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November 29, 2024

Director of Compliance and Enforcement	Director of the Air Division
Bay Area Air Quality Management District	USEPA, Region IX
375 Beale St, Ste 600	75 Hawthorne Street
San Francisco, CA 94105	San Francisco, CA 94105
Attn: Title V Reports	Attn: Air-3
compliance@baaqmd.gov	r9.aeo@epa.gov

SUBJECT: Combined Title V Semi-Annual and Partial 8-34 Annual Report 40 CFR 63 Subpart AAAA Semi-Annual Report
Redwood Landfill, Inc.
8950 Redwood Highway, Novato, CA 94948
Facility Number A1179

TV Tracking #1022 (Semi-Annual)

1. ☐ RECEIVED IN ENFORCEMENT: 11/29/2024

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this Combined Title V Semi-Annual and Partial 8-34 Annual Report for the period of May 1, 2024 to October 31, 2024, to the Bay Area Air Quality Management District (BAAQMD) and the United States Environmental Protection Agency (USEPA), Region IX. The Semi-Annual Startup, Shutdown and Malfunction (SSM) Report is also enclosed, as required by 40 Code of Federal Regulations (CFR) Part 63 Subpart AAAA. The Combined Title V Semi-Annual and Partial 8-34 Annual Report satisfies the requirements of the Title V Permit listed in Condition Number 19867 Part 32 and Standard Condition I.F.

Based on information and belief formed after reasonable inquiry, I certify under penalty of law that the statements included in this report are true, accurate, and complete.

Sincerely,
Redwood Landfill, Inc.

Scott Tignac
Responsible Official

Attachments:
Combined Title V Semi-Annual and Partial 8-34 Annual Report

Combined Title V Semi-Annual and Partial 8-34 Annual Report

For the Redwood Landfill
8950 Redwood Highway
Novato, California 94948
Facility Number A1179

May 1, 2024 to October 31, 2024

Prepared for
Redwood Landfill, Inc.
8950 Redwood Highway
Novato, CA

For Submittal to:
The Bay Area Air Quality Management District
375 Beale St, Ste 600
San Francisco, CA 94105

The United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105

Prepared by:
Redwood Landfill, Inc.
8950 Redwood Highway
Novato, CA

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1 INTRODUCTION

1.1 Purpose

This document is a Title V Combined Semi-Annual Report and Partial 8-34 Annual Report for Redwood Landfill, Inc. (RLI) pursuant to Title V Permit Standard Condition I.F and Condition Number 19867, Part 32. This Combined Report satisfies the requirements of Bay Area Air Quality Management District's (BAAQMD) Regulation 8, Rule 34, Section 411 and Title 40 Code of Federal Regulations (CFR) Part 60 Subpart WWW (40 CFR §60.757[f]), New Source Performance Standards (NSPS) for municipal solid waste (MSW) landfills, and the RLI Title V Standard Condition I.F. This report covers compliance activities conducted from May 1, 2024 to October 31, 2024. This Combined Report also includes the Semi-Annual Start-up, Shutdown, and Malfunction (SSM) Plan Report activities pursuant to National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart AAAA for Landfills.

Section 2 of this Report contains the elements required to satisfy both BAAQMD Regulation 8-34-411 and 40 CFR §60.757(f).

Section 3 of this Combined Report includes a discussion of the data from the most recent source tests, for the A-51 and A-60 Flares, in compliance with BAAQMD Regulation 8-34-412 and Title V Permit Condition Number 19867, Part 30.

Section 4 and Appendices B, D, and E of this Report contain the Semi-Annual Report of SSM Plan activities.

The Semi-Annual Report pursuit to NESHAP 40 CFR part 63 subpart AAAA, section 1981(h) is submitted separately.

1.2 Record Keeping and Reporting

Records are maintained and available for inspection in accordance with BAAQMD Regulation 8-34-501.12 and 40 CFR §60.758. The primary location for records storage is Redwood Landfill. Records are maintained onsite at the Landfill for a minimum of five years.

2 SEMI-ANNUAL MONITORING REPORT

In accordance with RLI Title V Permit Standard Conditions I.F and 19867, Part 32; BAAQMD Regulation 8-34-411; and 40 CFR §60.757(f) of the NSPS for landfills, this report is a Title V Combined Semi-Annual Report and Partial 8-34 Annual Report that is required to be submitted by RLI. This Report contains monitoring data for the operation of the gas collection and control system (GCCS). The operational records have been reviewed and summarized. The timeframe included in this Report is May 1, 2024 to October 31, 2024. The following table lists the rules and regulations that are required to be included in this Combined Report:

Table 2-1 Semi-Annual Report Requirements

RULE	REQUIREMENT	LOCATION IN REPORT
8-34-501.1, §60.757(f)(4)	All collection system downtime, including individual well shutdown times and the reason for the shutdown.	Section 2.1, Appendices B & D
8-34-501.2, §60.757(f)(3)	All emission control system downtime and the reason for the shutdown.	Section 2.2, Appendix B
8-34-501.3, 8-34-507, §60.757(f)(1)	Continuous temperature for all operating flares and any enclosed combustor subject to Section 8-34-507.	Section 2.3, Appendices E & F
8-34-501.4, 8-34-505, 8-34-510	Testing performed to satisfy any of the requirements of this rule.	Sections 2.4 & 2.10, Appendices G & I
8-34-501.5	Monthly landfill gas (LFG) flow rates and well concentration readings for facilities subject to 8-34-404.	Sections 2.5 & 2.11, Appendix K
8-34-501.6, 8-34-503, 8-34-506, §60.757(f)(5)	For operations subject to Section 8-34-503 and 8-34-506, records of all monitoring dates, leaks in excess of the limits in Section 8-34-301.2 or 8-34-303 that are discovered by the operator, including the location of the leak, leak concentration in parts per million by volume (ppm_v), date of discovery, the action taken to repair the leak, date of the repair, date of any required re-monitoring, and the re-monitored concentration in ppm_v.	Sections 2.6 & 2.7, Appendix H
8-34-501.7	Annual waste acceptance rate and current amount of waste in-place.	Section 2.8
8-34-501.8	Records of the nature, location, amount, and date of deposition of non-degradable wastes, for any landfill areas excluded from the collection system requirement as documented in the GCCS Design Plan.	Section 2.9
8-34-501.9, 8-34-505, §60.757(f)(1)	For operations subject to Section 8-34-505, records of all monitoring dates and any excesses of the limits stated in Section 8-34-305 that are discovered by the operator, including well identification number, the measured excess, the action taken to repair the excess, and the date of repair.	Section 2.10, Appendices I & J
8-34-501.10, 8-34-508, §60.757(f)(1)	Continuous gas flow rate records for any site subject to Section 8-34-508.	Section 2.11, Appendix K

RULE	REQUIREMENT	LOCATION IN REPORT
8-34-501.11, 8-34-509	For operations subject to Section 8-34-509, records or key emission control system operating parameters.	Section 2.2.2
8-34-501.12	The records required above shall be made available and retained for a period of five years.	Section 1.2
§60.757(f)(2)	Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60.756.	Section 2.2.1
§60.757(f)(6)	The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), (c)(4) of §60.755.	Section 2.12
§60.10 (d)(5)(i)	Start-up, Shutdown, Malfunction Events	Section 4, Appendices B, D, and E

2.1 COLLECTION SYSTEM OPERATION [BAAQMD 8-34-501.1& §60.757(F)(4)]

Appendix A contains a map of the GCCS at RLI. Section 2.1.1 includes all collection system downtimes. The information contained in Appendix B, A-51 and A-60 Flares SSM Logs and GCCS Downtime Summary, S-64 and S-65 Landfill Gas Engine SSM logs, and S-71 Gas Treatment System Downtime Log, includes the individual well shutdown times and the reason for each shutdown.

2.1.1 FLARE SYSTEM DOWNTIME

The A-51 Flare commenced operation in June 2005, and the A-60 Flare commenced operation on April 1, 2009. Table 2-2 summarizes the A-51 and A-60 Flares' downtimes for the reporting period.

Table 2-2 A-51 and A-60 Downtimes

Month	A-51 Downtime (Hours)	A-60 Downtime (Hours)
May 2024	740.57	3.80
June 2024	697.00	0.53
July 2024	744.00	5.57
August 2024	744.00	0.73
September 2024	720.00	3.10
October 2024	744.00	3.97
Total Hours:	**4,389.57**	**17.70**

During the period covered in this report, the GCCS was not shut down for more than five days on any one occasion. Appendix B contains the A-51 and A-60 Flare SSM logs, and GCCS Downtime Summary which lists dates, times, and lengths of shutdowns for the reporting period and year-to-date. A-51 is the backup flare to the A-60 flare.

2.1.2 LANDFILL GAS ENGINE SYSTEM DOWNTIME

The S-64 and S-65 Landfill Gas Engines (with accompanying S-71 Landfill Gas Treatment System) commenced operation on April 27, 2017. Table 2-3 summarizes the S-64 and S-65 Engines' downtimes for the reporting period.

Table 2-3 S-64 and S-65 Downtimes

Month	S-64 Downtime (Hours)	S-65 Downtime (Hours)
May 2024	15.75	15.25
June 2024	61.08	61.17
July 2024	454.00	299.00
August 2024	316.25	204.00
September 2024	720.00	718.33
October 2024	656.25	687.75
Total Hours:	**2,223.33**	**1,985.50**

During the period covered in this report, the S-71 treatment system treated all landfill gasses going to the engines. Appendix B contains the S-64 and S-65 Engine SSM logs, and S-71 Downtime Log (with respect to engine operation) which lists dates, times, and lengths of shutdowns for the reporting period.

As directed by PG&E on 5/12/23, the engine plant has been shut down until the landslide area is fixed by PG&E/Caltrans. BAAQMD was notified on June 27, 2023 with the 10-day/30-day report that the following testing will not be completed as follows:

- 2nd and 3rd Quarter 2023 24-hour emissions testing of Engine No. 1 (S64) and Engine No. 2 (S65) by 9/30/23. Both engines are offline (Condition 25635 Part 4 (NOx), Part 5 (CO), Part 12 (H2S), and Part 14 (CH4))

- 2nd and 3rd Quarter 2023 Laboratory analysis of landfill gas to Engine inlet by 9/30/23. Engines are offline (2016 Compliance Agreement)

- July 2023 annual source tests for Engines S64 and S65 with the associated S71 Gas Treatment System (usually performed in July) will not be done because they are offline.

The engines were restarted on April 8, 2024. Engines were taken offline in August 2024 for generator and emissions control equipment repair. Engines were brought back online on September 28, 2024. Source testing of the engines is scheduled for December 2 and 3, 2024.

While the engines were offline, the A80 gas treatment system had difficulty in treating all the landfill gas. The 10-day report (9/11/24) and 30-day report (10/3/24) was submitted to BAAQMD (see Appendix C). The Variance Order/Docket 3754 was filed on 10/22/24 (application submitted 9/13/24 with Board hearing on 10/8/24) for the A80 upgrade project to increase the treatment capacity of the A80 landfill gas treatment system. The upgraded A80 was in full operation on 10/25/24.

2.1.3 WELL DISCONNECTION LOG

A Wellfield SSM Log that lists dates, times, and lengths of disconnections for the reporting period is included in Appendix D. In addition, 4 wells (out of a possible 5) remain disconnected at the end of the reporting period, pursuant to BAAQMD Regulation 8-32-116.2 (Limited Exemption, Well Raising).

2.2 EMISSION CONTROL DEVICE DOWNTIME [BAAQMD 8-34-501.2 & §60.757(F)(3)]

No bypassing of the control system or emissions of raw LFG occurred. The Flare SSM Logs that include all downtimes and reasons for each shutdown for the A-51 and A-60 Flares are contained in Appendix B. Device downtime is summarized in Table 2-4.

Table 2-4 GCCS Downtime Summary

January 1, 2024 through April 30, 2024 Total Downtime:	0.00
May 1, 2024 through October 31, 2024 Total Downtime:	4.20
Total 2024 Downtime:	4.20

BAAQMD Breakdown Report (RCA No. 200703) was submitted on 9/2/24 due to the shutdown of the RLI gas collection and control system (GCCS) from 9/2/24 ~7:20 AM through 9/2/24 ~10:10 AM. The shutdown was caused by a PG&E power outage. The Request for Breakdown Relief letter was submitted on 9/3/24. Pursuant to Title V section I.F, the 10-day/30-day Deviation Report and 30-day Breakdown Report were submitted on 9/11/24 (see Appendix C).

While the engines were offline for repair, the A80 gas treatment system had difficulty in treating all the landfill gas. The 10-day report (9/11/24) and 30-day report (10/3/24) was submitted to BAAQMD (see Appendix C). The Variance Order/Docket 3754 was filed on 10/22/24 (application submitted 9/13/24 with Board hearing on 10/8/24) for the A80 upgrade project to increase the treatment capacity of the A80 landfill gas treatment system. The upgraded A80 was in full operation on 10/25/24.

2.2.1 LFG BYPASS OPERATIONS (§60.757(f)(2))

Title 40 CFR §60.757(f)(2*)* is not applicable at RLI because no bypass line is installed. LFG cannot be diverted around the control equipment.

2.2.2 KEY EMISSION CONTROL OPERATING PARAMETERS (BAAQMD 8-34-501.11 & 8-34-509)

The A-51 and A-60 Flares are subject to continuous temperature monitoring as required in BAAQMD Regulation 8-34-507 and 40 CFR §60.757(f)(1).

2.3 TEMPERATURE MONITORING RESULTS [(BAAQMD 8-34-501.3, 8-34-507, & §60.757(f)(1)]

The RLI has two flares used to destroy LFG collected by the GCCS (A-51 and A-60). Combustion zone temperatures of the flares are monitored with thermocouples and recorded with Yokogawa DX100 paperless chart recorders. There were no continuous recorder device SSM events during the reporting period. As shown in Appendix F, there were no periods of missing temperature data for the flares during the reporting period.

Title V Permit Condition Number 19867 Part 22 states that the minimum combustion zone temperature shall be equal to the average combustion zone temperature determined during the most recent complying source test minus 50°F, provided that the minimum combustion zone temperature is not less than 1,400°F. Pursuant to Part 22, the following temperature limits applied during the reporting period:

Table 2-5 Applicable Temperature Limits

Device	Test Date	Report Submitted	Average Temperature During Test (°F)	3-hr Minimum Temperature (°F)
A-51	1/10/2024	3/8/2024	1,497	1,447
A-60 Zone A	7/13/2022	9/11/2022	1,582	1,532
A-60 Zone A	8/20/2024	10/18/2024	1,553	1,503
A-60 Zone B	7/12/2023	9/8/2023	1,618	1,568

The three-hour minimum temperature applies upon submittal of the source test report. Operating records for the flares indicate all flares operated in compliance with the applicable three-hour average minimum temperatures from May 1, 2024 to October 31, 2024.

Pursuant to Title V Permit Condition Number 19867, Part 30g, the annual source test at A-60 may be conducted while A-60 is operating in either zone, provided that each operating zone is tested at least once every five years. The most recent source test for Zone A was completed in August 2024. Zone B was tested in July 2023, meeting the obligation to test each zone every five years.

2.4 MONTHLY COVER INTEGRITY MONITORING [BAAQMD 8-34-501.3, 8-34-507, & §60.757(f)(1)]

The Monthly Cover Integrity Monitoring Reports are included in Appendix G. The cover integrity monitoring was performed on the following dates:

- May 14, 2024
- June 20, 2024
- July 10, 2024
- August 27, 2024
- September 19, 2024
- October 25, 2024

No breaches of cover integrity (e.g., cover cracks or exposed garbage) were found during the reporting period.

2.5 LESS THAN CONTINUOUS OPERATION (BAAQMD 8-34-501.5)

The RLI does not operate under BAAQMD Regulation 8-34-404 (Less Than Continuous Operation) and therefore is not required to submit monthly LFG flow rates.

2.6 SURFACE EMISSIONS MONITORING [BAAQMD 8-34-501.6, 8-34-506, & §60.757(f)(5)]

Quarterly Surface Emissions Monitoring (SEM), pursuant to BAAQMD Regulation 8-34-506, was conducted during the reporting period. A flame ionization detector (FID) was used during the SEM events to monitor the path along the landfill surface according to the Landfill SEM Map. Any areas suspected of having emission problems by visible observations also were monitored. Immediately prior to both monitoring events, the FID was zeroed and calibrated using zero air and a 500-ppm_v methane calibration gas.

The Second Quarter 2024 SEM event was conducted by Roberts Environmental Services (RES) personnel on May 21, 2024. Nine exceedances were identified. Corrective action and re-monitoring are described below:

- Corrective actions were completed within 5-days for all locations.
- 1st 10-day re-monitoring was completed on May 31, 2024 with all locations cleared except for flag numbers O1, O2, and O33.
- 2nd 10-day re-monitoring was completed on June 4, 2024 for flag numbers O1, O2, and O33 with all locations cleared.
- 1-month remonitoring was completed on June 20, 2024. All locations were cleared.

The Third Quarter 2024 SEM was conducted by RES on July 30, 2024. Thirteen exceedances were identified. Corrective action and re-monitoring are described below:

- Corrective actions were completed within five days and the 1st 10-day re-monitoring was completed on August 1 and 6, 2024. All locations were cleared.
- 1-month remonitoring was completed August 27, 2024. All locations were cleared.

SEM Reports are included in Appendix H.

2.7 COMPONENT LEAK TESTING [BAAQMD 8-34-501.6, 8-34-503)

Quarterly component leak testing, pursuant to BAAQMD Regulation 8-34-503, occurred during the reporting period on the following dates:

Second Quarter 2024 – May 21, 2024
Third Quarter 2024 – July 30, 2024

No exceedances were identified during the 2nd quarter monitoring event.

No exceedances were identified during the 3rd quarter monitoring event.

The Component Leak Testing results are included with the SEM reports in Appendix H.

2.8 SOLID WASTE PLACEMENT RECORDS (BAAQMD 8-34-501.7)

The solid waste placement total was calculated for the period of May 1, 2024 to October 31, 2024. The current waste in-place figure includes solid waste placed in the landfill through the end of the reporting period. Table 2-6 summarizes the RLI solid waste placement records for the reporting period.

Table 2-6 Solid Waste Placement

Waste Placement (May 1, 2024 to October 31, 2024)	99,652 tons
Current Waste In-Place as of November 1, 2024	15.36 million tons

2.9 NON-DEGRADABLE WASTE ACCEPTANCE RECORDS (BAAQMD 8-34-501.8)

RLI does not have non-degradable waste areas that are excluded from the collection system. Therefore, BAAQMD Regulation 8-34-501.8 is not applicable.

2.10 WELLHEAD MONITORING DATA (BAAQMD 8-34-501.4 & 8-34-505)

Wellhead monitoring was performed monthly pursuant to BAAQMD Regulation 8-34-505. The well data for May 1, 2024 to October 31, 2024 are included in Appendix I. Each well was monitored in accordance with the following requirements:

- 8-34-305.1 – Each wellhead shall operate under a vacuum.
- 8-34-305.2 – The LFG temperature in each wellhead shall be less than 55 degrees Celsius (131 °F).
- 8-34-305.4 – The oxygen concentration in each wellhead shall be less than 5 percent by volume.

The wellhead monitoring was performed on the following dates:

- May 6, 7, 8, 9, 10, 14, 29, 30, and 31, 2024
- June 3, 4, 5, 6, 11, 12, 13, 17, 18, and 19, 2024
- July 1, 2, 3, 9, and 10, 2024
- August 12, 13, 14, 15, and 27, 2024
- September 9, 10, 11, 12, 13, and 19, 2024
- October 3, 9, 10, 14, 15, 23, 24, 25, 29, and 30, 2024

WELLHEAD DEVIATIONS [BAAQMD 8-34-501.9 & §60.757(f)(1)]

A total of 29 deviations from the wellhead standards in 8-34-305 occurred during the reporting period. All exceedances were corrected prior to issuance of this report.

The Wellfield Deviation Log is included in Appendix J.

2.11 GAS FLOW MONITORING RESULTS [BAAQMD 8-34-501.10, 8-34-508 & §60.757(f)(1)]

The LFG flow rates from both the A-51 and A-60 flares are measured with Veris flow meters. The S-64 and S65 LFG engines are measured with ABB flow meters. The flow meters meet the requirements of BAAQMD Regulation 8-34-508 by recording fuel flow at least every 15 minutes.

Appendix K contains a summary of the daily and monthly LFG flow rates and heat input for the flares and engine plant. The A-51 flare is utilized as a backup for the A-60 flares. These flow rates are summarized in Table 2-7:

Table 2-7 Total LFG Flow

Emission Control Device	Total Runtime (hours)	Average Flow Rate (scfm)	Average Methane (%)[1]	Total LFG Flow (scf)	12-Month Total LFG Flow (scf) Corrected to 500 BTU/scf	Max Daily Flow (scf) Corrected to 500 BTU/scf
A-51	26	1,034	52.2	1,639,597	155,859,963	1,042,532
A-60	4,398	1,694	47.2	447,060,570	852,647,825	3,278,499
S-64	2,193	567	49.4	74,548,349	91,332,063	899,952
S-65	2,431	537	49.7	78,303,052	96,612,046	859,138
Total	4,412	2,273	47.8	601,551,568	1,196,451,897	--

[1]Methane content was determined from the 7/13/22, 7/14/22, 7/15/22, 1/12/23, 7/12/23, 1/10/24, and 8/20/24 Source Tests. Heating value of methane used in heat input calculations is 1,013 BTU/scf
scfm = standard cubic feet per minute
scf= standard cubic feet
MMBTU = million British thermal units

Pursuant to Title V Condition Number 19867, Part 20, the total LFG throughput to the either flare did not exceed 4,320,000 scf during any one day. The A-51 and A-60 Flares combined total LFG throughput did not exceed 2,207,520,000 scf during any consecutive 12-month period.

Appendix K contains a summary of the combined daily LFG flow rates for the A-51 and A-60 Flares and the consecutive 12-month summaries.

There were no periods of missing data or chart recorder non-operation for the A-51 or A-60 Flares or the landfill gas engine plant (S-64 and S-65 engines) during the reporting period. The Flare Missing Data Report Forms are included in Appendix F.

As directed by PG&E on 5/12/23, the engine plant has been shut down until the landslide area is fixed by PG&E/Caltrans. BAAQMD was notified on June 27, 2023 with the 10-day/30-day report that the following testing will not be completed as follows:

- 2nd and 3rd Quarter 2023 24-hour emissions testing of Engine No. 1 (S64) and Engine No. 2 (S65) by 9/30/23. Both engines were offline (Condition 25635 Part 4 (NOx), Part 5 (CO), Part 12 (H2S), and Part 14 (CH4))

- 2nd and 3rd Quarter 2023 Laboratory analysis of landfill gas to Engine inlet by 9/30/23. Engines were offline (2016 Compliance Agreement)

- July 2023 annual source tests for Engines S64 and S65 with the associated S71 Gas Treatment System (usually performed in July) were not done because they were offline.

The engines were restarted on April 8, 2024. Engines were taken offline in August 2024 for generator and emissions control equipment repair. Engines were brought back online on September 28, 2024. Source testing of the engines is scheduled for December 2 and 3, 2024.

While the engines were offline, the A80 gas treatment system had difficulty in treating all the landfill gas. The 10-day report (9/11/24) and 30-day report (10/3/24) was submitted to BAAQMD (see Appendix C). The Variance Order/Docket 3754 was filed on 10/22/24 (application submitted 9/13/24 with Board hearing on 10/8/24) for the A80 upgrade project to increase the treatment capacity of the A80 landfill gas treatment system. The upgraded A80 was in full operation on 10/25/24.

2.12 COMPLIANCE WITH §60.757(f)(6)

"The date of installation and the location of each well or collection system expansion added pursuant to (a)(3), (b), (c)(4) of §60.755."

Routine GCCS maintenance occurred during the reporting period. The Wellfield SSM Log is included in Appendix D, Wellfield SSM Log.

0 wells were added to and 10 wells were removed from the collection system during the reporting period (May 1, 2024 to October 31, 2024).

As of the end of this reporting period, 126 total collectors (122 vertical wells and 4 horizontal collectors) were in service at RLI. A map of the LFG collection system showing the positioning of all vertical wells, horizontal collectors, and other LFG extraction devices is included in Appendix A.

2.13 COMPLIANCE WITH TITLE V PERMIT CONDITION 13123 (S-34 & S-39)

The S-34 Compost Facility Operations and S-39 Screening Operations were utilized during the reporting period. The total amount of material processed did not exceed 160,368 tons during any consecutive 12-month period during the reporting period of May 1, 2024 to October 31, 2024. Monthly and 12-month rolling throughputs are summarized in Table 2-8.

Table 2-8 Composting and Screening Operations Throughput

Month	Total Throughput (tons)	Rolling 12-Month Throughput (tons)
May 2024	12,060	129,114
June 2024	10,222	128,254
July 2024	10,919	129,710
August 2024	10,650	130,268
September 2024	9,425	130,117
October 2024	12,758	133,552

Pursuant to Title V Permit Condition Number 13123 Part 7, all yard waste material was processed within 72 hours of receipt except as provided for in condition 8. In addition, pursuant to Title V Permit Condition Number 13123 Part 8, the plant received no public nuisance notices of violation during the reporting period of May 1, 2024 to October 31, 2024.

2.14 COMPLIANCE WITH TITLE V PERMIT CONDITIONS 14098 AND 16516 (S-55)

Pursuant to Title V Permit Condition Number 14098, the annual gasoline throughput for the S-55 Non-Retail Gasoline Dispensing Facility Number 8573 did not exceed 940,000 gallons in any consecutive 12-month period during the timeframe of this report. Monthly gasoline throughput totals for the reporting period are listed in Table 2-9:

Table 2-9 Unleaded Gasoline Throughput

Month	Total Throughput (gallons)	Rolling 12-Month Fuel Usage (gallons)
May 2024	601	4,312
June 2024	354	4,449
July 2024	356	4,474
August 2024	365	4,459
September 2024	304	4,303
October 2024	529	4,385

Pursuant to Title V Permit Condition Number 16516, the Static Pressure Performance Test (Leak Test) for S-55 was performed on March 7, 2024. S-55 passed the Leak Test. The Static Pressure Performance Test results are included in Appendix O.

2.15 COMPLIANCE WITH TITLE V PERMIT CONDITIONS 22820 (S-49)

The permit for S-49 was surrendered to BAAQMD on November 4, 2013. The equipment is on longer on site.

2.16 COMPLIANCE WITH TITLE V PERMIT CONDITION 19865 (S-41)

Pursuant to Title V Permit Condition 19865, the total of waste processed at the S-41 Yard and Green Waste Shredding Operation did not exceed 820 tons per day or 200,000 tons per year. Table 2-10 summarizes the amount of waste processed at S-41 during the reporting period:

Table 2-10 Waste Processed at S-41

Month	Total Throughput (tons)	Rolling 12-Month Throughput (tons)
May 2024	12,060	129,114
June 2024	10,222	128,254
July 2024	10,919	129,710
August 2024	10,650	130,268
September 2024	9,425	130,117
October 2024	12,758	133,552

2.17 COMPLIANCE WITH TITLE V PERMIT CONDITION 19866 (S-42)

The total amount of material received at the S-42 Soil and Cover Stockpiles did not exceed 1,160 tons per day and 105,500 tons per year.

2.18 COMPLIANCE WITH TITLE V PERMIT CONDITION 19867, PARTS 6-10

The following is a summary of vehicle activity at the RLI:

- The mean vehicle fleet weight for all off-site vehicles traveling on paved roads was 15.27 tons, which is below the permit limit of 15.31 tons.
- Mean vehicle fleet weight for all off-site vehicles traveling on gravel or dirt roads was 16.55 tons, which is within the permit limit of 16.63 tons
- The mean vehicle fleet weight for all on-site landfilling and construction related vehicles was 12.8 tons, which is below the permit limit of 28.37 tons.
- During the reporting period, the vehicle miles travelled (VMT) per day on gravel roads did not exceed the permit limit of 280 VMT per day. 2023 partial calendar year VMT on gravel roads was 19,640 VMT, below the limit of 87,080 VMT.
- During the reporting period, the VMT per day on dirt roads did not exceed the permit limit of 639 VMT per day. 2024 partial calendar year VMT on dirt roads was 92,428 VMT, below the limit of 198,650 VMT.
- During the reporting period, the VMT per day on paved roads did not exceed the permit limit of 622 VMT per day. 2024 partial calendar year VMT on paved roads was 56,706 VMT, below the limit of 205,880 VMT.
- During the reporting period, the VMT per day on dirt roads for the on-site vehicle fleet did not exceed the permit limit of 61 VMT per day. 2024 partial calendar year VMT on dirt roads is 16,027 VMT, below the limit of 19,080 VMT.

The records for VMT and average vehicle fleet weights are available for review at RLI.

2.19 COMPLIANCE WITH TITLE V PERMIT CONDITION 19867, PARTS 14 AND 15

No contaminated soil containing volatile organic compound (VOC) concentrations greater than 50 parts per million (ppm) was received during this reporting period. The total VOC emission rate for the reporting period (May 1, 2024 to October 31, 2024) is 0.00 lbs. The VOC soil log is included in Appendix L.

2.20 COMPLIANCE WITH TITLE V PERMIT CONDITION 19867, PARTS 31 AND 33

WEEKLY H_2S MONITORING

Pursuant to Title V Permit Condition Number 19867, Part 31b, weekly hydrogen sulfide (H_2S) readings were taken using Draeger tubes. This sampling frequency was increased to twice weekly starting November 22, 2016 per the Compliance Agreement between RLI and BAAQMD. All terms of the agreement have been complied with.

The twice weekly H_2S readings and quarterly averages are summarized in Appendix M, H_2S Twice Weekly and Quarterly Monitoring.

QUARTERLY H_2S CHARACTERIZATION

Pursuant to Title V Permit Condition Number 19867, Part 31a, RLI collected the quarterly characterization of the LFG for analysis of sulfur compounds. The results are included in Tables 2-11 (LFG pre-A80 and pre-S71 treatment), 2-12 (Flare post-treatment), and Appendix M. As previously discussed, RLI had obtained a Compliance Agreement with BAAQMD covering the concentration limits of H_2S in the landfill gas. All terms of the agreement have been complied with.

Table 2-11 LFG (pre-treatment) Laboratory Characterization Results

Compound	Results (ppm_v)					
	2024 Q2 pre-A80	**2024 Q2 pre-S71**	**2024 Q3 pre-A80**	**2024 Q3 pre-S71**	**2024 Q4 pre-A80**	**2024 Q4 pre-S71**
Hydrogen Sulfide	1,400	1,700	2,000	1,700	1,300	870
Carbonyl Sulfide	2.10	1.10	1.80	1.40	0.84	0.60
Methyl Mercaptan	1.40	1.20	4.80	2.70	0.97	0.72
Ethyl Mercaptan	ND	0.24	1.00	0.83	0.18	0.21
Dimethyl Sulfide	ND	ND	ND	ND	ND	ND
Carbon Disulfide	0.18	ND	ND	ND	ND	ND
Total Reduced Sulfur	**1,415**	**1,713**	**2,026**	**1,717**	**1,310**	**877**

ND = not detected
N/A = not applicable

Table 2-12 Flare Inlet (post-treatment) Laboratory Characterization Results

Compound	Results (ppm_v)[1]			
	2024 Q2 A51	2024 Q2 A60	2024 Q3 A60	2024 Q4 A60
Hydrogen Sulfide	260	380	36	180
Carbonyl Sulfide	1.10	1.30	0.20	0.73
Methyl Mercaptan	0.21	0.28	0.11	0.26
Ethyl Mercaptan	0.05	0.07	0.02	0.05
Dimethyl Sulfide	0.24	0.20	0.04	0.21
Carbon Disulfide	0.14	0.14	0.02	0.20
Total Reduced Sulfur	**264**	**384**	**37**	**184**

[1] Post-treatment Flare A51 offline Q3 and October of Q4 2024
ND = not detected
N/A = not applicable

As directed by PG&E on 5/12/23, the engine plant has been shut down until the landslide area is fixed by PG&E/Caltrans. BAAQMD was notified on June 27, 2023 with the 10-day/30-day report that the following testing will not be completed as follows:

- 2nd and 3rd Quarter 2023 24-hour emissions testing of Engine No. 1 (S64) and Engine No. 2 (S65) by 9/30/23. Both engines were offline (Condition 25635 Part 4 (NOx), Part 5 (CO), Part 12 (H2S), and Part 14 (CH4))

- 2nd and 3rd Quarter 2023 Laboratory analysis of landfill gas to Engine inlet by 9/30/23. Engines were offline (2016 Compliance Agreement)

- July 2023 annual source tests for Engines S64 and S65 with the associated S71 Gas Treatment System (usually performed in July) were not done because they were offline.

The engines were restarted on April 8, 2024. Engines were taken offline in August 2024 for generator and emissions control equipment repair. Engines were brought back online on September 28, 2024. Source testing of the engines is scheduled for December 2 and 3, 2024.

While the engines were offline, the A80 gas treatment system had difficulty in treating all the landfill gas. The 10-day report (9/11/24) and 30-day report (10/3/24) was submitted to BAAQMD (see Appendix C). The Variance Order/Docket 3754 was filed on 10/22/24 (application submitted 9/13/24 with Board hearing on 10/8/24) for the A80 upgrade project to increase the treatment capacity of the A80 landfill gas treatment system. The upgraded A80 was in full operation on 10/25/24.

ROLLING 4-QUARTER TRS LIMIT

The rolling 4-quarter average TRS concentration was calculated at the end of each quarter using data collected from twice weekly tube samples and quarterly analytical samples per Condition 19867, Part 31b. Results are shown in Table 2-13. As shown in the table, at the end of the secondQuarter 2024, the calculated TRS concentration was in excess of the 350 ppm$_v$ limit. The Compliance Agreement also covers this limit. Follow-up actions are discussed later in this section.

Table 2-13 Rolling 4-Quarter TRS Concentration

Quarter	Calculated TRS (ppmv)	Rolling Quarterly Average Annual TRS (ppmv)
2023 Q4	329	991.8
2024 Q1	326	650.5
2024 Q2	400	351.0
2024 Q3	239	323.3

ANNUAL LFG CHARACTERIZATION

LFG characterization sampling was conducted concurrently with the A-51 annual source test as required by Title V Permit Condition Number 19867, Part 31 on January 10, 2024. The LFG sample was collected from the main LFG header and analyzed for the organic and sulfur compounds listed in Part 31. The results were included in the Annual Source Test report submitted on March 8, 2024.

Results for Toxic Air Contaminants (TACs) are presented in Table 2-14 and indicate that the LFG collected by S-5 did not exceed the limits listed in Title V Permit Condition 19867, Part 18.b.

Table 2-14 Annual LFG Characterization: Toxic Air Contaminants

Compound	Result (ppb$_v$)	Concentration Limit* (ppb$_v$)
Acrylonitrile	<45.2	300
Benzene	81.1	1,500
Benzyl Chloride	<45.2	500
Carbon Tetrachloride	<45.2	200
Chlorobenzene	<45.2	200
Chloroethane	<45.2	500
Chloroform	<45.2	200
1,4-Dichlorobenzene	<45.2	1,000
Ethylbenzene	294	4,000
Ethylene Dibromide	<45.2	200
Ethylene Dichloride	<45.2	200
Ethylidene Dichloride	<45.2	500
Hexane	<47.8	2,000
Isopropyl Alcohol	304	10,000

Compound	Result (ppb_v)	Concentration Limit* (ppb_v)
Methyl Alcohol	745	300,000
Methyl Ethyl Ketone	722	15,000
Methylene Chloride	<90.3	1,000
Methyl tert-Butyl Ether	<45.2	500
Perchloroethylene	<45.2	1,000
Styrene	<45.2	500
1,1,2,2-Tetrachloroethane	<45.2	200
Toluene	789	20,000
1,1,1-Trichloroethane	<45.2	200
Trichloroethylene	<45.2	500
Vinyl Chloride	<45.2	2,000
Vinylidene Chloride	<45.2	500
Xylenes	698	20,000

ppb_v = parts per billion by volume
<SRL = less than the sample reporting limit

Per the Compliance Agreement, quarterly samples were collected and analyzed for Ethylbenzene and 1,4-Dichlorobenzene. A sample was collected on May 21, 2024 (2nd Quarter), August 27, 2024 (3rd Quarter), and October 24, 2024 (4th Quarter) at the Flare and the Engine Inlet (pre-treatment). Results are presented below.

Table 2-15 Toxic Air Contaminants Sampling (pre-treatment)

Species	2nd Quarter 2024		3rd Quarter 2024		4th Quarter 2024		Limit (ppb_v)
	A51/A60 Flare (ppb_v)	Engine (ppb_v)	A60 Flare (ppb_v)	Engine (ppb_v)	A60 Flare (ppb_v)	Engine (ppb_v)	
Ethylbenzene	1,600	1,900	2,300	2,900	240	260	4,000
1,4-Dichlorobenzene	150	180	250	330	ND	ND	1,000

ND = not detected

As directed by PG&E on 5/12/23, the engine plant has been shut down until the landslide area is fixed by PG&E/Caltrans. BAAQMD was notified on June 27, 2023 with the 10-day/30-day report that the following testing will not be completed as follows:

- 2nd and 3rd Quarter 2023 24-hour emissions testing of Engine No. 1 (S64) and Engine No. 2 (S65) by 9/30/23. Both engines were offline (Condition 25635 Part 4 (NOx), Part 5 (CO), Part 12 (H2S), and Part 14 (CH4))
- 2nd and 3rd Quarter 2023 Laboratory analysis of landfill gas to Engine inlet by 9/30/23. Engines were offline (2016 Compliance Agreement)
- July 2023 annual source tests for Engines S64 and S65 with the associated S71 Gas Treatment System (usually performed in July) were not done because they were offline.

The engines were restarted on April 8, 2024. Engines were taken offline in August 2024 for generator and emissions control equipment repair. Engines were brought back online on September 28, 2024. Source testing of the engines is scheduled for December 2 and 3, 2024.

While the engines were offline, the A80 gas treatment system had difficulty in treating all the landfill gas. The 10-day report (9/11/24) and 30-day report (10/3/24) was submitted to BAAQMD (see Appendix C). The Variance Order/Docket 3754 was filed on 10/22/24 (application submitted 9/13/24 with Board hearing on 10/8/24) for the A80 upgrade project to increase the treatment capacity of the A80 landfill gas treatment system. The upgraded A80 was in full operation on 10/25/24.

GROUND LEVEL H_2S MONITORING

RLI began conducting fenceline monitoring for ground level H_2S concentrations in accordance with the May 2011 Proposed Hydrogen Sulfide Monitoring Plan in November 2016. Monitoring was conducted on the following days:

- May 9 and 19, 2024
- June 20, 2024
- July 17, 18, and 19, 2024
- August 15, 2024
- September 24, 2024
- October 29, 2024

There were no H_2S concentrations observed above 30 ppb averaged over 60 minutes or 60 ppb averaged over 3 minutes except for July 2024 (55 to 68 ppb H_2S averaged over 60 minutes). RLI investigated the landfill and determined that the engine plant was offline for maintenance. RLI implemented corrective actions which included tuning the landfill and adjusting the LFG flow/volume to the flare. The NorthEast 2 location was remonitored on 7/19/24 with a reading of 6 ppb H_2S over 60 minutes and cleared the exceedance.

2.21 COMPLIANCE WITH TITLE V PERMIT CONDITION 22940 (S-56)

The permit for S-56 was surrendered to BAAQMD on October 8, 2020. The equipment is no longer on site.

2.22 COMPLIANCE WITH TITLE V PERMIT CONDITION 22941 (S-57)

The permit for S-57 was surrendered to BAAQMD on October 8, 2020. The equipment is no longer on site.

2.23 COMPLIANCE WITH TITLE V PERMIT CONDITION 23052 (S-58)

Pursuant to Permit Condition 23052 Part 1, the total leachate influent rate to the Aerated Leachate Pond (S-58), excluding non-contact storm runoff, did not exceed 39.42 million gallons during any consecutive 12-month period. Table 2-16 displays the leachate flow information for S-58.

Table 2-16 Leachate Flow Information for S-58

Month	Total Leachate Influent Rate to S-58 (gallons)	Total Rolling 12-Month Flow Rate to S-58 (millions of gallons)
May 2024	3,120,440	31,508,480
June 2024	1,755,700	29,959,120
July 2024	1,748,460	30,020,660
August 2024	1,744,840	29,680,380
September 2024	1,133,060	29,285,800
October 2024	1,071,520	29,329,240

As shown in Table 2-17, the average concentration of precursor organic compounds (POCs) in the leachate influent to S-58 did not exceed the limits specified by Title V Permit Condition Number 23052 Parts 2 and 3:

Table 2-17 POC Concentrations for S-58

Sample Date	Benzene (ppb)	1,4-Dichlorobenzene (ppb)	Vinyl Chloride (ppb)	Total POC Concentration (ppb)
June 5, 2024	1.8	4.9	ND<0.9	31
Limit	19	48	7	500

2.24 COMPLIANCE WITH TITLE V PERMIT CONDITION 24527 (S-61 AND S-62)

The S-61 Portable Diesel Engine for Waste Tipper and S-62 Portable Diesel Engine for Power Screens operated less than 4,992 hours combined during any 12-month period ending in the May 1, 2024 to October 31, 2024 reporting period. Table 2-18 displays runtime hours for S-61 and S-62 during the reporting period.

Table 2-18 S-61 and S-62 Portable Diesel Engines

Month	S-61 Total Runtime (Hours)	S-62 Total Runtime (Hours)	Combined Rolling 12-Month Total (Hours)
May 2024	0	0	0
June 2024	0	0	0
July 2024	0	0	0
August 2024	0	0	0
September 2024	0	0	0
October 2024	0	0	0

2.25 COMPLIANCE WITH TITLE V PERMIT CONDITION 25634

Permit Condition 25634 requires the calculation of monthly LFG Input to all LFG-Fired Combustion Equipment and calculation of monthly emissions of CO and SO2. The calculations are summarized on a quarterly basis to show compliance with rolling 4-quarter limits. These calculations are summarized below. Complete calculations are presented in Appendix P.

Table 2-19 Rolling 4-Quarter LFG Input and CO and SO_2 Emissions

		Rolling 4-Quarter Totals		
Year	**Quarter**	**LFG Input (MMscf)**	**CO Emissions (tons)**	**SO_2 Emissions (tons)**
2023	4	1,254	24.7	89.3
2024	1	1,264	24.0	69.7
2024	2	1,246	23.8	32.8
2024	3	1,230	23.6	28.5
Limits		2,625	237.5	99

3 PERFORMANCE TEST REPORT

In accordance with BAAQMD Regulation 8-34-413 and 40 CFR §60.757(g) in NSPS, a Performance Test Report is required to be submitted from subject facilities containing performance and monitoring data for the operation of the GCCS. The operational records listed in Table 3-1 have been reviewed, summarized, and are included herein.

Table 3-1 Performance Test Requirements

Rule	Requirement	Location in Report
8-34-412, §60.8, §60.752(b)(2)(iii)(B), §60.754(d)	Compliance Demonstration Test	Section 3.1,
§60.757(g)(1)	A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for future collection system expansion.	Section 3.2, Appendix A
§60.757(g)(2)	The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based.	Section 3.3
§60.757(g)(3)	The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material.	Section 3.4
§60.757(g)(4)	The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area.	Section 3.5
§60.757(g)(5)	The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill.	Section 3.6
§60.757(g)(6)	The provisions for the control of off-site migration.	Section 3.7

3.1 SOURCE TEST RESULTS (BAAQMD 8-34-412)

3.1.1 FLARE (A-51) SOURCE TEST RESULTS

The 2024 Annual Compliance Demonstration Test (Source Test) was conducted on January 10, 2024. The Test Report was submitted to BAAQMD on March 8, 2024. A summary of the source test report is presented in Appendix N.

The results for the A-51 Flare indicated that the flare is in compliance with BAAQMD Regulation 8-34-301.3 and Title V Condition Number 19867, Parts 23 and 26. Inlet LFG samples were collected from the discharge side of the blower during the test to show compliance with the NMOC limits from Title V Permit Condition Number 18.a. Table 3-2 below shows the results of the source test, averaged from three test runs.

Table 3-2 A-51 Flare Source Test Results

Condition	Flare (A-51) Average Results	Permit Limit	8-34-301.3 limit	Compliance Status
NO_x (ppm_v @ 15% O_2)	13.9	15	---	In Compliance
CO (ppm_v @ 15% O_2)	3.3	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<5.5	---	30	In Compliance
NMOC Inlet (ppm_v as hexane)	43.3	360	---	In Compliance

Although RLI proposed a permit modification to increase the H_2S limit on October 6, 2016 (still under review by BAAQMD), the Compliance Agreement had expired January 15, 2023, prior to the January 2024 A-51 source test. BAAQMD requested RLI to retest A-51 for TRS. RLI retested A-51 on May 16, 2024 (report submitted June 28, 2024) and demonstrated A-51 was below the 350 ppm TRS limit with 198 ppm TRS. A summary of the source test report is presented in Appendix N.

3.1.2 FLARE (A-60) SOURCE TEST RESULTS

The A-60 Flare has two operating Zones (A and B). Title V Permit Condition 19867, Part 30 states that source testing can be conducted while the flare is operating in either zone, provided that each operating zone is tested at least once every five years.

The 2024 Source Test was performed on the A-60 flare operating in Zone A by Blue Sky Environmental, LLC on August 20, 2024. The Test Report was submitted to BAAQMD on October 18, 2024. A summary of the report is presented in Appendix N.

The results for Zone A of the A-60 Flare indicate that the flare is in compliance with BAAQMD Regulation 8-34-301.3 and Title V Condition Number 19867, Parts 23 and 26. Inlet LFG samples were collected from the discharge side of the blower during the test to show compliance with the NMOC limits from Title V Permit Condition Number 18.a. Table 3-3 below shows the results of the source test, averaged from three test runs.

Table 3-3 A-60 Zone A Flare Source Test Results

Condition	Flare (A-60 Zone A) Average Results	Permit Limit	8-34-301.3 limit	Compliance Status
NO_x (ppm_v @ 15% O_2)	11.6	15	---	In Compliance
CO (ppm_v @ 15% O_2)	50.0	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<3.4	---	30	In Compliance
NMOC Inlet (ppm_v as hexane)	16.9	360	---	In Compliance

The 2023 Source Test was performed by Blue Sky Environmental, LLC on July 12, 2023 with the A-60 flare operating in Zone B. The Test Report was submitted to BAAQMD on September 8, 2023. A summary of the report is presented in Appendix N.

The results for Zone B of the A-60 Flare indicate that the flare is in compliance with BAAQMD Regulation 8-34-301.3 and Title V Condition Number 19867, Parts 23 and 26. Inlet LFG samples were collected from the discharge side of the blower during the test to show compliance with the NMOC limits from Title V Permit Condition Number 18.a. Table 3-4 below shows the results of the source test, averaged from three test runs.

Table 3-4 A-60 Zone B Flare Source Test Results

Condition	Flare (A-60 Zone B) Average Results	Permit Limit	8-34-301.3 limit	Compliance Status
NO_x (ppm_v @ 15% O_2)	7.6	15	---	In Compliance
CO (ppm_v @ 15% O_2)	21	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<3.1	---	30	In Compliance
NMOC Inlet (ppm_v)	<1.1	360		In Compliance

3.1.3 ENGINES (S-64 AND S-65) SOURCE TEST RESULTS

The S-64 and S-65 landfill gas (LFG) Engines are operating in accordance with the Bay Area Air Quality Management District (BAAQMD) Permit to Operate (PTO) for Facility 1179, Permit Condition 25635, Part 13. Testing also satisfied initial testing requirements of 40 CFR 60, Subpart JJJ – New Source Performance Standards for Spark Ignition Internal Combustion Engines.

The 2022 Source Test was performed on the S-64 and S-65 LFG Engines by Blue Sky Environmental, LLC on July 14 and 15, 2022. The Test Report was submitted to BAAQMD on September 12, 2022. A summary of the report is presented in Appendix N.

The results for S-64 Engine indicates that the engine is in compliance with PTO Permit Condition 25635, Part 13. Table 3-5 below shows the results of the source test, averaged from three test runs (particulate and formaldehyde have a testing frequency of one engine per year).

Table 3-5 S-64 Engine Source Test Results

Condition	S-64 Engine Average Results	Permit Limit	Compliance Status
NO_x (gm/BHp-hr)	0.01	0.15	In Compliance
CO (gm/BHp-hr)	0.4	1.8	In Compliance
NMOC (gm/BHp-hr as CH_4)	0.02	0.16	In Compliance
Total Particulate (g/BHp)	0.05	0.10	In Compliance
Formaldehyde (lb/hr)	0.04	0.51	In Compliance

The results for S-65 Engine indicates that the engine is in compliance with PTO Permit Condition 25635, Part 13. Table 3-6 below shows the results of the source test, averaged from three test runs.

Table 3-6 S-65 Engine Source Test Results

Condition	S-65 Engine Average Results	Permit Limit	Compliance Status
NO_x (gm/BHp-hr)	0.09	0.15	In Compliance
CO (gm/BHp-hr)	0.2	1.8	In Compliance
NMOC (gm/BHp-hr as CH_4)	0.02	0.16	In Compliance

As directed by PG&E on 5/12/23, the engine plant has been shut down until the landslide area is fixed by PG&E/Caltrans. BAAQMD was notified on June 27, 2023 with the 10-day/30-day report that the following testing will not be completed as follows:

- 2nd and 3rd Quarter 2023 24-hour emissions testing of Engine No. 1 (S64) and Engine No. 2 (S65) by 9/30/23. Both engines were offline (Condition 25635 Part 4 (NOx), Part 5 (CO), Part 12 (H2S), and Part 14 (CH4))

- 2nd and 3rd Quarter 2023 Laboratory analysis of landfill gas to Engine inlet by 9/30/23. Engines were offline (2016 Compliance Agreement)

- July 2023 annual source tests for Engines S64 and S65 with the associated S71 Gas Treatment System (usually performed in July) will not be done because they were offline.

The engines were restarted on April 8, 2024. Engines were taken offline in August 2024 for generator and emissions control equipment repair. Engines were brought back online on September 28, 2024. Source testing of the engines is scheduled for December 2 and 3, 2024.

While the engines were offline, the A80 gas treatment system had difficulty in treating all the landfill gas. The 10-day report (9/11/24) and 30-day report (10/3/24) was submitted to BAAQMD (see Appendix C). The Variance Order/Docket 3754 was filed on 10/22/24 (application submitted 9/13/24 with Board hearing on 10/8/24) for the A80 upgrade project to increase the treatment capacity of the A80 landfill gas treatment system. The upgraded A80 was in full operation on 10/25/24.

3.3 COMPLIANCE WITH §60.757(G)(1)

"A diagram of the collection system showing collection system positioning including wells, horizontal collectors…"

A map of the LFG collection system showing the positioning of all vertical wells, horizontal collectors, and other LFG extraction devices is included in Appendix A.

3.4 COMPLIANCE WITH §60.757(g)(2)

"The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based."

RLI's GCCS has historically provided LFG wells and collectors spaced in accordance with standard industry practices. The A-51 and A-60 flares, LFG extraction wells, and piping are more than adequate to move the current LFG flow rate. RLI will continue to add additional LFG control capacity as necessary with the approval of the BAAQMD. The installed collector density appears more than adequate for controlling surface emissions, based on continuous compliance and operational experience.

The total capacity of the LFG mover equipment was designed and will be designed to meet the current United States Environmental Protection Agency (EPA) Model AP-42 projections of LFG generation and the historic LFG extraction rates determined to be continuously available from the facility.

DEMONSTRATING COMPLIANCE WITH §60.757(g)(2)

"The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based."

Compliance with 40 CFR §60.757(g)(2) is maintained by performing quarterly SEM. Refer to Section 2.6, Surface Emissions Monitoring for information pertaining to the SEM results. These results show that the GCCS has sufficient coverage over the waste footprint. The current flaring system has the capacity to destroy more than twice the actual recovery. Well monitoring data shows that adequate vacuum is available at all points in the wellfield, demonstrating that the piping network is sufficient to handle all extracted LFG.

3.6 COMPLIANCE WITH §60.757(g)(3)

"The documentation of the presence of asbestos or non-degradable material for each area from which collection wells have been excluded based on the presence of asbestos or non-degradable material."

No segregated areas or accumulations of asbestos material are documented for the site in the GCCS Design Plan. Therefore, 40 CFR §60.757(g)(3) is not applicable.

3.7 COMPLIANCE WITH §60.757(g)(4)

"The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on non-productivity and the calculations of gas generation flow rate for each excluded area."

No non-productive areas have been excluded from the coverage of the GCCS. Therefore, 40 CFR §60.757(g)(4) is not applicable.

3.8 COMPLIANCE WITH §60.757(g)(5)

"The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill."

The present LFG mover equipment capacity is adequate to move the current LFG flow rate. RLI will continue to add additional LFG control capacity as necessary with the approval of the BAAQMD.

0 wells were added to and 10 wells were removed from the collection system during the reporting period (May 1, 2024 to October 31, 2024).

As of the end of this reporting period, 126 total collectors (122 vertical wells and 4 horizontal collectors) were in service at RLI.

3.9 COMPLIANCE WITH §60.757(g)(6)

"The provisions for the control of off-site migration."

RLI is a diked area that is completely surrounded by permanent surface water features (San Antonio Creek, Hans Slough, West Slough, and South Slough) which present a barrier to gas migration. The waste footprint is also surrounded by an engineered leachate collection trench that provides a further barrier to LFG migration. Based on the location of RLI and on existing LFG monitoring data, the existing GCCS has been adequate in preventing subsurface lateral migration of LFG to off-site locations.

DEMONSTRATING COMPLIANCE WITH §60.757(g)(6)

"The provisions for the control of off-site migration."

The landfill operator will continue surface monitoring in accordance with the approved monitoring plans. If the GCCS at RLI does not meet the measures of performance set forth in the NSPS/Emissions Guidelines (EG), the GCCS will be adjusted or modified in accordance with the NSPS/EG requirements.

3.10 COMPLIANCE AGREEMENT SUMMARY

In response to increased concentrations of H_2S, 1,4-dichlorobenzene and ethylbenzene observed both during routine sampling events and the 2016 Source Test. RLI entered into a Compliance Agreement with BAAQMD on November 22, 2016. The Compliance Agreement ended on January 15, 2023 with RLI and BAAQMD currently working on a new Compliance Agreement. The 2016 agreement includes enhanced monitoring and reporting activities for RLI:

- The frequency for H_2S monitoring using Draeger tubes was increased from weekly to twice per week.

- Monthly fenceline monitoring for ground-level H_2S is now required.

- The frequency for TO-15 sampling for 1,4-dichlorobenzene and ethylbenzene was increased to quarterly.

- The frequency for instantaneous SEM was increased from quarterly to bi-monthly.

Reports summarizing this monitoring were completed but were not submitted to BAAQMD due to the Compliance Agreement ending.

The monthly compliance reports were completed but not submitted to BAAQMD on the following days:

- June 10, 2024
- July 16, 2024
- August 13, 2024
- September 18, 2024
- October 18, 2024
- November 19, 2024

4 START-UP, SHUTDOWN, MALFUNCTION REPORT

Start-up, Shutdown, Malfunction (SSM) Report for the Collection and Control Systems at the Redwood Landfill

The NESHAP contained in 40 CFR Part 63, AAAA for MSW landfills to control hazardous air pollutants include the regulatory requirements for submittal of a semi-annual report (under 40 CFR §63.10(d)(5) of the general provisions) if an SSM event occurred during the reporting period. The reports required by 40 CFR §63.1980(a) of the NESHAP and §60.757(f) of the NSPS summarize the GCCS exceedances. These two semi-annual reports contain similar information and have been combined as allowed by 40 CFR §63.10(d)(5)(i) of the General Provisions.

NESHAP 40 CFR Part 63, AAAA became effective on January 16, 2004. SSM events that occurred during the semi-annual reporting period (May 1, 2024 to October 31, 2024) are noted in this section and included in Appendix B. The following information is included as required:

- During the reporting period, 6 A-51 Flare SSM events, 23 A-60 Flare Zone A SSM events, and 1 A-60 Flare Zone B SSM events occurred. The time, duration, and cause of each event are included in Appendix B, Flare and Engine SSM Logs.

- During the reporting period, 35 S-64 Engine (#1) SSM events, 27 S-65 Engine (#2) SSM events occurred. The time, duration, and cause of each event are included in Appendix B, Flare and Engine SSM Logs.

- During the reporting period, 16 wellfield SSM events occurred. The time and duration of these events are included in Appendix D, Wellfield SSM Log.

- During the reporting period, 0 monitoring/recorder equipment SSM event occurred.

- In all 108 flare, engine, and wellfield SSM events, automatic systems and operator actions were consistent with the standard operating procedures contained in the SSM Plan.

- Revisions of the SSM Plan to correct deficiencies in the landfill operations or procedures were neither required nor prepared (§63.6(e)(3)(viii)).

The Semi-Annual Report pursuit to NESHAP 40 CFR part 63 subpart AAAA, section 1981(h) is submitted separately.

I certify the following:

> ***Based on information and belief formed after reasonable inquiry, information on the startup, shutdown, malfunction forms, all accompanying reports, and other required certifications are true, accurate, and complete.***

______________________________ November 29, 2024

Signature of Responsible Official **Date**

Scott Tignac

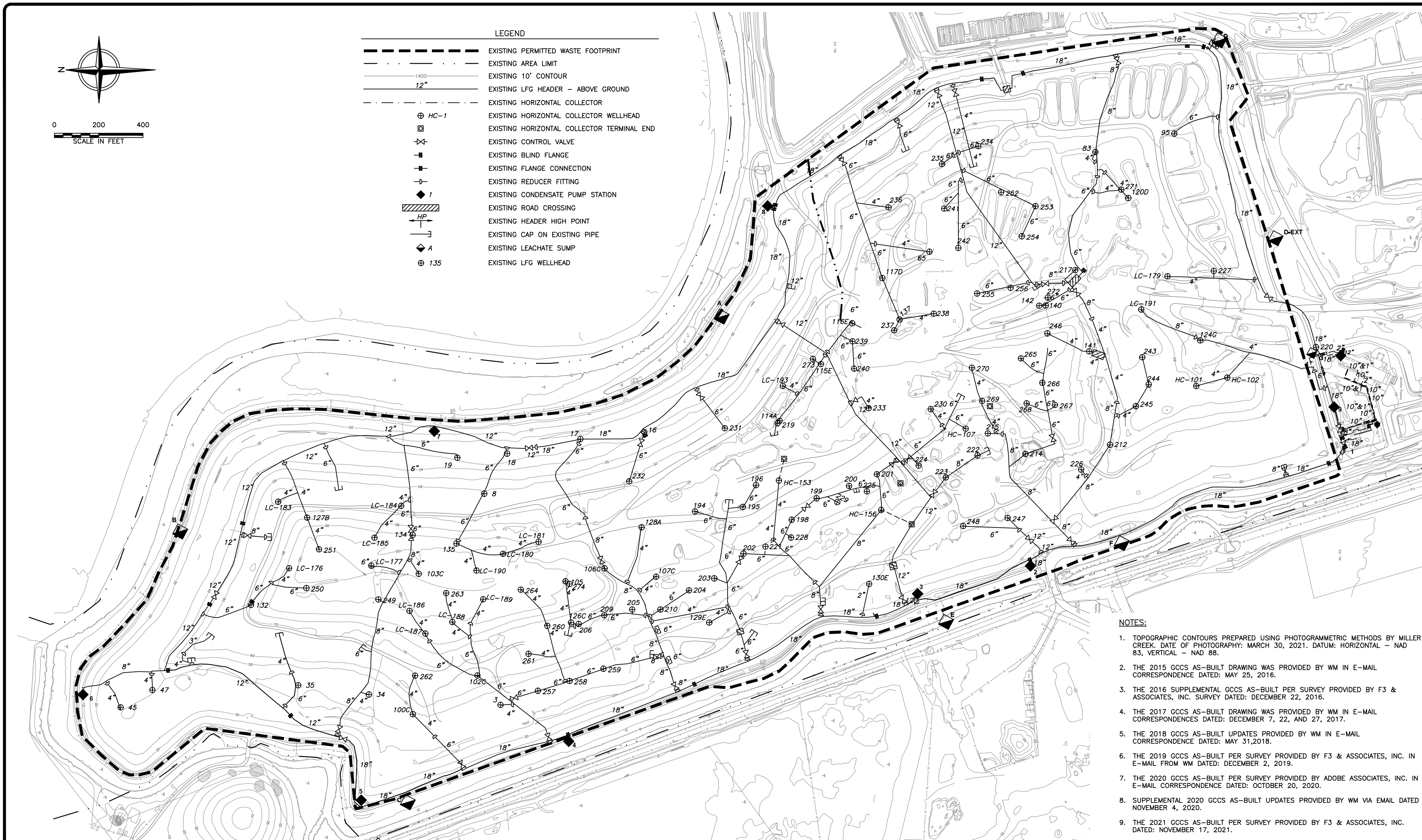
Name of Responsible Official

APPENDIX A

SITE MAP

APPENDIX B

FLARE (A-51 & A-60) SSM LOGS, ENGINE (S-64 & S65) SSM LOGS, AND GCCS DOWNTIME SUMMARY



NOTES:

1. TOPOGRAPHIC CONTOURS PREPARED USING PHOTOGRAMMETRIC METHODS BY MILLER CREEK. DATE OF PHOTOGRAPHY: MARCH 30, 2021. DATUM: HORIZONTAL – NAD 83, VERTICAL – NAD 88.
2. THE 2015 GCCS AS–BUILT DRAWING WAS PROVIDED BY WM IN E–MAIL CORRESPONDENCE DATED: MAY 25, 2016.
3. THE 2016 SUPPLEMENTAL GCCS AS–BUILT PER SURVEY PROVIDED BY F3 & ASSOCIATES, INC. SURVEY DATED: DECEMBER 22, 2016.
4. THE 2017 GCCS AS–BUILT DRAWING WAS PROVIDED BY WM IN E–MAIL CORRESPONDENCES DATED: DECEMBER 7, 22, AND 27, 2017.
5. THE 2018 GCCS AS–BUILT UPDATES PROVIDED BY WM IN E–MAIL CORRESPONDENCE DATED: MAY 31,2018.
6. THE 2019 GCCS AS–BUILT PER SURVEY PROVIDED BY F3 & ASSOCIATES, INC. IN E–MAIL FROM WM DATED: DECEMBER 2, 2019.
7. THE 2020 GCCS AS–BUILT PER SURVEY PROVIDED BY ADOBE ASSOCIATES, INC. IN E–MAIL CORRESPONDENCE DATED: OCTOBER 20, 2020.
8. SUPPLEMENTAL 2020 GCCS AS–BUILT UPDATES PROVIDED BY WM VIA EMAIL DATED NOVEMBER 4, 2020.
9. THE 2021 GCCS AS–BUILT PER SURVEY PROVIDED BY F3 & ASSOCIATES, INC. DATED: NOVEMBER 17, 2021.

DRAFT AS-BUILT

WASTE MANAGEMENT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 12/21/21
DRAWN BY GVP
DESIGNED BY AMN
CHECKED BY KA
APPROVED BY PJS

TETRA TECH

ALL PROFESSIONAL ENGINEERING WORK IS PERFORMED BY DULY LICENSED PROFESSIONAL ENGINEERS UNDER THE APPROPRIATE STATE REGISTERED PROFESSIONAL ENTITY.

REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA

GCCS RECORD LAYOUT

AS-BUILT SITE PLAN

SHEET NO. 1

PROJECT NO. 200136

REDWOOD LANDFILL, INC.

A-51 CONTROL DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1	x Shutdown x Startup Malfunction	A-51 Flare	4/8/24 9:38 5/16/24 7:40	4/8/24 9:40 5/16/24 7:42	0.03 0.03	910.03	Manual shutdown for Engine Plant startup. Operate system with A60 only. A51 H2S re-source test on 5/16/24.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	5/16/2024
2	x Shutdown x Startup Malfunction	A-51 Flare	5/16/24 10:14 5/21/24 9:16	5/16/24 10:16 5/21/24 9:18	0.03 0.03	119.03	Manual shutdown running on A60 only. A51 re-source test on 5/16/24.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	5/21/2024
3	x Shutdown x Startup Malfunction	A-51 Flare	5/21/24 10:08 6/5/24 7:32	5/21/24 10:10 6/5/24 7:34	0.03 0.03	357.40	Manual shutdown running on A60 only. Both engines down, restart A51.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/5/2024
4	x Shutdown x Startup Malfunction	A-51 Flare	6/6/24 2:36 6/6/24 6:10	6/6/24 2:38 6/6/24 6:12	0.03 0.03	3.57	Minimum temperature low due to bad Thermocouple. Automatic shutdown	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/6/2024
5	x Shutdown x Startup Malfunction	A-51 Flare	6/6/24 7:48 6/11/24 10:08	6/6/24 7:50 6/11/24 10:10	0.03 0.03	122.33	Minimum temperature low due to bad Thermocouple. Automatic shutdown	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/11/2024
6	x Shutdown Startup Malfunction	A-51 Flare	6/11/24 12:26 A-51 shut down as of November 1, 2024	6/11/24 12:28	0.03	3419.57	Manual shutdown running on A60 only.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2024

REDWOOD LANDFILL, INC.

A-60 ZONE A CONTROL DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1		A-60 Zone A	5/16/24 7:36	5/16/24 7:38	0.03	2.73	Manual shutdown for inspection and maintenance. A51 re-source test.	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	5/16/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		5/16/24 10:20	5/16/24 10:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
2		A-60 Zone A	5/21/24 9:12	5/21/24 9:14	0.03	1.07	Manual shutdown for inspection and maintenance of A51.	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	5/21/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		5/21/24 10:16	5/21/24 10:18	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
3		A-60 Zone A	6/11/24 11:56	6/11/24 11:58	0.03	0.57	Low flow alarm shutdown. Engines coming back online.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	6/11/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		6/11/24 12:30	6/11/24 12:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
4		A-60 Zone A	7/2/24 15:06	7/2/24 15:08	0.03	3.30	Blower bearings high temperature alarm shutdown.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/2/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/2/24 18:24	7/2/24 18:26	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
5		A-60 Zone A	7/3/24 14:54	7/3/24 14:56	0.03	2.10	High temperature alarm shutdown.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/3/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/3/24 17:00	7/3/24 17:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
6		A-60 Zone A	7/3/24 17:24	7/3/24 17:26	0.03	0.20	High temperature alarm shutdown.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/3/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/3/24 17:36	7/3/24 17:38	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	x Automatic (Go to 9)		No	x No			
7		A-60 Zone A	8/6/24 12:12	8/6/24 12:14	0.03	0.10	Alarm shutdown.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/6/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/6/24 12:18	8/6/24 12:20	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	x Automatic (Go to 9)		No	x No			
8		A-60 Zone A	8/10/24 22:52	8/10/24 22:54	0.03	0.17	Alarm shutdown.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/10/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/10/24 23:02	8/10/24 23:04	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	x Automatic (Go to 9)		No	x No			
9		A-60 Zone A	8/19/24 12:08	8/19/24 12:10	0.03	0.13	Low flow alarm shutdown. Carbon vessel change.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/19/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/19/24 12:16	8/19/24 12:18	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
10		A-60 Zone A	8/22/24 20:20	8/22/24 20:22	0.03	0.17	PG&E unplanned power outage. Flare switched to generator power.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/22/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/22/24 20:30	8/22/24 20:32	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	x Automatic (Go to 9)		No	x No			
11		A-60 Zone A	8/27/24 13:40	8/27/24 13:42	0.03	0.10	PG&E unplanned power outage. Flare switched to generator power.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/27/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/27/24 13:46	8/27/24 13:48	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	x Automatic (Go to 9)		No	x No			
12		A-60 Zone A	8/28/24 20:16	8/28/24 20:18	0.03	0.07	PG&E unplanned power outage. Flare switched to generator power.	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/28/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/28/24 20:20	8/28/24 20:22	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	x Automatic (Go to 9)		No	x No			

REDWOOD LANDFILL, INC.

A-60 ZONE A CONTROL DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
13	x Shutdown x Startup Malfunction	A-60 Zone A	9/2/24 7:22 9/2/24 10:06	9/2/24 7:24 9/2/24 10:08	0.03 0.03	2.73	PG&E unplanned power outage. Breakdown report filed (RCA 200703). Manual startup.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	9/2/2024
14	x Shutdown x Startup Malfunction	A-60 Zone A	9/4/24 13:08 9/4/24 13:14	9/4/24 13:10 9/4/24 13:16	0.03 0.03	0.10	PG&E unplanned power outage. Flare switched to generator power.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/4/2024
15	x Shutdown x Startup Malfunction	A-60 Zone A	9/15/24 19:14 9/15/24 19:20	9/15/24 19:16 9/15/24 19:22	0.03 0.03	0.10	PG&E planned power outage. Flare switched to generator power.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/15/2024
16	x Shutdown x Startup Malfunction	A-60 Zone A	9/18/24 14:40 9/18/24 14:46	9/18/24 14:42 9/18/24 14:48	0.03 0.03	0.10	Low flow alarm. Maintenance/piping A80.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/18/2024
17	x Shutdown x Startup Malfunction	A-60 Zone A	9/18/24 14:54 9/18/24 14:58	9/18/24 14:56 9/18/24 15:00	0.03 0.03	0.07	Low flow alarm. Maintenance/piping A80.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/18/2024
18	x Shutdown x Startup Malfunction	A-60 Zone A	10/22/24 12:30 10/22/24 12:42	10/22/24 12:32 10/22/24 12:44	0.03 0.03	0.20	Low flow alarm. Maintenance/piping in field	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	10/22/2024
19	x Shutdown x Startup Malfunction	A-60 Zone A	10/25/24 17:02 10/25/24 17:08	10/25/24 17:04 10/25/24 17:10	0.03 0.03	0.10	Low flow alarm. Maintenance/piping in field	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	10/25/2024
20	x Shutdown x Startup Malfunction	A-60 Zone A	10/25/24 18:30 10/25/24 18:48	10/25/24 18:32 10/25/24 18:50	0.03 0.03	0.30	Low flow alarm. Maintenance/piping in field	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	10/25/2024
21	x Shutdown x Startup Malfunction	A-60 Zone A	10/29/24 5:06 10/29/24 8:40	10/29/24 5:08 10/29/24 8:42	0.03 0.03	3.57	Low flow alarm shutdown. Adjustment to louvers	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	10/29/2024
22	x Shutdown x Startup Malfunction	A-60 Zone A	10/31/24 14:04 10/31/24 14:52	10/31/24 14:06 10/31/24 14:54	0.03 0.03	0.80	Low flow alarm shutdown. Engines coming back online.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	10/31/2024
23	x Shutdown x Startup Malfunction	A-60 Zone A	10/31/24 15:20 10/31/24 15:24	10/31/24 15:22 10/31/24 15:26	0.03 0.03	0.07	Low flow alarm shutdown. Engines coming back online.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	10/31/2024

REDWOOD LANDFILL, INC.

A-60 ZONE B CONTROL DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1	x Shutdown	A-60 Zone B	7/13/23 9:34	7/13/23 9:36	0.03	11438.43	Manual shutdown A60B after A60B source testing.	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	11/1/2024
	Startup							116: Well Raising	Automatic (Go to 9)		x No	No			
	Malfunction		Zone B shut down as of November 1, 2024					117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
								118: Construction Activities	Automatic (Go to 9)		No	No			

(a) **STANDARD OPERATING PROCEDURES**

Shutdown

Procedure No.	Procedure
1.	Ensure that there is no unsafe conditions present, contact manager immediately
2.	Initiate shutdown sequence below by one or more of the following (Note date and time in Section 1 of form above)
	a. Press Emergency Stop if necessary
	b. Close On/Off switch(es) or Push On/Off button(s)
	c. Close adjacent valves if necessary
3.	Observe that system achieves normal shutdown ranges for levels, pressures, and temperatures (Note date and time in Section 2 of form above)

Startup

Procedure No.	Procedure
1.	Ensure that there is no unsafe conditions present
2.	Ensure that the system is ready to start by one of the following:
	a. Valves are in correct position
	b. Levels, pressures, and temperatures are within normal starting range
	c. Alarms are cleared
	d. Power is on and available to control panel and ready to energized equipment.
	e. Emergency stop is de-energized
3.	Initiate start sequence (Note time and date in section 1 of form above)
4.	Observe that system achieves normal shutdown ranges for levels, pressures, and temperatures (Note time and date in Section 2 of form above)

Malfunction

EQUIPMENT	PURPOSE	MALFUNCTION EVENT	COMMON CAUSES	PROCEDURE NO. -TYPICAL RESPONSE ACTIONS
LFG Collection and Control System				
Blower or Other Gas Mover Equipment	Applies vacuum to wellfield to extract LFG and transport to control device	Loss of LFG Flow/Blower Malfunction	-Flame arrestor fouling/deterioration -Automatic valve problems -Blower failure (e.g., belt, motor, impeller, coupling, seizing, etc.) -Loss of power -Extraction piping failure -Condensate knock-out problems -Extraction piping blockages	1. Repair breakages in extraction piping 2. Clean flame arrestor 3. Repair blockages in extraction piping 4. Verify automatic valve operation, compressed air/nitrogen supply 5. Notify power utility, if appropriate 6. Provide/utilize auxiliary power source, if necessary 7. Repair Settlement in Collection Piping 8. Repair Blower 9. Activate back-up blower, if available 10. Clean knock-up pot/demister 11. Drain knock-out pot
Extraction Wells and Collection Piping	Conduits for extractions and movement of LFG flow	Collection well and pipe failures	-Break/crack in header or lateral piping -Leaks at wellheads, valves, flanges, Test ports, seals, couplings, etc. -Collection piping blockages -Problems due to settlement (e.g. pipe separation, deformation, development of low points	12. Repair leaks or breaks in lines or wellheads 13. Follow procedures for loss of LFG flow/blower malfunction 14. Repair blockages in collection piping 15. Repair settlement in collection piping 16. Re-install, repair, or replace piping
Blower or Other Gas Mover Equipment And Control Device	Collection and control of LFG	Loss of electrical power	- Force majeure/Act of God (e.g., lightning, flood, earthquake, etc.) -Area-wide or local blackout or brown-out -Interruption in service (e.g. blown service fuse -Electrical line failure -Breaker trip -Transformer failure -Motor starter failure/trip -Overdraw of power -Problems in electrical panel -Damage to electrical equipment from on-site operations	17. Check/reset breaker 18. Check/repair electrical panel components 19. Check/repair transformer 20. Check/repair motor starter 21. Check/repair electrical line 22. Test amperage to various equipment 23. Contact electricity supplier 24. Contact/contract electrician 25.Provide auxiliary power (if necessary
LFG Control Device	Combusts LFG	Low temperature conditions at control device	-Problems with temperature -monitoring equipment -Problems/failure of -thermocouple and/or thermocouple wiring -Change of LFG flow -Change of LFG quality -Problems with air louvers -Problems with air/fuel controls -Change in atmospheric conditions	26. Check/repair temperature monitoring equipment 27. Check/repair thermocouple and/or wiring 28. Follow procedures for loss of flow/blower malfunction 29. Check/adjust louvers 30. Check/adjust air/fuel controls
LFG Control Device	Combusts LFG	Loss of Flame	-Problems/failure of thermocouple -Loss/change of LFG flow -Loss/change of LFG quality -Problems with air/fuel controls -Problems/failure of flame sensor -Problems with temperature monitoring equipment	31. Check/repair temperature monitoring equipment 32. Check/repair thermocouple 33. Follow procedures for loss of flow/blower malfunction 34. Check/adjust air/fuel controls 35. Check/adjust/repair flame sensor 36. Check/adjust LFG collectors
Flow Monitoring/ Recording Device	Measures and records gas flow from collection system to control	Malfunctions of Flow Monitoring/Recording Device	-Problems with orifice plate, pitot tube, or other in-line flow measuring device -Problems with device controls and/or wiring -Problems with chart recorder	37. Check/adjust/repair flow measuring device and/or wiring 38. Check/repair chart recorder 39. Replace paper in chart recorder
Temperature Monitoring/ Recording Device	Monitors and records combustion temperature of enclosed combustion device	Malfunctions of Temperature Monitoring/Recording Device	-Problems with thermocouple -Problems with device controls and/or wiring -Problems with chart recorder	40. Check/adjust/repair thermocouple 41. Check/adjust/repair controller and/or wiring 42. Check/adjust/repair electrical panel components 43. Check/repair chart recorder 44. Replace paper in chart recorder
Control Device	Combusts LFG	Other Control Device Malfunctions	-Control device smoking (i.e. visible emissions) -Problems with flare insulation -Problems with pilot light system -Problems with air louvers -Problems with air/fuel controllers -Problems with thermocouple -Problems with burners -Problems with flame arrester -Alarmed malfunction conditions not covered above -Unalarmed conditions discovered during inspection not covered above	45. Site-specific diagnosis procedures 46. Site-specific responses actions based on diagnosis 47. Open manual louvers 48. Clean pitot orifice 49. Clean/drain flame arrestor 50. Refill propane supply 51. Check/repair pilot sparking system

(b) For each permit limit exceedance complete an "SSM Plan Departure Form".

