BAAQMD Rule 8-34 Semi-Annual Report and Title V Semi-Annual Report

City of Sunnyvale Landfill and SMaRT Station®
Sunnyvale, California (Facility No. 5905)

Prepared for:

Sunnyvale

TV Tracking #: 496

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City of Sunnyvale
Environmental Services Department
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Sunnyvale, CA 94088-3707

For Submittal to:

Bay Area Air Quality Management District
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SCS ENGINEERS

01200220.07 Tasks 59 | July 2022

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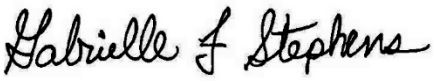
This submittal consisting of the Bay Area Air Quality Management District (BAAQMD) Rule 8-34 Semi-Annual Report and the Title V Semi-Annual Monitoring Report for the Sunnyvale Landfill in Sunnyvale, California, dated July 2022, was prepared and reviewed by the following:

Anne Liu
Staff Professional
SCS ENGINEERS



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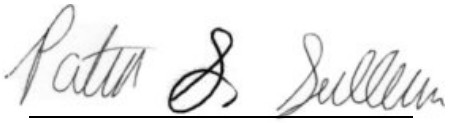

Patrick S. Sullivan, REA, CPP, BCES
Senior Vice President
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SECTION I. BAAQMD RULE 8-34 SEMI-ANNUAL REPORT

1.0 INTRODUCTION

This Bay Area Air Quality Management District (BAAQMD) Rule 8-34 Semi-Annual Report for the Sunnyvale Landfill (Landfill) is for the January 1, 2022 through June 30, 2022 reporting period. As approved by the BAAQMD on November 13, 2013, Rule 8-34 reports are synchronized with the reporting periods specified in the Landfill's Initial Major Facility Review (MFR or Title V) Permit, which was issued by the District on September 19, 2013. As such, the semi-annual Reports cover the semi-annual period January 1 through June 30 and July 1 through December 31; with respective reporting deadlines of July 31 and January 31. This semi-annual report was prepared by SCS Engineers (SCS) on behalf of the City of Sunnyvale Environmental Services Department (City) for submittal to the BAAQMD.

The Landfill was originally assigned BAAQMD Plant No. 2253; however, this designation was changed to No. 5905 when it was combined with the SMaRT Station®. This change was made in anticipation of these two facilities being placed under a single Title V permit. The Semi-Annual Report pertains to the landfill gas (LFG) collection and control system (GCCS) operated at the Landfill.

This report includes the following information, as required by BAAQMD Rule 8-34-411 for small design capacity landfills:

- All system and/or component downtime and reasons for the shutdown (8-34-501.1)
- All emission control system downtime and reason for the shutdown (8-34-501.2)
- Continuous temperature monitoring and dates of any excesses (8-34-501.3 and 507)
- Testing performed to satisfy the requirements of this rule (8-34-501.4)
- Monthly landfill gas flow rates and excesses (8-34-501.5)
- Collection and emission control system leak testing and any excesses, action taken to correct excesses, and re-monitored concentrations (8-34-501.6 and 503)
- Annual waste acceptance rate and the current amount of waste in-place (8-34-501.7)
- Records of non-degradable waste if area is excluded from LFG collection (8-34-501.8)
- Continuous flow monitoring (8-34-501.10 and 508)

Information summarizing the monitoring activities associated with the above-listed items is provided in the following sections.

2.0 SITE BACKGROUND INFORMATION

The Sunnyvale Landfill is located in Sunnyvale, California and is owned and operated by the City. The 93-acre site is a closed landfill site.

The Landfill began accepting waste circa 1920. Until about 1957, most combustible wastes received were burned. In the late 1970's, the site was permitted to operate as a sanitary landfill by the State of California.

Filling operations ceased in September 1993. Closure was completed in October 1994 with an estimated 2.29 million Megagrams (Mg) of waste in place. The Landfill comprises 93 acres in four separate hills referred to as the West Hill, Recycle Hill, South Hill, and East Hill. The maximum height of the Landfill is approximately 90 feet.

2.1 EXISTING PERMITS AND PERMIT MODIFICATIONS

The City maintains a BAAQMD Permit to Operate (PTO) (Plant No. 5905) and a Major Facility Review (MFR)/Title V permit for the entire Landfill, the LFG collection system, the LFG flare, and the SMaRT Station. A Title V permit was initially issued on September 19, 2013. The current Title V permit was issued on December 14, 2017. An application for renewal of the Title V permit for the Landfill and SMaRT Station was submitted to the BAAQMD on March 6, 2018.

The City also maintains a BAAQMD Title V Permit (Plant No. 733) to operate the City of Sunnyvale Water Pollution Control Plant (WPCP), which includes a Power Generation Facility (PGF) that utilizes LFG. The WPCP will continue to operate under a separate Title V permit with separate Title V reporting.

LFG is currently collected from all areas of the Landfill where municipal solid waste was placed and diverted to one or both methane-fired internal combustion (IC) engine generators at the PGF or to the flare located within the flare station at the WPCP. Note that the old flare (designated by the BAAQMD as abatement device 8 (A-8) on the Title V Permit) was replaced by a new flare (A-9). Flare A-8 was permanently taken out of service on September 3, 2013; flare A-9 began operating on September 24, 2013, with a subsequent, initial source test performed on October 2, 2013.

2.2 EXISTING LANDFILL GAS COLLECTION AND CONTROL SYSTEM

The GCCS for the site was installed and became operational in 1987. Several extraction wells were added to the collection system when the final cover was constructed in 1994, and two additional wells were added in 2000.

The gas collection system consists of a header piping network, vertical extraction wells, and horizontal gas collectors. The emission control system (ECS) consists of one enclosed flare and the PGF with two methane-fired engine generators. Note that Digester Gas (Digas), in addition to LFG, is burned in the enclosed flare. Both Digas and air-blended natural gas (ABNG), in addition to LFG, are used to fuel the PGF. The existing GCCS provides LFG control throughout the entire area of the Landfill property where municipal solid waste was placed. Additional details can be found in the GCCS Design Plan, which was prepared for the site by SCS in 2001 and submitted to the BAAQMD. A diagram of the GCCS displaying system component locations is shown in the site plan(s) provided in Appendix A.

3.0 MONITORING AND RECORDS

3.1 CONTINUOUSLY MONITORED PARAMETERS

To comply with this regulation, the Landfill owner/operator is required to maintain full-time operation of the LFG collection system, control devices, and individual extraction wells. Operation is documented by continuously monitoring flow to the flare as well as flare combustion temperature, or flow to the PGF. Downtime for any of these components must be reported in the Rule 8-34 Semi-Annual Report. This information is summarized below and in the attached tables. Records of continuously monitored parameters are available for inspection at the site.

3.1.1 Gas Extraction System Downtime

During this reporting period, the gas extraction/collection system shut down on seven (7) occasions for a total elapsed time of 6.75 hours.

The WPCP, on which the PGF, the LFG Flare, and the blowers are located, is undergoing major construction and rehabilitation. The WPCP began operation in 1956, and the subject reconstruction/rehabilitation project is anticipated to take 20 years to complete. This work is taking place on the same site as the existing WPCP that must remain operational during the construction/rehabilitation. Portions of the WPCP's electrical system, which includes the electrical components of the gas collection and control system (that provide electricity to the blowers, the LFG and the PGF, as well as the associated instrumentation, meters, etc.), occasionally require shutdowns to upgrade equipment, add new lines, or to incorporate new lines for new and improved processes/equipment. There was no downtime accumulated due to the planned maintenance of the GCCS and the ongoing WPCP construction project during the reporting period. Refer to **Table 1** (attached) for the Log of GCCS/ECS downtime.

In addition, it is the City's understanding that one (1) downtime event, which was an unplanned shutdown, did not meet the District's Rule 8-34-113 exemption criteria, and the City submitted a Reportable Compliance Activity (RCA) Notification Form, requesting Breakdown relief for the occurrence.

The event occurred on June 25, 2022 from 09:50 to 13:40. The BAAQMD assigned Breakdown Relief ID 08J65 for this event. On June 25, 2022, the flare unexpectedly shutdown, due to a Pacific Gas and Energy (PG&E) outage. Prior to the power outage, a PG&E employee had been working on the power system at the Water Pollution Control Plant (WPCP). PG&E and their contractors, MGE, corrected the issue and the power was restored. In a subsequent conversation with PG&E, they informed the site that MGE had incorrectly wired in a couple of relays, and that an employee had come back to correct them. After the outage, a few additional PG&E employees arrived to the WPCP to assist in correcting the problem that was responsible for the outage. The LFG Flare was back in service at 13:40, with a resulting downtime of 3 hours and 50 minutes.

City Staff previously submitted an RCA form for this event, as well as the 10-day/30-day Title V deviation report, which are included in the Title V report provided as **Appendix C**.

In the event of a shutdown of an ECS component due to unforeseen circumstances, the City would be aware of downtime events because personnel are automatically notified of the downtime via an alarm system that notifies on-site facility personnel of such an event.

Because the gas extraction system and ECS are designed to work in concert, downtime for the extraction system results in downtime for the flare and the PGF. If sufficient Digas and ABNG were available to maintain PGF operation, the operator could choose to run the PGF rather than purchase electricity, however, neither the flare nor the PGF has been operated without LFG to date.

3.1.2 Emission Control System Downtime

Because of the redundancies built into the GCCS at the Landfill (e.g., multiple control devices), it is unusual for both of the methane-fired engine generators and the enclosed flare to be unable to operate at the same time during an unplanned event. During this reporting period, total GCCS downtime was 6.75 hours, and all downtime was allowable under Rule 8-34-113 except for the one incident mentioned above which totaled 3 hours and 50 minutes.

The City was aware of each flare downtime event either because it was a scheduled maintenance event, or, if it was an unplanned event, because facility personnel are automatically notified via an alarm system of such a shutdown. For unplanned events, facility personnel promptly performed inspection and corrective action as needed to avoid excess emissions. During all GCCS startup, shutdown, and malfunction events, City staff and/or their contractors or consultants inspected the system and conducted the necessary activities (e.g., inspections, maintenance, or repairs) to bring the GCCS back on-line, and maintain compliance.

Please note that because the LFG extraction system and control devices are designed to work in concert, downtime for the entire control system also results in downtime for the extraction system. When the LFG flare goes off-line, an automatic valve is actuated which interrupts LFG and Digas flow to the flare, and an electric relay is triggered, which turns off the extraction system (i.e., LFG blower). When the flare is off-line and both generator sets (gensets) are also not operating, there is no free venting of gas because the gas is constrained by the inoperative gensets and has no alternative outlet. In such circumstances, the blower would be shut down manually. During this reporting period, there were no instances where LFG flow passed through the control system uncontrolled (i.e., free venting). Additionally, there is no bypass that could allow the collected LFG stream to be diverted from the control devices.

3.1.3 Individual Well Downtime

Although the entire GCCS may not go off-line, individual extraction wells are occasionally taken off-line for inspection, maintenance, repair, and other unforeseen circumstances. These are generally planned events, although such events can occur without notice. In each case, the City was able to bring the extraction wells back on-line and maintain compliance.

A summary of the instances of individual well downtime during the reporting period is provided in Table 2, including the date, well identification number, reason for the downtime, a description of what was done to bring the well back on-line, and the total elapsed downtime. At no time during the reporting period were more than five (5) wells offline concurrently, or a single well for more than 24 hours. The well identification numbers are listed on the drawing provided in Appendix A. Each of these instances was allowed under Section 117 of Rule 8-34.

3.1.4 Flow Meter and Temperature Gauge Downtime

The continuous operation of the LFG collection system and control devices is measured through the continuous measurement of LFG flow. Operation of the LFG flare in compliance with the PTO is

monitored via flare temperature. As required by Rule 8-34, the GCCS at the Landfill is equipped with flow measuring devices and a temperature gauge, which provide continuous readout displays, as well as electronic data records from a video-graphic recorder. Additionally, flow and temperature data are recorded on the optical coupling device, "OPTO", which periodically backs up its data. The OPTO data allows retrieval of information to fill in any gaps in the video-graphic recorders' records. Review of the data from the OPTO and the video-graphic recorder indicates there were three (3) gaps during the reporting period. Per District Rule 1-523.1, no District notification is required for periods of inoperation of parametric monitors of less than 24 hours. One of the three gaps exceeded 24 hours. Monitoring data from the video-graphic recorder and the OPTO are available for inspection at the site.

