1982	2.457E+04	1.342E+07	9.018E+02	8.954E+03	1.342E+07	9.018E+02
1983	2.636E+04	1.440E+07	9.676E+02	9.608E+03	1.440E+07	9.676E+02
1984	2.812E+04	1.536E+07	1.032E+03	1.025E+04	1.536E+07	1.032E+03
1985	2.984E+04	1.630E+07	1.095E+03	1.088E+04	1.630E+07	1.095E+03
1986	3.153E+04	1.723E+07	1.157E+03	1.149E+04	1.723E+07	1.157E+03
1987	3.319E+04	1.813E+07	1.218E+03	1.210E+04	1.813E+07	1.218E+03
1988	3.481E+04	1.902E+07	1.278E+03	1.269E+04	1.902E+07	1.278E+03
1989	3.640E+04	1.989E+07	1.336E+03	1.327E+04	1.989E+07	1.336E+03
1990	3.827E+04	2.091E+07	1.405E+03	1.395E+04	2.091E+07	1.405E+03
1991	4.066E+04	2.221E+07	1.492E+03	1.482E+04	2.221E+07	1.492E+03
1992	4.392E+04	2.399E+07	1.612E+03	1.601E+04	2.399E+07	1.612E+03
1993	4.640E+04	2.535E+07	1.703E+03	1.691E+04	2.535E+07	1.703E+03
1994	4.770E+04	2.606E+07	1.751E+03	1.739E+04	2.606E+07	1.751E+03
1995	4.971E+04	2.716E+07	1.825E+03	1.812E+04	2.716E+07	1.825E+03
1996	5.116E+04	2.795E+07	1.878E+03	1.864E+04	2.795E+07	1.878E+03
1997	5.264E+04	2.876E+07	1.932E+03	1.919E+04	2.876E+07	1.932E+03
1998	5.607E+04	3.063E+07	2.058E+03	2.043E+04	3.063E+07	2.058E+03
1999	6.132E+04	3.350E+07	2.251E+03	2.235E+04	3.350E+07	2.251E+03
2000	6.737E+04	3.680E+07	2.473E+03	2.455E+04	3.680E+07	2.473E+03
2001	7.374E+04	4.028E+07	2.707E+03	2.688E+04	4.028E+07	2.707E+03
2002	8.020E+04	4.381E+07	2.944E+03	2.923E+04	4.381E+07	2.944E+03
2003	8.697E+04	4.751E+07	3.192E+03	3.170E+04	4.751E+07	3.192E+03
2004	9.389E+04	5.129E+07	3.446E+03	3.422E+04	5.129E+07	3.446E+03
2005	1.008E+05	5.505E+07	3.699E+03	3.673E+04	5.505E+07	3.699E+03
2006	1.075E+05	5.871E+07	3.944E+03	3.917E+04	5.871E+07	3.944E+03
2007	1.140E+05	6.226E+07	4.183E+03	4.154E+04	6.226E+07	4.183E+03
2008	1.204E+05	6.575E+07	4.418E+03	4.387E+04	6.575E+07	4.418E+03
2009	1.264E+05	6.906E+07	4.640E+03	4.607E+04	6.906E+07	4.640E+03
2010	1.278E+05	6.980E+07	4.690E+03	4.657E+04	6.980E+07	4.690E+03
2011	1.313E+05	7.175E+07	4.821E+03	4.787E+04	7.175E+07	4.821E+03
2012	1.362E+05	7.441E+07	5.000E+03	4.964E+04	7.441E+07	5.000E+03
2013	1.387E+05	7.577E+07	5.091E+03	5.055E+04	7.577E+07	5.091E+03
2014	1.417E+05	7.743E+07	5.202E+03	5.166E+04	7.743E+07	5.202E+03
2015	1.451E+05	7.929E+07	5.328E+03	5.290E+04	7.929E+07	5.328E+03
2016	1.483E+05	8.102E+07	5.444E+03	5.405E+04	8.102E+07	5.444E+03
2017	1.533E+05	8.376E+07	5.628E+03	5.588E+04	8.376E+07	5.628E+03
2018	1.586E+05	8.667E+07	5.823E+03	5.782E+04	8.667E+07	5.823E+03
2019	1.641E+05	8.964E+07	6.023E+03	5.980E+04	8.964E+07	6.023E+03