REDWOOD LANDFILL, INC.
WMRE LFG Engine #1 (S-64) DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1		Engine #1 (S-64)	5/2/24 9:00	5/2/24 9:02	0.03	0.25	low fuel	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/2/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/2/24 9:15	5/2/24 9:17	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
2		Engine #1 (S-64)	5/7/24 14:30	5/7/24 14:32	0.03	0.25	aux coolant pipe	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/7/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		5/7/24 14:45	5/7/24 14:47	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
3		Engine #1 (S-64)	5/8/24 7:30	5/8/24 7:32	0.03	0.25	low fuel	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/8/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/8/24 7:45	5/8/24 7:47	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
4		Engine #1 (S-64)	5/11/24 3:00	5/11/24 3:02	0.03	0.75	low fuel	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/11/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/11/24 3:45	5/11/24 3:47	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
5		Engine #1 (S-64)	5/14/24 7:30	5/14/24 7:32	0.03	5.00	johnsnon matthey pumps	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/14/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		5/14/24 12:30	5/14/24 12:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
6		Engine #1 (S-64)	5/15/24 4:00	5/15/24 4:02	0.03	0.50	over speed	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/15/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/15/24 4:30	5/15/24 4:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
7		Engine #1 (S-64)	5/15/24 8:15	5/15/24 8:17	0.03	3.00	johnsnon matthey pumps	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/15/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/15/24 11:15	5/15/24 11:17	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
8		Engine #1 (S-64)	5/16/24 9:30	5/16/24 9:32	0.03	1.75	over speed	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/16/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/16/24 11:15	5/16/24 11:17	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
9		Engine #1 (S-64)	5/20/24 8:10	5/20/24 8:12	0.03	0.42	replaced exhaust clamps	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/20/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/20/24 8:35	5/20/24 8:37	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
10		Engine #1 (S-64)	5/20/24 11:50	5/20/24 11:52	0.03	1.33	switch vessel valves	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/20/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/20/24 13:10	5/20/24 13:12	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
11		Engine #1 (S-64)	5/20/24 13:45	5/20/24 13:47	0.03	0.25	oil level sensor replace	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/20/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/20/24 14:00	5/20/24 14:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
12		Engine #1 (S-64)	5/23/24 10:15	5/23/24 10:17	0.03	0.25	siwtch media valves	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/23/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/23/24 10:30	5/23/24 10:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			

REDWOOD LANDFILL, INC.
WMRE LFG Engine #1 (S-64) DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
13		Engine #1 (S-64)	5/28/24 9:45	5/28/24 9:47	0.03	1.75	broken clamps	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/28/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		5/28/24 11:30	5/28/24 11:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
14		Engine #1 (S-64)	6/5/24 7:05	6/5/24 7:07	0.03	1.67	pgne line maintance	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	6/5/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		6/5/24 8:45	6/5/24 8:47	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
15		Engine #1 (S-64)	6/5/24 8:45	6/5/24 8:47	0.03	57.42	pgne lne maintnance	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	6/7/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		6/7/24 18:10	6/7/24 18:12	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
16		Engine #1 (S-64)	6/7/24 18:10	6/7/24 18:12	0.03	0.33	gas compressor high temp	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	6/7/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		6/7/24 18:30	6/7/24 18:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
17		Engine #1 (S-64)	6/18/24 11:45	6/18/24 11:47	0.03	0.17	gas compressor high temp	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	6/18/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		6/18/24 11:55	6/18/24 11:57	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
18		Engine #1 (S-64)	6/22/24 11:50	6/22/24 11:52	0.03	1.50	gas compressor high temp	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	6/22/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		6/22/24 13:20	6/22/24 13:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
19		Engine #1 (S-64)	7/2/24 9:10	7/2/24 9:12	0.03	1.83	service	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/2/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		7/2/24 11:00	7/2/24 11:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
20		Engine #1 (S-64)	7/4/24 21:15	7/4/24 21:17	0.03	0.83	power outage	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/4/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/4/24 22:05	7/4/24 22:07	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
21		Engine #1 (S-64)	7/5/24 9:40	7/5/24 9:42	0.03	1.17	power outage	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/5/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/5/24 10:50	7/5/24 10:52	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
22		Engine #1 (S-64)	7/12/24 14:05	7/12/24 14:07	0.03	285.33	media change	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/24/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		7/24/24 11:25	7/24/24 11:27	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
23		Engine #1 (S-64)	7/24/24 11:25	7/24/24 11:27	0.03	2.17	cold start	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/24/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/24/24 13:35	7/24/24 13:37	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
24		Engine #1 (S-64)	7/25/24 4:25	7/25/24 4:27	0.03	7.83	johnson matthey VFD fault	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/25/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/25/24 12:15	7/25/24 12:17	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			

REDWOOD LANDFILL, INC.
WMRE LFG Engine #1 (S-64) DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
			7/25/24 12:35	7/25/24 12:37	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
25	x Shutdown	Engine #1 (S-64)				21.08	JM VFD faiult	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	7/26/2024
	x Startup		7/26/24 9:40	7/26/24 9:42	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			7/26/24 9:40	7/26/24 9:42	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
26	x Shutdown	Engine #1 (S-64)				125.00	Jm VFD faiult	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	7/31/2024
	x Startup		7/31/24 14:40	7/31/24 14:42	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			7/31/24 15:15	7/31/24 15:17	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
27	x Shutdown	Engine #1 (S-64)				8.75	JM VFD faiult	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	8/1/2024
	x Startup		8/1/24 0:00	8/1/24 0:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			8/1/24 0:00	8/1/24 0:02	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
28	x Shutdown	Engine #1 (S-64)				7.33	JM VFD faiult	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	8/1/2024
	x Startup		8/1/24 7:20	8/1/24 7:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			8/10/24 22:50	8/10/24 22:52	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
29	x Shutdown	Engine #1 (S-64)				86.17	power outage equipment service	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	8/14/2024
	x Startup		8/14/24 13:00	8/14/24 13:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			8/22/24 17:15	8/22/24 17:17	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
30	x Shutdown	Engine #1 (S-64)				222.75	generator bearing need repair	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	9/1/2024
	x Startup		9/1/24 0:00	9/1/24 0:02	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
			9/1/24 0:00	9/1/24 0:02	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
31	x Shutdown	Engine #1 (S-64)				720.00	waiting for generator to be reinstalled	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	10/1/2024
	x Startup		10/1/24 0:00	10/1/24 0:02	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
			10/1/24 0:00	10/1/24 0:02	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
32	x Shutdown	Engine #1 (S-64)				535.58	emissions failed	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	10/23/2024
	x Startup		10/23/24 7:35	10/23/24 7:37	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			10/23/24 7:35	10/23/24 7:37	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
33	x Shutdown	Engine #1 (S-64)				119.58	emissions/bricks	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	10/28/2024
	x Startup		10/28/24 7:10	10/28/24 7:12	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			10/28/24 7:10	10/28/24 7:12	0.03			113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
34	x Shutdown	Engine #1 (S-64)				0.17	Oil Pressure Diff.	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	10/28/2024
	x Startup		10/28/24 7:20	10/28/24 7:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			10/30/24 2:45	10/30/24 2:47	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
35	x Shutdown	Engine #1 (S-64)				0.92	low fuel pressure	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	10/30/2024
	x Startup		10/30/24 3:40	10/30/24 3:42	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			

REDWOOD LANDFILL, INC.
WMRE LFG Engine #2 (S-65) DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
			5/2/24 9:15	5/2/24 9:17	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
1	x Shutdown	Engine #2 (S-65)				0.50	low fule/exhaust clamps	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	5/2/2024
	x Startup		5/2/24 9:45	5/2/24 9:47	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/10/24 16:00	5/10/24 16:02	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
2	x Shutdown	Engine #2 (S-65)				1.25	low fuel	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	5/10/2024
	x Startup		5/10/24 17:15	5/10/24 17:17	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/14/24 12:30	5/14/24 12:32	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
3	x Shutdown	Engine #2 (S-65)				3.00	johnson matthey pumps	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	5/14/2024
	x Startup		5/14/24 15:30	5/14/24 15:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/15/24 8:15	5/15/24 8:17	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
4	x Shutdown	Engine #2 (S-65)				5.25	johsnon matthey pumps	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	5/15/2024
	x Startup		5/15/24 13:30	5/15/24 13:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/20/24 7:30	5/20/24 7:32	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
5	x Shutdown	Engine #2 (S-65)				2.00	johnsnon matthey pumps	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	5/20/2024
	x Startup		5/20/24 9:30	5/20/24 9:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/22/24 9:15	5/22/24 9:17	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
6	x Shutdown	Engine #2 (S-65)				2.75	service	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	5/22/2024
	x Startup		5/22/24 12:00	5/22/24 12:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/22/24 12:05	5/22/24 12:07	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
7	x Shutdown	Engine #2 (S-65)				0.25	service	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	5/22/2024
	x Startup		5/22/24 12:20	5/22/24 12:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			5/23/24 10:15	5/23/24 10:17	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
8	x Shutdown	Engine #2 (S-65)				0.25	switch media tanks	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	5/23/2024
	x Startup		5/23/24 10:30	5/23/24 10:32	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			6/5/24 7:05	6/5/24 7:07	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
9	x Shutdown	Engine #2 (S-65)				1.67	pgne power lines	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	6/5/2024
	x Startup		6/5/24 8:45	6/5/24 8:47	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			6/5/24 8:45	6/5/24 8:47	0.03			x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
10	x Shutdown	Engine #2 (S-65)				57.42	pgne power lines	116: Well Raising	Automatic (Go to 9)		x No	No		C Johnson	6/7/2024
	x Startup		6/7/24 18:10	6/7/24 18:12	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			6/7/24 18:10	6/7/24 18:12	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
11	x Shutdown	Engine #2 (S-65)				0.42	gas compressor over tmp	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	6/7/2024
	x Startup		6/7/24 18:35	6/7/24 18:37	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
			6/18/24 11:45	6/18/24 11:47	0.03			x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)			
12	x Shutdown	Engine #2 (S-65)				0.17	gas compressor over tm	116: Well Raising	x Automatic (Go to 9)		No	x No		C Johnson	6/18/2024
	x Startup		6/18/24 11:55	6/18/24 11:57	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			

REDWOOD LANDFILL, INC.
WMRE LFG Engine #2 (S-65) DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
13		Engine #2 (S-65)	6/22/24 11:50	6/22/24 11:52	0.03	1.50	gas compressor over tm	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	6/22/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		6/22/24 13:20	6/22/24 13:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
14		Engine #2 (S-65)	7/4/24 21:40	7/4/24 21:42	0.03	2.00	power outage	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/4/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/4/24 23:40	7/4/24 23:42	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
15		Engine #2 (S-65)	7/5/24 0:15	7/5/24 0:17	0.03	9.92	JM VFD	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/5/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/5/24 10:10	7/5/24 10:12	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
16		Engine #2 (S-65)	7/12/24 13:10	7/12/24 13:12	0.03	286.25	media change	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/24/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		7/24/24 11:25	7/24/24 11:27	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
17		Engine #2 (S-65)	7/24/24 11:25	7/24/24 11:27	0.03	0.83	cold start	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/24/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		7/24/24 12:15	7/24/24 12:17	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
18		Engine #2 (S-65)	8/10/24 22:50	8/10/24 22:52	0.03	86.17	power outage equipment service	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	8/14/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/14/24 13:00	8/14/24 13:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
19		Engine #2 (S-65)	8/22/24 17:50	8/22/24 17:52	0.03	3.08	unknown	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	8/22/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/22/24 20:55	8/22/24 20:57	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
20		Engine #2 (S-65)	8/22/24 20:55	8/22/24 20:57	0.03	3.75	power outage	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	8/23/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		8/23/24 0:40	8/23/24 0:42	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
21		Engine #2 (S-65)	8/27/24 9:00	8/27/24 9:02	0.03	111.00	Shutdown for equipment repair	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	9/1/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		9/1/24 0:00	9/1/24 0:02	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
22		Engine #2 (S-65)	9/1/24 0:00	9/1/24 0:02	0.03	229.50	Shutdown for equipment repair. waiting for catalyst	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	9/10/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		9/10/24 13:30	9/10/24 13:32	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
23		Engine #2 (S-65)	9/10/24 15:10	9/10/24 15:12	0.03	488.83	Shutdown for equipment repair. waiting for catalyst	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	10/1/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		10/1/24 0:00	10/1/24 0:02	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
24		Engine #2 (S-65)	10/1/24 0:00	10/1/24 0:02	0.03	654.92	emissions/bricks	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	10/28/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		10/28/24 6:55	10/28/24 6:57	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			

REDWOOD LANDFILL, INC.
WMRE LFG Engine #2 (S-65) DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
25		Engine #2 (S-65)	10/28/24 6:55	10/28/24 6:57	0.03	0.67	exhasut blower over temp	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	10/28/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		10/28/24 7:35	10/28/24 7:37	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
26		Engine #2 (S-65)	10/28/24 8:55	10/28/24 8:57	0.03	0.17	engine oil diff pressure	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	10/28/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		10/28/24 9:05	10/28/24 9:07	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
27		Engine #2 (S-65)	10/30/24 2:55	10/30/24 2:57	0.03	32.00	solberg motor replacemnet	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	10/31/2024
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		10/31/24 10:55	10/31/24 10:57	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			

REDWOOD LANDFILL, INC.
WMRE TREATMENT SYSTEM (S-71) DOWNTIME LOG (with respect to engine operation)

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1		Treatment System (S-71)	7/12/24 13:10	7/12/24 13:12	0.03	286.25	media change	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	7/24/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		No	No			
	x Startup		7/24/24 11:25	7/24/24 11:27	0.03			117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			

Emission Control Devices
Gas Collection and Control System (GCCS) Downtime Summary

Redwood Landfill, Novato, CA GCCS DOWNTIME REPORT Period:		May 1, 2024 to October 31, 2024	
SHUTDOWN DATE/TIME	**START-UP DATE/TIME**	**TOTAL DOWNTIME (hours)**	**COMMENTS/ACTION TAKEN**
		0.00	No GCCS Downtime in January 2024
		0.00	No GCCS Downtime in February 2024
		0.00	No GCCS Downtime in March 2024
		0.00	No GCCS Downtime in April 2024
		0.00	No GCCS Downtime in May 2024
		0.00	No GCCS Downtime in June 2024
		0.00	No GCCS Downtime in July 2024
08/10/24 22:52	08/10/24 23:02	0.17	Alarm shutdown. Auto restart.
08/22/24 20:20	08/22/24 20:30	0.17	PG&E unplanned power outage. Flare switched to generator power.
08/27/24 13:40	08/27/24 13:46	0.10	PG&E unplanned power outage. Flare switched to generator power.
08/28/24 20:16	08/28/24 20:20	0.07	PG&E unplanned power outage. Flare switched to generator power.
09/02/24 07:22	09/02/24 10:06	2.73	PG&E unplanned power outage. Breakdown report filed (RCA 200703). Manual startup.
09/04/24 13:08	09/04/24 13:14	0.10	PG&E unplanned power outage. Flare switched to generator power.
09/15/24 19:14	09/15/24 19:20	0.10	PG&E planned power outage. Flare switched to generator power.
09/18/24 14:40	09/18/24 14:46	0.10	Low flow alarm. Maintenance/piping A80.
09/18/24 14:54	09/18/24 14:58	0.07	Low flow alarm. Maintenance/piping A80.
10/22/24 12:30	10/22/24 12:42	0.20	Low flow alarm. Maintenance/piping in field
10/25/24 17:02	10/25/24 17:08	0.10	Low flow alarm. Maintenance/piping in field
10/25/24 18:30	10/25/24 18:48	0.30	Low flow alarm. Maintenance/piping in field
Combined Emission Control Devices			
January 1, 2024 through April 30, 2024 Total Downtime:			**0.00**
May 1, 2024 through October 31, 2024 Total Downtime:			**4.20**
Total 2024 Downtime:			**4.20**

GCCS Downtime occurs when all flares and engines are shut down.

APPENDIX C

BAAQMD CORRESPONDENCE

REDWOOD LANDFILL, INC.
P.O. Box 793
8950 Redwood Highway
Novato, CA 94948
(415) 892-2851
(415) 898-1354 Fax

May 30, 2024

Mr. Davis Zhu
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
dzhu@baaqmd.gov

SUBJECT: Responsible Official Designation and Petition for Approval
Redwood Landfill, Inc., Plant Number A1179
8950 Redwood Highway, Novato, CA 94948

Dear Mr. Zhu:

I, Alex Oseguera am the "duly authorized representative" in charge of the overall operation of the Redwood Landfill, Inc. (RLI) pursuant to Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 6: Major Facility Review, Section 223.1, Subsection 1.1. BAAQMD 2-6-223.1 states:

"Corporation: The responsible official shall be a president, secretary, treasurer, or vice president in charge of a principal business function or shall otherwise be a duly authorized representative if:

1.1 The representative is responsible for the overall operation of the facility, and

1.2 Either the duly authorized representative is responsible for the operation of facilities that employ more than 250 persons or that have gross annual sales or expenditures exceeding $25 million in 1980 dollars or the APCO has approved a petition from the original responsible official to allow the duly authorized representative to be the responsible official."

As the "duly authorized representative", I designate Scott Tignac to be the "Responsible Official" for RLI for past, present, and future Major Facility Review purposes per Regulation 2, Rule 6: Major Facility Review, Section 223.1. I also request that the Air Pollution Control Officer approve this petition pursuant to Section 2-6-223.1.2 to designate Scott Tignac as the "Responsible Official" for RLI.

RLI looks forward to your approval of this Petition and Scott Tignac's designation as the "Responsible Official" for the RLI. Scott Tignac will act in this capacity unless we receive written denial of this petition.

If you have any questions regarding our comments, please contact me at (209) 327-5017.

Sincerely,

DocuSigned by:
2F270A619B004A9...
Alex Oseguera
President, Redwood Landfill, Inc.

Chan, Michael

From: Chan, Michael
Sent: Thursday, May 30, 2024 8:45 AM
To: Davis Zhu
Subject: Redwood Landfill Responsible Official Designation
Attachments: 2024.05.30 - Redwood Change of Resp Official_AO signed.pdf

Hi Davis,
Please find attached the designation of Scott Tignac to be the Responsible Official for Redwood Landfill (Facility A1179).

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510-613-2852
C: 510-205-0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: Davis Zhu
Sent: Thursday, May 30, 2024 8:45 AM
Subject: Relayed: Redwood Landfill Responsible Official Designation

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

Davis Zhu (dzhu@baaqmd.gov)

Subject: Redwood Landfill Responsible Official Designation

ATT00002

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

July 22, 2024

Mr. Davis Zhu
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
dzhu@baaqmd.gov

Re: Well Actions Letter
Title V Permit Condition Number 19867, Part 17, Facility A1179
Redwood Landfill, Inc., Novato, California

Dear Mr. Zhu:

On behalf of Redwood Landfill, Inc. (RLI), this letter is to notify the Bay Area Air Quality Management District (BAAQMD) of the well actions recently performed at the RLI, pursuant to Title V Permit A1179 as modified by Application Number (AN) 30065. These well actions are summarized below:

- Vertical well RLI0114A was decommissioned on 7/8/2024
- Vertical well RLI0129E was decommissioned on 7/11/2024
- Vertical wells RLLC0191, RLLC0193, and RLLC0225 were decommissioned on 7/19/2024

AN 30065 allows installation of up to 100 new vertical wells, unlimited one-to-one replacement of vertical wells, installation of up to 50 new horizontal collectors, decommissioning of up to 50 vertical wells, and decommissioning of up to 15 horizontal collectors.

As stated in the April 23, 2024 Well Actions Letter, prior to the completion of these well actions, RLI had 136 total collectors (132 vertical wells and 4 horizontal collectors) connected to the GCCS. With the completion of this well action, RLI's existing GCCS component count and permitted remaining actions per AN 30065 are listed in the following table:

	Install New Vertical Wells	Decommission Vertical Wells	Install New Horizontal Collectors	Decommission Horizontal Collectors	Replace Vertical Wells*
Actions Permitted Under AN 30065	100	50	50	15	Unlimited
Actions Performed by RLI per AN 30065	54	28	0	5	-
Actions Remaining Under AN 30065	46	22	50	10	Unlimited
Active Collector Count after Actions in this Letter	131 Total Collectors: 127 Vertical LFG Wells and 4 Horizontal Collectors				

*One-for-one well replacement at new optimal locations.

If you have any questions regarding this notification, please contact me at (510) 613-2852 or Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Monday, July 22, 2024 5:51 PM
To: 'Davis Zhu'
Cc: McCutcheon, Alisha
Subject: Redwood Landfill Well Actions Notification July 2024
Attachments: 2024.07.22 - RLI Well Actions Letter decom RLI0114A RLI0129E RLLC0191 RLLC0193 RLLC0225.pdf

Hi Davis,

Attached is the Well Actions Notification letter that Redwood Landfill has decommissioned 5 wells in the collection system.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Davis Zhu'
Sent: Monday, July 22, 2024 5:52 PM
Subject: Relayed: Redwood Landfill Well Actions Notification July 2024

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'Davis Zhu' (dzhu@baaqmd.gov)

Subject: Redwood Landfill Well Actions Notification July 2024

ATT00002

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 3, 2024

Compliance and Enforcement Division
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(via email: rca@baaqmd.gov)

**Re: Reportable Compliance Activity (RCA) Notification
Redwood Landfill, Inc., Novato, California
Facility Number A1179**

Dear Sir or Madam:

On behalf of Redwood Landfill, Inc. (RLI), although RLI disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from Bay Area Air Quality Management District (BAAQMD) staff, this letter is to request Breakdown Relief from BAAQMD for a PG&E power outage. On Monday, September 2, 2024 at ~7:20 AM, PG&E's power outage caused the RLI site and GCCS to go offline. BAAQMD's Reportable Compliance Activity (RCA) notification form, as modified, is enclosed. It is not anticipated at this time that RLI violated applicable emission standard(s).

Breakdown Relief should be granted as RLI complied with administrative requirements despite its objections to the re-interpretation of Rule 8-34 and:

1. The breakdown is not the result of intent, negligence or disregard of air pollution control regulations;
2. The breakdown is not the result of improper maintenance;
3. The breakdown does not create a public nuisance;
4. The breakdown was not caused by an excessively recurrent breakdown of the same equipment; and
5. The breakdown did not occur, and any emissions did not interfere with attainment or maintenance of any National or California air quality standard.

On September 2, 2024 at ~10:10 AM the GCCS was brought back online after PG&E power was restored. A breakdown report was submitted to BAAQMD on September 2, 2024 at ~3:30 PM via the phone 415-749-4979 about RLI/GCCS going offline due to PG&E's power outage.

If you have any questions regarding this letter, please contact Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Sincerely,

Michael Chan
WM Environmental Protection Specialist
mchan2@wm.com

cc: Alisha McCutcheon, RLI
Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

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 #:**

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)

Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato CA 94945	Source #	S-5
Reported by	Michael Chan	Phone #	510-205-0410
Indicated Excess	-NA	Fax #	-
Allowable Limit	-NA	Averaging Time	-
Start Time/Date	9/2/24 ~7:20 am	Clear Time	9/2/24 ~10:10 am

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 [X] ▶Other (describe) Power Outage

Unit(s) of Measurement

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

Event Description:

A breakdown report was submitted on 9/2/24 at ~3:30 pm via phone 415-749-4979 by RLI because RLI/GCCS cannot operate due to the PG&E power outage. During the power outage, the GCCS was potentially out of compliance with BAAQMD regulation 8-34-301.1. Please also see our objections and discussion in the attached cover letter dated 9/3/24.

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.

Chan, Michael

From: Chan, Michael
Sent: Tuesday, September 3, 2024 9:48 AM
To: RCA Notification
Cc: Richard Murray; McCutcheon, Alisha
Subject: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24
Attachments: RLI RCA Notification_240903.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the Reportable Compliance Activity (RCA) form for the unplanned PG&E Power Outage yesterday 9/2/24. Please reply with the assigned RCA number.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: RCA Notification; Richard Murray
Sent: Tuesday, September 3, 2024 9:48 AM
Subject: Relayed: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

RCA Notification (rca@baaqmd.gov)

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24

ATT00002

WASTE MANAGEMENT

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 11, 2024

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
Attn: Title V Reports
(Via email: compliance@baaqmd.gov)

Richard Murray
Air Quality Inspector
Compliance and Enforcement
Bay Area AQMD
rmurray@baaqmd.gov

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179
Title V Section I.F, 10-Day and 30-Day written report (RCA 200703)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this combined 10-day and 30-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement 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*".

On Monday, September 2, 2024 at ~7:20 AM, PG&E had an area wide power outage that caused the RLI site and the gas collection and control system (GCCS) to go offline. A breakdown report was submitted to BAAQMD on September 2, 2024 at ~3:30 PM via the phone 415-749-4979 about the GCCS going offline due to PG&E's power outage. The GCCS remained offline until September 2, 2024, at ~10:10 AM. BAAQMD assigned RCA No. 200703 to this breakdown report. Although RLI disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from BAAQMD staff, RLI requested Breakdown Relief from BAAQMD for the September 2, 2024 PG&E power outage via BAAQMD's Reportable Compliance Activity (RCA) notification form submitted on September 3, 2024 (see Attachment A).

The unplanned power outage shutdown did not result in emissions and do not qualify as non-compliance. The downtime was less than 24 hours. RLI believes that it complied with the Title V permit conditions and safety protocols. RLI followed all measures to ensure gas movers and valves were closed during the shutdown event. RLI's downtime event was not the result of equipment malfunction, knowing, willful, intentional, chronic nor committed by a recalcitrant, and did not benefit RLI economically nor result in a nuisance. The frequency and duration of weather or utility-related electrical interruptions are outside of RLI's control.

RLI is committed to operating its landfill in compliance with applicable regulations and will ensure that compliance is achieved. However, RLI disagrees with the BAAQMD that temporary shutdowns resulting from unplanned power outages are violations of any BAAQMD regulation.

If you have any questions regarding this letter, please contact Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Scott Tignac
Responsible Official for RLI

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY (RCA) 200703 (SEPTEMBER 2, 2024)

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 3, 2024

Compliance and Enforcement Division
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(via email: rca@baaqmd.gov)

Re: Reportable Compliance Activity (RCA) Notification
Redwood Landfill, Inc., Novato, California
Facility Number A1179

Dear Sir or Madam:

On behalf of Redwood Landfill, Inc. (RLI), although RLI disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from Bay Area Air Quality Management District (BAAQMD) staff, this letter is to request Breakdown Relief from BAAQMD for a PG&E power outage. On Monday, September 2, 2024 at ~7:20 AM, PG&E's power outage caused the RLI site and GCCS to go offline. BAAQMD's Reportable Compliance Activity (RCA) notification form, as modified, is enclosed. It is not anticipated at this time that RLI violated applicable emission standard(s).

Breakdown Relief should be granted as RLI complied with administrative requirements despite its objections to the re-interpretation of Rule 8-34 and:

1. The breakdown is not the result of intent, negligence or disregard of air pollution control regulations;

2. The breakdown is not the result of improper maintenance;

3. The breakdown does not create a public nuisance;

4. The breakdown was not caused by an excessively recurrent breakdown of the same equipment; and

5. The breakdown did not occur, and any emissions did not interfere with attainment or maintenance of any National or California air quality standard.

On September 2, 2024 at ~10:10 AM the GCCS was brought back online after PG&E power was restored. A breakdown report was submitted to BAAQMD on September 2, 2024 at ~3:30 PM via the phone 415-749-4979 about RLI/GCCS going offline due to PG&E's power outage.

If you have any questions regarding this letter, please contact Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Sincerely,

Michael Chan
WM Environmental Protection Specialist
mchan2@wm.com

cc: Alisha McCutcheon, RLI
Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

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 #:**

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)

Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato CA 94945	Source #	S-5
Reported by	Michael Chan	Phone #	510-205-0410
Indicated Excess	-NA	Fax #	-
Allowable Limit	-NA	Averaging Time	-
Start Time/Date	9/2/24 ~7:20 am	Clear Time	9/2/24 ~10:10 am

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 [X] ►Other (describe) Power Outage

Unit(s) of Measurement

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

Event Description:

A breakdown report was submitted on 9/2/24 at ~3:30 pm via phone 415-749-4979 by RLI because RLI/GCCS cannot operate due to the PG&E power outage. During the power outage, the GCCS was potentially out of compliance with BAAQMD regulation 8-34-301.1. Please also see our objections and discussion in the attached cover letter dated 9/3/24.

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.

Chan, Michael

From:	Chan, Michael
Sent:	Tuesday, September 3, 2024 9:48 AM
To:	RCA Notification
Cc:	Richard Murray; McCutcheon, Alisha
Subject:	Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24
Attachments:	RLI RCA Notification_240903.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the Reportable Compliance Activity (RCA) form for the unplanned PG&E Power Outage yesterday 9/2/24. Please reply with the assigned RCA number.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Recycling is a good thing. Please recycle any printed emails.

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: RCA Notification; Richard Murray
Sent: Tuesday, September 3, 2024 9:48 AM
Subject: Relayed: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

RCA Notification (rca@baaqmd.gov)

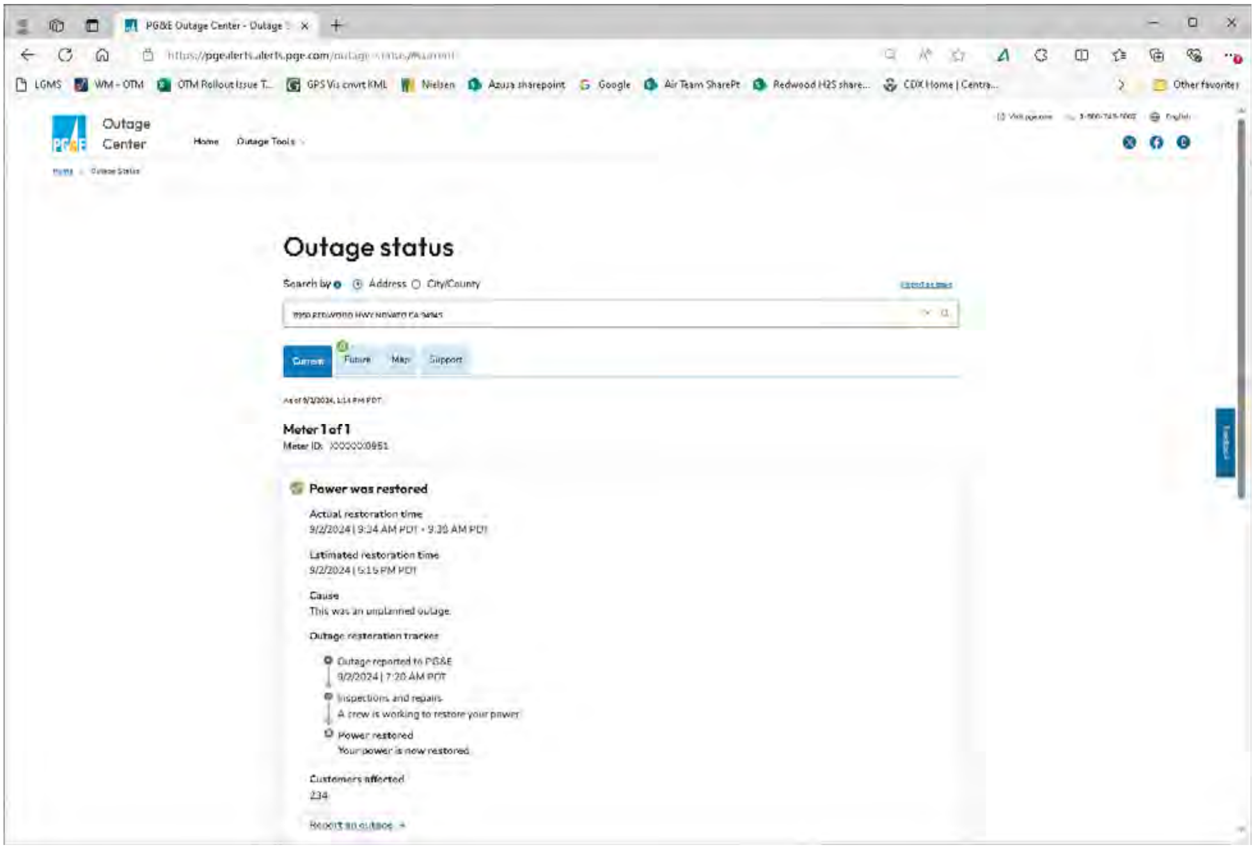
Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24

ATT00002

ATTACHMENT B

PG&E DOCUMENTATION OF POWER OUTAGE


PG&E Outage Center - Outage
LGMS
WM - OTM
OTM Rollout Issue T...
GPS Vis cnvrt KML
Nielsen
Azure sharepoint
Google
Air Team SharePt
Redwood H2S share...
CDX Home | Centra...
Other favorites
Outage Center
Home
Outage Tools
Outage status
Search by
Address
City/County
Current
Future
Map
Support
Meter 1 of 1
Meter ID: XXXXXX0951
Power was restored
Actual restoration time
9/2/2024 | 9:34 AM PDT - 9:39 AM PDT
Estimated restoration time
9/2/2024 | 5:15 PM PDT
Cause
This was an unplanned outage.
Outage restoration tracker
Outage reported to PG&E
9/2/2024 | 7:20 AM PDT
Inspections and repairs
A crew is working to restore your power
Power restored
Your power is now restored.
Customers affected
234
Report an outage

Chan, Michael

From:	Chan, Michael
Sent:	Wednesday, September 11, 2024 11:03 AM
To:	'rca@baaqmd.gov'; 'compliance@baaqmd.gov'
Cc:	'Richard Murray'
Subject:	Redwood Landfill A1179 Title V 10day30day Report & RCA200703 30day Breakdown Report 9/2/24
Attachments:	RLI Title V 10day 30day Report RCA 200703_240911.pdf; RLI_RCA 30day Breakdown RCA 200703_ 240911.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached are the Title V 10day/30day Combined Report and the RCA 200703 30day Breakdown Report for the unplanned PG&E Power Outage on 9/2/24.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'rca@baaqmd.gov'; 'compliance@baaqmd.gov'; 'Richard Murray'
Sent: Wednesday, September 11, 2024 11:04 AM
Subject: Relayed: Redwood Landfill A1179 Title V 10day30day Report & RCA200703 30day Breakdown Report 9/2/24

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'rca@baaqmd.gov' (rca@baaqmd.gov)

'compliance@baaqmd.gov' (compliance@baaqmd.gov)

'Richard Murray' (rmurray@baaqmd.gov)

Subject: Redwood Landfill A1179 Title V 10day30day Report & RCA200703 30day Breakdown Report 9/2/24

ATT00002

WASTE MANAGEMENT

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 11, 2024

Compliance and Enforcement Division
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(via email: rca@baaqmd.gov and compliance@baaqmd.gov)

Re: Reportable Compliance Activity (RCA 200703) 30-Day Breakdown Report
Redwood Landfill, Inc., Novato, California
Facility Number A1179

Dear Sir or Madam:

Although Redwood Landfill, Inc. (RLI) disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from Bay Area Air Quality Management District (BAAQMD) staff, this letter is the 30-Day Breakdown Relief Report to BAAQMD for a PG&E power outage. This report includes the required elements in Regulation 1, Section 1-432. On Monday, September 2, 2024 at ~7:20 AM, PG&E had an area wide power outage that caused the RLI site and the gas collection and control system (GCCS) to go offline. A breakdown report was submitted to BAAQMD on September 2, 2024 at ~3:30 PM via the phone 415-749-4979 about the GCCS going offline due to PG&E's power outage. The GCCS remained offline until September 2, 2024, at ~10:10 AM. BAAQMD assigned RCA No. 200703 to this breakdown report. RLI requested Breakdown Relief from BAAQMD for the September 2, 2024 PG&E power outage via BAAQMD's Reportable Compliance Activity (RCA) notification form submitted on September 3, 2024 (see Attachment A).

The unplanned power outage shutdown did not result in emissions and do not qualify as non-compliance. The downtime was less than 24 hours. RLI believes that it complied with the Title V permit conditions and safety protocols. RLI followed all measures to ensure gas movers and valves were closed during the shutdown event. RLI's downtime event was not the result of equipment malfunction, knowing, willful, intentional, chronic nor committed by a recalcitrant, and did not benefit RLI economically nor result in a nuisance. The frequency and duration of weather or utility-related electrical interruptions are outside of RLI's control.

RLI is committed to operating its landfill in compliance with applicable regulations and will ensure that compliance is achieved. However, RLI disagrees with the BAAQMD that temporary shutdowns resulting from unplanned power outages are violations of any BAAQMD regulation.

If you have any questions regarding this letter, please contact Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Sincerely,
Redwood Landfill, Inc.

Scott Tignac
Responsible Official for RLI

cc: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY (RCA) 200703 (SEPTEMBER 2, 2024)

WASTE MANAGEMENT

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 3, 2024

Compliance and Enforcement Division
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
(via email: rca@baaqmd.gov)

**Re: Reportable Compliance Activity (RCA) Notification
Redwood Landfill, Inc., Novato, California
Facility Number A1179**

Dear Sir or Madam:

On behalf of Redwood Landfill, Inc. (RLI), although RLI disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from Bay Area Air Quality Management District (BAAQMD) staff, this letter is to request Breakdown Relief from BAAQMD for a PG&E power outage. On Monday, September 2, 2024 at ~7:20 AM, PG&E's power outage caused the RLI site and GCCS to go offline. BAAQMD's Reportable Compliance Activity (RCA) notification form, as modified, is enclosed. It is not anticipated at this time that RLI violated applicable emission standard(s).

Breakdown Relief should be granted as RLI complied with administrative requirements despite its objections to the re-interpretation of Rule 8-34 and:

1. The breakdown is not the result of intent, negligence or disregard of air pollution control regulations;
2. The breakdown is not the result of improper maintenance;
3. The breakdown does not create a public nuisance;
4. The breakdown was not caused by an excessively recurrent breakdown of the same equipment; and
5. The breakdown did not occur, and any emissions did not interfere with attainment or maintenance of any National or California air quality standard.

On September 2, 2024 at ~10:10 AM the GCCS was brought back online after PG&E power was restored. A breakdown report was submitted to BAAQMD on September 2, 2024 at ~3:30 PM via the phone 415-749-4979 about RLI/GCCS going offline due to PG&E's power outage.

If you have any questions regarding this letter, please contact Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Sincerely,

Michael Chan
WM Environmental Protection Specialist
mchan2@wm.com

cc: Alisha McCutcheon, RLI
Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

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 #:**

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato CA 94945	Source #	S-5
Reported by	Michael Chan	Phone #	510-205-0410
Indicated Excess	-NA	Fax #	-
Allowable Limit	-NA	Averaging Time	-
Start Time/Date	9/2/24 ~7:20 am	Clear Time	9/2/24 ~10:10 am

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 [X] Other (describe) Power Outage

Unit(s) of Measurement

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

Event Description:

A breakdown report was submitted on 9/2/24 at ~3:30 pm via phone 415-749-4979 by RLI because RLI/GCCS cannot operate due to the PG&E power outage. During the power outage, the GCCS was potentially out of compliance with BAAQMD regulation 8-34-301.1. Please also see our objections and discussion in the attached cover letter dated 9/3/24.

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.

Chan, Michael

From: Chan, Michael
Sent: Tuesday, September 3, 2024 9:48 AM
To: RCA Notification
Cc: Richard Murray; McCutcheon, Alisha
Subject: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24
Attachments: RLI RCA Notification_240903.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the Reportable Compliance Activity (RCA) form for the unplanned PG&E Power Outage yesterday 9/2/24. Please reply with the assigned RCA number.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: RCA Notification; Richard Murray
Sent: Tuesday, September 3, 2024 9:48 AM
Subject: Relayed: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

RCA Notification (rca@baaqmd.gov)

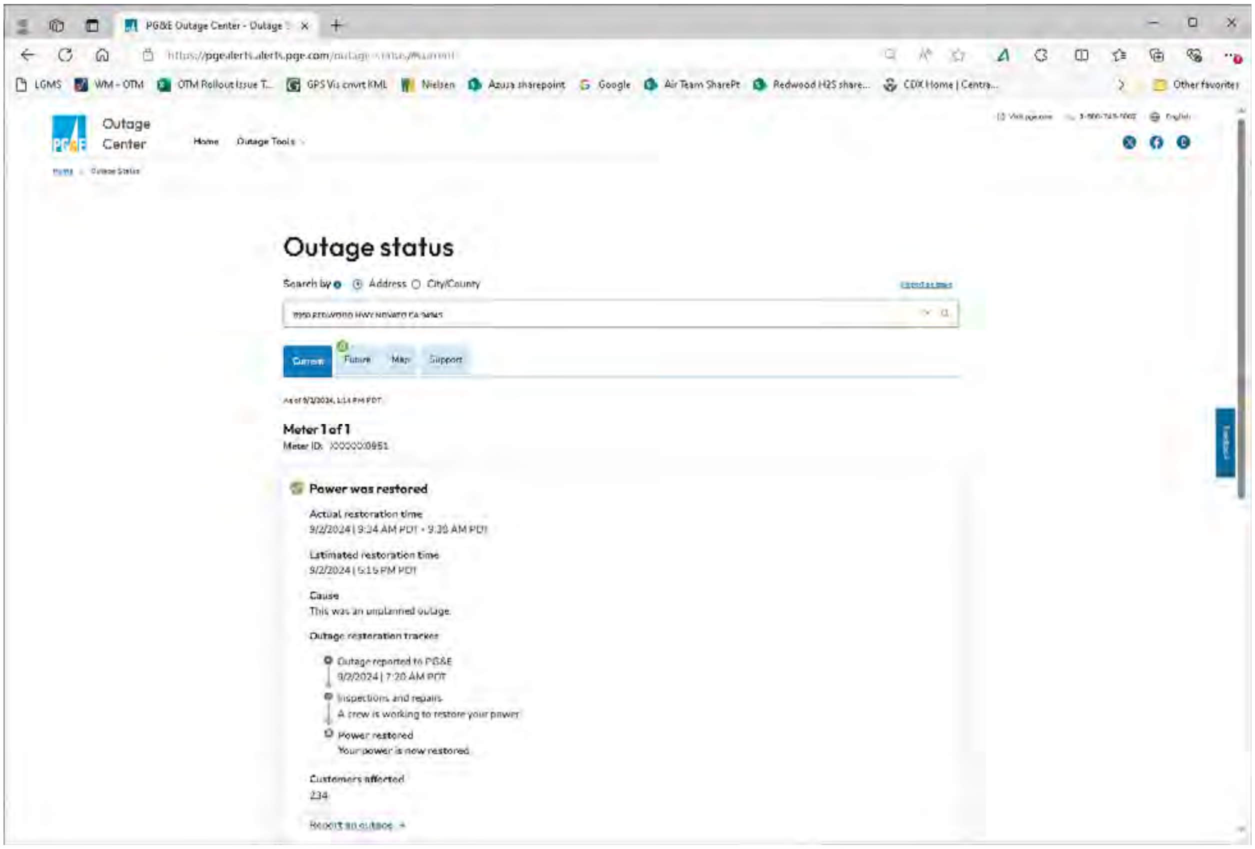
Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill Facility A1179 RCA Notification for Power Outage 9/2/24

ATT00002

ATTACHMENT B

PG&E DOCUMENTATION OF POWER OUTAGE


PG&E Outage Center - Outage

LGMS WM - OTM OTM Rollout Issue T... GPS Vis cnvrt KML Nielsen Azure sharepoint Google Air Team SharePt Redwood H2S share... CDX Home | Centra... Other favorites

Outage Center

Home Outage Tools

Home > Outage Status

Outage status

Search by Address City/County

Current Future Map Support

Meter 1 of 1

Meter ID: XXXXXX0951

Power was restored

Actual restoration time
9/2/2024 | 9:34 AM PDT - 9:39 AM PDT

Estimated restoration time
9/2/2024 | 5:15 PM PDT

Cause
This was an unplanned outage.

Outage restoration tracker

Outage reported to PG&E
9/2/2024 | 7:20 AM PDT

Inspections and repairs
A crew is working to restore your power

Power restored
Your power is now restored

Customers affected
234

Report an outage →

Chan, Michael

From: Chan, Michael
Sent: Wednesday, September 11, 2024 11:03 AM
To: 'rca@baaqmd.gov'; 'compliance@baaqmd.gov'
Cc: 'Richard Murray'
Subject: Redwood Landfill A1179 Title V 10day30day Report & RCA200703 30day Breakdown Report 9/2/24
Attachments: RLI Title V 10day 30day Report RCA 200703_240911.pdf; RLI_RCA 30day Breakdown RCA 200703_ 240911.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached are the Title V 10day/30day Combined Report and the RCA 200703 30day Breakdown Report for the unplanned PG&E Power Outage on 9/2/24.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'rca@baaqmd.gov'; 'compliance@baaqmd.gov'; 'Richard Murray'
Sent: Wednesday, September 11, 2024 11:04 AM
Subject: Relayed: Redwood Landfill A1179 Title V 10day30day Report & RCA200703 30day Breakdown Report 9/2/24

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'rca@baaqmd.gov' (rca@baaqmd.gov)

'compliance@baaqmd.gov' (compliance@baaqmd.gov)

'Richard Murray' (rmurray@baaqmd.gov)

Subject: Redwood Landfill A1179 Title V 10day30day Report & RCA200703 30day Breakdown Report 9/2/24

ATT00002

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 11, 2024

Mr. Davis Zhu
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
dzhu@baaqmd.gov

Re: Well Actions Letter
Title V Permit Condition Number 19867, Part 17, Facility A1179
Redwood Landfill, Inc., Novato, California

Dear Mr. Zhu:

On behalf of Redwood Landfill, Inc. (RLI), this letter is to notify the Bay Area Air Quality Management District (BAAQMD) of the well actions recently performed at the RLI, pursuant to Title V Permit A1179 as modified by Application Number (AN) 30065. These well actions are summarized below:

- Vertical well RLLC0273 was decommissioned on 8/12/2024
- Vertical well RLI0115E was decommissioned on 8/13/2024
- Vertical well RLI0116E was decommissioned on 8/27/2024

AN 30065 allows installation of up to 100 new vertical wells, unlimited one-to-one replacement of vertical wells, installation of up to 50 new horizontal collectors, decommissioning of up to 50 vertical wells, and decommissioning of up to 15 horizontal collectors.

As stated in the July 22, 2024 Well Actions Letter, prior to the completion of these well actions, RLI had 131 total collectors (127 vertical wells and 4 horizontal collectors) connected to the GCCS. With the completion of these well actions, RLI's existing GCCS component count and permitted remaining actions per AN 30065 are listed in the following table:

	Install New Vertical Wells	Decommission Vertical Wells	Install New Horizontal Collectors	Decommission Horizontal Collectors	Replace Vertical Wells*
Actions Permitted Under AN 30065	100	50	50	15	Unlimited
Actions Performed by RLI per AN 30065	54	31	0	5	-
Actions Remaining Under AN 30065	46	19	50	10	Unlimited
Active Collector Count after Actions in this Letter	128 Total Collectors: 124 Vertical LFG Wells and 4 Horizontal Collectors				

*One-for-one well replacement at new optimal locations.

If you have any questions regarding this notification, please contact me at (510) 613-2852 or Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Wednesday, September 11, 2024 1:56 PM
To: 'Davis Zhu'
Cc: McCutcheon, Alisha
Subject: Redwood Landfill Well Actions Notification August 2024
Attachments: 2024.09.11 - RLI Well Actions Letter decom RLLC0273 RLI0115E RLI0116E.pdf

Hi Davis,

Attached is the Well Actions Notification letter that Redwood Landfill has decommissioned 3 wells in the collection system.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Davis Zhu'
Sent: Wednesday, September 11, 2024 1:57 PM
Subject: Relayed: Redwood Landfill Well Actions Notification August 2024

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'Davis Zhu' (dzhu@baaqmd.gov)

Subject: Redwood Landfill Well Actions Notification August 2024

ATT00002

Chan, Michael

From: Microsoft Outlook
To: McCutcheon, Alisha
Sent: Wednesday, September 11, 2024 1:56 PM
Subject: Delivered: Redwood Landfill Well Actions Notification August 2024

Your message has been delivered to the following recipients:

McCutcheon, Alisha (amccutch@wm.com)

Subject: Redwood Landfill Well Actions Notification August 2024

Redwood Landfill
Well Actions ...

WASTE MANAGEMENT

REDWOOD LANDFILL, INC.
8950 Redwood Highway
PO Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 11, 2024

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
Attn: Title V Reports
(Via email: compliance@baaqmd.gov)

Richard Murray
Air Quality Inspector
Compliance and Enforcement
Bay Area AQMD
rmurray@baaqmd.gov

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179
Title V Section I.F, 10-Day Written Report

Dear Sir or Madam

Redwood Landfill, Inc. (RLI) is submitting this 10-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement 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".

RLI operates a landfill gas to energy (LFGTE) facility with two internal combustion engines (Engines S-64 and S-65). RLI also operates the A-80 Activated Carbon Treatment System (A-80) to remove hydrogen sulfide (H_2S) from LFG sent to flares A-51 and A-60. Engine S-64 experienced a generator failure on August 22, 2024. S-65 continued to operate until August 27, 2024, when the RLI Engine Plant Manager discovered that the urea injection system used for NOx control on Engine S-65 was not working correctly and this engine was also shut down to prevent exceedances of permitted NOx limits for this engine. While S-65 was running, the A-80 treatment system treated all of the LFG going to Flare A-60. However, once Engine S-65 was shut down, in order to maintain vacuum on the East side of the GCCS, the East Valve was opened at approximately 6:30 pm on August 27, 2024, to allow collected LFG to be processed in Flare A-60. The A-80 treatment system continues to treat LFG from the west side of the GCCS. The A-80 system is not presently configured to treat LFG from the East side of the GCCS.

The gas operations team communicated to RLI environmental and operations staff on September 5, 2024, during a conference call that the East Valve had been opened. RLI reviewed the facility's treatment system and operating permit and determined that the facility was not in compliance with Condition 25634, Section 5.a of the facility's operating permit:

5. The owner/operator may use A-80, Activated Carbon Treatment System, for control of SO_2 in accordance with the conditions below:

a. When the owner/operator uses A-80 to absorb H2S for SO_2 control, the owner/operator shall route all of the landfill gas that goes to the flare through A-80.

RLI began work on a project to increase capacity of the A-80 treatment system (the "A-80 upgrade project") on September 9, 2024. The A-80 upgrade project includes upgrades to piping and the addition of four (4) 10,000-pound treatment vessels to A-80. This upgrade will allow all collected gas from both the east and west sides of the GCCS to be treated by A-80. The project is estimated to be completed by the end of September 2024, and will bring RLI back in compliance with Condition 25636 5.a.

As required, RLI will submit a 30-day follow-up written report and provide additional details as appropriate. RLI is committed to operating its landfill in compliance with all applicable regulations.

If you have any questions regarding this notification, please contact me at (805) 732-0613 or Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Scott Tignac
Director of Disposal Operations
Responsible Official for RLI

Chan, Michael

From: Chan, Michael
Sent: Wednesday, September 11, 2024 2:40 PM
To: 'Richard Murray'; 'Compliance'
Subject: Redwood Landfill A1179 10-day Report for A80
Attachments: RLI 10-Day A80 Letter 2024-09-11.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the 10-day notification letter for A80 and the opening of the East valve to Flare A60.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510-613-2852
C: 510-205-0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Richard Murray'; 'Compliance'
Sent: Wednesday, September 11, 2024 2:40 PM
Subject: Relayed: Redwood Landfill A1179 10-day Report for A80

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'Richard Murray' (rmurray@baaqmd.gov)

'Compliance' (Compliance@baaqmd.gov)

Subject: Redwood Landfill A1179 10-day Report for A80

REDWOOD LANDFILL, INC.
8950 Redwood Highway
PO Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

October 3, 2024

Director of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
Attn: Title V Reports
(Via email: compliance@baaqmd.gov)

Richard Murray
Air Quality Inspector
Compliance and Enforcement
Bay Area AQMD
rmurray@baaqmd.gov

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179
Title V Section I.F, 30-Day Written Report

Dear Sir or Madam

Redwood Landfill, Inc. (RLI) is submitting this 30-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement 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" (submitted to BAAQMD September 11, 2024).

RLI operates a landfill gas to energy (LFGTE) facility with two internal combustion engines (Engines S-64 and S-65). RLI also operates the A-80 Activated Carbon Treatment System (A-80) to remove hydrogen sulfide (H_2S) from LFG sent to flares A-51 and A-60. Engine S-64 experienced a generator failure on August 22, 2024. S-65 continued to operate until August 27, 2024, when the RLI Engine Plant Manager discovered that the urea injection system used for NOx control on Engine S-65 was not working correctly and this engine was also shut down to prevent exceedances of permitted NOx limits for this engine. While S-65 was running, the A-80 treatment system treated all of the LFG going to Flare A-60. However, once Engine S-65 was shut down, in order to maintain vacuum on the East side of the GCCS, the East Valve was opened at approximately 6:30 pm on August 27, 2024, to allow collected LFG to be processed in Flare A-60. The A-80 system is not presently configured to treat LFG from the East side of the GCCS.

The gas operations team communicated to RLI environmental and operations staff on September 5, 2024, during a conference call that the East Valve had been opened. RLI reviewed the facility's treatment system and operating permit and determined that the facility was not in compliance with Condition 25634, Section 5.a of the facility's operating permit:

5. The owner/operator may use A-80, Activated Carbon Treatment System, for control of SO_2 in accordance with the conditions below:

> *a. When the owner/operator uses A-80 to absorb H2S for SO_2 control, the owner/operator shall route all of the landfill gas that goes to the flare through A-8O.*

RLI began work on a project to increase capacity of the A-80 treatment system (the "A-80 upgrade project") on September 9, 2024. The A-80 upgrade project includes upgrades to piping and the addition of four (4) 10,000-pound treatment vessels to A-80. This upgrade will allow all collected gas from both the east and west sides of the GCCS to be treated by A-80. The project is estimated to be completed by the end of October 2024, and will bring RLI back in compliance with Condition 25634 5.a.

On September 16, 2024, the East Valve was closed and the S-71 treatment system for the engines was utilized (while the engines are offline) to treat LFG from the East side of the GCCS going to flare A-60. The A-80 and S-71 treatment systems continues to treat LFG from the West and East sides of the GCCS. An accelerated permit/application to modify/upgrade A-80 was submitted on September 13, 2024. A variance application for not treating all of the gas through A-80 was filed on September 13, 2024 (docket number 3754).

RLI met with BAAQMD staff on September 24, 2024 to discuss this topic.

RLI is committed to operating its landfill in compliance with all applicable regulations.

If you have any questions regarding this notification, please contact me at (805) 732-0613 or Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Scott Tignac
Director of Disposal Operations
Responsible Official for RLI

Chan, Michael

From: Chan, Michael
Sent: Thursday, October 3, 2024 5:00 PM
To: 'Richard Murray'; 'Compliance'
Subject: Redwood Landfill A1179 30-day Report for A80
Attachments: RLI 30-Day A80 Letter 2024-10-03.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the 30-day report for A80 and the opening of the East valve to Flare A60.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510-613-2852
C: 510-205-0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Richard Murray'; 'Compliance'
Sent: Thursday, October 3, 2024 5:00 PM
Subject: Relayed: Redwood Landfill A1179 30-day Report for A80

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'Richard Murray' (rmurray@baaqmd.gov)

'Compliance' (Compliance@baaqmd.gov)

Subject: Redwood Landfill A1179 30-day Report for A80

ATT00002

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

October 21, 2024

Mr. Davis Zhu
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
dzhu@baaqmd.gov

Re: Well Actions Letter
Title V Permit Condition Number 19867, Part 17, Facility A1179
Redwood Landfill, Inc., Novato, California

Dear Mr. Zhu:

On behalf of Redwood Landfill, Inc. (RLI), this letter is to notify the Bay Area Air Quality Management District (BAAQMD) of the well actions recently performed at the RLI, pursuant to Title V Permit A1179 as modified by Application Number (AN) 30065. These well actions are summarized below:

- Vertical well RLI00137 was decommissioned on 10/3/2024
- Vertical well RLI0117D was decommissioned on 10/3/2024

AN 30065 allows installation of up to 100 new vertical wells, unlimited one-to-one replacement of vertical wells, installation of up to 50 new horizontal collectors, decommissioning of up to 50 vertical wells, and decommissioning of up to 15 horizontal collectors.

As stated in the September 11, 2024 Well Actions Letter, prior to the completion of these well actions, RLI had 128 total collectors (124 vertical wells and 4 horizontal collectors) connected to the GCCS. With the completion of these well actions, RLI's existing GCCS component count and permitted remaining actions per AN 30065 are listed in the following table:

	Install New Vertical Wells	Decommission Vertical Wells	Install New Horizontal Collectors	Decommission Horizontal Collectors	Replace Vertical Wells*
Actions Permitted Under AN 30065	100	50	50	15	Unlimited
Actions Performed by RLI per AN 30065	54	33	0	5	-
Actions Remaining Under AN 30065	46	17	50	10	Unlimited
Active Collector Count after Actions in this Letter	126 Total Collectors: 122 Vertical LFG Wells and 4 Horizontal Collectors				

*One-for-one well replacement at new optimal locations.

If you have any questions regarding this notification, please contact me at (510) 613-2852 or Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Monday, October 21, 2024 2:55 PM
To: 'Davis Zhu'
Cc: McCutcheon, Alisha
Subject: Redwood Landfill Well Actions Notification October 2024
Attachments: 2024.10.21 - RLI Well Actions Letter decom RLI00137 RLI0117D.pdf

Hi Davis,

Attached is the Well Actions Notification letter that Redwood Landfill has decommissioned 2 wells in the collection system.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

T: 510.613.2852
C: 510.205.0410
172 98th Avenue
Oakland, CA 94603

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Davis Zhu'
Sent: Monday, October 21, 2024 2:55 PM
Subject: Relayed: Redwood Landfill Well Actions Notification October 2024

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

'Davis Zhu' (dzhu@baaqmd.gov)

Subject: Redwood Landfill Well Actions Notification October 2024

APPENDIX D

WELLFIELD SSM LOG

REDWOOD LANDFILL, INC.

COLLECTION SYSTEM DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1		RLLC0254	10/19/22 10:18	10/19/22 10:20	0.03	17,845.70	Well raising, well located in active fill area	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	11/1/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		Well offline as of November 1, 2024					117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
2		RLLC0222	11/17/23 14:30	11/17/23 14:32	0.03	8,385.50	Well raising, well located in active fill area	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	11/1/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		Well offline as of November 1, 2024					117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
3		RLLC0233	12/18/23 11:05	12/18/23 11:07	0.03	3,937.25	Well raising, well located in active fill area	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	5/30/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		5/30/24 12:20	5/30/24 12:22	0.03			117: Gas Collection	x Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		x No	No			
4		RLLC0240	6/18/24 7:52	6/18/24 7:54	0.03	3,256.13	Well raising, well located in active fill area	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	11/1/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		Well offline as of November 1, 2024					117: Gas Collection	Manual (Go to 7)	Procedures 1 to 4	Yes (Go to 9)	Yes (Go to 10)			
	Malfunction							118: Construction Activities	Automatic (Go to 9)		No	No			
5		RLI0114A	7/8/24 13:53	7/8/24 13:55	0.03	N/A	Well decommissioned pursuant to AN #30065 on 7/8/24	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/8/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
6		RLI0129E	7/11/24 16:27	7/11/24 16:29	0.03	N/A	Well decommissioned pursuant to AN #30065 on 7/11/24	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/11/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
7		RLLC0191	7/19/24 9:07	7/19/24 9:09	0.03	N/A	Well decommissioned pursuant to AN #30065 on 7/19/24	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/19/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
8		RLLC0193	7/19/24 9:20	7/19/24 9:22	0.03	N/A	Well decommissioned pursuant to AN #30065 on 7/19/24	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/19/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
9		RLLC0225	7/19/24 9:14	7/19/24 9:16	0.03	N/A	Well decommissioned pursuant to AN #30065 on 7/19/24	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	7/19/2024
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
10		RLLC0273	8/12/24 12:23	8/12/24 12:25	0.03	N/A	Well decommissioned pursuant to AN #30065 on 8/12/24	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/12/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
11		RLI0115E	8/13/24 9:35	8/13/24 9:37	0.03	N/A	Well decommissioned pursuant to AN #30065 on 8/13/24	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/13/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							
12		RLI0116E	8/27/24 13:22	8/27/24 13:24	0.03	N/A	Well decommissioned pursuant to AN #30065 on 8/27/24	113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		Mike Chan	8/27/2024
	x Shutdown							x 116: Well Raising	Automatic (Go to 9)		x No	No			
	Startup		N/A					117: Gas Collection	N/A						
	Malfunction							118: Construction Activities							

REDWOOD LANDFILL, INC.

COLLECTION SYSTEM DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
13	x Shutdown Startup Malfunction	RLLC0239	8/27/24 13:45 Well offline as of November 1, 2024	8/27/24 13:47	0.03	1,570.25	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2024
14	x Shutdown Startup Malfunction	RLI00137	10/3/24 8:41 N/A	10/3/24 8:43	0.03	N/A	Well decommissioned pursuant to AN #30065 on 10/3/24	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No	Yes (Go to 10) No		Mike Chan	N/A
15	x Shutdown Startup Malfunction	RLI0117D	10/3/24 11:29 N/A	10/3/24 11:31	0.03	N/A	Well decommissioned pursuant to AN #30065 on 10/3/24	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No	Yes (Go to 10) No		Mike Chan	N/A
16	x Shutdown Startup Malfunction	RLLC0237	10/3/24 8:08 10/23/24 13:14	10/3/24 8:10 10/23/24 13:16	0.03 0.03	485.10	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	10/23/2024

(a) **STANDARD OPERATING PROCEDURES**

Shutdown

Procedure No.	Procedure
1.	Ensure that there is no unsafe conditions present, contact manager immediately
2.	Initiate shutdown sequence below by one or more of the following (Note date and time in Section 1 of form above)
	a. Press Emergency Stop if necessary
	b. Close On/Off switch(es) or Push On/Off button(s)
	c. Close adjacent valves if necessary
3.	Observe that system achieves normal shutdown ranges for levels, pressures, and temperatures (Note date and time in Section 2 of form above)

Startup

Procedure No.	Procedure
1.	Ensure that there is no unsafe conditions present
2.	Ensure that the system is ready to start by one of the following:
	a. Valves are in correct position
	b. Levels, pressures, and temperatures are within normal starting range
	c. Alarms are cleared
	d. Power is on and available to control panel and ready to energized equipment.
	e. Emergency stop is de-energized
3.	Initiate start sequence (Note time and date in section 1 of form above)
4.	Observe that system achieves normal shutdown ranges for levels, pressures, and temperatures (Note time and date in Section 2 of form above)

Malfunction

EQUIPMENT	PURPOSE	MALFUNCTION EVENT	COMMON CAUSES	PROCEDURE NO. -TYPICAL RESPONSE ACTIONS
LFG Collection and Control System				
Blower or Other Gas Mover Equipment	Applies vacuum to wellfield to extract LFG and transport to control device	Loss of LFG Flow/Blower Malfunction	-Flame arrestor fouling/deterioration -Automatic valve problems -Blower failure (e.g., belt, motor, impeller, coupling, seizing, etc.) -Loss of power -Extraction piping failure -Condensate knock-out problems -Extraction piping blockages	1. Repair breakages in extraction piping 2. Clean flame arrestor 3. Repair blockages in extraction piping 4. Verify automatic valve operation, compressed air/nitrogen supply 5. Notify power utility, if appropriate 6. Provide/utilize auxiliary power source, if necessary 7. Repair Settlement in Collection Piping 8. Repair Blower 9. Activate back-up blower, if available 10. Clean knock-up pot/demister 11. Drain knock-out pot
Extraction Wells and Collection Piping	Conduits for extractions and movement of LFG flow	Collection well and pipe failures	-Break/crack in header or lateral piping -Leaks at wellheads, valves, flanges, Test ports, seals, couplings, etc. -Collection piping blockages -Problems due to settlement (e.g. pipe separation, deformation, development of low points	12. Repair leaks or breaks in lines or wellheads 13. Follow procedures for loss of LFG flow/blower malfunction 14. Repair blockages in collection piping 15. Repair settlement in collection piping 16. Re-install, repair, or replace piping
Blower or Other Gas Mover Equipment And Control Device	Collection and control of LFG	Loss of electrical power	- Force majeure/Act of God (e.g., lightning, flood, earthquake, etc.) -Area-wide or local blackout or brown-out -Interruption in service (e.g. blown service fuse -Electrical line failure -Breaker trip -Transformer failure -Motor starter failure/trip -Overdraw of power -Problems in electrical panel -Damage to electrical equipment from on-site operations	17. Check/reset breaker 18. Check/repair electrical panel components 19. Check/repair transformer 20. Check/repair motor starter 21. Check/repair electrical line 22. Test amperage to various equipment 23. Contact electricity supplier 24. Contact/contract electrician 25.Provide auxiliary power (if necessary
LFG Control Device	Combusts LFG	Low temperature conditions at control device	-Problems with temperature -monitoring equipment -Problems/failure of -thermocouple and/or thermocouple wiring -Change of LFG flow -Change of LFG quality -Problems with air louvers -Problems with air/fuel controls -Change in atmospheric conditions	26. Check/repair temperature monitoring equipment 27. Check/repair thermocouple and/or wiring 28. Follow procedures for loss of flow/blower malfunction 29. Check/adjust louvers 30. Check/adjust air/fuel controls
LFG Control Device	Combusts LFG	Loss of Flame	-Problems/failure of thermocouple -Loss/change of LFG flow -Loss/change of LFG quality -Problems with air/fuel controls -Problems/failure of flame sensor -Problems with temperature monitoring equipment	31. Check/repair temperature monitoring equipment 32. Check/repair thermocouple 33. Follow procedures for loss of flow/blower malfunction 34. Check/adjust air/fuel controls 35. Check/adjust/repair flame sensor 36. Check/adjust LFG collectors
Flow Monitoring/ Recording Device	Measures and records gas flow from collection system to control	Malfunctions of Flow Monitoring/Recording Device	-Problems with orifice plate, pitot tube, or other in-line flow measuring device -Problems with device controls and/or wiring -Problems with chart recorder	37. Check/adjust/repair flow measuring device and/or wiring 38. Check/repair chart recorder 39. Replace paper in chart recorder
Temperature Monitoring/ Recording Device	Monitors and records combustion temperature of enclosed combustion device	Malfunctions of Temperature Monitoring/Recording Device	-Problems with thermocouple -Problems with device controls and/or wiring -Problems with chart recorder	40. Check/adjust/repair thermocouple 41. Check/adjust/repair controller and/or wiring 42. Check/adjust/repair electrical panel components 43. Check/repair chart recorder 44. Replace paper in chart recorder
Control Device	Combusts LFG	Other Control Device Malfunctions	-Control device smoking (i.e. visible emissions) -Problems with flare insulation -Problems with pilot light system -Problems with air louvers -Problems with air/fuel controllers -Problems with thermocouple -Problems with burners -Problems with flame arrester -Alarmed malfunction conditions not covered above -Unalarmed conditions discovered during inspection not covered above	45. Site-specific diagnosis procedures 46. Site-specific responses actions based on diagnosis 47. Open manual louvers 48. Clean pitot orifice 49. Clean/drain flame arrestor 50. Refill propane supply 51. Check/repair pilot sparking system

(b) For each permit limit exceedance complete an "SSM Plan Departure Form".

APPENDIX E

A-51 AND A-60 FLARE TEMPERATURE REPORTS

Redwood Landfill, Novato, CA

A-51 Flare TEMPERATURE DEVIATION/ INOPERATIVE MONITOR REPORT **May 1, 2024 to October 31, 2024**

REPORT PREPARED BY: Michael Chan **DATE:** November 26, 2024

TEMPERATURE SENSING DEVICE: Thermocouple **MODEL:** Thermo-Electric

START DATE & TIME	END DATE & TIME	TEMP (°F) / FLOW	CAUSE	EXPLANATION	ACTION TAKEN
No deviations or inoperative monitors during the month of May 2024					
No deviations or inoperative monitors during the month of June 2024					
No deviations or inoperative monitors during the month of July 2024					
No deviations or inoperative monitors during the month of August 2024					
No deviations or inoperative monitors during the month of September 2024					
No deviations or inoperative monitors during the month of October 2024					

COMMENTS:

1 In accordance with Title V Permit Condition Number 19867, Part 22a, the A-51 Flare combustion zone 3-hour average temperature did not drop below 1,400 degrees Fahrenheit (°F) while the flare was in operation.

2 The A-51 Flare combustion zone 3-hour average temperature did not drop below the 1448°F (3/9/23 to 3/7/24) or 1447°F (3/8/24 to current) limits established during the January 12, 2023 and January 10, 2024 Annual Source Tests, while the flare was in operation, pursuant to Title V Permit Condition Number 19867, Part 22, and 40 CFR 60.752 b(2)(iii)(B)(2) in Subpart WWW of the NSPS.

Redwood Landfill, Novato, CA

A-60 Flare TEMPERATURE DEVIATION/ INOPERATIVE MONITOR REPORT **May 1, 2024 to October 31, 2024**

REPORT PREPARED BY: Michael Chan **DATE:** November 26, 2024

TEMPERATURE SENSING DEVICE: Thermocouple **MODEL:** Thermo-Electric

START DATE & TIME	END DATE & TIME	TEMP (°F) / FLOW	CAUSE	EXPLANATION	ACTION TAKEN
No deviations or inoperative monitors during the month of May 2024					
No deviations or inoperative monitors during the month of June 2024					
No deviations or inoperative monitors during the month of July 2024					
No deviations or inoperative monitors during the month of August 2024					
No deviations or inoperative monitors during the month of September 2024					
No deviations or inoperative monitors during the month of October 2024					

COMMENTS:

1 In accordance with Authority To Construct (ATC) 19098 Condition Number 19867, Part 22b, the A-60 Flare combustion Zone A 3-hour average temperature did not drop below 1,400 degrees Fahrenheit (°F) while the flare was in operation, and the A-60 Flare combustion Zone B 3-hour average temperature did not drop below 1,400°F while the flare was in operation.

2 The A-60 Flare Zone A combustion zone three-hour average temperature did not drop below 1,532°F (9/11/22 - 10/17/24) or 1,503°F (10/18/24 - current) limits established during the July 13, 2022 and August 20, 2024 source tests. Source Tests, pursuant to 40 CFR 60.752 b(2)(iii)(B)(2) in Subpart WWW of the NSPS.
Zone B of the A-60 Flare combustion zone 3-hour average temperature did not drop below the 1,555°F (9/14/18 to 9/7/23) or 1,568°F (9/8/23 to current) limits established in the July 17, 2018 and July 12, 2023 Source Tests. Pursuant to Title V Condition 19867 Part 30g, the Annual Source Test at A-60 may be conducted while it is operating in either zone, provided that each operating zone is tested at least once every five years.

APPENDIX F

MISSING A-51 AND A-60 FLOW AND TEMPERATURE RECORDS

Emission Control Devices
A-51 Flare Missing Data Summary

Redwood Landfill, Novato, CA
FLARE MISSING DATA REPORT **May 1, 2024 to October 31, 2024**

Date & Time	Date & Time	Total Missing Data Hours	Total Missing Data Days	Comments
There was no missing data for May 2024				
There was no missing data for June 2024				
There was no missing data for July 2024				
There was no missing data for August 2024				
There was no missing data for September 2024				
There was no missing data for October 2024				

Flare A-51	Hours	Days
Total Missing Data:	0.00	0.00
Total Complete Data:	4,416.00	184.00
Missing Data Percentage:	0.00%	0.00%

Emission Control Devices
A-60 Flare Missing Data Summary

Redwood Landfill, Novato, CA
FLARE MISSING DATA REPORT **May 1, 2024 to October 31, 2024**

Date & Time	Date & Time	Total Missing Data Hours	Total Missing Data Days	Comments
There was no missing data for May 2024				
There was no missing data for June 2024				
There was no missing data for July 2024				
There was no missing data for August 2024				
There was no missing data for September 2024				
There was no missing data for October 2024				

Flare A-60	Hours	Days
Total Missing Data:	0.00	0.00
Total Complete Data:	4,416.00	184.00
Missing Data Percentage:	0.00%	0.00%

APPENDIX G

COVER INTEGRITY MONITORING REPORTS

Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill				
Date	5/14/2024	**Received**	**Manager**	Ramin Khany	**Date**	5/14/2024
Technician	Jimmie Brunning	**Repairs Complete**	**Manager**		**Date**	

Cell/Pad				Cell/Pad			
Description of finding and corrective action: No cover integrity issues to report this month.				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	
Cell/Pad				Cell/Pad			
Description of finding and corrective action:				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	
Cell/Pad				Cell/Pad			
Description of finding and corrective action:				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	
Cell/Pad				Cell/Pad			
Description of finding and corrective action:				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	
Cell/Pad				Cell/Pad			
Description of finding and corrective action:				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	
Cell/Pad				Cell/Pad			
Description of finding and corrective action:				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	
Cell/Pad				Cell/Pad			
Description of finding and corrective action:				Description of finding and corrective action:			
Date Identified		**Repaired**		**Date Identified**		**Repaired**	

Cover Integrity Inspection Form (TEMPLATE)

Facility Name: Redwood	
Month/Year of inspection: June 2024	Date Inspection Received 6-20-24
Inspector Name(s) Jimmie Bruning	Manager Name FRED SAWYERS
Inspector Signature(s)	Manager Signature

Date Identified: 6-20-24	Description of Corrective Action: sheep to cut/mow vegitation	Completed Date
Description of Finding: High Vegitation throughout the northern end of the land fill		Manager Initial
Additional information and completion timeline (for repairs not completed within 30 days):		Manager Initial

Date Identified: 6-20-24	Description of Corrective Action: culverts blocked, pumping, waiting for engineer	Completed Date
Description of Finding: Northwest Leachate Seep		Manager Initial
Additional information and completion timeline (for repairs not completed within 30 days):		Manager Initial

Date Identified:	Description of Corrective Action:	Completed

Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill					
Date	7/10/2024	Received	Manager	Frank Antonio	Date	7/10/2024
Technician	Rick Reed	Repairs Complete	Manager	Frank J Antonio Jr	Date	7-10-24

Cell/Pad		Cell/Pad	
Description of finding and corrective action: No cover integrity issues to report this month.		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired

Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill				
Date	8/27/2024	Received	Manager Frank Antonio	Date	8/27/2024
Technician	Jimmie Brunning	Repairs Complete	Manager Frank J Antonio	Date	8-28-24

Cell/Pad	Cell/Pad
Description of finding and corrective action: no cover integrity issues to report this month.	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired
Cell/Pad	Cell/Pad
Description of finding and corrective action:	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired
Cell/Pad	Cell/Pad
Description of finding and corrective action:	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired
Cell/Pad	Cell/Pad
Description of finding and corrective action:	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired
Cell/Pad	Cell/Pad
Description of finding and corrective action:	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired
Cell/Pad	Cell/Pad
Description of finding and corrective action:	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired
Cell/Pad	Cell/Pad
Description of finding and corrective action:	Description of finding and corrective action:
Date Identified Repaired	Date Identified Repaired

Frank J. Antonio Jr

Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill				
Date	9/19/2024	Received	Manager	Frank Antonio	Date 9/21/24
Technician	Jimmie Brunning	Repairs Complete	Manager		Date

Cell/Pad		Cell/Pad	
Description of finding and corrective action: no cover integrity issues to report this month.		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired
Cell/Pad		Cell/Pad	
Description of finding and corrective action:		Description of finding and corrective action:	
Date Identified	Repaired	Date Identified	Repaired

Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill		X Frank A. Antonio Jr		
Date	10/25/2024	Received	Manager	Frank Antonio	Date	10/25/2024
Technician	Rick Reed	Repairs Complete	Manager		Date	

Cell/Pad	

Description of finding and corrective action: No cover integrity issues to report this month.

Date Identified		Repaired	

Cell/Pad	

Description of finding and corrective action:

Date Identified		Repaired	

Cell/Pad	

Description of finding and corrective action:

Date Identified		Repaired	

Cell/Pad	

Description of finding and corrective action:

Date Identified		Repaired	

Cell/Pad	

Description of finding and corrective action:

Date Identified		Repaired	

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Description of finding and corrective action:

Date Identified		Repaired	

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Description of finding and corrective action:

Date Identified		Repaired	

Cell/Pad	

Description of finding and corrective action:

Date Identified		Repaired	

Cell/Pad	

Description of finding and corrective action:

Date Identified		Repaired	

APPENDIX H

SURFACE EMISSIONS MONITORING / COMPONENT LEAK

WASTE MANAGEMENT
172 98th Avenue
Oakland, CA 94603
(510) 430-8509

July 16, 2024

Ms. Alisha McCutcheon
Redwood Landfill, Inc.
8590 Redwood Highway
Novato, California 94948

Re: Second Quarter 2024 Surface Emissions and Component Leak Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)**" contains the results of the Second Quarter 2024 Integrated and Instantaneous Surface Emissions Monitoring (SEM) and Component Leak Monitoring. Initial surface emissions monitoring was performed by Roberts Environmental Services, LLC. (RES). Re-monitoring of surface emissions and site-wide component leak monitoring was conducted by RES and/or Waste Management (WM) personnel.

APPLICABLE REQUIREMENTS

The monitoring discussed in this report was conducted in accordance with the following requirements:

Surface Emission Monitoring (SEM)

- New Source Performance Standard (NSPS), Title 40 of the Code of Federal Regulations (CFR) §60.755 (c) and (d), 40 CFR 60, Appendix A Method 21, promulgated by the United States Environmental Protection Agency (USEPA).

- California Code of Regulations (CCR) Title 17, Subchapter 10, Article 4, Subarticle 6, §95460 to §95476, known as the Assembly Bill 32 (AB32) landfill methane rule (LMR).

- National Emission Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills, Title 40: Chapter I: Subchapter C: Part 63: Subpart AAAA, §63.1981(h)(5)

- Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 303 (Landfill Surface Requirements) and Section 607 (Landfill Surface Inspection procedures).

Component Leak

- Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 301 (Landfill Gas Collection and Emission Control System Requirements) and Section 602 (Collection and Control System Leak Inspection procedures).

- California Code of Regulations (CCR) Title 17, Subchapter 10, Article 4, Subarticle 6, §95464, known as the Assembly Bill 32 (AB32) landfill methane rule (LMR).

RLI Plan and Alternative Compliance Measures

An Alternative Compliance Option (ACO) Request was submitted to the California Air Resources Board (CARB) on March 24, 2011. After receipt of comments, this ACO was amended, restated, and submitted to BAAQMD on July 1, 2016. SEM and Component Leak monitoring was conducted per the methods outlined in the July 1, 2016 ACO.

PROCEDURES

General

The surface of the RLI disposal area has been divided into two hundred-eight (208), approximately 50,000 square foot monitoring grids. The entire landfill surface is monitored with the exception of active portions of the Landfill, slope areas, and as requested in the approved ACO, areas containing only asbestos-containing waste, inert waste and/or non-decomposable waste which are excluded for safety as allowed by CCR Title 17 §95466.

Field personnel walked the surface of the landfill following the 25-foot interval walking pattern as depicted the 2011 RLI AB-32 SEM Plan, which traverses each monitoring grid. Additionally, in accordance with the provisions of 40 CFR 60.753(d) and 60.755(c)(1-3), the entire perimeter of the landfill surface was monitored. During the event, special attention was given to monitoring unusual cover conditions (stressed vegetation, cracks, seeps, etc.) and any areas with unusual odors.

Instantaneous Surface Emissions Monitoring

The Instantaneous SEM was conducted using a Toxic Vapor Analyzer (TVA) 1000 flame ionization detector (FID), which was calibrated to 500 parts per million by volume (ppm_v) methane, which meets or exceeds all guidelines set forth in the CCR Title 17 §95471(a) and NSPS. The FID was calibrated prior to use in accordance with the United States Environmental Protection Agency (USEPA) Method 21 requirements. The Instantaneous SEM procedures followed the requirements of 40 CFR 60.755 (c) and (d) and CCR Title 17 §95471(c)(2).

RES personnel walked the surface of the landfill on a grid by grid basis with the wand tip held at 2 inches from the landfill surface. While sampling the grid; the technicians also checked any surface impoundments (wells or otherwise) for leaks. Technicians also checked any surface cracks, seeps, or other areas that show evidence of surface emissions (odors or distressed vegetation). Active and sloped areas excluded for safety were documented on field data sheets and maps.

All instantaneous surface monitoring was performed in accordance with the applicable requirements referenced in this report. Any detections of methane above 200 ppm_v (areas of concern) or 500 ppm_v (exceedances) for instantaneous were recorded, flagged, and marked on an SEM Map, which, wherever required, is included in the Appendices of this report. Applicable corrective action and re-monitoring timelines are listed below:

- Corrective actions must be initiated within 5 days of the initial exceedance and re-monitoring shall be conducted within 10 days of the initial exceedance.
    - If the re-monitoring event shows the exceedance is corrected, the location shall be re-monitored within 1 month of the initial exceedance.
    - If the 1-month re-monitoring event shows the location is still corrected, all re-monitoring requirements have been completed.
- If either the first 10-day or 1-month re-monitoring events show a second exceedance, additional corrective actions shall be completed and a second re-monitoring event shall be conducted within 10 days of the second exceedance.
- If the second 10-day re-monitoring event shows the second exceedance is corrected, the location shall be re-monitored within 1 month of the initial exceedance. If the 1-month re-monitoring event shows the area is still corrected, monitoring requirements have been completed.

If any location shows three exceedances, an additional well shall be installed within 120 days of the initial exceedance.

Integrated Surface Emissions Monitoring

The Integrated surface monitoring was conducted using a TVA 1000 calibrated to 25 ppm_v for the integrated monitoring, which meets or exceeds all guidelines set forth in the CCR Title 17 §95471(a). The field technician traversed the grid walking path over a continuous 25-minute period using the TVA 1000 held at 3 inches above the landfill surface. The Integrated monitoring procedures followed the requirements of CCR Title 17 §95471(c)(3).

Grids with results greater than 25 ppm_v were recorded, marked on the SEM map, and flagged for remediation. Any grids with integrated concentrations greater than 25 ppm_v are subject to the following re-monitoring timeline:

- Re-monitoring shall be conducted within 10 days of the initial exceedance.
- If the 10-day re-monitoring event shows the exceedance is corrected, all re-monitoring requirements have been completed.
- If either the first 10-day re-monitoring event shows a second grid exceedance, additional corrective actions shall be completed and a second re-monitoring event shall be conducted within 10 days of the second exceedance.

- If the second 10-day re-monitoring event shows the second exceedance is corrected, all re-monitoring requirements have been completed.

- The second 10-day re-monitoring event shows a third grid exceedance, an additional well shall be installed within 120 days of the third exceedance.

Component Leak Monitoring Procedures

RES personnel monitored the exposed LFG components under positive pressure (pipes, wellheads, valves, blowers, and other mechanical appurtenances) using a TVA 1000 calibrated to 500 ppm_v. All leaks measured one half inch or less from the component exceeding the compliance limit of 500 ppm_v per requirements outlined in pursuant to CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B) and 1,000 ppm_v per requirements outlined in BAAQMD 8-34-303 were recorded. Applicable corrective action and re-monitoring timelines are listed below:

- Leaks between 500 and 999 ppm_v must be corrected and re-monitored within 10 days of the initial exceedance.