Two gaps that occurred during the reporting period that did not exceed 24 hours occurred on January 31 and April 1, 2022. On January 31, 2022 from 9:15 to 9:54, there was a gap due to maintenance as the LFG flow meter was being replaced. On April 1, 2022 from 10:53 to 11:36, LFG flow was low during the PGF startup. When flow is under 40 scfm, the flow meter does not register gas flow.

A gap occurred on January 22, 2022 at 22:16 to January 24, 2022 at 06:38 that exceeded 24 hours. The BAAQMD assigned Inoperative Monitor ID 08F02 for this event. On January 22, 2022, it was discovered that data was not being recorded on the PGF database. The cause of the loss of flow data was initially attributed to a wire at the south end of the Flare Station that is associated with the LFG vacuum meter. It was suspected that the problem was localized and attributable to moisture getting into the wire, or the wire's terminals, as the PGF started recording shortly after the wire was shaken, and water droplets came off. It was subsequently determined, however, that this wire was not associated with the gap in LFG flow recording. It is suspected that the data lapse may be the result of an intermittent issue, as the flow meter began to record again prior to taking corrective action. Accordingly, WPCP and landfill staff are closely monitoring the flow in the event the recording of the flow data ceases again. Total time that the recorder did not record the flow of LFG was 32 hours and 22 minutes.

City Staff previously submitted an RCA form for this event, as well as the 10-day/30-day Title V deviation report, which are included in the Title V report provided as **Appendix C**.

3.2 COMPONENT LEAK QUARTERLY MONITORING

3.2.1 First Quarter 2022 Monitoring

The Landfill GCCS components and the PGF were both tested on March 17, 2022 for any leaks with a methane concentration of greater than 500 parts per million by volume (ppmv) as required by the California Air Resources Board (CARB) AB 32 Landfill Methane Rule (LMR) or greater than 1,000 ppmv as required by BAAQMD Rule 8-34-503. Testing was performed by SCS Field Services (SCSFS) using an organic vapor analyzer (OVA), which was calibrated on the same day. Calibration records are available upon request.

During the monitoring events, no component leaks in excess of 500 ppmv were detected in the Landfill GCCS components or the PGF, and therefore compliance was demonstrated. A summary of the data from SCSFS for the 2022 first quarter monitoring event can be found in **Appendix B**.

3.2.2 Second Quarter 2022 Monitoring

The Landfill GCCS components and the PGF were both tested on June 27, 2022, for any leaks with a methane concentration of greater than 500 ppmv as required by the CARB AB-32 LMR, or 1,000 ppmv as required by BAAQMD Rule 8-34-503. Testing was performed by SCSFS using an OVA, which was calibrated on the same day.

During the monitoring events, no component leaks in excess of 500 ppmv were detected in the Landfill GCCS components or the PGF, and therefore compliance was demonstrated. A summary of the data from SCSFS for the 2022 second quarter monitoring event can be found in Appendix B.

3.3 CONTROL EFFICIENCY

The LFG flare (A-9) is required, under the provisions of the Initial Title V Permit, to be tested annually to demonstrate compliance with the control efficiency standard of greater than 98 percent (%) non-methane organic compound (NMOC) destruction efficiency or an outlet concentration of less than 30 ppmv of NMOCs as methane at 3 % oxygen (for flares) as required by BAAQMD Rule 8-34-301.4, 8-34-412 and 8-34-413. Initial testing of this flare was performed by Blue Sky Environmental, Inc. on October 2, 2013, followed by two annual flare testing events conducted in October 2014 and October 2015. Per Condition 11586 Part 12 of the City's PTO, after three consecutive annual source tests demonstrate compliance, the testing frequency can be reduced to once every three years. The most recent source test was conducted on September 20, 2021. The Source Test report dated November 9, 2021, indicated the flare was in compliance. A copy of the full report has been submitted to the District. The next LFG flare source testing is required by September 2024.

3.4 WELLHEAD AND SURFACE EMISSIONS MONITORING

There was no wellhead monitoring activity pursuant to Rule 8-34 performed at the site because the monitoring is not required per the limited exemption for small design capacity landfills (8-34-120). However, monthly wellhead monitoring for pressure is performed under the AB 32 LMR, and will be reported in a separate annual report to the BAAQMD, which has been delegated by the CARB to implement the LMR. Similarly, landfill surface emissions monitoring (SEM) is not required by Rule 8-34, however, SEM is performed annually at the subject site, as required under the AB 32 LMR.

3.5 COVER INTEGRITY MONITORING

The integrity of the landfill cover is monitored on a monthly basis by the City in accordance with BAAQMD Rule 8-34-510 using procedures specified in the GCCS Design Plan (SCS, 2001). During the reporting period, cover integrity monitoring was conducted on January 27, February 25, March 29, April 29, May 31, and June 30, 2022. During the reporting period, the observations during these monthly monitoring events indicated the landfill surface was in good condition. In the event visual evidence suggested otherwise, the surface will be promptly repaired.

3.6 MONTHLY LANDFILL GAS FLOW RATES

The Sunnyvale Landfill is not subject to Rule 8-34-404 because the Landfill does not operate less than continuously. Therefore, monthly flow data are not required to be reported.

3.7 ANNUAL WASTE ACCEPTANCE RATE AND REFUSE IN PLACE

The Sunnyvale Landfill is a closed landfill that has not accepted waste since 1993. The City only has records of quantities of waste that the facility received since 1976; earlier acceptance rates for the Landfill are estimated since no records are available to describe any previous waste disposal operations. The site has an estimated 2.29 million Mg of refuse in place.

3.7.1 Non-Degradable Waste Areas

A non-degradable monofill area exists at the Landfill between the East and South Hills. This Biosolids Monofill is not within the area covered by the GCCS and is not designated on the GCCS drawing. There were 50 cubic yards deposited to the Biosolids Monofill during the reporting period. Records are available upon request.

SECTION II. TITLE V SEMI-ANNUAL REPORT

As specified in 40 Code of Federal Regulation (CFR) Part 70, reports of any required monitoring must be submitted at least every 6 months. All instances of deviations from permit requirements for the semi-annual reporting period, specified in the Landfill's Initial Title V Permit as January 1 through June 30 and July 1 through December 31, must be clearly identified in each report. This Title V Report covers the January 1, 2022 through June 30, 2022 reporting period.

This report has been prepared based on Part VII (Applicable Limits and Compliance Monitoring Requirements) of the Landfill's MFR Permit. The report includes a certification by a responsible official, consistent with §70.5(d).

The full Title V Semi-Annual Report, including certification by a responsible official, is provided as **Appendix C**.

Tables

Table 1 - Log of Gas Collection and Control System (GCCS) Downtime OR Emission Control System (ECS) Downtime

(Total Allowed Time for **either** GCCS or ECS downtime is 240 hours per calendar year)

2022 Reporting Period (January 1, 2022 - June 30, 2022)

Date	Initial Cause of Downtime*			Reason for Downtime**	Time System Went Offline	Time System Came Online	Duration Offline	Balance of Hours***
	GCCS	ECS	Other					
								240.00
1/24/22			X	PG&E secured power for interrupter replacement.	7:05	7:42	0.62	239.38
1/24/22	X			LFG field piping repairs.	8:23	11:58	3.58	235.80
1/24/22			X	PG&E power restored - back to normal power supply.	14:08	14:19	0.18	235.62
3/14/22			X	Power secured for contractor testing - portable generator connected.	7:41	8:05	0.40	235.22
3/16/22			X	Returning LFGF back to normal power -portable generator secured.	7:10	7:21	0.18	235.04
6/8/22			X	PG&E power secured for new power supply.	9:05	10:30	1.42	233.62
6/9/22			X	Secured LFGF to switch to normal power.	7:30	7:52	0.37	233.25
						Total Time Off-Line		**6.75**

Notes:

* Place a checkmark in the box under the system that was the initial cause of the shutdown. (e.g. A break in the GCCS system, a problem with the Flare or Gensets, and a plant power outage would result in the "GCCS", "ECS", and "other" box being checked, respectively.)

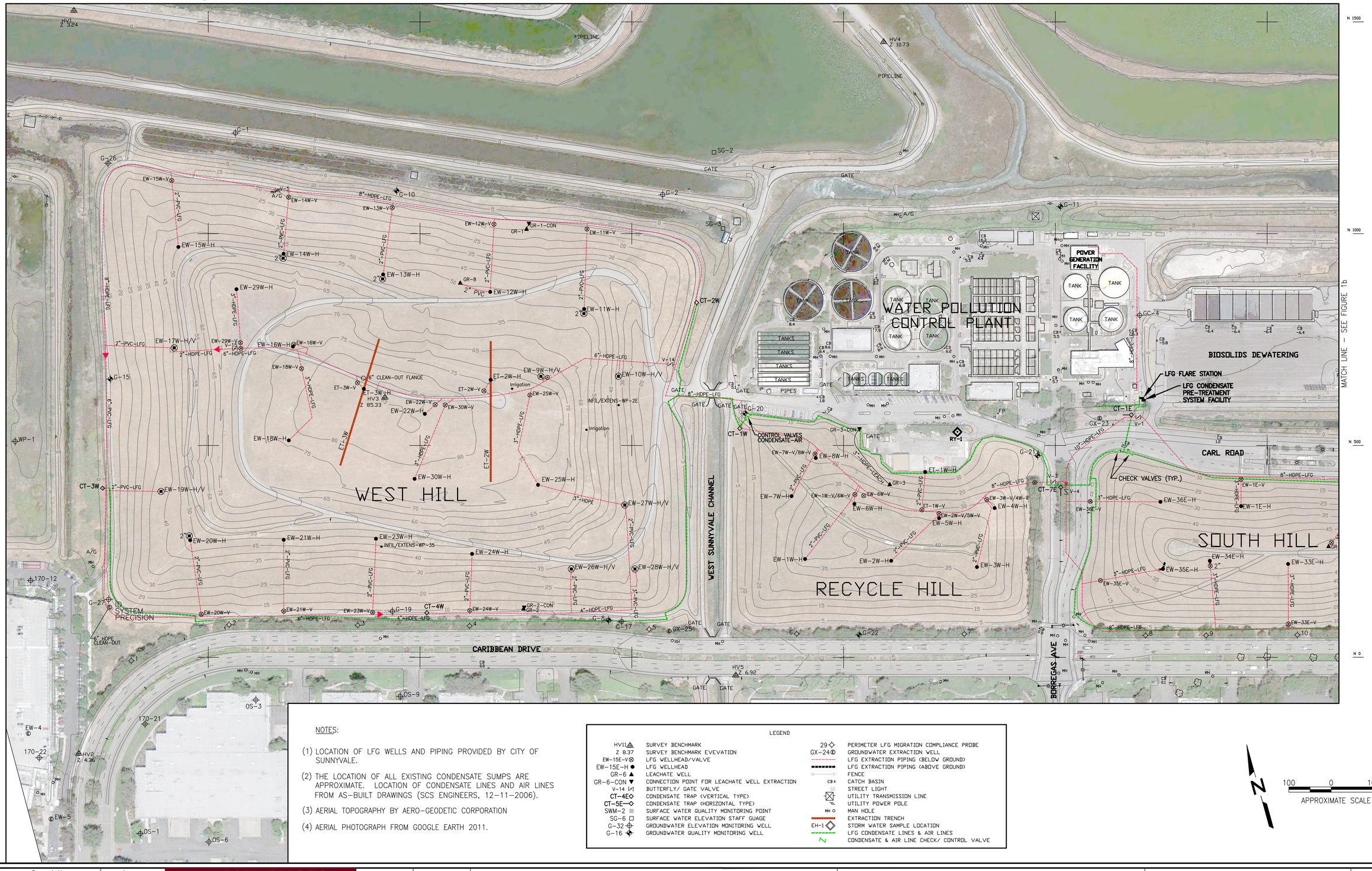
** Provide a brief explanation of the cause of the downtime. (eg: There was a break in a lfg line; while the engines were undergoing maintenance the flare malfunctioned; and a plant-wide power outage occurred.)

*** Please convert minutes into hundredths of an hour (e.g. 5 hrs, 13 min would be recorded as 5.22 hours) and subtract from prior line's balance of hours.