Results (Continued)

Year	Carbon dioxide			Methane		
	(Mg/year)	(m^3/year)	(av ft^3/min)	(Mg/year)	(m^3/year)	(av ft^3/min)
2020	1.703E+05	9.306E+07	6.253E+03	6.208E+04	9.306E+07	6.253E+03
2021	1.775E+05	9.698E+07	6.516E+03	6.470E+04	9.698E+07	6.516E+03
2022	1.853E+05	1.012E+08	6.803E+03	6.755E+04	1.012E+08	6.803E+03
2023	1.929E+05	1.054E+08	7.080E+03	7.030E+04	1.054E+08	7.080E+03
2024	2.012E+05	1.099E+08	7.386E+03	7.334E+04	1.099E+08	7.386E+03
2025	2.094E+05	1.144E+08	7.686E+03	7.632E+04	1.144E+08	7.686E+03
2026	2.052E+05	1.121E+08	7.534E+03	7.480E+04	1.121E+08	7.534E+03
2027	2.012E+05	1.099E+08	7.385E+03	7.332E+04	1.099E+08	7.385E+03
2028	1.972E+05	1.077E+08	7.238E+03	7.187E+04	1.077E+08	7.238E+03
2029	1.933E+05	1.056E+08	7.095E+03	7.045E+04	1.056E+08	7.095E+03
2030	1.895E+05	1.035E+08	6.955E+03	6.905E+04	1.035E+08	6.955E+03
2031	1.857E+05	1.015E+08	6.817E+03	6.769E+04	1.015E+08	6.817E+03
2032	1.820E+05	9.945E+07	6.682E+03	6.635E+04	9.945E+07	6.682E+03
2033	1.784E+05	9.748E+07	6.550E+03	6.503E+04	9.748E+07	6.550E+03
2034	1.749E+05	9.555E+07	6.420E+03	6.374E+04	9.555E+07	6.420E+03
2035	1.714E+05	9.366E+07	6.293E+03	6.248E+04	9.366E+07	6.293E+03
2036	1.680E+05	9.180E+07	6.168E+03	6.124E+04	9.180E+07	6.168E+03
2037	1.647E+05	8.998E+07	6.046E+03	6.003E+04	8.998E+07	6.046E+03
2038	1.615E+05	8.820E+07	5.926E+03	5.884E+04	8.820E+07	5.926E+03
2039	1.583E+05	8.645E+07	5.809E+03	5.768E+04	8.645E+07	5.809E+03
2040	1.551E+05	8.474E+07	5.694E+03	5.654E+04	8.474E+07	5.694E+03
2041	1.521E+05	8.306E+07	5.581E+03	5.542E+04	8.306E+07	5.581E+03
2042	1.490E+05	8.142E+07	5.471E+03	5.432E+04	8.142E+07	5.471E+03
2043	1.461E+05	7.981E+07	5.362E+03	5.324E+04	7.981E+07	5.362E+03
2044	1.432E+05	7.823E+07	5.256E+03	5.219E+04	7.823E+07	5.256E+03
2045	1.404E+05	7.668E+07	5.152E+03	5.116E+04	7.668E+07	5.152E+03
2046	1.376E+05	7.516E+07	5.050E+03	5.014E+04	7.516E+07	5.050E+03
2047	1.349E+05	7.367E+07	4.950E+03	4.915E+04	7.367E+07	4.950E+03
2048	1.322E+05	7.221E+07	4.852E+03	4.818E+04	7.221E+07	4.852E+03
2049	1.296E+05	7.078E+07	4.756E+03	4.722E+04	7.078E+07	4.756E+03
2050	1.270E+05	6.938E+07	4.662E+03	4.629E+04	6.938E+07	4.662E+03
2051	1.245E+05	6.801E+07	4.569E+03	4.537E+04	6.801E+07	4.569E+03
2052	1.220E+05	6.666E+07	4.479E+03	4.447E+04	6.666E+07	4.479E+03
2053	1.196E+05	6.534E+07	4.390E+03	4.359E+04	6.534E+07	4.390E+03
2054	1.172E+05	6.405E+07	4.303E+03	4.273E+04	6.405E+07	4.303E+03
2055	1.149E+05	6.278E+07	4.218E+03	4.188E+04	6.278E+07	4.218E+03
2056	1.126E+05	6.154E+07	4.135E+03	4.105E+04	6.154E+07	4.135E+03
2057	1.104E+05	6.032E+07	4.053E+03	4.024E+04	6.032E+07	4.053E+03
2058	1.082E+05	5.912E+07	3.972E+03	3.944E+04	5.912E+07	3.972E+03
2059	1.061E+05	5.795E+07	3.894E+03	3.866E+04	5.795E+07	3.894E+03
2060	1.040E+05	5.680E+07	3.817E+03	3.790E+04	5.680E+07	3.817E+03
2061	1.019E+05	5.568E+07	3.741E+03	3.715E+04	5.568E+07	3.741E+03
2062	9.990E+04	5.458E+07	3.667E+03	3.641E+04	5.458E+07	3.667E+03
2063	9.793E+04	5.350E+07	3.594E+03	3.569E+04	5.350E+07	3.594E+03
2064	9.599E+04	5.244E+07	3.523E+03	3.498E+04	5.244E+07	3.523E+03
2065	9.409E+04	5.140E+07	3.454E+03	3.429E+04	5.140E+07	3.454E+03
2066	9.222E+04	5.038E+07	3.385E+03	3.361E+04	5.038E+07	3.385E+03
2067	9.040E+04	4.938E+07	3.318E+03	3.295E+04	4.938E+07	3.318E+03
2068	8.861E+04	4.841E+07	3.252E+03	3.229E+04	4.841E+07	3.252E+03
2069	8.685E+04	4.745E+07	3.188E+03	3.165E+04	4.745E+07	3.188E+03
2070	8.513E+04	4.651E+07	3.125E+03	3.103E+04	4.651E+07	3.125E+03