- Leaks at or above 1000 ppm_v must be corrected and re-monitored within 7 days of the initial exceedance.

SECOND QUARTER 2024 SEM AND COMPONENT LEAK RESULTS

The following is a summary of the SEM and component leak monitoring results completed for the Second Quarter 2024.

Instantaneous Surface Emissions Monitoring Results

The Instantaneous surface monitoring was performed on May 21, 2024 in accordance with the NSPS, BAAQMD 8-34, and CCR Title 17 §95469, NESHAP Subpart AAAA, and ACO. Results and data from the monitoring are presented in Attachment A.

Initial Monitoring Event Exceedances of 500 ppm_v

There were nine (9) exceedances of 500 ppm_v as methane detected on May 21, 2024. Corrective actions to initiate repairs of the exceedances were completed within five days for all locations.

First Ten-Day Re-Monitoring Results

The first 10-day re-monitoring was completed on May 31, 2024. All locations were observed at less than 500 ppm_v as methane except for exceedance flag numbers O1, O2, and O33.

Second Ten-Day Re-Monitoring Results

Corrective actions were implemented and flag numbers O1, O2, and O33 were below 500 ppm_v as methane upon the 2nd 10-day remonitoring on June 4, 2024.

One-Month Re-Monitoring Results

The 1-month re-monitoring event was completed on June 20, 2024. All locations were observed at less than 500 ppm_v.

Readings between 200 ppm_v and 499 ppm_v (Initial and Re-monitored)

There were no readings between 200 ppm_v and 499 ppm_v as methane detected during the initial monitoring event on May 21, 2024. Pursuant to CCR Title 17 §95471(c), instantaneous surface emissions exceeding 200 ppm_v but below 500 ppm_v are required to be recorded.

Integrated Surface Emissions Monitoring Results

The Integrated surface sampling (ISS) was performed on May 20 and 22, 2024 in accordance with the ACO and requirements outlined in CCR Title 17 §95469.

Initial Monitoring Event Exceedances of 25 ppm_v

There were 0 grids with exceedances of 25 ppm_v as methane detected during the initial monitoring event.

The average methane concentration of each grid was recorded during the monitoring event per applicable requirements. See Attachment B, Integrated SEM 25 ppm_v Exceedances and Monitoring Log, and SEM Map included in Attachment B, for details.

Component Leak Monitoring Results

Component leak monitoring was conducted per the applicable requirements on May 21, 2024. No leaks greater than 500 ppm_v were identified. Please see Attachment C, for details.

WEATHER CONDITIONS

Wind Speed Conductions during the Surface Emission Monitoring Events

Wind speeds during initial monitoring were monitored using a portable weather station. The station has a strip chart that records the wind speed and direction. After completion of monitoring, the strip chart is reviewed by RES office staff to determine the average and maximum wind speeds during the monitoring and the average wind direction during each grid and ensure that the wind speed requirements are met (no gusts greater than 20 mph, average wind speed cannot exceed 10 mph). These values are documented in the field data sheets. The chart data is scanned and included in Attachment D.

Precipitation Requirements

Per the RLI's ACO, the initial monitoring event was carefully scheduled so that it could be conducted in compliance with the precipitation requirements (no precipitation ≥0.01" within 24 hours, ≥0.16" within 48 hours, nor ≥0.25" within 72 hours). Re-monitoring events are required to adhere to strict timelines. Any conflicts with precipitation requirements are discussed in the results section of this document.

EQUIPMENT CALIBRATION

The portable analyzers were calibrated to meet the instrument specifications requirements of U.S. EPA Method 21. The calibration gas used was methane, diluted to a nominal concentration of 25 ppm_v in air for integrated sample analyses and 500 ppm_v in air for instantaneous monitoring to comply with the requirements.

All analyzers were calibrated prior to use with required response time and precision related instrument checks. Calibration records include the following: One time response time test record; One time response factor determination for methane; Calibration Precision test records (test to be performed every 3 months); and Daily Instrument Calibration and Background test records for each gas meter that was used during the quarterly monitoring event. The calibration log records are included in Attachment E.

All monitoring was completed in accordance with the applicable regulatory requirements or approved alternatives. If you have any questions regarding this report, please do not hesitate to contact me at (510) 613-2852.

Thank you,
Waste Management

Michael Chan
Environmental Protection Specialist

Attachment A – Instantaneous Surface Emission Monitoring Event Records

- Monitoring Logs and Exceedances
- Surface Monitoring Weather Data
- SEM Map

Attachment B – Integrated Surface Emission Monitoring Event Records

- Monitoring Logs and Exceedances
- Surface Monitoring Weather Data
- SEM Map

Attachment C – Component Leak Monitoring Event Records

- Component Leak Exceedances and Monitoring Logs

Attachment D – Weather Station Data

- Strip Chart Data

Attachment E – Calibration Records

- Instrument and Gas Calibration Records

Attachment A

Instantaneous Surface Emission Monitoring Event Records

Table A.1
Instantaneous Landfill Surface Emissions Monitoring
Initial Monitoring Event Areas of Concern

2024 QUARTER: 2
PERFORMED BY: RES and WM
LANDFILL NAME: Redwood Landfill, Inc.

Flag Number	Grid Number	Latitude	Longitude	Date of Monitoring	Concentration of Emission (ppm_v)	Comments
O1	56	38.16350	-122.56339	5/21/2024	1,822	Well 191
O11	35	38.16538	-122.56217	5/21/2024	622	Well 276
O12	29	38.16593	-122.56185	5/21/2024	583	Well 241
O2	174	38.17008	-122.56824	5/21/2024	2,293	Well 209
O31	67	38.16509	-122.56413	5/21/2024	1,452	Well 265
O32	67	38.16558	-122.56433	5/21/2024	3,289	Well 270
O33	90	38.16608	-122.56508	5/21/2024	22,032	Well 283
O34	15	38.16597	-122.56114	5/21/2024	4,244	Well 235
O35	154	38.17383	-122.56787	5/21/2024	4,122	Well 250

Notes: Please refer to field data sheets for details

Table A.2
Instantaneous Landfill Surface Emissions Monitoring
Exceedance and Monitoring Logs (NSPS/BAAQMD 8-34)

2024 QUARTER: 2
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY: Jimmie Brunning
LANDFILL NAME: **Redwood Landfill, Inc.**

Initial Monitoring Event			Corrective Action		1st 10-day Follow-Up			2nd 10-day Follow-Up			1-month Follow-Up			Comments
Flag Number	Monitoring Date	Reading ppm	Repair Date	Action Taken	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	
O1	5/21/2024	1,822	5/24/2024	Increase BECs & compact soil	5/31/2024		890	6/4/2024	110		6/20/2024	257		Well 191
O11	5/21/2024	622	5/24/2024	Increase BECs & compact soil	5/31/2024	6.9		n/a			6/20/2024	3.7		Well 276
O12	5/21/2024	583	5/24/2024	Compact Soil	5/31/2024	102		n/a			6/20/2024	7.1		Well 241
O2	5/21/2024	2,293	5/24/2024	Compact Soil	5/31/2024		4,223	6/4/2024	19		6/20/2024	201		Well 209
O31	5/21/2024	1,452	5/24/2024	Compact Soil	5/31/2024	4.2		n/a			6/20/2024	5.3		Well 265
O32	5/21/2024	3,289	5/24/2024	Increase BECs & compact soil	5/31/2024	4.7		n/a			6/20/2024	5.2		Well 270
O33	5/21/2024	22,032	5/24/2024	Compact Soil	5/31/2024		5,295	6/4/2024	209		6/20/2024	229		Well 283
O34	5/21/2024	4,244	5/24/2024	Compact Soil	5/31/2024	192		n/a			6/20/2024	4.0		Well 235
O35	5/21/2024	4,122	5/24/2024	Increase BECs & compact soil	5/31/2024	3.4		n/a			6/20/2024	5.2		Well 250

Table A.3
Instantaneous Landfill Surface Emissions Monitoring
Exceedance and Monitoring Logs (AB-32)

2024 QUARTER: 2
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY: Jimmie Brunning
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			
Flag Number	Monitoring Date	Reading ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Comments
O1	5/21/2024	1,822	5/31/2024		890	6/4/2024	110		Well 191
O11	5/21/2024	622	5/31/2024	6.9		n/a			Well 276
O12	5/21/2024	583	5/31/2024	102		n/a			Well 241
O2	5/21/2024	2,293	5/31/2024		4,223	6/4/2024	19		Well 209
O31	5/21/2024	1,452	5/31/2024	4.2		n/a			Well 265
O32	5/21/2024	3,289	5/31/2024	4.7		n/a			Well 270
O33	5/21/2024	22,032	5/31/2024		5,295	6/4/2024	209		Well 283
O34	5/21/2024	4,244	5/31/2024	192		n/a			Well 235
O35	5/21/2024	4,122	5/31/2024	3.4		n/a			Well 250

Table A.4
Instantaneous Landfill Surface Emissions Monitoring
Areas of Concern Greater than 200 ppmv

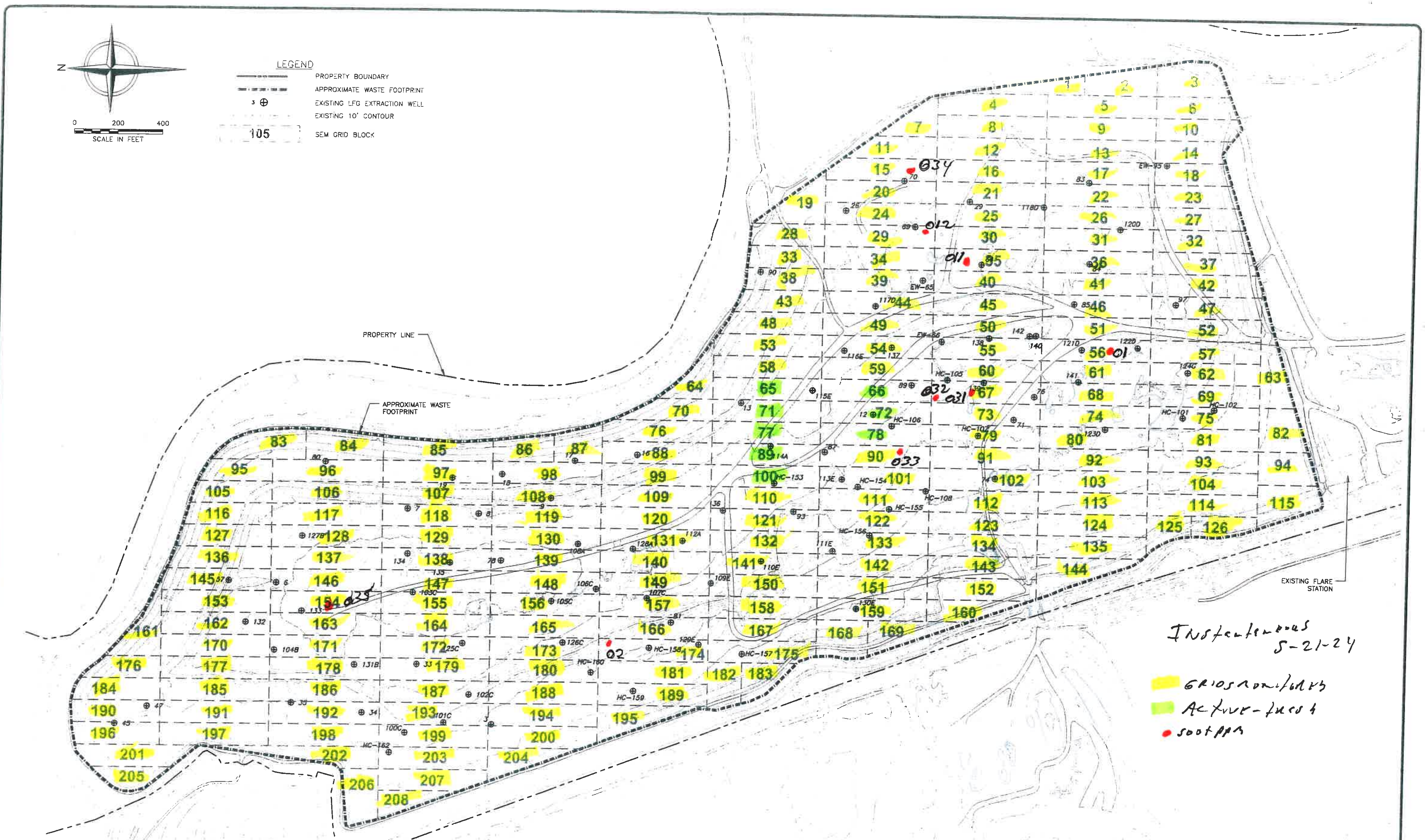
2024 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY:

LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Re-mon Event		Comments
Flag Number	Monitoring Date	Reading ppm	Monitoring Date	Reading ppm	
No 200-499 ppmv locations					



NOTES:

1. TOPOGRAPHIC CONTOURS PREPARED USING PHOTOGRAMMETRIC METHODS BY MILLER CREEK AERIAL MAPPING. DATE OF PHOTOGRAPHY: FEBRUARY 14, 2014
2. LOCATION OF WASTE FOOTPRINT IS APPROXIMATE.
3. SUPPLEMENTAL AS-BUILT WELL LOCATIONS PER FIELD SURVEY PERFORMED BY F3 AND ASSOCIATES (DATE OF SURVEY: AUGUST 13, 2013) AND NOTES FROM WASTE MANAGEMENT DATED OCTOBER 2, 2013 AND JUNE 19, 2014.

WM WASTE MANAGEMENT

DATE OF ISSUE 6/24/2014 | DRAWN BY RL | DESIGNED BY MLH | CHECKED BY MED | APPROVED BY PJS

cornerstone environmental

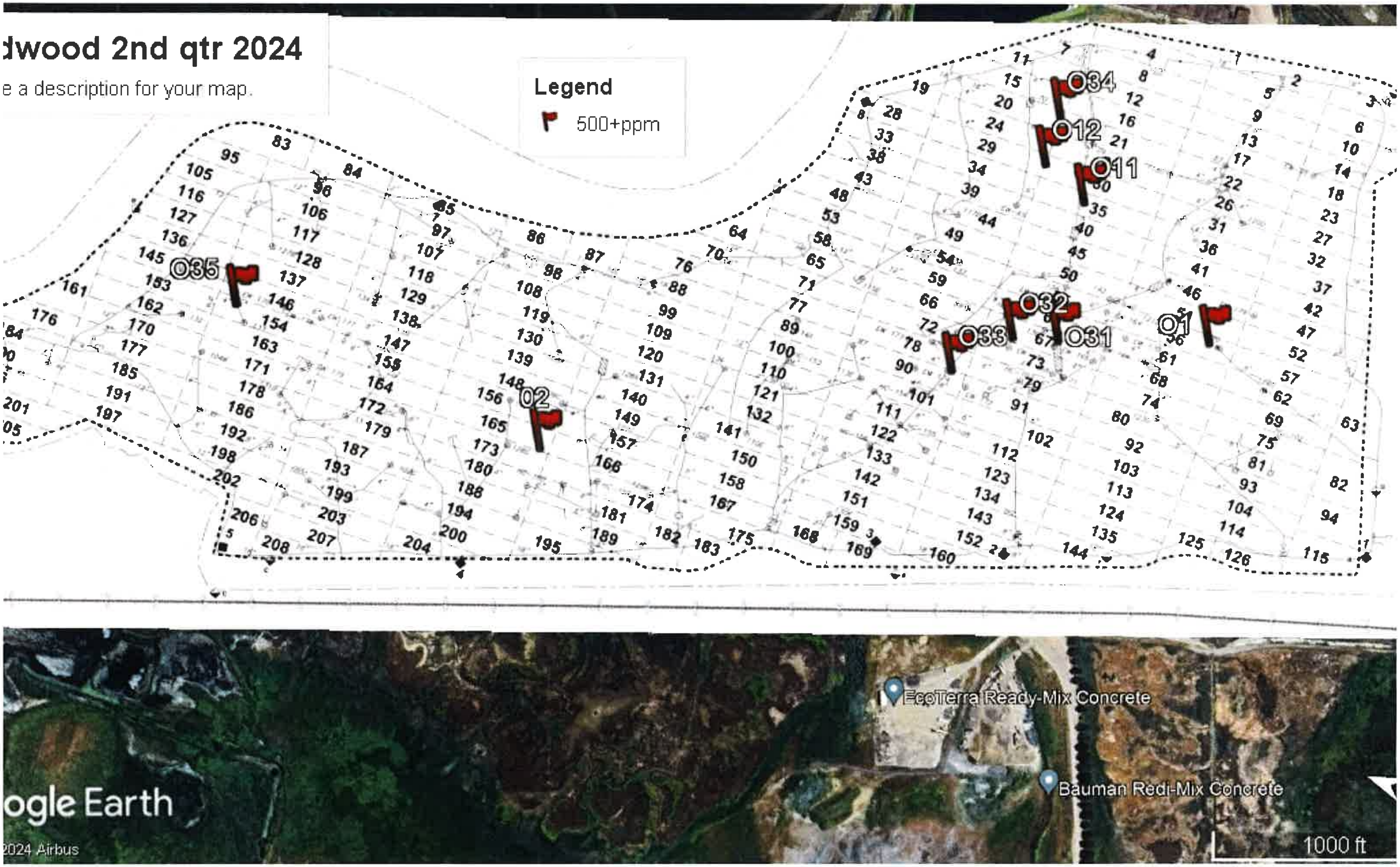
PREPARED BY CORNERSTONE ENVIRONMENTAL GROUP, LLC

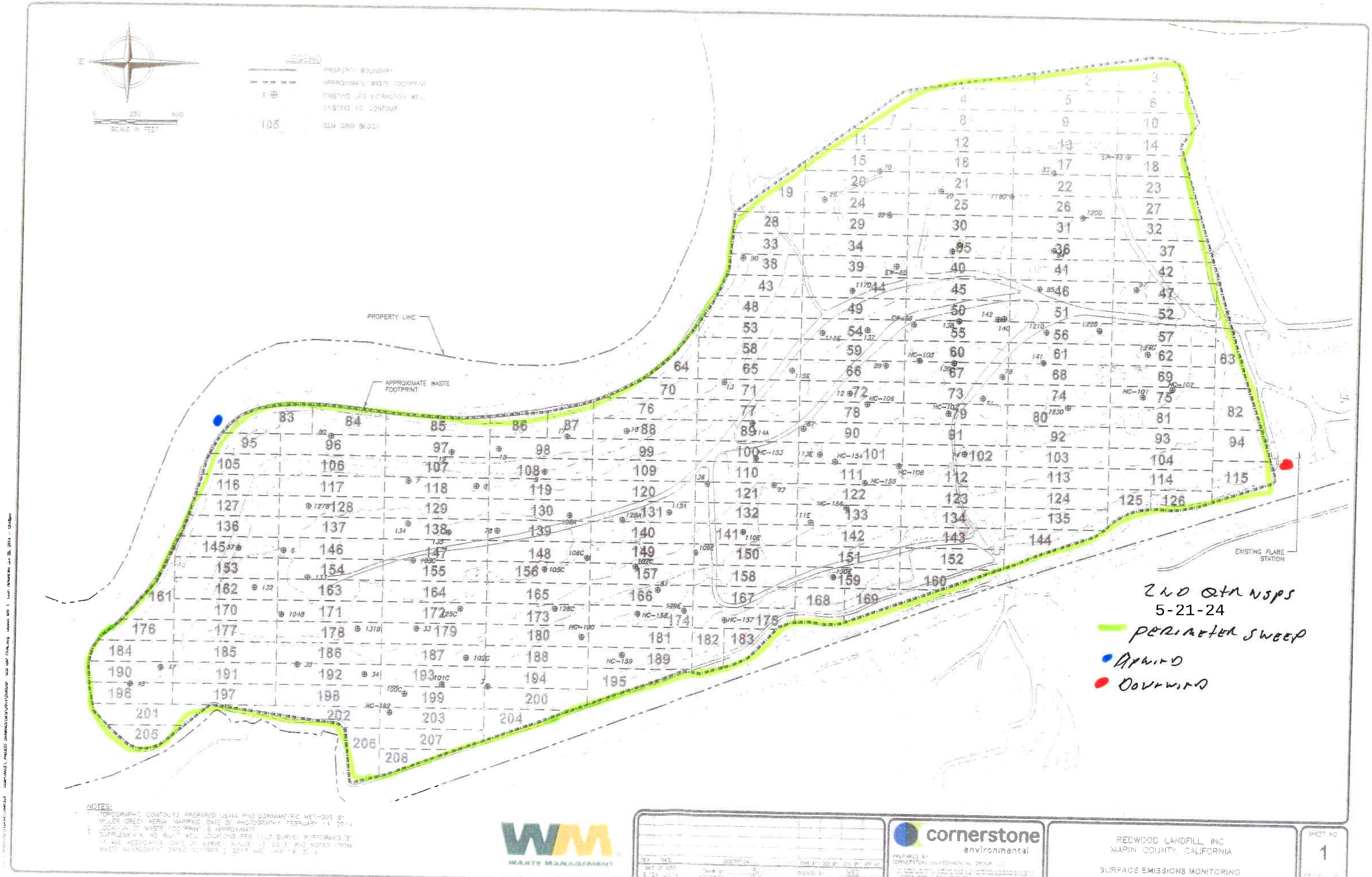
REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING GRID MAP

SHEET NO. 1

PROJECT NO. 14C521


dwood 2nd qtr 2024
e a description for your map.
Legend
500+ppm
O34
O12
O11
O35
O32
O33
O31
O1
O2
EcoTerra Ready-Mix Concrete
Bauman Redi-Mix Concrete
ogle Earth
2024 Airbus
1000 ft



LEGEND
PROPERTY BOUNDARY
APPROXIMATE WASTE FOOTPRINT
EXISTING LFG EXTRACTION WELL
EXISTING 10' CONTOUR
105 SEM GRID BLOCK
SCALE IN FEET
PROPERTY LINE
APPROXIMATE WASTE FOOTPRINT
EXISTING FLARE STATION
2nd Qtr NSPS
5-21-24
perimeter sweep
Upwind
Downwind
NOTES:
cornerstone environmental
REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA
SURFACE EMISSIONS MONITORING GRID MAP
SHEET NO.
1

Orange Flag Landfill Surface Emissions Monitoring
Exceedances and Monitoring Log

Site: REDWOOD

Quarter / Year:	2ND 2024	
Technician:	LEISHWADE	
Instrument:	TVA1000	
Calibration Standard:	500ppm	
		Page of Pages

Initial Monitoring Event				First Re-Monitoring Event - 10 Days			Second Re-Monitoring Event - 10 Days			30-Day Follow-up Monitoring			Comments
Flag Number	Grid Number	Field Reading (ppm)	Date Monitored	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	
O-1	56	1,822	5-21-24										
O-2	174	2,293											WEll 191
O-11	35	622											WEll 209
O-12	29	583											WEll 276
O-31	67	1,432											WEll 241
O-32	67	3,289											WEll 265
O-33	90	22,032											WEll 270
O-34	15	4,244											WEll 283
O-35	154	4,122											WEll 235
O-													WEll 250
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													

wpt ID	lat	lon	redwood 2nd qtr 2024 time	name	cmt
1	38.16349899	-122.563391	2024-05-21T15:20:46Z	O1	1822ppmwell191
2	38.16537696	-122.562166	2024-05-21T14:55:42Z	O11	622Ppmwell276
3	38.16593402	-122.561854	2024-05-21T15:02:49Z	O12	583PpmWell241
4	38.17008097	-122.568241	2024-05-21T18:44:25Z	O2	2293Ppmwell209
5	38.16508804	-122.564128	2024-05-21T14:42:18Z	O31	1452Ppmwell265
6	38.16557502	-122.564326	2024-05-21T14:48:06Z	O32	3289ppmwell270
7	38.16607601	-122.565081	2024-05-21T15:00:21Z	O33	22032ppmwell283
8	38.165974	-122.56114	2024-05-21T16:03:23Z	O34	4244ppmwell235
9	38.17383296	-122.567869	2024-05-21T18:54:35Z	O35	4122ppmwell250

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Eddie Delira, Miguel Estrada, Anthony Canales, Jovani Medina

Cal Gas Exp Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 62 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
1	LW	0700	0715	24	1	2	6	
2	ME	0700	0715	18	1	2	6	
3	JM	0700	0715	16	1	2	6	
4	ED	0700	0715	49	1	2	6	
5	AC	0700	0715	71	1	2	6	
6	LW	0715	0730	64	1	2	5	
7	ME	0715	0730	82	1	2	5	
8	JM	0715	0730	55	1	2	5	
9	ED	0715	0730	74	1	2	5	
10	AC	0715	0730	18	1	2	5	
11	LW	0730	0745	52	0	1	5	
12	ME	0730	0745	107	0	1	5	
13	JM	0730	0745	94	0	1	5	
14	ED	0730	0745	26	0	1	5	
15	AC	0730	0745	70	0	1	5	
16	LW	0745	0800	150	2	3	4	
17	ME	0745	0800	84	2	3	4	
18	JM	0745	0800	29	2	3	4	
19	ED	0745	0800	62	2	3	4	
20	AC	0745	0800	85	2	3	4	
21	LW	0800	0815	164	3	3	4	
22	ME	0800	0815	49	3	3	4	
23	JM	0800	0815	30	3	3	4	
24	ED	0800	0815	75	3	3	4	
25	AC	0800	0815	92	3	3	4	
26	LW	0815	0830	40	2	2	3	
27	ME	0815	0830	26	2	2	3	
28	JM	0815	0830	31	2	2	3	
29	ED	0815	0830	65	2	2	3	
30	AC	0815	0830	121	2	2	3	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leish Wade, Eddie Delira, Miguel Estrada, Anthony Canales, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 62 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
31	LW	0830	0845	35	1	2	1	
32	ME	0830	0845	22	1	2	1	
33	JM	0830	0845	45	1	2	1	
34	ED	0830	0845	78	1	2	1	
35	AC	0830	0845	96	1	2	1	
36	LW	0845	0900	31	1	2	1	
37	ME	0845	0900	20	1	2	1	
38	JM	0845	0900	51	1	2	1	
39	ED	0845	0900	77	1	2	1	
40	AC	0845	0900	115	1	2	1	
41	LW	0900	0915	64	1	2	2	
42	ME	0900	0915	22	1	2	2	
43	JM	0900	0915	29	1	2	2	
44	ED	0900	0915	57	1	2	2	
45	AC	0900	0915	60	1	2	2	
46	LW	0915	0930	31	1	2	3	
47	ME	0915	0930	19	1	2	3	
48	JM	0915	0930	35	1	2	3	
49	ED	0915	0930	84	1	2	3	
50	AC	0915	0930	92	1	2	3	
51	LW	0930	0945	60	1	2	4	
52	ME	0930	0945	34	1	2	4	
53	JM	0930	0945	57	1	2	4	
54	ED	0930	0945	82	1	2	4	
55	AC	0930	0945	40	1	2	4	
56	LW	0945	1000	32	1	2	4	
57	ME	0945	1000	24	1	2	4	
58	JM	0945	1000	35	1	2	4	
59	ED	0945	1000	68	1	2	4	
60	AC	0945	1000	51	1	2	4	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade — Eddie Deling — Miguel Estrada — Anthony Canela — Joveni Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 70 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
61	LW	1000	1015	34	1	1	6	
62	ME	1000	1015	20	1	1	6	
63	JM	1000	1015	27	1	1	6	
64	ED	1000	1015	65	1	1	6	
67	AC	1000	1015	49	1	1	6	
68	LW	1015	1030	30	1	2	6	
69	ME	1015	1030	45	1	2	6	
70	JM	1015	1030	57	1	2	6	
73	ED	1015	1030	55	1	2	6	
74	AC	1015	1030	40	1	2	6	
75	LW	1030	1045	32	1	1	8	
76	ME	1030	1045	65	1	1	8	
79	JM	1030	1045	30	1	1	8	
80	ED	1030	1045	21	1	1	8	
81	AC	1030	1045	45	1	1	8	
82	LW	1045	1100	78	1	2	6	
83	ME	1045	1100	27	1	2	6	
84	JM	1045	1100	21	1	2	6	
85	ED	1045	1100	34	1	2	6	
86	AC	1045	1100	29	1	2	6	
87	LW	1100	1115	51	1	2	8	
88	ME	1100	1115	84	1	2	8	
90	JM	1100	1115	77	1	2	8	
91	ED	1100	1115	45	1	2	8	
92	AC	1100	1115	39	1	2	8	
93	LW	1115	1130	51	2	2	8	
94	ME	1115	1130	36	2	2	8	
95	JM	1115	1130	24	2	2	8	
96	ED	1115	1130	21	2	2	8	
97	AC	1115	1130	34	2	2	8	

Attach Calibration Sheet
Attach site map showing grid ID

Page 3 of 3

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Eddie Delira, Miguel Estrada, Anthony Canale, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 66 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
98	LW	1130	1145	24	1	2	6	
99	ME	1130	1145	46	1	2	6	
101	JM	1130	1145	110	1	2	8	
102	ED	1130	1145	74	1	2	6	
103	AC	1130	1145	51	1	2	6	
104	LW	1145	1200	39	1	2	6	
105	ME	1145	1200	61	1	2	6	
106	JM	1145	1200	30	1	2	8	
107	ED	1145	1200	22	1	2	8	
108	AC	1145	1200	28	1	2	8	
109	LW	1200	1215	40	1	2	6	
110	ME	1200	1215	37	1	2	8	
111	JM	1200	1215	84	1	2	6	
112	ED	1200	1215	92	1	2	6	
113	AC	1200	1215	46	1	2	8	
114	LW	1215	1230	55	1	2	6	
115	ME	1215	1230	37	1	2	8	
116	JM	1215	1230	24	1	2	8	
117	ED	1215	1230	31	1	2	8	
118	AC	1215	1230	28	1	2	8	
119	LW	1230	1245	19	1	2	6	
120	ME	1230	1245	24	1	2	6	
121	JM	1230	1245	66	1	2	6	
122	ED	1230	1245	45	1	2	6	
123	AC	1230	1245	89	1	2	6	
124	LW	1245	1300	30	1	2	5	
125	ME	1245	1300	22	1	2	5	
126	JM	1245	1300	37	1	2	5	
127	ED	1245	1300	24	1	2	5	
128	AC	1245	1300	20	1	2	5	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leish Wade · Eddie Delira · Miguel Estrada · Anthony Canela · Jovani Medina

Cal Gas Exp Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 80 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
129	LW	1300	1315	27	0	1	6	
130	ME	1300	1315	18	0	1	6	
131	JM	1300	1315	49	0	1	6	
132	ED	1300	1315	76	0	1	6	
133	AC	1300	1315	114	0	1	6	
134	LW	1315	1330	82	1	2	6	
135	ME	1315	1330	37	1	2	6	
136	JM	1315	1330	28	1	2	6	
137	ED	1315	1330	41	1	2	6	
138	AC	1315	1330	66	1	2	6	
139	LW	1330	1345	84	1	2	5	
140	ME	1330	1345	52	1	2	5	
141	JM	1330	1345	47	1	2	5	
142	ED	1330	1345	68	1	2	5	
143	AC	1330	1345	30	1	2	5	
144	LW	1345	1400	22	1	2	5	
145	ME	1345	1400	38	1	2	5	
146	JM	1345	1400	21	1	2	5	
147	ED	1345	1400	36	1	2	5	
148	AC	1345	1400	71	1	2	5	
149	LW	1400	1415	60	1	2	7	
150	ME	1400	1415	115	1	2	7	
151	JM	1400	1415	87	1	2	7	
152	ED	1400	1415	45	1	2	7	
153	AC	1400	1415	32	1	2	7	
154	LW	1415	1430	27	1	2	6	
155	ME	1415	1430	65	1	2	6	
156	JM	1415	1430	44	1	2	6	
157	ED	1415	1430	97	1	2	6	
158	AC	1415	1430	65	1	2	6	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Eddie Delira, Miguel Estrada, Anthony Canales, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 80 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
159	LW	1430	1445	54	1	2	6	
160	ME	1430	1445	36	1	2	6	
161	JM	1430	1445	19	1	2	6	
162	ED	1430	1445	34	1	2	6	
163	AC	1430	1445	51	1	2	6	
164	LW	1445	1500	94	1	2	6	
165	ME	1445	1500	75	1	2	6	
166	JM	1445	1500	66	1	2	6	
167	ED	1445	1500	89	1	2	6	
168	AC	1445	1500	41	1	2	6	
169	LW	1500	1515	26	1	1	6	
170	ME	1500	1515	55	1	1	6	
171	JM	1500	1515	36	1	1	6	
172	ED	1500	1515	61	1	1	6	
173	AC	1500	1515	40	1	1	6	
174	LW	1515	1530	76	1	2	6	
175	ME	1515	1530	52	1	2	6	
176	JM	1515	1530	20	1	2	6	
177	ED	1515	1530	39	1	2	6	
178	AC	1515	1530	37	1	2	6	
179	LW	1530	1545	51	1	2	6	
180	ME	1530	1545	40	1	2	6	
181	JM	1530	1545	54	1	2	6	
182	ED	1530	1545	32	1	2	6	
183	AC	1530	1545	18	1	2	6	
184	LW	1545	1600	16	2	3	4	
185	ME	1545	1600	21	2	3	4	
186	JM	1545	1600	30	2	3	4	
187	ED	1545	1600	46	2	3	4	
188	AC	1545	1600	39	2	3	4	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leish Wade — Eddie Delira
Miguel Estrada — Anthony Cangelo
Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-21-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 80 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
189	LW	1600	1615	44	2	3	4	
190	ME	1600	1615	20	2	3	4	
191	JM	1600	1615	36	2	3	4	
192	EO	1600	1615	24	2	3	4	
193	AC	1600	1615	51	2	3	4	
194	LW	1615	1630	42	2	2	4	
195	ME	1615	1630	37	2	3	4	
196	JM	1615	1630	22	2	3	4	
197	EO	1615	1630	27	2	3	4	
198	AC	1615	1630	45	2	3	4	
199	LW	1630	1645	65	1	3	4	
200	ME	1630	1645	30	1	3	4	
201	JM	1630	1645	18	1	3	4	
202	EO	1630	1645	24	1	3	4	
203	AC	1630	1645	27	1	3	4	
204	LW	1645	1700	31	1	3	4	
205	ME	1645	1700	16	1	3	4	
206	JM	1645	1700	24	1	3	4	
207	EO	1645	1700	18	1	3	4	
208	AC	1645	1700	20	1	3	4	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leighwair ______ ______
______ ______ ______
______ ______ Cal. Gas Exp. Date: ______

Date: 5-21-24 Instrument Used: ______ Grid Spacing: ______

Temperature: ______ Precip: ______ Upwind BG: ______ Downwind BG: ______

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
65								Active-frost
66								
71								
72								
77								
78								
89								
100								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: 2024
Quarter: 2ND

IME Date	Time	IME Location ID	IME Concentration (ppm)
5-21-24	0540	P-2	11
	0543	P-4	14
	0545	P-5	16
	0547	P-6	22
	0550	P-7	14
	0553	P-8	21
	0535	P-1	9
	0540	P-9	17
	0532	RLLC0234	14
	0647	RLI00083	20
	0607	RLI00095	31
	0638	RLLC0235	4,244
	0620	RLLC0252	27
	0618	RLLC0236	18
	0610	RLLC0241	583
	0635	RLLC0253	24
	0647	P-10	15
	0609	RLLC0254	38
	0530	P-14	17
	0550	RLI00065	24
	0647	RLLC0242	49
	0538	P-16	18
	0545	P-17	21
	0618	RLI0117D	76
	0530	RLLC0179	22
	0618	RLLC0217	51
	0618	RLLC0227	30
	0625	P-47	19
	0554	RLI00140	24
	0607	RLI00142	21
	0557	RLLC0255	16
	0600	RLLC0256	59
	0630	P-19	19
	0620	RLI0116E	17
	0630	RLI00137	75
	0610	RLLC0237	32
	0545	RLLC0238	66
	0530	P-11	21
	0637	RLLC0239	18
	0613	RLI00141	39

REDWOOD LANDFILL
PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: 2024
Quarter: 2nd

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0607	RLLC0246	65
	0538	RLI0124G	30
	0611	RLI00220	19
	0613	P-21	11
	0532	P-22	27
	0535	P-23	18
	0540	P-82	14
	0614	P-83	36
	0555	P-84	22
	0610	P-85	10
	0613	RLIC115E	31
	0615	RLLC0240	24
	0545	RLLC0243	16
	0613	RLLC0244	107
	0631	RLIHC101	24
	0550	RLIHC102	16
	0600	RLLC0230	35
	0616	RLLC0233	51
	0627	RLLC0245	40
	0550	P-86	17
	0532	P-48	29
	0540	P-43	34
	0547	P-36	18
	0539	P-38	21
	0538	RLI00017	45
	0615	RLI00016	27
	0611	RLLC0231	16
	0604	RLI0114A	28
	0546	RLLC0219	31
	0547	RLLC0215	52
	0540	RLIHC107	20
	0541	P-49	16
	0550	RLI00018	41
	0535	RLI00019	26
	0605	RLLC0214	34
	0558	RLLC0222	17
	0600	RLLC0212	45
	0550	P-50	12
	0614	RLLC0232	34
	0609	RLLC0196	71

Year: 2024
Quarter: 2nd

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0538	RLLC0229	45
	0611	RLHC0153	18
	0547	RLLC0200	22
	0632	RLLC0201	64
	0605	RLLC0223	16
	0618	RLLC0224	51
	0551	RLLC0226	39
	0634	RLLC0183	26
	0615	P-51	19
	0617	RLLC0184	25
	0534	RLI00008	61
	0627	RLLC0195	30
	0655	RLLC0199	27
	0542	RLLC0225	43
	0538	P-52	14
	0603	RLI0127B	30
	0650	RLI0128A	37
	0600	RLLC0194	26
	0607	RLLC0198	24
	0535	RLHC0156	46
	0647	P-13	22
	0613	RLLC0247	39
	0649	RLLC0248	72
	0610	P-53	37
	0548	RLLC0251	20
	0645	RLI00134	36
	0605	RLI00135	29
	0537	RLLC0221	17
	0530	RLLC0228	40
	0550	P-12	23
	0615	RLLC0176	42
	0552	P-55	17
	0531	RLI0103C	56
	0632	RLLC0190	30
	0612	RLI0106C	114
	0548	RLLC0202	49
	0546	P-54	26
	0618	RLLC0250	4,122
	0640	RLI0105C	50
	0615	RLI0107C	19

REDWOOD LANDFILL

PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: 2024

Quarter: 2nd

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0640	RLLC0203	24
	0538	RLLC0204	47
	0614	RLI0130E	30
	0540	P-56	18
	0607	RLI00132	52
	0622	RLLC0249	66
	0618	RLLC0186	35
	0550	RLLC0209	2,293
	0634	RLLC0205	20
	0612	RLLC0210	17
	0638	RLLC0188	42
	0615	RLI0126C	18
	0552	RLI0129E	21
	0655	RLLC0206	24
	0542	P-61	17
	0638	RLI00035	16
	0630	RLI0102C	89
	0610	P-81	17
	0620	RLI00045	34
	0642	RLI00047	27
	0609	P-74	14
	0632	RLI00034	30
	0615	RLI00003	16
	0532	P-76	21
	0644	P-77	15
	0558	P-78	45
	0647	RLI0100C	25
	0536	P-75	30
	0620	P-79	18
	0650	RLLC0192	30
	0530	P-44	26
	0627	P-45	51
	0541	P-73	40

REDWOOD LANDFILL
PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: 2024
Quarter: 2ND

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0615	RLLC0257	45
	0620	RLLC0258	52
	0551	RLLC0259	30
	0617	RLLC0260	16
	0607	RLLC0261	29
	0620	RLLC0262	40
	0538	RLLC0263	37
	0631	RLLC0264	22
	0608	RLLC0265	1,452
	0610	RLLC0266	54
	0638	RLLC0267	36
	0620	RLLC0268	29
	0557	RLLC0269	18
	0635	RLLC0270	3289
	0627	RLLC0271	30
	0554	RLLC0272	27
	0650	RLLC0273	36
	0646	RLLC0274	45
	0552	RLI00275	29
	0639	RLI00276	622
	0535	RLI00277	24
	0639	RLI00278	26
	0627	RLI00279	18
	0614	RLI00280	51
	0637	RLI00281	37
	0536	RLI00282	17
	0634	RLI00283	22,032
	0642	RLI00284	14
	0540	RLI00285	12
	0625	RLI00286	92
	0633	RLI00287	15
	0540	RLLC0177	36
	0627	RLLC0180	17
	0546	RLLC0181	34
	0622	RLLC0185	15
	0615	RLLC0187	61
	0548	RLLC0189	145
	0644	RLLC0191	1,822
	0651	RLLC0193	29
	0614	RLLC0220	31

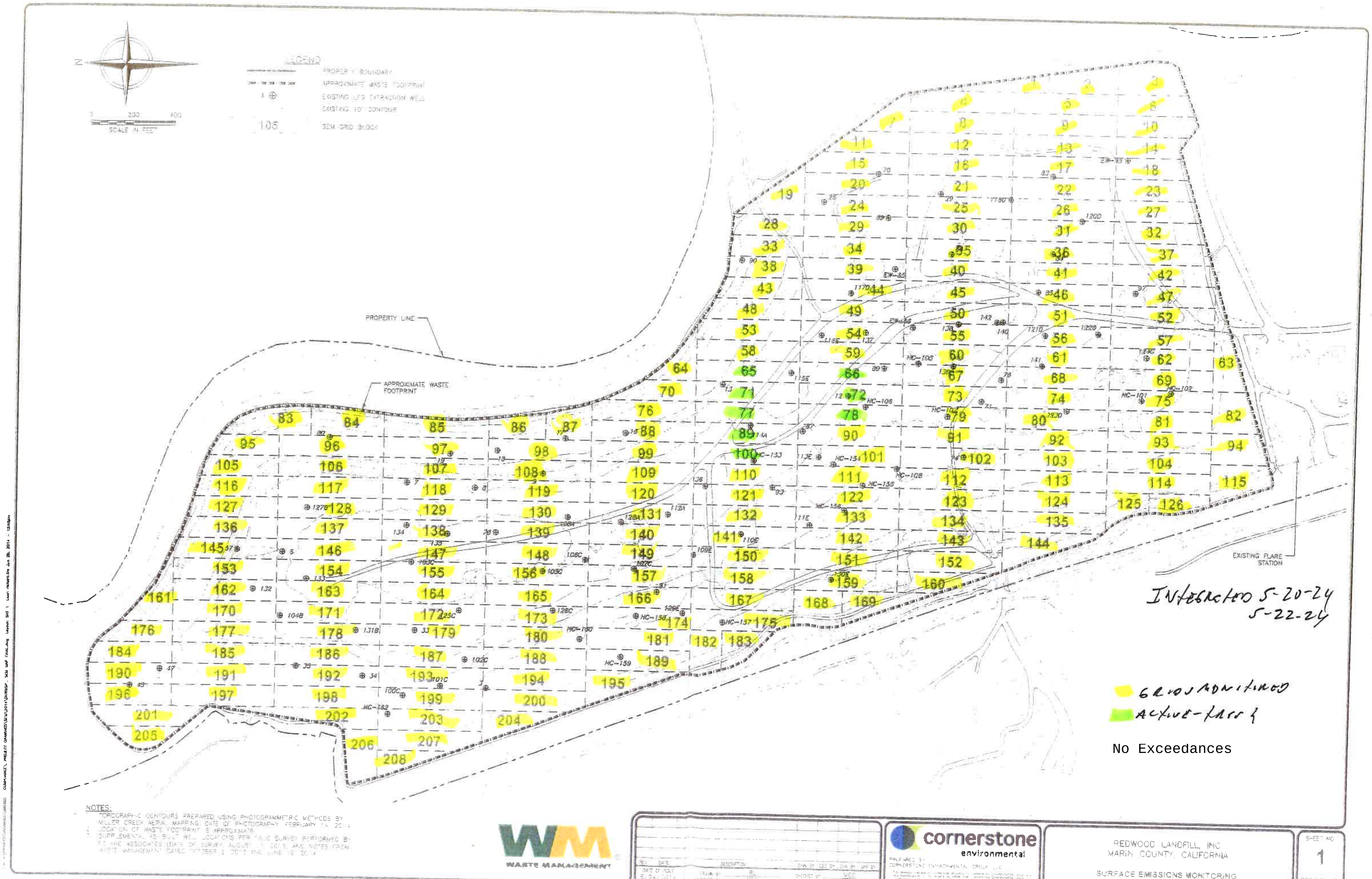
Attachment B

Integrated Surface Emission Monitoring Event Records

Table B.1
Integrated Landfill Surface Monitoring
Exceedances and Monitoring Log

2024 QUARTER: 2
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			
Exceedance Grid ID No.	Monitoring Date	Reading ppm	Monitoring Date	No Exced. <25 ppm	No Exced. >25 ppm	Monitoring Date	No Exced. <25 ppm	No Exced. >25 ppm	**Comments**
No Exceedances Detected 5/20/24 & 5/22/24									


LEGEND
PROPERTY BOUNDARY
APPROXIMATE WASTE FOOTPRINT
EXISTING LFG EXTRACTION WELL
EXISTING 10' CONTOUR
SEM GRID BLOCK
SCALE IN FEET
PROPERTY LINE
APPROXIMATE WASTE FOOTPRINT
EXISTING FLARE STATION
Integrated 5-20-24
5-22-24
Grid monitored
Active-Face
No Exceedances
NOTES:
WASTE MANAGEMENT
cornerstone
environmental
REDWOOD LANDFILL, INC
MARIN COUNTY, CALIFORNIA
SURFACE EMISSIONS MONITORING
SHEET NO
1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leslie Wade | Eddie De Lira
Miguel Estrada | Anthony Cavalo
Juvenal Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-20-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 82 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
1	LW	1200	1225	3.80	4	5	14	
2	ME	1200	1225	4.17	4	5	14	
3	JM	1200	1225	4.52	4	5	14	
4	ED	1200	1225	8.60	4	5	14	
5	AC	1200	1225	6.22	4	5	14	
6	LW	1225	1250	4.50	4	5	14	
7	ME	1225	1250	9.21	4	5	14	
8	JM	1225	1250	16.62	4	5	14	
9	ED	1225	1250	6.57	4	5	14	
10	AC	1225	1250	4.03	4	5	14	
11	LW	1250	1315	9.30	3	5	14	
12	ME	1250	1315	11.56	3	5	14	
13	JM	1250	1315	6.48	3	5	14	
14	ED	1250	1315	5.21	3	5	14	
15	AC	1250	1315	8.20	3	5	14	
16	LW	1315	1340	18.56	4	5	14	
17	ME	1315	1340	9.14	4	5	14	
18	JM	1315	1340	5.50	4	5	14	
19	ED	1315	1340	7.81	4	5	14	
20	AC	1315	1340	9.60	4	5	14	
21	LW	1340	1405	14.58	3	4	14	
22	ME	1340	1405	7.66	3	4	14	
23	JM	1340	1405	5.38	3	4	14	
24	ED	1340	1405	17.64	3	4	14	
25	AC	1340	1405	8.30	3	4	14	
26	LW	1405	1430	5.41	1	3	14	
27	ME	1405	1430	5.18	1	3	14	
28	JM	1405	1430	9.30	1	3	14	
29	ED	1405	1430	13.67	1	3	14	
30	AC	1405	1430	18.91	1	3	14	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Lewis Wade, Eddie Oeliras, Miguel Estrada, Anthony Cavelli, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-20-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 82 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
31	LW	1430	1455	6.31	2	3	10	
32	ME	1430	1455	4.50	2	3	10	
33	JM	1430	1455	9.77	2	3	10	
34	EO	1430	1455	15.56	2	3	10	
35	AC	1430	1455	19.77	2	3	10	
36	LW	1455	1520	8.60	2	3	11	
37	ME	1455	1520	5.41	2	3	11	
38	JM	1455	1520	7.19	2	3	11	
39	EO	1455	1520	9.61	2	3	11	
40	AC	1455	1520	11.58	2	3	11	
41	LW	1520	1545	5.41	3	4	6	
42	ME	1520	1545	5.67	3	4	6	
43	JM	1520	1545	6.25	3	4	6	
44	EO	1520	1545	9.80	3	4	6	
45	AC	1520	1545	7.24	3	4	6	
46	LW	1545	1610	5.50	2	5	6	
47	ME	1545	1610	4.36	2	5	6	
48	JM	1545	1610	7.13	2	5	6	
49	EO	1545	1610	9.41	2	5	6	
50	AC	1545	1610	5.82	2	5	6	
51	LW	1610	1635	4.60	2	3	10	
52	ME	1610	1635	5.98	2	3	10	
53	JM	1610	1635	6.21	2	3	10	
54	EO	1610	1635	8.46	2	3	10	
55	AC	1610	1635	8.09	2	3	10	
56	LW	1635	1700	6.20	3	5	7	
57	ME	1635	1700	6.11	3	5	7	
58	JM	1635	1700	9.24	3	5	7	
59	EO	1635	1700	11.71	3	5	7	
60	AC	1635	1700	9.10	3	5	7	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leighwador

Cal. Gas Exp. Date: ______

Date: 5-20-24 Instrument Used: ______ Grid Spacing: ______

Temperature: ______ Precip: ______ Upwind BG: ______ Downwind BG: ______

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
65								Active-Area
66								
71								
72								
77								
78								
89								
100								

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leighwade | Eddie Delira | Miguel Emmond | Anthony Cevelas | Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-22-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 51 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
61	LW	0510	0535	5.18	2	3	4	
62	ME	0510	0535	4.91	2	3	4	
63	JM	0510	0535	4.75	2	3	4	
64	ED	0510	0535	7.12	2	3	4	
67	AC	0510	0535	6.84	2	3	4	
68	LW	0535	0600	6.13	1	2	6	
69	ME	0535	0600	5.70	1	2	6	
70	JM	0535	0600	8.71	1	2	6	
73	ED	0535	0600	6.99	1	2	6	
74	AC	0535	0600	5.47	1	2	6	
75	LW	0600	0625	6.81	1	1	6	
76	ME	0600	0625	11.50	1	1	6	
79	JM	0600	0625	8.26	1	1	6	
80	ED	0600	0625	6.45	1	1	6	
81	AC	0600	0625	6.92	1	1	6	
82	LW	0625	0650	5.47	1	2	10	
83	ME	0625	0650	5.21	1	2	10	
84	JM	0625	0650	4.78	1	2	10	
85	ED	0625	0650	5.13	1	2	10	
86	AC	0625	0650	6.27	1	2	10	
87	LW	0650	0715	7.21	1	2	16	
88	ME	0650	0715	9.55	1	2	10	
90	JM	0650	0715	10.67	1	2	10	
91	ED	0650	0715	9.60	1	2	10	
92	AC	0650	0715	11.54	1	2	10	
93	LW	0715	0740	6.27	1	2	12	
94	ME	0715	0740	5.49	1	2	12	
95	JM	0715	0740	6.18	1	2	12	
96	ED	0715	0740	6.47	1	2	12	
97	AC	0715	0740	5.11	1	2	12	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leighwadt | Edwardelias
Miguel Estrada | Anthony Gonzales
Jouvani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-22-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 51 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
98	LW	0740	0805	6.13	1	2	14	
99	ME	0740	0805	8.41	1	2	14	
101	JM	0740	0805	10.61	1	2	14	
102	EO	0740	0805	9.70	1	2	14	
103	AC	0740	0805	7.45	1	2	14	
104	LW	0805	0830	5.66	1	2	14	
105	ME	0805	0830	5.38	1	2	14	
106	JM	0805	0830	5.21	1	2	14	
107	EO	0805	0830	6.03	1	2	14	
108	AC	0805	0830	5.79	1	2	14	
109	LW	0830	0855	7.80	1	2	14	
110	ME	0830	0855	9.40	1	2	14	
111	JM	0830	0855	10.67	1	2	14	
112	EO	0830	0855	9.23	1	2	14	
113	AC	0830	0855	7.58	1	2	14	
114	LW	0855	0920	6.31	1	2	4	
115	ME	0855	0920	6.77	1	2	4	
116	JM	0855	0920	5.49	1	2	4	
117	EO	0855	0920	6.07	1	2	4	
118	AC	0855	0920	5.80	1	2	4	
119	LW	0920	0945	7.08	0	1	14	
120	ME	0920	0945	6.21	0	1	14	
121	JM	0920	0945	8.46	0	1	14	
122	EO	0920	0945	6.92	0	1	14	
123	AC	0920	0945	5.18	0	1	14	
124	LW	0945	1010	5.74	1	2	16	
125	ME	0945	1010	6.06	1	2	16	
126	JM	0945	1010	5.30	1	2	16	
127	EO	0945	1010	4.58	1	2	16	
128	AC	0945	1010	6.11	1	2	16	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEISL WADE, EDDIE DELIAS, MICHAEL ESTRADA, ANTHONY CANALES, JOVANI MEDINA

Cal. Gas Exp. Date: 11-10-24

Date: 5-22-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 60 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
129	LW	1010	1035	5.80	1	3	14	
130	ME	1010	1035	7.16	1	3	14	
131	JM	1010	1035	9.20	1	3	14	
132	ED	1010	1035	10.14	1	3	14	
133	AC	1010	1035	7.68	1	3	14	
134	LW	1035	1100	8.47	1	2	14	
135	ME	1035	1100	7.22	1	2	14	
136	JM	1035	1100	6.11	1	2	14	
137	ED	1035	1100	5.39	1	2	14	
138	AC	1035	1100	5.40	1	2	14	
139	LW	1100	1125	4.68	2	4	12	
140	ME	1100	1125	5.94	2	4	12	
141	JM	1100	1125	6.77	2	4	12	
142	ED	1100	1125	7.58	2	4	12	
143	AC	1100	1125	8.61	2	4	12	
144	LW	1125	1150	6.49	2	4	10	
145	ME	1125	1150	5.27	2	4	10	
146	JM	1125	1150	6.03	2	4	10	
147	ED	1125	1150	5.50	2	4	10	
148	AC	1125	1150	6.03	2	4	10	
149	LW	1150	1215	5.29	2	3	12	
150	ME	1150	1215	9.70	2	3	12	
151	JM	1150	1215	10.75	2	3	12	
152	ED	1150	1215	7.40	2	3	12	
153	AC	1150	1215	5.66	2	3	12	
154	LW	1215	1240	5.90	3	5	12	
155	ME	1215	1240	6.18	3	5	12	
156	JM	1215	1240	9.60	3	5	12	
157	ED	1215	1240	11.45	3	5	12	
158	AC	1215	1240	9.20	3	5	12	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leis Lwaie, Enoic Duling, Mighel Estacor, Anthony Canales, Jovens Medina

Cal. Gas Exp. Date: 11-10-24

Date: 5-22-24 Instrument Used: tVA1000 Grid Spacing: 25'

Temperature: 66 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
159	LW	1240	1305	8.46	1	3	10	
160	ME	1240	1305	6.92	1	3	10	
161	JM	1240	1305	5.11	1	3	10	
162	ED	1240	1305	6.34	1	3	10	
163	AC	1240	1305	5.12	1	3	10	
164	LW	1305	1330	7.18	1	3	10	
165	ME	1305	1330	6.57	4	5	10	
166	JM	1305	1330	8.49	4	5	10	
167	ED	1305	1330	7.22	4	5	10	
168	AC	1305	1330	6.13	4	5	10	
169	LW	1330	1355	5.26	4	5	10	
170	ME	1330	1355	7.94	4	5	10	
171	JM	1330	1355	9.16	4	5	10	
172	ED	1330	1355	8.51	4	5	10	
173	AC	1330	1355	6.42	4	5	10	
174	LW	1355	1420	7.09	5	7	10	
175	ME	1355	1420	6.54	5	7	10	
176	JM	1355	1420	5.48	5	7	10	
177	ED	1355	1420	6.20	5	7	10	
178	AC	1355	1420	9.52	5	7	10	
179	LW	1420	1445	8.56	4	6	10	
180	ME	1420	1445	6.54	4	6	10	
181	JM	1420	1445	7.13	4	6	10	
182	ED	1420	1445	6.95	4	6	10	
183	AC	1420	1445	5.41	4	6	10	
184	LW	1445	1510	4.77	3	5	10	
185	ME	1445	1510	6.13	3	5	10	
186	JM	1445	1510	7.57	3	5	10	
187	ED	1445	1510	6.19	3	5	10	
188	AC	1445	1510	6.57	3	5	10	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Lois Lwanbe; Eddie Ortiz; Mighel Estacer; Anthony Canclet; Joveni Medinas

Cal. Gas Exp. Date: 11-10-24

Date: 5-22-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 70 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
189	LW	1510	1535	5.10	4	5	10	
190	ME	1510	1535	4.21	4	5	10	
191	JM	1510	1535	5.60	4	5	10	
192	EO	1510	1535	6.81	4	5	10	
193	AC	1510	1535	5.74	4	5	10	
194	LW	1535	1600	6.11	3	4	10	
195	ME	1535	1600	6.27	3	4	10	
196	JM	1535	1600	4.50	3	4	10	
197	EO	1535	1600	5.31	3	4	10	
198	AC	1535	1600	6.07	3	4	10	
199	LW	1600	1625	5.48	3	6	10	
200	ME	1600	1625	5.52	3	6	10	
201	JM	1600	1625	4.71	3	6	10	
202	EO	1600	1625	5.28	3	6	10	
203	AC	1600	1625	6.81	3	6	10	
204	LW	1625	1650	5.22	3	5	10	
205	ME	1625	1650	4.16	3	5	10	
206	JM	1625	1650	5.54	3	5	10	
207	EO	1625	1650	6.31	3	5	10	
208	AC	1625	1650	5.89	3	5	10	

Attach Calibration Sheet
Attach site map showing grid ID

Page 5 of 5

Attachment C

Component Leak Monitoring Event Records

Table C.1
AB-32 Component Leak Monitoring
Summary of Component Leaks Greater than 500 ppmv

2024 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY:

LANDFILL NAME: Redwood Landfill, Inc.

Location	Initial Monitoring			Corrective Action		10-Day Remonitoring		
	Date	TOC (ppmv)	Tech	Date	Description	Date	TOC (ppmv)	Tech
No Exceedances Detected 5/21/24								

Table C.2
BAAQMD Component Leak Monitoring
Summary of Component Leaks Greater than 1,000 ppmv

2024 QUARTER: 2
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Location	Initial Monitoring			Corrective Action		7-Day Remonitoring		
	Date	TOC (ppmv)	Tech	Date	Description	Date	TOC (ppmv)	Tech
No Exceedances Detected 5/21/24								

LANDFILL NAME: REDWOOD
QUARTERLY LFG COMPONENT LEAK MONITORING

INSTRUMENT FID
MAKE: Thermo Environr
MODEL: TVA 1000
S/N: 1036346773

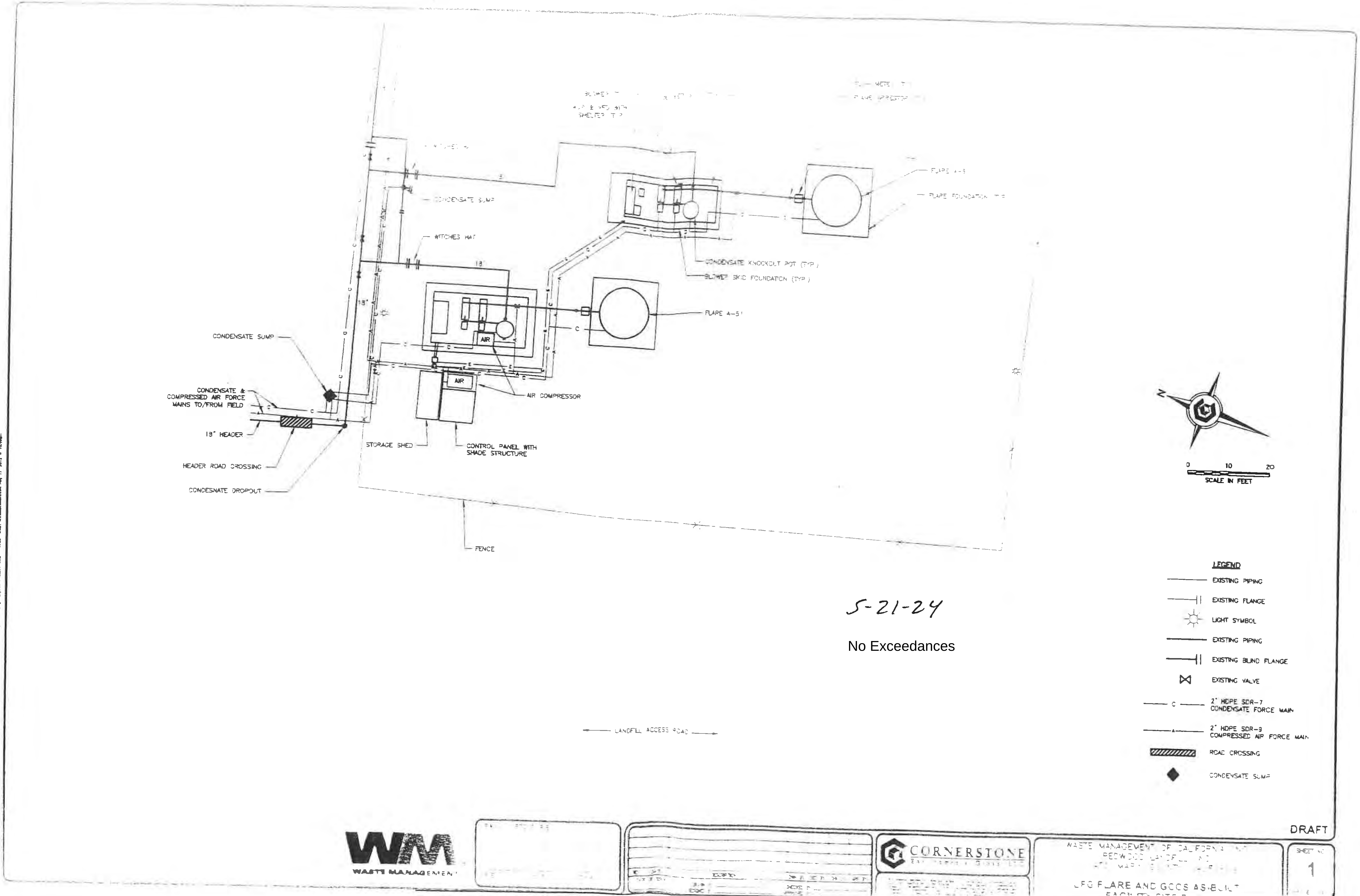
DATE OF SAMPLING: 5-21-24
TECHNICIAN: LEISHNAOE

LOCATION OF LEAK	LEAK CONCENTRATION (ppmv)	DATE OF DISCOVERY	TECHNICIAN	ACTION TAKEN TO REPAIR LEAK	DATE OF REPAIR	DATE OF ANY REQUIRED RE-MONITORING	RE-MONITORED CONCENTRATION (ppmv)
NO EXCEEDANCES							

In the event that an exceedance is detected, please intiate corrective action and re-monitor the exceedance location within 7 days of the initial exceedance.

NOTE: Leaks over 500 ppmv methane are exceedances at any component containing landfill gas, pursuant to CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B).

NOTE: Leaks over 1,000 ppmv methane are exceedances at any component containing landfill gas, pursuant to BAAQMD Regulation 8-34-301.2.

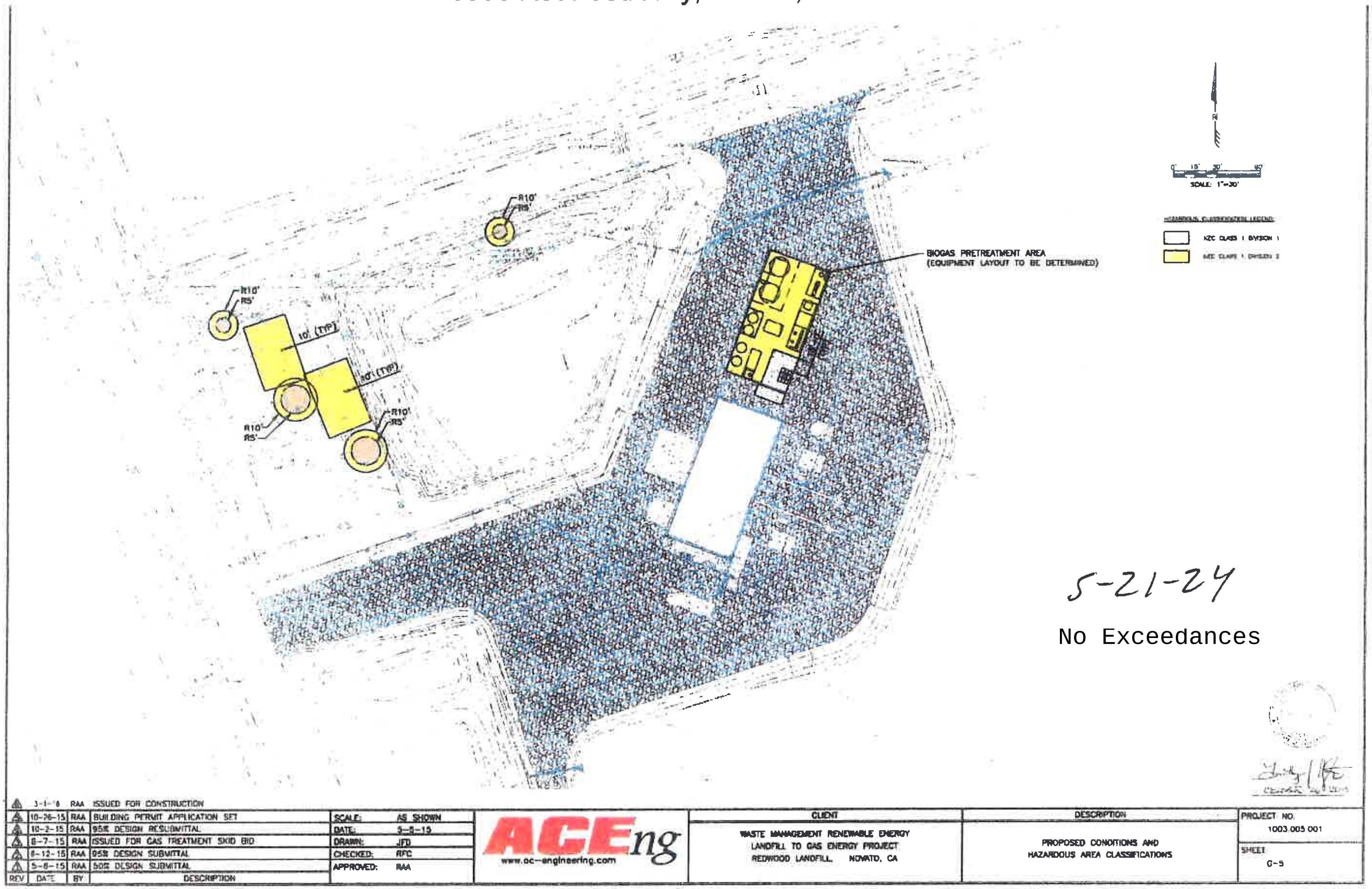


5-21-24

No Exceedances

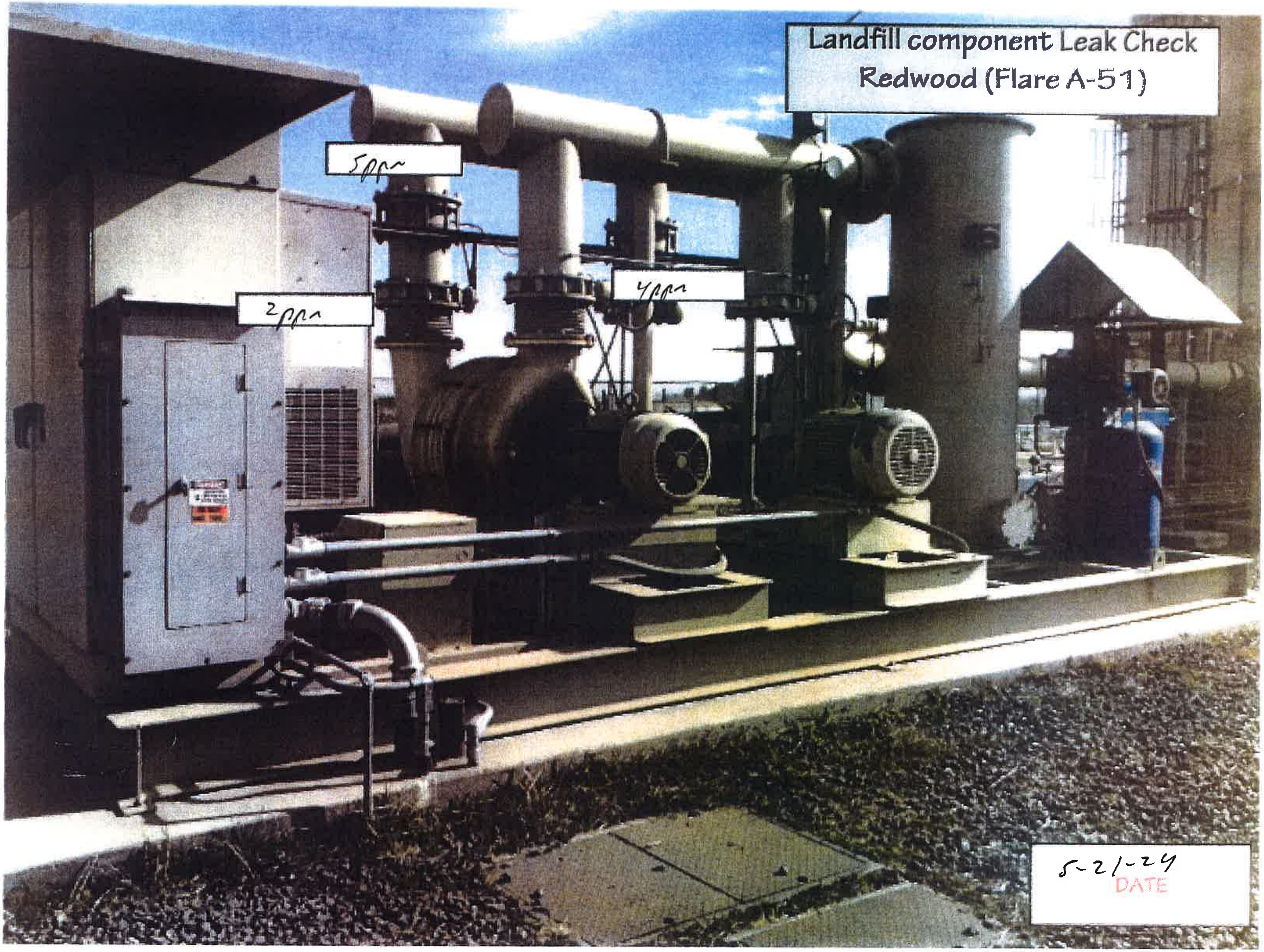
Site Map

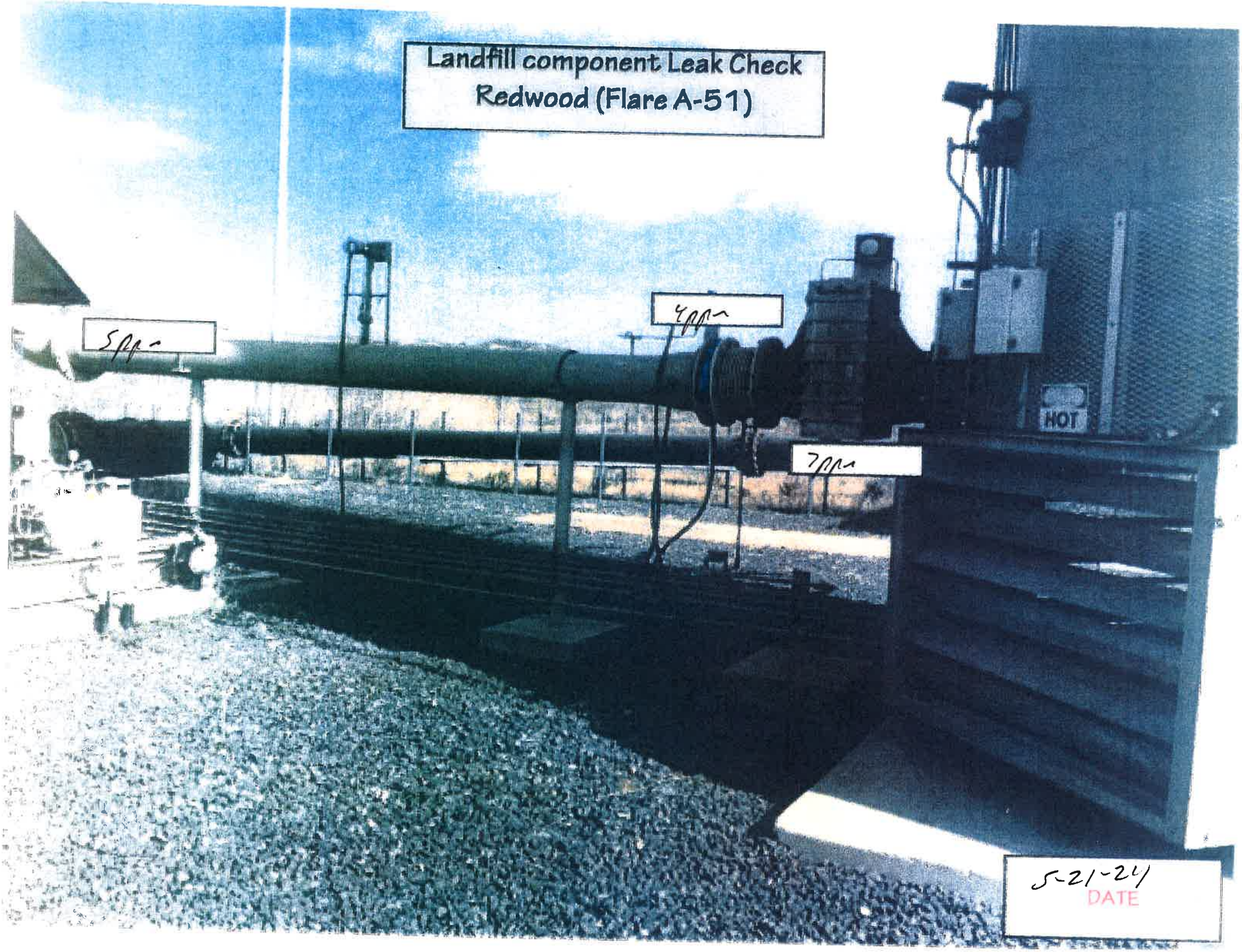
8950 Redwood Hwy, Novato, CA 94948



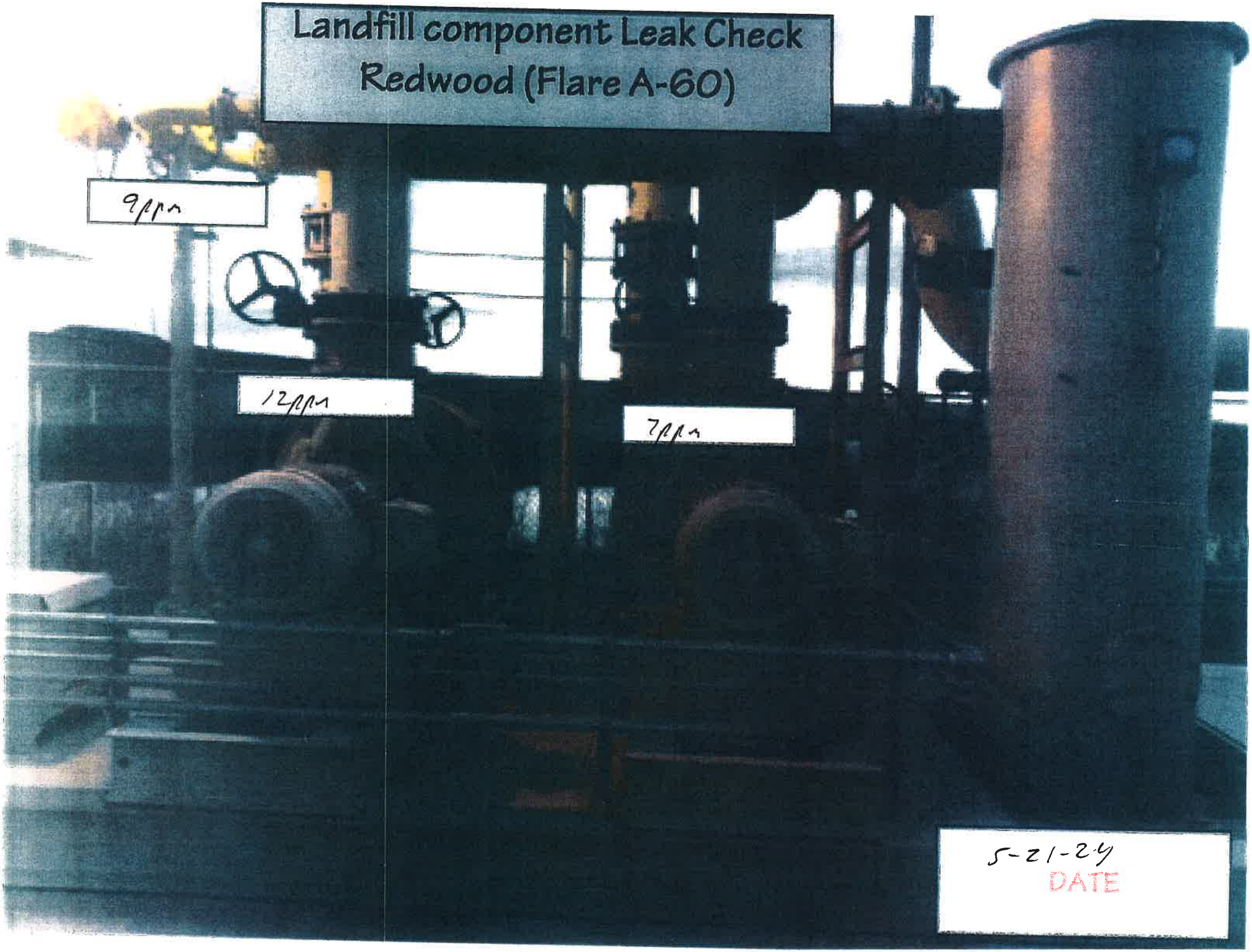
5-21-24

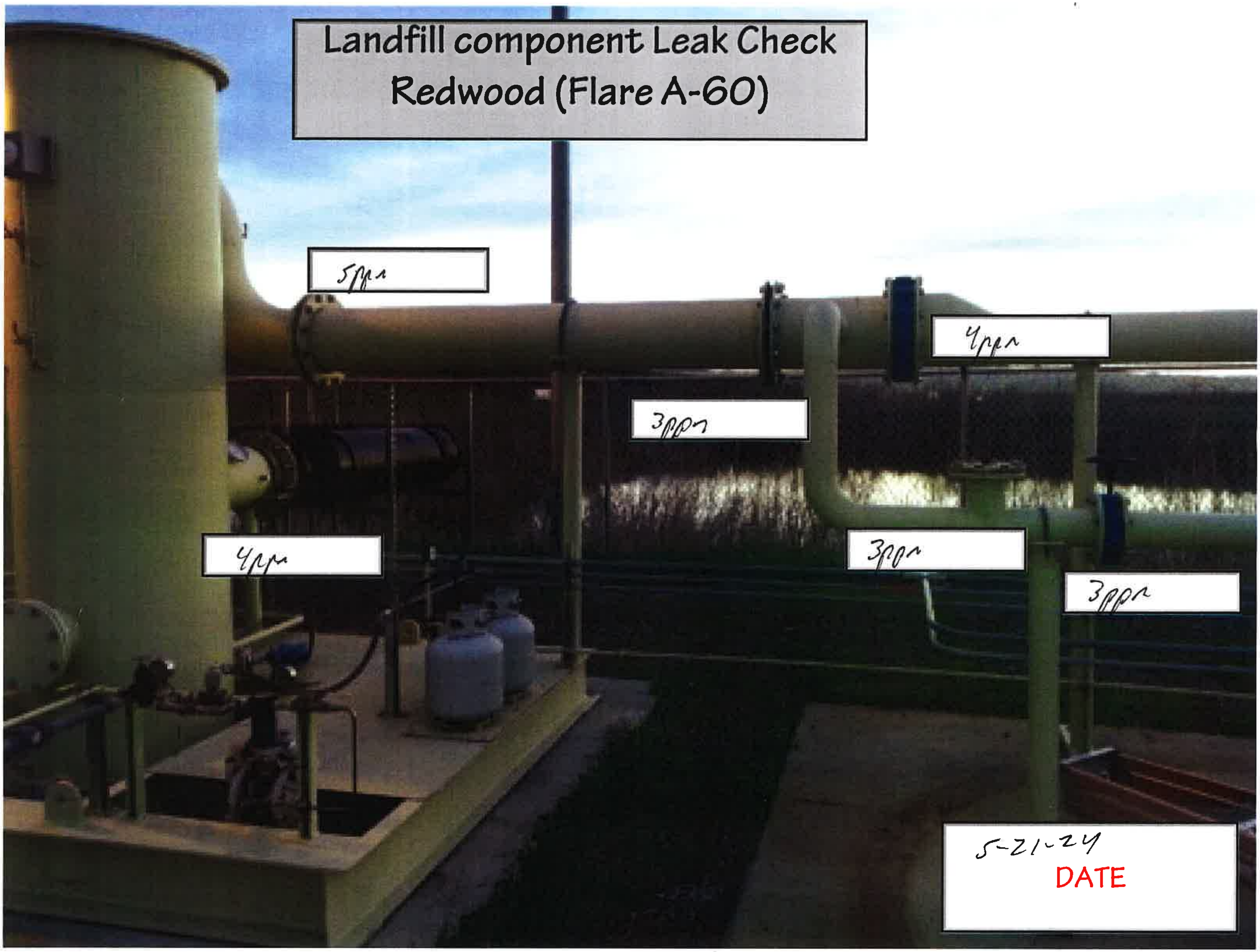
No Exceedances

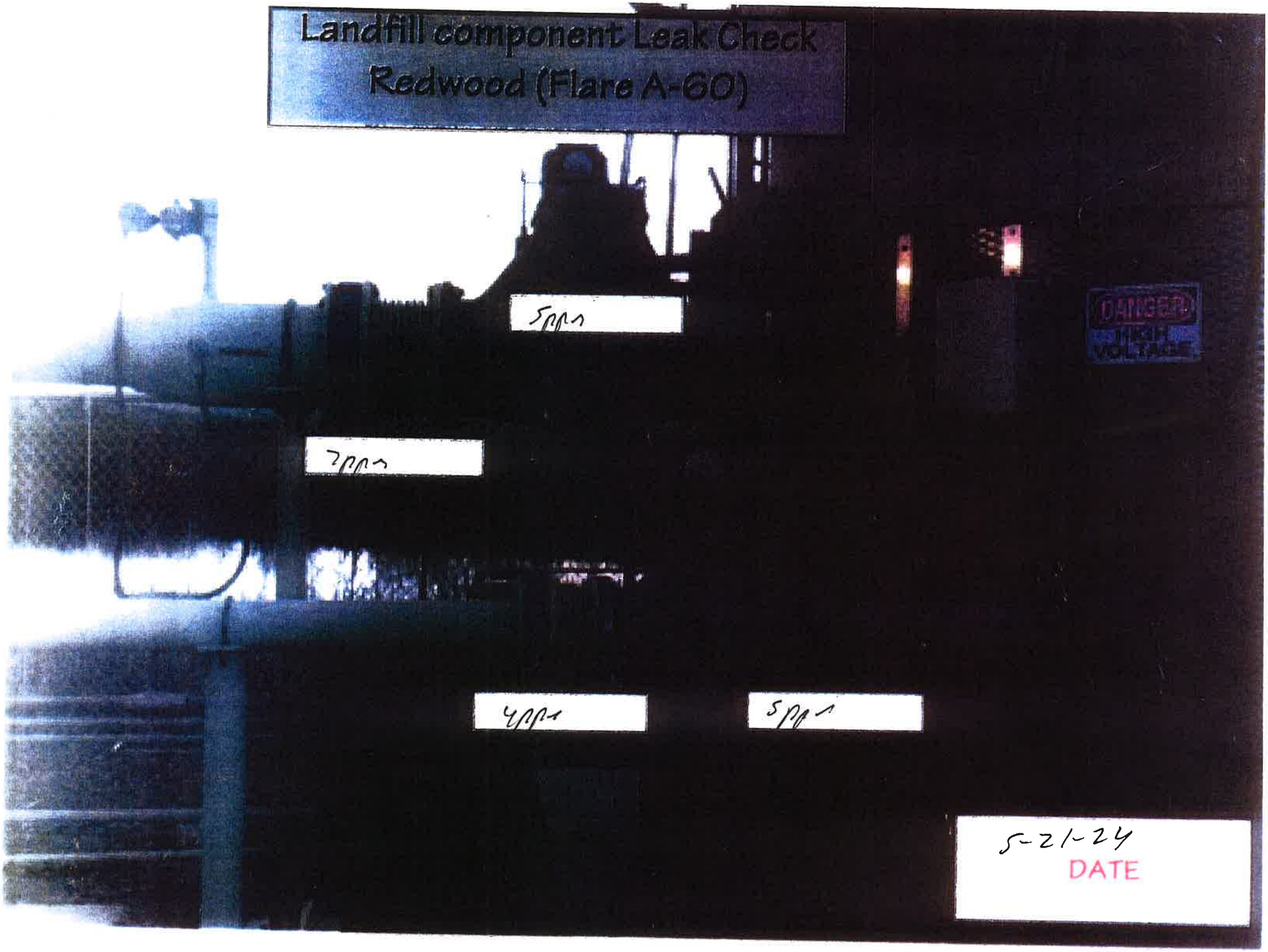

Landfill component Leak Check
Redwood (Flare A-51)
5ppm
2ppm
4ppm
5-21-24
DATE


Landfill component Leak Check
Redwood (Flare A-51)
5ppm
4ppm
7ppm
HOT
5-21-24
DATE

Landfill component Leak Check Redwood (Flare A-60)




Landfill component Leak Check
Redwood (Flare A-60)
5ppm
4ppm
3ppm
4ppm
3ppm
3ppm
5-21-24
DATE


Landfill component Leak Check
Redwood (Flare A-60)
5ppm
DANGER
HIGH VOLTAGE
7ppm
4ppm
5ppm
5-21-24
DATE

Attachment D

Weather Station Data

RES

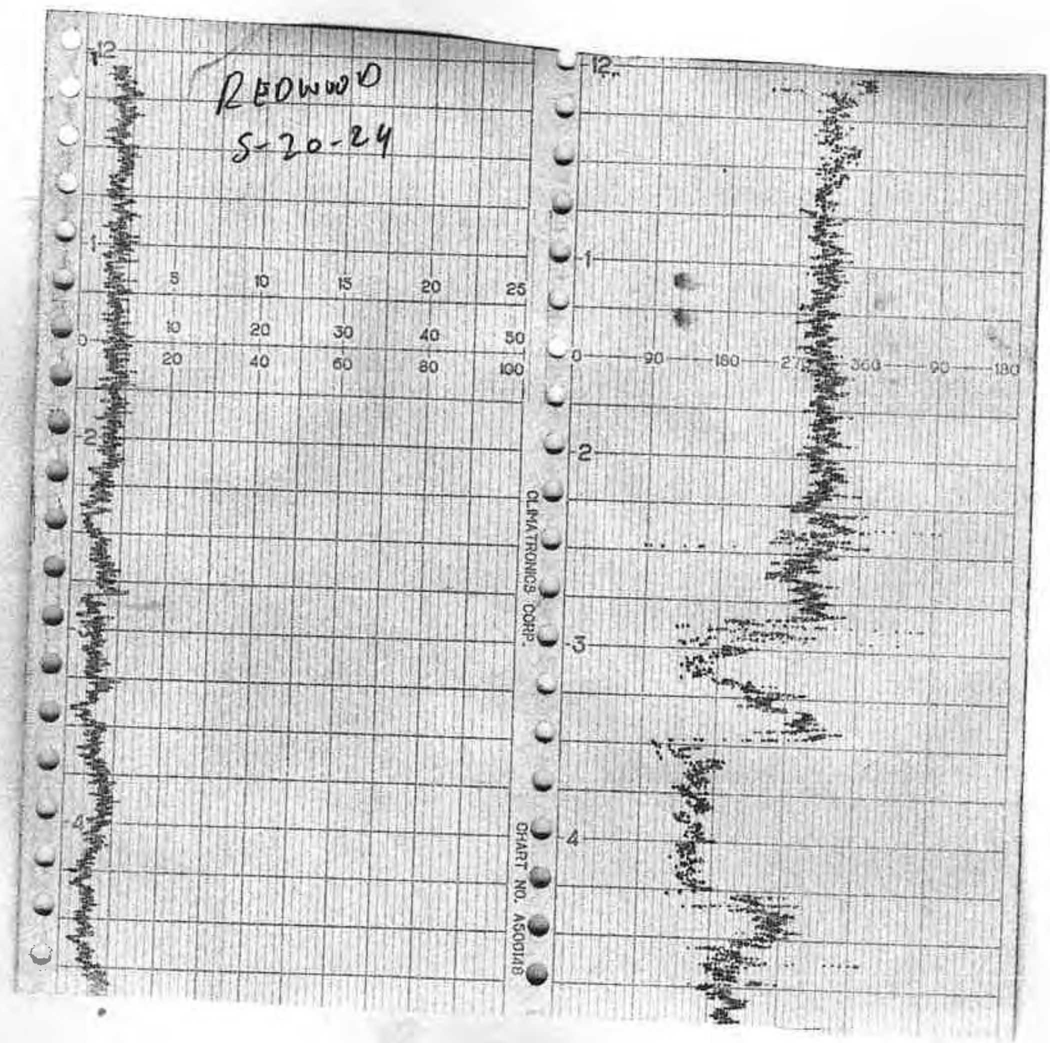
Environmental Inc.