Table 2 - Downtime of Individual Gas Collection Wells
Reporting Period - January 1, 2022 through June 30, 2022

Well No.	Date Off-Line	Reason for Improvement	Corrective Action	Date On-Line	Offline (hours)
EW-8E-w	2/22/22	Damaged flex hose.	Replaced flex hose.	2/22/22	0.47
EW-2E-w	5/26/22	Troubleshooting vacuum and gas quality issues.	Increased vacuum likely cleared semi-plug.	5/26/22	3.92
EW-19W-w	6/8/22	Inspect lateral and connection to header with camera.	No corrective action needed at this time.	6/8/22	0.5
EW-4E-w	6/8/22	Inspect lateral and connection to header with camera.	No corrective action needed at this time.	6/8/22	0.2
EW-8E-w	6/8/22	Inspect well casing.	No corrective action at this time.	6/8/22	0.12

Appendix A – GCCS Drawings



NOTES:

(1) LOCATION OF LFG WELLS AND PIPING PROVIDED BY CITY OF SUNNYVALE.

(2) THE LOCATION OF ALL EXISTING CONDENSATE SUMPS ARE APPROXIMATE. LOCATION OF CONDENSATE LINES AND AIR LINES FROM AS-BUILT DRAWINGS (SCS ENGINEERS, 12-11-2006).

(3) AERIAL TOPOGRAPHY BY AERO-GEODETIC CORPORATION

(4) AERIAL PHOTOGRAPH FROM GOOGLE EARTH 2011.

LEGEND

HV11	SURVEY BENCHMARK	29	PERIMETER LFG MIGRATION COMPLIANCE PROBE
Z 8.37	SURVEY BENCHMARK EVEVATION	GX-24	GROUNDWATER EXTRACTION WELL
EW-15E-V	LFG WELLHEAD/VALVE		LFG EXTRACTION PIPING (BELOW GROUND)
EW-15E-H	LFG WELLHEAD		LFG EXTRACTION PIPING (ABOVE GROUND)
GR-6	LEACHATE WELL		FENCE
GR-6-CON	CONNECTION POINT FOR LEACHATE WELL EXTRACTION	CB	CATCH BASIN
V-14	BUTTERFLY/ GATE VALVE		STREET LIGHT
CT-4E	CONDENSATE TRAP (VERTICAL TYPE)		UTILITY TRANSMISSION LINE
CT-5E	CONDENSATE TRAP (HORIZONTAL TYPE)		UTILITY POWER POLE
SWM-2	SURFACE WATER QUALITY MONITORING POINT	MH	MAN HOLE
SG-6	SURFACE WATER ELEVATION STAFF GUAGE		EXTRACTION TRENCH
G-32	GROUNDWATER ELEVATION MONITORING WELL	EH-1	STORM WATER SAMPLE LOCATION
G-16	GROUNDWATER QUALITY MONITORING WELL		LFG CONDENSATE LINES & AIR LINES
			CONDENSATE & AIR LINE CHECK/ CONTROL VALVE

100 0 100 200

APPROXIMATE SCALE IN FEET

Rev.	Description	Date

SCS ENGINEERS

ENVIRONMENTAL CONSULTANTS

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Drawn By:	TMS
Checked By:	JJM
SCS Job No.:	01211339.00

SHEET TITLE: SITE PLAN WEST

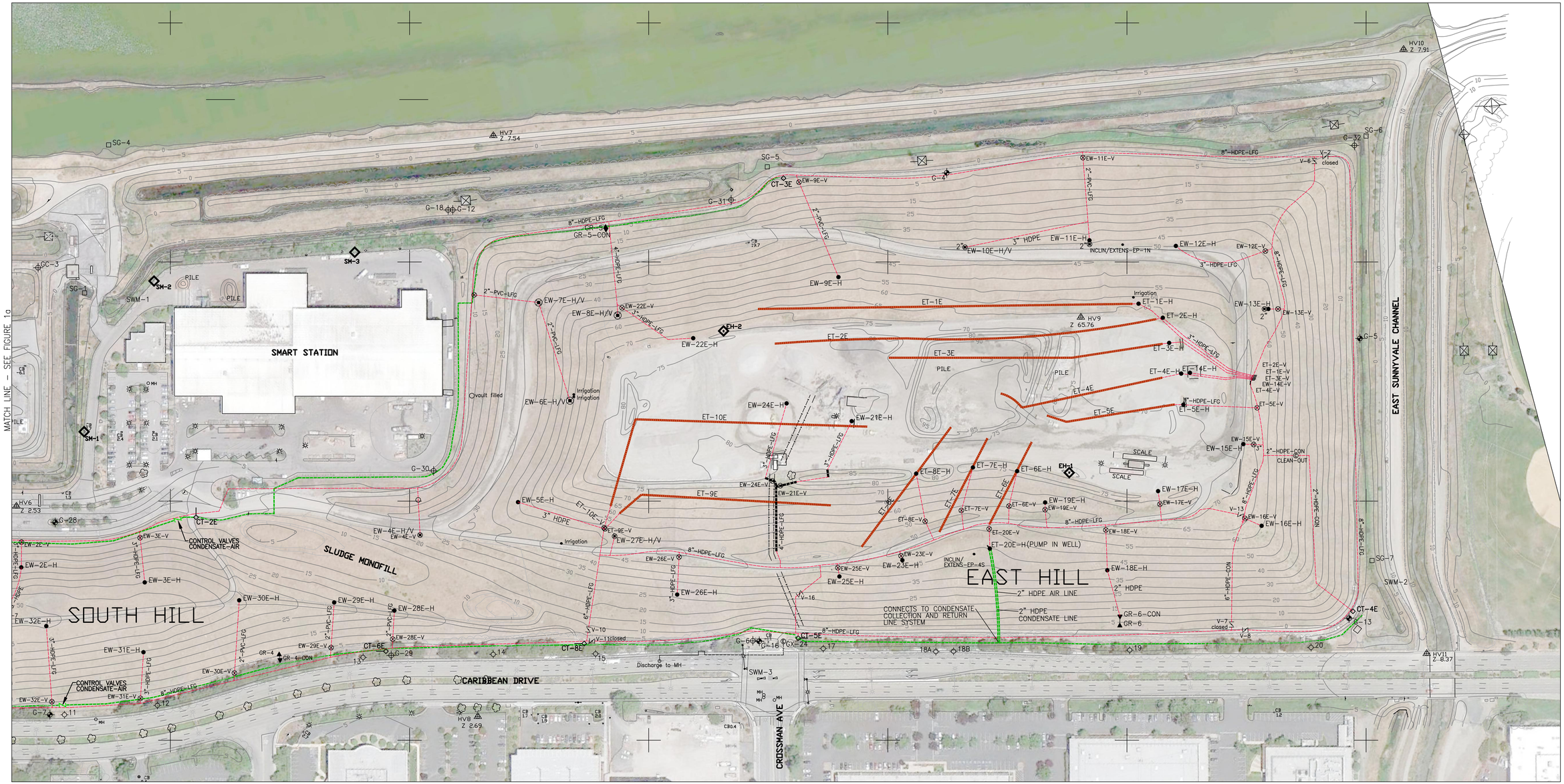
PROJECT TITLE: LANDFILL GAS
AND OTHER ENVIRONMENTAL MONITORING AND CONTROL SYSTEMS
SUNNYVALE LANDFILL

City of Sunnyvale
Environmental
Services Department

456 West Olive Avenue
P.O. Box 3707
Sunnyvale, California
94088-3707

Date: 5/4/2012

Drawing No. 1a



NOTES:

(1) LOCATION OF LFG WELLS AND PIPING PROVIDED BY CITY OF SUNNYVALE.

(2) THE LOCATION OF ALL EXISTING CONDENSATE SUMPS ARE APPROXIMATE. LOCATION OF CONDENSATE LINES AND AIR LINES FROM AS-BUILT DRAWINGS (SCS ENGINEERS, 12-11-2006).

(3) AERIAL TOPOGRAPHY BY AERO-GEODETIC CORPORATION

(4) AERIAL PHOTOGRAPH FROM GOOGLE EARTH 2011.

LEGEND

HV11 Z 8.37	SURVEY BENCHMARK / SURVEY BENCHMARK EVEVATION	----------	LFG EXTRACTION PIPING (BELOW GROUND)
EW-15E-V	LFG WELLHEAD/VALVE	==========	LFG EXTRACTION PIPING (ABOVE GROUND)
EW-15E-H	LFG WELLHEAD	x---x	FENCE
GR-6	LEACHATE WELL	CB	CATCH BASIN
GR-6-CON	CONNECTION POINT FOR LEACHATE WELL EXTRACTION		STREET LIGHT
V-14	BUTTERFLY/ GATE VALVE		UTILITY TRANSMISSION LINE
CT-4E	CONDENSATE TRAP (VERTICAL TYPE)		UTILITY POWER POLE
CT-5E	CONDENSATE TRAP (HORIZONTAL TYPE)	MH	MAN HOLE
SWM-2	SURFACE WATER QUALITY MONITORING POINT	T-3W	EXTRACTION TRENCH
SG-6	SURFACE WATER ELEVATION STAFF GUAGE	EH-1	STORM WATER SAMPLE LOCATION
G-32	GROUNDWATER ELEVATION MONITORING WELL	----------	LFG CONDENSATE LINES & AIR LINES
G-16	GROUNDWATER QUALITY MONITORING WELL	N	CONDENSATE & AIR LINE CHECK/ CONTROL VALVE
29	PERIMETER LFG MIGRATION COMPLIANCE PROBE		
GX-24	GROUNDWATER EXTRACTION WELL		

N

100 0 100 200

APPROXIMATE SCALE IN FEET

Rev.	Description	Date

SCS ENGINEERS

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Drawn By:	TMS
Checked By:	JJM
SCS Job No.:	01211339.00

SHEET TITLE: SITE PLAN EAST

PROJECT TITLE: LANDFILL GAS
AND OTHER ENVIRONMENTAL MONITORING AND CONTROL SYSTEMS
SUNNYVALE LANDFILL

City of Sunnyvale
Environmental
Services Department

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Date: 5/4/2012

Drawing No. 1b

Appendix B – SCSFS Quarterly LFG Collection System Component Leak/Emissions Testing and Component Emissions Monitoring Results

April 6, 2022
File No. 07218240.00

Mr. William Theyskens
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Post Office Box 3707
Sunnyvale, California 94086

Subject: First Quarter 2022 Landfill Gas (LFG) Collection System Component Leak/Emissions Testing at the Sunnyvale Landfill, Sunnyvale, California

Dear Mr. Theyskens:

This letter provides results of the landfill gas collection system component leak/emissions monitoring for the first quarter of 2022 (January through March) as required by the Landfill Methane Rule (LMR) and Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34. All work was performed by SCS Field Services (SCS) in accordance with City approval and our approved Work Scope.

CONCLUSIONS AND RECOMMENDATIONS

On March 17, 2022, LFG component (e.g., well/valve vaults) leak/emissions monitoring showed no exceedances of the LMR limit of 500 ppmv or the BAAQMD Regulation 8, Rule 34 threshold of 1,000 parts per million (ppm), respectively. Therefore, no additional testing is recommended until the first quarter 2022.

BACKGROUND

The Sunnyvale Landfill site is an inactive organic refuse disposal site. By way of background, organic materials buried in a landfill decompose anaerobically (in the absence of oxygen) producing a combustible gas, which contains approximately 50 to 60 percent methane, 40 to 50 percent carbon dioxide, and trace amounts of various other gases, some of which are odorous. The Sunnyvale property contains a system to control the combustible gases generated in the landfill.

The gases produced in the landfill will either vent vertically to the atmosphere or migrate horizontally through subsurface soil to locations on adjacent properties. If the soil surrounding a landfill consists of permeable materials, there is a greater likelihood that the LFG will migrate to offsite locations. If the methane gas component of LFG is allowed to accumulate in a confined area (i.e., utility lines, irrigation valve boxes, vaults, basements, wall spaces, etc.) and is exposed to an ignition source, it can be explosive at concentrations between 5 and 15 percent by volume.

LFG COMPONENT EMISSIONS MONITORING

On March 17, 2022, LFG component leak/emissions monitoring was performed at the subject site. The intent of the monitoring was to identity any specific locations (e.g., well/valve vaults and components) with organic compound concentrations exceeding the LMR threshold of 500 ppmv or BAAQMD, Regulation 8, Rule 34 threshold limit value of 1,000 ppmv measured as methane, respectively.

TESTING INSTRUMENTATION/CALIBRATION

Instruments used to perform the LFG component leak/emissions testing consisted of the following:

- Thermo Scientific TVA-2020 portable Flame Ionization Detector (FID). This instrument measures methane in air over a range of 1 to 50,000 ppmv. The FID meets BAAQMD requirements and was calibrated in accordance with manufacturer specifications and EPA Method 21.

LFG COMPONENT EMISSIONS MONITORING PROCEDURES

LFG component leak/emissions monitoring was conducted in accordance with BAAQMD Regulation 8, Rule 34 and the LMR. Monitoring was performed with the FID inlet held within 1 to 2 centimeters above all accessible LFG system components including extraction well and control valve vault boxes and flanges, etc.