Results (Continued)

Year	Carbon dioxide			Methane		
	(Mg/year)	*(m^3/year)*	*(av ft^3/min)*	*(Mg/year)*	*(m^3/year)*	*(av ft^3/min)*
2071	8.345E+04	4.559E+07	3.063E+03	3.041E+04	4.559E+07	3.063E+03
2072	8.179E+04	4.468E+07	3.002E+03	2.981E+04	4.468E+07	3.002E+03
2073	8.017E+04	4.380E+07	2.943E+03	2.922E+04	4.380E+07	2.943E+03
2074	7.859E+04	4.293E+07	2.885E+03	2.864E+04	4.293E+07	2.885E+03
2075	7.703E+04	4.208E+07	2.827E+03	2.808E+04	4.208E+07	2.827E+03
2076	7.551E+04	4.125E+07	2.772E+03	2.752E+04	4.125E+07	2.772E+03
2077	7.401E+04	4.043E+07	2.717E+03	2.697E+04	4.043E+07	2.717E+03
2078	7.255E+04	3.963E+07	2.663E+03	2.644E+04	3.963E+07	2.663E+03
2079	7.111E+04	3.885E+07	2.610E+03	2.592E+04	3.885E+07	2.610E+03
2080	6.970E+04	3.808E+07	2.558E+03	2.540E+04	3.808E+07	2.558E+03
2081	6.832E+04	3.732E+07	2.508E+03	2.490E+04	3.732E+07	2.508E+03
2082	6.697E+04	3.658E+07	2.458E+03	2.441E+04	3.658E+07	2.458E+03
2083	6.564E+04	3.586E+07	2.409E+03	2.392E+04	3.586E+07	2.409E+03
2084	6.434E+04	3.515E+07	2.362E+03	2.345E+04	3.515E+07	2.362E+03
2085	6.307E+04	3.445E+07	2.315E+03	2.299E+04	3.445E+07	2.315E+03
2086	6.182E+04	3.377E+07	2.269E+03	2.253E+04	3.377E+07	2.269E+03
2087	6.059E+04	3.310E+07	2.224E+03	2.208E+04	3.310E+07	2.224E+03
2088	5.940E+04	3.245E+07	2.180E+03	2.165E+04	3.245E+07	2.180E+03
2089	5.822E+04	3.180E+07	2.137E+03	2.122E+04	3.180E+07	2.137E+03
2090	5.707E+04	3.118E+07	2.095E+03	2.080E+04	3.118E+07	2.095E+03
2091	5.594E+04	3.056E+07	2.053E+03	2.039E+04	3.056E+07	2.053E+03
2092	5.483E+04	2.995E+07	2.013E+03	1.998E+04	2.995E+07	2.013E+03
2093	5.374E+04	2.936E+07	1.973E+03	1.959E+04	2.936E+07	1.973E+03
2094	5.268E+04	2.878E+07	1.934E+03	1.920E+04	2.878E+07	1.934E+03
2095	5.164E+04	2.821E+07	1.895E+03	1.882E+04	2.821E+07	1.895E+03
2096	5.061E+04	2.765E+07	1.858E+03	1.845E+04	2.765E+07	1.858E+03
2097	4.961E+04	2.710E+07	1.821E+03	1.808E+04	2.710E+07	1.821E+03
2098	4.863E+04	2.657E+07	1.785E+03	1.772E+04	2.657E+07	1.785E+03