16-POINT WIND DIRECTION INDEX

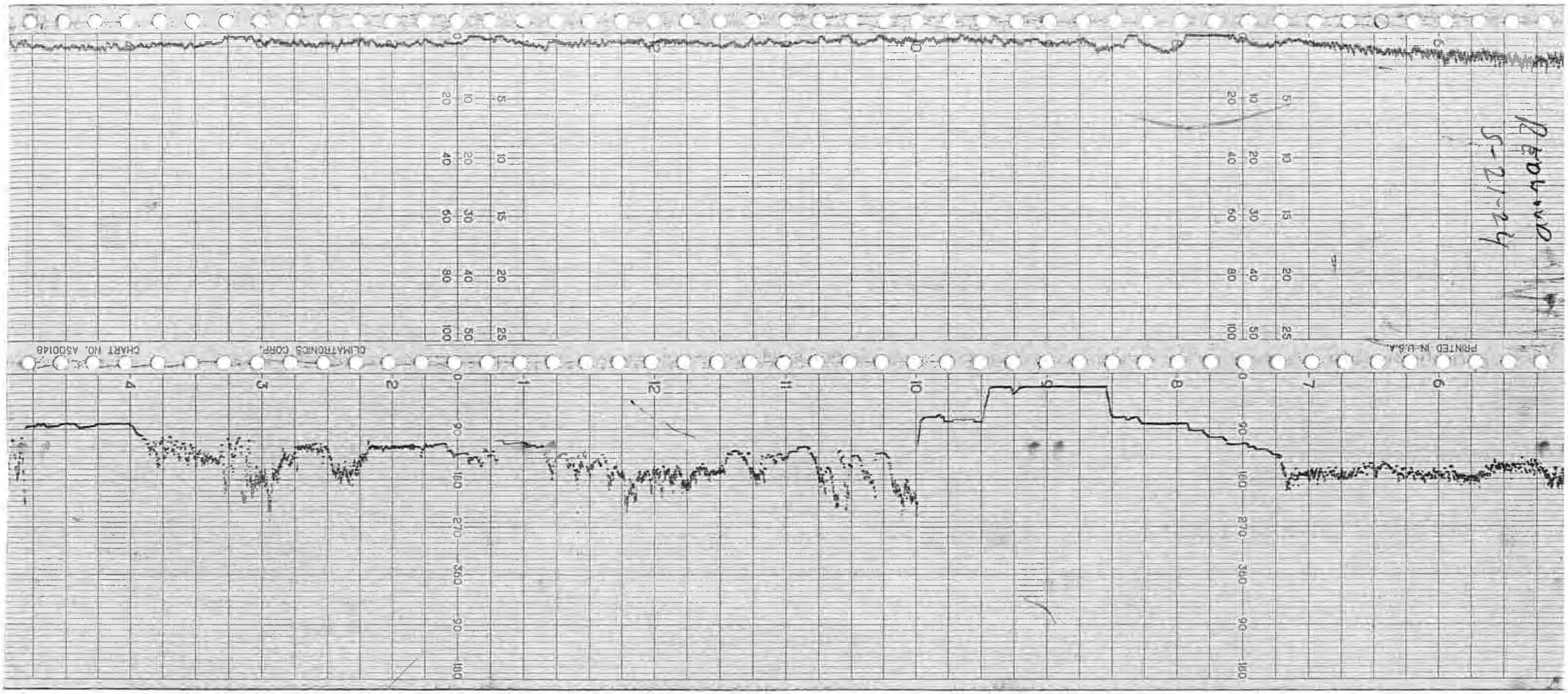
NO	DIRECTION	DEGREES FROM	DEGREES CENTER	DEGREES TO
16	NORTH (N)	348.8	360.0	011.3
1	NORTH-NORTHEAST (NNE)	011.3	022.5	033.8
2	NORTHEAST (NE)	033.8	045.0	056.3
3	EAST-NORTHEAST (ENE)	056.3	067.5	078.8
4	EAST (E)	078.8	090.0	101.3
5	EAST-SOUTHEAST (ESE)	101.3	112.5	123.8
6	SOUTHEAST (SE)	123.8	135.0	146.3
7	SOUTH-SOUTHEAST (SSE)	146.3	157.5	168.8
8	SOUTH (S)	168.8	180.0	191.3
9	SOUTH-SOUTHWEST (SSW)	191.3	202.5	213.8
10	SOUTHWEST (SW)	213.8	225.0	236.3
11	WEST-SOUTHWEST (WSW)	236.3	247.5	258.8
12	WEST (W)	258.8	270.0	281.3
13	WEST-NORTHWEST (WNW)	281.3	292.5	303.8
14	NORTHWEST (NW)	303.8	315.0	326.3
15	NORTH-NORTHWEST (NNW)	326.3	337.5	348.8

865 Via Lata ▪ Colton, California 92324 ▪ (909) 422-1001 Fax (909) 422-0707

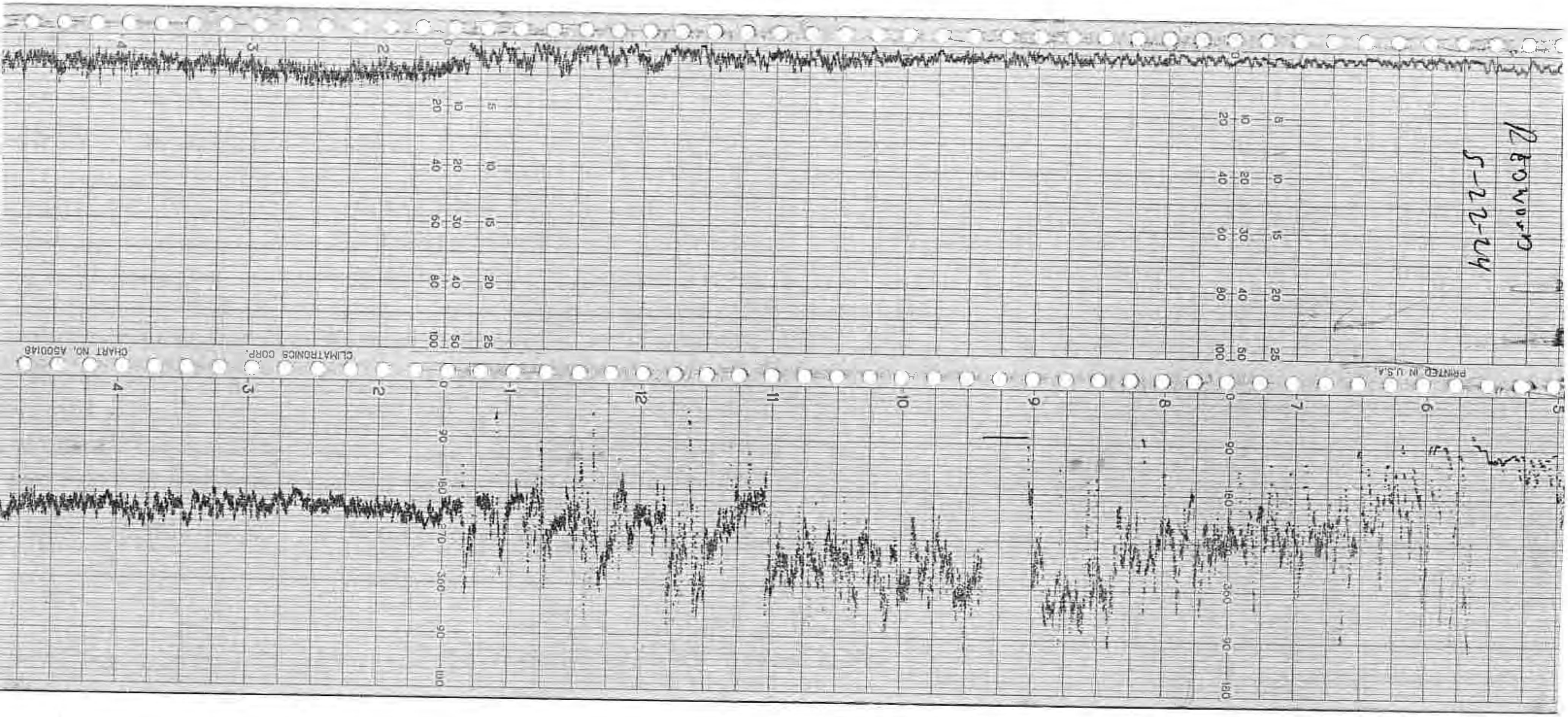
WIND SPEED & DIRECTION CHART ROLL



WIND SPEED & DIRECTION CHART ROLL



WIND SPEED & DIRECTION CHART ROLL



Attachment E

Calibration Records

RESPONSE TIME TEST RECORD

Date: 5-31-24

Expiration Date (3 months): 8-31-24

Time: 9:08 AM — PM

Instrument Make: ~~Photovac~~ Thermo-Scientific Model: ~~MicroFid~~ TVA-1000 S/N: 0936338909

Measurement #1:

Stabilized Reading Using Calibration Gas: 501 ppm
90% of the Stabilized Reading: 450.9 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (a)

Measurement #2:

Stabilized Reading Using Calibration Gas: 502 ppm
90% of the Stabilized Reading: 451.8 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 500 ppm
90% of the Stabilized Reading: 450 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 7 seconds (c)

Calculate Response Time:

$\frac{(a) + (b) + (c)}{3}$ = 6.33 seconds (must be less than 30 seconds)

Performed By: J. Brunning

CALIBRATION PRECISION TEST RECORD

Date: 5-31-24

Expiration Date (3 months): 8-31-24

Time: 9:08 AM ______ PM

Instrument Make: Thermo-Scientific Model: TVA-1000 S/N: 0936338909

Measurement #1:

Meter Reading for Zero Air: 0 ppm (a)

Meter Reading for Calibration Gas: 501 ppm (b)

Measurement #2:

Meter Reading for Zero Air: 0 ppm (c)

Meter Reading for Calibration Gas: 502 ppm (d)

Measurement #3:

Meter Reading for Zero Air: 0 ppm (e)

Meter Reading for Calibration Gas: 500 ppm (f)

Calculate Precision:

$$\frac{\{|(500)-(b)| + |(500)-(d)| + |(500)-(f)|\}}{3} \times \frac{1}{500} \times 100$$

0.2 % (must be < than 10%)

Performed By: J. Bruning

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5-31-24

Time: 9:32 AM — PM

Instrument Make: ~~Photovac~~ Thermo-Scientific Model: ~~Micro FID~~ TVA-1000 S/N: ~~CZMF340~~ 0936338909

Calibration Procedure

1. Allow instrument to internally zero itself while introducing zero air.
2. Introduce the calibration gas into the probe.

   Stable Reading = 499 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 2.20 ppm (a)
2. Downwind Reading (highest in 30 seconds): 4.13 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 3.16 ppm

Performed By: J. Brunning

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 6-4-24

Time: 10:28 AM — PM

Instrument Make: ~~Photovac~~ Thermo Scientific Model: ~~Micro FID~~ TVA-1000 S/N: ~~CZMF340~~ 0936338909

Calibration Procedure

1. Allow instrument to internally zero itself while introducing zero air.
2. Introduce the calibration gas into the probe.

   Stable Reading = 500 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 2.75 ppm (a)
2. Downwind Reading (highest in 30 seconds): 5.30 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 4.02 ppm

Performed By: J. Brunning

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill   Date: 6-20-24

Time: 9:35 AM ____________ PM

Instrument Make: ~~Photovac~~ Thermo Scientific Model: ~~Micro FID~~ TVA-1000 S/N: ~~CZMF340~~ 00936338707

Calibration Procedure

1. Allow instrument to internally zero itself while introducing zero air.
2. Introduce the calibration gas into the probe.

   Stable Reading = 500 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 3.81 ppm (a)
2. Downwind Reading (highest in 30 seconds): 5.07 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 4.44 ppm

Performed By: J. Brunning

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 5-21-24 TIME: 0520

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	502 ppm	452 ppm	5
#2	500 ppm	450 ppm	5
#3	500 ppm	450 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.21 ppm	502 ppm	2
#2	0.14 ppm	500 ppm	0
#3	0.18 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.13 #DIV/0! Must be less than 10%

Performed By: [illegible] Date/Time: 5-21-24 - 0520

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 5-21-24 TIME: 0520

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	489 ppm	439 ppm	6
#2	502 ppm	452 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.18 ppm	485 ppm	11
#2	0.14 ppm	502 ppm	2
#3	0.11 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.86 #DIV/0! Must be less than 10%

Performed By: Miguel Estrada Date/Time: 5-21-24-0520

KIES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: tHerm

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 5-21-24 TIME: 0520

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	507 ppm	457 ppm	5
#2	499 ppm	449 ppm	5
#3	510 ppm	450 ppm	5
Calculate Response Time $\frac{(1+2+3)}{3}$			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.14 ppm	507 ppm	7
#2	0.08 ppm	499 ppm	1
#3	0.06 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.53 #DIV/0! Must be less than 10%

Performed By: JOVANI MEDINA Date/Time: 5-21-24-0520

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo
MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775
MONITORING DATE: 5-21-24 TIME: 0520

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	502 ppm	452 ppm	6
#2	498 ppm	448 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.10 ppm	502 ppm	2
#2	0.07 ppm	498 ppm	2
#3	0.03 ppm	500 ppm	0
Calculate Precision	([STD-B1] + [STD-B2] + [STD-B3]) / 3 X 1/500 X 100/1		0.26 #DIV/0! Must be less than 10%

Performed By: Andres Orliva Date/Time: 5-21-24-0520

KIPS

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT NAME tHenn

MODEL tvA1000 EQUIPMENT # 16 SERIAL # 1102746776

MONITORING DATE 5-21-24 TIME 0520

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	495 ppm	445 ppm	5
#2	500 ppm	450 ppm	5
#3	500 ppm	450 ppm	5
Calculate Response Time $\frac{(1+2+3)}{3}$			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.12 ppm	495 ppm	5
#2	0.08 ppm	500 ppm	0
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.33 #DIV/0! Must be less than 10%

Performed By Anthony Cervelos Date/Time 5-21-24-0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 5-20-24 TIME: 1150

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	7
#2	25 ppm	22.5 ppm	7
#3	25 ppm	22.5 ppm	7
Calculate Response Time (1+2+3) / 3			7 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.11 ppm	24 ppm	1
#2	0.09 ppm	25 ppm	0
#3	0.07 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: Levy Lwanot Date/Time: 5-20-24 1150

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 5-20-24 TIME: 1150

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	5
#2	24 ppm	21.6 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time $\frac{(1+2+3)}{3}$			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.16 ppm	23 ppm	2
#2	0.11 ppm	24 ppm	1
#3	0.08 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		4.0 #DIV/0! Must be less than 10%

Performed By: Miguel Estrada Date/Time: 5-20-24 1150

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 5-20-24 TIME 1150

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	4
#2	25 ppm	22.5 ppm	4
#3	25 ppm	22.5 ppm	4
Calculate Response Time (1+2+3) / 3			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.11 ppm	24 ppm	1
#2	0.07 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1		1.3 #DIV/0! Must be less than 10%

Performed By: Jovani Robins Date/Time: 5-20-24- 1150

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746773

MONITORING DATE: 5-20-24 TIME: 1150

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	6
#2	25 ppm	22.5 ppm	6
#3	25 ppm	22.5 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.20 ppm	23 ppm	2
#2	0.14 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	6
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.8 #DIV/0! Must be less than 10%

Performed By: Eddie De Lira Date/Time: 5-20-24-1150

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA 1000 EQUIPMENT #: 16 SERIAL #: 1102746771

MONITORING DATE: 5-20-24 TIME: 1150

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	25 ppm	22.5 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time $\frac{(1+2+3)}{3}$			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 **ppm**

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.14 ppm	24 ppm	1
#2	0.07 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: Anthony Gonzalez Date/Time: 5-20-24- 1150

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT # 10 SERIAL #: 1036346723

MONITORING DATE 5-22-24 TIME: 0500

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	4
#2	25 ppm	22.5 ppm	4
#3	25 ppm	22.5 ppm	4
Calculate Response Time (1+2+3) / 3			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.10 ppm	24 ppm	1
#2	0.07 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	([STD-B1] + [STD-B2] + [STD-B3]) / 3 X 1/25 X 100/1		1.3 #DIV/0! Must be less than 10%

Performed By: Leis Hward Date/Time: 5-22-24 – 0506

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 5-22-24 TIME: 0500

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	6
#2	25 ppm	22.5 ppm	6
#3	25 ppm	22.5 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 **ppm**

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.16 ppm	23 ppm	2
#2	0.09 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By: [signature] Date/Time: 5-22-24 0500

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 5-22-24 TIME: 0500

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	24 ppm	21.6 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.17 ppm	24 ppm	1
#2	0.11 ppm	24 ppm	1
#3	0.08 ppm	25 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1		2.6 #DIV/0! Must be less than 10%

Performed By: Joveni Medina Date/Time: 5-22-24-0500

RDS Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 5-22-24 TIME: 0500

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	5
#2	25 ppm	22.5 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.09 ppm	23 ppm	2
#2	0.07 ppm	25 ppm	0
#3	0.64 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By: EDDIE DE LIRA Date/Time: 5-22-24-0500

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THermo

MODEL: TVA 1000 EQUIPMENT #: 16 SERIAL #: 1102746776

MONITORING DATE: 5-22-24 TIME: 0500

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.6 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	4
#2	25 ppm	22.5 ppm	4
#3	25 ppm	22.5 ppm	4
Calculate Response Time $\frac{(1+2+3)}{3}$			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.18 ppm	24 ppm	1
#2	0.11 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: Anthony Carlos Date/Time: 5-22-24 0500

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 5-4-24 Time: 0830

Model # TVA 1000

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Reading following ignition	2.6 ppm	RESPONSE TIME
Leak test	Pass / Fail / NA	Calibration Gas, ppm: 500
Clean system check (check valve chatter)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 6 Average 6.0
Date of last factory calibration	4-6-24	Equal to or less than 30 seconds? Y N
Factory calibration record w/instrument within 3 months	Pass / Fail	Instrument calibrated to CH_4 gas.

Comments: ______

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SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______________________

Purpose: ______________________

Operator: MM

Date: 5-9-24 Time: 0845

Model # TVA 1000

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK
Reading following ignition	2.1 ppm	Calibration Gas (ppm): 500; Actual (ppm): 500; % Accuracy: 100%
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	4-6-24	Time required to attain 90% of Cal Gas ppm: 1. 6 2. 5 3. 5 Average 5.3
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N
		Instrument calibrated to CH4 gas.

Comments: ______________________

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SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ____________________

Purpose: ____________________

Operator: [signature]

Date: 5-9-24 Time: 0900

Model # TVA1000

Serial # #12 1036296741

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 · Actual (ppm): 500 · % Accuracy: 100%
Reading following ignition	2.7 ppm	RESPONSE TIME
Leak test	Pass / Fail / NA	Calibration Gas, ppm: 500
Clean system check (check valve chatter)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 6
Date of last factory calibration	4-6-24	Average 6.0
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N Instrument calibrated to CH4 gas.

Comments: ____________________

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SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 5-4-24 Time: 0915

Model # TVA 1000

Serial # #13 1102746715

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION		
		CALIBRATION CHECK		
		Calibration Gas (ppm)	Actual (ppm)	% Accuracy
Battery test	Pass / Fail	500	500	100%
Reading following ignition	2.1 ppm	RESPONSE TIME		
Leak test	Pass / Fail / NA	Calibration Gas, ppm	500	
Clean system check (check valve chatter)	Pass / Fail / NA	90% of Calibration Gas, ppm	450	
H2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm		
Date of last factory calibration	4-6-24	1.	6	
		2.	5	
		3.	5	
Factory calibration record w/instrument within 3 months	Pass / Fail	Average	5.3	
		Equal to or less than 30 seconds?	Y	N
		Instrument calibrated to	CH4 gas.	

Comments: ______

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ____________________

Purpose: ____________________

Operator: [signature]

Date: 5-4-24 Time: 1000

Model # TVA 1000

Serial # #16 11027467716

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail (Pass circled)	CALIBRATION CHECK Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Reading following ignition	2.1 ppm	
Leak test	Pass / Fail / NA (Pass circled)	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA (Pass circled)	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA (Pass circled)	90% of Calibration Gas, ppm: 450 Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 6
Date of last factory calibration	4-6-24	Average: 6.0
Factory calibration record w/instrument within 3 months	Pass / Fail (Pass circled)	Equal to or less than 30 seconds? Y (circled) N Instrument calibrated to CH_4 gas.

Comments: ____________________

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ____________________

Purpose: ____________________

Operator: [illegible]

Date: 6-1-24 Time: 0845

Model # TVA 1000

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK: Calibration Gas (ppm) 500; Actual (ppm) 500; % Accuracy 100%
Reading following ignition	2.1 ppm	
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm 450
		Time required to attain 90% of Cal Gas ppm: 1. 5; 2. 5; 3. 6
Date of last factory calibration	4-6-24	Average 5.3
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N
		Instrument calibrated to CH4 gas.

Comments: ____________________

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 6-1-24 Time: 0900

Model # TVA 1000

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Reading following ignition	2.3 ppm	RESPONSE TIME
Leak test	Pass / Fail / NA	Calibration Gas, ppm: 500
Clean system check (check valve chatter)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 5
Date of last factory calibration	4-6-24	Average 5.6
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N Instrument calibrated to CH4 gas.

Comments: ______

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 6-1-24 Time: 095

Model # TVA 1000

Serial # #12 1036246741

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION		
		CALIBRATION CHECK		
		Calibration Gas (ppm)	Actual (ppm)	% Accuracy
Battery test	Pass / Fail	500	500	100%
Reading following ignition	2.1 ppm			
Leak test	Pass / Fail / NA	**RESPONSE TIME**		
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm	500	
H2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm	450	
		Time required to attain 90% of Cal Gas ppm		
		1.	6	
Date of last factory calibration	4-6-24	2.	6	
		3.	6	
Factory calibration record w/instrument within 3 months	Pass / Fail	Average	6.0	
		Equal to or less than 30 seconds?	Y	N
		Instrument calibrated to CH4 gas.		

Comments: ______

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT CALIBRATION LOG

Site:

Purpose:

Operator: [signature]

Date: 6-1-24 Time: 0930

Model # TVA 1000

Serial # #13 11027 46725

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	**CALIBRATION CHECK**
Reading following ignition	2.6 ppm	Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Leak test	Pass / Fail / NA	**RESPONSE TIME**
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	4-6-24	Time required to attain 90% of Cal Gas ppm 1. 6 2. 5 3. 5 Average 5.3
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N Instrument calibrated to CH4 gas.

Comments:

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 6-1-24 Time: 1015

Model # 4LA-1000

Serial # #16 1102746 776

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION		
Battery test	Pass / Fail	CALIBRATION CHECK		
Reading following ignition	2.0 ppm	Calibration Gas (ppm)	Actual (ppm)	% Accuracy
Leak test	Pass / Fail / NA	500	500	100%
Clean system check (check valve chatter)	Pass / Fail / NA	RESPONSE TIME		
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Calibration Gas, ppm	500	
Date of last factory calibration	4-6-24	90% of Calibration Gas, ppm	450	
Factory calibration record w/instrument within 3 months	Pass / Fail	Time required to attain 90% of Cal Gas ppm		
		1.	5	
		2.	6	
		3.	6	
		Average	5.6	
		Equal to or less than 30 seconds?	Y	N
		Instrument calibrated to CH4 gas.		

Comments: ______

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #10

SERIAL NUMBER: 1036346773

TECHNICIAN: [signature]

DATE: 4-6-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,006	+/- 2500
< 1	ZERO GAS	0.071	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Vat #11

SERIAL NUMBER: 1036346774

TECHNICIAN: [illegible signature]

DATE: 4-6-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,001	+/- 2500
< 1	ZERO GAS	0.069	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #12

SERIAL NUMBER: 10362467 4

TECHNICIAN: [signature] DATE: 4-6-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	99	+/- 25
500	500	499	+/- 125
10000	10000	10,003	+/- 2500
< 1	ZERO GAS	0.03	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 1102746775

TECHNICIAN: [illegible signature]   DATE: 4-6-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.68	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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(909) 422-1001 ▪ TOLL FREE (888) 325-1098 ▪ FAX (909) 422-0707 ▪ www.resenvironmental.com

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #16

SERIAL NUMBER: 110274676

TECHNICIAN: [illegible] DATE: 4-6-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,111	+/- 2500
< 1	ZERO GAS	0.73	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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Nampa, ID 83687 (USA)
Phone (800) 552-5003, Fax (208) 466-9143
www.isgases.com

"Your calibration gas manufacturer since 1992"

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy (+/-)
Oxygen	20.9 %	2%
Nitrogen	Balance UHP	

Lot #	20-7421
Mfg. Date:	5/20/2020
Expiration Date:	
Transfill Date:	see cylinder
Parent Cylinder ID Number:	NY02268

Method of Preparation:

Gravimetric/Pressure Transfilled

Method of Analysis:

The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By:	Tony Janquart
Title:	Quality Assurance Manager
Certificate Date:	5/20/2020


Service
INC.
Concentration (Mole%)
Accuracy
- 20.9% Oxygen
- Bal. Nitrogen
3.6ft³ @ 70°F and 1,000 PSIG
Exp Date
7/10/2024
Lot#: 20-7421
P/N:01-100
103 L
Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
103-01-100
103 L

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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

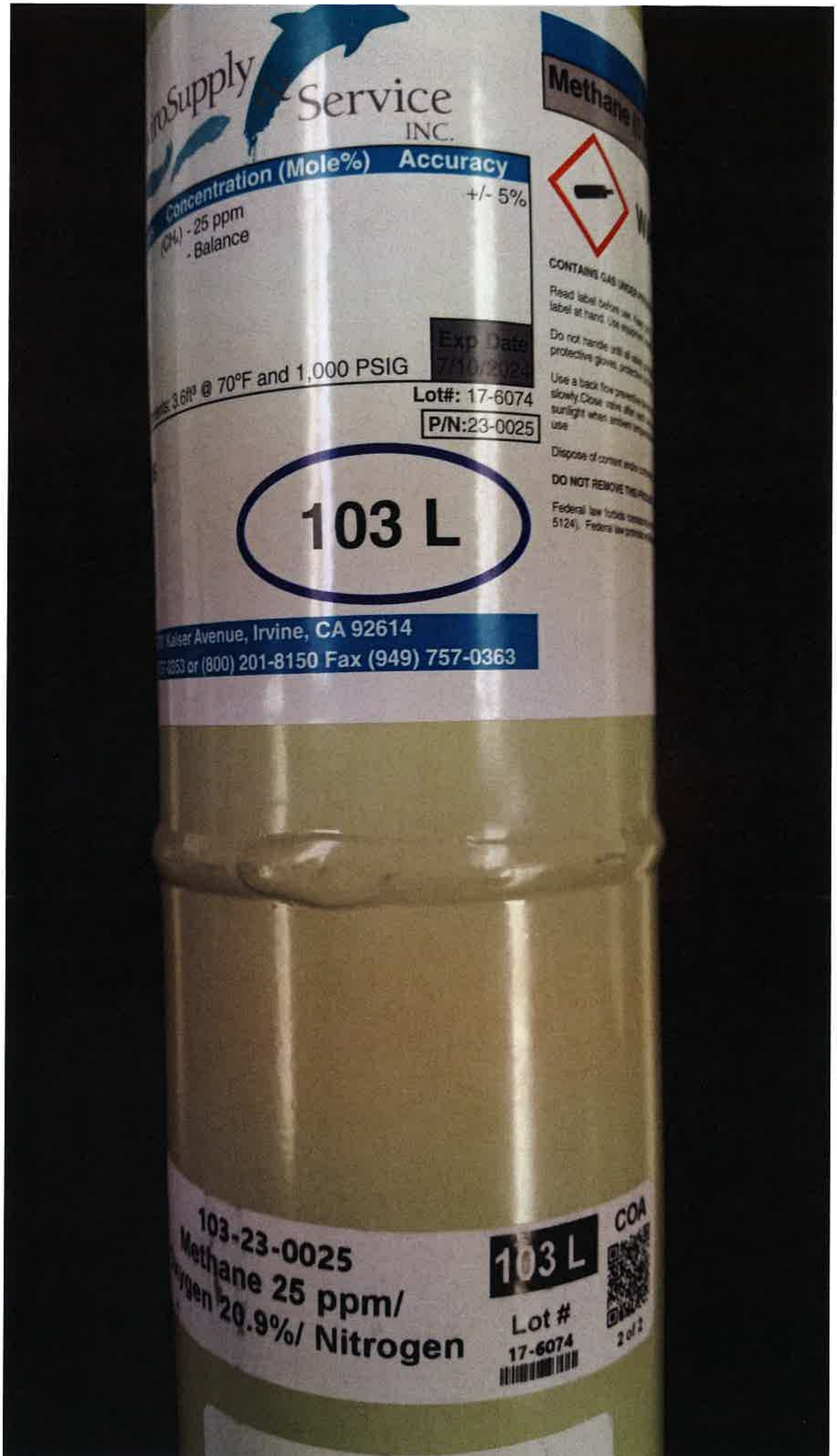
Lot #	**17-6074**

Mfg. Date: 10/16/2017
Parent Cylinder ID Number: 17161

Method of Preparation:
Gravimetric/Pressure Transfilled

Method of Analysis:
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 10/16/2017


Service
INC.
Concentration (Mole%)
Accuracy
+/- 5%
- 25 ppm
- Balance
3.6ft³ @ 70°F and 1,000 PSIG
Exp Date
7/10/2024
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
or (800) 201-8150 Fax (949) 757-0363
CONTAINS GAS UNDER
DO NOT REMOVE
103-23-0025
Methane 25 ppm/
20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
2 of 2

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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

Lot #	17-6074

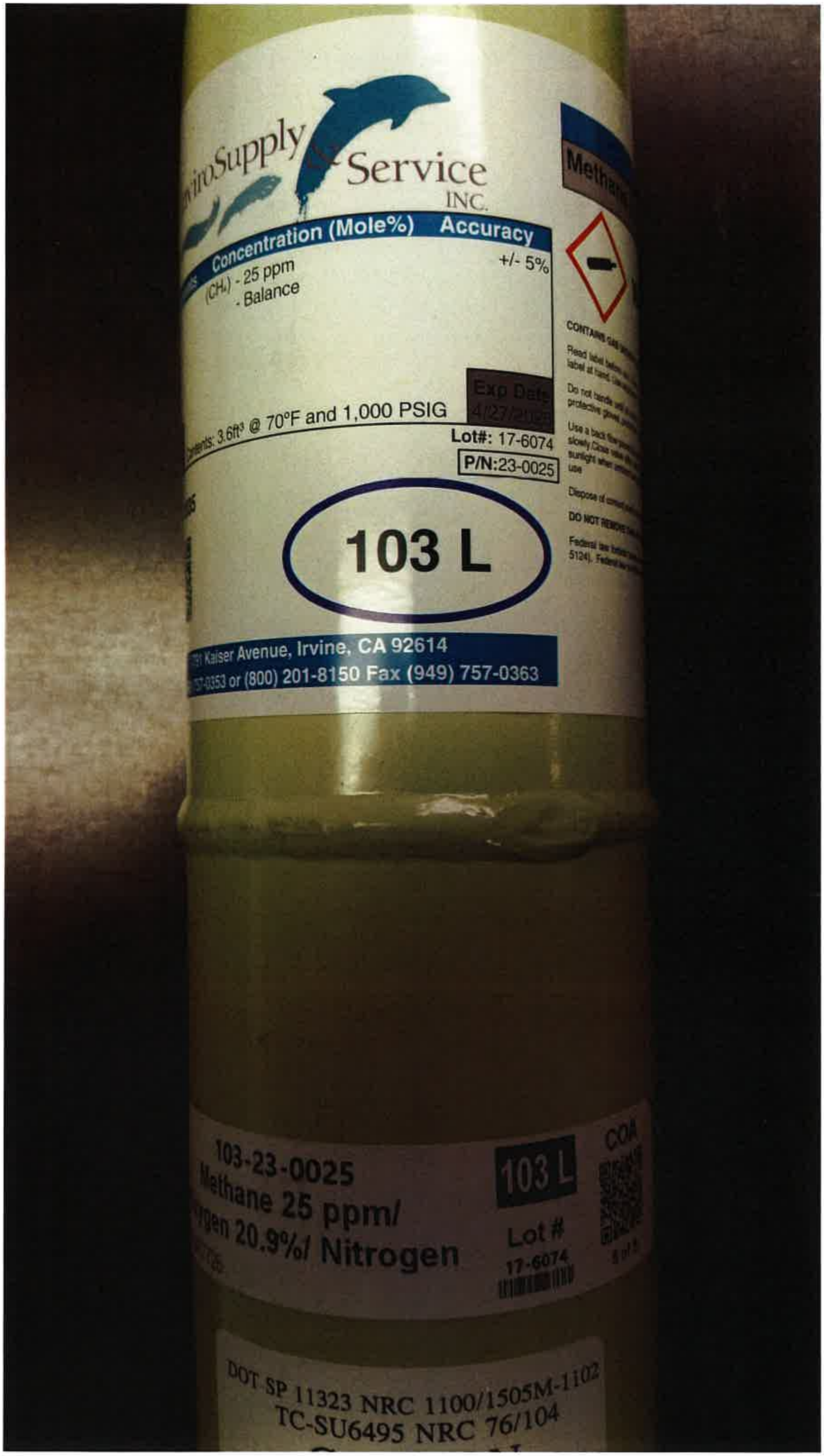
Mfg. Date: 10/16/2017

Parent Cylinder ID Number: 17161

Method of Preparation:
Gravimetric/Pressure Transfilled

Method of Analysis:
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 10/16/2017



Service
INC.
Concentration (Mole%)
Accuracy
(CH4) - 25 ppm
- Balance
+/- 5%
Contents: 3.6ft³ @ 70°F and 1,000 PSIG
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
or (800) 201-8150 Fax (949) 757-0363
103-23-0025
Methane 25 ppm/
20.9%/ Nitrogen
103 L
Lot #
17-6074
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104

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Composition	Certification	Analytical Accuracy (+/-)
Methane	500 ppm	2%
Oxygen	20.9 %	2%
Nitrogen	Balance UHP	

Lot #	20-7497
Mfg. Date:	7/10/2020
Expiration Date:	
Transfill Date:	see cylinder
Parent Cylinder ID Number:	TWC001763

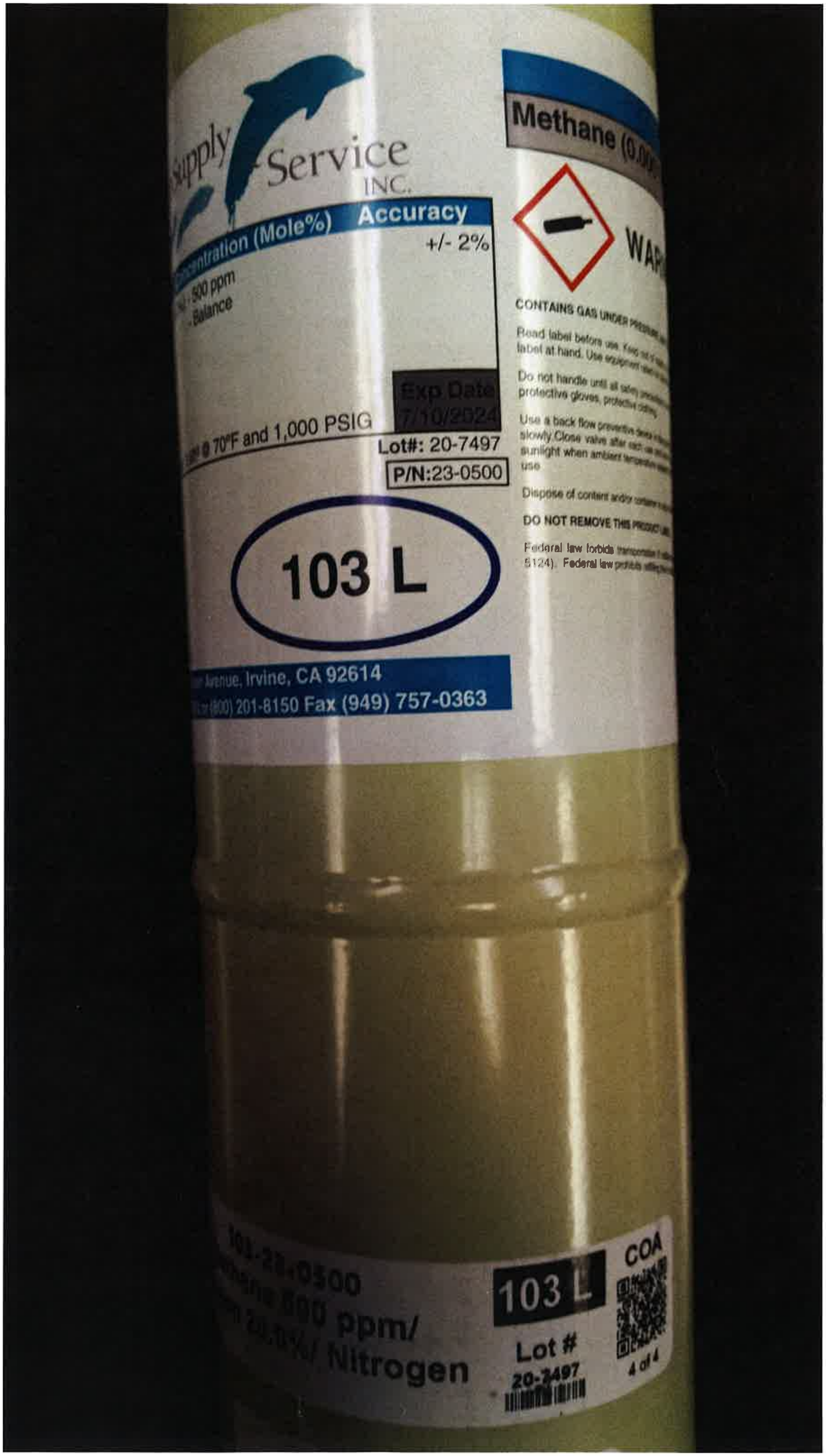
Method of Preparation:

Gravimetric/Pressure Transfilled

Method of Analysis:

The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By:	Tony Janquart
Title:	Quality Assurance Manager
Certificate Date:	7/10/2020



Service
INC.
Accuracy
+/- 2%
Balance
Methane
Exp Date
7/10/2024
@ 70°F and 1,000 PSIG
Lot#: 20-7497
P/N:23-0500
103 L
Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
Read label before use.
Do not handle until all safety
protective gloves, protective clothing
Use a back flow preventive device
slowly. Close valve after each use
sunlight when ambient temperature
use
Dispose of content and/or container
Federal law forbids transportation
Federal law prohibits
103 L
Lot #
COA
4 of 4
ppm/
Nitrogen

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Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 69671309
PO Number 08361523

Lot Number	2-108-80
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	1

Date on Manufacture	6/10/2022
Expires	06/2025
Analytical Accuracy	+/- 2 %

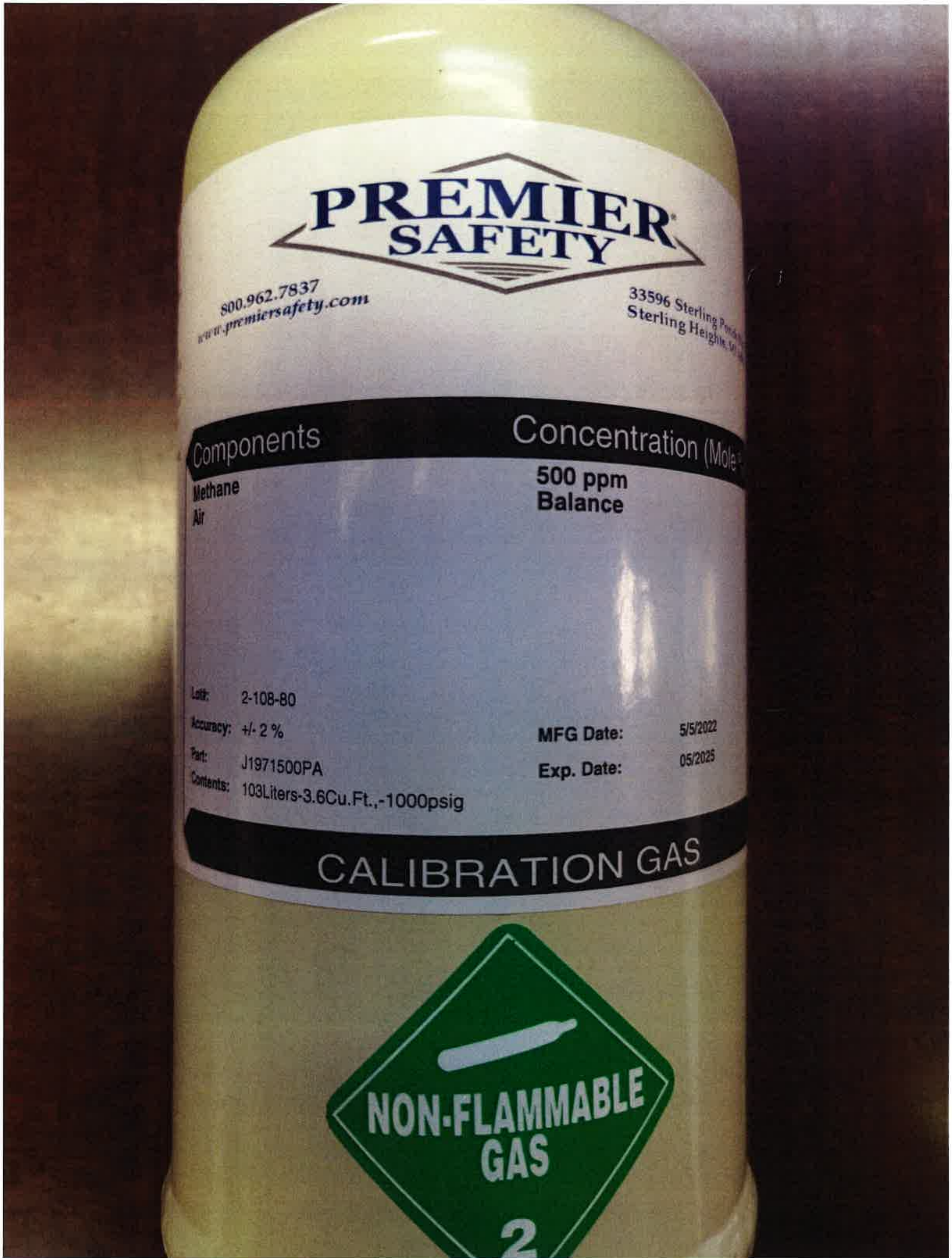
Customer Part# N/A

Component	**Reported Concentration**	**Requested Concentration**
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 6/10/2022
David Reed
Lab Technician


PREMIER SAFETY
800.962.7837
www.premiersafety.com
33596 Sterling Ponds
Sterling Heights
Components
Concentration (Mole
Methane
Air
500 ppm
Balance
Lot#: 2-108-80
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 5/5/2022
Exp. Date: 05/2025
CALIBRATION GAS
NON-FLAMMABLE GAS
2

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CERTIFICATE OF ANALYSIS

Norco, Inc
Twin Falls Warehouse
203 S. Park Ave. West
Twin Falls, ID 83301

Cust Number WH012
Order Number 71846398
PO Number 04A35563

Lot Number 3-088-88
Norlab Part# J1971500PA
Cylinder Size 103 Liter
Number of Cyl 5

Date on Manufacture 4/7/2023
Expires 04/2027
Analytical Accuracy +/- 2 %

Customer Part# N/A

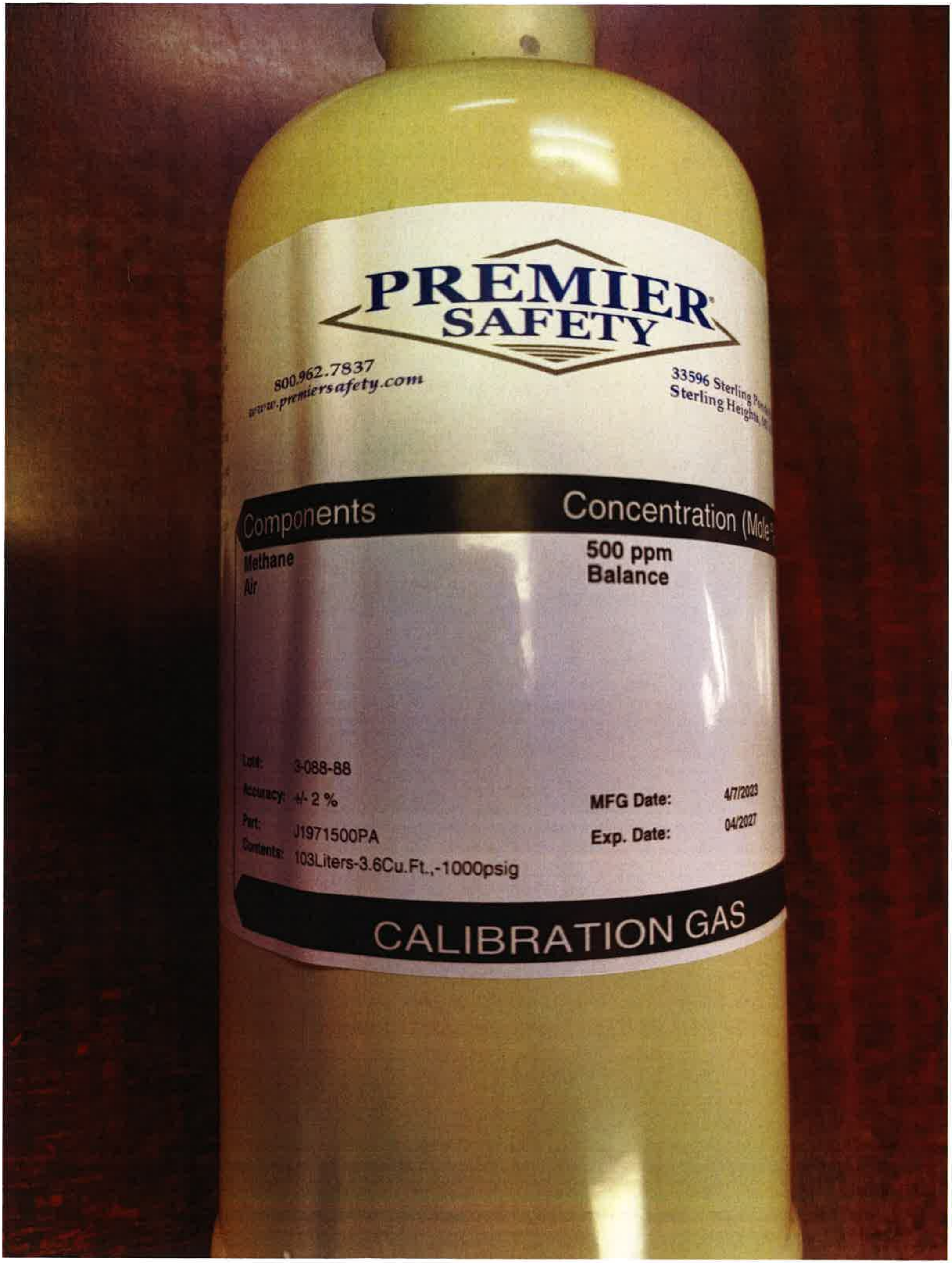
Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: Date Signed: 4/7/2023
Jeff Korn
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672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www.premiersafety.com
33596 Sterling
Sterling Heights
Components
Concentration
Methane
Air
500 ppm
Balance
Lot#: 3-088-88
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 4/7/2023
Exp. Date: 04/2027
CALIBRATION GAS

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Premier Safety & Service

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Sterling Hights MI 48312

Cust Number 07152
Order Number 69679439
PO Number 04906817

Lot Number	2-154-85
Norlab Part#	J1002
Cylinder Size	103 Liter
Number of Cyl	1

Date on Manufacture	6/13/2022
Expires	06/2025
Analytical Accuracy	Certified

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Air	Zero Grade	Zero Grade
Oxygen	20.9 %	20.9 %
T.H.C. (as Methane)	< 1.0 ppm	< 1.0 ppm
Nitrogen	Balance	Balance

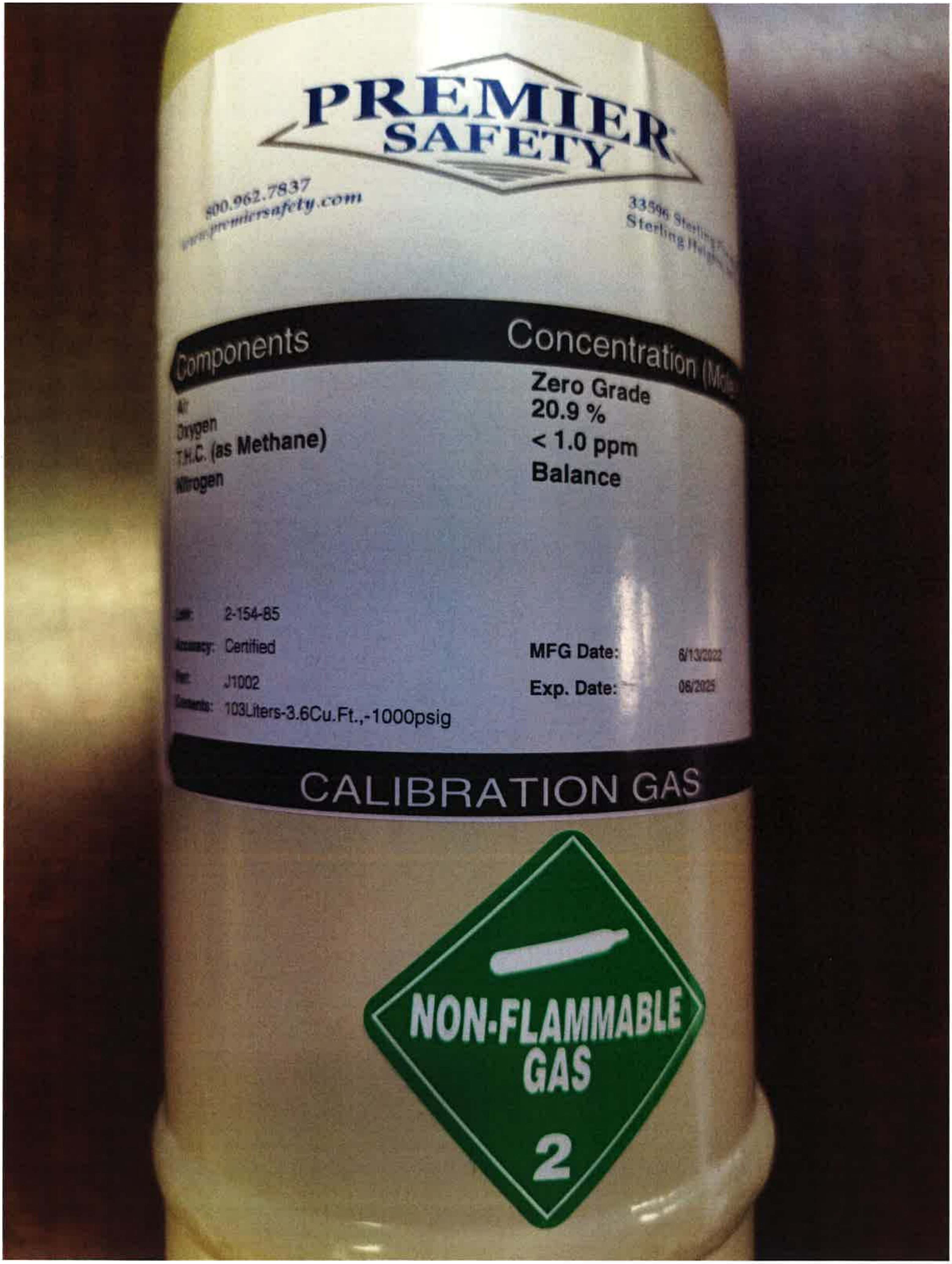
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

Minor constituents tested with standards traceable to NIST by mass or comparison to SRM's (Standard Reference Materials).

NIST Traceable Numbers are available upon request.

Approved: ______ Date Signed: 6/13/2022

David Reed
Lab Technician


PREMIER SAFETY
800.962.7837
www.premiersafety.com
Components
Concentration
Air
Oxygen
T.H.C. (as Methane)
Nitrogen
Zero Grade
20.9 %
< 1.0 ppm
Balance
2-154-85
Certified
J1002
103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 6/13/2022
Exp. Date: 06/2025
CALIBRATION GAS
NON-FLAMMABLE GAS
2

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Cust Number 07152
Order Number 73732858
PO Number 04B70733

Lot Number	3-340-61
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	5

Date on Manufacture	12/7/2023
Expires	12/2027
Analytical Accuracy	+/- 2 %

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: ______________________ Date Signed: 12/7/2023
Aaron Schwenken
Lab Manager

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Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672


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Components
Concentration
Methane
Air
500 ppm
Balance
Lot#:
3-340-61
Accuracy:
+/- 2 %
Part:
J1971500PA
Contents:
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
Exp. Date:
CALIBRATION GAS

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Cust Number 07152
Order Number 73732858
PO Number 04B70733

Lot Number 3-340-62
Norlab Part# J197125PA
Cylinder Size 103 Liter
Number of Cyl 5

Customer Part# N/A

Date on Manufacture 12/7/2023
Expires 12/2027
Analytical Accuracy +/- 5 %

Component	Reported Concentration	Requested Concentration
Methane	25 ppm	25 ppm
Air	Balance	Balance

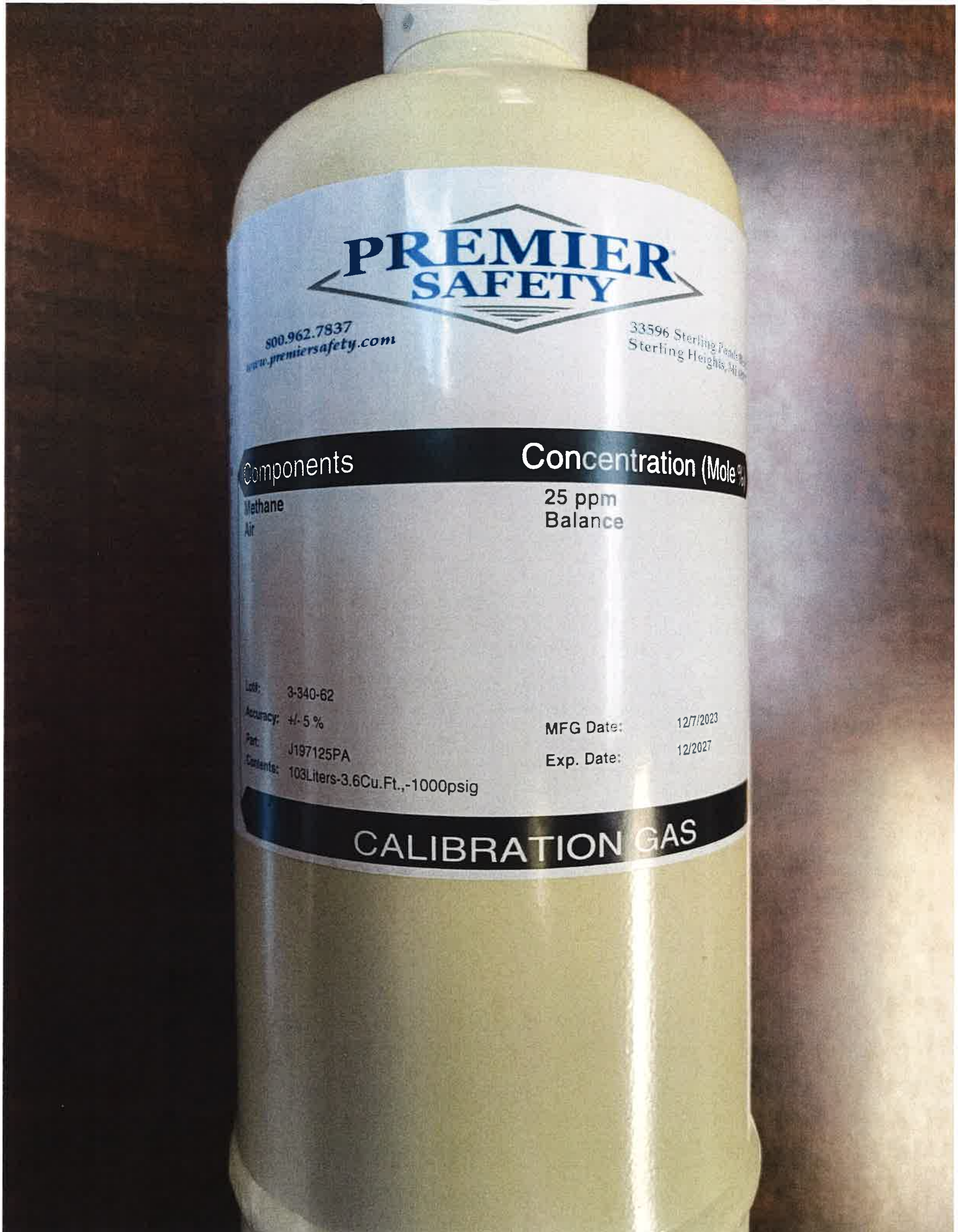
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: ______________________ Date Signed: 12/7/2023

Aaron Schwenken
Lab Manager

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672



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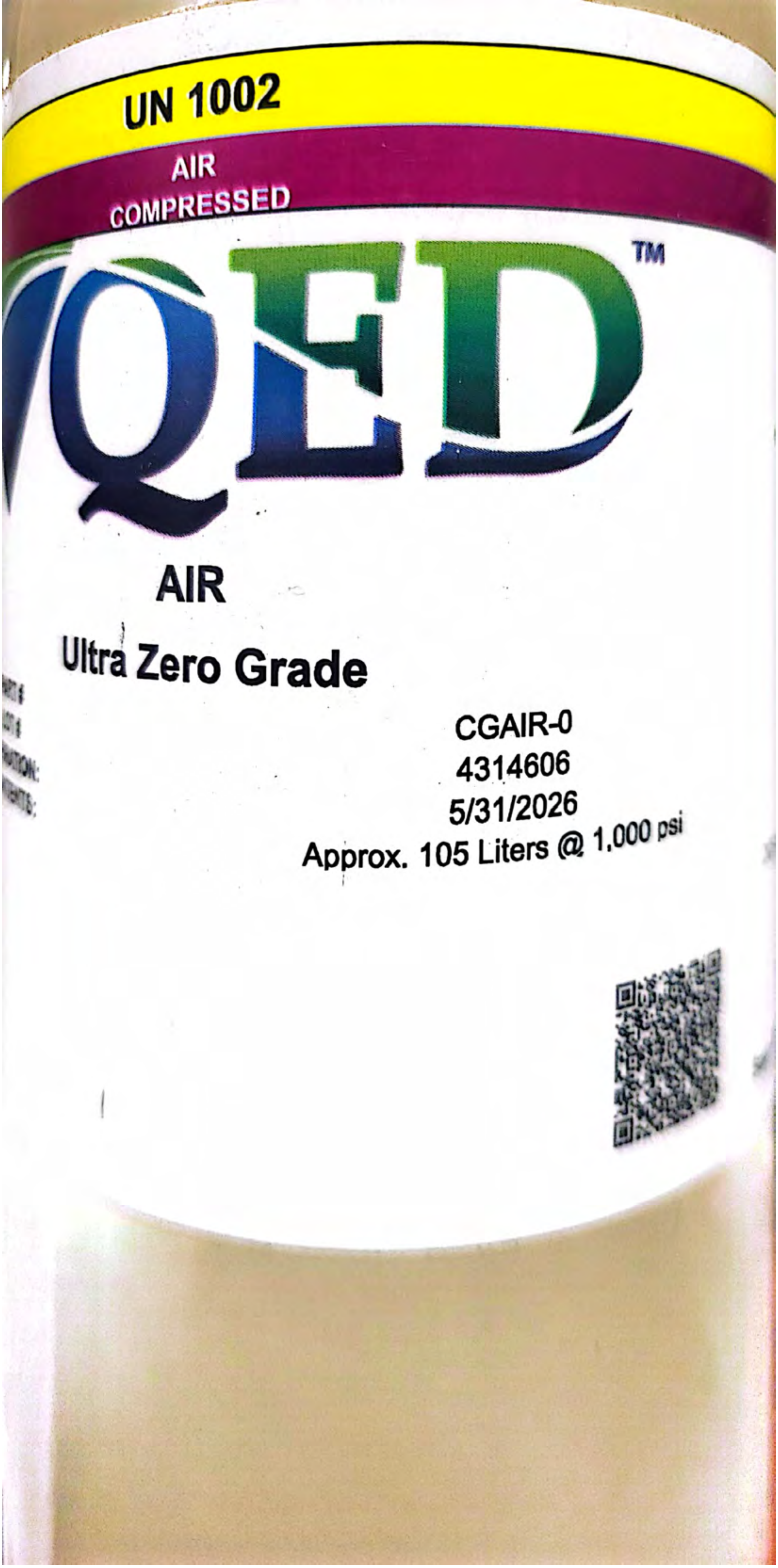
www.premiersafety.com
33596 Sterling
Sterling Heights,
Components
Concentration (Mole
Methane
Air
25 ppm
Balance
Lot#: 3-340-62
Accuracy: +/- 5 %
Part: J197125PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 12/7/2023
Exp. Date: 12/2027
CALIBRATION GAS


UN 1002
AIR
COMPRESSED
QED™
AIR
Ultra Zero Grade
CGAIR-0
4314606
5/31/2026
Approx. 105 Liters @ 1,000 psi

COMPRESSED GAS, N.O.S

(METHANE, AIR)

UN1956

VQED™

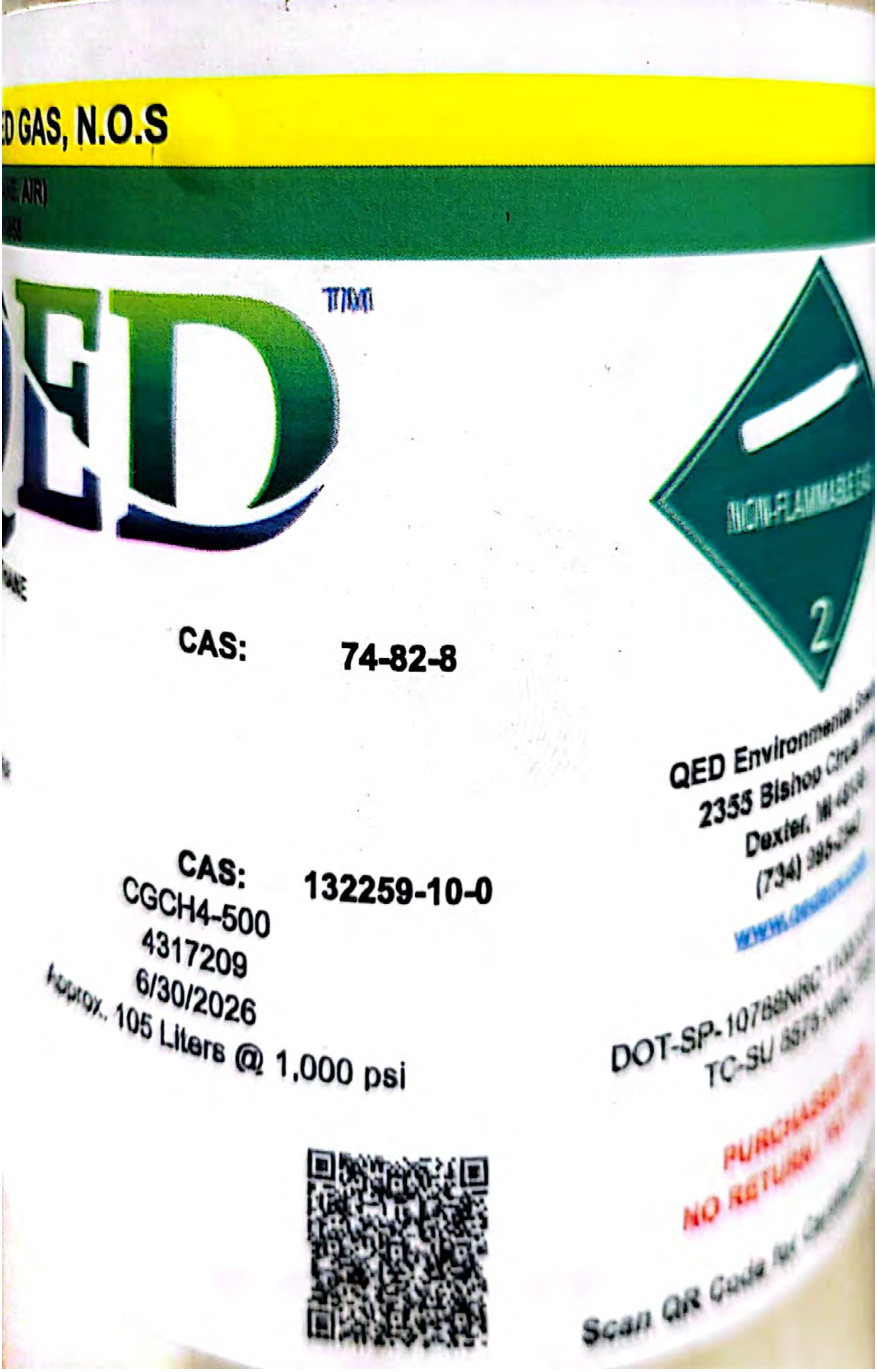
500 PPM	METHANE	CAS:
BALANCE	AIR	CAS:

PART # CGCH4-500

LOT # 4317209

EXPIRATION: 6/30/2026

CONTENTS: Approx. 105 Liters @ 1,000


GAS, N.O.S
NON-FLAMMABLE GAS
2
CAS: 74-82-8
QED Environmental
2355 Bishop
Dexter
(734)
CAS: 132259-10-0
CGCH4-500
4317209
6/30/2026
105 Liters @ 1,000 psi
DOT-SP-10788
TC-SU
PURCHASED
NO RETURN
Scan QR Code for

WASTE MANAGEMENT
172 98th Avenue
Oakland, CA 94603
(510) 430-8509

November 19, 2024

Ms. Alisha McCutcheon
Redwood Landfill, Inc.
8590 Redwood Highway
Novato, California 94948

Re: Third Quarter 2024 Surface Emissions and Component Leak Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)**" contains the results of the Third Quarter 2024 Integrated and Instantaneous Surface Emissions Monitoring (SEM) and Component Leak Monitoring. Initial surface emissions monitoring was performed by Roberts Environmental Services, LLC. (RES). Re-monitoring of surface emissions and site-wide component leak monitoring was conducted by RES and/or Waste Management (WM) personnel.

APPLICABLE REQUIREMENTS

The monitoring discussed in this report was conducted in accordance with the following requirements:

Surface Emission Monitoring (SEM)

- New Source Performance Standard (NSPS), Title 40 of the Code of Federal Regulations (CFR) §60.755 (c) and (d), 40 CFR 60, Appendix A Method 21, promulgated by the United States Environmental Protection Agency (USEPA).

- California Code of Regulations (CCR) Title 17, Subchapter 10, Article 4, Subarticle 6, §95460 to §95476, known as the Assembly Bill 32 (AB32) landfill methane rule (LMR).

- National Emission Standards for Hazardous Air Pollutants (NESHAP): Municipal Solid Waste Landfills, Title 40: Chapter I: Subchapter C: Part 63: Subpart AAAA, §63.1981(h)(5)

- Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 303 (Landfill Surface Requirements) and Section 607 (Landfill Surface Inspection procedures).

Component Leak

- Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 301 (Landfill Gas Collection and Emission Control System Requirements) and Section 602 (Collection and Control System Leak Inspection procedures).

- California Code of Regulations (CCR) Title 17, Subchapter 10, Article 4, Subarticle 6, §95464, known as the Assembly Bill 32 (AB32) landfill methane rule (LMR).

RLI Plan and Alternative Compliance Measures

An Alternative Compliance Option (ACO) Request was submitted to the California Air Resources Board (CARB) on March 24, 2011. After receipt of comments, this ACO was amended, restated, and submitted to BAAQMD on July 1, 2016. SEM and Component Leak monitoring was conducted per the methods outlined in the July 1, 2016 ACO.

PROCEDURES

General

The surface of the RLI disposal area has been divided into two hundred-eight (208), approximately 50,000 square foot monitoring grids. The entire landfill surface is monitored with the exception of active portions of the Landfill, slope areas, and as requested in the approved ACO, areas containing only asbestos-containing waste, inert waste and/or non-decomposable waste which are excluded for safety as allowed by CCR Title 17 §95466.

Field personnel walked the surface of the landfill following the 25-foot interval walking pattern as depicted the 2011 RLI AB-32 SEM Plan, which traverses each monitoring grid. Additionally, in accordance with the provisions of 40 CFR 60.753(d) and 60.755(c)(1-3), the entire perimeter of the landfill surface was monitored. During the event, special attention was given to monitoring unusual cover conditions (stressed vegetation, cracks, seeps, etc.) and any areas with unusual odors.

Instantaneous Surface Emissions Monitoring

The Instantaneous SEM was conducted using a Toxic Vapor Analyzer (TVA) 1000 flame ionization detector (FID), which was calibrated to 500 parts per million by volume (ppm_v) methane, which meets or exceeds all guidelines set forth in the CCR Title 17 §95471(a) and NSPS. The FID was calibrated prior to use in accordance with the United States Environmental Protection Agency (USEPA) Method 21 requirements. The Instantaneous SEM procedures followed the requirements of 40 CFR 60.755 (c) and (d) and CCR Title 17 §95471(c)(2).

RES personnel walked the surface of the landfill on a grid by grid basis with the wand tip held at 2 inches from the landfill surface. While sampling the grid; the technicians also checked any surface impoundments (wells or otherwise) for leaks. Technicians also checked any surface cracks, seeps, or other areas that show evidence of surface emissions (odors or distressed vegetation). Active and sloped areas excluded for safety were documented on field data sheets and maps.

All instantaneous surface monitoring was performed in accordance with the applicable requirements referenced in this report. Any detections of methane above 200 ppm_v (areas of concern) or 500 ppm_v (exceedances) for instantaneous were recorded, flagged, and marked on an SEM Map, which, wherever required, is included in the Appendices of this report. Applicable corrective action and re-monitoring timelines are listed below:

- Corrective actions must be initiated within 5 days of the initial exceedance and re-monitoring shall be conducted within 10 days of the initial exceedance.
    - If the re-monitoring event shows the exceedance is corrected, the location shall be re-monitored within 1 month of the initial exceedance.
    - If the 1-month re-monitoring event shows the location is still corrected, all re-monitoring requirements have been completed.
- If either the first 10-day or 1-month re-monitoring events show a second exceedance, additional corrective actions shall be completed and a second re-monitoring event shall be conducted within 10 days of the second exceedance.
- If the second 10-day re-monitoring event shows the second exceedance is corrected, the location shall be re-monitored within 1 month of the initial exceedance. If the 1-month re-monitoring event shows the area is still corrected, monitoring requirements have been completed.