TESTING RESULTS

On March 17, 2022, quarterly LFG component/leak emissions testing of the collection system valve and wellhead boxes and flare station was performed as required by the BAAQMD. No methane gas concentrations in excess of the LMR limit of 500 ppmv or Rule 8-34 limit of 1000 ppmv limit were detected during this testing. See attached table for monitoring results. Therefore, the next required quarterly testing is due by the end of June 2022.

STANDARD PROVISIONS

This report addresses conditions of the subject site on the test dates only. Accordingly, we assume no responsibility for any changes that may occur subsequent to our testing which could affect the emissions at the subject site.

Should you have any questions, do not hesitate to contact either of the undersigned.

Sincerely,

Rebecca L. Lucero
Project Coordinator
SCS Field Services

Stephen Harquail
Project Manager
SCS Field Services

cc: Silviana Ruiz
Cameron Kostigen Mumper

First Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Darris/Joey/Gorge/Frank
Date: 3.17.22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 60
Barometric Pressure: 29.9
Wind Speed/Direction: 4 N
Instrument: TVA-2020
Calibration: 3.17.22

East Hill Horizontals

Monitoring Location (ET's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1E	1.0	1.0	
2E	2.0	2.0	
3E	1.9	1.9	
4E	2.0	2.0	
5E	2.0	2.0	
6E	1.9	1.9	
7E	1.9	1.9	
8E	1.9	1.9	
9E	1.8	1.8	

First Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Darris/Joey/Gorge/Frank
Date: 3.17.22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 60
Barometric Pressure: 29.9
Wind Speed/Direction: 4 N
Instrument: TVA-2020
Calibration: 3.17.22

East Hill Verticals

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1E	2.2	2.2	
2E	2.0	2.0	
3E	2.1	2.1	
4E	2.0	2.0	
5E	2.1	2.1	
6E	2.0	2.0	
7E	0.6	0.6	
8E	1.0	1.0	
9E	2.0	2.0	
10E	2.0	2.0	
11E	1.4	1.4	
12E	3.0	3.0	
13E	2.0	2.0	
14E	3.0	3.0	
15E	2.0	2.0	
16E	1.0	1.0	
17E	2.1	2.1	
18E	1.0	1.0	
19E	1.0	1.0	
20E	2.0	2.0	
21E	2.0	2.0	
22E	1.8	1.8	

First Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Darris/Joey/Gorge/Frank
Date: 3.17.22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 60
Barometric Pressure: 29.9
Wind Speed/Direction: 4 N
Instrument: TVA-2020
Calibration: 3.17.22

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
23E	1.0	1.0	
24E	2.0	2.0	
25E	3.0	3.0	
26E	4.0	4.0	
27E	2.0	2.0	
28E	2.0	2.0	
29E	1.9	1.9	
30E	2.0	2.0	
31E	2.1	2.1	
32E	2.1	2.1	
33E	2.0	2.0	
34E	2.1	2.1	
35E	2.2	2.2	
36E	2.1	2.1	

West Hill Horizontals

Monitoring Location (ET's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1W	1.0	1.0	
2W	2.0	2.0	
3W	3.0	3.0	

First Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Darris/Joey/Gorge/Frank
Date: 3.17.22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 60
Barometric Pressure: 29.9
Wind Speed/Direction: 4 N
Instrument: TVA-2020
Calibration: 3.17.22

West Hill Verticals

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1W	1.0	1.0	
2W	4.0	4.0	
3W	1.0	1.0	
4W	2.0	2.0	
5W	3.0	3.0	
6W	1.0	1.0	
7W	1.0	1.0	
8W	2.0	2.0	
9W	0.8	0.8	
10W	1.0	1.0	
11W	3.2	3.2	
12W	1.0	1.0	
13W	5.0	5.0	
14W	2.0	2.0	
15W	1.0	1.0	
16W	1.0	1.0	
17W	3.0	3.0	
18W	1.0	1.0	
19W	3.0	3.0	
20W	1.0	1.0	
21W	3.0	3.0	

First Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Darris/Joey/Gorge/Frank
Date: 3.17.22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 60
Barometric Pressure: 29.9
Wind Speed/Direction: 4 N
Instrument: TVA-2020
Calibration: 3.17.22

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
22W	2.0	2.0	
23W	3.0	3.0	
24W	1.0	1.0	
25W	1.0	1.0	
26W	1.0	1.0	
27W	3.0	3.0	
28W	1.0	1.0	
29W	1.0	1.0	
30W	1.0	1.0	

April 5, 2022
File No. 07218240.00

Mr. Cameron Kostigen Mumper
City of Sunnyvale
Post Office Box 3707
Sunnyvale, California 94086

Subject: First Quarter 2022 Power Generation Facility (PGF) and Landfill Gas (LFG) Flare System Component Leak/Emissions Testing at the Sunnyvale Landfill, Sunnyvale, California

Dear Mr. Kostigen Mumper:

This letter provides results of the first quarter 2022 PGF and LFG flare system component leak/emissions monitoring as required by Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34 and the Landfill Methane Rule (LMR). All work was performed by SCS Field Services (SCS) in accordance with City approved Purchase Order.

CONCLUSIONS AND RECOMMENDATIONS

On March 17, 2022, PGF and LFG flare positive pressure component (e.g., leak/emissions) monitoring showed no exceedances of BAAQMD Regulation 8, Rule 34 or LMR threshold of 1000 and 500 parts per million (ppm), respectively. Therefore, no additional testing is recommended until the second quarter 2022.

BACKGROUND

The Sunnyvale Landfill site is an inactive organic refuse disposal site. By way of background, organic materials buried in a landfill decompose anaerobically (in the absence of oxygen) producing a combustible gas, which contains approximately 50 to 60 percent methane, 40 to 50 percent carbon dioxide, and trace amounts of various other gases, some of which are odorous. The Sunnyvale property contains a system to control the combustible gases generated in the landfill.

The gases produced in the landfill will either vent vertically to the atmosphere or migrate horizontally through subsurface soil to locations on adjacent properties. If the soil surrounding a landfill consists of permeable materials, there is a greater likelihood that the LFG will migrate to offsite locations. If the methane gas component of LFG is allowed to accumulate in a confined area (i.e., utility lines, irrigation valve boxes, vaults, basements, wall spaces, etc.) and is exposed to an ignition source, it can be explosive at concentrations between 5 and 15 percent by volume. At higher concentrations, methane gas is flammable. However, the presence of methane gas in site soil does not mean there is an immediate threat of explosion because flames cannot typically propagate through soil.

LFG COMPONENT EMISSIONS MONITORING

On March 17, 2022, PGF and Flare landfill gas component leak/emissions monitoring was performed at the subject site. The intent of the monitoring was to identity any specific locations at the PGF with organic compound concentrations exceeding BAAQMD, Regulation 8, Rule 34 and LMR threshold limit value of 1000 ppmv or 500 ppmv, respectively measured as methane.

TESTING INSTRUMENTATION/CALIBRATION

Instruments used to perform the LFG component leak/emissions testing consisted of the following:

- Thermo-Scientific TVA-2020 (TVA). This instrument measures methane in air over a range of 1 to 50,000 ppmv. The TVA-2020 meets BAAQMD requirements and was calibrated in accordance with manufacture specifications and EPA Method 21.

LFG COMPONENT EMISSIONS MONITORING PROCEDURES

LFG component leak/emissions monitoring was conducted in accordance with BAAQMD Regulation 8, Rule 34 and the LMR. Monitoring was performed with the TVA-2020 inlet held within 1 to 2 centimeters above all/accessible PGF system components under positive pressure including valves, flanges, blower seals, etc.

TESTING RESULTS

On March 17, 2022, quarterly LFG component/leak emissions testing of the PGF and LFG Flare Station were performed as required by the BAAQMD (see attached data table). No location tested exceeded the Rule 8-34 1000 ppmv limit and LMR 500 ppmv limit during our monitoring event. Therefore, the next required quarterly testing for all components is due by the end of June 2022.

STANDARD PROVISIONS

This report addresses conditions of the subject site on the test date only. Accordingly, we assume no responsibility for any changes that may occur subsequent to our testing which could affect the emissions at the subject site.

Should you have any questions, do not hesitate to contact either of the undersigned.

Sincerely,

Rebecca L. Lucero
Project Coordinator
SCS Field Services

Stephen Harquail
Project Manager
SCS Field Services

cc William Theyskens
Melody Tovar
Bryan Berdeen

First Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Darris Phillips
Date: 3.17.22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 60
Barometric Pressure: 29.9
Wind Speed/Direction: 4 N
Instrument: TVA-2020
Calibration: 3.17.22

Flare Station

Monitoring Location	Testing Results (ppm)	Retesting Results (ppm)	Comments
Blowers	2		flare not runing
Valves	2		
Piping	2		
Flanges	5		

Power Generation Facility

Monitoring Location	Testing Results (ppm)	Retesting Results (ppm)	Comments
Compressor	4		power plant not running
Valves	1		
Piping	5		
Flanges	3		
Blowers	3		
Engines	2		

July 8, 2022
File No. 07218240.00

Mr. William Theyskens
City of Sunnyvale
Environmental Services Department
456 West Olive Avenue
Post Office Box 3707
Sunnyvale, California 94086

Subject: Second Quarter 2022 Landfill Gas (LFG) Collection System Component Leak/Emissions Testing at the Sunnyvale Landfill, Sunnyvale, California

Dear Mr. Theyskens:

This letter provides results of the landfill gas collection system component leak/emissions monitoring for the second quarter of 2022 (April through June) as required by the Landfill Methane Rule (LMR) and Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34. All work was performed by SCS Field Services (SCS) in accordance with City approval and our approved Work Scope.

CONCLUSIONS AND RECOMMENDATIONS

On June 27, 2022, LFG component (e.g., well/valve vaults) leak/emissions monitoring showed no exceedances of the LMR limit of 500 ppmv or the BAAQMD Regulation 8, Rule 34 threshold of 1,000 parts per million (ppm), respectively. Therefore, no additional testing is recommended until the third quarter 2022.

BACKGROUND

The Sunnyvale Landfill site is an inactive organic refuse disposal site. By way of background, organic materials buried in a landfill decompose anaerobically (in the absence of oxygen) producing a combustible gas, which contains approximately 50 to 60 percent methane, 40 to 50 percent carbon dioxide, and trace amounts of various other gases, some of which are odorous. The Sunnyvale property contains a system to control the combustible gases generated in the landfill.

The gases produced in the landfill will either vent vertically to the atmosphere or migrate horizontally through subsurface soil to locations on adjacent properties. If the soil surrounding a landfill consists of permeable materials, there is a greater likelihood that the LFG will migrate to offsite locations. If the methane gas component of LFG is allowed to accumulate in a confined area (i.e., utility lines, irrigation valve boxes, vaults, basements, wall spaces, etc.) and is exposed to an ignition source, it can be explosive at concentrations between 5 and 15 percent by volume.

LFG COMPONENT EMISSIONS MONITORING

On June 27, 2022, LFG component leak/emissions monitoring was performed at the subject site. The intent of the monitoring was to identity any specific locations (e.g., well/valve vaults and components) with organic compound concentrations exceeding the LMR threshold of 500 ppmv or BAAQMD, Regulation 8, Rule 34 threshold limit value of 1,000 ppmv measured as methane, respectively.

TESTING INSTRUMENTATION/CALIBRATION

Instruments used to perform the LFG component leak/emissions testing consisted of the following:

- Thermo Scientific TVA-2020 portable Flame Ionization Detector (FID). This instrument measures methane in air over a range of 1 to 50,000 ppmv. The FID meets BAAQMD requirements and was calibrated in accordance with manufacturer specifications and EPA Method 21.

LFG COMPONENT EMISSIONS MONITORING PROCEDURES

LFG component leak/emissions monitoring was conducted in accordance with BAAQMD Regulation 8, Rule 34 and the LMR. Monitoring was performed with the FID inlet held within 1 to 2 centimeters above all accessible LFG system components including extraction well and control valve vault boxes and flanges, etc.

TESTING RESULTS

On June 27, 2022, quarterly LFG component/leak emissions testing of the collection system valve and wellhead boxes and flare station was performed as required by the BAAQMD. No methane gas concentrations in excess of the LMR limit of 500 ppmv or Rule 8-34 limit of 1000 ppmv limit were detected during this testing. See attached table for monitoring results. Therefore, the next required quarterly testing is due by the end of September 2022.