2099	4.767E+04	2.604E+07	1.750E+03	1.737E+04	2.604E+07	1.750E+03
2100	4.672E+04	2.552E+07	1.715E+03	1.703E+04	2.552E+07	1.715E+03
2101	4.580E+04	2.502E+07	1.681E+03	1.669E+04	2.502E+07	1.681E+03
2102	4.489E+04	2.452E+07	1.648E+03	1.636E+04	2.452E+07	1.648E+03
2103	4.400E+04	2.404E+07	1.615E+03	1.604E+04	2.404E+07	1.615E+03
2104	4.313E+04	2.356E+07	1.583E+03	1.572E+04	2.356E+07	1.583E+03
2105	4.228E+04	2.310E+07	1.552E+03	1.541E+04	2.310E+07	1.552E+03
2106	4.144E+04	2.264E+07	1.521E+03	1.510E+04	2.264E+07	1.521E+03
2107	4.062E+04	2.219E+07	1.491E+03	1.480E+04	2.219E+07	1.491E+03
2108	3.981E+04	2.175E+07	1.461E+03	1.451E+04	2.175E+07	1.461E+03
2109	3.903E+04	2.132E+07	1.432E+03	1.422E+04	2.132E+07	1.432E+03
2110	3.825E+04	2.090E+07	1.404E+03	1.394E+04	2.090E+07	1.404E+03

Landfill Gas Generation and Control Capacity Chart

Year		2024	2025	2026	2027	2028	2029
LandGEM LFG Generation	(scfm)	14,770	15,370	15,070	14,770	14,480	14,190
LFG Generation (with reaction gas increase)	15%	16,986	17,676	17,331	16,986	16,652	16,319
LFG Generation (with 6000 scfm redundancy)		**22,986**	**23,676**	**23,331**	**22,986**	**22,652**	**22,319**
Flare 1 (FL-1995)[1]	(scfm)	4,000	4,000	4,000			
Flare 2 (FL-2009)		4,000	4,000	4,000	4,000	4,000	4,000
TOX (Zeeco)		2,000	2,000	2,000	2,000	2,000	2,000
Flare 3 (FL-2023)		6,000	6,000	6,000	6,000	6,000	6,000
Flare 4				6,000	6,000	6,000	6,000
TOX (Parnel)			2,000	2,000	2,000	2,000	2,000
Flare 5[2]					6,000	6,000	6,000
Flare/TOX Capacity	(scfm)	**16,000**	**18,000**	**24,000**	**26,000**	**26,000**	**26,000**
Total Capacity	(scfm)	**16,000**	**18,000**	**24,000**	**26,000**	**26,000**	**26,000**

[1]Flare 1 will likely continue into 2027 until Flare 5 has completed startup and is operating full time, after which Flare 1 will be taken offline.

[2]Flare 5 is current listed at a capacity of 6,000 scfm; however, with the landfill closure, a smaller capacity may be capable of meeting the redundancy criterion.

Date: 04/30/2025