If any location shows three exceedances, an additional well shall be installed within 120 days of the initial exceedance.

Integrated Surface Emissions Monitoring

The Integrated surface monitoring was conducted using a TVA 1000 calibrated to 25 ppm_v for the integrated monitoring, which meets or exceeds all guidelines set forth in the CCR Title 17 §95471(a). The field technician traversed the grid walking path over a continuous 25-minute period using the TVA 1000 held at 3 inches above the landfill surface. The Integrated monitoring procedures followed the requirements of CCR Title 17 §95471(c)(3).

Grids with results greater than 25 ppm_v were recorded, marked on the SEM map, and flagged for remediation. Any grids with integrated concentrations greater than 25 ppm_v are subject to the following re-monitoring timeline:

- Re-monitoring shall be conducted within 10 days of the initial exceedance.
- If the 10-day re-monitoring event shows the exceedance is corrected, all re-monitoring requirements have been completed.
- If either the first 10-day re-monitoring event shows a second grid exceedance, additional corrective actions shall be completed and a second re-monitoring event shall be conducted within 10 days of the second exceedance.

- If the second 10-day re-monitoring event shows the second exceedance is corrected, all re-monitoring requirements have been completed.

- The second 10-day re-monitoring event shows a third grid exceedance, an additional well shall be installed within 120 days of the third exceedance.

Component Leak Monitoring Procedures

RES personnel monitored the exposed LFG components under positive pressure (pipes, wellheads, valves, blowers, and other mechanical appurtenances) using a TVA 1000 calibrated to 500 ppm_v. All leaks measured one half inch or less from the component exceeding the compliance limit of 500 ppm_v per requirements outlined in pursuant to CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B) and 1,000 ppm_v per requirements outlined in BAAQMD 8-34-303 were recorded. Applicable corrective action and re-monitoring timelines are listed below:

- Leaks between 500 and 999 ppm_v must be corrected and re-monitored within 10 days of the initial exceedance.

- Leaks at or above 1000 ppm_v must be corrected and re-monitored within 7 days of the initial exceedance.

THIRD QUARTER 2024 SEM AND COMPONENT LEAK RESULTS

The following is a summary of the SEM and component leak monitoring results completed for the Third Quarter 2024.

Instantaneous Surface Emissions Monitoring Results

The Instantaneous surface monitoring was performed on July 30, 2024 in accordance with the NSPS, BAAQMD 8-34, and CCR Title 17 §95469, NESHAP Subpart AAAA, and ACO. Results and data from the monitoring are presented in Attachment A.

Initial Monitoring Event Exceedances of 500 ppm_v

There were thirteen (13) exceedances of 500 ppm_v as methane detected on July 30, 2024. Corrective actions to initiate repairs of the exceedances were completed within five days for all locations.

First Ten-Day Re-Monitoring Results

The first 10-day re-monitoring was completed on August 1 and 6, 2024. All locations were observed at less than 500 ppm_v as methane.

One-Month Re-Monitoring Results

The 1-month re-monitoring event was completed on August 27, 2024. All locations were observed at less than 500 ppm_v.

Readings between 200 ppm_v and 499 ppm_v (Initial and Re-monitored)

There were no readings between 200 ppm_v and 499 ppm_v as methane detected during the initial monitoring event on July 30, 2024. Pursuant to CCR Title 17 §95471(c), instantaneous surface emissions exceeding 200 ppm_v but below 500 ppm_v are required to be recorded.

Integrated Surface Emissions Monitoring Results

The Integrated surface sampling (ISS) was performed on July 29 and 31, 2024 in accordance with the ACO and requirements outlined in CCR Title 17 §95469.

Initial Monitoring Event Exceedances of 25 ppm_v

There were 0 grids with exceedances of 25 ppm_v as methane detected during the initial monitoring event.

The average methane concentration of each grid was recorded during the monitoring event per applicable requirements. See Attachment B, Integrated SEM 25 ppm_v Exceedances and Monitoring Log, and SEM Map included in Attachment B, for details.

Component Leak Monitoring Results

Component leak monitoring was conducted per the applicable requirements on July 30, 2024. No leaks greater than 500 ppm_v were identified. Please see Attachment C, for details.

WEATHER CONDITIONS

Wind Speed Conductions during the Surface Emission Monitoring Events

Wind speeds during initial monitoring were monitored using a portable weather station. The station has a strip chart that records the wind speed and direction. After completion of monitoring, the strip chart is reviewed by RES office staff to determine the average and maximum wind speeds during the monitoring and the average wind direction during each grid and ensure that the wind speed requirements are met (no gusts greater than 20 mph, average wind speed cannot exceed 10 mph). These values are documented in the field data sheets. The chart data is scanned and included in Attachment D.

Precipitation Requirements

Per the RLI's ACO, the initial monitoring event was carefully scheduled so that it could be conducted in compliance with the precipitation requirements (no precipitation ≥0.01" within 24 hours, ≥0.16" within 48 hours, nor ≥0.25" within 72 hours). Re-monitoring events are required to adhere to strict timelines. Any conflicts with precipitation requirements are discussed in the results section of this document.

EQUIPMENT CALIBRATION

The portable analyzers were calibrated to meet the instrument specifications requirements of U.S. EPA Method 21. The calibration gas used was methane, diluted to a nominal concentration of 25 ppm_v in air for integrated sample analyses and 500 ppm_v in air for instantaneous monitoring to comply with the requirements.

All analyzers were calibrated prior to use with required response time and precision related instrument checks. Calibration records include the following: One time response time test record; One time response factor determination for methane; Calibration Precision test records (test to be performed every 3 months); and Daily Instrument Calibration and Background test records for each gas meter that was used during the quarterly monitoring event. The calibration log records are included in Attachment E.

All monitoring was completed in accordance with the applicable regulatory requirements or approved alternatives. If you have any questions regarding this report, please do not hesitate to contact me at (510) 613-2852.

Thank you,
Waste Management

Michael Chan

Michael Chan
Environmental Protection Specialist

Attachment A – Instantaneous Surface Emission Monitoring Event Records

- Monitoring Logs and Exceedances
- Surface Monitoring Weather Data
- SEM Map

Attachment B – Integrated Surface Emission Monitoring Event Records

- Monitoring Logs and Exceedances
- Surface Monitoring Weather Data
- SEM Map

Attachment C – Component Leak Monitoring Event Records

- Component Leak Exceedances and Monitoring Logs

Attachment D – Weather Station Data

- Strip Chart Data

Attachment E – Calibration Records

- Instrument and Gas Calibration Records

Attachment A

Instantaneous Surface Emission Monitoring Event Records

Table A.1
Instantaneous Landfill Surface Emissions Monitoring
Initial Monitoring Event Areas of Concern

2024 QUARTER: 3
PERFORMED BY: RES and WM
LANDFILL NAME: Redwood Landfill, Inc.

Flag Number	Grid Number	Latitude	Longitude	Date of Monitoring	Concentration of Emission (ppm_v)	Comments
O1	78	38.16610	-122.56498	7/30/2024	1,500	Well283
O10	164	38.17290	-122.56804	7/30/2024	688	well249
O11	123	38.16580	-122.56603	7/30/2024	5,133	well223
O12	122	38.16617	-122.56598	7/30/2024	774	well224
O13	156	38.17053	-122.56770	7/30/2024	1,295	well274
O14	117	38.17420	-122.56649	7/30/2024	649	wel183
O2	133	38.16722	-122.56647	7/30/2024	1,800	Well229
O3	174	38.16940	-122.56818	7/30/2024	1,000	Well262
O4	193	38.17242	-122.56924	7/30/2024	2,000	Well210
O6	112	38.16450	-122.56555	7/30/2024	1,402	well214
O7	102	38.16512	-122.56537	7/30/2024	19,309	well215
O8	122	38.16677	-122.56605	7/30/2024	5,899	well201
O9	132	38.16840	-122.56650	7/30/2024	2,303	well195

Notes: Please refer to field data sheets for details

Table A.2
Instantaneous Landfill Surface Emissions Monitoring
Exceedance and Monitoring Logs (NSPS/BAAQMD 8-34)

2024 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY: Jimmie Brunning
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Corrective Action		1st 10-day Follow-Up			2nd 10-day Follow-Up			1-month Follow-Up			
Flag Number	Monitoring Date	Reading ppm	Repair Date	Action Taken	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Comments
O1	7/30/2024	1,500	8/1/2024	Remove Debris, Compact Soil	8/6/2024	352		n/a			8/27/2024	338		Well283
O10	7/30/2024	688	8/1/2024	Open BECS, Compact Soil	8/1/2024	223		n/a			8/27/2024	3.8		well249
O11	7/30/2024	5,133	8/1/2024	Remove Debris, Compact Soil	8/1/2024	81		n/a			8/27/2024	20		well223
O12	7/30/2024	774	8/1/2024	Remove Debris, Compact Soil	8/1/2024	218		n/a			8/27/2024	234		well224
O13	7/30/2024	1,295	8/1/2024	Open BECS, Compact Soil	8/1/2024	8.4		n/a			8/27/2024	25		well274
O14	7/30/2024	649	8/1/2024	Open BECS, Compact Soil	8/1/2024	3.8		n/a			8/27/2024	4.7		wel183
O2	7/30/2024	1,800	8/1/2024	Open BECS, Compact Soil	8/1/2024	122		n/a			8/27/2024	4.6		Well229
O3	7/30/2024	1,000	8/1/2024	Open BECS, Compact Soil	8/1/2024	8.9		n/a			8/27/2024	4.1		Well262
O4	7/30/2024	2,000	8/1/2024	Open BECS, Compact Soil	8/1/2024	128		n/a			8/27/2024	95		Well210
O6	7/30/2024	1,402	8/1/2024	Compact Soil	8/1/2024	6.9		n/a			8/27/2024	6.6		well214
O7	7/30/2024	19,309	8/1/2024	Remove Debris, Compact Soil	8/6/2024	15		n/a			8/27/2024	342		well215
O8	7/30/2024	5,899	8/1/2024	Remove Debris, Compact Soil	8/6/2024	316		n/a			8/27/2024	479		well201
O9	7/30/2024	2,303	8/1/2024	Remove Debris, Compact Soil	8/6/2024	46		n/a			8/27/2024	3.1		well195

Table A.3
Instantaneous Landfill Surface Emissions Monitoring
Exceedance and Monitoring Logs (AB-32)

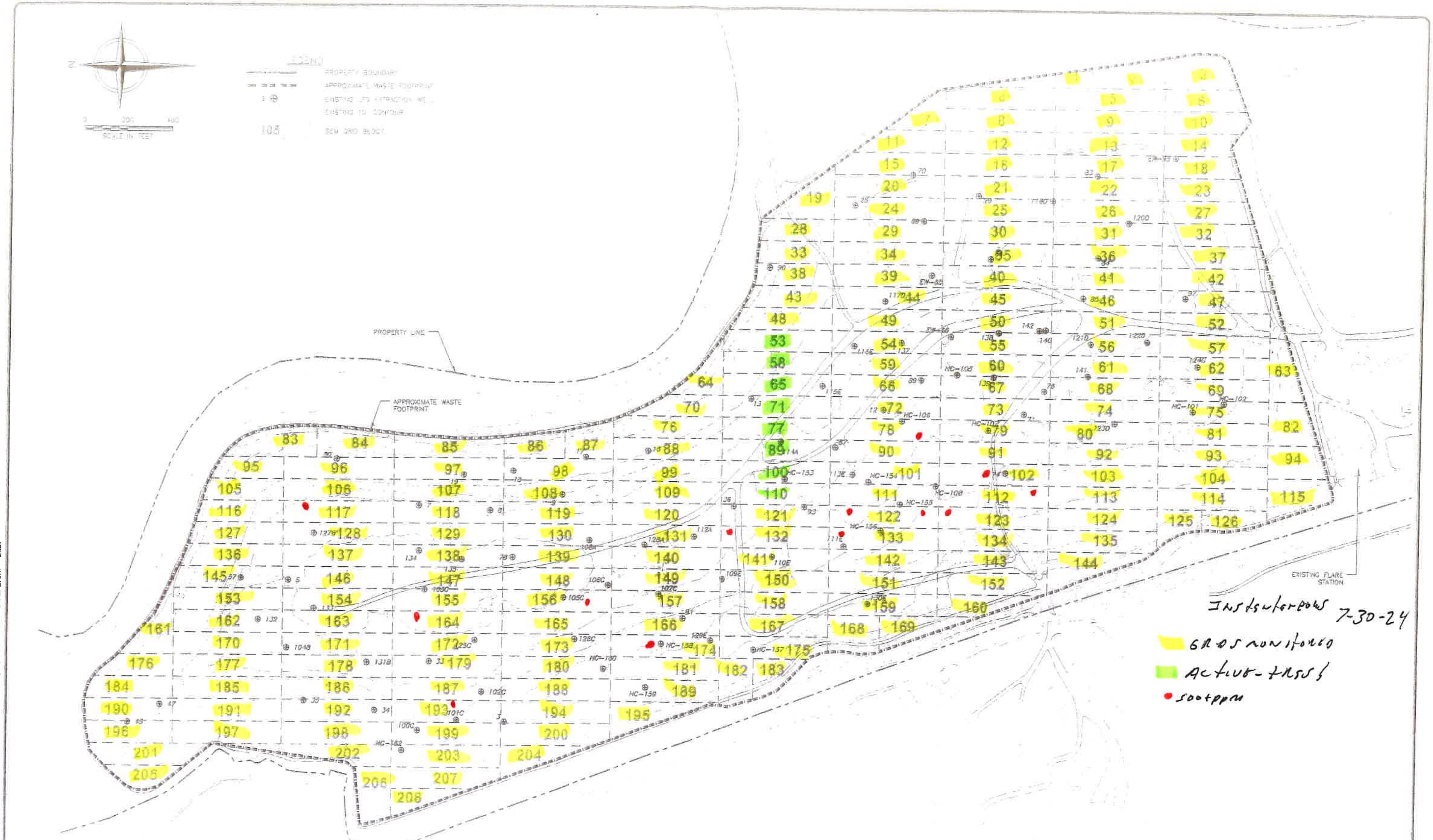
2024 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY: Jimmie Brunning
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			
Flag Number	Monitoring Date	Reading ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Comments
O1	7/30/2024	1,500	8/6/2024	352		n/a			Well283
O10	7/30/2024	688	8/1/2024	223		n/a			well249
O11	7/30/2024	5,133	8/1/2024	81		n/a			well223
O12	7/30/2024	774	8/1/2024	218		n/a			well224
O13	7/30/2024	1,295	8/1/2024	8.4		n/a			well274
O14	7/30/2024	649	8/1/2024	3.8		n/a			wel183
O2	7/30/2024	1,800	8/1/2024	122		n/a			Well229
O3	7/30/2024	1,000	8/1/2024	8.9		n/a			Well262
O4	7/30/2024	2,000	8/1/2024	128		n/a			Well210
O6	7/30/2024	1,402	8/1/2024	6.9		n/a			well214
O7	7/30/2024	19,309	8/6/2024	15		n/a			well215
O8	7/30/2024	5,899	8/6/2024	316		n/a			well201
O9	7/30/2024	2,303	8/6/2024	46		n/a			well195

Table A.4
Instantaneous Landfill Surface Emissions Monitoring
Areas of Concern Greater than 200 ppmv

2024 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Re-mon Event		Comments
Flag Number	Monitoring Date	Reading ppm	Monitoring Date	Reading ppm	
No 200-499 ppmv locations					



NOTES:
1. TOPOGRAPHIC CONTOURS PREPARED USING PHOTOGRAMMETRIC METHODS BY MILLER CREEK AERIAL MAPPING, DATE OF PHOTOGRAPHY FEBRUARY 14, 2014.
2. LOCATION OF WASTE FOOTPRINT IS APPROXIMATE.

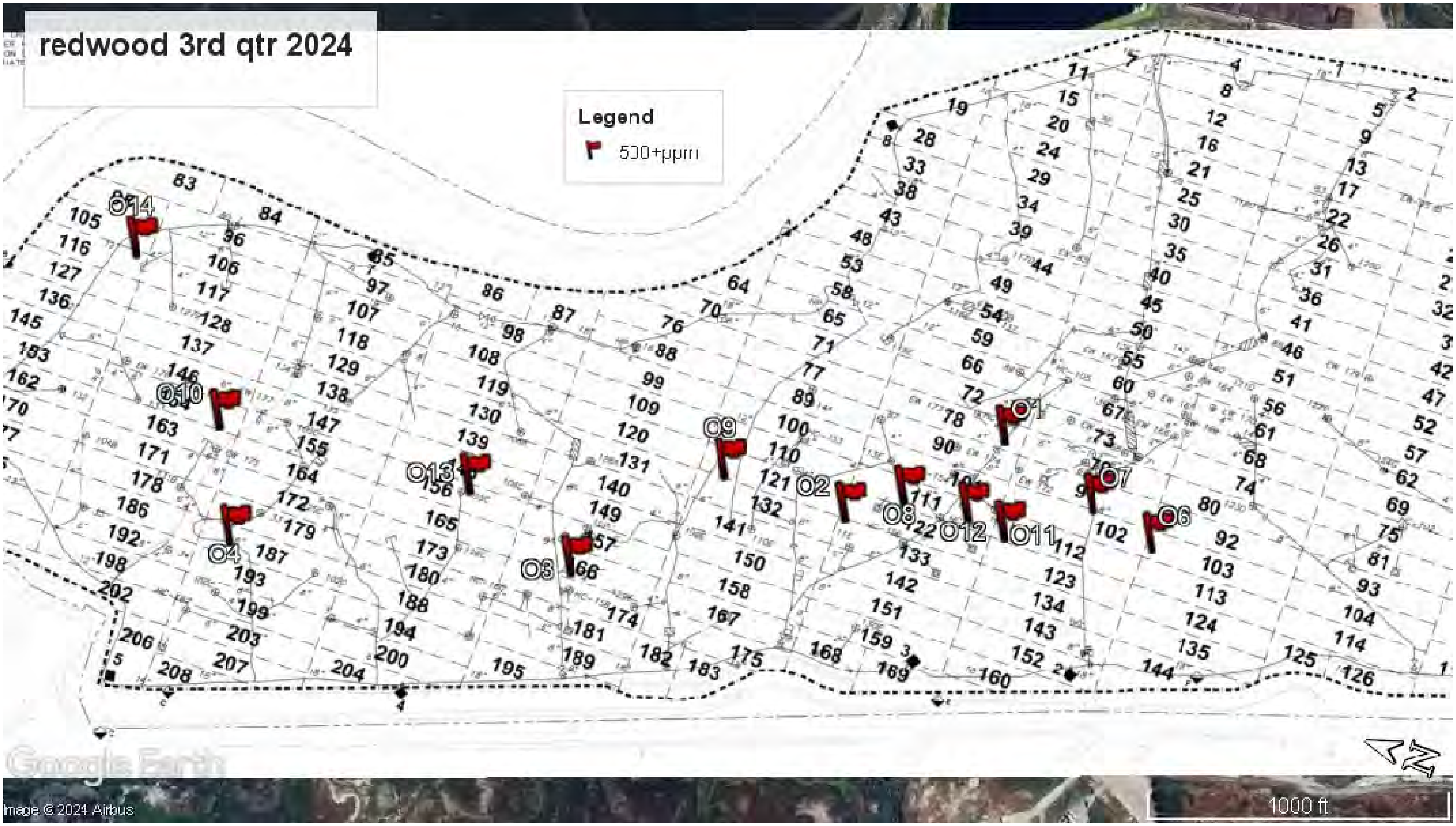
WM WASTE MANAGEMENT

cornerstone environmental
PREPARED BY: CORNERSTONE ENVIRONMENTAL GROUP

REDWOOD LANDFILL, INC
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

SHEET NO
1


redwood 3rd qtr 2024
Legend
500+ppm
O1
O2
O3
O4
O6
O7
O8
O9
O10
O11
O12
O13
O14
Google Earth
Image © 2024 Airbus
1000 ft
N

NOTES:

cornerstone environmental

PREPARED BY CORNERSTONE ENVIRONMENTAL GROUP, LLC

REDWOOD LANDFILL, INC
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

SHEET NO.
1

Orange Flag Landfill Surface Emissions Monitoring
Exceedances and Monitoring Log

Site: REDWOOD

Quarter / Year:	3RD 2024	Page of Pages	
Technician:	LEISHWADE		
Instrument:	TVA1000		
Calibration Standard:	500 ppm		

Initial Monitoring Event				First Re-Monitoring Event - 10 Days			Second Re-Monitoring Event - 10 Days			30-Day Follow-up Monitoring			Comments
Flag Number	Grid Number	Field Reading (ppm)	Date Monitored	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	
O-11	123	5,133	7-30-24										
O-12	122	774											well 223
O-13	156	1295											well 224
O-14	112	649											well 274
O-6	112	1402											well 183
O-7	102	19,309											well 214
O-8	122	5,899											well 225
O-9	132	2,303											well 201
O-10	164	688											well 195
O-1	78	1500											well 249
O-2	133	1800											well 283
O-3	174	1,000											well 229
O-4	193	2,000											well 262
O-													well 210
O-													
O-													
O-													
O-													
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wpt			redwood 3rd qtr 2024		
ID	lat	lon	time	name	cmt
1	38.16609504	-122.564979	2024-07-30T14:26:49Z	O1	1500ppmWell283
2	38.17289896	-122.568036	2024-07-30T15:05:41Z	O10	688Ppmwell249
3	38.16579999	-122.566034	2024-07-30T14:23:07Z	O11	5133Ppmwell223
4	38.16616897	-122.565975	2024-07-30T14:26:51Z	O12	774Ppmwell224
5	38.17053401	-122.567704	2024-07-30T14:56:37Z	O13	1295Pmmwell274
6	38.1742	-122.566492	2024-07-30T15:34:06Z	O14	649Ppmwel183
7	38.167224	-122.566472	2024-07-30T14:34:52Z	O2	1800ppmWell229
8	38.16940103	-122.568182	2024-07-30T15:12:07Z	O3	1000ppmWell262
9	38.17242304	-122.569244	2024-07-30T14:51:49Z	O4	2000ppmWell210
10	38.16449904	-122.565551	2024-07-30T14:15:20Z	O6	1402Ppmwell214
11	38.16512299	-122.565365	2024-07-30T14:18:32Z	O7	19309Ppmwell215
12	38.16677196	-122.56605	2024-07-30T14:29:04Z	O8	5899Ppmwell201
13	38.16839604	-122.5665	2024-07-30T14:40:11Z	O9	2303Ppmwell195

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leishwade   Anthony Carlos
Jonny Alvarez   Mercedes Abrego
Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-30-24   Instrument Used: TVA1000   Grid Spacing: 25'

Temperature: 55   Precip: 0   Upwind BG: 2.0   Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
1	LW	0645	0700	27	4	7	10	
2	JM	0645	0700	18	4	7	10	
3	JM	0645	0700	31	4	7	10	
4	AC	0645	0700	78	4	7	10	
5	MA	0645	0700	112	4	7	10	
6	LW	0700	0715	20	4	5	10	
7	JM	0700	0715	96	4	5	10	
8	JM	0700	0715	75	4	5	10	
9	AC	0700	0715	51	4	5	10	
10	MA	0700	0715	30	4	5	10	
11	LW	0715	0730	106	5	7	10	
12	JM	0715	0730	125	5	7	10	
13	JM	0715	0730	92	5	7	10	
14	AC	0715	0730	27	5	7	10	
15	MA	0715	0730	84	5	7	10	
16	LW	0730	0745	108	4	6	10	
17	JM	0730	0745	42	4	6	10	
18	JM	0730	0745	39	4	6	10	
19	AC	0730	0745	77	4	6	10	
20	MA	0730	0745	96	4	6	10	
21	LW	0745	0800	103	5	8	10	
22	JM	0745	0800	54	5	6	10	
23	JM	0745	0800	30	5	6	10	
24	AC	0745	0800	68	5	6	10	
25	MA	0745	0800	99	5	6	10	
26	LW	0800	0815	32	5	7	10	
27	JM	0800	0815	18	5	7	10	
28	JM	0800	0815	55	5	7	10	
29	AC	0800	0815	81	5	7	10	
30	MA	0800	0815	75	5	7	10	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 2

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leishnadz / Jenny Alvaez / Jovani Medina / Anthony Carrillo / Mericio Abraham

Cal. Gas Exp Date: 11-10-24

Date: 7-30-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 55 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
31	LW	0815	0830	25	3	6	11	
32	JM	0815	0830	16	3	6	11	
33	JA	0815	0830	81	3	6	11	
34	AC	0815	0830	70	3	6	11	
35	MA	0815	0830	138	3	6	11	
36	LW	0830	0845	41	5	6	10	
37	JA	0830	0845	20	5	6	10	
38	JM	0830	0845	66	5	6	10	
39	AC	0830	0845	54	5	6	10	
40	MA	0830	0845	39	5	6	10	
41	LW	0845	0900	67	4	5	10	
42	JM	0845	0900	19	4	5	10	
43	JA	0845	0900	54	4	5	10	
44	AC	0845	0900	89	4	5	10	
45	MA	0845	0900	72	4	5	10	
46	LW	0900	0915	38	5	7	8	
47	JM	0900	0915	26	5	7	8	
48	JM	0900	0915	85	5	7	8	
49	AC	0900	0915	70	5	7	8	
50	MA	0900	0915	55	5	7	8	
51	LW	0915	0930	36	3	7	8	
52	JM	0915	0930	24	3	7	8	
54	JA	0915	0930	81	3	7	8	
55	AC	0915	0930	60	3	7	8	
56	MA	0915	0930	40	3	7	8	
57	LW	0930	0945	31	4	7	9	
59	JA	0930	0945	61	4	7	9	
60	JM	0930	0945	45	4	7	9	
61	AC	0930	0945	32	4	7	9	
62	MA	0930	0945	29	4	7	9	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leichwadt, Anthony Carlos, Jonay Alvarez, Mericio Abraham, Jovani Medina

Cal. Gas Exp Date: 11-10-24

Date: 7-30-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 60 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
63	LW	0945	1000	104	5	10	9	
64	JA	0945	1000	75	5	10	9	
66	JM	0945	1010	54	5	10	9	
67	AC	0945	1000	42	5	10	9	
68	MA	0945	1000	30	5	10	9	
69	LW	1000	1015	22	5	9	9	
70	JM	1010	1015	71	5	9	9	
72	JA	1000	1015	45	5	9	9	
73	AC	1000	1015	80	5	9	9	
74	MA	1000	1015	37	5	9	9	
75	LW	1015	1030	26	5	10	8	
76	JM	1015	1030	71	5	10	8	
78	JA	1015	1030	1,500	5	10	8	WELL 283
79	AC	1015	1030	102	5	10	8	
80	MA	1015	1030	96	5	10	8	
81	LW	1030	1045	74	4	6	8	
82	JA	1030	1045	41	4	6	8	
83	JM	1030	1045	21	4	6	8	
84	AC	1030	1045	46	4	6	8	
85	MA	1030	1045	30	4	6	8	
86	LW	1045	1100	54	5	10	8	
87	JM	1045	1100	39	5	10	8	
88	JA	1045	1100	61	5	10	8	
90	AC	1045	1100	84	5	10	8	
91	MA	1045	1100	59	5	10	8	
92	LW	1100	1115	115	5	8	8	
93	JM	1100	1115	47	5	8	8	
94	JA	1100	1115	37	5	8	8	
95	AC	1100	1115	28	5	8	8	
96	MA	1100	1115	47	5	8	8	

Attach Calibration Sheet

Attach site map showing grid ID

Page 3 of 7

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEICHWART — Anthony Carlos
JENNY ALVAREZ — MERICEL ABRAHAM
JUVENAL MEDINA

Cal. Gas Exp. Date: 1-10-24

Date: 7-30-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 62 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.0

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
97	LW	1115	1130	31	3	5	8	
98	JM	1115	1130	26	3	5	8	
99	JM	1115	1130	18	3	5	8	
101	AC	1115	1130	89	3	5	8	
102	MA	1115	1130	19,309	3	5	8	well 215
103	LW	1130	1145	58	4	7	8	
104	JM	1130	1145	32	4	7	8	
105	JM	1130	1145	36	4	7	8	
106	AC	1130	1145	28	4	7	8	
107	MA	1130	1145	22	4	7	8	
108	LW	1145	1200	37	5	7	8	
109	JM	1145	1200	62	5	7	8	
111	JM	1145	1200	108	5	7	8	
112	AC	1145	1200	1,402	5	7	8	well 214
113	MA	1145	1200	147	5	7	8	
114	LW	1200	1215	32	4	6	8	
115	JM	1200	1215	28	4	6	8	
116	JM	1200	1215	34	4	6	8	
117	AC	1200	1215	649	4	6	8	well 183
118	MA	1200	1215	41	4	6	8	
119	LW	1215	1230	27	5	7	9	
120	JM	1215	1230	38	5	7	9	
121	JM	1215	1230	190	5	7	9	
122	AC	1215	1230	5,899	5	7	9	well 201
123	MA	1215	1230	5,133	5	7	9	well 223
124	LW	1230	1245	25	6	9	10	
125	JM	1230	1245	18	6	9	10	
126	JM	1230	1245	27	6	9	10	
127	AC	1230	1245	34	6	9	10	
128	MA	1230	1245	58	6	9	10	

Attach Calibration Sheet
Attach site map showing grid ID

Page 4 of 7

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade | Anthony Carlos
Jonay Alvarez | Meriem Abraham
Joseph Medina

Cal. Gas Exp Date: 11-10-24

Date: 7-30-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 62 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
129	LW	1245	1300	78	5	8	7	
130	JM	1245	1300	54	5	8	7	
131	JM	1245	1300	65	5	8	7	
132	AC	1245	1300	2,303	5	8	7	well 195
133	MA	1245	1300	1,800	5	8	7	well 229
134	LW	1300	1315	60	5	9	6	
135	JM	1300	1315	81	5	9	6	
136	JM	1300	1315	30	5	9	6	
137	AC	1300	1315	41	5	9	6	
138	MA	1300	1315	26	5	9	6	
139	LW	1315	1330	24	5	9	6	
140	JM	1315	1330	48	5	9	6	
141	JM	1315	1330	76	5	9	6	
142	AC	1315	1330	81	5	9	6	
143	MA	1315	1330	32	5	9	6	
144	LW	1330	1345	16	3	7	6	
145	JM	1330	1345	36	3	7	6	
146	JM	1330	1345	92	3	7	6	
147	AC	1330	1345	45	3	7	6	
148	MA	1330	1345	32	3	7	6	
149	LW	1345	1400	47	5	10	7	
150	JM	1345	1400	102	5	10	7	
151	JM	1345	1400	84	5	10	7	
152	AC	1345	1400	36	5	10	7	
153	MA	1345	1400	28	5	10	7	
154	LW	1400	1415	31	6	9	9	
155	JM	1400	1415	43	6	9	9	
156	JM	1400	1415	1,295	6	9	9	well 274
157	AC	1400	1415	77	6	9	9	
158	MA	1400	1415	94	6	9	9	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: [illegible] / Anthony Carlie / Jonay [illegible] / Mericas Abrahson / Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-30-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 67 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
159	LW	1415	1430	58	3	5	8	
160	JM	1415	1430	40	3	5	8	
161	JM	1415	1430	28	3	5	8	
162	AC	1415	1430	41	3	5	8	
163	MA	1415	1430	65	3	5	8	
164	LW	1430	1445	688	5	8	9	well 249
165	JM	1430	1445	78	5	8	9	
166	JM	1430	1445	42	5	8	9	
167	AC	1430	1445	59	5	8	9	
168	MA	1430	1445	37	5	8	9	
169	LW	1445	1500	22	3	6	12	
170	JM	1445	1500	30	3	6	12	
171	JM	1445	1500	78	3	6	12	
172	AC	1445	1500	54	3	6	12	
173	MA	1445	1500	60	3	6	12	
174	LW	1500	1515	1,000	4	6	10	well 262
175	JM	1500	1515	32	4	6	10	
176	JM	1500	1515	28	4	6	10	
177	AC	1500	1515	41	4	6	10	
178	MA	1500	1515	24	4	6	10	
179	LW	1515	1530	60	3	6	10	
180	JM	1515	1530	42	3	6	10	
181	JM	1515	1530	51	3	6	10	
182	AC	1515	1530	38	3	6	10	
183	MA	1515	1530	20	3	6	10	
184	LW	1530	1545	18	5	8	10	
185	JM	1530	1545	36	5	8	10	
186	JM	1530	1545	49	5	8	10	
187	AC	1530	1545	58	5	8	10	
188	MA	1530	1545	71	5	8	10	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leishwart   Anthony Carlos
Jenny Alvarez   Mckenzie Abraham
Jovani Medina

Cal. Gas Exp Date 11-10-24

Date: 7-30-24 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 78 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
189	LW	1545	1600	32	2	5	10	
190	JM	1545	1600	26	2	5	10	
191	JA	1545	1600	54	2	5	10	
192	AC	1545	1600	38	2	5	10	
193	MA	1545	1600	2,000	2	5	10	WELL 210
194	LW	1600	1615	67	2	3	9	
195	JM	1600	1615	95	2	3	9	
196	JM	1600	1615	34	2	3	9	
197	AC	1600	1615	45	2	3	9	
198	MA	1600	1615	30	2	3	9	
199	LW	1615	1630	51	2	3	10	
200	JM	1615	1630	40	2	3	10	
201	JM	1615	1630	22	2	3	10	
202	AC	1615	1630	38	2	3	10	
203	MA	1615	1630	65	2	3	10	
204	LW	1630	1645	42	2	3	12	
205	JM	1630	1645	18	2	3	12	
206	JM	1630	1645	30	2	3	12	
207	AC	1630	1645	27	2	3	12	
208	MA	1630	1645	18	2	3	12	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leis/Lanny ____ ____
____ ____ ____
____ ____ Cal. Gas Exp. Date: ____

Date: 7-30-24 Instrument Used: ____ Grid Spacing: ____

Temperature: ____ Precip: ____ Upwind BG: ____ Downwind BG: ____

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
53								Active well
58								
65								
71								
77								
89								
100								
110								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: 2024
Quarter: 3RD

IME Date	Time	IME Location ID	IME Concentration (ppm)
7-30-24	0515	P-2	12
	0517	P-4	7
	0524	P-5	9
	0513	P-6	22
	0528	P-7	15
	0520	P-8	11
	0531	P-1	16
	0521	P-9	18
	0516	RLLC0234	35
	0518	RLI00083	77
	0531	RLI00095	24
	0539	RLLC0235	16
	0540	RLLC0252	32
	0522	RLLC0236	51
	0547	RLLC0241	30
	0607	RLLC0253	22
	0556	P-10	27
	0517	RLLC0254	45
	0552	P-14	17
	0621	RLI00065	31
	0610	RLLC0242	22
	0559	P-16	21
	0527	P-17	16
	0604	RLI0117D	40
	0547	RLLC0179	31
	0615	RLLC0217	27
	0600	RLLC0227	58
	0602	P-47	51
	0608	RLI00140	35
	0612	RLI00142	26
	0513	RLLC0255	40
	0615	RLLC0256	19
	0615	P-19	37
	0603	RLI0116E	44
	0520	RLI00137	30
	0630	RLLC0237	18
	0605	RLLC0238	78
	0525	P-11	29
	0610	RLLC0239	42
	0641	RLI00141	60

Year: ______________

Quarter: ______________

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0610	RLLC0246	41
	0624	RLI0124G	20
	0517	RLI00220	66
	0611	P-21	31
	0559	P-22	20
	0618	P-23	16
	0515	P-82	48
	0615	P-83	35
	0624	P-84	27
	0619	P-85	14
	0611	RLI0115E	45
	0521	RLLC0240	31
	0614	RLLC0243	27
	0611	RLLC0244	65
	0518	RLIHC101	40
	0516	RLIHC102	31
	0624	RLLC0230	25
	0611	RLLC0233	39
	0520	RLLC0245	62
	0621	P-86	54
	0611	P-48	61
	0545	P-43	30
	0520	P-36	78
	0522	P-38	40
	0525	RLI00017	54
	0640	RLI00016	42
	0612	RLLC0231	38
	0630	RLI0114A	26
	0613	RLLC0219	118
	0527	RLLC0215	19,309
	0642	RLIHC107	21
	0530	P-49	35
	0618	RLI00018	46
	0525	RLI00019	24
	0635	RLLC0214	1,462
	0535	RLLC0222	52
	0526	RLLC0212	18
	0614	P-50	29
	0528	RLLC0232	22
	0630	RLLC0196	65

REDWOOD LANDFILL

PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: __________

Quarter: __________

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0527	RLLC0229	1,800
	0534	RLHC0153	32
	0550	RLLC0200	90
	0515	RLLC0201	5,899
	0615	RLLC0223	5,133
	0618	RLLC0224	774
	0520	RLLC0226	96
	0630	RLLC0183	649
	0630	P-51	45
	0602	RLLC0184	42
	0518	RLI00008	28
	0527	RLLC0195	2,303
	0624	RLLC0199	51
	0630	RLLC0225	39
	0528	P-52	35
	0531	RLI0127B	27
	0540	RLI0128A	14
	0551	RLLC0194	82
	0531	RLLC0198	66
	0536	RLHC0156	30
	0631	P-13	28
	0530	RLLC0247	32
	0558	RLLC0248	51
	0620	P-53	40
	0528	RLLC0251	65
	0515	RLI00134	41
	0611	RLI00135	28
	0614	RLLC0221	36
	0613	RLLC0228	18
	0620	P-12	21
	0520	RLLC0176	35
	0524	P-55	27
	0600	RLI0103C	125
	0621	RLLC0190	16
	0518	RLI0106C	35
	0523	RLLC0202	62
	0530	P-54	30
	0520	RLLC0250	25
	0528	RLI0105C	14
	0622	RLI0107C	54

REDWOOD LANDFILL

PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: ____________

Quarter: ____________

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0528	RLLC0203	41
	0601	RLLC0204	22
	0607	RLI0130E	58
	0530	P-56	21
	0542	RLI00132	47
	0537	RLLC0249	688
	0535	RLLC0186	30
	0617	RLLC0209	62
	0622	RLLC0205	40
	0545	RLLC0210	21,000
	0558	RLLC0188	30
	0524	RLI0126C	59
	0525	RLI0129E	26
	0619	RLLC0206	45
	0517	P-61	28
	0540	RLI00035	39
	0543	RLI0102C	77
	0608	P-81	15
	0518	RLI00045	45
	0530	RLI00047	31
	0542	P-74	20
	0520	RLI00034	38
	0532	RLI00003	28
	0541	P-76	19
	0522	P-77	21
	0533	P-78	46
	0552	RLI0100C	32
	0523	P-75	50
	0530	P-79	28
	0537	RLLC0192	60
	0542	P-44	31
	0545	P-45	18
	0550	P-73	22

REDWOOD LANDFILL
PENETRATION SCAN RESULTS, EXCEEDANCES, AND CORRECTIVE ACTIONS

Year: ______________

Quarter: ______________

IME Date	Time	IME Location ID	IME Concentration (ppm)
	0550	RLLC0257	25
	0600	RLLC0258	26
	0612	RLLC0259	14
	0547	RLLC0260	27
	0550	RLLC0261	35
	0555	RLLC0262	1,000
	0524	RLLC0263	62
	0530	RLLC0264	89
	0551	RLLC0265	40
	0618	RLLC0266	26
	0542	RLLC0267	31
	0630	RLLC0268	24
	0545	RLLC0269	58
	0552	RLLC0270	30
	0530	RLLC0271	22
	0635	RLLC0272	27
	0612	RLLC0273	49
	0531	RLLC0274	1,295
	0630	RLI00275	51
	0527	RLI00276	65
	0538	RLI00277	35
	0518	RLI00278	27
	0604	RLI00279	20
	0527	RLI00280	18
	0532	RLI00281	47
	0635	RLI00282	58
	0642	RLI00283	1,500
	0640	RLI00284	61
	0557	RLI00285	30
	0621	RLI00286	28
	0536	RLI00287	16
	0540	RLLC0177	45
	0520	RLLC0180	35
	0618	RLLC0181	18
	0622	RLLC0185	26
	0535	RLLC0187	48
	0610	RLLC0189	36
	0607	RLLC0191	81
	0610	RLLC0193	51
	0634	RLLC0220	106

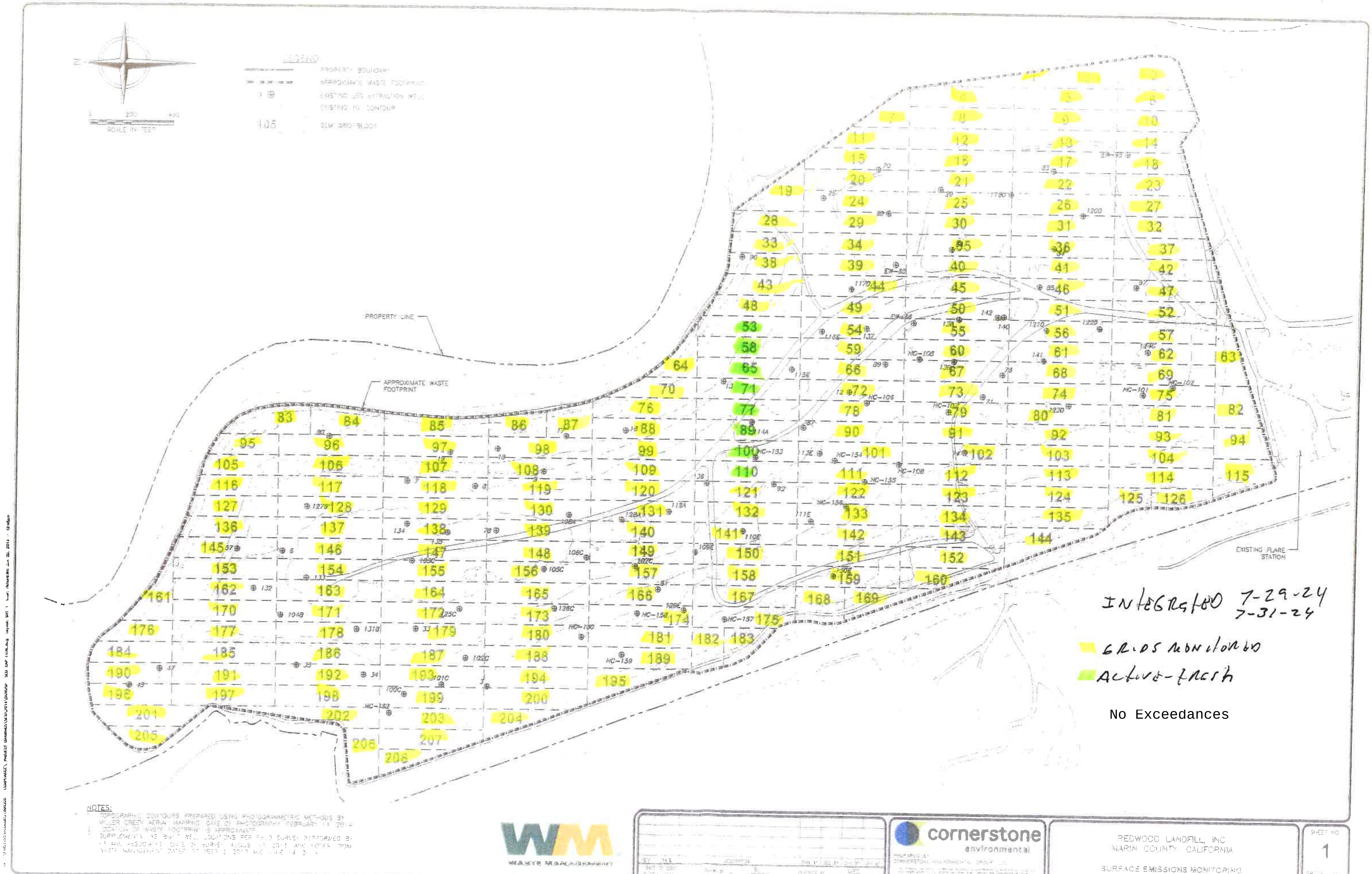
Attachment B

Integrated Surface Emission Monitoring Event Records

Table B.1
Integrated Landfill Surface Monitoring
Exceedances and Monitoring Log

2024 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			Comments
Exceedance Grid ID No.	Monitoring Date	Reading ppm	Monitoring Date	No Exced. <25 ppm	No Exced. >25 ppm	Monitoring Date	No Exced. <25 ppm	No Exced. >25 ppm	
No Exceedances Detected 7/29/24 & 7/31/24									


LEGEND
PROPERTY BOUNDARY
APPROXIMATE WASTE FOOTPRINT
EXISTING LFG EXTRACTION WELL
EXISTING 10' CONTOUR
SEM GRID BLOCK
SCALE IN FEET
PROPERTY LINE
APPROXIMATE WASTE FOOTPRINT
EXISTING FLARE STATION
Integrated 7-29-24 7-31-24
Grids monitored
Active-fresh
No Exceedances
NOTES:
cornerstone environmental
REDWOOD LANDFILL, INC
MARIN COUNTY, CALIFORNIA
SURFACE EMISSIONS MONITORING GRID MAP
1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leishwaor / Anthony Cervelas / Jerry Alvarez / Mickias Abraham / Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-29-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 71 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
1	LW	1100	1125	5.80	2	3	12	
2	JM	1100	1125	4.66	2	3	12	
3	JM	1100	1125	5.71	2	3	12	
4	AC	1100	1125	9.82	2	3	12	
5	MA	1100	1125	7.68	2	3	12	
6	LW	1125	1150	5.11	1	2	12	
7	JM	1125	1150	10.51	1	2	12	
8	JM	1125	1150	13.26	1	2	12	
9	AC	1125	1150	10.21	1	2	12	
10	MA	1125	1150	6.40	1	2	12	
11	LW	1150	1215	12.48	1	2	9	
12	JM	1150	1215	15.66	1	2	9	
13	JM	1150	1215	11.30	1	2	9	
14	AC	1150	1215	6.48	1	2	9	
15	MA	1150	1215	19.81	1	2	9	
16	LW	1215	1240	14.26	2	2	8	
17	JM	1215	1240	9.80	2	2	8	
18	JM	1215	1240	7.13	2	2	8	
19	AC	1215	1240	15.45	2	2	8	
20	MA	1215	1240	20.66	2	2	8	
21	LW	1240	1305	14.70	0	1	10	
22	JM	1240	1305	8.11	0	1	10	
23	JM	1240	1305	6.84	0	1	10	
24	AC	1240	1305	18.94	0	1	10	
25	MA	1240	1305	16.20	0	1	10	
26	LW	1305	1330	8.55	0	0	10	
27	JM	1305	1330	6.21	0	0	10	
28	JM	1305	1330	11.44	0	0	10	
29	AC	1305	1330	17.23	0	0	10	
30	MA	1305	1330	18.57	0	0	10	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade; Anthony Cevelos; Jerry Munoz; Mickel Abreu; Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-25-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 75 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
31	LW	1330	1355	7.45	0	0	6	
32	JM	1330	1355	6.10	0	0	6	
33	JM	1330	1355	9.71	0	0	6	
34	AC	1330	1355	11.54	0	0	6	
35	MA	1330	1355	14.67	0	0	6	
36	LW	1355	1420	10.29	1	3	6	
37	JM	1355	1420	6.07	1	3	6	
38	JM	1355	1420	9.22	1	3	6	
39	AC	1355	1420	10.65	1	3	6	
40	MA	1355	1420	18.32	1	3	6	
41	LW	1420	1445	9.70	4	5	6	
42	JM	1420	1445	6.54	4	5	6	
43	JM	1420	1445	9.19	4	5	6	
44	AC	1420	1445	11.21	4	5	6	
45	MA	1420	1445	7.60	4	5	6	
46	LW	1445	1510	7.09	4	5	5	
47	JM	1445	1510	6.21	4	5	5	
48	JM	1445	1510	8.32	4	5	5	
49	AC	1445	1510	7.18	4	5	5	
50	MA	1445	1510	7.45	4	5	5	
51	LW	1510	1535	6.07	4	4	5	
52	JM	1510	1535	5.13	4	4	5	
54	JM	1510	1535	6.89	4	4	5	
55	AC	1510	1535	5.52	4	4	5	
56	MA	1510	1535	6.29	4	4	5	
57	LW	1535	1600	6.36	4	5	4	
59	JM	1535	1600	7.03	4	5	4	
60	JM	1535	1600	6.87	4	5	4	
61	AC	1535	1600	6.45	4	5	4	
62	MA	1535	1600	5.31	4	5	4	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 3

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leishwade, Anthony Cevelos, Jerry Munoz, Mckrier Abrehen, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-29-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 75 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
63	LW	1600	1625	7.14	3	5	4	
64	JM	1600	1625	8.97	3	5	4	
66	JM	1600	1625	7.11	3	5	4	
67	AC	1600	1625	8.32	3	5	4	
68	MA	1600	1625	6.49	3	5	4	
69	LW	1625	1650	5.52	4	5	4	
70	JM	1625	1650	6.13	4	5	4	
72	JM	1625	1650	7.05	4	5	4	
73	AC	1625	1650	6.40	4	5	4	
74	MA	1625	1650	6.18	4	5	4	

Attach Calibration Sheet
Attach site map showing grid ID

Page 3 of 3

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade ______ ______
______ ______ ______
______ ______ Cal. Gas Exp. Date: ______

Date: 7-29-24 Instrument Used: ______ Grid Spacing: ______

Temperature: ______ Precip: ______ Upwind BG: ______ Downwind BG: ______

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
53								Active haul
58								
65								
71								
77								
89								
100								
110								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leishwade | Anthony Cruces
Jerry Munoz | Mercer Archer
Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-31-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 51 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
75	LW	0520	0545	5.82	5	6	6	
76	JM	0520	0545	8.60	5	6	6	
78	JM	0520	0545	9.14	5	6	6	
79	AC	0520	0545	8.47	5	6	6	
80	MA	0520	0545	6.22	5	6	6	
81	LW	0545	0610	6.49	5	5	6	
82	JM	0545	0610	6.35	5	5	6	
83	JM	0545	0610	5.91	5	5	6	
84	AC	0545	0610	6.03	5	5	6	
85	MA	0545	0610	5.39	5	5	6	
86	LW	0610	0635	6.18	4	6	7	
87	JM	0610	0635	6.32	4	6	7	
88	JM	0610	0635	7.54	4	6	7	
90	AC	0610	0635	9.12	4	6	7	
91	MA	0610	0635	8.66	4	6	7	
92	LW	0635	0700	6.78	3	5	6	
93	JM	0635	0700	6.10	3	5	6	
94	JM	0635	0700	5.42	3	5	6	
95	AC	0635	0700	5.90	3	5	6	
96	MA	0635	0700	5.28	3	5	6	
97	LW	0700	0725	5.71	1	2	4	
98	JM	0700	0725	6.02	1	2	4	
99	JM	0700	0725	8.11	1	2	4	
101	AC	0700	0725	10.32	1	2	4	
102	MA	0700	0725	9.75	1	2	4	
103	LW	0725	0750	7.24	4	5	2	
104	JM	0725	0750	6.12	4	5	2	
105	JM	0725	0750	6.19	4	5	2	
106	AC	0725	0750	5.42	4	5	2	
107	MA	0725	0750	5.81	4	5	2	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEISHWADE; JERRY ALVOZ; JOVANI MEDINA; ANTHONY CEVELAS; MEKKAS ARRCHEA

Cal. Gas Exp. Date: 11-10-24

Date: 7-31-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 62 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
108	LW	0750	0815	6.13	3	4	2	
109	JA	0750	0815	7.45	3	4	2	
111	JA	0750	0815	9.85	3	4	2	
112	AC	0750	0815	12.65	3	4	2	
113	MA	0750	0815	9.60	3	4	2	
114	LW	0815	0840	6.17	1	2	2	
115	JA	0815	0840	6.02	1	2	2	
116	JA	0815	0840	5.47	1	2	2	
117	AC	0815	0840	5.50	1	2	2	
118	MA	0815	0840	6.11	1	2	2	
119	LW	0840	0905	6.38	4	6	2	
120	JA	0840	0905	8.38	4	6	2	
121	JA	0840	0905	11.51	4	6	2	
122	AC	0840	0905	9.78	4	6	2	
123	MA	0840	0905	6.15	4	6	2	
124	LW	0905	0930	6.92	4	7	7	
125	JA	0905	0930	5.41	4	7	7	
126	JA	0905	0930	5.78	4	7	7	
127	AC	0905	0930	5.14	4	7	7	
128	MA	0905	0930	6.11	4	7	7	
129	LW	0930	0955	5.89	5	8	7	
130	JA	0930	0955	7.34	5	9	7	
131	JA	0930	0955	6.40	5	9	7	
132	AC	0930	0955	8.50	5	9	7	
133	MA	0930	0955	9.77	5	8	7	
134	LW	0955	1020	6.10	5	7	7	
135	JA	0955	1020	6.39	5	7	7	
136	JA	0955	1020	5.40	5	7	7	
137	AC	0955	1020	5.75	5	7	7	
138	MA	0955	1020	6.28	5	7	7	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEISHWADE, Anthony Cruces, Jerry Alnoz, Mckaks Abrchen, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-31-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 65 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
139	LW	1020	1045	6.07	4	7	6	
140	JA	1020	1045	8.30	4	7	6	
141	JA	1020	1045	7.26	4	7	6	
142	AC	1020	1045	9.51	4	7	6	
143	MA	1020	1045	6.40	4	7	6	
144	LW	1045	1110	5.78	4	6	7	
145	JA	1045	1110	5.04	4	6	7	
146	JA	1045	1110	6.21	4	6	7	
147	AC	1045	1110	5.60	4	6	7	
148	MA	1045	1110	7.71	4	6	7	
149	LW	1110	1135	9.50	5	7	6	
150	JA	1110	1135	13.61	5	7	6	
151	JA	1110	1135	11.40	5	7	6	
152	AC	1110	1135	9.78	5	7	6	
153	MA	1110	1135	10.24	5	7	6	
154	LW	1135	1200	6.21	5	8	8	
155	JA	1135	1200	8.17	5	8	8	
156	JA	1135	1200	7.48	5	8	8	
157	AC	1135	1200	9.20	5	8	8	
158	MA	1135	1200	11.74	5	6	8	
159	LW	1200	1225	9.19	5	7	7	
160	JA	1200	1225	6.45	5	7	7	
161	JA	1200	1225	4.28	5	7	7	
162	AC	1200	1225	6.19	5	7	7	
163	MA	1205	1225	6.32	5	7	7	
164	LW	1225	1250	7.58	4	8	7	
165	JA	1225	1250	6.13	4	8	7	
166	JA	1225	1250	9.45	4	8	7	
167	AC	1225	1250	8.30	4	8	7	
168	MA	1225	1250	5.51	4	8	7	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leishwade, Anthony Cevalos, Jerry Munoz, Mekkai Arreche, Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-31-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 70 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
169	LW	1250	1315	6.07	5	8	7	
170	JM	1250	1315	6.34	5	8	7	
171	JM	1250	1315	7.10	5	8	7	
172	AC	1250	1315	6.42	5	8	7	
173	MA	1250	1315	5.51	5	8	7	
174	LW	1315	1340	6.20	4	6	10	
175	JM	1315	1340	5.92	4	6	10	
176	JM	1315	1340	4.15	4	6	10	
177	AC	1315	1340	6.92	4	6	10	
178	MA	1315	1340	7.40	4	6	10	
179	LW	1340	1405	8.17	5	8	10	
180	JM	1340	1405	11.15	5	8	10	
181	JM	1340	1405	6.38	5	8	10	
182	AC	1340	1405	6.91	5	8	10	
183	MA	1340	1405	5.46	5	8	10	
184	LW	1405	1430	4.79	5	10	10	
185	JM	1405	1430	6.62	5	10	10	
186	JM	1405	1430	7.19	5	10	10	
187	AC	1405	1430	6.84	5	10	10	
188	MA	1405	1430	7.25	5	10	10	
189	LW	1430	1455	6.10	5	10	10	
190	JM	1430	1455	5.06	5	10	10	
191	JM	1430	1455	6.80	5	10	10	
192	AC	1430	1455	7.15	5	10	10	
193	MA	1430	1455	7.07	5	10	10	
194	LW	1455	1520	8.23	5	10	10	
195	JM	1455	1520	6.17	5	10	10	
196	JM	1455	1520	4.39	5	10	10	
197	AC	1455	1520	4.61	5	10	10	
198	MA	1455	1520	5.38	5	10	10	

Attach Calibration Sheet
Attach site map showing grid ID

Page 4 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leishwade; Anthony Cevilla; Jerry Alvaz; Mervat Abrahem; Jovani Medina

Cal. Gas Exp. Date: 11-10-24

Date: 7-31-24 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 72 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
199	LW	1520	1545	5.21	6	10	9	
200	JM	1520	1545	4.67	6	10	9	
201	JM	1520	1545	5.13	6	10	9	
202	AC	1520	1545	4.79	6	10	9	
203	MA	1520	1545	3.26	6	10	9	
204	LW	1545	1610	4.09	5	10	10	
205	JM	1545	1610	3.10	5	10	10	
206	JM	1545	1610	5.71	5	10	10	
207	AC	1545	1610	5.04	5	10	10	
208	MA	1545	1610	4.66	5	10	10	

Attach Calibration Sheet
Attach site map showing grid ID

Page 5 of 5

Attachment C

Component Leak Monitoring Event Records

Table C.1
AB-32 Component Leak Monitoring
Summary of Component Leaks Greater than 500 ppmv

2024 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Location	Initial Monitoring			Corrective Action		10-Day Remonitoring		
	Date	TOC (ppmv)	Tech	Date	Description	Date	TOC (ppmv)	Tech
No Exceedances Detected 7/30/24								

Table C.2
BAAQMD Component Leak Monitoring
Summary of Component Leaks Greater than 1,000 ppmv

2024 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Location	Initial Monitoring			Corrective Action		7-Day Remonitoring		
	Date	TOC (ppmv)	Tech	Date	Description	Date	TOC (ppmv)	Tech
No Exceedances Detected 7/30/24								

LANDFILL NAME: Redwood
QUARTERLY LFG COMPONENT LEAK MONITORING

INSTRUMENT FID
MAKE: Thermo Environr
MODEL: TVA 1000
S/N: 1036346773

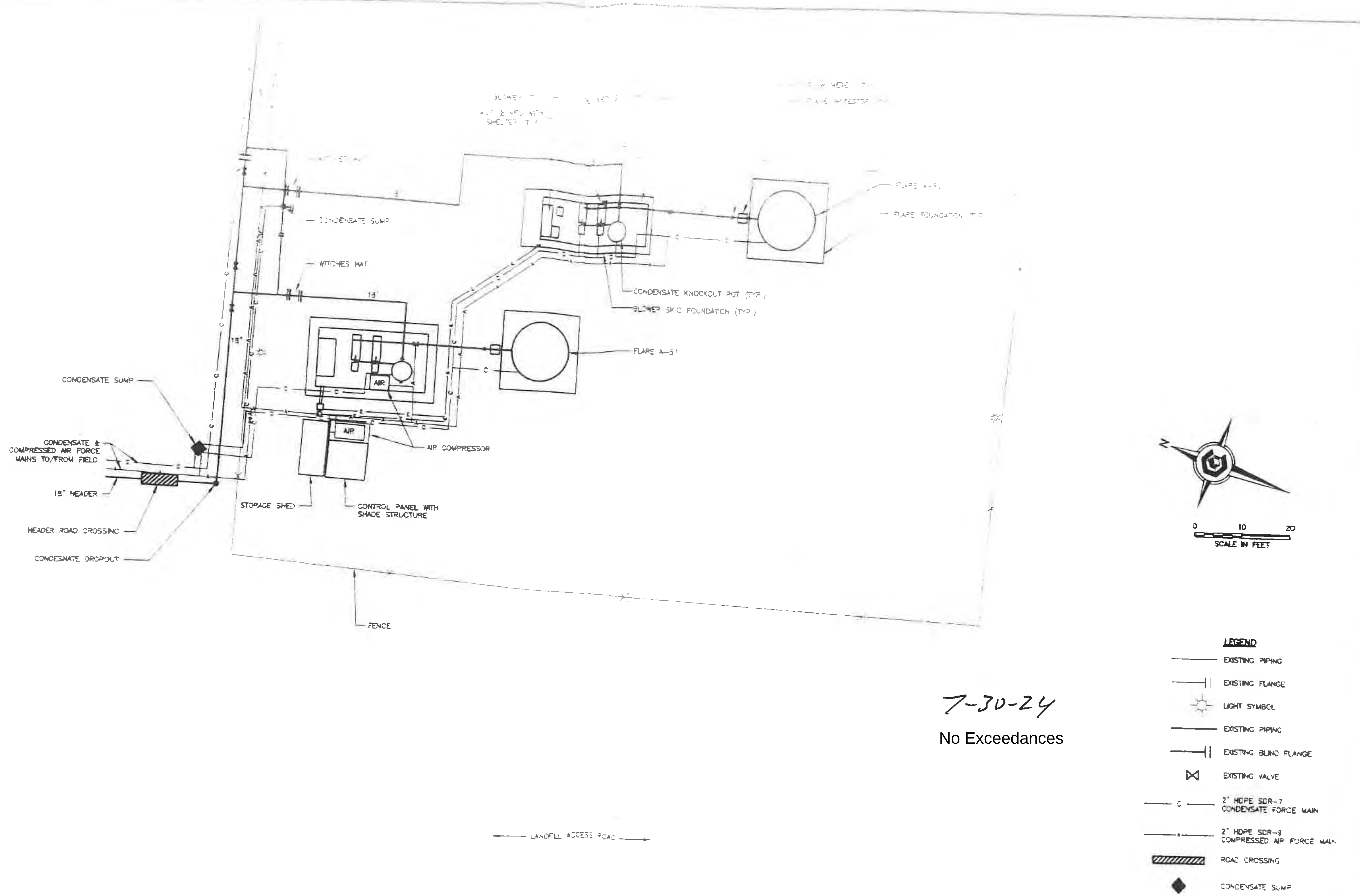
DATE OF SAMPLING: 7-30-24
TECHNICIAN: Leishwahe

LOCATION OF LEAK	LEAK CONCENTRATION (ppmv)	DATE OF DISCOVERY	TECHNICIAN	ACTION TAKEN TO REPAIR LEAK	DATE OF REPAIR	DATE OF ANY REQUIRED RE-MONITORING	RE-MONITORED CONCENTRATION (ppmv)
NO EXCEEDENCES							

In the event that an exceedance is detected, please intiate corrective action and re-monitor the exceedance location within 7 days of the initial exceedance.

NOTE: Leaks over 500 ppmv methane are exceedances at any component containing landfill gas, pursuant to CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B).

NOTE: Leaks over 1,000 ppmv methane are exceedances at any component containing landfill gas, pursuant to BAAQMD Regulation 8-34-301.2.



7-30-24

No Exceedances

DRAFT

WM WASTE MANAGEMENT

CORNERSTONE

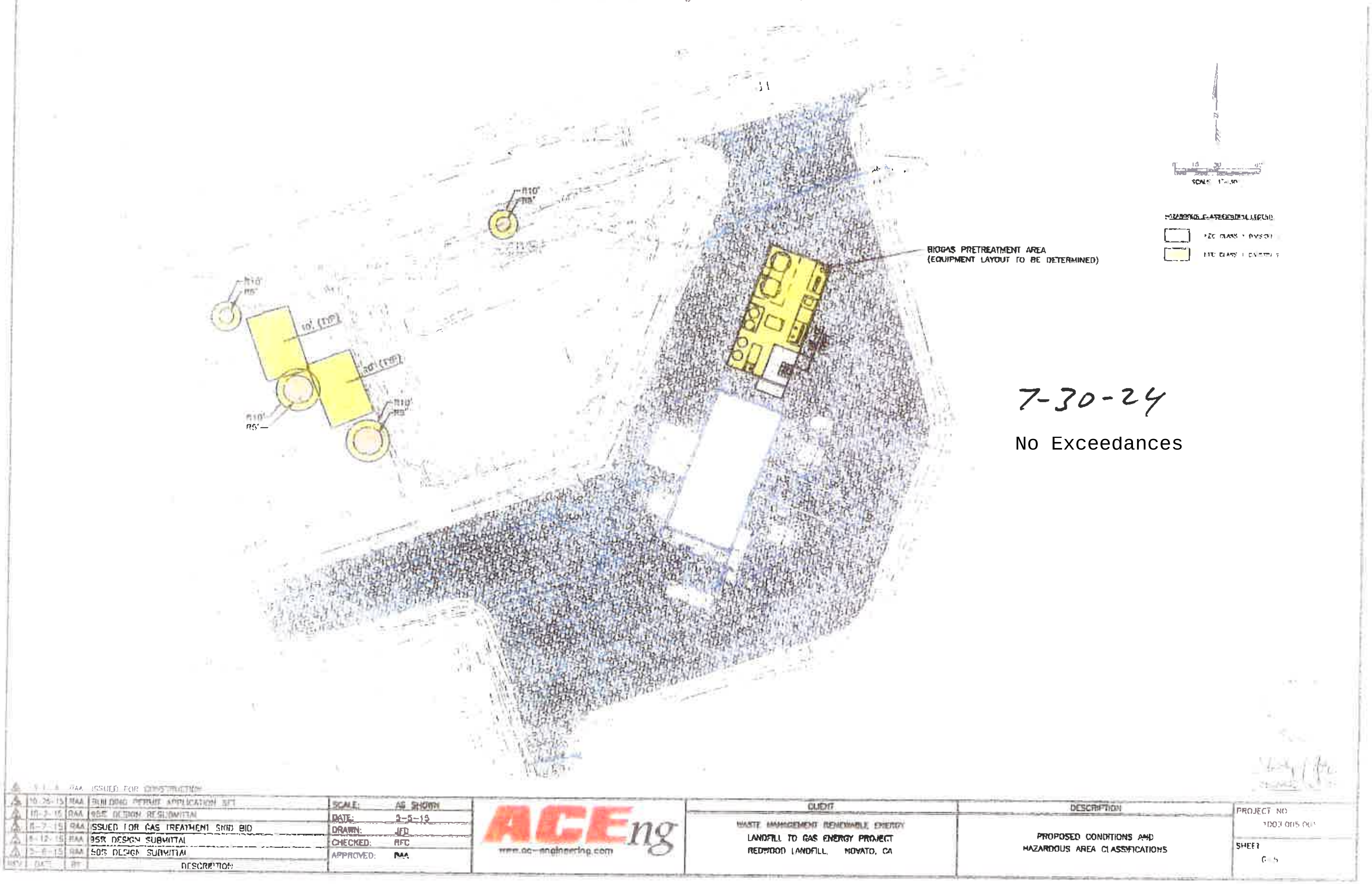
LFG FLARE AND GCCS AS-BUILT

SHEET 1

Redwood 3520+ Engine Plant, CA

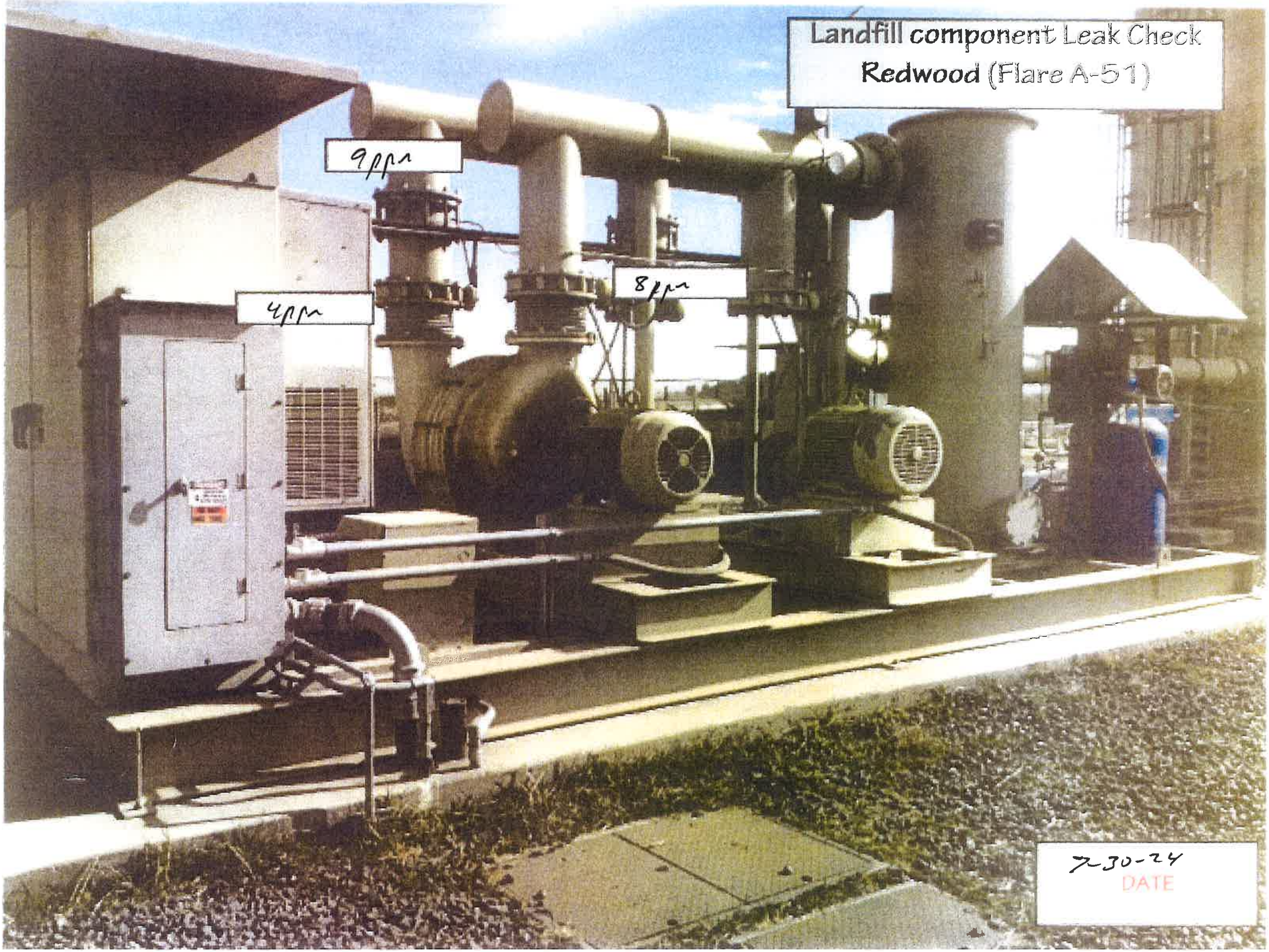
Site Map

8950 Redwood Hwy, Novato, CA 94948



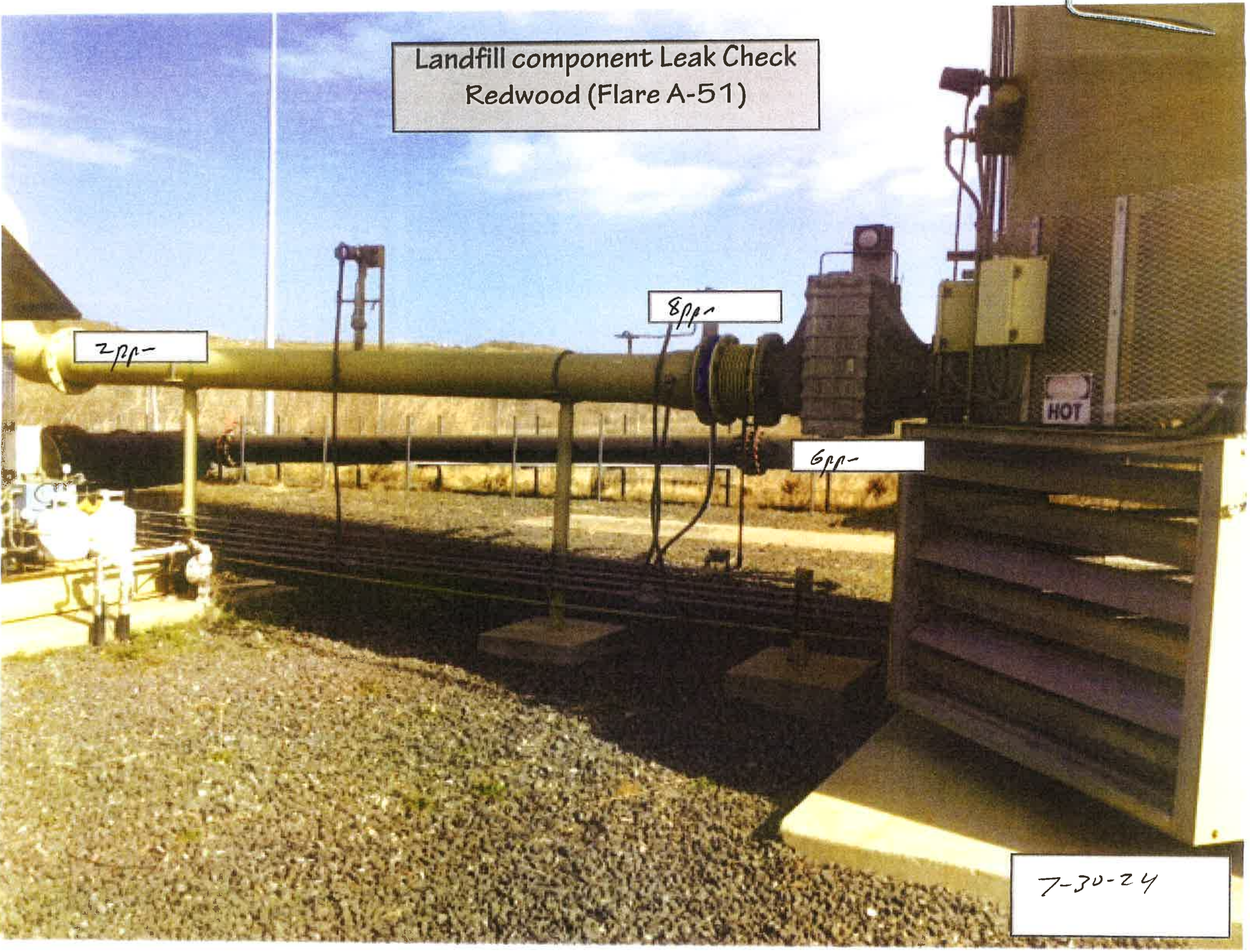
7-30-24

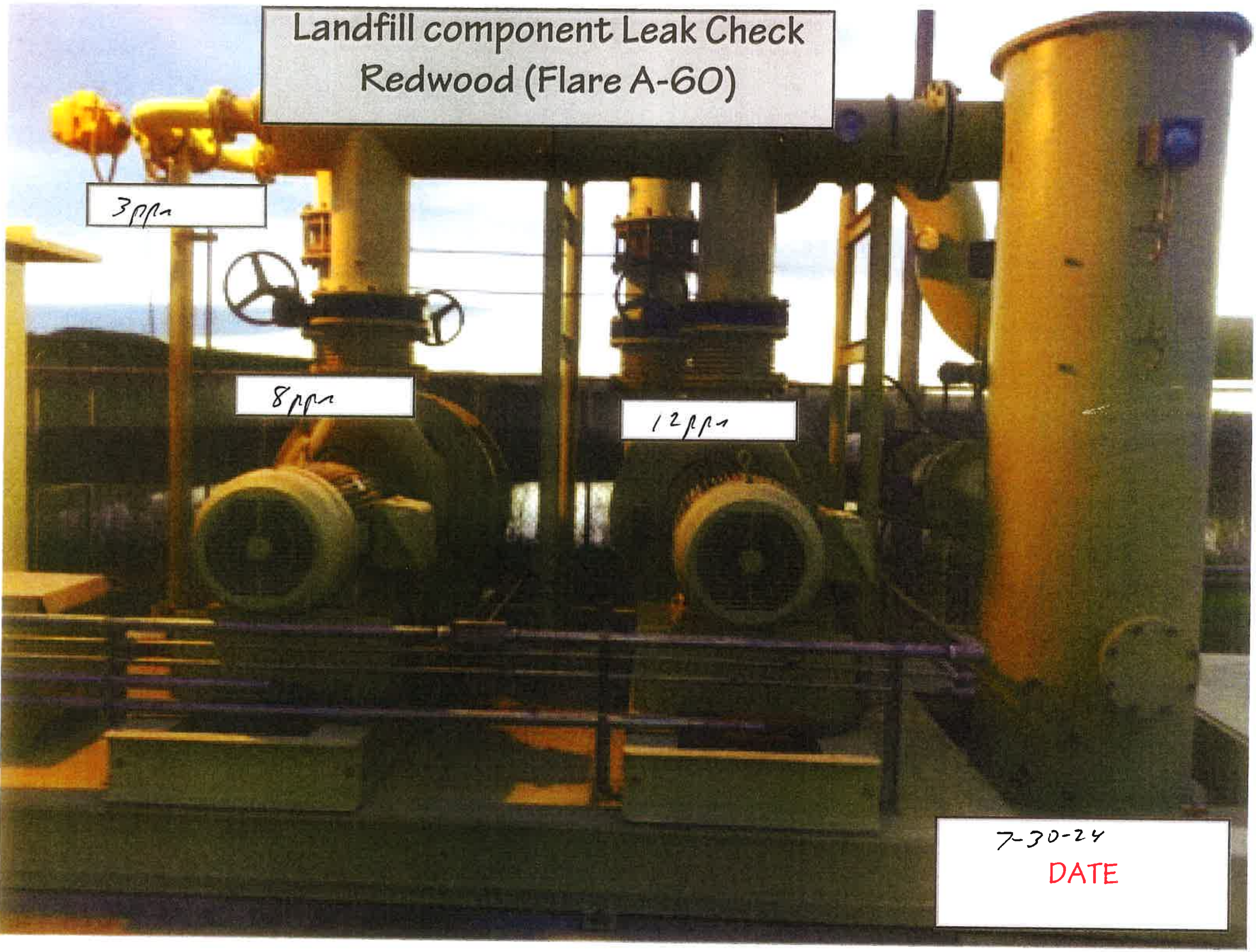
No Exceedances

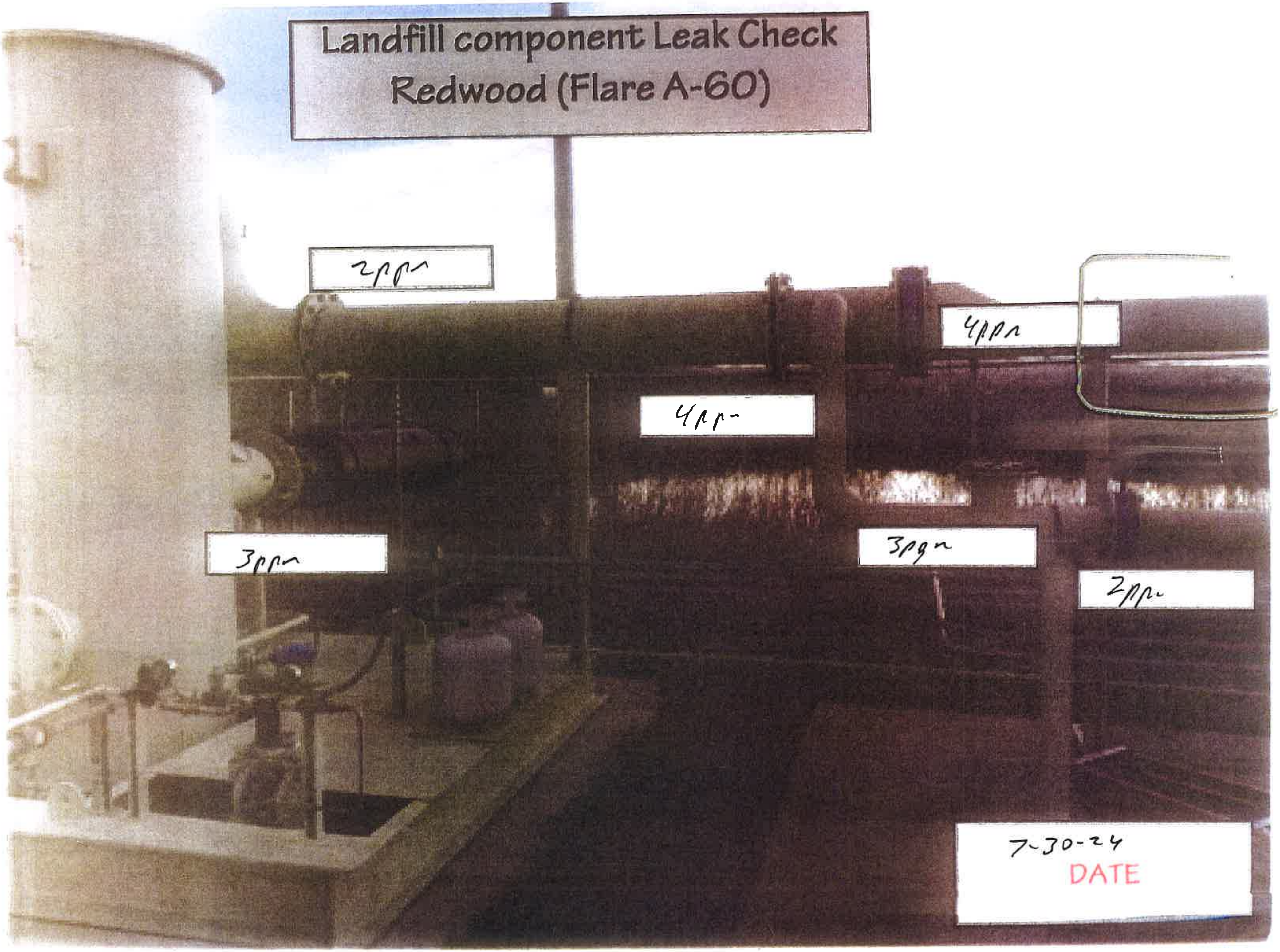


Landfill component Leak Check
Redwood (Flare A-51)
9ppm
4ppm
8ppm
7-30-24
DATE

Landfill component Leak Check
Redwood (Flare A-51)




Landfill component Leak Check
Redwood (Flare A-60)
3ppm
8ppm
12ppm
7-30-24
DATE


Landfill component Leak Check
Redwood (Flare A-60)
2ppm
4ppm
4ppm
3ppm
3ppm
2ppm
7-30-24
DATE

Attachment D

Weather Station Data

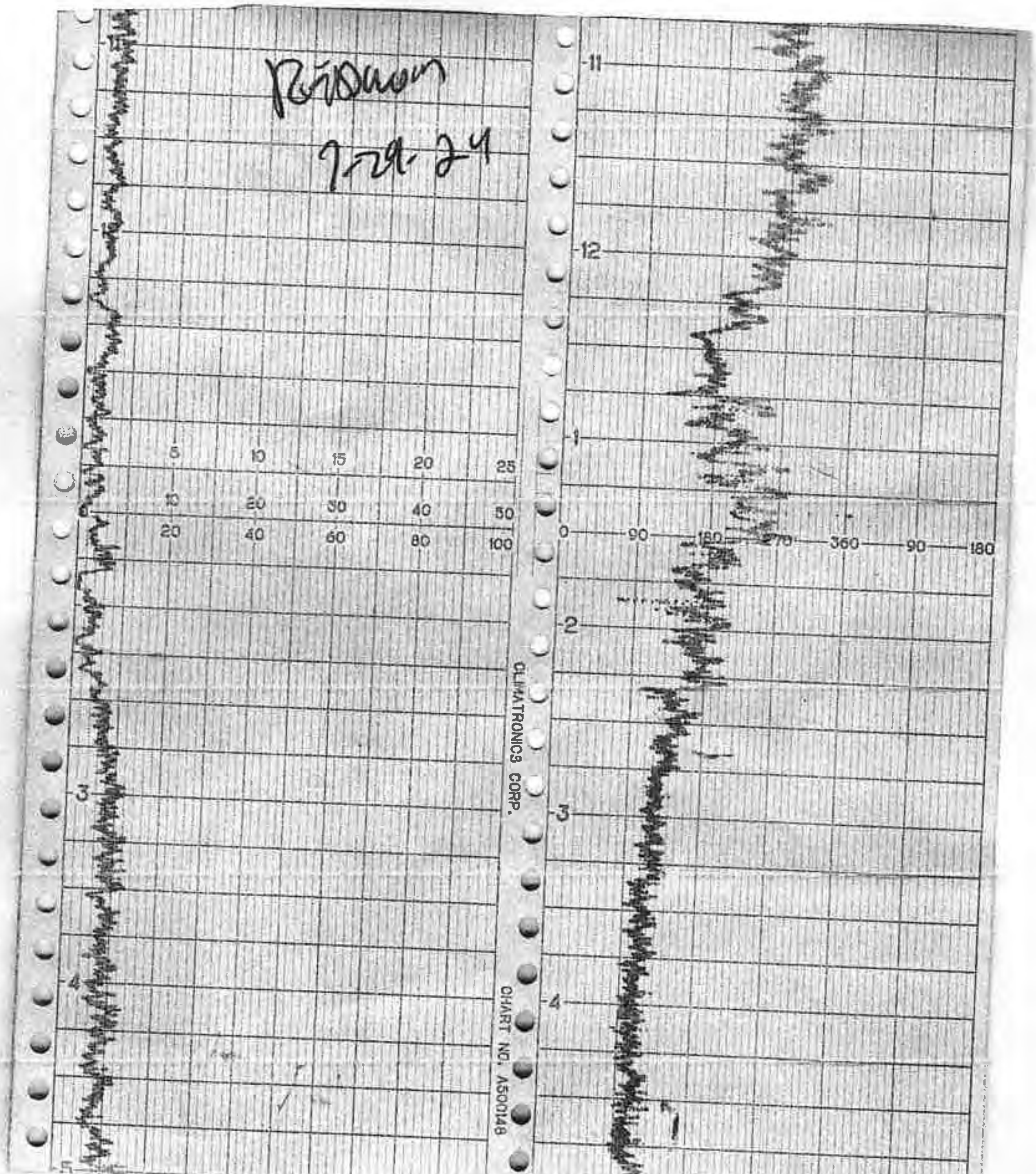
RES Environmental Inc.