STANDARD PROVISIONS

This report addresses conditions of the subject site on the test date only. Accordingly, we assume no responsibility for any changes that may occur subsequent to our testing which could affect the emissions at the subject site.

Should you have any questions, do not hesitate to contact either of the undersigned.

Sincerely,

Rebecca L. Lucero
Project Coordinator
SCS Field Services

Stephen Harquail
Project Manager
SCS Field Services

cc: Silviana Ruiz
Cameron Kostigen Mumper
Anne Liu – SCS Engineers

Second Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Bryan,Don,Rashad, Ruben, Diego
Date: 6-27-22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 72
Barometric Pressure: 30.08
Wind Speed/Direction: 6 N
Instrument: TVA-2020
Calibration: 6-27-22

East Hill Horizontals

Monitoring Location (ET's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1E	2.0	2.0	
2E	1.8	2.0	
3E	1.9	1.9	
4E	2.0	2.0	
5E	2.0	2.0	
6E	1.9	1.9	
7E	1.9	1.9	
8E	1.9	1.9	
9E	1.8	1.8	

Second Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Bryan,Don,Rashad, Ruben, Diego
Date: 6-27-22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 72
Barometric Pressure: 30.08
Wind Speed/Direction: 6 N
Instrument: TVA-2020
Calibration: 6-27-22

East Hill Verticals

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1E	2.0	1.4	
2E	2.0	1.4	
3E	2.0	1.9	
4E	2.0	1.8	
5E	2.1	1.9	
6E	2.0	2.0	
7E	0.6	0.6	
8E	1.0	1.0	
9E	2.0	2.0	
10E	2.0	2.0	
11E	1.4	1.4	
12E	2.0	1.7	
13E	2.0	2.0	
14E	2.0	2.0	
15E	2.0	2.0	
16E	1.0	1.0	
17E	2.1	2.1	
18E	1.0	1.0	
19E	1.0	1.0	
20E	2.0	2.0	
21E	2.0	2.0	
22E	1.8	1.8	

Second Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Bryan,Don,Rashad, Ruben, Diego
Date: 6-27-22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 72
Barometric Pressure: 30.08
Wind Speed/Direction: 6 N
Instrument: TVA-2020
Calibration: 6-27-22

East Hill Verticals

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
23E	1.0	1.0	
24E	2.0	2.0	
25E	3.0	3.0	
26E	3.0	2.0	
27E	2.0	2.0	
28E	2.0	2.0	
29E	1.9	1.9	
30E	2.0	2.0	
31E	2.1	2.1	
32E	2.1	2.1	
33E	2.0	2.0	
34E	2.1	2.1	
35E	2.2	2.2	
36E	2.1	2.1	

West Hill Horizontals

Monitoring Location (ET's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1W	1.0	1.0	
2W	2.0	2.0	
3W	2.0	2.0	

Second Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Bryan,Don,Rashad, Ruben, Diego
Date: 6-27-22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 72
Barometric Pressure: 30.08
Wind Speed/Direction: 6 N
Instrument: TVA-2020
Calibration: 6-27-22

West Hill Verticals

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
1W	1.0	1.0	
2W	2.0	2.1	
3W	2.0	1.0	
4W	2.0	2.0	
5W	3.0	3.0	
6W	1.8	1.0	
7W	1.8	1.0	
8W	2.0	2.0	
9W	1.8	0.8	
10W	1.0	1.0	
11W	1.0	2.0	
12W	1.0	1.0	
13W	2.0	2.0	
14W	2.0	2.0	
15W	1.4	1.5	
16W	1.5	1.6	
17W	1.5	2.0	
18W	1.2	1.0	
19W	1.5	2.0	
20W	1.4	1.9	
21W	2.0	2.0	

Second Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Bryan,Don,Rashad, Ruben, Diego
Date: 6-27-22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 72
Barometric Pressure: 30.08
Wind Speed/Direction: 6 N
Instrument: TVA-2020
Calibration: 6-27-22

Monitoring Location (EW's)	Control Valve Vault (ppm)	Wellhead Vault (ppm)	Retesting Results
22W	2.0	2.0	
23W	3.0	3.0	
24W	1.0	1.0	
25W	1.0	1.0	
26W	1.0	1.0	
27W	1.5	1.5	
28W	1.0	1.0	
29W	1.0	1.0	
30W	1.0	1.0	

July 8, 2022
File No. 07218240.00

Mr. Cameron Kostigen Mumper
City of Sunnyvale
Post Office Box 3707
Sunnyvale, California 94086

Subject: Second Quarter 2022 Power Generation Facility (PGF) and Landfill Gas (LFG) Flare System Component Leak/Emissions Testing at the Sunnyvale Landfill, Sunnyvale, California

Dear Mr. Kostigen Mumper:

This letter provides results of the second quarter 2022 PGF and LFG flare system component leak/emissions monitoring as required by Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34 and the Landfill Methane Rule (LMR). All work was performed by SCS Field Services (SCS) in accordance with City approved Purchase Order.

CONCLUSIONS AND RECOMMENDATIONS

On June 27, 2022, PGF and LFG flare positive pressure component (e.g., leak/emissions) monitoring showed no exceedances of BAAQMD Regulation 8, Rule 34 or LMR threshold of 1000 and 500 parts per million (ppm), respectively. Therefore, no additional testing is recommended until the third quarter 2022.

BACKGROUND

The Sunnyvale Landfill site is an inactive organic refuse disposal site. By way of background, organic materials buried in a landfill decompose anaerobically (in the absence of oxygen) producing a combustible gas, which contains approximately 50 to 60 percent methane, 40 to 50 percent carbon dioxide, and trace amounts of various other gases, some of which are odorous. The Sunnyvale property contains a system to control the combustible gases generated in the landfill.

The gases produced in the landfill will either vent vertically to the atmosphere or migrate horizontally through subsurface soil to locations on adjacent properties. If the soil surrounding a landfill consists of permeable materials, there is a greater likelihood that the LFG will migrate to offsite locations. If the methane gas component of LFG is allowed to accumulate in a confined area (i.e., utility lines, irrigation valve boxes, vaults, basements, wall spaces, etc.) and is exposed to an ignition source, it can be explosive at concentrations between 5 and 15 percent by volume. At higher concentrations, methane gas is flammable. However, the presence of methane gas in site soil does not mean there is an immediate threat of explosion because flames cannot typically propagate through soil.

LFG COMPONENT EMISSIONS MONITORING

On June 27, 2022, PGF and Flare landfill gas component leak/emissions monitoring was performed at the subject site. The intent of the monitoring was to identity any specific locations at the PGF with organic compound concentrations exceeding BAAQMD, Regulation 8, Rule 34 and LMR threshold limit value of 1000 ppmv or 500 ppmv, respectively measured as methane.

TESTING INSTRUMENTATION/CALIBRATION

Instruments used to perform the LFG component leak/emissions testing consisted of the following:

- Thermo-Scientific TVA-2020 (TVA). This instrument measures methane in air over a range of 1 to 50,000 ppmv. The TVA-2020 meets BAAQMD requirements and was calibrated in accordance with manufacturer specifications and EPA Method 21.

LFG COMPONENT EMISSIONS MONITORING PROCEDURES

LFG component leak/emissions monitoring was conducted in accordance with BAAQMD Regulation 8, Rule 34 and the LMR. Monitoring was performed with the TVA-2020 inlet held within 1 to 2 centimeters above all/accessible PGF system components under positive pressure including valves, flanges, blower seals, etc.

TESTING RESULTS

On June 27, 2022, quarterly LFG component/leak emissions testing of the PGF and LFG Flare Station were performed as required by the BAAQMD (see attached data table). No location tested exceeded the Rule 8-34 1000 ppmv limit and LMR 500 ppmv limit during our monitoring event. Therefore, the next required quarterly testing for all components is due by the end of September 2022.

STANDARD PROVISIONS

This report addresses conditions of the subject site on the test date only. Accordingly, we assume no responsibility for any changes that may occur subsequent to our testing which could affect the emissions at the subject site.

Should you have any questions, do not hesitate to contact either of the undersigned.

Sincerely,

Rebecca L. Lucero
Project Coordinator
SCS Field Services

Stephen Harquail
Project Manager
SCS Field Services

cc William Theyskens
Melody Tovar
Bryan Berdeen
Anne Liu – SCS Engineers

Second Quarter 2022
City of Sunnyale - Component Emissions Testing

Technician: Don Gibson
Date: 6-27-22
Weather: Clear
ppm = parts per million
NR = Not Required

Temperature: 73
Barometric Pressure: 30.08
Wind Speed/Direction: 6 N
Instrument: TVA-2020
Calibration: 6-27-22

Flare Station

Monitoring Location	Testing Results (ppm)	Retesting Results (ppm)	Comments
Blowers	1		
Valves	1		
Piping	1		
Flanges	1		

Power Generation Facility

Monitoring Location	Testing Results (ppm)	Retesting Results (ppm)	Comments
Compressor	3		
Valves	2		
Piping	2		
Flanges	2		
Blowers	2		
Engines	3		

Appendix C – Title V Semi-Annual Report (with Certification)

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

SITE: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**FACILITY ID#:** A5905
REPORTING PERIOD: *from 01/1/2022 through 06/30/2022*	

CERTIFICATION:

I declare, under penalty of perjury under the laws of the state of California, that, based on information and belief formed after reasonable inquiry, all information provided in this reporting package is true, accurate, and addresses all deviations during the reporting period:

Ramana Chinnakotla _____ 7/27/2022 _____

Signature of Responsible Official Date

Ramana Chinnakotla

Name of Responsible Official (please print)

Director of Environmental Services

Title of Responsible Official (please print)

Mail to:

Director of Compliance and Enforcement
BAAQMD
375 Beale Street
San Francisco, CA 94105
Attn: Title V reports

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

SITE: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**FACILITY ID#:** A5905
REPORTING PERIOD: *from 01/1/2022 through 06/30/2022*	

List of Permitted Sources and Abatement Device

Permit Unit Number	**Equipment Description**
S-#	**Description**
S-1	Solid Waste Transfer Station
S-2	Wood Waste Unloading Operation
S-3*	Wood Shredder
S-4*	Conveyor
S-5	Wood Chip Processing
S-6**	Wood Chip Screening
S-7	Diesel Engine (Emergency Standby Generator)
S-8	Gas Collection System: 66 Vertical Extraction Wells and 13 Horizontal Collectors
A-1	Wet Suppression System
A-5	Bag House Dust Collector
A-8***	Landfill Gas Flare, 45 MM BTU/hr
A-9	Landfill Gas Flare, 600 SCFM of waste gas, 18 MM BTU/hr

*Notes: *S-3 was replaced by S-10 and S-4 was replaced by S-11 per application #26967. Permit to Operate (PTO) issued August 6, 2015.*
***S-6 was taken out of service permanently on 12/5/2016.*
****A-8 was taken out of service permanently on 9/3/13; A-9 began operation on 9/24/13.*

The changes noted above have not yet been incorporated into the Title V permit. Compliance with monitoring requirements associated with the PTOs for S-10 and S-11 have been reviewed, and both sources were in compliance throughout the reporting period.