16-POINT WIND DIRECTION INDEX

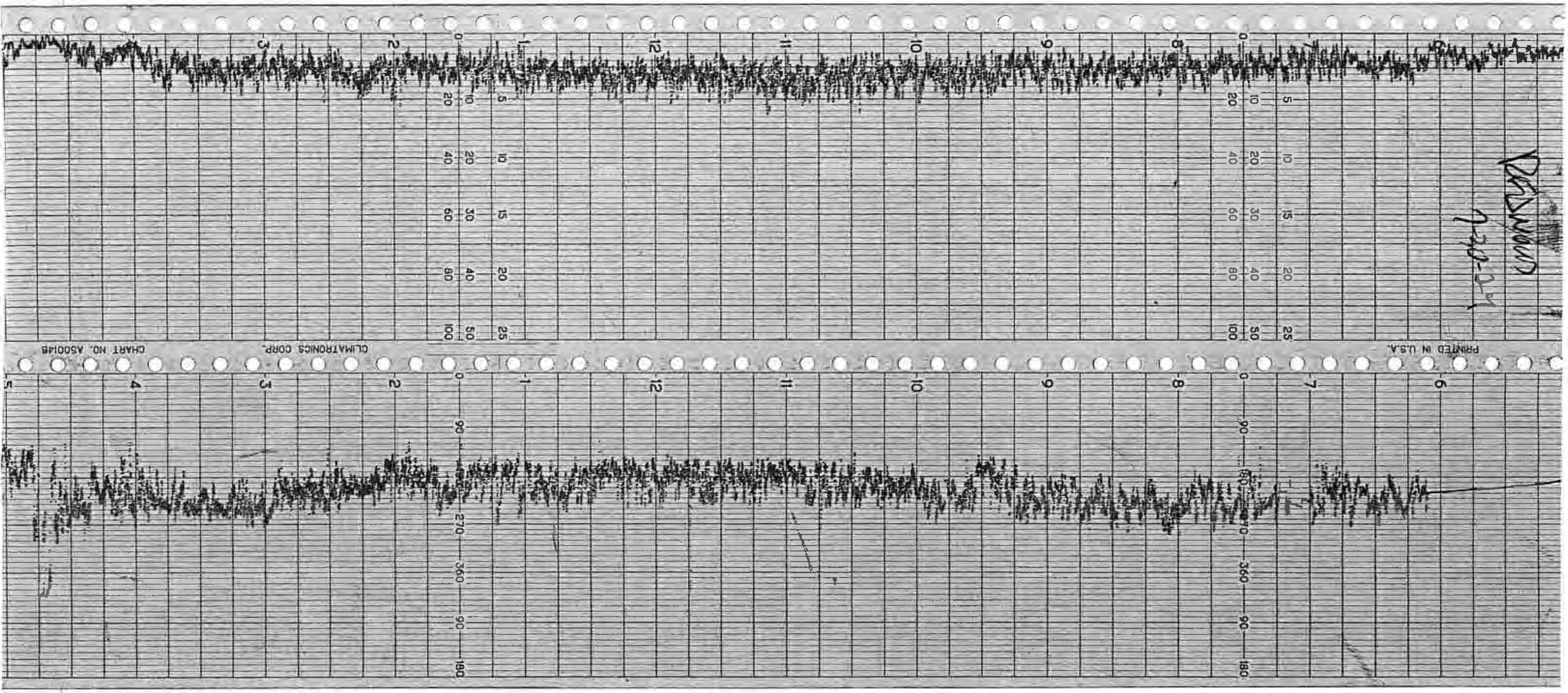
NO	DIRECTION	DEGREES FROM	DEGREES CENTER	DEGREES TO
16	NORTH (N)	348.8	360.0	011.3
1	NORTH-NORTHEAST (NNE)	011.3	022.5	033.8
2	NORTHEAST (NE)	033.8	045.0	056.3
3	EAST-NORTHEAST (ENE)	056.3	067.5	078.8
4	EAST (E)	078.8	090.0	101.3
5	EAST-SOUTHEAST (ESE)	101.3	112.5	123.8
6	SOUTHEAST (SE)	123.8	135.0	146.3
7	SOUTH-SOUTHEAST (SSE)	146.3	157.5	168.8
8	SOUTH (S)	168.8	180.0	191.3
9	SOUTH-SOUTHWEST (SSW)	191.3	202.5	213.8
10	SOUTHWEST (SW)	213.8	225.0	236.3
11	WEST-SOUTHWEST (WSW)	236.3	247.5	258.8
12	WEST (W)	258.8	270.0	281.3
13	WEST-NORTHWEST (WNW)	281.3	292.5	303.8
14	NORTHWEST (NW)	303.8	315.0	326.3
15	NORTH-NORTHWEST (NNW)	326.3	337.5	348.8

865 Via Lata ▪ Colton, California 92324 ▪ (909) 422-1001 Fax (909) 422-0707

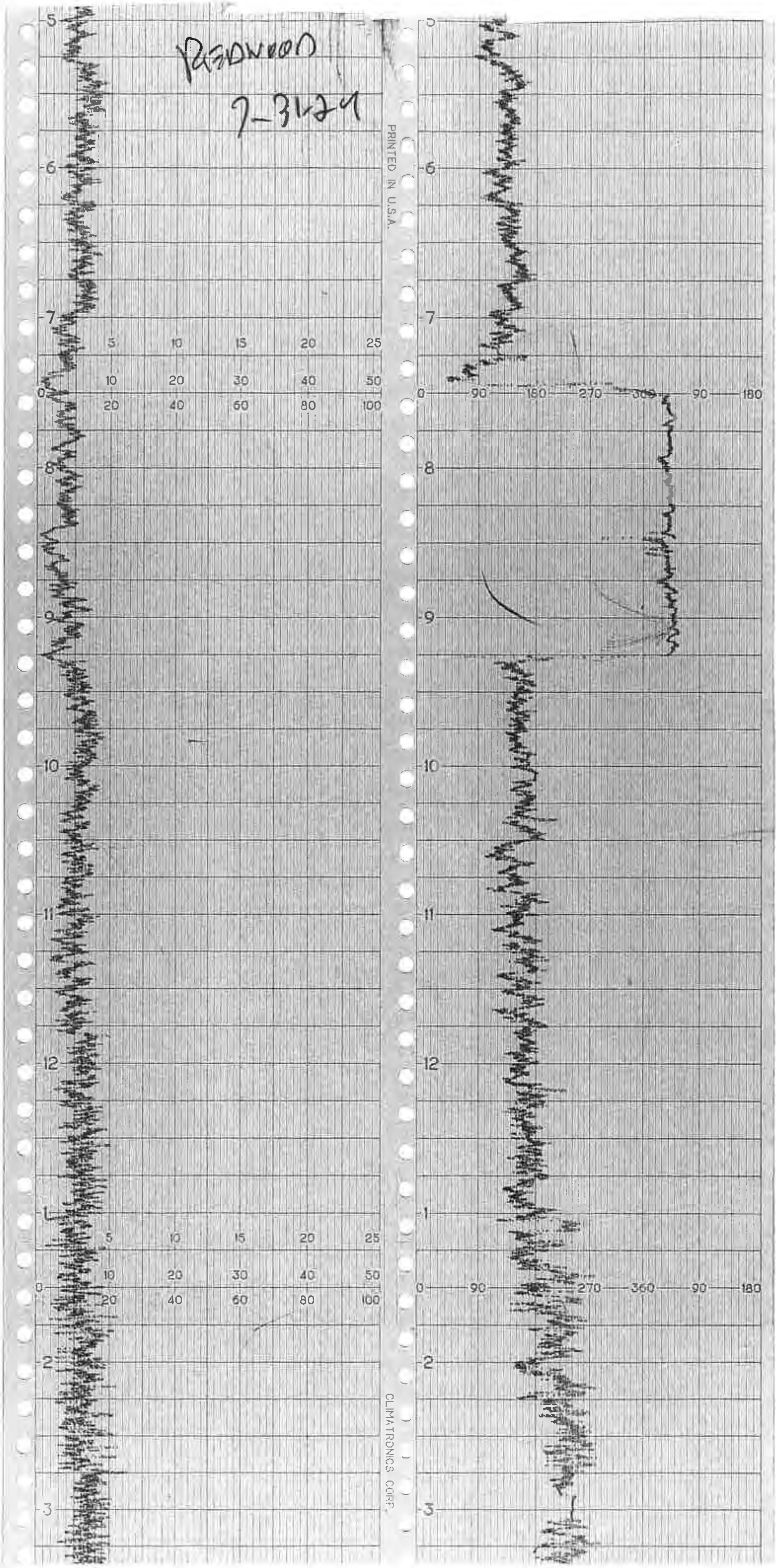
WIND SPEED & DIRECTION CHART ROLL



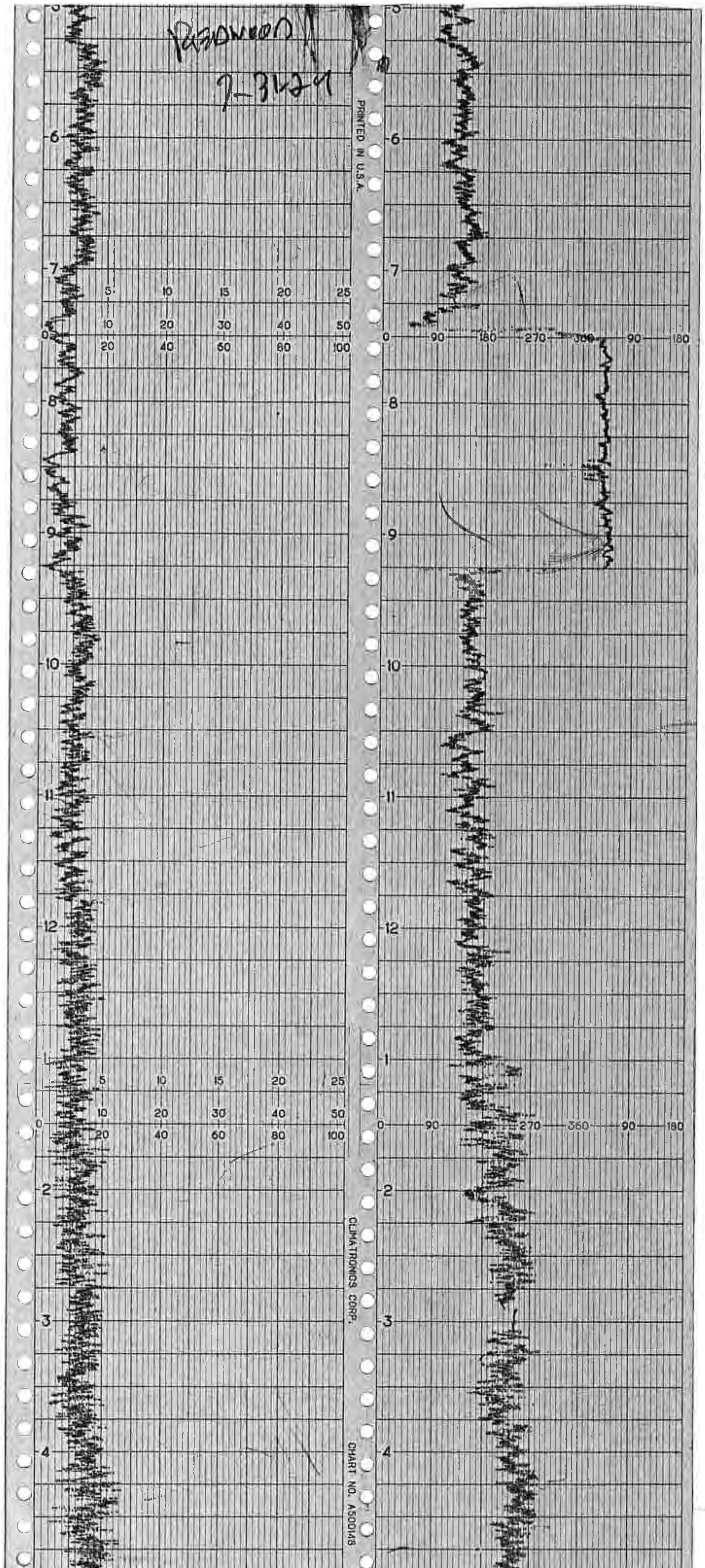
WIND SPEED & DIRECTION CHART ROLL



WIND SPEED & DIRECTION CHART ROLL



WIND SPEED & DIRECTION CHART ROLL



Attachment E

Calibration Records

RESPONSE TIME TEST RECORD

Date: 8-1-24

Expiration Date (3 months): 11-1-24

Time: 10:48 AM ______ PM

Instrument Make: Thermo Scientific Model: TVA 1000 S/N: 0936338909

Measurement #1:

Stabilized Reading Using Calibration Gas: 500 ppm
90% of the Stabilized Reading: 450 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 7 seconds (a)

Measurement #2:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449.1 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449.1 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (c)

Calculate Response Time:

$\frac{(a) + (b) + (c)}{3}$ = 6.33 seconds (must be less than 30 seconds)

Performed By: Jimmie Brunning

CALIBRATION PRECISION TEST RECORD

Date: 8-1-24

Expiration Date (3 months): 11-1-24

Time: 10:38 AM ______ PM

Instrument Make: ~~Photovac~~ Thermo Scientific Model: ~~MicroFid~~ TVA - 1000 S/N: 0936338909

Measurement #1:

Meter Reading for Zero Air: 0 ppm (a)

Meter Reading for Calibration Gas: 502 ppm (b)

Measurement #2:

Meter Reading for Zero Air: 0 ppm (c)

Meter Reading for Calibration Gas: 499 ppm (d)

Measurement #3:

Meter Reading for Zero Air: 0 ppm (e)

Meter Reading for Calibration Gas: 499 ppm (f)

Calculate Precision:

$$\frac{\{|(500) - (b)| + |(500) - (d)| + |(500) - (f)|\}}{3} \times \frac{1}{500} \times 100$$

0.8 % (must be < than 10%)

Performed By: Jimmie Browning

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: [redacted] 8-1-24

Time: 11:00 AM ____________ PM

Instrument Make: ~~Photovac~~ Thermo Scientific Model: ~~Micro FID~~ TVA 1000 S/N: ~~CZMF340~~ 0936338909

Calibration Procedure

1. Allow instrument to internally zero itself while introducing zero air.
2. Introduce the calibration gas into the probe.

   Stable Reading = 499 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 2.71 ppm (a)
2. Downwind Reading (highest in 30 seconds): 2.69 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 2.70 ppm

Performed By: Jimmie Bruning

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 8-6-24

Time: ______ AM 1:17 PM

Instrument Make: Thermo Scientific Model: TVA-1000 S/N: 0936338909

Calibration Procedure

1. Allow instrument to internally zero itself while introducing zero air.
2. Introduce the calibration gas into the probe.

   Stable Reading = 500 ppm

3. Adjust meter to read 500 ppm.

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 4.53 ppm (a)
2. Downwind Reading (highest in 30 seconds): 3.39 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 3.96 ppm

Performed By: Jimmie Brunning

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 8-27-24

Time: 8:26 AM ~~_____~~ PM

Instrument Make: ~~Photovac~~ Thermo Scientific Model: ~~Micro FID~~ TVA 1000 S/N: ~~CZMF340~~ 0936338909

Calibration Procedure

1. Allow instrument to internally zero itself while introducing zero air.
2. Introduce the calibration gas into the probe.

   Stable Reading = 501 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 10.3 ppm (a)
2. Downwind Reading (highest in 30 seconds): 18.5 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 14.4 ppm

Performed By: Jimmie Banning

KIES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo

MODEL TVA1000 EQUIPMENT # 10 SERIAL # 1036346773

MONITORING DATE 7-30-24 TIME 0510

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	507 ppm	457 ppm	6
#2	500 ppm	450 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.10 ppm	507 ppm	7
#2	0.07 ppm	500 ppm	0
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.46 #DIV/0! Must be less than 10%

Performed By [illegible] Date/Time 7-30-24-0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346772

MONITORING DATE: 7-30-24 TIME: 0810

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	455 ppm	445 ppm	4
#2	500 ppm	450 ppm	4
#3	500 ppm	450 ppm	4
Calculate Response Time $\frac{(1+2+3)}{3}$			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.14 ppm	455 ppm	5
#2	0.09 ppm	500 ppm	0
#3	0.06 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.33 #DIV/0! Must be less than 10%

Performed By: Jerry Munoz Date/Time: 7-30-24-0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 7-30-24 TIME: 0510

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	450 ppm	440 ppm	5
#2	501 ppm	451 ppm	5
#3	500 ppm	450 ppm	5
Calculate Response Time $\frac{(1+2+3)}{3}$			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.17 ppm	450 ppm	10
#2	0.11 ppm	501 ppm	1
#3	0.08 ppm	500 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.73 #DIV/0! Must be less than 10%

Performed By: Johnny Medina Date/Time: 7-30-24-0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo
MODEL TVA 1000 EQUIPMENT # 13 SERIAL # 1102746775
MONITORING DATE 7-30-24 TIME 0510

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	485 ppm	439 ppm	7
#2	504 ppm	454 ppm	7
#3	500 ppm	450 ppm	7
Calculate Response Time $\frac{(1+2+3)}{3}$			7 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.15 ppm	485 ppm	11
#2	0.10 ppm	504 ppm	4
#3	0.04 ppm	500 ppm	0
Calculate Precision $\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$			1.0 #DIV/0! Must be less than 10%

Performed By Anthony Canales Date/Time 7-30-24 - 0510

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CALIBRATION PROCEDURE AND BACKGROUND REPORT - INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 16 SERIAL #: 1102746776

MONITORING DATE: 7-30-24 TIME: 0510

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	497 ppm	447 ppm	4
#2	500 ppm	450 ppm	4
#3	500 ppm	450 ppm	4
Calculate Response Time (1+2+3) / 3			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.09 ppm	497 ppm	3
#2	0.04 ppm	500 ppm	0
#3	0.02 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.20 #DIV/0! Must be less than 10%

Performed By: [illegible] Date/Time: 7-30-24 - 0510

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 7-29-24 TIME 1050

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	**Downwind Background Reading:** (Highest in 30 seconds)	**Background Value:** (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	**Stabilized Reading Using Calibration Gas**	**90% of the Stabilized Reading**	**Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas**
#1	24 ppm	21.6 ppm	4
#2	25 ppm	22.5 ppm	4
#3	25 ppm	22.5 ppm	4
Calculate Response Time (1+2+3) / 3			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	**Meter Reading for Zero Air (A)**	**Meter Reading for Calibration Gas (B)**	**Calculate Precision [STD – (B)]**
#1	0.11 ppm	24 ppm	1
#2	0.09 ppm	25 ppm	0
#3	0.07 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: Leigh Wade Date/Time 7-29-24 – 1050

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT NAME: THERMO

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1636346772

MONITORING DATE: 7-29-24 TIME: 1050

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	25 ppm	22.5 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.14 ppm	24 ppm	1
#2	0.08 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: Jenny Munoz Date/Time: 7-25-24 – 1050

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 7-25-24 TIME: 1050

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	6
#2	25 ppm	22.5 ppm	6
#3	25 ppm	22.5 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.09 ppm	23 ppm	2
#2	0.07 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By: JOVENI ACOINS Date/Time: 7-25-24 -1050

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 7-29-24 TIME: 1050

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	25 ppm	22.5 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.11 ppm	24 ppm	1
#2	0.06 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: Anthony Cenales Date/Time: 7-29-24 - 1050

KES

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 16 SERIAL #: 1102746776

MONITORING DATE: 7-29-24 TIME: 1050

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	7
#2	24 ppm	21.6 ppm	7
#3	25 ppm	22.5 ppm	7
Calculate Response Time (1+2+3) / 3			7 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.10 ppm	23 ppm	2
#2	0.06 ppm	24 ppm	1
#3	0.05 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		4.0 #DIV/0! Must be less than 10%

Performed By: Marcus Arancibia Date/Time: 7-29-24-1050

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT NAME: THERMO

MODEL: TVA1000 EQUIPMENT # 10 SERIAL # 1036346773

MONITORING DATE 7-31-24 TIME 0510

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{(\text{Upwind} + \text{Downwind})}{2}$
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	4
#2	25 ppm	22.5 ppm	4
#3	25 ppm	22.5 ppm	4
Calculate Response Time $\frac{(1+2+3)}{3}$			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.10 ppm	24 ppm	1
#2	0.08 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[\text{STD-B1}] + [\text{STD-B2}] + [\text{STD-B3}]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By: LEISHWADE Date/Time 7-31-24 – 0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo
MODEL TVA1000 EQUIPMENT # 11 SERIAL # 1036346772
MONITORING DATE 7-31-24 TIME 0510

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	25 ppm	22.5 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.17 ppm	24 ppm	1
#2	0.11 ppm	25 ppm	0
#3	0.09 ppm	25 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1		1.3 #DIV/0! Must be less than 10%

Performed By Jerry Alanoz Date/Time 7-31-24- 0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo
MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741
MONITORING DATE: 7-31-24 TIME: 0510

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	6
#2	25 ppm	22.5 ppm	6
#3	25 ppm	22.5 ppm	6
Calculate Response Time	(1+2+3) / 3		6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.18 ppm	23 ppm	2
#2	0.11 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	0
Calculate Precision	([STD-B1] + [STD-B2] + [STD-B3]) / 3 X 1/25 X 100/1		2.6 #DIV/0! Must be less than 10%

Performed By: [illegible] Date/Time: 7-31-24-0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo

MODEL TVA1000 EQUIPMENT # 13 SERIAL # 1102746725

MONITORING DATE 7-31-24 TIME 0510

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	6
#2	25 ppm	22.5 ppm	6
#3	25 ppm	22.5 ppm	6
Calculate Response Time $\frac{(1+2+3)}{3}$			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.19 ppm	24 ppm	1
#2	0.17 ppm	25 ppm	0
#3	0.20 ppm	25 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By Anthony Canales Date/Time 7-31-24-0510

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 16 SERIAL # 1102746776

MONITORING DATE 7-31-24 TIME 0510

Calibration Procedure

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 25 ppm
3. Adjust meter settings to read 25 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	24 ppm	21.6 ppm	5
#3	25 ppm	22.5 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.09 ppm	24 ppm	1
#2	0.05 ppm	24 ppm	1
#3	0.03 ppm	25 ppm	0
Calculate Precision	([STD-B1] + [STD-B2] + [STD-B3]) / 3 X 1/25 X 100/1		2.6 #DIV/0! Must be less than 10%

Performed By MERKAS ABRAHAM Date/Time 7-31-24-0510

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ____

Purpose: ____

Operator: [signature]

Date: 7-7-24 Time: 0800

Model # TVA 1000

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Reading following ignition	2.1 ppm	
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500 90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 5
Date of last factory calibration	7-7-24	Average 5.6 Equal to or less than 30 seconds? Y N
Factory calibration record w/instrument within 3 months	Pass / Fail	Instrument calibrated to CH4 gas.

Comments: ____

P O Box 748 • Colton, California 92324 •
(909) 422-1001 Toll Free (888) 325-1098 Fax (909) 422-0707 www.resenvironmental.com

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ____________________

Purpose: ____________________

Operator: [signature]

Date: 7-7-24 Time: 0815

Model # TVA 1000

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 Actual (ppm): 500 % Accuracy: 100%
Reading following ignition	2.4 ppm	
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500 90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 5 2. 5 3. 5 Average 5.0
Date of last factory calibration	7-7-24	Equal to or less than 30 seconds? Y N
Factory calibration record w/instrument within 3 months	Pass / Fail	Instrument calibrated to CH4 gas.

Comments: ____________________

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: JM M

Date: 7-7-24 Time: 0830

Model # TVA 1000

Serial # #12 1036246741

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 · Actual (ppm): 500 · % Accuracy: 100%
Reading following ignition	2.6 ppm	
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500 90% of Calibration Gas, ppm: 450
H2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 6
Date of last factory calibration	7-7-24	Average 6.0
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N Instrument calibrated to CH4 gas.

Comments: ______

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT CALIBRATION LOG

Site:

Purpose:

Operator: [signature]

Date: 7-7-24 Time: 0845

Model # TVA 1000

Serial # #13 1102746715

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	**CALIBRATION CHECK**
Reading following ignition	2.5 ppm	Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Leak test	Pass / Fail / NA	**RESPONSE TIME**
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-7-24	Time required to attain 90% of Cal Gas ppm: 1. 6 2. 6 3. 6 Average 6.0
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N — Instrument calibrated to CH_4 gas.

Comments:

465

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator: [signature]

Date: 7-7-24 Time: 0930

Model # TVA 1000

Serial # #16 1102746776

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK: Calibration Gas (ppm) 500; Actual (ppm) 500; % Accuracy 100%
Reading following ignition	2.1 ppm	
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm 450
Date of last factory calibration	7-7-24	Time required to attain 90% of Cal Gas ppm: 1. 5 2. 6 3. 6 Average 5.3
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N; Instrument calibrated to CH_4 gas.

Comments:

465

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 10

SERIAL NUMBER: 1036346773

TECHNICIAN: [signature]   DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	499	+/- 125
10000	10000	10,112	+/- 2500
< 1	ZERO GAS	0.54	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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(909) 422-1001 ▪ TOLL FREE (888) 325-1098 ▪ FAX (909) 422-0707 ▪ www.resenvironmental.com

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #11

SERIAL NUMBER: 10363467?4

TECHNICIAN: [signature]

DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.53	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50	/	+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: NTES Vact #12

SERIAL NUMBER: 10362467441

TECHNICIAN: [signature]   DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.63	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Cart #13

SERIAL NUMBER: 1102746775

TECHNICIAN: [signature] DATE: 7-2-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,003	+/- 2500
< 1	ZERO GAS	0.01	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #16

SERIAL NUMBER: 1102746776

TECHNICIAN: [signature] DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.63	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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CERTIFICATE OF ANALYSIS

Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 75836320
PO Number 04C23328

Lot Number	4-236-82
Norlab Part#	J1002
Cylinder Size	103 Liter
Number of Cyl	2

Date on Manufacture	8/29/2024
Expires	08/2028
Analytical Accuracy	Certified

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Air	Zero Grade	Zero Grade
Oxygen	20.9 %	20.9 %
T.H.C. (as Methane)	< 0.1 ppm	< 0.1 ppm
Nitrogen	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

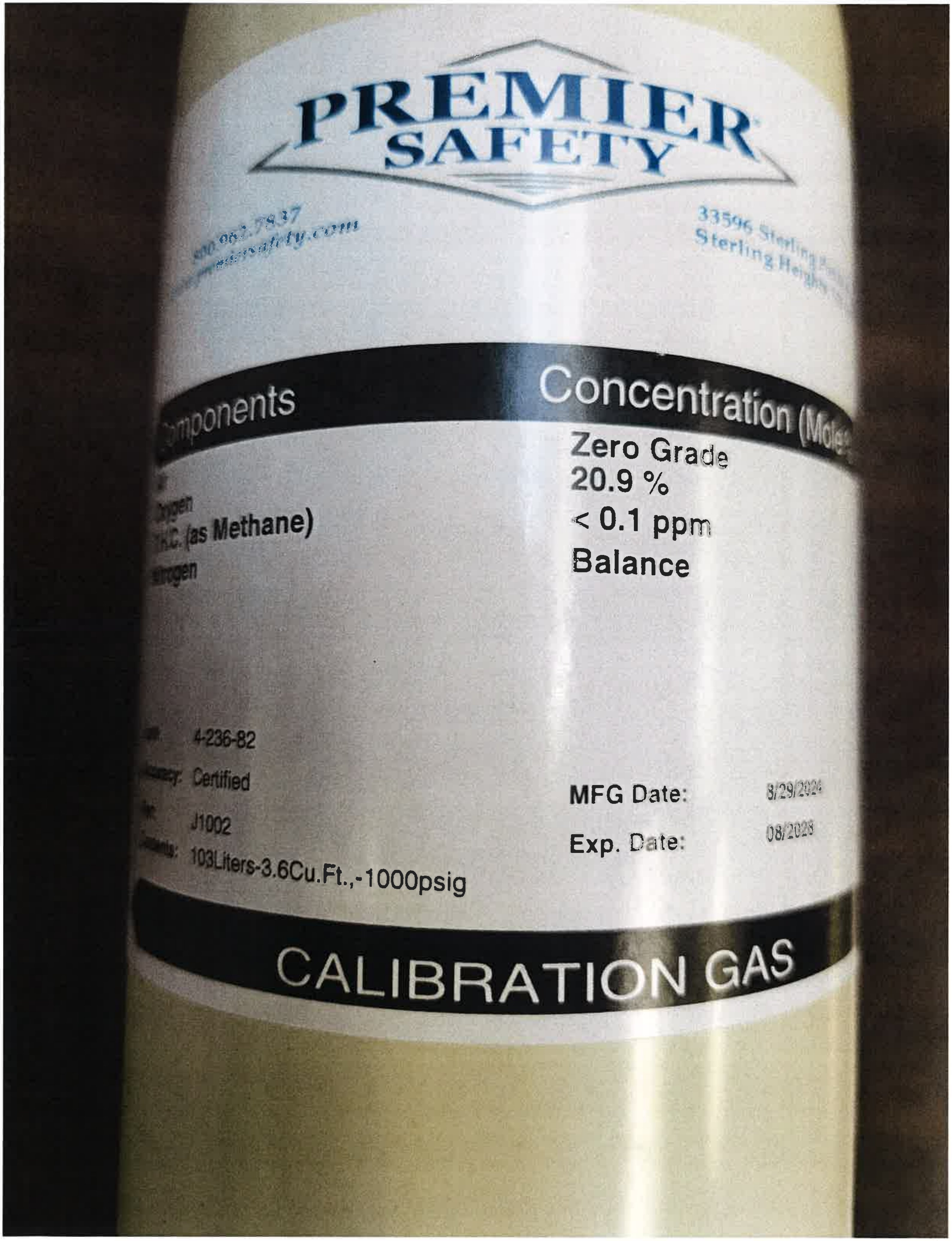
Minor constituents tested with standards traceable to NIST by mass or comparison to SRM's (Standard Reference Materials).

NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 8/29/2024

David Reed
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672


PREMIER
SAFETY
800.962.7837
33596 Sterling
Concentration
Zero Grade
20.9 %
(as Methane)
< 0.1 ppm
Balance
4-236-82
Certified
J1002
103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 8/29/2024
Exp. Date: 08/2028
CALIBRATION GAS

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CERTIFICATE OF ANALYSIS

Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 69679439
PO Number 04906817

Lot Number 2-154-85
Norlab Part# J1002
Cylinder Size 103 Liter
Number of Cyl 1

Customer Part# N/A

Date on Manufacture 6/13/2022
Expires 06/2025
Analytical Accuracy Certified

Component	Reported Concentration	Requested Concentration
Air	Zero Grade	Zero Grade
Oxygen	20.9 %	20.9 %
T.H.C. (as Methane)	< 1.0 ppm	< 1.0 ppm
Nitrogen	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

Minor constituents tested with standards traceable to NIST by mass or comparison to SRM's (Standard Reference Materials).

NIST Traceable Numbers are available upon request.

Approved: David Reed
Lab Technician

Date Signed: 6/13/2022

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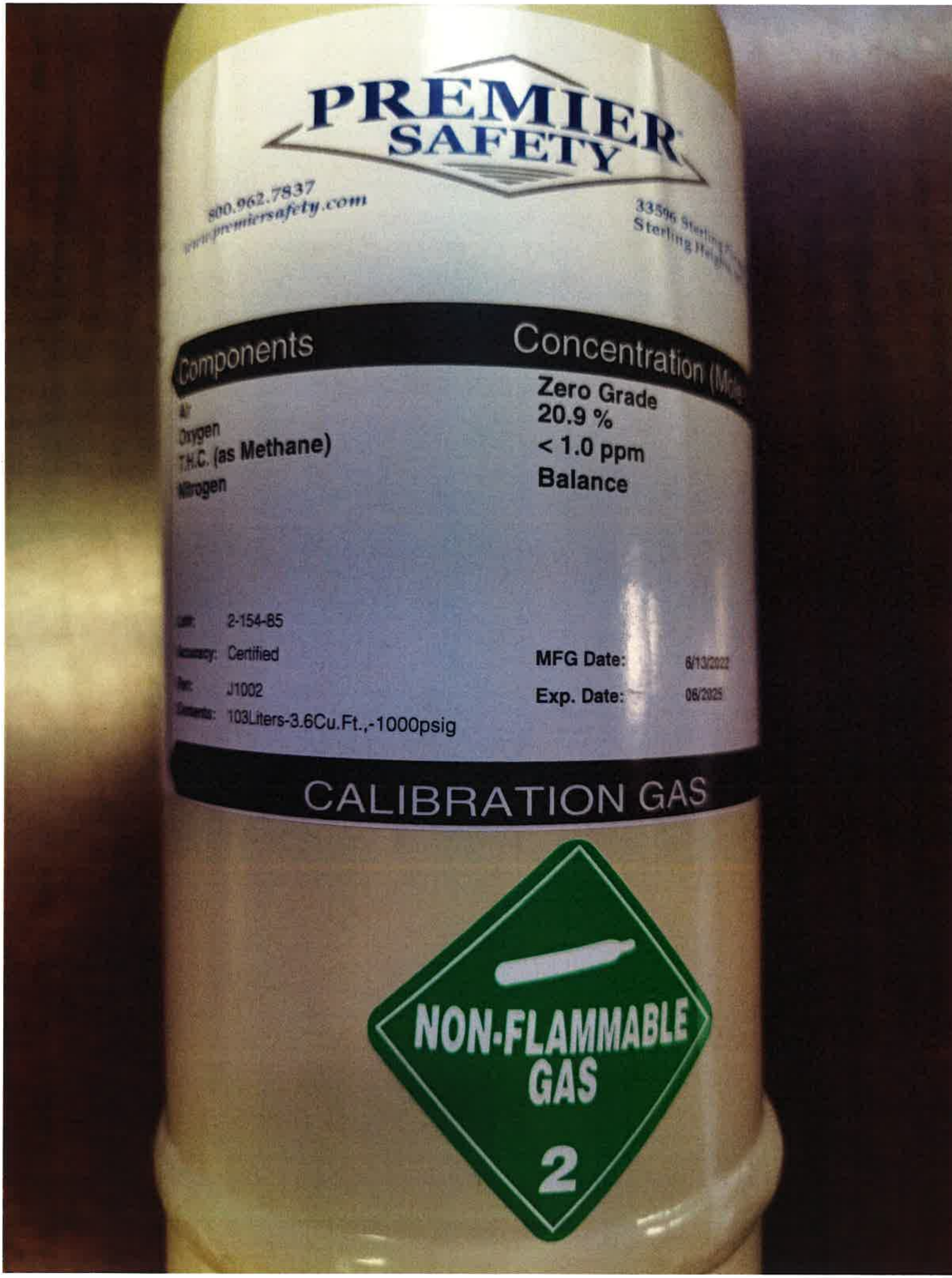
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672


PREMIER
SAFETY
800.962.7837
www.premiersafety.com
Components
Concentration
Air
Oxygen
T.H.C. (as Methane)
Nitrogen
Zero Grade
20.9 %
< 1.0 ppm
Balance
2-154-85
Certified
J1002
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
6/13/2022
Exp. Date:
06/2025
CALIBRATION GAS
NON-FLAMMABLE
GAS
2

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Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 75275610
PO Number 04B84126

Lot Number	4-176-81
Norlab Part#	J197125PA
Cylinder Size	103 Liter
Number of Cyl	3

Date on Manufacture	6/25/2024
Expires	06/2028
Analytical Accuracy	+/- 5 %

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Methane	25 ppm	25 ppm
Air	Balance	Balance

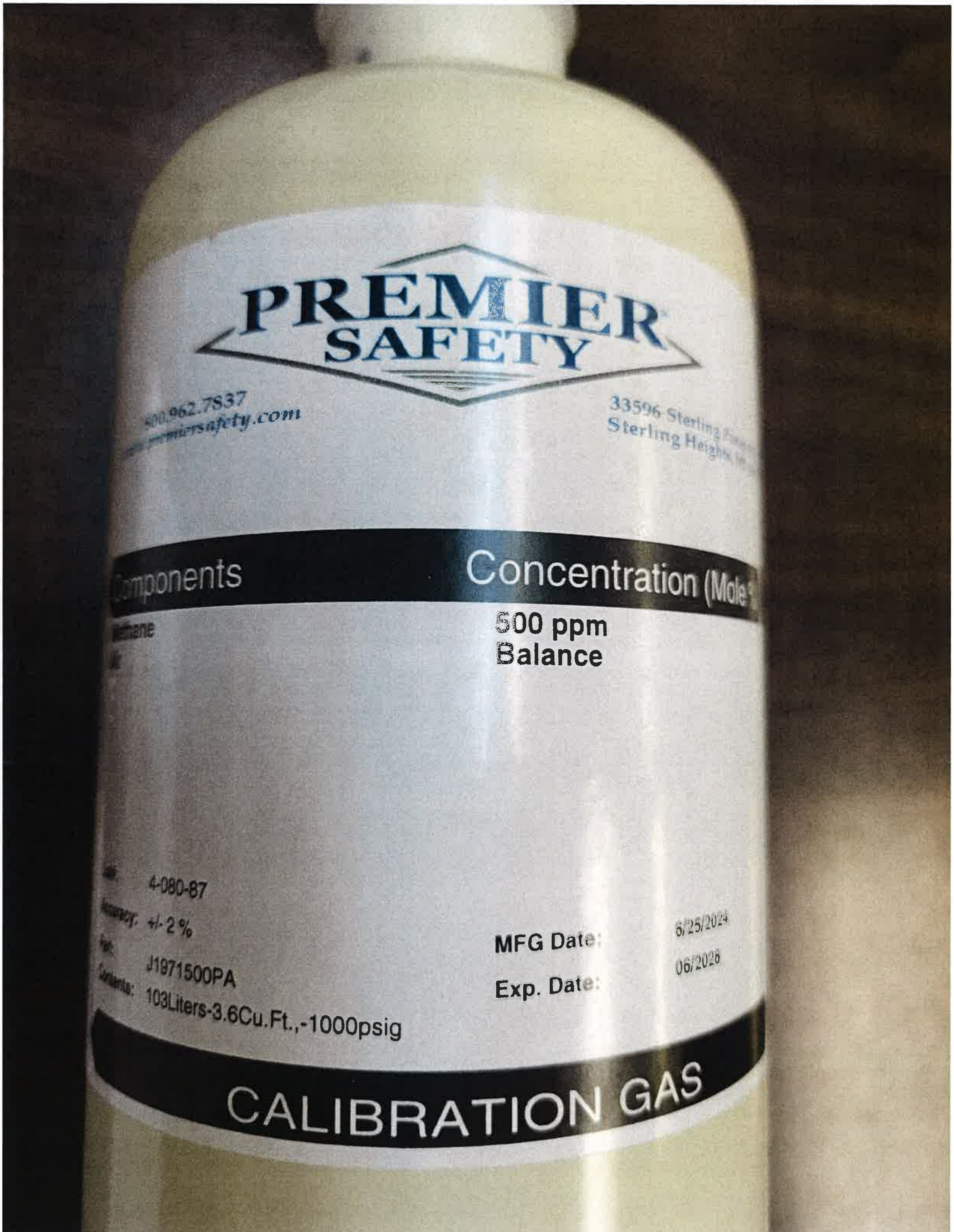
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 6/25/2024

David Reed
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672


PREMIER
SAFETY
500 ppm
Balance
4-080-87
+/- 2 %
J1971500PA
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
6/25/2024
Exp. Date:
06/2028
CALIBRATION GAS

INTERMOUNTAIN SPECIALTY GASES

520 N. Kings Road • Nampa • Idaho • 83687

800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

Lot #	17-6074

Mfg. Date: 10/16/2017

Parent Cylinder ID Number: 17161

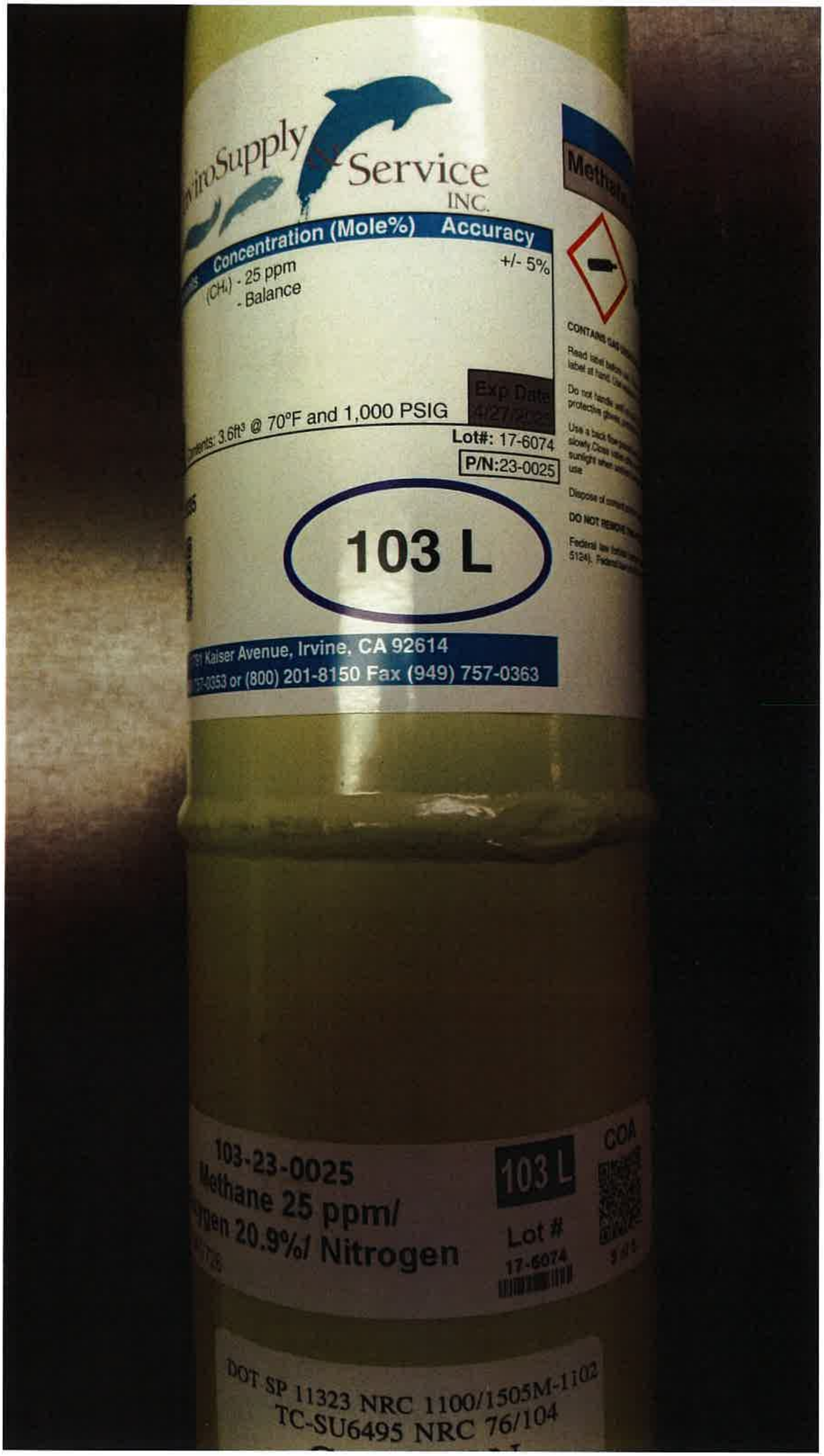
Method of Preparation:

Gravimetric/Pressure Transfilled

Method of Analysis:

The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 10/16/2017



Service
INC.
Concentration (Mole%)
Accuracy
(CH_4) - 25 ppm
- Balance
+/- 5%
Contents: 3.6ft³ @ 70°F and 1,000 PSIG
Exp Date
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
or (800) 201-8150 Fax (949) 757-0363
CONTAINS GAS
DO NOT REMOVE
103-23-0025
Methane 25 ppm/
20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104

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33596 Sterling Pond Blvd
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Cust Number 07152
Order Number 73732858
PO Number 04B70733

Lot Number	3-340-62
Norlab Part#	J197125PA
Cylinder Size	103 Liter
Number of Cyl	5

Customer Part# N/A

Date on Manufacture	12/7/2023
Expires	12/2027
Analytical Accuracy	+/- 5 %

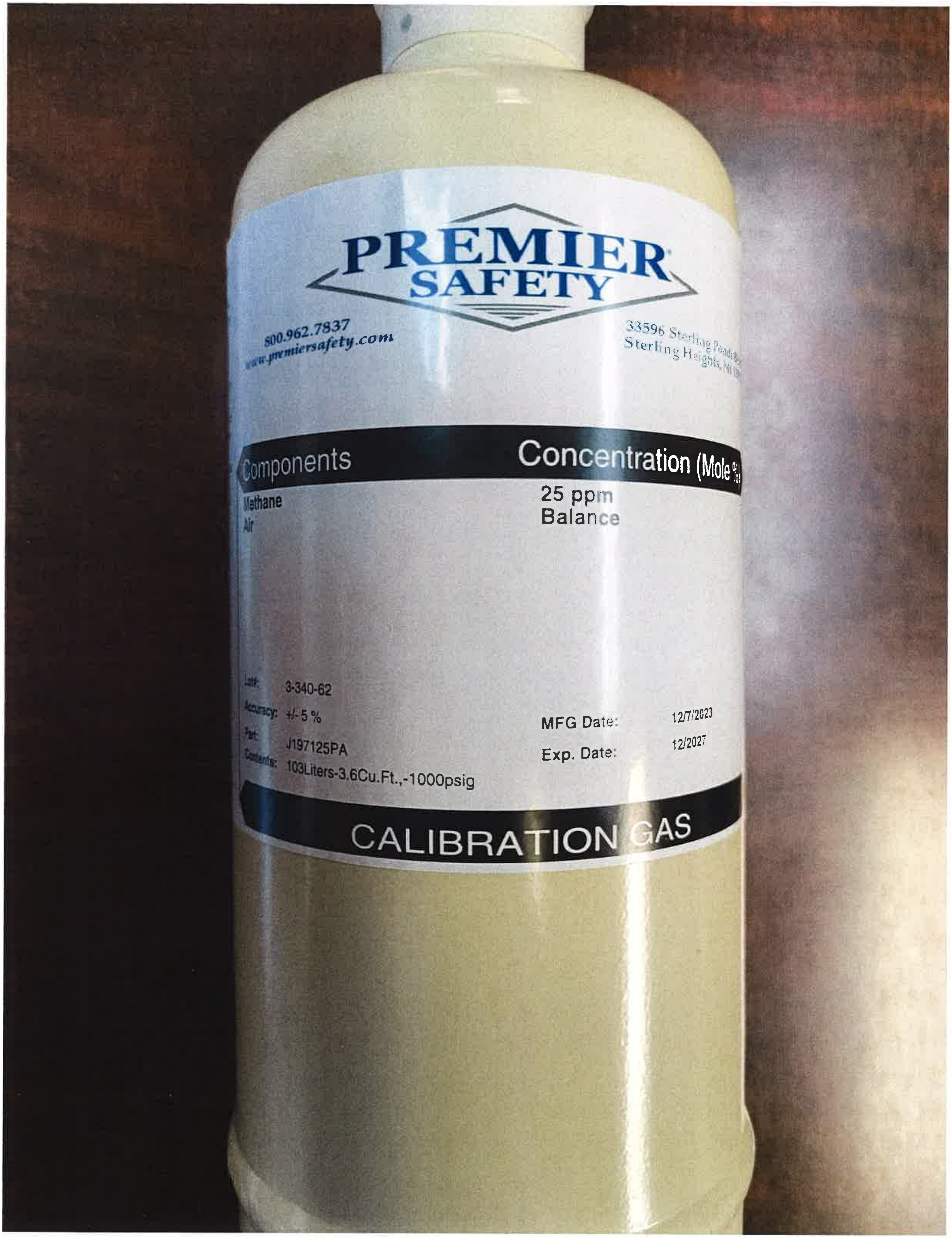
Component	Reported Concentration	Requested Concentration
Methane	25 ppm	25 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs.
NIST Traceable Numbers are available upon request.

Approved: Date Signed: 12/7/2023

Aaron Schwenken
Lab Manager



PREMIER
SAFETY
800.962.7837
www.premiersafety.com
33596 Sterling
Sterling Heights,
Components
Concentration (Mole
Methane
Air
25 ppm
Balance
Lot#:
3-340-62
Accuracy:
+/- 5 %
Part:
J197125PA
Contents:
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
12/7/2023
Exp. Date:
12/2027
CALIBRATION GAS

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Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 75275610
PO Number 04B84126

Lot Number	4-080-87
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	5

Date on Manufacture	6/25/2024
Expires	06/2028
Analytical Accuracy	+/- 2 %

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

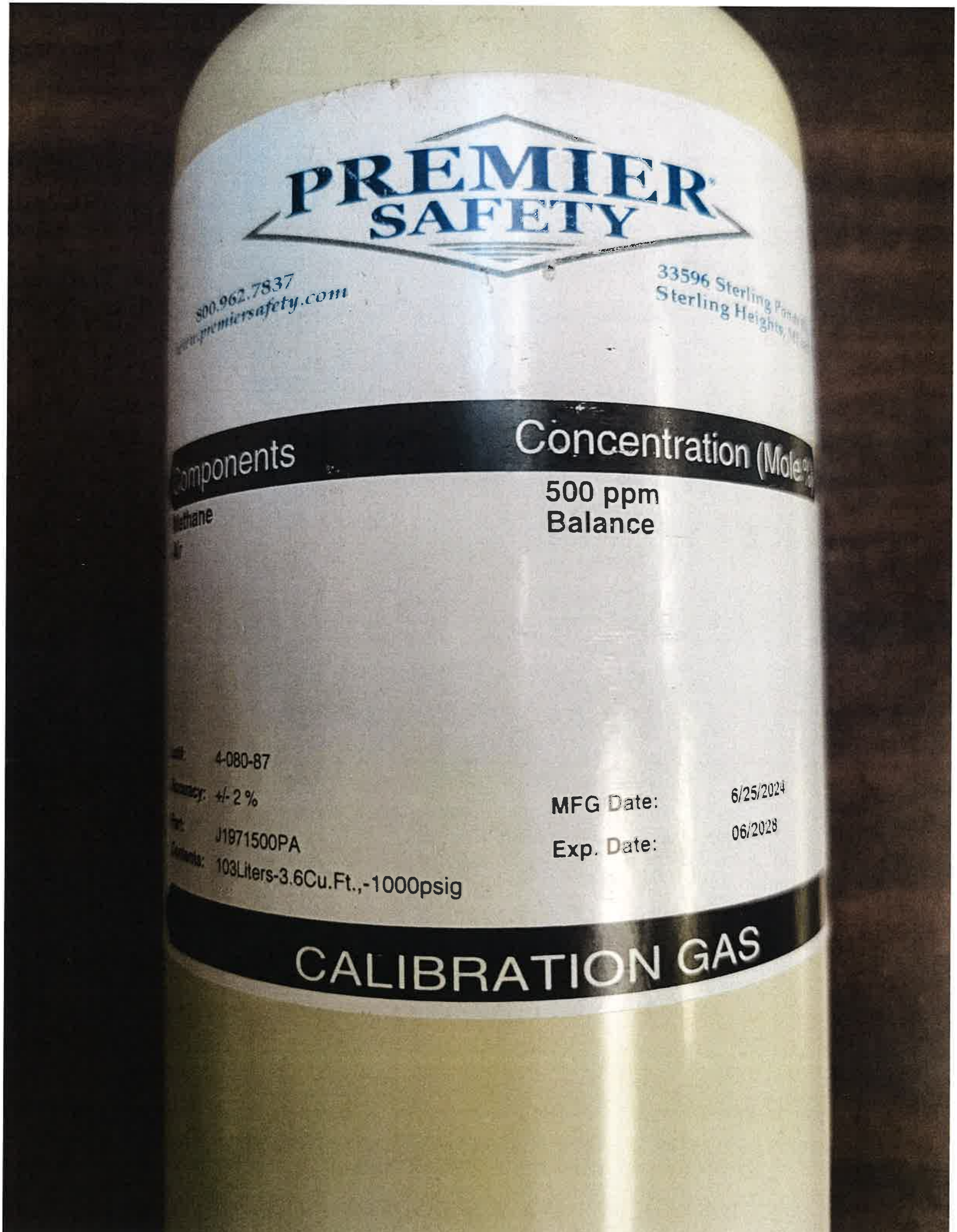
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: David Reed   Date Signed: 6/25/2024

David Reed
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672



PREMIER SAFETY
800.962.7837
premiersafety.com
33596 Sterling
Sterling Heights
Components
Concentration (Mole
500 ppm
Balance
4-080-87
+/- 2 %
J1971500PA
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
6/25/2024
Exp. Date:
06/2028
CALIBRATION GAS

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Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 69671309
PO Number 08361523

Lot Number 2-108-80
Norlab Part# J1971500PA
Cylinder Size 103 Liter
Number of Cyl 1

Customer Part# N/A

Date on Manufacture 6/10/2022
Expires 06/2025
Analytical Accuracy +/- 2 %

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

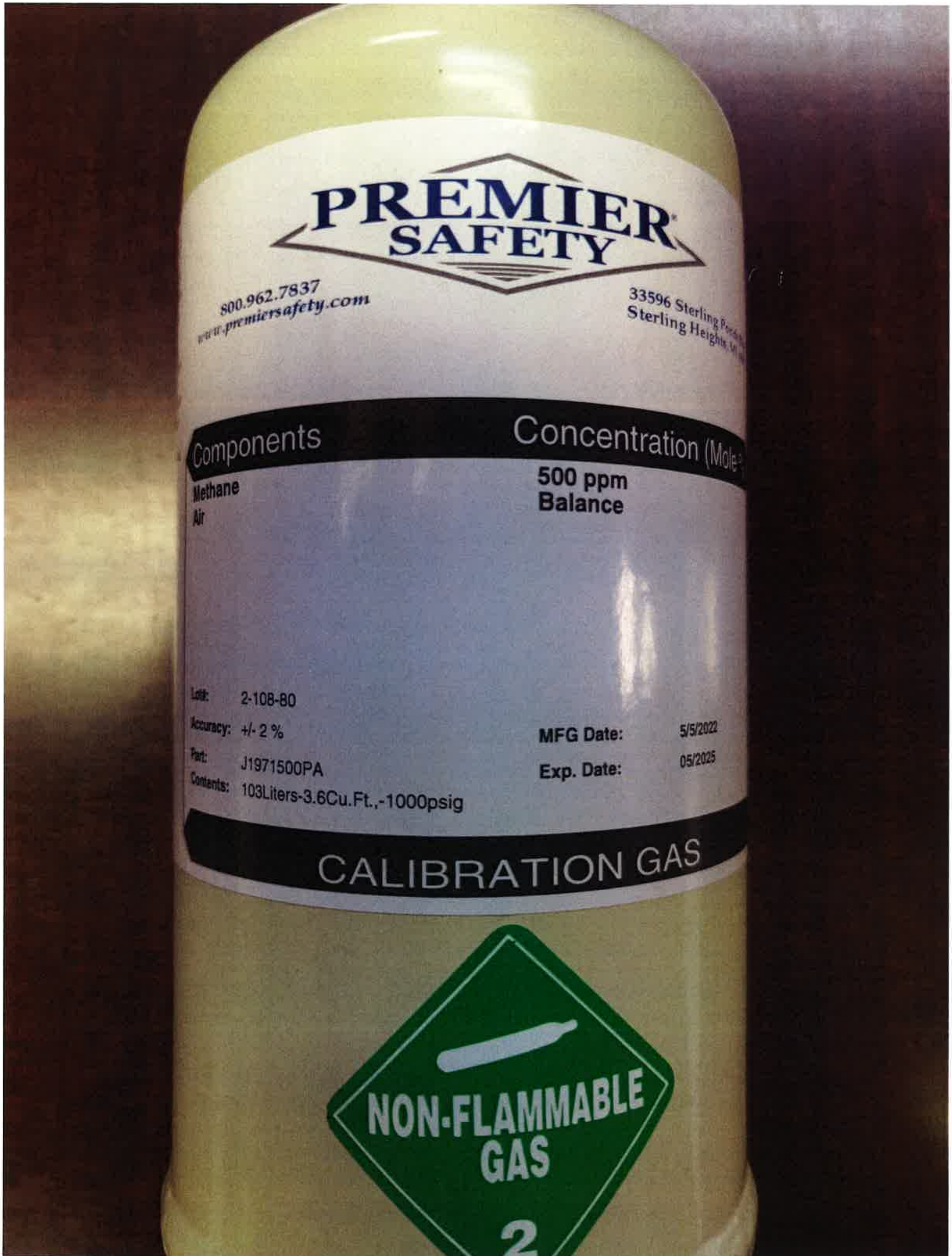
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs.

NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 6/10/2022

David Reed
Lab Technician


PREMIER
SAFETY
800.962.7837
www.premiersafety.com
33596 Sterling
Sterling Heights
Components
Concentration
Methane
Air
500 ppm
Balance
Lot#: 2-108-80
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 5/5/2022
Exp. Date: 05/2025
CALIBRATION GAS
NON-FLAMMABLE GAS
2

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Norco, Inc
Twin Falls Warehouse
203 S. Park Ave. West
Twin Falls, ID 83301

Cust Number WH012
Order Number 71846398
PO Number 04A35563

Lot Number	3-088-88
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	5

Date on Manufacture	4/7/2023
Expires	04/2027
Analytical Accuracy	+/- 2 %

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

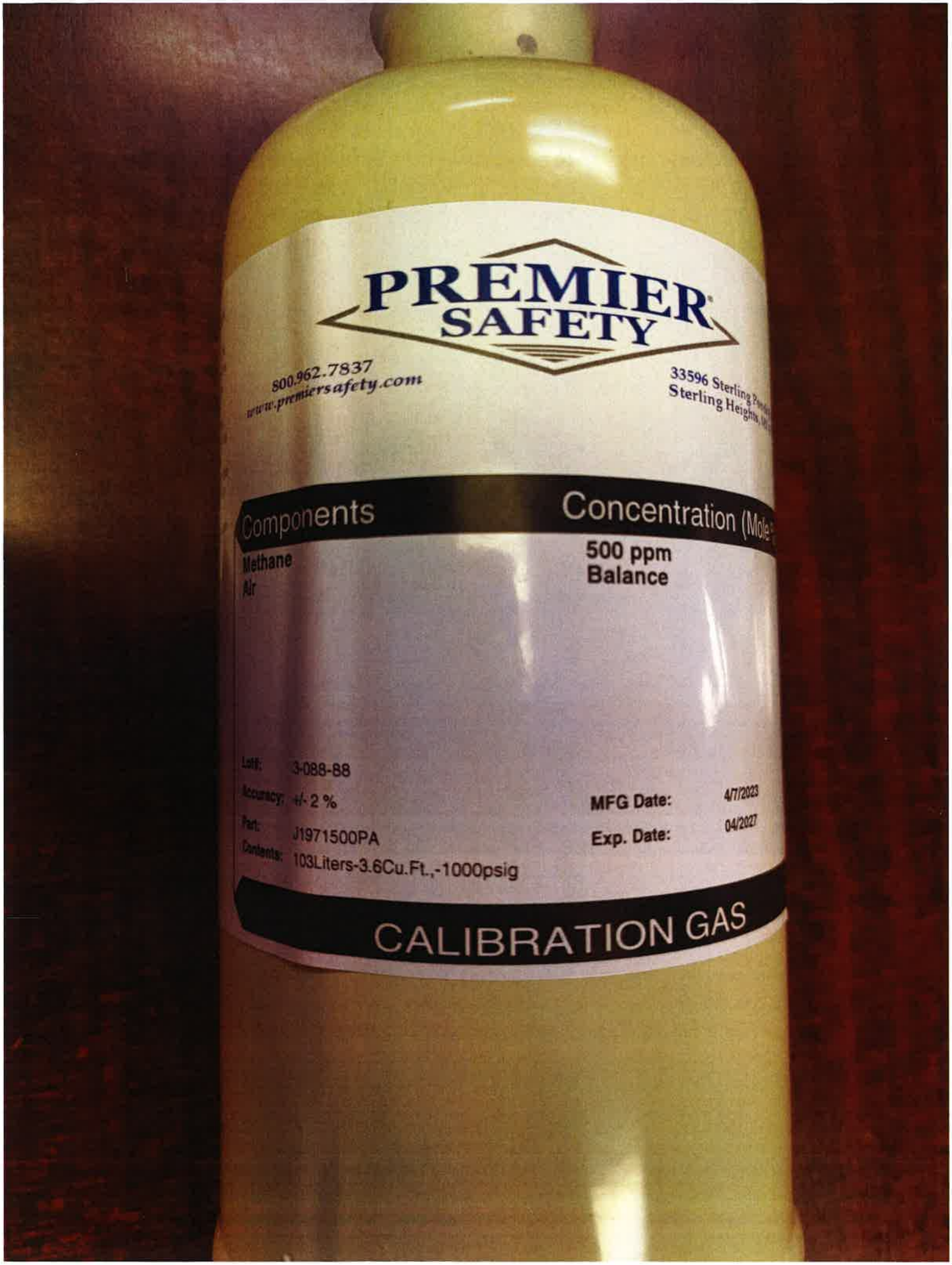
The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs.

NIST Traceable Numbers are available upon request.

Approved: Date Signed: 4/7/2023

Jeff Korn
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672


PREMIER SAFETY
800.962.7837
www.premiersafety.com
33596 Sterling
Sterling Heights
Components
Concentration
Methane
Air
500 ppm
Balance
Lot#: 3-088-88
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 4/7/2023
Exp. Date: 04/2027
CALIBRATION GAS

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Premier Safety & Service

33596 Sterling Pond Blvd
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Cust Number 07152
Order Number 73732858
PO Number 04B70733

Lot Number	3-340-61
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	5

Date on Manufacture	12/7/2023
Expires	12/2027
Analytical Accuracy	+/- 2 %

Customer Part# N/A

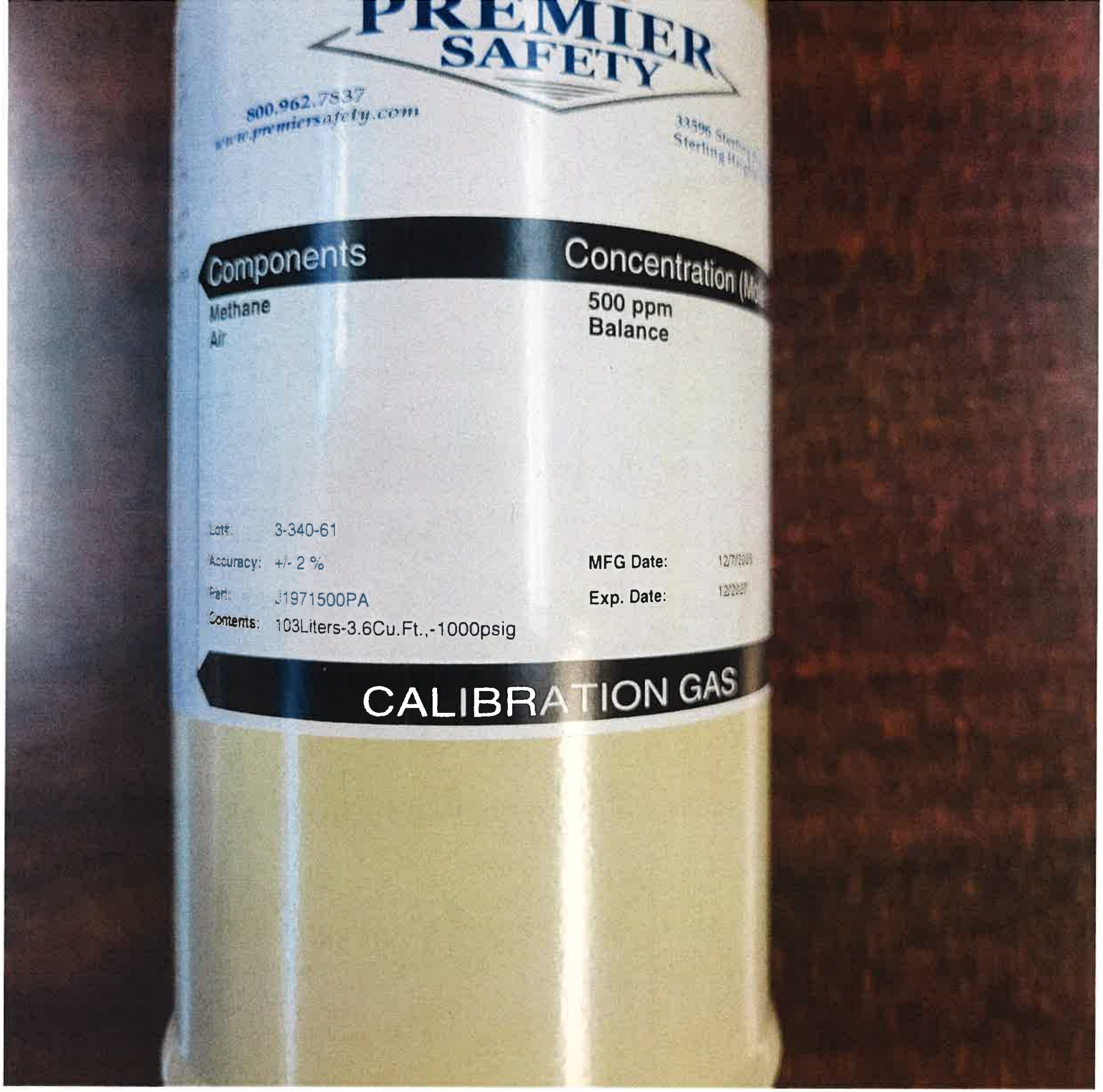
Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

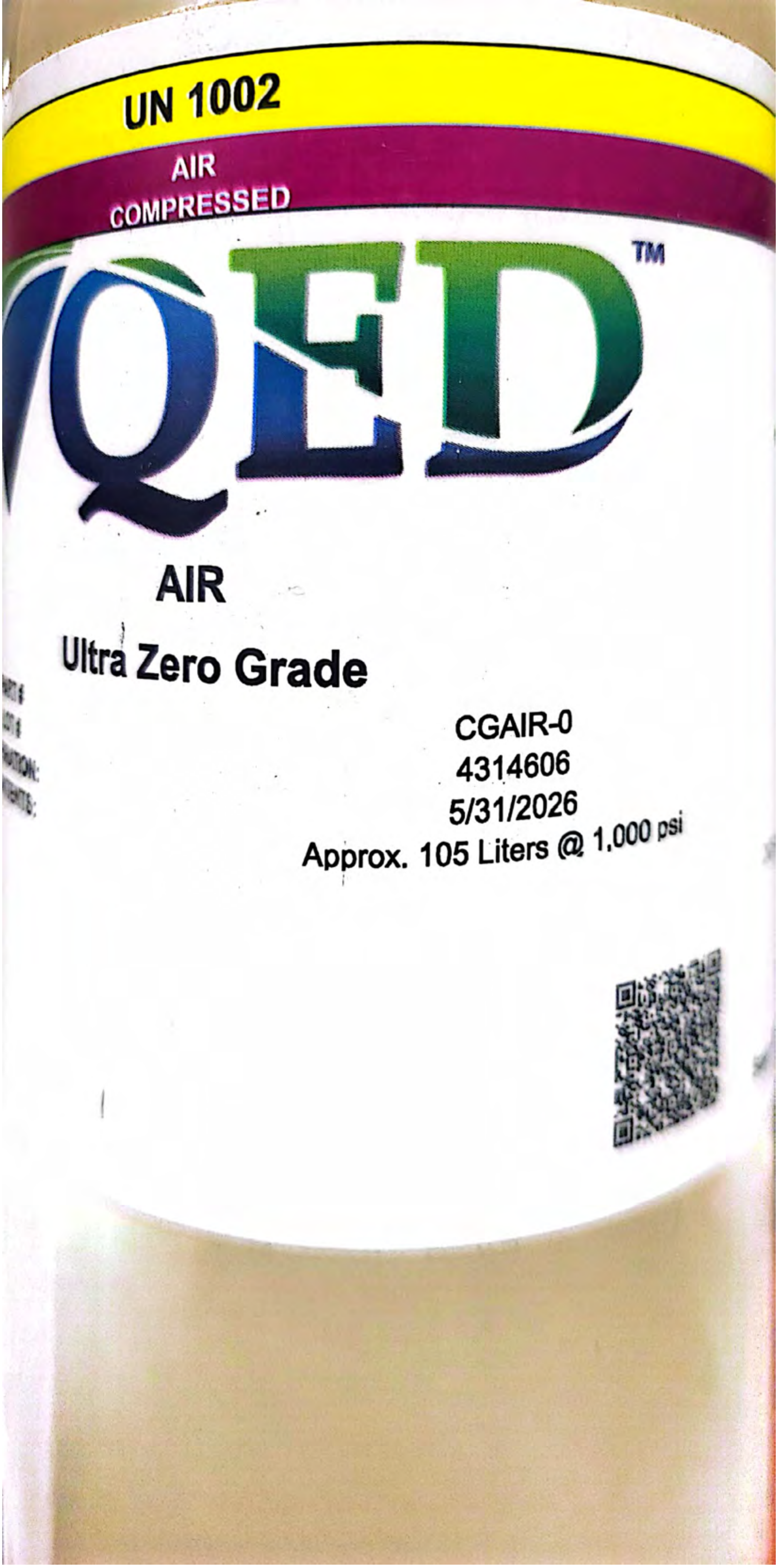
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: ______________________ Date Signed: 12/7/2023

Aaron Schwenken
Lab Manager


PREMIER SAFETY
800.962.7837
www.premiersafety.com
Components
Concentration
Methane
Air
500 ppm
Balance
Lots: 3-340-61
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
Exp. Date:
CALIBRATION GAS


UN 1002
AIR
COMPRESSED
QED™
AIR
Ultra Zero Grade
CGAIR-0
4314606
5/31/2026
Approx. 105 Liters @ 1,000 psi

COMPRESSED GAS, N.O.S

(METHANE, AIR)

UN1956

VQED™

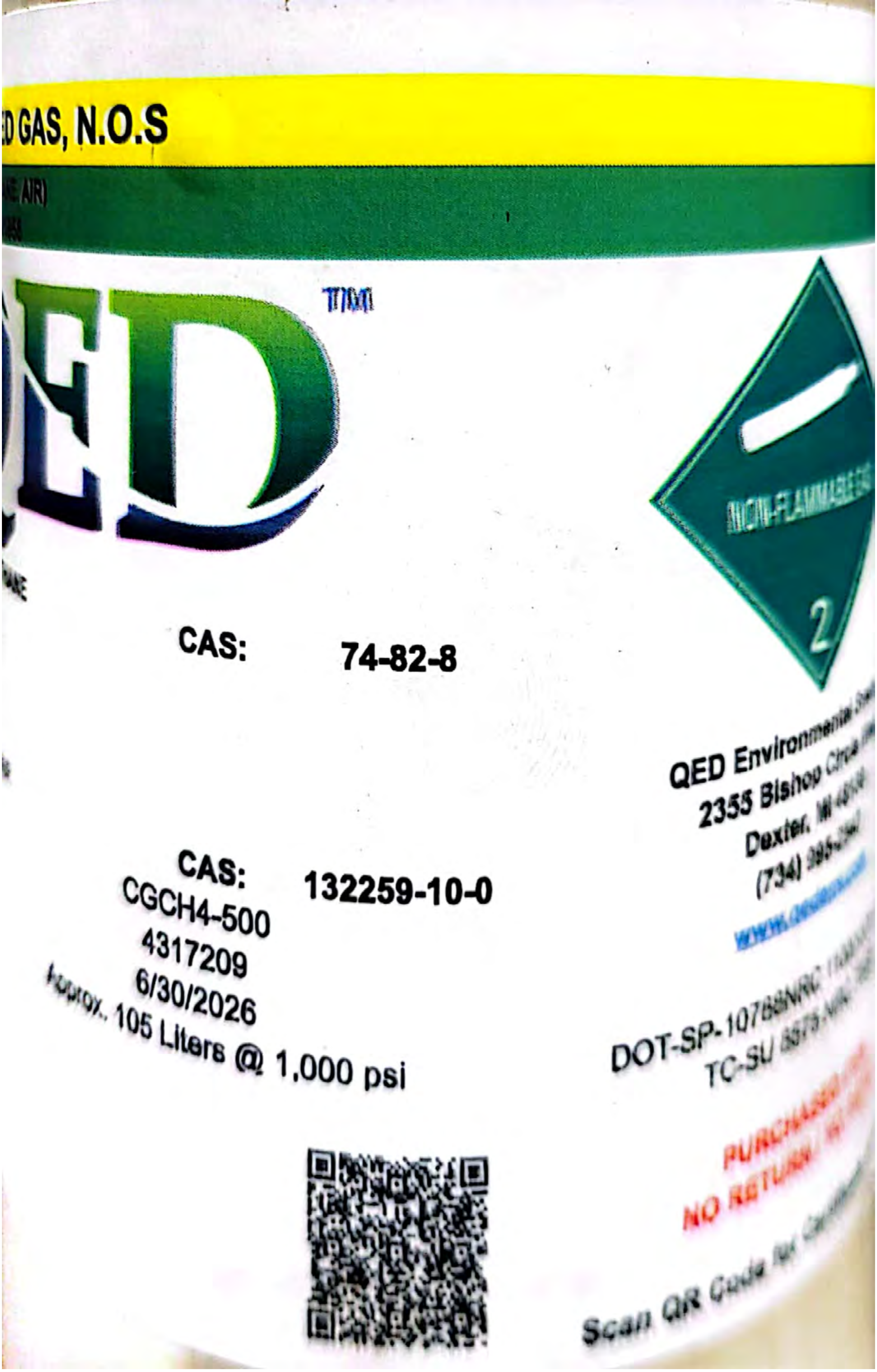
500 PPM	METHANE	CAS:
BALANCE	AIR	CAS:

PART # CGCH4-500

LOT # 4317209

EXPIRATION: 6/30/2026

CONTENTS: Approx. 105 Liters @ 1,000


GAS, N.O.S
TM
2
CAS: 74-82-8
CAS: 132259-10-0
CGCH4-500
4317209
6/30/2026
105 Liters @ 1,000 psi
QED Environmental
2355 Bishop
Dexter,
DOT-SP-10768
TC-SU
Scan QR Code

WASTE MANAGEMENT
172 98th Avenue
Oakland, CA 94603
(510) 430-8509

November 19, 2024

Ms. Alisha McCutcheon
Redwood Landfill, Inc.
8590 Redwood Highway
Novato, California 94948

Re: September 2024 Surface Emissions Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)"** contains the results of the September 2024 Surface Emissions Monitoring (SEM). Initial surface emissions monitoring was performed by Roberts Environmental Services, LLC. (RES).