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-8 Sunnyvale Landfill with Gas Collection System; and A-8 and A-9 Landfill Gas Flares	**Reporting Period:** *from 01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Periods of Inoperation for Parametric Monitors	BAAQMD 1-523.4	Operating records for all parametric monitors (gas flow meters and temperature monitors)	Periodic/ Daily	BAAQMD 1-523.2	≤ 15 consecutive days per incident and ≤ 30 calendar days per 12 month period	Intermittent	On January 22, 2022 at 22:16 to January 24, 2022 at 06:38, a period of inoperative monitor occurred, for a total time of 32 hours and 22 minutes. A Reportable Compliance Activity (RCA) Notification Form was submitted by the City for this occurrence, and breakdown relief was requested. The Bay Area Air Quality Management District (BAAQMD) assigned Inoperative Monitor ID 08F02 for this event. Documentation associated with this event is attached.
Opacity	None	NA	None	BAAQMD 6-1-301 and SIP 6-301	Ringelmann No. 1 for < 3 minutes in any hour (applies to flare)	Continuous	N/A
FP	None	NA	None	BAAQMD 6-1-310 and SIP 6-310	≤ 0.15 grains/dscf (applies to flare)	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-8 Sunnyvale Landfill with Gas Collection System; and A-8 and A-9 Landfill Gas Flares	**Reporting Period:** *from 01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Gas Flow	BAAQMD 8-34-501.1, 8-34-501.2, 8-34-501.10, 8-34-508, and BAAQMD Condition # 11586, Parts 3, 6, and 7	Gas Flow Meter and Recorder (every 15 minutes) Records of Landfill Gas Flow Rates, Collection and Control Systems Downtime, and Collection System Components	Continuous Periodic/ Daily	BAAQMD 8-34-301 and 301.1; and, BAAQMD Condition #11586, Parts 2-5	Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	Intermittent	An unplanned shutdown of the Gas Collection and Control System occurred on June 25, 2022 with a downtime of 3 hours and 50 minutes due to a Pacific Gas and Energy (PG&E) power outage. An RCA Notification Form was submitted by the City for this occurrence, and breakdown relief was requested. The BAAQMD assigned Breakdown Relief ID 08J65 for this event. Documentation associated with this event is attached.
Collection and Control Systems Shutdown Time	BAAQMD 8-34-501.1	Operating Records	Periodic/ Daily	BAAQMD 8-34-113.2	≤ 240 hours per year and ≤ 5 consecutive days	Continuous	N/A
Well Shutdown Limits	BAAQMD 8-34-117.6 and 501.1	Records	Periodic/ Daily	BAAQMD 8-34-117.4	No more than 5 wells at a time or 10% of total collection system, whichever is less	Continuous	N/A
Well Shutdown Limits	BAAQMD 8-34-501.6 and 503	Records	Periodic/ Daily	BAAQMD 8-34-117.5	≤ 24 hours per well	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-8 Sunnyvale Landfill with Gas Collection System; and A-8 and A-9 Landfill Gas Flares	**Reporting Period:** *from 01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
TOC (Total Organic Compounds Plus Methane)	BAAQMD 8-34-501.6 and 503	Quarterly Inspection of collection and control system components with portable analyzer and Records	Periodic/ Quarterly	BAAQMD 8-34-301.2	Component Leak Limit: ≤ 1,000 ppmv as methane	Continuous	N/A
TOC	BAAQMD 8-34-415, 416, 501.4, 501.6, and 510	Monthly visual inspection of cover, quarterly inspection of surface with portable analyzer, various re-inspection times for leaking areas, and records	Periodic/ Monthly, Quarterly, and Event basis	BAAQMD 8-34-303	Surface Leak Limit ≤ 500 ppmv as methane at 2 inches above surface	Continuous	N/A
Non-Methane Organic Compounds (NMOC)	BAAQMD 8-34-501.4 and BAAQMD Condition # 11586, Part 12	Annual Source Tests and Records	Periodic/ Annual	BAAQMD 8-34-301.3 and BAAQMD Condition # 11586, Part 10	Flare Destruction Efficiency: > 98% removal by weight OR Flare Outlet Concentration: < 30 ppmv, expressed as methane, dry basis @ 3% O_2	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-8 Sunnyvale Landfill with Gas Collection System; and A-8 and A-9 Landfill Gas Flares	**Reporting Period:** *from 01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
SO_2	None	N/A	None	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 min., and ≤ 0.05 ppm for 24 hours	Continuous	N/A
SO_2	BAAQMD Condition # 11586, Parts 12-13	Source Tests, Sulfur analysis of landfill gas and Records	Periodic/ Annual	BAAQMD 9-1-302	For Flare: ≤ 300 ppm (dry basis)	Continuous	N/A
H_2S	None	N/A	None	BAAQMD 9-2-301	Property Line Ground Level Limits: ≤ 0.06 ppm averaged over 3 min. and ≤ 0.03 ppm for 60 min.	Continuous	N/A
NO_x	BAAQMD Condition # 11586, Part 12	Annual Source Test and Records (upon start-up of A-9 Flare).	Periodic/ Annual	BAAQMD Condition # 11586, Part 8	A-9 Flare: < 0.06 pounds NOx (calculated as NO_2) per MM BTU	Continuous	N/A
CO	BAAQMD Condition # 11586, Part 12	Annual Source Test and Records (upon start-up of A-9 Flare).	Periodic/ Annual	BAAQMD Condition # 11586, Part 9	A-9 Flare: ≤ 0.20 pounds CO per MM BTU	Continuous	N/A
Source Test Submittal	BAAQMD Condition # 11586, Part 12	Report Submittal	Annual	BAAQMD Condition # 11586, Part 12	60 days after testing performed	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-8 Sunnyvale Landfill with Gas Collection System; and A-8 and A-9 Landfill Gas Flares	**Reporting Period:** *from 01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Temperature of Combustion Zone (CT)	BAAQMD 8-34-501.3, 8-34-507, and BAAQMD Condition # 11586, Part 11	Temperature Sensor and Recorder (continuous)	Continuous	BAAQMD Condition # 11586, Part 11	Flare CT: $\geq$ 1400 °F, averaged over any 3-hour period	Continuous	N/A
Shut Down Date	BAAQMD Condition # 11586, Part 14	Notification and Records	Periodic/ Event Basis	BAAQMD Condition # 11586, Part 14	A-8 Shall Be Permanently Shut Down Within 90 days of Start-up of A-9	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-3 Wood Shredder and A-5 Baghouse Dust Collector	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Periods of In-operation for Parametric Monitors	BAAQMD 1-523.4	Operating Records for All Parametric Monitors (manometer at baghouse)	Periodic/ Event Based	BAAQMD 1-523.2	≤ 15 consecutive days per incident and ≤ 30 calendar days per 12-month period	Continuous	N/A
Opacity	BAAQMD Condition # 5369, Parts 5 and 6	Continuous Pressure Drop Across Baghouse, Weekly Inspections, and Records	Continuous and Periodic/ Weekly	BAAQMD Regulation 6-301 and SIP 6-301	≤ Ringelmann No. 1 for 3 minutes/hour	Continuous	N/A
Filterable Particulate (FP)	None	N/A	None	BAAQMD 6-1-310 and SIP 6-310	≤ 0.15 grains/dscf	Continuous	N/A
Particulate Matter (PM)	BAAQMD Condition # 5369, Part 7	Calculations and Records	Periodic/ Daily	BAAQMD 6-1-311 and SIP 6-311	$E = 0.026(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >57,320 lb/hr (or P > 28.66 tons/hr)	Continuous	N/A
Wood Waste Throughput	BAAQMD Condition # 5369, Part 7	Records	Periodic/ Daily	BAAQMD Condition # 5369, Part 3	< 255 tons per calendar day	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-4 CONVEYOR AND S-5 WOOD CHIP PROCESSING HOPPERS	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Opacity	BAAQMD Condition # 5370, Part 3	Visual Observation of Operations	Periodic / Event basis	BAAQMD Regulation 6-301 and SIP 6-301	≤ Ringelmann No. 1 for 3 minutes/hour	Continuous	N/A
PM	BAAQMD Condition # 5370, Part 2	Calculations and Records	Periodic/ Daily	BAAQMD 6-1-311 and SIP 6-311	$E = 0.026(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >57,320 lb/hr (or P > 28.66 tons/hr)	Continuous	N/A
Wood Waste Throughput	BAAQMD Condition # 5370, Part 1	Records	Periodic / Daily	BAAQMD Condition # 5370, Part 2	≤ 255 tons per calendar day	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-6 WOOD CHIP SCREENING OPERATION	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Opacity	BAAQMD Condition # 5371, Part 3	Visual Observation of Operations	Periodic / Event basis	BAAQMD Regulation 6-301 and SIP 6-301	≤ Ringelmann No. 1 for 3 minutes/hour	Continuous	N/A
PM	BAAQMD Condition # 5371, Part 4	Calculations and Records	Periodic/ Daily	BAAQMD 6-1-311 and SIP 6-311	$E = 0.026(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >57,320 lb/hr (or P > 28.66 tons/hr)	Continuous	NA
Wood Waste Throughput	BAAQMD Condition # 5371, Part 4	Records	Periodic / Daily	BAAQMD Condition # 5371, Part 1	≤ 255 tons per calendar day	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-7 DIESEL ENGINE FOR AN EMERGENCY STANDBY GENERATOR	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Opacity	None	N/A	None	BAAQMD 6-1-303 and SIP 6-303	≤ Ringelmann 2.0 for 3 minutes in any hour	Continuous	N/A
FP	None	N/A	None	BAAQMD 6-1-310 and SIP 6-310	≤ 0.15 grains/dscf	Continuous	N/A
SO_2	None	N/A	None	BAAQMD 9-1-301	Property Line Ground Level Limits: ≤ 0.5 ppm for 3 minutes and ≤ 0.25 ppm for 60 minutes and ≤ 0.05 ppm for 24 hours	Continuous	N/A
SO_2	CCR Title 13 Title 13, Section 2281(a) (2 and 5), CCR, Title 17, Sections 93115.5 and 93115.10	CARB Diesel Fuel Sulfur Content Limits, Sales Restrictions, Usage Requirement and Records	Periodic / Event basis	BAAQMD 9-1-302	≤ 300 ppm (dry basis)	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-7 DIESEL ENGINE FOR AN EMERGENCY STANDBY GENERATOR	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Liquid Fuel Sulfur Content	CCR Title 13 Title 13, Section 2281(a) (2 and 5), CCR, Title 17, Sections 93115.5 and 93115.10	CARB Diesel Fuel Sulfur Content Limits, Sales Restrictions, Usage Requirement and Records	Periodic / Event basis	BAAQMD 9-1-304	< 0.5 % sulfur by weight	Continuous	N/A
Liquid Fuel Sulfur Content	CCR, Title 17, Sections 93115.5 and 93115.10	CARB Diesel Fuel Sulfur Content Limits, Sales Restrictions, Usage Requirement and Records	Periodic / Event basis	CCR Title 17, Section 93115.5 (b) and CCR, Title 13, Section 2281(a) (2 and 5)	Standby Engines must use CARB Diesel Fuel or other CARB Approved Alternative Fuel, which has Fuel Sulfur Limits of: ≤ 15 ppmw of S	Continuous	N/A
Operating Hours	BAAQMD 9-8-530 and CCR, Title 17, Section 93115.10 (d)(1) and (f)(1) and BAAQMD Condition # 22820, Parts 3-4	Hour Meter and Records	Continuous and Periodic/ Monthly	BAAQMD 9-8-330.3 and CCR, Title 17, Section 93115.6 (b)(3)(A) (1)(a) and BAAQMD Condition # 22820, Part 1	Operating Hours for Reliability-Related Activities: ≤ 20 hours in a calendar year	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-7 DIESEL ENGINE FOR AN EMERGENCY STANDBY GENERATOR	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Operating Hours	40 CFR 63.6625(f) and 63.6655(f)(2)	Hour Meter and Records		40 CFR 63.6640 (f)(1)(ii)	Operating Hours for Maintenance Checks, Readiness Testing, and Other Non-Emergency Operation: ≤ 100 hours in a calendar year	Continuous	N/A
Operating Hours	40 CFR 63.6625(f) and 63.6655(f)(2)	Hour Meter and Records		40 CFR 63.6640 (f)(1)(iii)	Operating Hours for Non-Emergency Operation: ≤ 50 hours in a calendar year	Continuous	N/A
Idle Time	None	N/A	None	40 CFR 63.6625(h)	≤30 minutes for start-up	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-7 DIESEL ENGINE FOR AN EMERGENCY STANDBY GENERATOR	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Maintenance Events	40 CFR 63.6655(e)	Records	Periodic/ Event Basis	40 CFR, Part 63, Subpart ZZZZ, Table 2d 4.a.	Change Oil and Filter: Every 500 hours of operation or annually, whichever comes first	Continuous	N/A
Maintenance Events	40 CFR 63.6655(e)	Records	Periodic/ Event Basis	40 CFR, Part 63, Subpart ZZZZ, Table 2d 4.b.	Inspect Air Cleaner: Every 1,000 hours of operation or annually, whichever comes first	Continuous	N/A
Maintenance Events	40 CFR 63.6655(e)	Records	Periodic/ Event Basis	40 CFR, Part 63, Subpart ZZZZ, Table 2d 4.c.	Inspect Hoses and Belts and (if necessary) Replace Hoses and Belts: Every 500 hours of operation or annually, whichever comes first	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-1 SOLID WASTE TRANSFER STATION AND A-1 WET SUPPRESSION SYSTEM	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Opacity	BAAQMD Condition # 5367, Part 3	Visual Observation of Operations	Periodic / Event basis	BAAQMD 6-1-301, SIP 6-301, and BAAQMD Condition # 5367, Part 2	≤ Ringelmann No. 1 for 3 minutes/hour	Continuous	N/A
Refuse Throughput	BAAQMD Condition # 5367, Part 4	Records	Periodic / Daily	BAAQMD Condition # 5367, Part 1	≤ 1500 tons per calendar day	Continuous	N/A

City of Sunnyvale Landfill and SMaRT Station®

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: City of Sunnyvale Landfill and SMaRT Station®, Environmental Services Department	**Facility ID#:** A5905
Permitted Unit: S-2 WOOD WASTE UNLOADING OPERATION	**Reporting Period:** from *01/01/2022 through 06/30/2022*

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Opacity	BAAQMD Condition # 5368, Part 5	Visual Observation of Operations	Periodic / Event basis	BAAQMD 6-1-301 and SIP 6-301	≤ Ringelmann No. 1 for 3 minutes/hour	Continuous	N/A
Wood Waste Throughput	BAAQMD Condition # 5368, Part 6	Records	Periodic / Daily	BAAQMD Condition # 5368, Part 3	≤ 298 tons per calendar day	Continuous	N/A

Sunnyvale

City Hall
456 West Olive Avenue
Sunnyvale, CA 94088-3707
TDD/TYY 408-730-7501
sunnyvale.ca.gov

February 3, 2022

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Attn: Title V Reports

Re: 10-day/30-day Deviation Report for S-8 City of Sunnyvale Sanitary Landfill, Facility #A5905

To Whom It May Concern:

This Deviation Report is submitted in compliance with Provision I.F of the Title V-Major Facility Review Permit for Plant #A5905, which states that, *"…all instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions."* This report is intended to serve as the 10-day and 30-day Deviation Report, and the 30-day RCA report requirements for RCA # 08F02 (Monitor is Inoperative). The subject incident involves a short-term gap in the recording of Sunnyvale Landfill gas (LFG) flow data (32 hours and 22 minutes). Note that there was no gap in landfill gas collection, just in the collection of LFG flow data, for the Sunnyvale Landfill (Source S-8) gas collection and control system (GCCS).

Incident Description

Early on Saturday, 1/22/22, it was discovered that data was not being recorded on the PGF database for LFG flow; a Work Order was initiated. Research into this problem indicated that the loss of LFG flow data had started on 1/22/22 at 22:16 and ended on 1/24/22, at 06:38. Total time that the recorder did not record the flow of landfill gas through the LFG header was 32 hours and 22 minutes. The purple lines on the attached LFG flow log show the loss of data from 1/22/22 at 22:16 through 1/24/22 at 06:38.

The cause of the loss of flow data was initially attributed to a wire at the south end of the Flare Station that is associated with the LFG vacuum meter. It was suspected that the problem was localized and attributable to moisture getting into the wire, or the wire's terminals, as the PGF started recording

shortly after the wire was shaken, and water droplets came off. It was subsequently determined, however, that this wire was not associated with the gap in LFG flow recording.

It is suspected that the data lapse (1/22-1/24/22) may be the result of an intermittent issue, as the flow meter began to record again prior to taking corrective action. Accordingly, WPCP and landfill staff are closely monitoring the flow in the event the recording of the flow data ceases again.

The source of the data lapse is judged most likely to have been initiated anywhere between the FCI flow meter installed in the LFG header south of the Flare Station, and the Total LFG Flow Meter located on the western interior wall of the Flare Station.

As the incident only resulted in a lack of data collection, as noted above, with no impact to the operation of the Gas Collection and Control System (there was continuous flow from the field to the Power Generation Facility during this time), there would not have been any loss of LFG to the atmosphere.

If you have questions regarding this report, please contact William Theyskens at (408) 921-9317, or me at (408) 730-7711.

Sincerely,

David Krueger

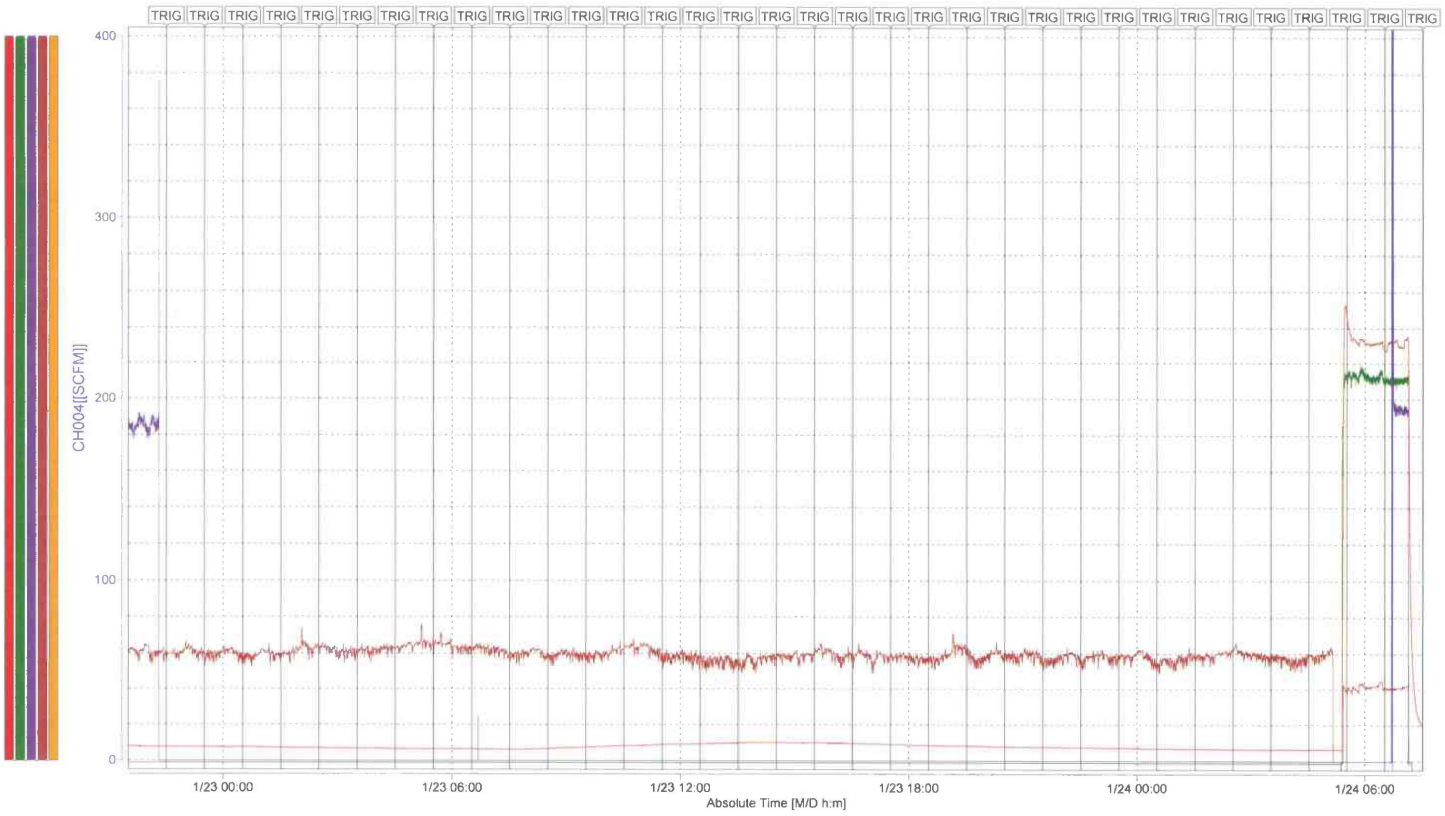
David Krueger
Solid Waste Programs Division Manager

cc: Joe Muehleck (BAAQMD), email

Attachment:
Landfill Gas Flow Chart

File Message	:		
File Name	: 072668_220122_213100.DAD,...,072701_220124_063100.DAD	Data Count	: 61200
Device Type	: DX1000	Sampling Interval	: 2.000 sec
Serial No.	: S5N408394	Start Time	: 2022/01/22 21:31:00.000
Time Correction	: None	Stop Time	: 2022/01/24 07:30:58.000
Starting Condition	: Auto	Trigger Time	: 2022/01/24 07:30:58.000
Dividing Condition	: Auto	Trigger No.	: 61199
Meas Ch.	: 6	Damage Check	: Not Damaged
Math Ch.	: 0	Started by	: [Key In]
Ext Ch.	: 0	Stopped by	: [Running]

Printed Group	:	GROUP 1
Printed Range	:	2022/01/22 21:31:00.000 - 2022/01/24 07:30:58.000
Comment	:	



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

1. ☐ **BREAKDOWN RELIEF: *District Use Only* BREAKDOWN REFERENCE #:**

2. ☐ **MONITOR EXCESS EMISSION or EXCURSION: *District Use Only* REFERENCE #:**

3. ☒ **MONITOR IS INOPERATIVE: *District Use Only* REFERENCE #:**

4. ☐ **PRESSURE RELIEF DEVICE (PRD): *District Use Only* PRD REFERENCE #:**

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	City of Sunnyvale, ESD, Solid Waste	Site #	5905
Address	Borregas Avenue and Carribean Drive	Source #	S-8
Reported by	William Theyskens	Phone #	408 730-7718
Indicated Excess		Fax #	
Allowable Limit		Averaging Time	
Start Time/Date	22:16; 01/22/22	Clear Time	006:38: 1/24/22

Monitor/device type(s): ☐ ▶CEM ☐ ▶GLM ☒ ▶Parametric ☐ ▶PRD ☐ ▶Non-monitor

Monitor description(s):

Parameter(s) exceeded or not functioning due to inoperation

☐ ▶NO_x ☐ ▶SO_2 ☐ ▶CO ☐ ▶CO_2 ☐ ▶H_2S ☐ ▶TRS ☐ ▶NH_3
☐ ▶O_2 ☐ ▶H_2O ☐ ▶Opacity ☐ ▶Lead ☐ ▶Gauge Pressure ☒ ▶Flow
☐ ▶Hydrocarbon Breakthrough (VOC) ☐ ▶Temperature ☐ ▶Wind Speed
☐ ▶Wind Direction ☐ ▶Steam ☐ ▶Other (describe)

Unit(s) of Measurement

☐ ▶ppm ☐ ▶ppb ☐ ▶min/hr > 20% ☐ ▶inches H_2O ☐ ▶mmHg
☐ ▶psig ☐ ▶pH ☐ ▶^{0}Fahrenheit ☒ ▶Other (describe) scfm

Event Description:

Flow meter for the landfill stopped recording flow data on 1/22/22 at 22:16. Flow data began being recorded again on 1/24/22 at 06:38 AM. Data was not recorded for 32 hours and 22 minutes. It is suspected that the failure may be related to lower than normal temperatures in the South Bay Area, making the wire's insulation, or its terminals, brittle enough to fail. The subject wire is scheduled for replacement ASAP.

District Use Only		
Received by	Date	Time

General Instructions

- ✓ Check the Box numbers 1- 4 that apply to the RCA you are trying to report or request and read the detailed instructions.
- ✓ You will receive an ID # for each RCA you submit. In the case of a request for Breakdown Relief where multiple monitors are affected, you do not need to submit multiple forms, as long as all necessary information is given on one form. RCA reported during other than core business hours will be assigned an ID # the following working day. If you do not receive an ID #, it is your responsibility to contact the BAAQMD to get one.
- ✓ You may submit only one request for breakdown relief per form. However, you may submit multiple indicated excess, inoperative monitors and PRD reports on one form, provided that the start and end times given for the events in the required information section is inclusive of all events. Information on parameters exceeded, units of measurement and allowable limits can be provided in the event description box or when contacted by District staff with questions.
- ✓ Fill out the "Site Information and Description Information Required" areas of this form and email to *rca@baaqmd.gov*
- ✓ **A 30-day written follow-up report is required for Breakdown Requests and PRD Releases**. Reports for these types of RCA must contain a quantification of emissions, the calculations used to derive the emissions, and their duration. Reference Breakdown Admissions Advisory dated 12/3/04. Send 30-day report letters to: BAAQMD Compliance and Enforcement Division, MAILSTOP: RCA 30-DAY REPORT, 375 Beale Street, Ste. 600 San Francisco, CA 94105. NOTE: **You may have additional report requirements under Title V.**

Detailed Instructions

Box 1: To Request Breakdown Relief (Regulations 1-112, 1-113, 1-208, 1-431, 1-432)

If you have an equipment malfunction (e.g.; breakdown) that leads to the release of air pollutants above the regulatory or your permitted levels, you may request relief from BAAQMD enforcement action.