APPLICABLE REQUIREMENTS

The monitoring discussed in this report was conducted in accordance with the following requirements:

Surface Emission Monitoring (SEM)

- New Source Performance Standard (NSPS), Title 40 of the Code of Federal Regulations (CFR) §60.755 (c) and (d), 40 CFR 60, Appendix A Method 21, promulgated by the United States Environmental Protection Agency (USEPA).

- Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 303 (Landfill Surface Requirements) and Section 607 (Landfill Surface Inspection procedures).

PROCEDURES

General

Per NSPS and 8-34 rules, the entire surface of the landfill was monitored following a serpentine path with a 100-foot interval spacing. Active portions of the Landfill, slope areas, and as requested in the approved ACO, areas containing only asbestos-containing waste, inert waste and/or non-decomposable waste which are excluded for safety as allowed by the NSPS and 8-34.

Field personnel walked the surface of the landfill using the gridlines normally used for monitoring required by AB32 (see Attachment A map). These grids typically have dimensions of 500' x 100'. A consistent 100' spacing was achieved by walking on the 500' long borderline shared by two grids. Additionally, in accordance with the provisions of 40 CFR 60.753(d) and

60.755(c)(1-3), the entire perimeter of the landfill surface was monitored. During the event, special attention was given to monitoring unusual cover conditions (stressed vegetation, cracks, seeps, etc.) and any areas with unusual odors.

Instantaneous Surface Emissions Monitoring

The Instantaneous SEM was conducted using a Toxic Vapor Analyzer (TVA) 1000 flame ionization detector (FID), which was calibrated to 500 parts per million by volume (ppm_v) methane, which meets or exceeds all guidelines set forth in the NSPS and 8-34. The FID was calibrated prior to use in accordance with the United States Environmental Protection Agency (USEPA) Method 21 requirements.

RES personnel walked the surface of the landfill with the wand tip held at 2 inches from the landfill surface. While sampling the grid; the technicians also checked any surface impoundments (wells or otherwise) for leaks. Technicians also checked any surface cracks, seeps, or other areas that show evidence of surface emissions (odors or distressed vegetation). Active and sloped areas excluded for safety were documented on the map included in Attachment A.

All instantaneous surface monitoring was performed in accordance with the applicable requirements referenced in this report. Any detections of methane above 500 ppm_v (exceedances) for instantaneous were recorded, flagged, and marked on an SEM Map, which, wherever required, is included in the Appendices of this report. Applicable corrective action and re-monitoring timelines are listed below:

- Corrective actions must be initiated within 5 days of the initial exceedance and re-monitoring shall be conducted within 10 days of the initial exceedance.
  - If the re-monitoring event shows the exceedance is corrected, the location shall be re-monitored within 1 month of the initial exceedance.
  - If the 1-month re-monitoring event shows the location is still corrected, all re-monitoring requirements have been completed.
- If either the first 10-day or 1-month re-monitoring events show a second exceedance, additional corrective actions shall be completed, and a second re-monitoring event shall be conducted within 10 days of the second exceedance.
- If the second 10-day re-monitoring event shows the second exceedance is corrected, the location shall be re-monitored within 1 month of the initial exceedance. If the 1-month re-monitoring event shows the area is still corrected, monitoring requirements have been completed.

If any location shows three exceedances, an additional well shall be installed within 120 days of the initial exceedance.

SEPTEMBER 2024 SEM RESULTS

The Instantaneous surface monitoring was performed on September 3, 2024, in accordance with the NSPS and BAAQMD 8-34. Results and data from the monitoring are presented in Attachment A.

Initial Monitoring Event Exceedances of 500 ppm_v

There were no exceedances of 500 ppm_v as methane detected on September 3, 2024. Remonitoring was not required.

WEATHER CONDITIONS

Wind Speed Conductions during the Surface Emission Monitoring Events

Wind speeds during initial monitoring were monitored using a portable weather station. The station has a strip chart that records the wind speed and direction. The chart data is scanned and included in Attachment B.

EQUIPMENT CALIBRATION

The portable analyzers were calibrated to meet the instrument specifications requirements of U.S. EPA Method 21. The calibration gas used was methane, diluted to a nominal concentration of 25 ppm_v in air for integrated sample analyses and 500 ppm_v in air for instantaneous monitoring to comply with the requirements.

All analyzers were calibrated prior to use with required response time and precision related instrument checks. Calibration records include the following: Response time test record; Response factor determination for methane; Calibration Precision test records; and Daily Instrument Calibration and Background test records for each gas meter that was used during the monitoring event. The calibration log records are included in Attachment C.

All monitoring was completed in accordance with the applicable regulatory requirements or approved alternatives. If you have any questions regarding this report, please do not hesitate to contact me at (510) 613-2852.

Thank you,
Waste Management

Michael Chan
Environmental Protection Specialist

Attachment A – Instantaneous Surface Emission Monitoring Event Records

- SEM Map
- Monitoring Logs and Exceedances

Attachment B – Weather Station Data

- Strip Chart Data

Attachment C – Calibration Records

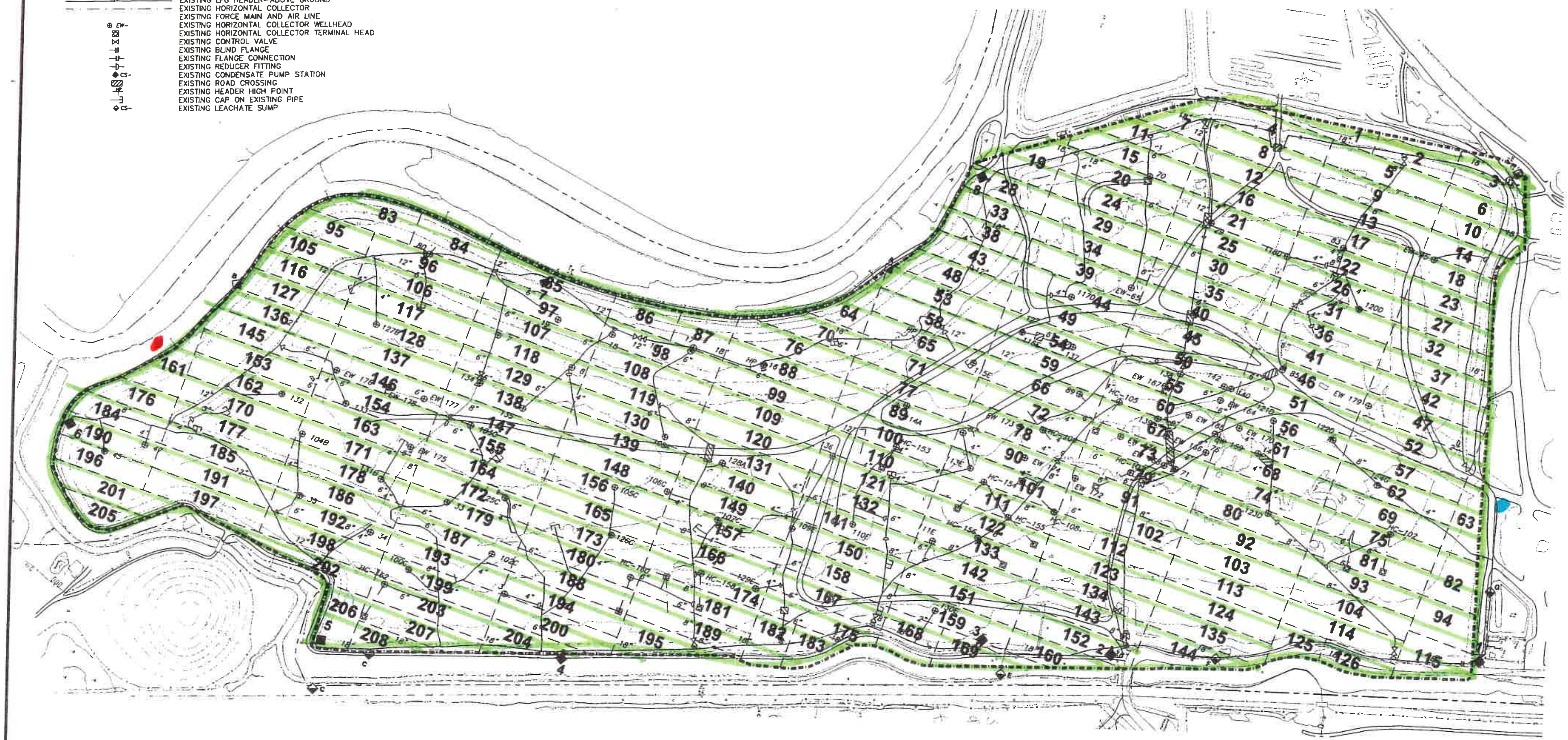
- Instrument and Gas Calibration Records

Attachment A

Surface Emission Monitoring Event Records

LEGEND

- EXISTING 10' CONTOUR
- EXISTING LFG HEADER-ABOVE GROUND
- EXISTING HORIZONTAL COLLECTOR
- EXISTING FORCE MAIN AND AIR LINE
- EW- EXISTING HORIZONTAL COLLECTOR WELLHEAD
- EXISTING HORIZONTAL COLLECTOR TERMINAL HEAD
- EXISTING CONTROL VALVE
- EXISTING BLIND FLANGE
- EXISTING FLANGE CONNECTION
- EXISTING REDUCER FITTING
- CS- EXISTING CONDENSATE PUMP STATION
- EXISTING ROAD CROSSING
- EXISTING HEADER HIGH POINT
- EXISTING CAP ON EXISTING PIPE
- CS- EXISTING LEACHATE SUMP



NSPS

100 Ft spacing

Upwind

Downwind

No Exceedances

9-3-24

GRAPHIC SCALE

200 100 0 200 400 600

SCALE: 1"=200'

NOTES:

1. EXISTING TOPOGRAPHY BASED ON AERIAL SURVEY BY MILLER CREEK AERIAL MAPPING DATED FEBRUARY 19, 2014. FEATURES, CONTOURS, AND ELEVATIONS OF THIS BASE MAP ARE APPROXIMATE INDICATIONS OF CURRENT AND FUTURE CONDITIONS.
2. EXISTING GCCS COMPONENTS (INSTALLED PRIOR TO THE 2015 GCCS IMPROVEMENTS) ARE PER THE LOCATIONS ESTABLISHED AT THE END OF THE 2014 IMPROVMENTS BY OTHERS.
3. ALL 2014 GCCS COMPONENTS INSTALLED AS PART OF THE 2014 GCCS IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS.
4. SURVEY DATA BASED ON FIELD SURVEY PERFORMED ON OCTOBER 29, 2015. BY F3 & ASSOCIATES, INC.

F3 & Associates, Inc.
LAND SURVEYING - 3D INDUSTRIAL LASER SCANNING
701 E. H ST. BENICIA, CA 94510
PHONE(707)748-4300 FAX(707)361-0295
www.F3-Inc.com

MARIN COUNTY

REDWOOD LANDFILL
AS-BUILT GCCS PLAN
2015 GCCS IMPROVEMENTS
CALIFORNIA

NOVATO

DESIGN BY:	N/A
DRAWN BY:	STAFF
DATE:	NOV 2015
SCALE:	1"=200'
PAGE 1 OF 1	
JOB NUMBER: 15341	

Instantaneous Landfill Surface Emissions Monitoring
Exceedance and Monitoring Logs (NSPS/BAAQMD 8-34)

2024 Month: September
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Corrective Action		1st 10-day Follow-Up			1st 30-day Follow-Up			
Flag Number	Monitoring Date	Reading ppm	Repair Date	Action Taken	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Comments
No Exceedances on September 3, 2024											

Attachment B

Weather Station Data

RES
Environmental Inc.

16-POINT WIND DIRECTION INDEX

NO	DIRECTION	DEGREES FROM	DEGREES CENTER	DEGREES TO
16	NORTH (N)	348.8	360.0	011.3
1	NORTH-NORTHEAST (NNE)	011.3	022.5	033.8
2	NORTHEAST (NE)	033.8	045.0	056.3
3	EAST-NORTHEAST (ENE)	056.3	067.5	078.8
4	EAST (E)	078.8	090.0	101.3
5	EAST-SOUTHEAST (ESE)	101.3	112.5	123.8
6	SOUTHEAST (SE)	123.8	135.0	146.3
7	SOUTH-SOUTHEAST (SSE)	146.3	157.5	168.8
8	SOUTH (S)	168.8	180.0	191.3
9	SOUTH-SOUTHWEST (SSW)	191.3	202.5	213.8
10	SOUTHWEST (SW)	213.8	225.0	236.3
11	WEST-SOUTHWEST (WSW)	236.3	247.5	258.8
12	WEST (W)	258.8	270.0	281.3
13	WEST-NORTHWEST (WNW)	281.3	292.5	303.8
14	NORTHWEST (NW)	303.8	315.0	326.3
15	NORTH-NORTHWEST (NNW)	326.3	337.5	348.8

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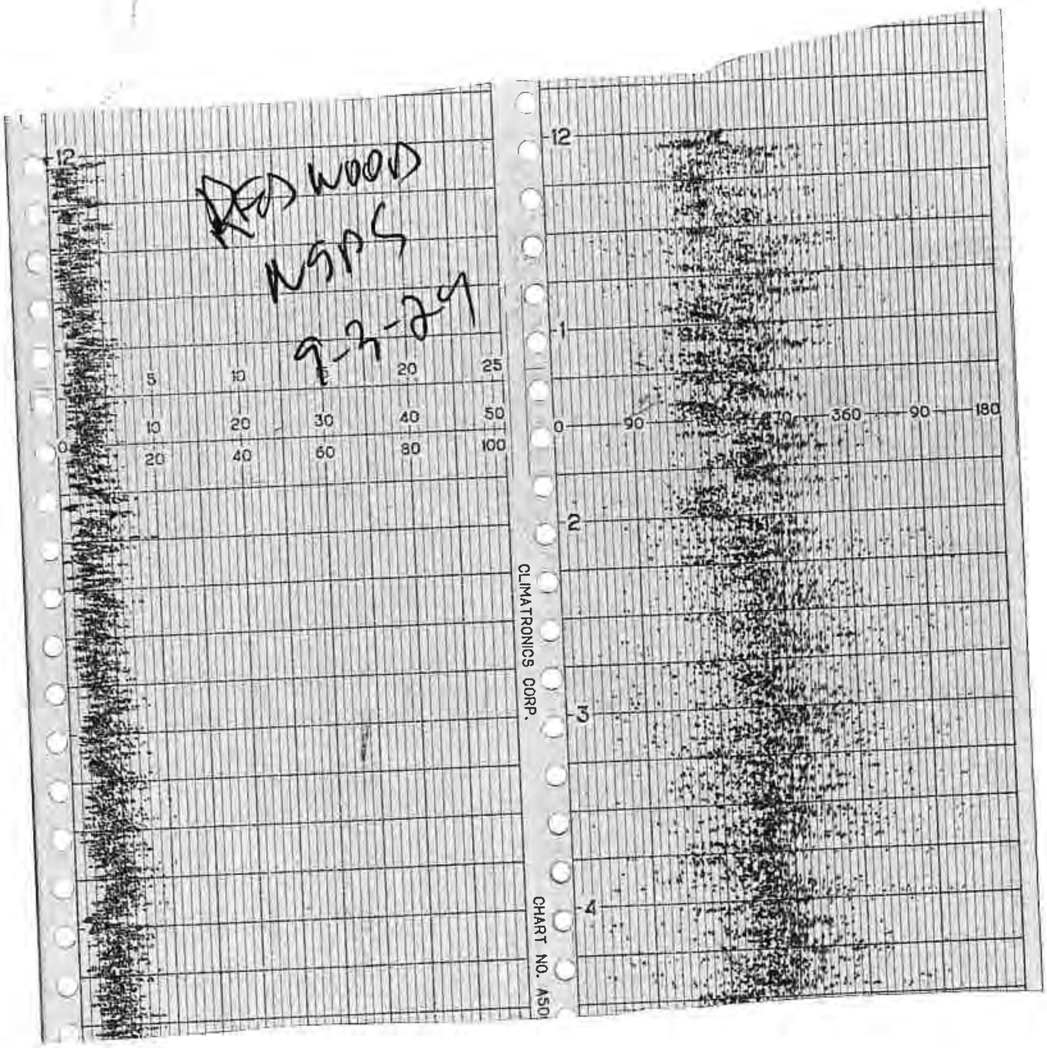
WIND SPEED & DIRECTION CHART ROLL



Attachment C

Calibration Records

RES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo

MODEL TVA1000 EQUIPMENT # 10 SERIAL # 1036346773

MONITORING DATE 9-3-24 TIME 1200

Calibration Procedure:

1 Allow instrument to zero itself while introducing air
2 Introduce calibration gas into the probe Stabilized reading = 500 ppm
3 Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.2 ppm	2.4 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	507 ppm	457 ppm	6
#2	500 ppm	450 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.14 ppm	507 ppm	7
#2	0.1 ppm	500 ppm	0
#3	0.09 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.46 #DIV/0! Must be less than 10%

Performed By Leishwaoe Date/Time 9-3-24 – 1200

RES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo

MODEL TVA 1000 EQUIPMENT # 11 SERIAL # 1036346772

MONITORING DATE 9-3-24 TIME 1200

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 507 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.4 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	495 ppm	445 ppm	5
#2	500 ppm	450 ppm	5
#3	510 ppm	453 ppm	5
Calculate Response Time $\frac{(1+2+3)}{3}$			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.10 ppm	495 ppm	5
#2	0.08 ppm	500 ppm	0
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.33 #DIV/0! Must be less than 10%

Performed By Jerry Munoz Date/Time 9-3-24-1200

RES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo
MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741
MONITORING DATE: 9-3-24 TIME: 1200

Calibration Procedure:

1. Allow instrument to zero itself while introducing air
2. Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3. Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.4 ppm	2.3 ppm

Background Value = 2.3 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	502 ppm	452 ppm	4
#2	500 ppm	450 ppm	4
#3	500 ppm	450 ppm	4
Calculate Response Time $\frac{(1+2+3)}{3}$			4 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 **ppm**

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.09 ppm	502 ppm	2
#2	0.06 ppm	500 ppm	0
#3	0.05 ppm	500 ppm	0
Calculate Precision $\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$			0.13 #DIV/0! Must be less than 10%

Performed By: [illegible] Date/Time: 9-3-24-1200

RES

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT MAKE Foxboro
MODEL TVA 1000 EQUIPMENT # #3 SERIAL # 1102746775
MONITORING DATE 9-3-24 TIME 1200

Calibration Procedure:

1 Allow instrument to zero itself while introducing air
2 Introduce calibration gas into the probe Stabilized reading = 500 ppm
3 Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.2 ppm	2.4 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	504 ppm	454 ppm	6
#2	498 ppm	448 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.09 ppm	504 ppm	4
#2	0.06 ppm	498 ppm	2
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.40 #DIV/0! Must be less than 10%

Performed By Anthony Canslor Date/Time 9-3-24-1200

KES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo

MODEL TVA1000 EQUIPMENT # 16 SERIAL # 1102746726

MONITORING DATE 9-3-24 TIME 1200

Calibration Procedure:

1 Allow instrument to zero itself while introducing air.
2 Introduce calibration gas into the probe. Stabilized reading = 500 ppm
3 Adjust meter settings to read 500 ppm

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.2 ppm	2.4 ppm	2.3 ppm

Background Value = 2.3 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	507 ppm	457 ppm	6
#2	498 ppm	448 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.13 ppm	507 ppm	7
#2	0.09 ppm	498 ppm	2
#3	0.07 ppm	510 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.60 #DIV/0! Must be less than 10%

Performed By Daniel Leng Date/Time 9-3-24 - 1200

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SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 9-7-24 Time: 0900

Model # TVA 1000

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK
Reading following ignition	2.6 ppm	Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Leak test	Pass / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-7-24	Time required to attain 90% of Cal Gas ppm: 1. 6 2. 5 3. 5 Average 5.3
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N — Instrument calibrated to CH4 gas.

Comments: ______

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SURFACE EMISSION MONITORING INSTRUMENT CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 9-7-24 Time: 0915

Model # TVA 1000

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	
Reading following ignition	2.5 ppm	
Leak test	Pass / Fail / NA	
Clean system check (check valve chatter)	Pass / Fail / NA	
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	
Date of last factory calibration	7-7-24	
Factory calibration record w/instrument within 3 months	Pass / Fail	

CALIBRATION CHECK

Calibration Gas (ppm)	Actual (ppm)	% Accuracy
500	500	100%

RESPONSE TIME

Calibration Gas, ppm 500

90% of Calibration Gas, ppm 450

Time required to attain 90% of Cal Gas ppm

1. 6
2. 6
3. 5

Average 5.6

Equal to or less than 30 seconds? Y N

Instrument calibrated to CH4 gas.

Comments: ______

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: ______________________

Purpose: ______________________

Operator: JM M

Date: 9-7-24 Time: 0930

Model # TVA 1000

Serial # #12 1036246741

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	**CALIBRATION CHECK** Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Reading following ignition	2.3 ppm	
Leak test	Pass / Fail / NA	**RESPONSE TIME**
Clean system check (check valve chatter)	Pass / Fail / NA	Calibration Gas, ppm: 500 90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 6 2. 6 3. 5
Date of last factory calibration	7-7-24	Average 5.6
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N Instrument calibrated to CH4 gas.

Comments: ______________________

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator: [signature]

Date: 9-7-24 Time: 1000

Model # TVA 1000

Serial # #13 110274675

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	Pass / Fail	CALIBRATION CHECK Calibration Gas (ppm): 500 — Actual (ppm): 500 — % Accuracy: 100%
Reading following ignition	2.4 ppm	RESPONSE TIME
Leak test	Pass / Fail / NA	Calibration Gas, ppm: 500
Clean system check (check valve chatter)	Pass / Fail / NA	90% of Calibration Gas, ppm: 450
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA	Time required to attain 90% of Cal Gas ppm 1. 7 2. 6 3. 6
Date of last factory calibration	7-7-24	Average 6.3
Factory calibration record w/instrument within 3 months	Pass / Fail	Equal to or less than 30 seconds? Y N Instrument calibrated to CH4 gas.

Comments:

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT CALIBRATION LOG

Site: ______

Purpose: ______

Operator: [signature]

Date: 9-7-24 Time: 1045

Model # TVA 1000

Serial # #16 1102746776

INSTRUMENT INTEGRITY CHECKLIST	
Battery test	Pass / Fail
Reading following ignition	2.3 ppm
Leak test	Pass / Fail / NA
Clean system check (check valve chatter)	Pass / Fail / NA
H_2 supply pressure gauge (acceptable range 9.5 - 12)	Pass / Fail / NA
Date of last factory calibration	7-7-24
Factory calibration record w/instrument within 3 months	Pass / Fail

INSTRUMENT CALIBRATION

CALIBRATION CHECK

Calibration Gas (ppm)	Actual (ppm)	% Accuracy
500	500	100

RESPONSE TIME

Calibration Gas, ppm 500

90% of Calibration Gas, ppm 450

Time required to attain 90% of Cal Gas ppm

1. 6
2. 5
3. 6

Average 5.6

Equal to or less than 30 seconds? Y N

Instrument calibrated to CH_4 gas.

Comments: ______

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 10

SERIAL NUMBER: 103634 6773

TECHNICIAN: [signature]

DATE: 7-2-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	499	+/- 125
10000	10000	10,112	+/- 2500
< 1	ZERO GAS	0.54	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #11

SERIAL NUMBER: 10363467 74

TECHNICIAN: [signature]

DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.53	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: MTES Vault #12

SERIAL NUMBER: 1036246741

TECHNICIAN: [signature]

DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.63	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Cart #13

SERIAL NUMBER: 110274677 5

TECHNICIAN: [signature] DATE: 7-2-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,003	+/- 2500
< 1	ZERO GAS	0.01	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #16

SERIAL NUMBER: 1102746776

TECHNICIAN: [illegible signature] DATE: 7-7-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0,63	< 3

PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

All measurement standards are calibrated at scheduled intervals by the National Institute of Standards and Technology (NIST), or against certified standards, which are traceable to the National Institute of Standards and Technology.

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CERTIFICATE OF ANALYSIS

Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 75836320
PO Number 04C23328

Lot Number 4-236-82
Norlab Part# J1002
Cylinder Size 103 Liter
Number of Cyl 2

Customer Part# N/A

Date on Manufacture 8/29/2024
Expires 08/2028
Analytical Accuracy Certified

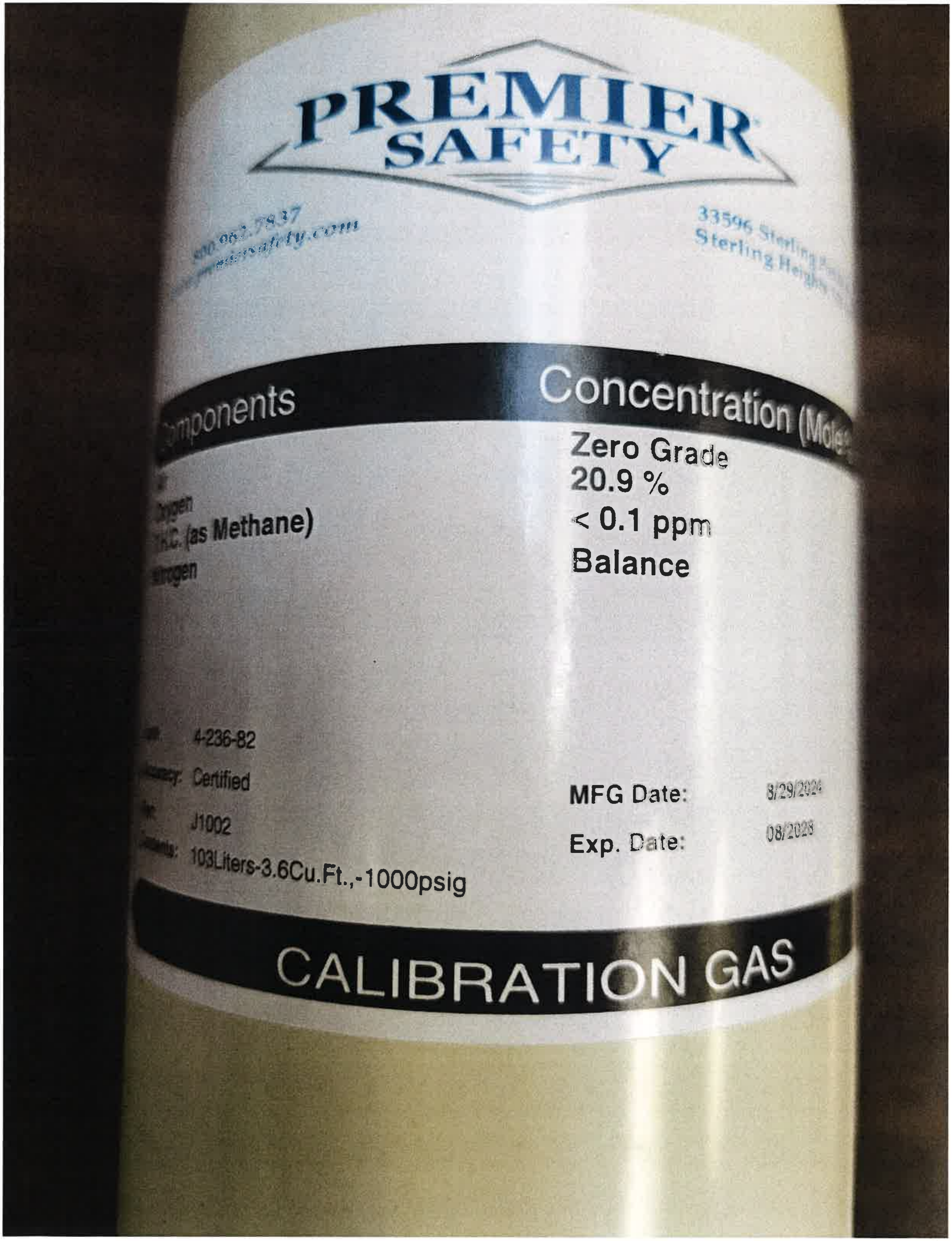
Component	Reported Concentration	Requested Concentration
Air	Zero Grade	Zero Grade
Oxygen	20.9 %	20.9 %
T.H.C. (as Methane)	< 0.1 ppm	< 0.1 ppm
Nitrogen	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

Minor constituents tested with standards traceable to NIST by mass or comparison to SRM's (Standard Reference Materials).

NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 8/29/2024
David Reed
Lab Technician



PREMIER
SAFETY
Zero Grade
20.9 %
< 0.1 ppm
Balance
(as Methane)
4-236-82
Certified
J1002
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
8/29/2024
Exp. Date:
08/2028
CALIBRATION GAS

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CERTIFICATE OF ANALYSIS

Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 69679439
PO Number 04906817

Lot Number	2-154-85
Norlab Part#	J1002
Cylinder Size	103 Liter
Number of Cyl	1

Date on Manufacture	6/13/2022
Expires	06/2025
Analytical Accuracy	Certified

Customer Part# N/A

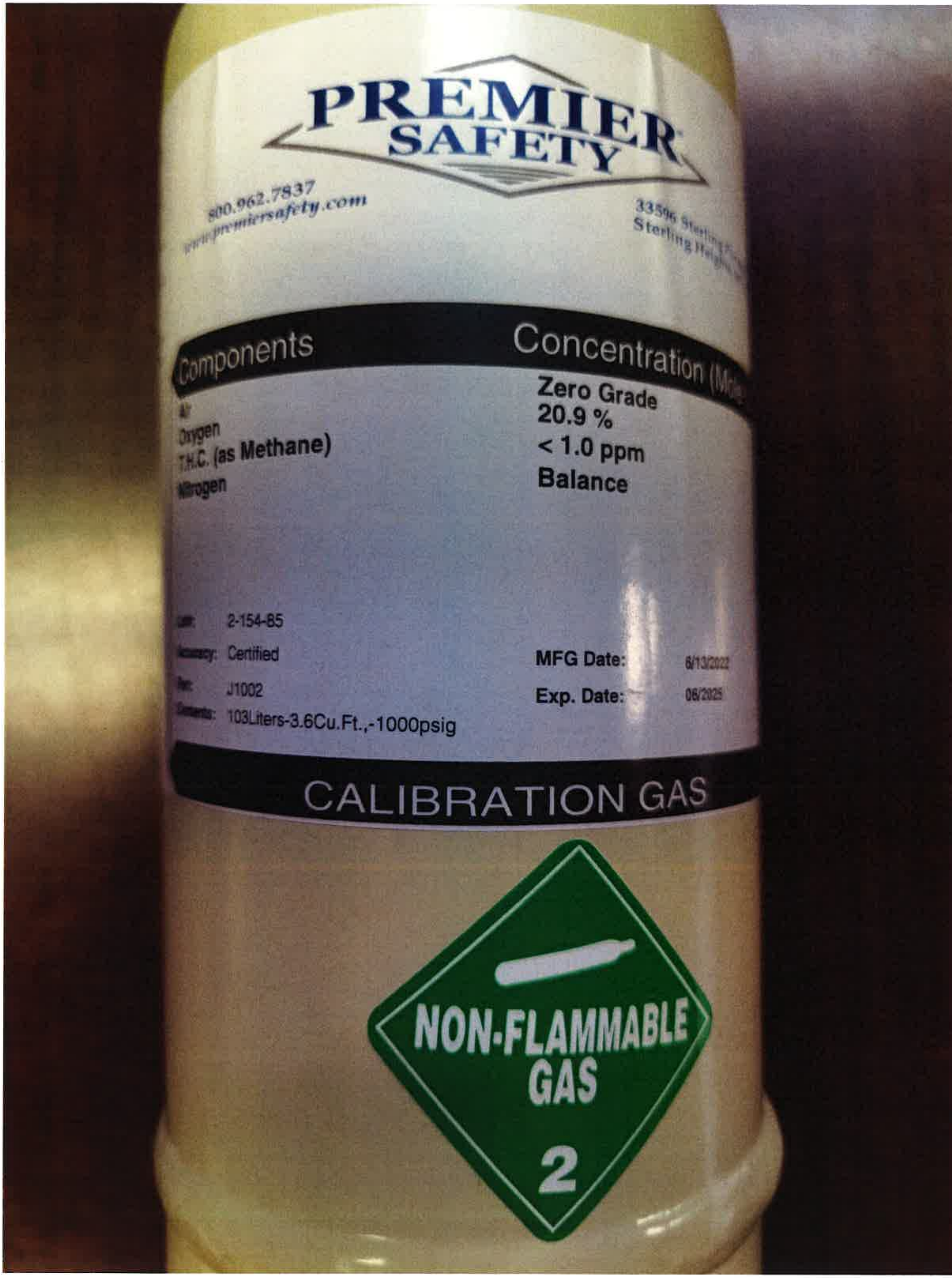
Component	Reported Concentration	Requested Concentration
Air	Zero Grade	Zero Grade
Oxygen	20.9 %	20.9 %
T.H.C. (as Methane)	< 1.0 ppm	< 1.0 ppm
Nitrogen	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

Minor constituents tested with standards traceable to NIST by mass or comparison to SRM's (Standard Reference Materials).

NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 6/13/2022
David Reed
Lab Technician


PREMIER
SAFETY
800.962.7837
www.premiersafety.com
Components
Concentration
Oxygen
T.H.C. (as Methane)
Nitrogen
Zero Grade
20.9 %
< 1.0 ppm
Balance
2-154-85
Certified
J1002
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
6/13/2022
Exp. Date:
06/2025
CALIBRATION GAS
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GAS
2

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Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 75275610
PO Number 04B84126

Lot Number	4-176-81
Norlab Part#	J197125PA
Cylinder Size	103 Liter
Number of Cyl	3

Customer Part# N/A

Date on Manufacture	6/25/2024
Expires	06/2028
Analytical Accuracy	+/- 5 %

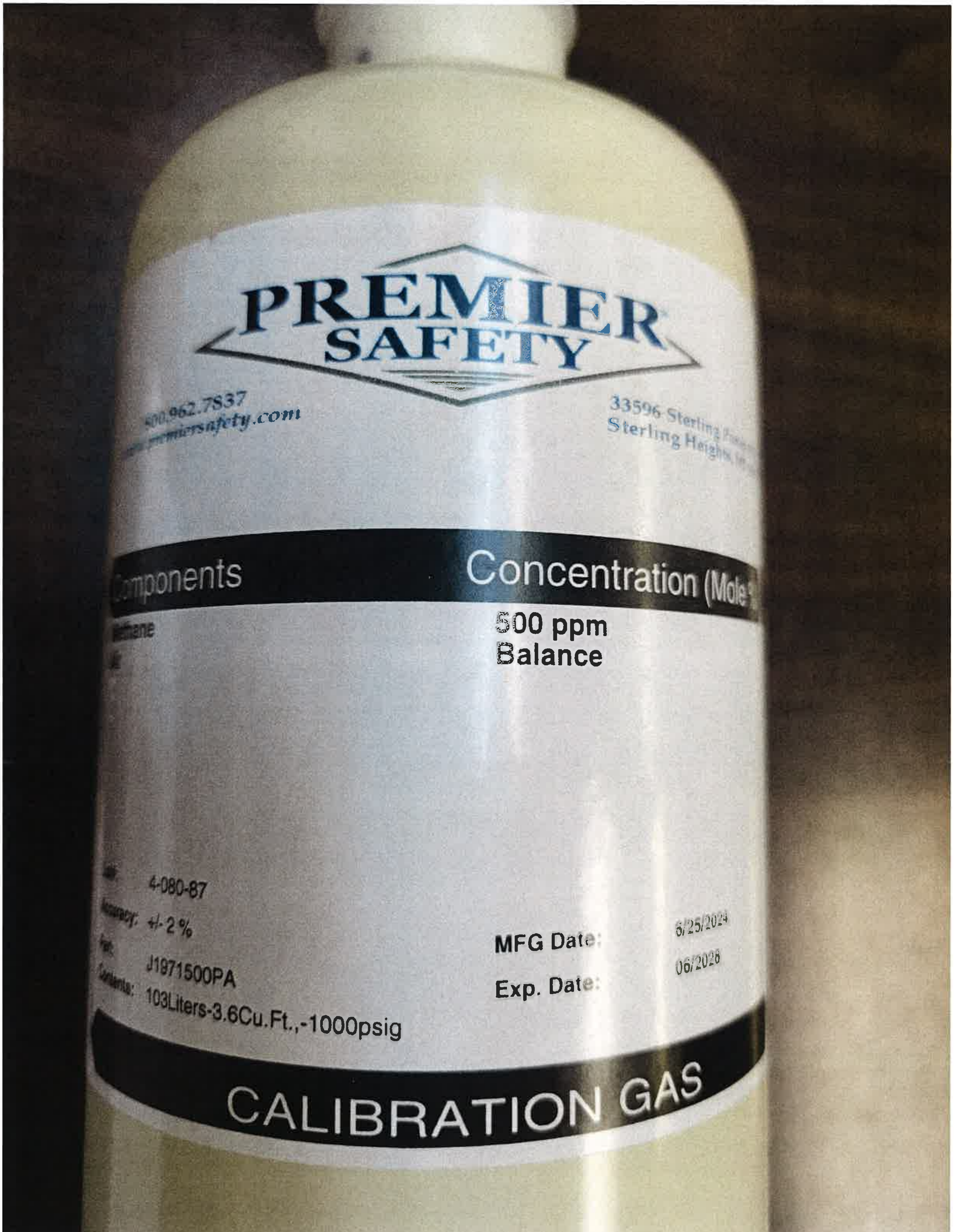
Component	Reported Concentration	Requested Concentration
Methane	25 ppm	25 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 6/25/2024
David Reed
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672



PREMIER
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premiersafety.com
33596 Sterling
Sterling Heights
omponents
Concentration (Mole
500 ppm
Balance
4-080-87
+/- 2 %
J1971500PA
103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 6/25/2024
Exp. Date: 06/2028
CALIBRATION GAS

INTERMOUNTAIN SPECIALTY GASES
520 N. Kings Road • Nampa • Idaho • 83687
800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

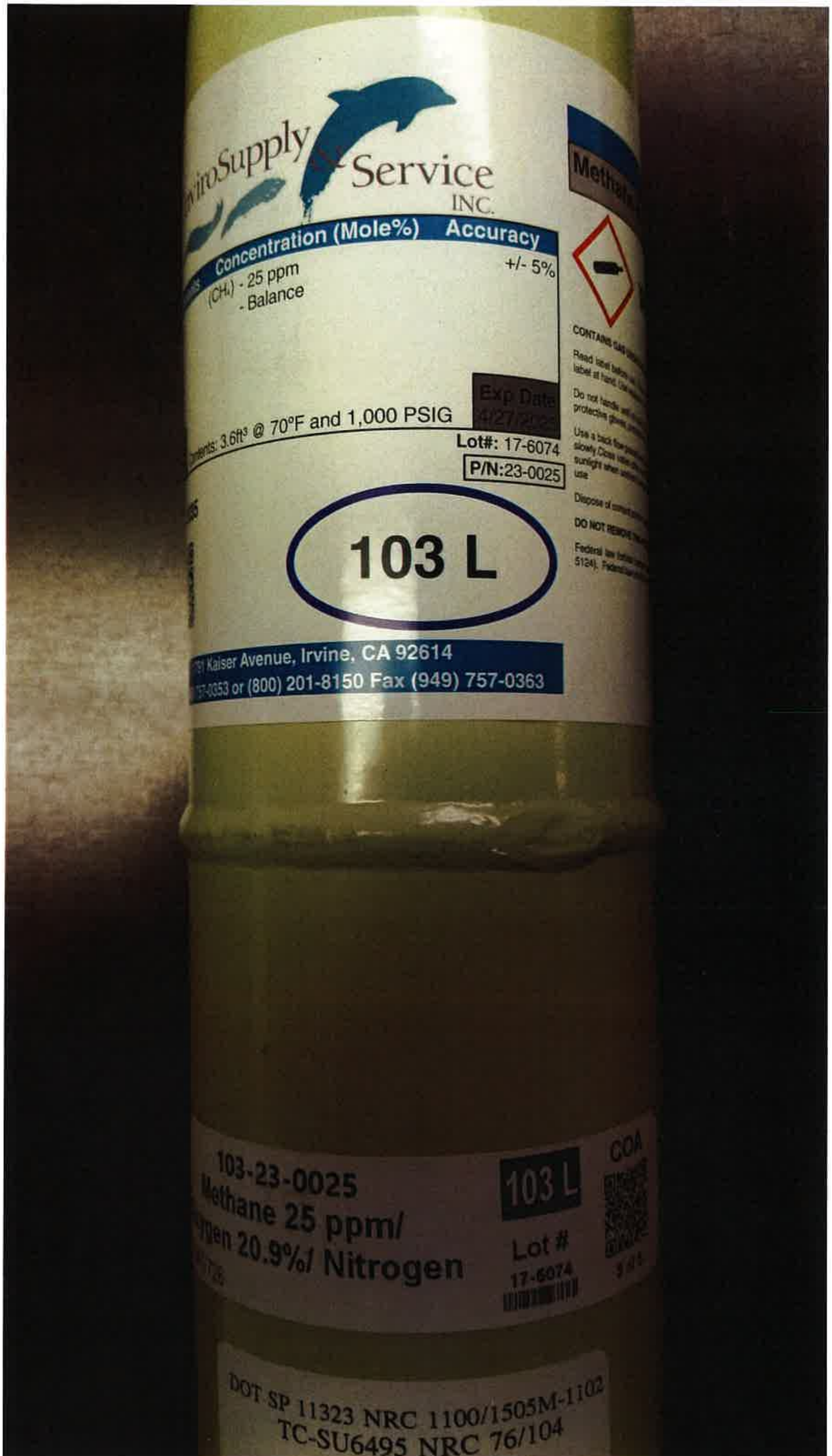
Lot #	17-6074

Mfg. Date: 10/16/2017
Parent Cylinder ID Number: 17161

Method of Preparation:
Gravimetric/Pressure Transfilled

Method of Analysis:
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 10/16/2017



Service
INC.
Concentration (Mole%)
Accuracy
(CH4) - 25 ppm
- Balance
+/- 5%
Exp Date
3.6ft³ @ 70°F and 1,000 PSIG
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
or (800) 201-8150 Fax (949) 757-0363
103-23-0025
Methane 25 ppm/
20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104

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Premier Safety & Service

33596 Sterling Pond Blvd
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Cust Number 07152
Order Number 73732858
PO Number 04B70733

Lot Number	3-340-62
Norlab Part#	J197125PA
Cylinder Size	103 Liter
Number of Cyl	5

Date on Manufacture	12/7/2023
Expires	12/2027
Analytical Accuracy	+/- 5 %

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Methane	25 ppm	25 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: Date Signed: 12/7/2023

Aaron Schwenken
Lab Manager

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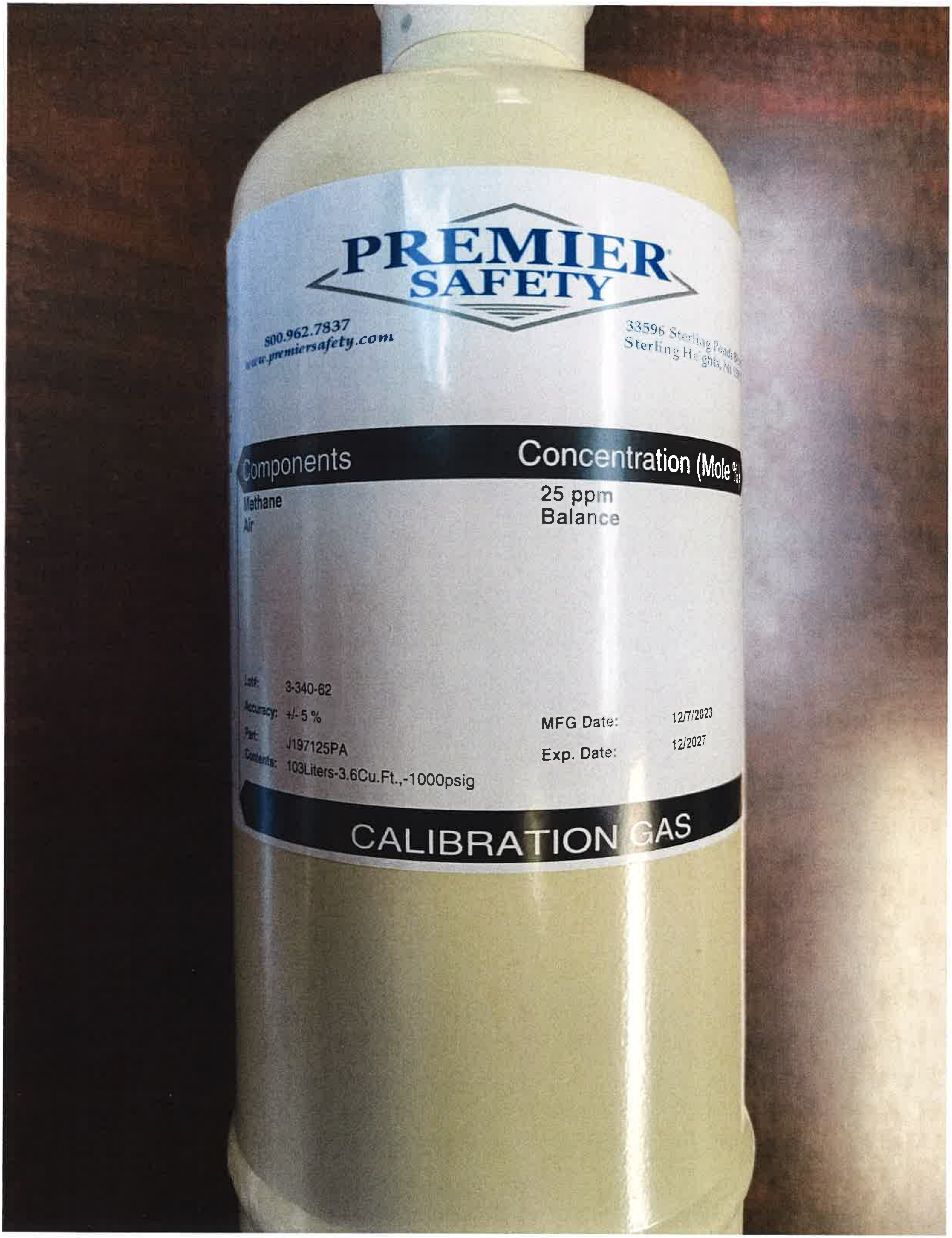
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33596 Sterling
Sterling Heights,
Components
Concentration (Mole
Methane
Air
25 ppm
Balance
Lot#:
3-340-62
Accuracy:
+/- 5 %
Part:
J197125PA
Contents:
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
12/7/2023
Exp. Date:
12/2027
CALIBRATION GAS

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33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 75275610
PO Number 04B84126

Lot Number 4-080-87
Norlab Part# J1971500PA
Cylinder Size 103 Liter
Number of Cyl 5

Customer Part# N/A

Date on Manufacture 6/25/2024
Expires 06/2028
Analytical Accuracy +/- 2 %

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: David Reed
Lab Technician

Date Signed: 6/25/2024

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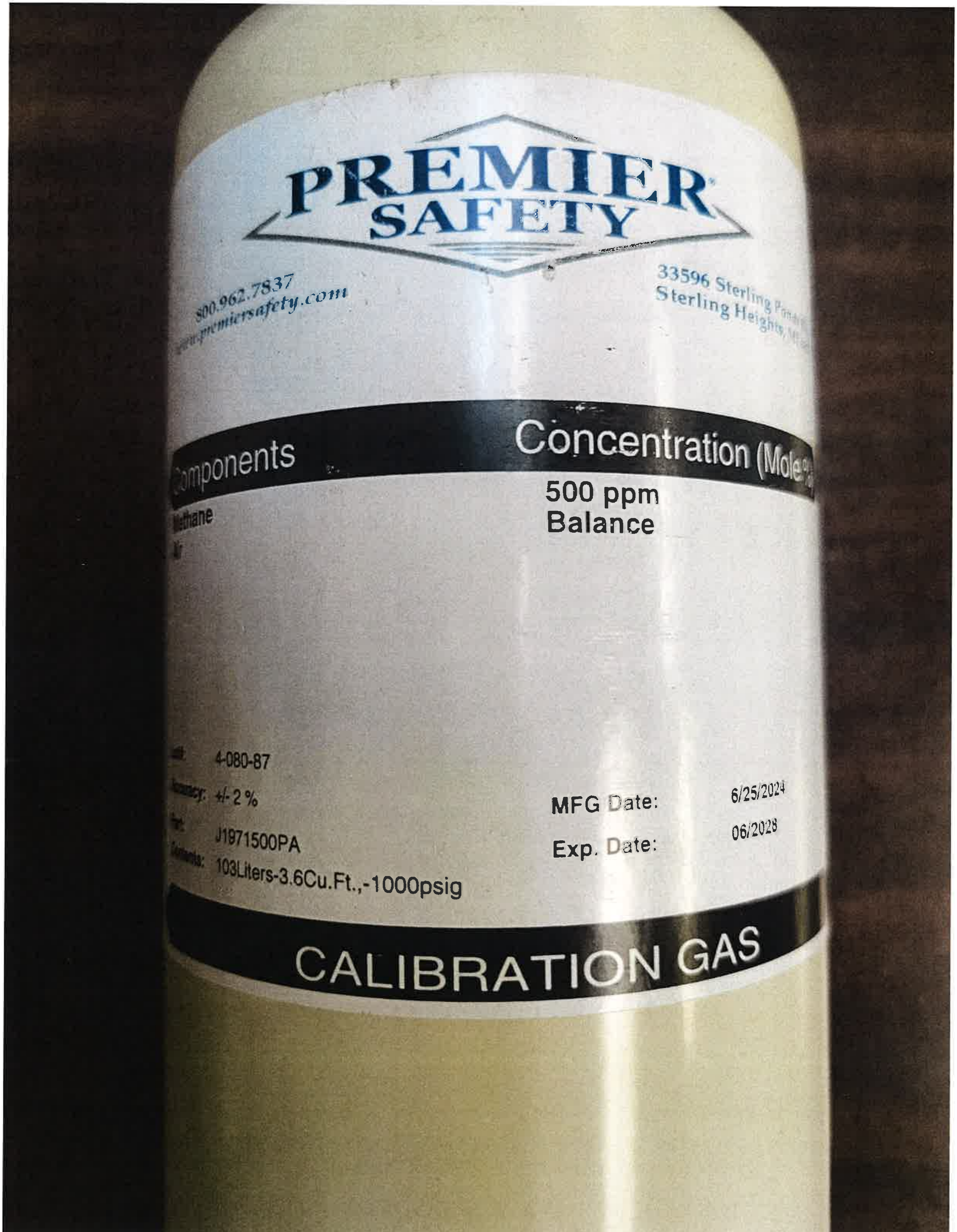
PREMIER SAFETY
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Sterling Heights
Components
Concentration
Methane
500 ppm
Balance
4-080-87
+/- 2 %
J1971500PA
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
6/25/2024
Exp. Date:
06/2028
CALIBRATION GAS

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33596 Sterling Pond Blvd
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Cust Number 07152
Order Number 69671309
PO Number 08361523

Lot Number 2-108-80
Norlab Part# J1971500PA
Cylinder Size 103 Liter
Number of Cyl 1

Customer Part# N/A

Date on Manufacture 6/10/2022
Expires 06/2025
Analytical Accuracy +/- 2 %

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: David Reed Date Signed: 6/10/2022
David Reed
Lab Technician

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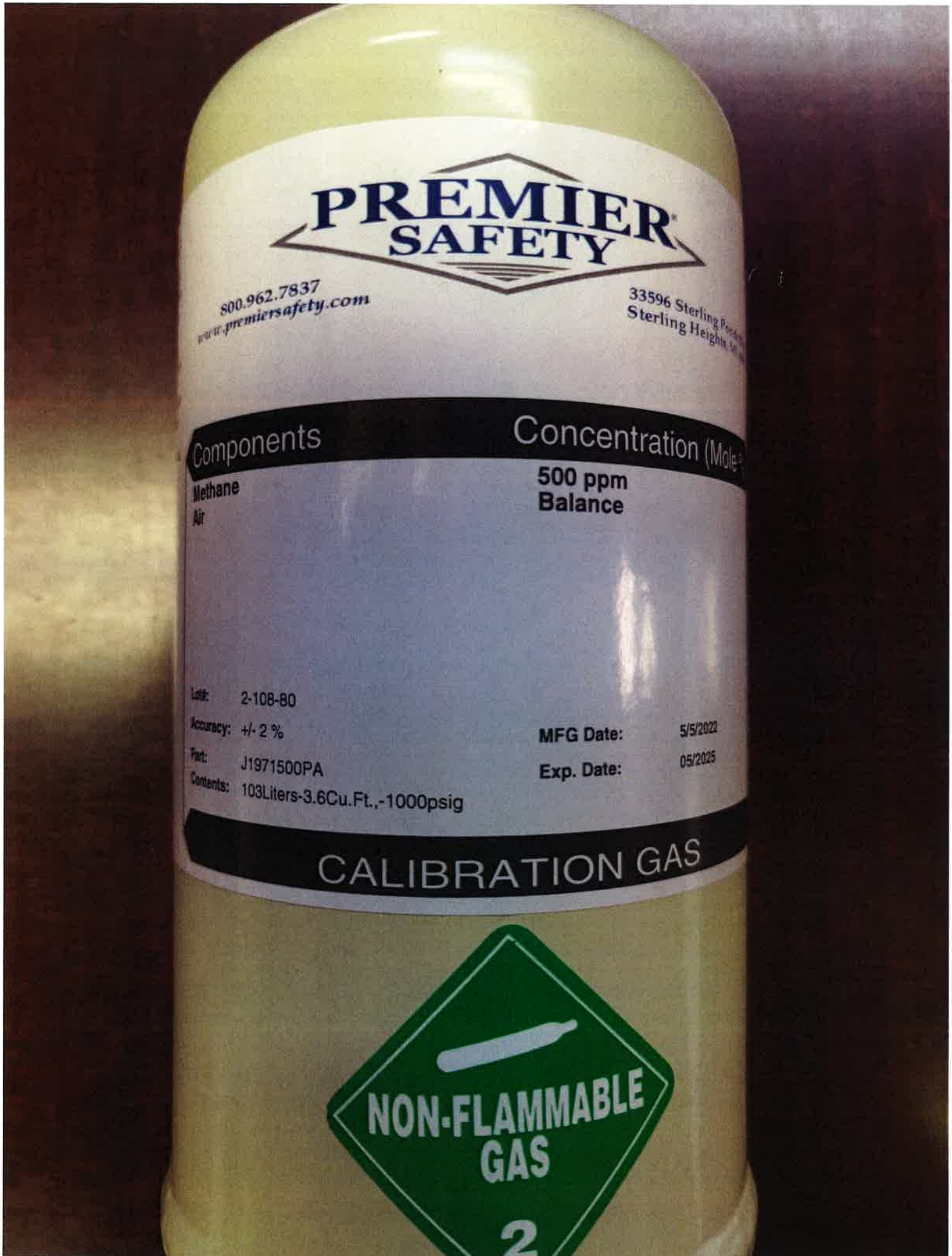
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www.premiersafety.com
33596 Sterling
Sterling Heights
Components
Concentration (Mole
Methane
Air
500 ppm
Balance
Lot#: 2-108-80
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 5/5/2022
Exp. Date: 05/2025
CALIBRATION GAS
NON-FLAMMABLE GAS
2

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Norco, Inc
Twin Falls Warehouse
203 S. Park Ave. West
Twin Falls, ID 83301

Cust Number WH012
Order Number 71846398
PO Number 04A35563

Lot Number	3-088-88
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	5

Date on Manufacture	4/7/2023
Expires	04/2027
Analytical Accuracy	+/- 2 %

Customer Part# N/A

Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

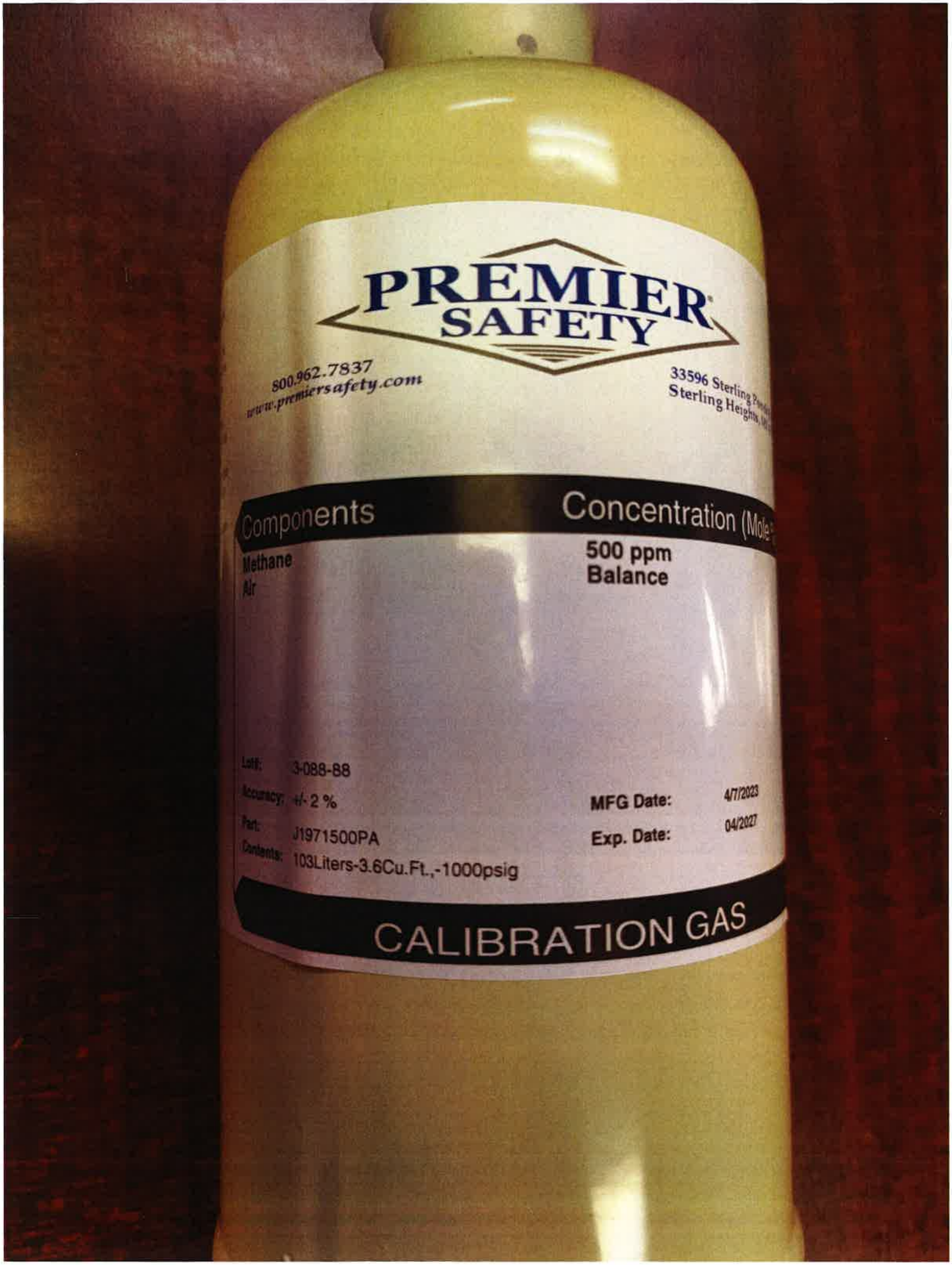
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: Date Signed: 4/7/2023

Jeff Korn
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672


PREMIER
SAFETY
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33596 Sterling
Sterling Heights
Components
Concentration
Methane
Air
500 ppm
Balance
Lot#: 3-088-88
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 4/7/2023
Exp. Date: 04/2027
CALIBRATION GAS

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CERTIFICATE OF ANALYSIS

Premier Safety & Service

33596 Sterling Pond Blvd
Sterling Hights MI 48312

Cust Number 07152
Order Number 73732858
PO Number 04B70733

Lot Number 3-340-61
Norlab Part# J1971500PA
Cylinder Size 103 Liter
Number of Cyl 5

Customer Part# N/A

Date on Manufacture 12/7/2023
Expires 12/2027
Analytical Accuracy +/- 2 %

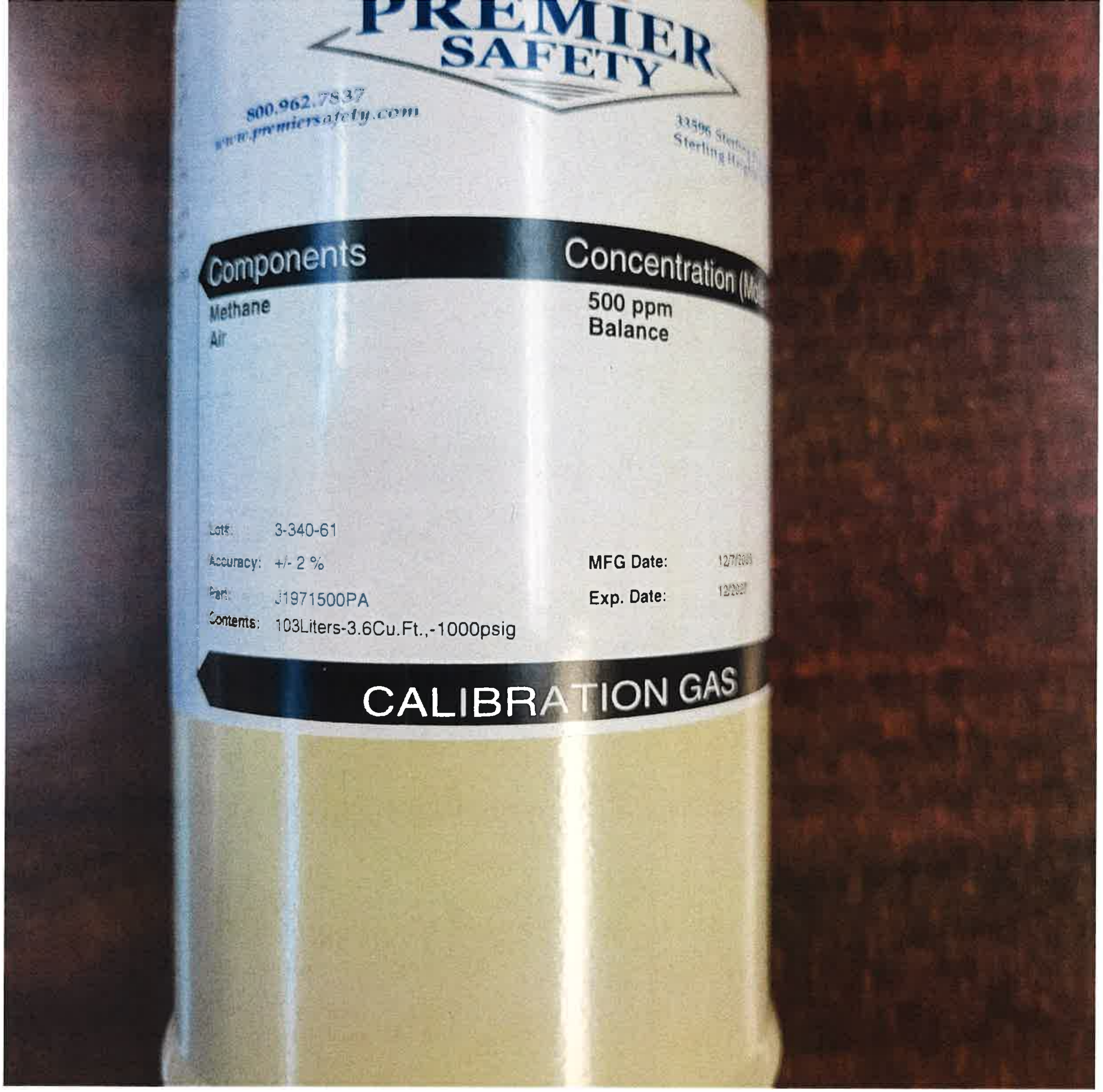
Component	Reported Concentration	Requested Concentration
Methane	500 ppm	500 ppm
Air	Balance	Balance

Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs. NIST Traceable Numbers are available upon request.

Approved: Date Signed: 12/7/2023

Aaron Schwenken
Lab Manager


PREMIER
SAFETY
800.962.7837
www.premiersafety.com
Components
Concentration
Methane
Air
500 ppm
Balance
Lots: 3-340-61
Accuracy: +/- 2 %
Part: J1971500PA
Contents: 103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
Exp. Date:
CALIBRATION GAS

APPENDIX I

WELLFIELD MONITORING LOGS

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - May 6, 7, 8, 9, 10, 14, 29, 30, and 31, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	5/10/24 11:00	55.5	36.7	0.8	7	-18.12	80	-18.03	79.8
RLI00008	5/9/24 13:45	41.7	26	4.9	27.4	-47.72	85.5	-0.11	87.9
RLI00016	5/10/24 9:49	25.5	23.9	0.6	50	-52.39	75.2	-52.37	75.2
RLI00017	5/9/24 14:18	34.7	26.5	1.7	37.1	-37.86	81.4	-34.28	81.7
RLI00018	5/9/24 14:10	45.5	28.2	3	23.3	-46.21	90	-46.25	90
RLI00019	5/9/24 13:56	39.6	22.9	6.7	30.8	-41.7	89.8	-41.88	89.9
RLI00019	5/9/24 14:05	40.1	23.1	6.7	30.1	-42.06	90.4	-41.78	90.4
RLI00019	5/14/24 11:44	45.9	26.4	5.7	22	-44.45	69.5	-42.32	69.5
RLI00019	5/14/24 11:47	42.3	24.7	7	26	-45.41	69.6	-44.8	69.6
RLI00019	5/29/24 11:30	48	27.8	3.9	20.3	-37.31	78.7	-34.98	78.8
RLI00034	5/10/24 10:08	56.9	40	0.1	3	-35.26	81.4	-36.9	81.5
RLI00035	5/10/24 10:40	58	39	0.2	2.8	-47.38	77.8	-47.35	77.8
RLI00045	5/10/24 10:19	27.5	26.7	0.2	45.6	-2.54	76.8	-2.04	77.1
RLI00047	5/10/24 10:25	28.6	28.3	0.2	42.9	-4.15	79.8	-4.07	79.7
RLI00065	5/7/24 15:00	53.9	41.9	0.2	4	-22.55	96.2	-21.11	96.2
RLI00083	5/7/24 8:45	61.3	38.6	0.1	0	-57.89	86.9	-58.25	86.9
RLI00095	5/7/24 8:15	43.2	32.3	0.4	24.1	-4.55	101.6	-4.11	101.6
RLI00132	5/8/24 13:00	57.9	37.2	0.5	4.4	-41.52	80.5	-41.57	80.5
RLI00134	5/9/24 10:56	53.4	41	0	5.6	0.06	114.1	-0.35	115
RLI00135	5/9/24 10:33	57.9	39.6	0.2	2.3	-29.86	104.9	-30.41	105.3
RLI00137	5/8/24 10:03	46	27.7	4.9	21.4	-50.45	79.4	-51.2	79.2
RLI00140	5/14/24 11:22	46.6	39	0	14.4	-10.31	104.1	-6.74	105.3
RLI00141	5/7/24 9:58	55.9	43.9	0.2	0	-0.99	88.5	-1.09	88.6
RLI00142	5/14/24 11:18	44.1	35.7	1	19.2	-25.23	122.9	-22.36	123.1
RLI00220	5/6/24 14:51	53.9	38.3	0.8	7	-1.24	68.3	-1.74	69.2
RLI00275	5/7/24 8:39	58.8	39.5	0.1	1.6	-37.41	95.3	-37.35	95.3
RLI00276	5/7/24 14:44	56.2	42	0.2	1.6	-37.37	78.7	-37.37	78.8
RLI00277	5/9/24 9:00	43.8	35.8	0.2	20.2	-2.71	112.9	-2.68	112.8
RLI00278	5/9/24 9:04	54	42.4	0.3	3.3	-6.15	111.9	-6.46	112
RLI00279	5/9/24 9:24	46.8	38	0.1	15.1	-8.22	130.5	-8.24	130.5
RLI00280	5/14/24 11:32	42.3	35	0	22.7	-7.35	109.4	-6.55	109.4
RLI00281	5/9/24 9:50	52.3	39.5	0.1	8.1	-4.22	116.4	-4.21	116.4
RLI00282	5/6/24 15:23	53.2	41	0.1	5.7	-27.05	107.3	-27.04	107.3
RLI00282	5/7/24 11:40	50.8	41.4	0.1	7.7	-27.74	107.6	-25.83	107.9
RLI00283	5/7/24 12:12	56.6	43.2	0.2	0	-25.23	117.4	-25.22	117.4
RLI00283	5/31/24 11:32	56.8	42.7	0	0.5	-19.68	119.2	-22.14	119.1
RLI00284	5/7/24 8:58	62.1	37.7	0.2	0	-33.74	81.1	-33.74	81.2
RLI00285	5/7/24 8:32	60.5	39.3	0.1	0.1	-26.35	80	-29.15	79.9
RLI00286	5/7/24 10:04	56.1	43.7	0.1	0.1	-0.95	104.9	-1.01	104.9
RLI00287	5/29/24 11:06	56.5	41.9	0.2	1.4	-33.3	105.3	-34.36	105.3
RLI0100C	5/10/24 10:49	1.3	2.6	18.8	77.3	-49.27	80.3	-49.3	80.3
RLI0100C	5/10/24 10:54	32.1	27.9	2.9	37.1	-49.19	82.6	-49.33	81.3
RLI0102C	5/8/24 13:29	57.4	36.4	0.1	6.1	-39.32	87.7	-39.38	87.7
RLI0103C	5/9/24 10:40	55.5	39.8	0.5	4.2	-22.07	90.2	-21.98	90.5
RLI0105C	5/9/24 9:58	47.2	38.6	1	13.2	-11.74	86.9	-11.69	87
RLI0106C	5/9/24 9:46	53.4	39.8	0.4	6.4	-28.21	91.9	-28.68	91.8
RLI0107C	5/14/24 13:31	57.7	39.8	0	2.5	-0.2	102.3	-0.24	103.7
RLI0114A	5/8/24 12:00	36.7	20.1	7.4	35.8	-51.68	85.9	-51.47	85.9
RLI0114A	5/8/24 12:08	35.4	19.5	7.6	37.5	-50.99	85.9	-51.63	85.9
RLI0114A	5/29/24 11:18	35	21.1	7.1	36.8	-46.67	86.4	-45.26	86.7
RLI0114A	5/29/24 11:21	33.7	20.3	7.6	38.4	-45.21	86.4	-45.13	86.7
RLI0115E	5/8/24 11:27	56.5	31.8	2	9.7	-1.22	93.9	-2.9	93.9
RLI0116E	5/8/24 11:11	60.6	37.8	0	1.6	-2.04	79.9	-3.88	80
RLI0117D	5/8/24 11:18	49.8	32.7	2.9	14.6	-43.9	84.3	-45.66	84.3
RLI0124G	5/7/24 9:36	62.2	37.6	0.2	0	-57.86	70.5	-57.83	70.6
RLI0126C	5/8/24 14:00	59.9	29.4	1.6	9.1	-29.05	92.4	-29.54	92.4

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - May 6, 7, 8, 9, 10, 14, 29, 30, and 31, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	5/10/24 11:00	55.5	36.7	0.8	7	-18.12	80	-18.03	79.8
RLI00008	5/9/24 13:45	41.7	26	4.9	27.4	-47.72	85.5	-0.11	87.9
RLI0127B	5/8/24 12:36	52.5	36.3	0.5	10.7	-14.08	103.9	-14.16	103.9
RLI0128A	5/9/24 8:49	46.4	37.9	0.3	15.4	-5.41	117.8	-4.88	117.8
RLI0129E	5/14/24 13:20	0	0.5	19.9	79.6	-20.72	78.1	-20.72	78.1
RLI0129E	5/14/24 13:23	0	0.2	20.1	79.7	-20.84	78.9	-20.84	78.9
RLI0129E	5/29/24 11:43	0	0.3	19	80.7	-23.8	85	-23.75	85
RLI0129E	5/29/24 11:46	0	0.1	19.3	80.6	-24.21	85.7	-24.21	85.7
RLI0130E	5/10/24 11:31	52.9	30.9	0.2	16	-14.65	80.4	-14.63	80.4
RLIHC101	5/7/24 9:49	59.4	40.5	0.1	0	-45.09	99.8	-43.15	99.5
RLIHC102	5/7/24 9:43	58	41.9	0.1	0	-58.35	108.1	-55.06	107.7
RLLC0176	5/9/24 11:14	25.2	19.7	9.9	45.2	-36.97	82.4	-36.81	82.4
RLLC0176	5/9/24 11:20	21.5	17.8	11	49.7	-24.46	82	-24.12	81.9
RLLC0177	5/9/24 10:45	59.1	39.2	0.3	1.4	-38.14	106.2	-38.14	106.2
RLLC0179	5/7/24 8:23	60.8	38.7	0.5	0	-15.15	61.1	-16.13	60.8
RLLC0180	5/9/24 10:21	56.2	38.4	0.6	4.8	-41.04	105	-46.2	104.9
RLLC0181	5/9/24 10:09	59.9	38.6	0.2	1.3	-19.77	109	-21.28	109.1
RLLC0183	5/8/24 12:48	42.2	33.1	0	24.7	-5.28	86.7	-3.86	86.4
RLLC0184	5/8/24 12:28	56.5	38.4	0.2	4.9	-34.18	101.1	-34.07	101.1
RLLC0185	5/9/24 10:51	51.8	37.7	0.2	10.3	-1.6	108.1	-1.6	108.1
RLLC0186	5/9/24 13:10	58.5	38.4	0.3	2.8	-42.4	79.5	-42.38	79.7
RLLC0187	5/9/24 12:58	47	35.4	0.6	17	-42.59	90.5	-42.56	90.5
RLLC0188	5/14/24 11:57	59	41	0	0	-41.13	86.5	-41.16	86.6
RLLC0189	5/9/24 13:19	34.6	32.6	0.6	32.2	-1.99	118.8	-2	118.8
RLLC0190	5/9/24 10:26	53.9	39.6	0.1	6.4	-36.46	117.2	-36.99	117.2
RLLC0190	5/9/24 13:28	47.3	39.5	0.1	13.1	-8.71	112.1	-8.61	112.1
RLLC0191	5/7/24 14:15	0	0.1	19.7	80.2	-36.27	80.8	-35.87	80
RLLC0191	5/7/24 14:20	0	0.1	19.5	80.4	-29.64	80	-27.47	80.2
RLLC0191	5/29/24 10:54	0	0.1	19.5	80.4	-45.7	78.8	-44.19	79
RLLC0191	5/29/24 10:56	0	0.1	19.2	80.7	-44.31	79.3	-43.84	79.2
RLLC0191	5/31/24 10:56	0	0.2	19.7	80.1	-51.22	83.3	-49.29	83.1
RLLC0191	5/31/24 10:58	0	0.1	19.5	80.4	-50.99	80.9	-51.39	81
RLLC0193	5/8/24 11:41	51.9	29.6	3.2	15.3	-51.87	81.9	-51.87	81.9
RLLC0194	5/9/24 8:55	48.5	37.6	0.2	13.7	-4.5	106	-3.83	105.9
RLLC0195	5/9/24 9:15	43.4	43	0.3	13.3	-5.13	98	-5.57	98
RLLC0196	5/9/24 9:11	60.7	39.1	0.2	0	-29.83	76.2	-29	77.6
RLLC0198	5/14/24 12:31	1.8	3.7	18.3	76.2	-17.05	72.8	-17.03	72.8
RLLC0198	5/14/24 12:33	0.9	2	19.2	77.9	-16.87	72.4	-16.88	72.4
RLLC0198	5/29/24 11:51	0.1	1.1	18.9	79.9	-18.68	86	-18.74	85.9
RLLC0198	5/29/24 11:53	0.2	1.5	18.8	79.5	-19.37	85	-19.79	84.9
RLLC0199	5/14/24 12:35	0.2	1	19.7	79.1	-21.22	72.4	-21.23	72.4
RLLC0199	5/14/24 12:38	0.3	1.2	19.7	78.8	-21.86	72.2	-22.01	72.2
RLLC0199	5/29/24 11:57	0.2	0.9	19	79.9	-22.75	85.3	-22.7	85.3
RLLC0199	5/29/24 12:01	0.3	1.3	18.9	79.5	-22.79	82.7	-22.84	82.7
RLLC0200	5/14/24 12:45	59.2	33.6	0	7.2	-18.03	80.9	-21.62	81
RLLC0201	5/14/24 12:53	56.2	43.7	0	0.1	-2.17	90.9	-3.68	90.9
RLLC0202	5/14/24 12:24	51.6	31	2.5	14.9	-21.88	76.1	-22.55	76.1
RLLC0204	5/14/24 13:26	47.6	35.2	0	17.2	-1.37	105.4	-1.36	105.4
RLLC0205	5/8/24 14:21	36.9	31.6	0	31.5	0.33	90.1	-0.01	90.5
RLLC0206	5/8/24 13:55	40.9	34.3	0	24.8	-15	98.9	-13.4	98.4
RLLC0209	5/8/24 14:09	34	31	0	35	-1.01	94.3	-1.12	93.2
RLLC0209	5/31/24 11:20	47.2	32.7	0.2	19.9	-1.42	94.9	-1.35	94.9
RLLC0210	5/8/24 14:25	44.7	34.9	0.1	20.3	-2.47	87.1	-2.43	87
RLLC0212	5/7/24 10:14	55.3	41.1	0.2	3.4	-8.71	104.1	-9.15	104.1
RLLC0214	5/7/24 10:33	58.1	41.7	0.2	0	-41	99.2	-41.74	99.3
RLLC0215	5/14/24 13:03	59.2	40.8	0	0	-42.55	83	-42.95	83