- Check Box #1.
- **NOTE:** Start and end times given for these events in the required information section must be inclusive of all events.
- Fill out all the information in the "Site Information and Description Information (Required)" area of the form.
- Requests for breakdown relief may not be withdrawn and must be called in or faxed to the BAAQMD immediately upon discovery of an equipment malfunction.
- Receipt of an RCA ID# for a breakdown does not mean relief has been granted. An Inspector will visit your facility to determine compliance.

Box 2: Monitor Indicates Excess Emission or Excursion (Regulation 1-522.7, 1-523.3, 1-542)

When a BAAQMD-required monitor indicates an excess or excursion, you must report it to the BAAQMD.

- Check Box #2.
- Fill out all the information in the "Site Information and Description Information (Required)" area of the form.
- Any excess emission indicated by a CEM or excursion of a parametric monitor, shall be reported to the BAAQMD within 96 hours.
- Area concentration excesses over the limits prescribed in District regulations shall be reported to the BAAQMD within the next normal working day following the examination of data.

Box 3: Monitor Is Inoperative (Regulations 1-522, 1-523, 1-530)

When a BAAQMD-required monitor is inoperative for greater than 24 hours, you must report it to the BAAQMD.

- Check Box #3 only if inoperative for greater than 24 hours.
- Fill out all the information in the "Site Information and Description Information (Required)" area of the form.
- All reports of inoperative monitors must be reported by the following BAAQMD working day and additionally be cleared by a notification of resumption of monitoring. To notify the BAAQMD regarding the resumption of monitoring, do not send in a separate RCA form; call (415) 749-4979 and give the RCA ID #, date, and the time of resumption.
- Inoperative monitors (except parametric monitors) with downtime greater than 15 days must furnish proof of expedited repair in a follow-up report.

Box 4: Pressure Relief Device (PRD) Is Released (Regulation 8-28-401)

When a PRD at your refinery/chemical plant vents to the atmosphere, you must report it to the BAAQMD.

- Check Box #4 only if a pressure relief device is released.
- Separate RCA ID #'s can be applied to monitor(s) affected by a PRD by also checking Box #2 if other monitors record an excess or excursion.
- Fill out all the information in the "Site Information and Description Information (Required)" area of the form.
- All PRD release reports must be reported by the following BAAQMD working day.

Sunnyvale

July 5, 2022

City Hall
456 West Olive Avenue
Sunnyvale, CA 94088-3707
TDD/TYY 408-730-7501
sunnyvale.ca.gov

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Attn: Title V Reports

Re: 10-day/30-day Deviation Report for S-8 City of Sunnyvale Sanitary Landfill, Facility #A5905

To Whom It May Concern:

This Deviation Report is submitted in compliance with Provision I.F of the Title V-Major Facility Review Permit for Plant #A5905, which states that, *"...all instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions."* This report is intended to serve as the 10-day and 30-day Deviation Report, and the 30-day RCA report requirements for RCA #08J65 (Breakdown Relief). The subject incident involves a relatively short-term shutdown of the Sunnyvale Landfill (Source S-8) gas collection and control system (GCCS).

Incident Description

The Solid Waste Division staff received an automated call from our Condensate Pre-Treatment System notifying us that we had "an Outlet Bay, Low pH condition" at 9:54 AM on Saturday, 6/25/22. We attempted to contact the Senior Operator at the Water Pollution Control Plant (WPCP), but the call was not answered, so a message was left.

A return call from the Senior Operator, Leo Carlino, was received at 11:09. He stated that there was no power at the WPCP at all. Mr. Carlino stated that a PG&E employee had been working on the power system when the power went out at the WPCP. Both WPCP Power Generating Facilities (PGFs) and the Landfill's Landfill Gas Flare (LFGF), were impacted by the power outage.

Sunnyvale

I again called Mr. Carlino at 1:41 as he was informing the next shift about what had occurred, and the status of the incident. He stated that the power had been back on for about 10 minutes. I requested a report from him before he leaves for the day.

Mr. Carlino called back at 2:08 stating that WPCP power had gone out at 0950 and was back on at 13:06, and that the LFG Flare was in operation at 13:40. Leo mentioned that there had been a "poor connection coming from PG&E". He said that they (PG&E and their contractors, MGE), did some work, the power came back on, and then that they left "in a hurry", with no real explanation for the outage being provided to him. In a subsequent conversation, Leo mentioned that MGE had incorrectly wired in a couple of relays, and that an employee had come back to correct them. After the outage, a few PG&E employees that were working locally went to the Plant to assist in correcting the problem that was apparently responsible for the outage.

With respect to the potential release of landfill gas from the landfill during the power outage, the City's previously scheduled 2022 Annual Landfill Methane Rule (LMR) Surface Emissions Monitoring (SEM) event occurred on June 27th, less than two full days after the subject RCA event. SCS performed the testing of the Sunnyvale Landfill site and reported that there were no areas of concern, and that no exceedances of the 500-ppmv limit were observed. The highest instantaneous reading for the entire site was 11.90 ppm in Grid 17. Grid 17 also had the highest integrated average which was 4.77 ppm.

Based on this data, we believe it would be highly unlikely that there would have been a significant release of LFG due to the 3 hours and 50 minutes of downtime since LFG was not detected at significant levels near the surface less than two days following the end of the downtime.

If you have questions regarding this report, please contact William Theyskens at (408) 921-9317, or me at (408) 730-7711.

Sincerely,

David Krueger
Solid Waste Programs Division Manager

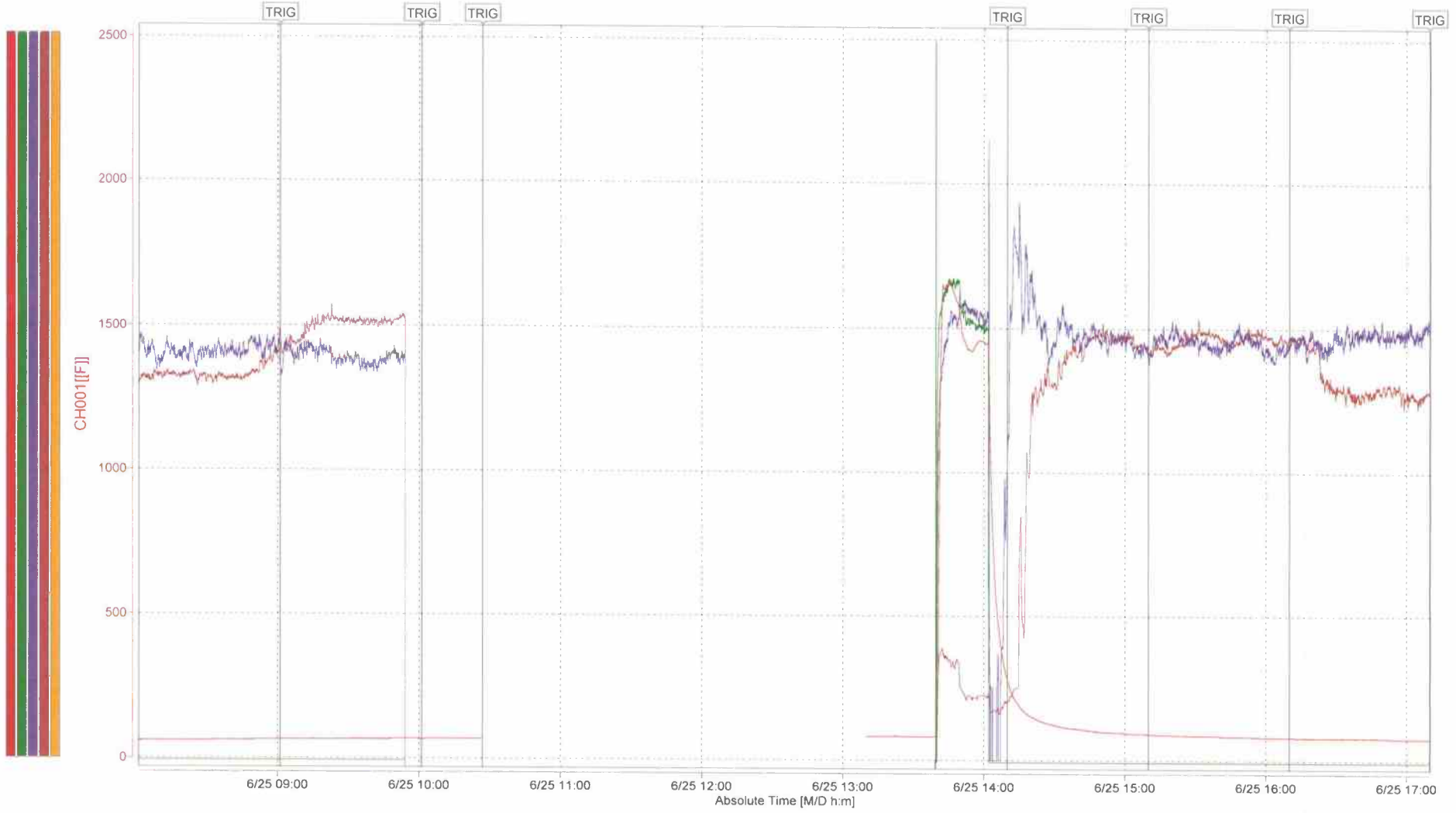
cc: Joe Muehleck (BAAQMD), email

Attachment:
Flow Chart

File Message	:
File Name	: 076350_220625_080112.DAD,...,076356_220625_160954.DAD
Device Type	: DX1000
Serial No.	: S5N408394
Time Correction	: None
Starting Condition	: Auto
Dividing Condition	: Auto
Meas Ch.	: 6
Math Ch.	: 0
Ext Ch.	: 0

Data Count	: 16461
Sampling Interval	: 2.000 sec
Start Time	: 2022/06/25 08:01:12.000
Stop Time	: 2022/06/25 17:09:52.000
Trigger Time	: 2022/06/25 17:09:52.000
Trigger No.	: 16460
Damage Check	: Not Damaged
Started by	: [Key In]
Stopped by	: [Running]

Printed Group	: GROUP 1
Printed Range	: 2022/06/25 08:01:12.000 - 2022/06/25 17:09:52.000
Comment	:



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form
Reportable Compliance Activity (RCA)

See back of form for instructions →

1. [x] **BREAKDOWN RELIEF:** ***District Use Only*** **BREAKDOWN REFERENCE #:** 08J65

2. [ ] **MONITOR EXCESS EMISSION or EXCURSION:** ***District Use Only*** **REFERENCE #:**

3. [ ] **MONITOR IS INOPERATIVE:** ***District Use Only*** **REFERENCE #:**

4. [ ] **PRESSURE RELIEF DEVICE (PRD):** ***District Use Only*** **PRD REFERENCE #:**

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)

Company	City of Sunnyvale, ESD, Solid Waste	Site #	5905
Address	Borregas Avenue and Caribbean Drive	Source #	8
Reported by	William Theyskens	Phone #	408 730-7718
Indicated Excess		Fax #	
Allowable Limit		Averaging Time	
Start Time/Date	0950, 06/25/2022	Clear Time	13:40 06/25/22
Monitor/device type(s)	[ ] ▶CEM [ ] ▶GLM [ ] ▶Parametric [ ] ▶PRD [x] ▶Non-monitor		
Monitor description(s)			

Parameter(s) exceeded or not functioning due to inoperation

[ ] ▶NO_x [ ] ▶SO_2 [ ] ▶CO [ ] ▶CO_2 [ ] ▶H_2S [ ] ▶TRS [ ] ▶NH_3
[ ] ▶O_2 [ ] ▶H_2O [ ] ▶Opacity [ ] ▶Lead [ ] ▶Gauge Pressure [x] ▶Flow
[ ] ▶Hydrocarbon Breakthrough (VOC) [ ] ▶Temperature [ ] ▶Wind Speed
[ ] ▶Wind Direction [ ] ▶Steam [x] ▶Other (describe) Flow Monitoring

Unit(s) of Measurement

[ ] ▶ppm [ ] ▶ppb [ ] ▶min/hr > 20% [ ] ▶inches H_2O [ ] ▶mmHg
[ ] ▶psig [ ] ▶pH [ ] ▶^{0}Fahrenheit [ ] ▶Other (describe)

Event Description:

A PG&E technician and Ranger sweeper were both in at 0730. The PG&E technician made an undisclosed change at main fuse box east of #3 Grit Basin. PG&E power failed at 09:50. All Plant equipment stopped except those on Uninteruptible Power Supply (UPS). LFG Blower and Flare inoperable. MGE (PG&E contractors) were on-site to check main fuses as per PG&E at 1040. Plant power restored at 1306 when 52-0 was closed at the completion of MGE/PG&E repairs. The LFG Flare was restarted at 1340.

District Use Only

Received by Date Time

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