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Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	5/10/24 11:00	55.5	36.7	0.8	7	-18.12	80	-18.03	79.8
RLI00008	5/9/24 13:45	41.7	26	4.9	27.4	-47.72	85.5	-0.11	87.9
RLLC0217	5/6/24 15:14	64.8	30.6	1.7	2.9	-32.36	69.9	-31.78	69.5
RLLC0221	5/14/24 12:27	43.4	26.5	3.7	26.4	-2.5	74.2	-2.48	74.2
RLLC0223	5/14/24 13:00	58	42	0	0	-44.71	109.1	-44.69	109.2
RLLC0224	5/14/24 12:57	57.4	42.6	0	0	-7.82	107	-8.27	107
RLLC0225	5/14/24 12:49	11	7.8	15	66.2	-21.12	74.3	-21.13	74.3
RLLC0225	5/14/24 12:51	10.6	7.3	15.2	66.9	-20.99	74.2	-21.01	74.2
RLLC0225	5/29/24 12:05	19.1	13.9	12.1	54.9	-23.28	83.9	-23.35	83.7
RLLC0225	5/29/24 12:09	21.3	15.6	10.9	52.2	-23.36	83.1	-23.37	83
RLLC0226	5/7/24 10:23	55.2	35.8	2.1	6.9	-39.65	78.7	-39.41	78.8
RLLC0227	5/7/24 8:08	61.3	38.5	0.2	0	-41.91	75	-41.91	75
RLLC0229	5/14/24 12:42	58	32.7	0.2	9.1	-5.29	78	-8.89	78.4
RLLC0230	5/7/24 12:05	7.6	4.6	18.4	69.4	-42.29	72.5	-42.32	72.5
RLLC0231	5/8/24 12:15	56.4	38.5	0.1	5	-9.33	98.7	-11.1	98.8
RLLC0232	5/8/24 12:20	46	35.3	0.1	18.6	-13.16	97.7	-13.15	97.7
RLLC0233	5/30/24 12:25	54.4	43.8	0	1.8	-11.73	92	-13.65	92.1
RLLC0234	5/7/24 14:53	48.7	36.6	0	14.7	-35.62	105.8	-35.73	105.8
RLLC0235	5/14/24 11:09	56.3	40.1	0.1	3.5	-3.49	106.4	-4.26	106.6
RLLC0236	5/7/24 15:23	47.1	36.9	0.1	15.9	-17.15	104.9	-15.39	105
RLLC0237	5/8/24 10:49	57.6	41.6	0.2	0.6	-34.28	86.2	-34.75	86.2
RLLC0239	5/8/24 10:56	54.4	41	0	4.6	-1.33	95.9	-1.45	95.9
RLLC0240	5/7/24 11:20	35.5	32.7	2.1	29.7	-36.24	105.5	-20.47	106
RLLC0240	5/8/24 11:03	57.4	41.9	0.1	0.6	-0.64	99.8	-0.96	99.9
RLLC0241	5/7/24 15:14	59.1	40.5	0.2	0.2	-51.17	99.7	-52.47	99.6
RLLC0242	5/7/24 11:15	37.6	33	2	27.4	-50.32	119.5	-45.36	119.8
RLLC0242	5/7/24 15:08	55.2	41.4	0	3.4	-39.35	109.3	-39.32	109.3
RLLC0243	5/7/24 9:05	58.8	41	0.2	0	-41.37	78.9	-41.38	78.9
RLLC0244	5/7/24 9:24	58	41.9	0.1	0	-51.65	68.2	-51.6	68.4
RLLC0245	5/7/24 9:28	57.9	42	0.1	0	-4.64	104.2	-6	104.5
RLLC0246	5/7/24 11:05	55	42.1	0.6	2.3	-35.65	99	-35.92	99.1
RLLC0247	5/14/24 13:14	50.1	36.7	0	13.2	-5.17	101.4	-5.17	101.4
RLLC0248	5/10/24 11:39	45.8	36.9	0.3	17	-10.12	101.4	-7.77	101.5
RLLC0249	5/9/24 12:02	58.4	39.5	0.2	1.9	-43.96	112.1	-43.97	112.1
RLLC0249	5/10/24 11:44	46.8	35.8	0.1	17.3	-6.69	103.3	-5.37	103.7
RLLC0250	5/9/24 11:25	50.3	37.7	0.3	11.7	-4.79	113.5	-4.87	113.5
RLLC0251	5/9/24 11:06	48.9	38	0.1	13	-3.08	114.9	-2.85	114.9
RLLC0252	5/7/24 14:38	54	42	0	4	-13.74	113.7	-14.23	113.7
RLLC0253	5/7/24 14:26	56.2	41.8	0.2	1.8	-20.02	108.6	-19.97	108.6
RLLC0255	5/6/24 15:30	59.9	39.8	0.3	0	-36.76	97.4	-36.13	97.4
RLLC0256	5/6/24 15:36	63.9	36	0.1	0	0.14	77.6	-3.52	76.7
RLLC0257	5/10/24 11:11	48.2	33	2.4	16.4	-43.68	80.6	-43.62	80.6
RLLC0258	5/10/24 11:15	56	37.8	0.3	5.9	-38.5	78.9	-38.45	78.9
RLLC0259	5/10/24 11:25	60.5	37.3	0.4	1.8	-42.52	83.8	-42.55	83.7
RLLC0260	5/8/24 13:45	42.8	38	0	19.2	-2.04	96.2	-1.15	95.8
RLLC0261	5/8/24 13:36	46.4	36.5	0	17.1	-5.58	98.4	-4.46	98
RLLC0262	5/8/24 13:09	43.1	29	4.6	23.3	-40.06	84.4	-40.05	84.3
RLLC0263	5/9/24 12:48	51.7	40.9	0	7.4	-15.04	115.7	-15.03	115.7
RLLC0264	5/14/24 12:04	46.9	39.8	0	13.3	-8.63	111.3	-6.94	111.3
RLLC0265	5/7/24 11:31	52	41.8	0.2	6	-8.71	107.6	-8.69	107.6
RLLC0266	5/7/24 11:00	55.3	41.6	0.1	3	-8.94	75.8	-15.01	75.8
RLLC0267	5/7/24 10:39	56.7	43.2	0.1	0	-41.56	106.4	-41.4	106.4
RLLC0268	5/7/24 10:52	48.4	38.4	0.5	12.7	-29.39	113.2	-29.4	113.2
RLLC0269	5/7/24 11:55	53.6	42.1	0.4	3.9	-17.85	108.8	-18.53	108.7
RLLC0270	5/7/24 11:50	50.8	44.3	0.3	4.6	-10.87	112.6	-10.87	112.6
RLLC0271	5/7/24 8:51	60.5	39.4	0.1	0	-48.01	93.5	-47.95	93.4

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Wellfield Monitoring Report - May 6, 7, 8, 9, 10, 14, 29, 30, and 31, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	5/10/24 11:00	55.5	36.7	0.8	7	-18.12	80	-18.03	79.8
RLI00008	5/9/24 13:45	41.7	26	4.9	27.4	-47.72	85.5	-0.11	87.9
RLLC0272	5/7/24 11:25	29.9	27.6	3.5	39	-39.9	108.9	-23.06	109.3
RLLC0273	5/8/24 11:33	54.1	38.6	0.9	6.4	-49.63	80.9	-49.55	80.6
RLLC0274	5/9/24 10:02	48.3	39.3	0.2	12.2	-5.23	114.2	-4.66	114.2

There are 136 total collectors; 132 vertical wells and 4 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - June 3, 4, 5, 6, 11, 12, 13, 17, 18, and 19, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	6/6/24 10:24	50.3	35.3	0.5	13.9	-15.18	81.6	-15.19	81.6
RLI00008	6/19/24 9:24	48.7	31.2	2.4	17.7	-43.6	79.3	-42.71	79.4
RLI00016	6/5/24 12:00	21	20.9	0.5	57.6	-22.05	98.3	-22.01	98.4
RLI00016	6/18/24 12:14	33	26.9	0.3	39.8	-36.77	91	-35.72	91.8
RLI00017	6/5/24 11:52	37.4	27.5	1	34.1	-17.65	90.7	-18.79	89.6
RLI00017	6/18/24 11:55	40	33.7	2.4	23.9	-17.09	92.8	-16.49	91.7
RLI00018	6/5/24 11:22	41.4	28.1	1.6	28.9	-22.86	94	-23.07	94
RLI00018	6/18/24 12:02	26.4	19	8.3	46.3	-21.05	93.5	-19.51	93.3
RLI00018	6/18/24 12:07	44.5	29.2	1.9	24.4	-26.35	93.9	-23.75	93.7
RLI00019	6/5/24 11:30	50.8	28.7	2.8	17.7	-25.76	94	-25.82	94
RLI00034	6/6/24 10:01	55.5	38.2	0.5	5.8	-26.87	82.5	-28.16	82.5
RLI00035	6/17/24 11:01	52.6	37.2	0.1	10.1	-38.78	79.5	-38.87	79.5
RLI00045	6/17/24 11:15	42.2	30.5	0	27.3	-1.07	80.6	-1.04	80.6
RLI00047	6/17/24 11:20	33.1	29.8	0	37.1	-2.73	81.5	-2.73	81.5
RLI00065	6/5/24 8:00	53.1	42	0	4.9	-7.43	96.2	-9.02	96.2
RLI00083	6/11/24 13:38	60.6	38	0	1.4	-47.84	94.9	-47.29	94.9
RLI00095	6/4/24 7:35	45.9	33.1	0.1	20.9	-3.5	102.6	-2.96	102.8
RLI00132	6/6/24 9:53	55.1	35.4	1.1	8.4	-25.7	83.4	-28.92	83.5
RLI00134	6/6/24 9:01	56.7	41.2	0	2.1	-0.09	112.4	-0.28	113.7
RLI00135	6/17/24 8:56	54.4	40.2	0	5.4	-14.98	100.6	-17.38	100.8
RLI00137	6/13/24 13:50	34.9	21.8	6.5	36.8	-46.46	88.5	-44.39	88.7
RLI00137	6/13/24 13:54	35.8	21.7	6.4	36.1	-41.4	87.2	-40.4	88.3
RLI00140	6/12/24 9:13	44.9	38.2	0.3	16.6	-5.63	109.2	-0.6	108.4
RLI00141	6/12/24 8:54	48	40.9	0.4	10.7	-1.08	97	-0.81	97.2
RLI00142	6/12/24 9:06	40.3	34.2	2.1	23.4	-38.04	125.6	-24.42	126.6
RLI00220	6/11/24 13:19	46.9	36.9	1.5	14.7	-21.74	74.8	-21.74	74.7
RLI00275	6/4/24 7:45	56	39.1	0	4.9	-38.34	96.7	-45.91	96.9
RLI00276	6/4/24 9:12	53.9	39.9	0.4	5.8	-53.43	88.4	-53.52	88.3
RLI00277	6/13/24 9:48	47.1	38.6	0	14.3	-2.3	112.3	-2.02	112.2
RLI00278	6/13/24 9:35	54.4	43.1	0	2.5	-6.78	111.7	-6.74	111.7
RLI00279	6/13/24 10:47	49.5	39.9	0.1	10.5	-5.88	129.1	-5.82	129.1
RLI00280	6/5/24 10:52	41.6	34.2	0	24.2	-5.8	110.4	-7.13	110.4
RLI00280	6/18/24 11:41	35.3	32.5	0	32.2	-13.26	109.7	-9.22	109.9
RLI00281	6/13/24 14:19	48.1	39.3	0.1	12.5	-3.74	115.3	-3.19	115.4
RLI00282	6/12/24 9:29	47.7	40	0	12.3	-23.67	109.1	-21.84	109.3
RLI00283	6/12/24 9:47	55	42.2	0.1	2.7	-31.47	118.5	-31.45	118.5
RLI00284	6/11/24 13:31	61.3	38.1	0	0.6	-32.02	102.6	-31.93	101.9
RLI00285	6/4/24 7:08	60.2	39.8	0	0	-28.04	83.9	-28.03	83.8
RLI00286	6/13/24 8:09	55.4	43.8	0.1	0.7	-1.19	106	-1.25	106
RLI00287	6/13/24 8:14	56.4	42.5	0.3	0.8	-41.87	103.9	-42.13	104.1
RLI0100C	6/6/24 10:11	0.5	8.5	12.4	78.6	-37.5	85.7	-37.36	85.8
RLI0100C	6/6/24 10:16	0.3	7.4	13	79.3	-37.9	84.4	-37.74	85
RLI0102C	6/3/24 14:12	56.7	36.7	0.1	6.5	-42.2	89.2	-42.23	89.2
RLI0103C	6/17/24 9:51	53.4	40.4	0.2	6	-13.32	90.1	-14.23	90.3
RLI0105C	6/13/24 14:30	47.9	40.4	0.5	11.2	-7.97	89.2	-8.68	89.3
RLI0106C	6/13/24 11:07	46.6	37.6	1.1	14.7	-22.01	107	-19.83	107.3
RLI0106C	6/18/24 9:44	47.8	38.6	0.9	12.7	-19.83	107.8	-18.34	108.1
RLI0107C	6/17/24 12:01	47.7	37.3	0	15	-0.15	113.2	-0.14	113.2
RLI0114A	6/5/24 10:20	46.9	26	3.6	23.5	-24.26	95.4	-24.27	95.4
RLI0114A	6/18/24 11:27	35.2	20.1	7.5	37.2	-51.02	87.6	-49.9	87.5
RLI0114A	6/18/24 11:31	36.7	21	6.4	35.9	-49.61	89	-49.05	89.3
RLI0115E	6/18/24 11:16	55.6	32.4	1.6	10.4	-2.08	94.9	-13.23	95.5
RLI0116E	6/5/24 9:34	55	36.9	0	8.1	-2.14	86.8	-1.6	86.9
RLI0117D	6/13/24 14:04	20	15.2	11.2	53.6	-30.5	86.7	-32.19	86.7
RLI0117D	6/13/24 14:11	18.7	14.1	11.7	55.5	-12.79	86.9	-10.35	86.9
RLI0124G	6/11/24 14:02	60.7	37.5	0.1	1.7	-46.36	99.6	-47.38	99.7

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - June 3, 4, 5, 6, 11, 12, 13, 17, 18, and 19, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	6/6/24 10:24	50.3	35.3	0.5	13.9	-15.18	81.6	-15.19	81.6
RLI00008	6/19/24 9:24	48.7	31.2	2.4	17.7	-43.6	79.3	-42.71	79.4
RLI0126C	6/18/24 8:23	51.9	27.7	3.5	16.9	-30.16	82.7	-29.84	82.4
RLI0127B	6/6/24 8:28	53.6	36.5	0.3	9.6	-10.87	102.8	-10.86	102.8
RLI0128A	6/13/24 10:59	46.4	39	0.1	14.5	-3.92	117.3	-3.67	117.3
RLI0129E	6/18/24 8:53	1.2	8.1	14.5	76.2	-24.35	75.7	-24.5	75.6
RLI0129E	6/18/24 8:56	1.2	6.9	15.5	76.4	-23.89	75.3	-23.98	75.5
RLI0130E	6/6/24 11:54	49.2	30	0.3	20.5	-10.85	80.7	-10.83	80.8
RLI0130E	6/18/24 9:09	47.3	30.6	0.3	21.8	-11.44	75.7	-10.44	75.7
RLIHC101	6/11/24 14:16	57.9	41.3	0	0.8	-43.53	114.2	-42.85	114.1
RLIHC102	6/11/24 14:11	56.8	41.6	0	1.6	-49.46	114.9	-49.31	114.9
RLLC0176	6/6/24 9:31	18.6	14.8	12.4	54.2	-13.51	83.6	-28.89	82.9
RLLC0176	6/6/24 9:42	48.2	37.1	0.4	14.3	-30.08	86.8	-27.64	87.2
RLLC0177	6/17/24 10:18	56.1	40.1	0.1	3.7	-32.43	106	-33.4	106
RLLC0179	6/4/24 7:02	59.5	38.8	0.5	1.2	-15.24	65.9	-15.29	66
RLLC0180	6/17/24 8:34	52.6	39.9	0.4	7.1	-33.78	106.3	-37.97	106.4
RLLC0181	6/17/24 9:04	55.3	39.1	0.1	5.5	-27.25	109	-31.36	108.9
RLLC0183	6/6/24 9:21	43.9	32.8	0	23.3	-2.7	82.8	-5.29	83.3
RLLC0183	6/17/24 10:50	37.8	32.8	0	29.4	-8	86.4	-2.93	83.6
RLLC0184	6/5/24 12:15	52.5	36.1	0.6	10.8	-21.52	101.9	-21.49	101.9
RLLC0185	6/17/24 10:25	51.4	39.3	0	9.3	-1.12	106.3	-1.12	106.2
RLLC0186	6/17/24 10:13	56.4	36.5	0.8	6.3	-39.15	83.9	-39.72	84.1
RLLC0187	6/17/24 9:41	51.6	38.9	0.9	8.6	-50.53	69.1	-42.34	68
RLLC0188	6/17/24 9:36	55	39	0.4	5.6	-38.42	97.7	-38.15	97
RLLC0189	6/17/24 8:42	36.2	34.2	0.7	28.9	-0.24	103.4	-0.35	104.4
RLLC0190	6/17/24 8:47	51.7	40.2	0.1	8	-30.37	116.4	-31.35	116.4
RLLC0191	6/11/24 13:53	0.1	0.3	18.7	80.9	-49.89	90.2	-50.02	89.4
RLLC0191	6/12/24 8:45	0	0.7	20.6	78.7	-50.53	78.1	-51.81	78.3
RLLC0193	6/5/24 10:10	62.1	35	0.1	2.8	-24.99	90	-24.93	90.4
RLLC0194	6/13/24 10:52	51.4	39.8	0	8.8	-2.74	105.9	-2.74	105.9
RLLC0195	6/18/24 9:20	52.5	42.5	0.3	4.7	-2.24	104.4	-3.57	104.7
RLLC0196	6/13/24 9:39	60.6	38.6	0.1	0.7	-25.88	88.2	-24.8	88.1
RLLC0198	6/12/24 10:52	64.9	31.5	0.2	3.4	-5.4	85.7	-14.66	85.3
RLLC0199	6/12/24 10:45	56.6	33.4	1.2	8.8	-24.77	85.6	-24.74	85.6
RLLC0200	6/12/24 10:31	56	32	1	11	-25.88	86	-25.85	86
RLLC0201	6/12/24 10:07	54.1	43	0	2.9	-2.9	93.6	-3.9	93.7
RLLC0202	6/12/24 11:03	54.8	32.8	1.7	10.7	-25.87	85	-26.33	85.8
RLLC0204	6/18/24 9:30	45.3	35.6	0	19.1	-2.1	105.8	-1.7	105.7
RLLC0205	6/17/24 11:53	30.8	29.9	0	39.3	-0.21	89.5	-0.19	89.5
RLLC0206	6/18/24 8:28	43.3	35.6	0	21.1	-8.81	76	-6.8	76.1
RLLC0209	6/18/24 8:34	41.2	33.1	0	25.7	-1.61	91.5	-1.25	91.6
RLLC0210	6/17/24 11:49	48.1	34.8	0	17.1	-0.2	86.2	-0.17	86.3
RLLC0212	6/13/24 8:23	42.9	36.6	0.3	20.2	-10.03	108.4	-7.2	108.8
RLLC0214	6/12/24 11:55	56.3	40.9	0	2.8	-25.88	103.2	-25.95	103.2
RLLC0215	6/12/24 12:03	57.1	40.6	0	2.3	-43.74	97.1	-44.18	97.1
RLLC0217	6/4/24 9:04	62.3	31.1	0.9	5.7	-14.55	81	-27.95	81.1
RLLC0221	6/12/24 10:58	40.7	25.7	4.1	29.5	-2.33	84.1	-2.34	84.2
RLLC0223	6/12/24 9:53	55.7	41.8	0	2.5	-47.97	111	-48.34	111.1
RLLC0224	6/12/24 9:59	55.6	41.4	0.1	2.9	-8.4	108.2	-8.39	108.2
RLLC0225	6/12/24 10:17	20.2	11.4	13.5	54.9	-27.17	85.8	-27.19	86.4
RLLC0225	6/12/24 10:23	14.7	6.9	16.2	62.2	-24.9	88	-24.72	87.9
RLLC0226	6/18/24 10:21	58	38.5	0.2	3.3	-31.2	96.9	-36.37	98.7
RLLC0227	6/4/24 6:52	61.5	38.5	0	0	-37.63	77.4	-38.2	77.4
RLLC0229	6/12/24 10:37	56.9	33.1	0.2	9.8	-4	88.4	-5.97	89.2
RLLC0230	6/12/24 9:37	14.8	10.5	14.7	60	-43.36	83.9	-43.35	84.1
RLLC0230	6/12/24 9:40	12.6	8.8	15.6	63	-43.31	84.2	-43.26	84.1

REDWOOD LANDFILL, Novato, CA

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Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	6/6/24 10:24	50.3	35.3	0.5	13.9	-15.18	81.6	-15.19	81.6
RLI00008	6/19/24 9:24	48.7	31.2	2.4	17.7	-43.6	79.3	-42.71	79.4
RLLC0231	6/5/24 10:45	49.4	36.8	0.1	13.7	-7.96	98.9	-7.96	98.8
RLLC0232	6/5/24 11:05	43.5	34.1	0	22.4	-8.85	98	-9.93	98.2
RLLC0232	6/18/24 11:47	37.8	32.6	0.2	29.4	-18.69	98.4	-12.6	98.3
RLLC0233	6/3/24 13:49	52.3	46.7	0	1	-15.44	90.7	-16.42	90.7
RLLC0234	6/5/24 8:43	45.2	35.5	0	19.3	-18.45	105.7	-19.01	105.7
RLLC0234	6/18/24 10:56	42.6	34.5	0.4	22.5	-36.83	104.4	-30.75	104.5
RLLC0235	6/5/24 8:36	51.8	39.5	0	8.7	-3.27	105.6	-3.26	105.6
RLLC0236	6/5/24 8:52	44.3	35.7	0	20	-7.84	105.3	-7.78	105.4
RLLC0236	6/18/24 11:04	43	35.8	0	21.2	-14.75	104.5	-10.76	104.6
RLLC0237	6/5/24 9:04	54.5	40.4	0	5.1	-16.92	86.5	-17.59	86.5
RLLC0239	6/5/24 9:24	48.9	38.8	0	12.3	-0.93	95.5	-0.99	95.6
RLLC0240	6/5/24 9:12	50	37.8	1.7	10.5	-0.59	98.6	-0.6	98.6
RLLC0240	6/18/24 7:49	51.1	46.4	0	2.5	-1.31	99.4	-1.31	99.4
RLLC0241	6/5/24 8:16	58.6	40.5	0	0.9	-17.42	95.4	-18.55	95.1
RLLC0242	6/5/24 8:07	54	40.5	0	5.5	-15.88	109.3	-16.6	109.3
RLLC0243	6/4/24 8:03	58.8	40.9	0	0.3	-22.31	93.3	-25.76	94.1
RLLC0243	6/11/24 14:33	57.8	40.4	0	1.8	-15.56	104.1	-17.39	104.1
RLLC0244	6/4/24 8:30	57.4	40.2	0.2	2.2	-46.23	84.2	-46.01	84.8
RLLC0244	6/11/24 14:23	56.8	40.8	0.2	2.2	-45.87	98.6	-45.87	99
RLLC0245	6/4/24 8:34	57.5	41.4	0	1.1	-5.34	106.6	-6.26	106.5
RLLC0245	6/11/24 14:27	57	41.4	0	1.6	-5.33	107.6	-7.6	107.7
RLLC0246	6/12/24 12:28	50.6	41.2	0.1	8.1	-22.5	104.4	-23.03	104.4
RLLC0247	6/13/24 9:18	46.2	36.4	0	17.4	-5.25	101.4	-4.24	101.7
RLLC0248	6/13/24 9:12	46.1	37.1	0.4	16.4	-7.16	100.2	-5.12	100.1
RLLC0249	6/17/24 10:02	55.3	40.1	0.1	4.5	-38.01	111.5	-39.06	111.4
RLLC0250	6/17/24 10:39	45	37	0.1	17.9	-4.87	112.2	-3.58	112.1
RLLC0251	6/17/24 10:33	46.4	38.2	0.1	15.3	-1.82	113.2	-1.79	113.2
RLLC0252	6/4/24 9:16	50	40	0	10	-23.72	113.7	-23.77	113.7
RLLC0253	6/4/24 9:23	52.7	40.7	0	6.6	-33.7	108.4	-34.13	108.4
RLLC0255	6/4/24 9:34	58	39.8	0	2.2	-23.65	99.8	-29.82	99.9
RLLC0256	6/4/24 9:42	52	33.9	2	12.1	-1.05	85	-1.05	85
RLLC0257	6/17/24 11:32	24.7	16.9	10.6	47.8	-40.06	80.8	-39.2	81.5
RLLC0257	6/17/24 11:34	12.6	8.7	15.5	63.2	-38.43	86.6	-38.37	86.8
RLLC0258	6/6/24 12:04	51.6	35.8	0.4	12.2	-29.88	86	-29.23	86
RLLC0259	6/6/24 10:32	57.4	37.7	0	4.9	-32.07	83.4	-32.13	83.4
RLLC0260	6/18/24 7:32	45.1	37.8	0	17.1	-1.74	91.9	-0.54	89.2
RLLC0261	6/3/24 14:18	48.9	36.6	0.2	14.3	-3.43	97.5	-3.43	97.5
RLLC0262	6/3/24 14:04	12.7	9	15.1	63.2	-48.52	81	-48.44	81.1
RLLC0262	6/3/24 14:06	9.6	6.7	16.2	67.5	-47.88	81.3	-47.92	81.4
RLLC0263	6/17/24 9:31	47.7	39.1	0	13.2	-13.83	113.9	-9.64	114.1
RLLC0264	6/17/24 8:27	46.7	39.7	0	13.6	-6.47	110.2	-4.98	110.1
RLLC0265	6/12/24 12:15	43.6	37.2	1.3	17.9	-8.55	110.2	-5.88	110.3
RLLC0266	6/12/24 12:23	46.7	37.3	0.7	15.3	-14.24	99.5	-13.76	99.6
RLLC0267	6/12/24 11:46	54.3	43.1	0	2.6	-41.82	113.9	-43.25	113.9
RLLC0268	6/12/24 11:43	43.6	36.1	1.4	18.9	-24.79	122.2	-24.45	122.2
RLLC0269	6/12/24 11:25	48.2	39.9	0.8	11.1	-15.74	114	-12.6	114.5
RLLC0270	6/12/24 11:18	49.3	41.3	0.3	9.1	-13.83	114.4	-10.26	114.4
RLLC0271	6/4/24 7:53	60.4	39.6	0	0	-47.04	95.8	-51.58	95.8
RLLC0272	6/12/24 9:19	40.1	34.3	2.6	23	-10.28	113.5	-4.78	111.8
RLLC0273	6/5/24 9:47	25.8	21.5	6.7	46	-24.65	92.7	-24.9	93.5
RLLC0273	6/5/24 9:50	29.2	25	4.1	41.7	-24.45	91.6	-24.42	91.6
RLLC0274	6/13/24 14:25	47.7	39.9	0.1	12.3	-3.94	113.4	-2.55	113.2

There are 136 total collectors; 132 vertical wells and 4 horizontal collectors at RLI.

%= percent

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - June 3, 4, 5, 6, 11, 12, 13, 17, 18, and 19, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	6/6/24 10:24	50.3	35.3	0.5	13.9	-15.18	81.6	-15.19	81.6
RLI00008	6/19/24 9:24	48.7	31.2	2.4	17.7	-43.6	79.3	-42.71	79.4

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - July 1, 2, 3, 9, and 10, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	7/2/24 10:47	50.9	36.4	0.7	12	-12.42	93.4	-12.48	93.3
RLI00008	7/2/24 9:31	53.1	33.7	1.5	11.7	-32.4	87.3	-32.54	87.4
RLI00016	7/10/24 8:42	18.5	23.8	0.4	57.3	-46.47	69.9	-45.38	69.9
RLI00017	7/10/24 8:49	33	28.5	0.8	37.7	-39.49	71.5	-35.52	71.4
RLI00018	7/10/24 8:55	29.1	25	2.8	43.1	-31.06	69.1	-30.58	69.1
RLI00019	7/10/24 9:00	51.9	31.1	3.2	13.8	-48.98	67	-48.41	67
RLI00034	7/2/24 10:19	58.7	40.6	0.1	0.6	-28.75	84.3	-28.23	84.3
RLI00035	7/2/24 10:27	53.7	37.8	0.2	8.3	-32.16	81.9	-32.83	81.8
RLI00045	7/2/24 10:33	45.2	32.2	0.1	22.5	-0.66	89.1	-0.66	88.9
RLI00047	7/2/24 10:37	35.4	31.5	0.1	33	-2.15	86.1	-2.16	85.9
RLI00065	7/10/24 9:39	49.1	39.9	1.6	9.4	-11.39	97.8	-11.48	97.8
RLI00083	7/10/24 14:15	56.4	36.8	0.2	6.6	-50.72	94.4	-50.71	94.4
RLI00095	7/1/24 14:48	48.3	34.6	0.1	17	-2.65	104.1	-2.13	104.1
RLI00132	7/2/24 10:02	49.3	33.2	2.7	14.8	-30.35	89.3	-31.28	89.3
RLI00134	7/2/24 9:43	54.7	42.1	0.1	3.1	-0.44	113.9	-0.68	114.6
RLI00135	7/10/24 8:19	50.1	40.1	0	9.8	-22.07	104.7	-21.52	104.7
RLI00135	7/10/24 10:23	48.7	39	0	12.3	-21.98	106.9	-16.24	107.1
RLI00137	7/10/24 15:39	34.1	20.7	6.9	38.3	-38.97	100.4	-38.91	100.3
RLI00140	7/10/24 13:38	6.4	5.5	16.4	71.7	-0.14	100.1	-0.13	100.3
RLI00140	7/10/24 13:39	7.5	5.5	16.3	70.7	-0.15	103.4	-0.15	103.5
RLI00141	7/10/24 13:49	54.2	41.5	0.2	4.1	-0.07	99.1	-0.13	99.1
RLI00142	7/10/24 13:34	47.4	38.6	0.7	13.3	-37.05	116.2	-27.54	116.8
RLI00220	7/1/24 14:37	47.4	36.6	1.7	14.3	-26	78.3	-24.3	78
RLI00275	7/10/24 14:13	55.3	37.7	0.2	6.8	-48.94	102.5	-51.28	102.5
RLI00276	7/10/24 10:27	54.9	40.3	0.4	4.4	-53.53	86	-54.51	86.8
RLI00277	7/3/24 9:32	49.1	39.2	0.1	11.6	-1.95	113.9	-1.65	113.8
RLI00278	7/3/24 9:37	55.1	42.7	0.2	2	-6.84	112.4	-7.22	112.5
RLI00279	7/3/24 9:55	49.9	40.9	0.1	9.1	-7.23	128.8	-6.12	129.1
RLI00280	7/10/24 12:43	46.8	35.4	0.1	17.7	-7.29	110.3	-5.64	110.3
RLI00281	7/9/24 10:39	50.7	40.4	0.1	8.8	-3.85	116.3	-3.85	116.4
RLI00282	7/10/24 13:29	49.9	39.1	0	11	-18.77	110.3	-17.05	110.4
RLI00283	7/10/24 6:49	56.7	43.2	0.1	0	-30.6	118.2	-31.47	118.1
RLI00284	7/10/24 14:01	46.2	30	3.5	20.3	-51.45	97.4	-50.83	97.2
RLI00285	7/1/24 15:09	59.8	40.1	0.1	0	-23.56	103.2	-27.07	104.4
RLI00286	7/10/24 15:08	53.9	39.5	0.6	6	-1.74	107.8	-1.73	108.1
RLI00287	7/10/24 15:10	52.7	40	0.3	7	-45.48	107.4	-45.37	107.5
RLI0100C	7/2/24 10:14	39.9	32.4	0.8	26.9	-32.83	92.7	-32.85	92.7
RLI0102C	7/10/24 6:04	58.2	41.1	0.1	0.6	-56.23	109.3	-54.6	109.3
RLI0103C	7/10/24 8:25	57.3	42.4	0	0.3	-20.58	87.3	-20.56	87.4
RLI0103C	7/10/24 10:16	54.1	40.9	0	5	-22.67	92.4	-24.87	92.7
RLI0105C	7/3/24 10:14	51.8	42.1	0.7	5.4	-10.25	100.1	-10.25	100
RLI0105C	7/9/24 10:52	49.9	42.2	0.4	7.5	-8.22	90.1	-8.31	90.1
RLI0106C	7/3/24 10:07	48.7	38.8	1.1	11.4	-24.07	111.6	-24.05	111.6
RLI0106C	7/9/24 10:45	45	36.2	2.3	16.5	-21.82	109.6	-21.8	109.7
RLI0107C	7/10/24 8:28	47.2	37.8	0.2	14.8	-0.11	90.8	-0.15	91.5
RLI0114A	7/3/24 9:15	39.5	30	1.8	28.7	-18.21	94	-26.07	94
RLI0115E	7/2/24 15:21	52.6	34.9	1.5	11	-5.52	107.4	-5.6	107.1
RLI0116E	7/2/24 14:57	59.1	37.4	0.1	3.4	-0.73	108.5	-1.26	109.3
RLI0117D	7/2/24 15:08	5.9	7.9	12.5	73.7	-5.47	122	-5.33	122
RLI0117D	7/2/24 15:12	5.8	7.8	12.5	73.9	-4.64	121.2	-4.6	121.2
RLI0124G	7/10/24 6:01	61.1	36.8	0.3	1.8	-52.44	64	-53.41	63.9
RLI0126C	7/10/24 8:12	47.9	29.7	2.5	19.9	-2.61	88.7	-2.61	89.2
RLI0127B	7/2/24 9:51	52.4	36.4	0.6	10.6	-12.42	103.9	-12.5	103.9
RLI0128A	7/3/24 9:23	47.6	39.3	0.3	12.8	-3.91	116.9	-2.88	116.9
RLI0129E	7/2/24 11:11	2.8	14.2	8	75	-22.88	101.6	-23.03	102.1
RLI0129E	7/2/24 11:17	1.8	12	8.5	77.7	-11.69	102.8	-1.43	102.9

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - July 1, 2, 3, 9, and 10, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	7/2/24 10:47	50.9	36.4	0.7	12	-12.42	93.4	-12.48	93.3
RLI00008	7/2/24 9:31	53.1	33.7	1.5	11.7	-32.4	87.3	-32.54	87.4
RLI0130E	7/2/24 11:23	51.6	31	0.2	17.2	-7.47	91.6	-7.42	91.5
RLIHC101	7/10/24 6:06	58.3	41.6	0	0.1	-45.94	94.9	-45.81	94.8
RLIHC102	7/10/24 9:03	48.5	35.8	0	15.7	-45.9	90.2	-45.17	90.2
RLLC0176	7/10/24 7:58	38.9	34.3	1.2	25.6	-50.93	70.5	-51.04	70.3
RLLC0176	7/10/24 9:45	36.7	32.9	2	28.4	-51.17	72.7	-47.06	72.8
RLLC0177	7/10/24 7:47	58.3	41.6	0.1	0	-42.34	106.8	-43.03	106.8
RLLC0177	7/10/24 10:02	56.3	40.1	0	3.6	-42.5	109.5	-45.93	109.6
RLLC0179	7/1/24 15:02	56.3	38.3	1.1	4.3	-38.44	97.8	-39.99	97.9
RLLC0180	7/3/24 10:36	53.4	40.1	0.5	6	-43.03	108.3	-39.88	108.3
RLLC0180	7/10/24 9:46	52.4	40.6	0.2	6.8	-42.17	109.3	-42.85	109.3
RLLC0181	7/10/24 10:36	42	37.4	1.2	19.4	-2.9	69.9	-2.89	69.4
RLLC0183	7/2/24 9:56	41.3	31.1	0.1	27.5	-1.49	88.5	-1.46	88.6
RLLC0184	7/2/24 9:37	54.8	38	0.7	6.5	-24.91	101.3	-25	101.3
RLLC0185	7/10/24 8:11	46.8	38.1	0.4	14.7	-1.71	107.6	-1.49	107.6
RLLC0185	7/10/24 10:05	46.8	37.8	0	15.4	-1.23	109	-1.23	109
RLLC0186	7/10/24 7:36	54.9	37.6	1.6	5.9	-49.13	61.4	-49.11	61.1
RLLC0186	7/10/24 9:31	51	35.4	2.2	11.4	-47.45	68.8	-47.95	69.1
RLLC0187	7/10/24 7:30	55.3	39.2	0.7	4.8	-48.51	87.2	-48.49	87.4
RLLC0187	7/10/24 9:28	53.5	37.3	0.8	8.4	-47.89	86.5	-47.85	86.6
RLLC0188	7/10/24 7:26	56.4	40.2	0.8	2.6	-47.73	87.2	-48.08	87.5
RLLC0188	7/10/24 9:25	50.5	39.9	1.1	8.5	-46.49	89.3	-45.86	89.2
RLLC0189	7/10/24 6:57	41.5	36.7	1	20.8	-16.05	120.4	-11.89	120.4
RLLC0189	7/10/24 9:17	40	35.9	0.7	23.4	-10.78	119.8	-7.27	119.8
RLLC0190	7/10/24 6:51	52.9	41.2	0.3	5.6	-38.09	117.5	-37.15	117.5
RLLC0190	7/10/24 10:26	49.9	39.6	0.2	10.3	-37.29	117	-36.14	117.1
RLLC0191	7/1/24 15:18	0.2	0.1	19.9	79.8	-50.23	90	-47.43	89
RLLC0191	7/2/24 11:41	0.2	0.3	20.2	79.3	-49.92	93.9	-0.15	94.3
RLLC0193	7/2/24 15:37	57.8	33.1	1.1	8	-17.64	103.1	-17.16	103.1
RLLC0194	7/3/24 9:27	52.3	40.5	0.2	7	-2.75	106.6	-2.76	106.6
RLLC0195	7/3/24 9:45	47.2	40.1	1.5	11.2	-3.11	109.8	-3.02	109.8
RLLC0196	7/3/24 9:41	59.9	39.6	0.2	0.3	-34.19	93.4	-34.45	93.5
RLLC0198	7/10/24 7:17	42.9	31	0.8	25.3	-7.54	70.7	-7.53	70.8
RLLC0199	7/10/24 7:14	45.5	31.1	2.9	20.5	-37.76	56.7	-37.77	56.7
RLLC0200	7/10/24 7:08	64.1	35.8	0	0.1	-36.9	74.2	-38.05	74.5
RLLC0201	7/10/24 7:04	56.2	43	0	0.8	-10.51	92.9	-18.41	92.8
RLLC0202	7/10/24 7:24	53.9	32.7	3.2	10.2	-37.3	57.2	-37.07	57.1
RLLC0204	7/10/24 8:40	52.4	37.8	0	9.8	-1.3	105	-2.48	105.5
RLLC0205	7/10/24 8:19	35	32.2	0	32.8	-0.21	85.1	-0.2	85.2
RLLC0206	7/10/24 8:13	51.1	36.4	0	12.5	-2.79	89.5	-2.75	89.5
RLLC0209	7/10/24 8:16	46.8	35.2	0	18	-1.14	91	-1.13	91.1
RLLC0210	7/10/24 8:21	50.8	36.2	0	13	-0.11	64.8	-0.18	67.9
RLLC0212	7/10/24 15:15	42.9	35.8	0.1	21.2	-6.57	111.3	-1.17	112.1
RLLC0214	7/10/24 14:47	51.7	38.4	0.3	9.6	-8.06	105	-10.06	105
RLLC0215	7/10/24 6:55	57.6	41.7	0	0.7	-46.22	77	-46.23	77.1
RLLC0217	7/10/24 13:54	58.7	30.3	0.9	10.1	-42.87	90.8	-52.78	91
RLLC0221	7/10/24 7:21	65.3	32.9	0.2	1.6	-17.88	63.8	-29.76	63.7
RLLC0223	7/10/24 7:41	56.7	42.5	0	0.8	-48.54	111	-48.04	111.1
RLLC0224	7/10/24 7:38	56.9	40.9	0	2.2	-8.73	108.3	-12.17	108.2
RLLC0225	7/10/24 7:01	64.4	35.6	0	0	-37.12	63.3	-38.68	63.6
RLLC0226	7/10/24 15:19	52.7	36.6	0.5	10.2	-44.86	103	-44.3	103.2
RLLC0227	7/1/24 14:55	59.6	38.4	0.1	1.9	-28.08	87.8	-27.67	87.9
RLLC0229	7/10/24 7:10	53.8	34.8	0	11.4	-8.01	80.8	-8	81.6
RLLC0230	7/10/24 15:48	50.1	37.1	1.9	10.9	-7.14	110.3	-7.1	110.4
RLLC0231	7/2/24 9:11	46.5	36.5	0.1	16.9	-11.4	98.4	-9.56	98.3

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - July 1, 2, 3, 9, and 10, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	7/2/24 10:47	50.9	36.4	0.7	12	-12.42	93.4	-12.48	93.3
RLI00008	7/2/24 9:31	53.1	33.7	1.5	11.7	-32.4	87.3	-32.54	87.4
RLLC0232	7/2/24 9:17	47.7	36	0.2	16.1	-7.14	96.8	-5.02	96.2
RLLC0233	7/10/24 12:55	53.7	39	1.5	5.8	-34.47	86.4	-33.72	86.4
RLLC0234	7/10/24 13:09	43	34.4	0.1	22.5	-31.21	106.8	-26.57	106.9
RLLC0235	7/10/24 9:28	53	40.5	0.1	6.4	-5.23	105.6	-5.19	105.6
RLLC0236	7/10/24 9:19	46.5	37.2	0.1	16.2	-11.48	105.7	-11	105.7
RLLC0237	7/10/24 15:33	52.3	38.6	0.1	9	-33.85	86.9	-33.88	86.9
RLLC0239	7/2/24 14:52	50.2	40	0.1	9.7	-1.08	98.1	-1.09	98.1
RLLC0241	7/10/24 9:54	52.1	39.8	0.9	7.2	-52.04	98.2	-52.31	98.2
RLLC0242	7/10/24 13:01	51.1	39.3	0.1	9.5	-40.71	109.7	-40.69	109.7
RLLC0243	7/10/24 6:24	54.8	39	0	6.2	-1.55	107.8	-4.52	108.2
RLLC0244	7/10/24 6:21	51.1	39.3	0.4	9.2	-45.42	74.4	-45.47	74.8
RLLC0245	7/10/24 6:10	51.5	40.6	0	7.9	-7.79	105.4	-9.57	105.4
RLLC0246	7/10/24 14:22	52	38.7	0.5	8.8	-28.07	104.7	-26.47	104.7
RLLC0247	7/10/24 7:50	49.1	37.6	0	13.3	-4.34	101	-3.3	101
RLLC0248	7/10/24 7:47	50	37.9	0.2	11.9	-5.38	100.4	-3.68	100.4
RLLC0249	7/10/24 7:43	57.4	41.5	0	1.1	-50.32	112.6	-50.18	112.6
RLLC0249	7/10/24 9:59	54.5	39.9	0	5.6	-45.31	112.5	-48.5	112.5
RLLC0250	7/10/24 7:54	51.6	40.2	0.2	8	-3.71	112.1	-3.68	112.1
RLLC0250	7/10/24 9:42	50.8	39.3	0	9.9	-3.7	111.7	-4.33	111.8
RLLC0251	7/10/24 8:04	53.3	41.5	0	5.2	-2.04	113.9	-1.93	113.9
RLLC0251	7/10/24 9:50	52.2	40.7	0	7.1	-1.86	114	-1.92	114
RLLC0252	7/10/24 10:09	48.7	40.2	0.1	11	-24.41	115	-24.39	115
RLLC0253	7/10/24 10:02	51.1	41	0.1	7.8	-34.43	109.7	-33.89	109.7
RLLC0255	7/10/24 13:21	54.2	38.6	0.1	7.1	-20.9	100.3	-27.09	100.1
RLLC0256	7/10/24 13:24	56.5	36.5	0.2	6.8	-1.2	94.3	-11.51	94
RLLC0257	7/2/24 10:54	60.5	34.1	0.5	4.9	-0.45	97.3	-0.37	98.2
RLLC0258	7/2/24 10:58	51.3	36.6	0.3	11.8	-28.54	94.4	-28.48	94.4
RLLC0259	7/2/24 11:02	56.1	38.9	0	5	-28.21	87.2	-29.34	87.2
RLLC0260	7/10/24 8:07	49.9	39	0	11.1	-1.11	91.1	-1.1	91.2
RLLC0261	7/10/24 8:03	50.1	37.9	0	12	-3.8	96.8	-3.79	96.8
RLLC0262	7/2/24 10:08	64	35.5	0.2	0.3	-20.46	88.3	-20.36	88.3
RLLC0263	7/10/24 7:03	52.7	41.8	0.1	5.4	-9.35	115.8	-8.92	115.8
RLLC0263	7/10/24 9:22	51.2	41	0	7.8	-9.46	115.3	-10.11	115.3
RLLC0264	7/3/24 10:30	49.9	40.7	0.1	9.3	-5.71	111.1	-4.86	111.1
RLLC0264	7/10/24 6:39	49.3	40.9	0.1	9.7	-4.83	111.1	-4.83	111.1
RLLC0265	7/10/24 14:26	49.4	39.9	0	10.7	-5.13	111.8	-5.13	111.9
RLLC0266	7/10/24 14:41	51.3	39.4	0	9.3	-10.34	102.2	-17.68	102.2
RLLC0267	7/10/24 14:50	52	38.6	0.7	8.7	-42.68	116.7	-40.98	116.8
RLLC0268	7/10/24 14:43	49.1	38.4	0.3	12.2	-30.65	119.7	-30.65	119.8
RLLC0269	7/10/24 14:30	47.4	39.1	1.7	11.8	-9.6	114.4	-9.57	114.5
RLLC0270	7/10/24 14:32	46.4	40.6	0.7	12.3	-12.28	114.4	-12.24	114.7
RLLC0271	7/10/24 14:06	56.1	38.1	0.1	5.7	-49.76	97.7	-48.1	97.7
RLLC0272	7/10/24 13:35	49.7	39.5	0	10.8	-8.57	112.1	-7.91	112.1
RLLC0273	7/2/24 15:28	32.3	26.9	3.4	37.4	-7.54	113	-7.33	113.1
RLLC0274	7/3/24 10:19	53.4	41.7	0.2	4.7	-3.04	113.5	-3.72	113.7
RLLC0274	7/9/24 10:48	50.8	41.4	0	7.8	-3.19	114.2	-3.26	114.2

There are 131 total collectors; 127 vertical wells and 4 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - August 12, 13, 14, 15, and 27, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	8/13/24 9:18	40.2	33	0.7	26.1	-37.54	78.3	-36.97	77.6
RLI00008	8/15/24 9:51	44.9	29.2	3.6	22.3	-46.2	84	-44	83.7
RLI00016	8/15/24 9:27	18.3	24.3	0.4	57	-45.14	81.7	-43.44	81.8
RLI00017	8/15/24 9:34	31.7	27.5	1.7	39.1	-30.77	77.7	-25.5	77.7
RLI00018	8/15/24 9:39	31.2	26.8	1.7	40.3	-25.42	80.4	-25.17	80.3
RLI00019	8/15/24 9:45	48.9	29.4	3.7	18	-42.72	78.3	-46.26	78.3
RLI00034	8/13/24 9:02	59.2	39.8	0.4	0.6	-36.92	80.8	-36.76	80.7
RLI00035	8/13/24 9:23	52.8	37.3	0.3	9.6	-37.9	77.3	-37.36	77.4
RLI00045	8/13/24 9:27	42.6	32.2	0.7	24.5	-1.1	77.2	-1.04	77.5
RLI00047	8/13/24 9:30	32	31.6	0	36.4	-2.8	80.4	-2.8	80.5
RLI00065	8/14/24 15:45	51.9	42.1	0.1	5.9	-20.8	99.9	-20.6	99.9
RLI00083	8/13/24 9:42	60.4	37.9	0.1	1.6	-37.43	92.3	-37.25	92.3
RLI00095	8/13/24 9:07	53.2	35.6	0.4	10.8	-1.93	102.9	-2.13	102.9
RLI00132	8/13/24 8:57	46.3	31.5	3.6	18.6	-49.49	77.9	-44.52	74.4
RLI00134	8/15/24 11:18	45.3	38.4	0.1	16.2	-0.29	114.8	-0.3	114.9
RLI00135	8/15/24 10:36	49.8	39.1	0.1	11	-14.99	109.2	-13.96	109.3
RLI00137	8/27/24 15:49	59.6	33.5	1.5	5.4	-6.02	105.1	-6.04	105.4
RLI00140	8/14/24 8:40	14.7	10.6	15.3	59.4	-0.03	84.2	-0.02	84.3
RLI00140	8/14/24 8:49	35.1	27	6.6	31.3	-0.07	88.4	-0.17	88.6
RLI00141	8/14/24 8:25	52.9	42.8	0.1	4.2	-0.28	99.9	-0.17	100.1
RLI00142	8/14/24 8:34	49.2	39.8	0.6	10.4	-3.22	111.8	-3.52	112.1
RLI00220	8/13/24 8:55	49.2	37.6	1.2	12	-0.28	68.4	-0.18	68.4
RLI00275	8/13/24 9:46	59	39.7	0.2	1.1	-37.78	98.8	-36.33	98.8
RLI00276	8/14/24 14:05	52.4	38.2	1.2	8.2	-52.96	98.3	-53.05	97.9
RLI00277	8/12/24 13:47	46	39.7	0.1	14.2	-1.53	114	-1.12	113.9
RLI00278	8/12/24 13:56	49.9	44.1	0.1	5.9	-7.74	112.7	-7.39	112.8
RLI00279	8/12/24 14:18	47.6	40.7	0	11.7	-7.05	129.1	-7.06	129.1
RLI00280	8/12/24 13:17	53.2	39.3	0.2	7.3	-3.2	109.5	-4.08	109.7
RLI00280	8/13/24 8:36	53.5	39.1	0	7.4	-6.85	110.7	-8.02	110.7
RLI00281	8/12/24 14:37	48.9	40.2	0	10.9	-3.83	115.8	-3.59	115.8
RLI00282	8/14/24 9:01	52.2	41.7	0.1	6	-12.87	111.3	-12.71	111.3
RLI00283	8/14/24 10:02	56.1	43.1	0.1	0.7	-29.58	119.9	-29.14	119.9
RLI00284	8/13/24 9:54	61	38.8	0.2	0	-7.94	95.6	-25.52	94.2
RLI00285	8/13/24 9:32	59.3	40.3	0.1	0.3	-20.04	92.2	-19.64	92.2
RLI00286	8/13/24 10:56	47.3	41.5	0.2	11	-1.55	107.9	-1.29	108
RLI00286	8/14/24 11:49	47.1	40.4	0.1	12.4	-1.14	108.7	-1.14	108.7
RLI00287	8/13/24 11:01	55.5	41.7	0.3	2.5	-38.01	105.2	-34.39	105.4
RLI00287	8/14/24 11:46	53.2	39.9	0.5	6.4	-43.38	107.1	-36.51	107.1
RLI0100C	8/27/24 15:18	59.9	39.8	0.3	0	-16.32	101.9	-15.73	102.3
RLI0102C	8/27/24 11:21	60.4	38.8	0	0.8	-22.67	94.5	-23	94.5
RLI0103C	8/15/24 11:12	53.1	40.6	0.1	6.2	-0.08	100.5	-0.57	101.2
RLI0105C	8/12/24 14:49	51	42	0.3	6.7	-3.52	88.2	-3.43	88.4
RLI0106C	8/12/24 14:33	50.8	40.4	0.4	8.4	-27.25	109	-27.3	108.9
RLI0107C	8/14/24 15:06	55	39.4	0.2	5.4	-0.23	107.8	-0.15	107.8
RLI0115E	8/12/24 10:47	45.1	27.2	4.7	23	-54.16	88.4	-54.23	88.6
RLI0116E	8/14/24 14:38	36.5	29.3	2.6	31.6	-1.31	93.6	-1.26	93.6
RLI0117D	8/14/24 14:44	3.1	4.3	15.4	77.2	-5.13	97.3	-4.57	97.3
RLI0117D	8/14/24 14:52	8.2	10.2	12.2	69.4	-13.43	97.6	-5.07	96
RLI0124G	8/13/24 10:12	60.9	38.2	0.2	0.7	-37.14	82.9	-35.63	82.9
RLI0126C	8/27/24 11:32	48	22.4	4.9	24.7	-7.32	99.9	-8.58	100
RLI0127B	8/13/24 8:52	53.2	37.7	0.2	8.9	-15.68	102.2	-15.67	102.3
RLI0128A	8/12/24 13:32	48.6	40.7	0.1	10.6	-2.72	116.4	-2.66	116.4
RLI0130E	8/14/24 15:34	51.6	31.9	0.2	16.3	-6.14	85.4	-6.1	85.4
RLIHC101	8/13/24 10:21	57.6	41.5	0.1	0.8	-31.13	105.9	-34.71	106.2
RLIHC102	8/13/24 10:18	57.4	41.5	0.2	0.9	-36.96	112.2	-36.44	112.3
RLLC0176	8/13/24 10:05	44.6	36.9	0.6	17.9	-0.67	114.4	-0.62	114.3

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - August 12, 13, 14, 15, and 27, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	8/13/24 9:18	40.2	33	0.7	26.1	-37.54	78.3	-36.97	77.6
RLI00008	8/15/24 9:51	44.9	29.2	3.6	22.3	-46.2	84	-44	83.7
RLLC0177	8/13/24 10:12	57	40.8	0	2.2	-34.22	111.2	-34.89	111.1
RLLC0179	8/13/24 9:27	43.4	31	3.9	21.7	-23.93	76.3	-23.58	76.3
RLLC0180	8/15/24 10:26	50.7	39.3	0.4	9.6	-40.05	109.2	-41.96	109.2
RLLC0181	8/15/24 12:50	50.5	35.4	0.1	14	-31.57	109.9	-31.43	110.3
RLLC0183	8/13/24 8:53	46.3	33.2	0.5	20	-1.71	74.1	-1.73	74.2
RLLC0184	8/13/24 8:45	58.8	40.1	0	1.1	-36.32	102	-34.88	102
RLLC0185	8/13/24 10:16	44.3	36.7	0.3	18.7	-0.61	111.1	-0.61	111.1
RLLC0186	8/15/24 10:45	52.2	36.8	1.2	9.8	-43.48	90.3	-43.45	91
RLLC0187	8/15/24 10:49	54.5	38.6	0.8	6.1	-44.4	99.4	-42.01	99.2
RLLC0188	8/15/24 10:54	55.7	40.2	0.3	3.8	-42.61	99.9	-40.85	99.9
RLLC0189	8/15/24 10:12	33.3	32.6	1	33.1	-3.48	123	-3.29	123
RLLC0189	8/15/24 10:16	33.3	32.7	0.8	33.2	-3.44	123	-0.8	121.8
RLLC0190	8/15/24 10:31	47.8	39.3	0.3	12.6	-34.09	118.5	-33.52	118.5
RLLC0194	8/12/24 13:40	49.2	39.1	0	11.7	-2.86	108.1	-2.86	108.1
RLLC0195	8/12/24 14:10	41.6	40.2	0.3	17.9	-32.93	104.2	-20.59	104.8
RLLC0196	8/12/24 14:02	57.7	41	0	1.3	-39.06	95.8	-39.16	95.8
RLLC0198	8/14/24 10:57	31.6	28.2	0	40.2	-5.62	89.7	-5.45	89.7
RLLC0199	8/14/24 10:52	56.9	36.1	0.6	6.4	-23.96	83.8	-23.85	83.9
RLLC0200	8/14/24 10:37	61.5	33.9	0.3	4.3	-36.44	103.5	-34.34	104.2
RLLC0201	8/14/24 10:31	57.8	40.8	0.1	1.3	-30.79	96.6	-30.51	96.6
RLLC0202	8/14/24 11:09	56.1	33.8	1.3	8.8	-34.49	82.6	-33.77	82.6
RLLC0204	8/27/24 11:49	43.2	33.8	0	23	-1.52	106.9	-1.41	106.9
RLLC0205	8/27/24 11:41	37.8	32	0	30.2	-0.26	90.9	-0.24	90.9
RLLC0206	8/27/24 11:35	54.4	37.1	0	8.5	-1.26	99.4	-1.32	99.5
RLLC0209	8/27/24 11:39	49.2	35.9	0	14.9	-0.69	97.3	-0.69	97.3
RLLC0210	8/27/24 11:44	44.4	33.9	0	21.7	-0.22	92.3	-0.21	92.3
RLLC0212	8/13/24 11:33	42.7	36.8	0.3	20.2	-1.86	111.5	-1.84	111.6
RLLC0212	8/14/24 11:53	46.6	37.5	0.1	15.8	-0.67	112.4	-0.64	112.5
RLLC0214	8/13/24 11:24	56.3	40.6	0.1	3	-23.74	103.6	-23.42	103.7
RLLC0215	8/13/24 11:19	57.4	41.3	0.1	1.2	-38.62	96.7	-38.3	96.5
RLLC0217	8/13/24 10:04	59.6	32.3	1.2	6.9	-33.73	72.6	-32.72	72.5
RLLC0221	8/14/24 11:04	57.1	31.4	1.5	10	-4.99	85.1	-4.72	85.1
RLLC0223	8/14/24 10:22	54.3	43.4	0	2.3	-37.58	116.2	-32.57	116.4
RLLC0224	8/14/24 10:17	56.3	42.4	0	1.3	-10.91	110.7	-13.63	110.7
RLLC0226	8/13/24 11:29	56.2	38.3	0.9	4.6	-41.88	97.1	-41.35	97.1
RLLC0227	8/13/24 9:20	57.5	37.2	0.2	5.1	-17.65	82.1	-21.05	82.1
RLLC0229	8/14/24 10:48	50.4	31.5	0.7	17.4	-6.29	95.8	-6.26	95.8
RLLC0230	8/14/24 9:41	13.9	11.7	14.3	60.1	-38.95	76	-39.12	75.9
RLLC0230	8/14/24 9:54	16.3	13	13.9	56.8	-41.49	76.1	-26.08	73.2
RLLC0230	8/27/24 12:20	20.6	12.5	12.9	54	-18.97	94.5	-18.97	94.6
RLLC0231	8/13/24 8:33	47.7	40.2	0.4	11.7	-12.83	99.5	-9.55	99.4
RLLC0232	8/13/24 8:39	57.8	39	0	3.2	-5.27	96.3	-7.48	96.4
RLLC0233	8/14/24 9:28	54	45	0.1	0.9	-7.07	96	-9.66	96.2
RLLC0234	8/14/24 14:11	45.8	35.6	0.1	18.5	-23.77	107.5	-23.73	107.4
RLLC0235	8/14/24 14:17	49.9	38.8	0.2	11.1	-4.95	107.2	-4.95	107.2
RLLC0236	8/14/24 14:22	42.5	35.4	0	22.1	-10.76	106.5	-7.72	106.6
RLLC0237	8/14/24 14:30	53.3	39.9	0.4	6.4	-28.91	88.1	-30.98	88.1
RLLC0239	8/14/24 14:34	52.4	44.2	0	3.4	-1.62	96.8	-1.54	96.8
RLLC0241	8/14/24 15:58	55.9	39.8	0.3	4	-49.68	101.6	-50.45	101.6
RLLC0242	8/14/24 15:51	49.3	39.2	0.2	11.3	-40.11	110.3	-38.01	110.4
RLLC0243	8/13/24 10:41	49	37.8	0.2	13	-1.94	108.2	-1.8	108.3
RLLC0244	8/13/24 10:28	45.2	37.8	0.2	16.8	-33.57	100.3	-33.45	100.8
RLLC0245	8/13/24 10:33	45	37.9	0.1	17	-7.74	105.5	-6.31	105.5
RLLC0246	8/27/24 12:24	54.7	43.1	0.1	2.1	-12.15	106.7	-12.54	106.7

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - August 12, 13, 14, 15, and 27, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	8/13/24 9:18	40.2	33	0.7	26.1	-37.54	78.3	-36.97	77.6
RLI00008	8/15/24 9:51	44.9	29.2	3.6	22.3	-46.2	84	-44	83.7
RLLC0247	8/27/24 12:05	55.5	38.4	0	6.1	-2.27	101.9	-2.37	101.9
RLLC0248	8/27/24 12:02	56.4	39	0.2	4.4	-2.06	101.6	-2.5	101.9
RLLC0249	8/13/24 10:18	51.1	39.7	0	9.2	-35.59	114.1	-35.6	114.1
RLLC0250	8/13/24 9:50	43.7	36.9	0	19.4	-3.65	113.6	-2.26	113.4
RLLC0251	8/13/24 10:08	45.6	38.4	0	16	-2.18	114.6	-1.14	114.7
RLLC0252	8/14/24 13:59	46.7	38.9	0	14.4	-23.81	115.6	-20.7	115.7
RLLC0253	8/14/24 13:55	48	39.5	0.1	12.4	-33.53	110.5	-31.02	110.7
RLLC0255	8/14/24 9:07	54.1	40	0.1	5.8	-28.46	100.1	-32.92	100.3
RLLC0256	8/14/24 9:15	59.7	39.3	0.1	0.9	-14.87	90.9	-34.07	92.4
RLLC0257	8/13/24 9:08	52.4	33.2	1.7	12.7	-39.15	76.1	-42.39	76
RLLC0258	8/13/24 9:11	72.6	27.4	0	0	-40.87	83.9	-40.59	84
RLLC0259	8/13/24 9:14	61.3	33.5	0.2	5	-34.43	83.4	-34.42	83.4
RLLC0260	8/27/24 11:30	56.5	40.1	0	3.4	-0.58	92.5	-0.57	92.5
RLLC0261	8/27/24 11:25	54.7	38.6	0	6.7	-2.59	98.4	-3.61	98.4
RLLC0262	8/27/24 11:17	59.4	39.4	0	1.2	-2.35	87.3	-3.25	88
RLLC0263	8/15/24 11:01	46.6	39.4	0.2	13.8	-10.11	116.5	-6.75	116.5
RLLC0264	8/15/24 10:21	44.5	38.8	0.2	16.5	-4.37	111.8	-4.34	111.8
RLLC0265	8/14/24 12:07	48.3	39.4	0.5	11.8	-4.29	112.4	-3.25	113.2
RLLC0266	8/14/24 11:37	52.4	39.8	0	7.8	-6.64	101.6	-6.61	101.6
RLLC0267	8/13/24 11:05	54.7	43	0.1	2.2	-32.16	114.3	-32.13	114.3
RLLC0267	8/14/24 11:42	54.1	42.3	0	3.6	-37.15	115.7	-36.21	115.8
RLLC0268	8/13/24 11:14	50.6	39.4	0.5	9.5	-24.52	119.4	-22.27	119.5
RLLC0268	8/14/24 11:31	50.4	38.7	0.4	10.5	-22.98	120.9	-22.32	120.9
RLLC0269	8/14/24 11:25	50.2	41.3	0.6	7.9	-12.23	114.6	-12.21	114.7
RLLC0270	8/14/24 11:21	50.5	42.5	0.5	6.5	-9.1	115.6	-9.13	115.6
RLLC0271	8/13/24 9:37	59.2	40.8	0	0	-31.81	96.6	-36.42	96.6
RLLC0272	8/14/24 8:53	50.1	39.9	0	10	-11.44	113.8	-10.99	113.8
RLLC0273	8/12/24 10:32	4.9	6	16.5	72.6	-13.95	78.5	-13.63	78.8
RLLC0273	8/12/24 10:39	4.8	6.5	15.6	73.1	-6.15	79.5	-5.62	79.4
RLLC0274	8/12/24 14:42	48.5	40.5	0.1	10.9	-3.4	112.8	-3.33	112.9

There are 131 total collectors; 127 vertical wells and 4 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - September 9, 10, 11, 12, 13, and 19, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	9/11/24 11:36	54.6	39.4	1.1	4.9	-32.08	84.8	-32.06	84.7
RLI00008	9/12/24 12:22	41.9	27.7	4.1	26.3	-42.21	90.4	-42.23	90.1
RLI00016	9/12/24 11:59	21.4	25.3	0.3	53	-28.81	86.5	-28.77	86.5
RLI00017	9/12/24 11:53	43.5	29.5	3.1	23.9	-16.18	83.1	-16.14	83.1
RLI00018	9/12/24 11:49	26.8	25.4	2.1	45.7	-22.98	86.2	-22.88	86.3
RLI00019	9/12/24 11:43	47.8	29.1	3.9	19.2	-42.07	83.5	-42.01	83.5
RLI00034	9/12/24 13:15	55.6	40.1	0.1	4.2	-41.46	85	-41.43	84.9
RLI00035	9/12/24 13:21	49.4	36.6	0.2	13.8	-42.89	80.7	-42.89	80.7
RLI00035	9/12/24 13:48	49.7	36.9	0.1	13.3	-42.54	80.7	-42.54	80.7
RLI00045	9/12/24 13:35	53.3	34.2	0.2	12.3	0.03	93.6	-0.06	92.8
RLI00047	9/12/24 13:39	41.8	33.9	0.1	24.2	-1.7	86.4	-1.65	86.4
RLI00065	9/10/24 16:17	51.6	41.6	0.6	6.2	-19.26	102.4	-19.24	102.4
RLI00083	9/9/24 14:54	60.8	38.4	0.2	0.6	-46.1	94.7	-46.05	94.7
RLI00095	9/9/24 14:21	49.4	34.8	0.4	15.4	-2.23	104.1	-2.18	104.1
RLI00132	9/12/24 12:56	46	31.1	3.6	19.3	-44.04	89.5	-44.03	89.6
RLI00134	9/13/24 10:14	44.6	40.1	0.2	15.1	-0.28	107.4	-0.19	107.5
RLI00135	9/13/24 10:22	51.5	40.2	0.1	8.2	-15.55	107.8	-15.47	107.8
RLI00137	9/13/24 9:19	0	0.1	21	78.9	-36.04	92	-36.43	92.3
RLI00137	9/13/24 9:24	0	0.1	20.8	79.1	-35.84	92.2	-35.63	92.2
RLI00137	9/19/24 10:48	26.7	16.9	9.7	46.7	-37.27	94.3	-38.62	94.3
RLI00137	9/19/24 10:51	26.9	17.3	9.7	46.1	-40.15	93.9	-40.18	94.2
RLI00140	9/10/24 9:41	40.4	31.3	5.3	23	-0.11	76.4	-0.07	76.2
RLI00140	9/10/24 10:29	27.3	21.2	10.2	41.3	-0.08	76.9	-0.06	76.9
RLI00140	9/19/24 10:40	27.1	19.1	10.8	43	-0.17	79.9	-0.15	79.9
RLI00141	9/10/24 9:23	53.9	43.3	0.1	2.7	-0.44	97.9	-0.27	98.6
RLI00142	9/10/24 9:35	55.6	43.4	0.1	0.9	-1.35	94.4	-1.97	96.2
RLI00220	9/9/24 14:16	50.6	35.7	2	11.7	-29.97	94.2	-29.96	94.2
RLI00275	9/9/24 14:58	59.4	40.4	0	0.2	-48.09	102	-48.14	102
RLI00276	9/10/24 15:29	55.9	40.6	0.5	3	-49.23	87.8	-49.24	87.8
RLI00277	9/10/24 12:35	56.6	41.4	0	2	-1.22	112.8	-0.82	112.6
RLI00278	9/10/24 12:21	54.5	42	0.4	3.1	-8.29	113.2	-7.57	113.3
RLI00279	9/13/24 11:41	52.5	41.7	0.2	5.6	-4.68	130.4	-4.88	130.4
RLI00280	9/13/24 11:47	42.8	36	0.2	21	-8.48	110.7	-7.13	110.7
RLI00281	9/10/24 13:13	51.8	40.4	0	7.8	-3.37	116.5	-3.27	116.5
RLI00282	9/10/24 10:03	53.4	42.1	0.1	4.4	-12.41	111.1	-12.16	111.1
RLI00283	9/11/24 10:30	55.7	43.2	0.1	1	-29.76	120	-29.87	120
RLI00284	9/9/24 14:44	61	39	0.1	-0.1	-32.59	98.6	-32.62	98.6
RLI00285	9/9/24 15:03	58.5	41.4	0.1	0	-23.92	95.6	-24.72	95.6
RLI00286	9/10/24 9:00	50.8	42.1	0	7.1	-1.34	107.8	-1.29	107.8
RLI00287	9/10/24 8:56	56.2	40.8	0.6	2.4	-40.1	104.9	-37.15	104.8
RLI0100C	9/12/24 13:09	55.7	39.5	0.2	4.6	-38.43	90.2	-38.5	90.2
RLI0102C	9/12/24 14:02	56.4	37.2	0.2	6.2	-42.63	93.8	-42.07	93.8
RLI0103C	9/11/24 14:14	56	42	0	2	-0.1	99.3	-1.64	102.4
RLI0105C	9/10/24 13:48	54.9	42.9	0.1	2.1	-2.11	83.1	-1.28	81.7
RLI0106C	9/10/24 13:33	36.7	29.1	6	28.2	-17.57	102.9	-3.58	102.8
RLI0106C	9/10/24 13:56	45.8	36	2.5	15.7	-4.45	104.1	-4.37	104.1
RLI0106C	9/11/24 13:08	45.1	35.6	3.3	16	-3.33	107.8	-3.33	107.8
RLI0107C	9/10/24 13:09	58.4	40.7	0	0.9	-0.29	95.7	-0.24	95.7
RLI0117D	9/10/24 15:57	3.7	4.8	16.6	74.9	-4.3	88.4	-4.16	88.4
RLI0117D	9/10/24 16:00	3.6	4.7	16.9	74.8	-4.13	88.1	-3.84	87.7
RLI0117D	9/19/24 10:54	4.1	5.2	16.5	74.2	-4.6	83.3	-4.58	83.3
RLI0124G	9/10/24 7:59	60.6	37.5	0.9	1	-54.5	66.4	-55.29	66.2
RLI0126C	9/12/24 14:22	51.3	27.6	2.9	18.2	-34.69	100.7	-34.67	100.6
RLI0127B	9/12/24 12:42	50	35.2	0.9	13.9	-12.3	106	-12.35	106.5
RLI0128A	9/10/24 12:51	49.9	40.2	0.1	9.8	-2.36	119.5	-1.87	119.5
RLI0130E	9/11/24 12:16	53.1	32.7	0.1	14.1	-6.26	81.7	-6.61	81.4

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - September 9, 10, 11, 12, 13, and 19, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	9/11/24 11:36	54.6	39.4	1.1	4.9	-32.08	84.8	-32.06	84.7
RLI00008	9/12/24 12:22	41.9	27.7	4.1	26.3	-42.21	90.4	-42.23	90.1
RLIHC101	9/10/24 8:08	57.7	42.2	0.1	0	-42.72	99.1	-44.04	97.6
RLIHC102	9/10/24 8:03	57.8	42.1	0.1	0	-57.37	108.7	-56.32	108.7
RLLC0176	9/11/24 14:51	11.1	10.5	14	64.4	-42.82	91	-39.28	91
RLLC0176	9/11/24 14:57	11.3	10.4	14.2	64.1	-41.54	90.7	-38.62	90.8
RLLC0177	9/13/24 10:06	56.5	41.1	0.3	2.1	-36.27	108.5	-37.04	108.5
RLLC0179	9/9/24 14:32	56.4	37	1.2	5.4	-23.83	84.9	-23.87	84.8
RLLC0180	9/13/24 10:40	54.1	40.4	0.5	5	-35.64	109.2	-33.15	109.4
RLLC0181	9/10/24 14:07	54	38.1	0.9	7	-28.37	110.9	-27.75	110.7
RLLC0181	9/13/24 10:44	52.5	38.2	0.9	8.4	-34.19	110.7	-33.47	110.7
RLLC0183	9/12/24 12:47	54.7	39.1	0.1	6.1	-0.55	90.1	-0.49	90.1
RLLC0184	9/12/24 12:31	55.3	39.1	0.2	5.4	-32.42	102.3	-32.38	102.3
RLLC0185	9/13/24 10:11	54.8	40.5	0.3	4.4	-0.36	98.3	-0.33	98.4
RLLC0186	9/11/24 14:03	52.5	36.8	1.7	9	-43.45	80.1	-43.97	80.2
RLLC0187	9/11/24 13:53	54.3	38.1	1.1	6.5	-42.17	95.1	-43.49	95
RLLC0188	9/11/24 13:42	53.4	39.9	0.3	6.4	-42.68	101.2	-43.24	101.3
RLLC0189	9/11/24 13:34	48.3	38.9	0.1	12.7	-0.1	93.5	-0.05	93.5
RLLC0190	9/13/24 10:25	54.1	41.5	0.1	4.3	-34.03	118.3	-34.03	118.4
RLLC0194	9/10/24 12:43	54.7	41.3	0	4	-2.85	108.9	-3.33	108.9
RLLC0195	9/10/24 12:29	49.3	41.7	0.3	8.7	-6.68	109.5	-6.48	109.5
RLLC0196	9/10/24 12:15	59.9	39.8	0.2	0.1	-32.43	92.8	-33.86	93
RLLC0198	9/11/24 12:41	36.3	30.2	0	33.5	-5.02	89.7	-4.94	89.8
RLLC0199	9/11/24 12:36	60.3	38.5	0.1	1.1	-7.83	85.8	-7.8	85.8
RLLC0200	9/11/24 12:31	63.2	36.1	0.1	0.6	-34.87	95	-33.81	94.9
RLLC0201	9/12/24 8:52	59.8	40	0.2	0	-36.63	95.5	-36.62	95.5
RLLC0202	9/11/24 12:53	52.9	34.5	1.1	11.5	-35.98	79.5	-36.65	80.1
RLLC0204	9/12/24 14:58	39.5	33.4	0.2	26.9	-2.55	107.2	-1.81	107.2
RLLC0205	9/12/24 14:40	31.7	30.9	0	37.4	-0.1	93.4	-0.09	93.3
RLLC0206	9/12/24 14:26	42.5	35.5	0.1	21.9	-5.76	100.7	-4.97	100.5
RLLC0209	9/12/24 14:35	38.5	33.6	0.1	27.8	-1.35	97.2	-1.28	97.3
RLLC0210	9/12/24 14:45	39.8	33.1	0	27.1	-0.18	94	-0.16	94.1
RLLC0212	9/10/24 8:23	53.6	41.4	0.1	4.9	-1.08	109.3	-1.44	109.9
RLLC0214	9/10/24 8:34	57.6	41.1	0	1.3	-17.67	104.2	-17.74	104.2
RLLC0215	9/10/24 8:51	58.2	41.7	0.1	0	-40.16	81.9	-40.21	82
RLLC0217	9/9/24 14:40	64.6	34.9	0.2	0.3	-44.28	83.8	-37.99	84.4
RLLC0221	9/11/24 12:48	59.9	33.3	0.9	5.9	-3.7	84.7	-2.82	82.8
RLLC0223	9/12/24 8:42	55.1	44.2	0.2	0.5	-40.14	114.9	-41.47	114.9
RLLC0224	9/12/24 8:47	57	42.9	0.1	0	-14.39	110.7	-16.28	110.8
RLLC0226	9/10/24 8:28	53.8	36.5	1.7	8	-41.66	71.7	-38.28	71.5
RLLC0227	9/9/24 14:27	54.8	36.2	0.1	8.9	-24.79	86.2	-26.05	86
RLLC0229	9/11/24 12:26	49.4	31.4	1.6	17.6	-3.44	94.4	-3.44	94.4
RLLC0230	9/11/24 10:14	4	3.3	18	74.7	-37.24	78.8	-32.95	78.7
RLLC0230	9/11/24 10:23	4.4	3	18.1	74.5	-18.48	81.5	-18.47	81.7
RLLC0231	9/12/24 12:08	51.4	38.7	0.6	9.3	-6.09	99.3	-6.05	99.3
RLLC0232	9/12/24 12:15	47.2	36.3	0.3	16.2	-5.65	98	-4.94	97.8
RLLC0233	9/10/24 12:06	55.3	44.6	0.1	0	-8.39	97	-7.69	96.9
RLLC0234	9/10/24 15:38	51.6	37.8	0	10.6	-13	107.6	-13.03	107.6
RLLC0235	9/10/24 15:43	53.6	40.3	0.3	5.8	-4.34	104.5	-4.37	105.3
RLLC0236	9/10/24 15:49	47.6	37.8	0.1	14.5	-7.21	106.3	-6.63	106.3
RLLC0237	9/10/24 16:10	56.3	41	0.3	2.4	-26.35	88.4	-27.86	88.4
RLLC0241	9/10/24 16:27	58.6	41.3	0.1	0	-47.77	100	-47.85	100
RLLC0242	9/10/24 16:22	53.3	41.3	0.1	5.3	-35.1	110.8	-35.87	110.8
RLLC0243	9/10/24 7:54	52.7	39.3	0.1	7.9	-1.39	107.3	-1.33	107.4
RLLC0244	9/10/24 8:13	49.1	39	0.1	11.8	-37.34	97.7	-37.36	97.6
RLLC0245	9/10/24 8:17	52.6	40	0	7.4	-5.89	105.6	-5.95	105.7

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Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	9/11/24 11:36	54.6	39.4	1.1	4.9	-32.08	84.8	-32.06	84.7
RLI00008	9/12/24 12:22	41.9	27.7	4.1	26.3	-42.21	90.4	-42.23	90.1
RLLC0246	9/11/24 9:42	52.8	42.7	0.2	4.3	-28.97	106.1	-30.07	106.1
RLLC0247	9/12/24 8:35	49.4	37.6	0.1	12.9	-3.9	101.6	-3.48	101.6
RLLC0248	9/12/24 8:28	53.3	38.9	0.3	7.5	-3.98	101.4	-4.19	101.4
RLLC0249	9/11/24 14:34	49.3	38.3	0.4	12	-36.78	107.6	-38.53	107.6
RLLC0250	9/11/24 14:44	55.2	40.9	0.2	3.7	-1.91	112.5	-1.98	112.6
RLLC0251	9/11/24 15:11	56.5	42.1	0	1.4	-0.51	112.5	-0.95	112.8
RLLC0252	9/10/24 15:24	49.4	40.8	0.1	9.7	-18.9	115.4	-18.86	115.4
RLLC0253	9/10/24 15:19	49.7	41.1	0.1	9.1	-28.11	110.7	-29.16	110.6
RLLC0255	9/10/24 10:09	52.6	39.2	0.6	7.6	-28.84	100.4	-30.39	100.4
RLLC0256	9/10/24 10:15	58.4	39.9	0	1.7	-24.83	91	-24.8	91
RLLC0257	9/11/24 11:50	31	22.4	7.7	38.9	-0.22	86.3	-0.17	86.5
RLLC0257	9/11/24 12:06	40	28.8	4.8	26.4	-0.4	88.2	-0.37	88.2
RLLC0258	9/11/24 11:54	50.2	33.7	0.5	15.6	-44.25	91.4	-43.09	91.3
RLLC0259	9/11/24 11:58	51.8	38	0.1	10.1	-38.18	84	-39.01	83.9
RLLC0260	9/12/24 14:16	48.4	38.5	0.2	12.9	-2.66	95.6	-2.65	95.6
RLLC0261	9/12/24 14:08	44	36	0.3	19.7	-5.88	100.5	-5.83	100.5
RLLC0262	9/12/24 13:56	51.7	37	0.5	10.8	-4.44	90.2	-4.46	90.1
RLLC0263	9/11/24 13:47	53.2	41	0.1	5.7	-6.67	114.9	-6.67	114.9
RLLC0264	9/11/24 13:19	52.7	42.1	0.2	5	-2.55	110.6	-2.54	110.7
RLLC0265	9/11/24 9:54	49.5	39.7	1.1	9.7	-2.8	114.1	-2.79	114
RLLC0266	9/11/24 9:48	51	40.1	0.7	8.2	-5.45	96.6	-5.38	96.6
RLLC0267	9/10/24 8:42	56.3	43.6	0.1	0	-34.76	114.9	-34.74	114.9
RLLC0268	9/10/24 8:47	58	41.9	0	0.1	-28.85	73.5	-28.84	72.9
RLLC0269	9/11/24 10:05	51.1	42	0.7	6.2	-12.56	114.2	-12.46	114.3
RLLC0270	9/11/24 10:00	53.4	43.2	0.5	2.9	-10.51	115.3	-10.49	115.4
RLLC0271	9/9/24 14:48	59	40.9	0.1	0	-46.28	98.3	-47	98.3
RLLC0272	9/10/24 9:51	50.8	40.2	0.2	8.8	-9.71	113	-9.74	113
RLLC0274	9/10/24 13:39	51.2	40.6	0.3	7.9	-2.93	113	-2.86	113

There are 131 total collectors; 127 vertical wells and 4 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

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Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	10/9/24 13:33	54.5	38.2	0.2	7.1	-33.76	86	-33.75	86
RLI00008	10/25/24 9:40	50.8	30.9	2.8	15.5	-33.5	69.6	-33.46	69.6
RLI00016	10/24/24 9:59	23	20.9	2.1	54	-22.7	74.2	-22.77	74.4
RLI00017	10/24/24 10:11	53.6	31.4	2.3	12.7	-15.28	73.8	-15.28	73.9
RLI00018	10/24/24 10:21	24	22.7	3.4	49.9	-15.36	75.1	-15.34	75.2
RLI00019	10/24/24 10:30	54.1	30.1	2.3	13.5	-33.38	73	-33.37	73.1
RLI00034	10/9/24 14:04	59.7	39.5	0.1	0.7	-40.23	82	-44.35	82
RLI00035	10/9/24 14:10	51.3	36.3	0	12.4	-44.94	77.9	-44.86	78
RLI00045	10/9/24 14:23	49.9	33.3	0	16.8	-0.42	81.1	-0.4	81.3
RLI00047	10/9/24 14:18	41.7	33.7	0	24.6	-2	82.3	-1.95	82.4
RLI00065	10/29/24 12:25	44.1	51.5	0.3	4.1	-15.42	101.7	-9.81	101.4
RLI00083	10/29/24 10:52	60.2	39.7	0	0.1	-39.38	92.8	-39.4	92.9
RLI00095	10/14/24 14:24	49.6	33.9	0	16.5	-1.74	103.9	-1.28	103.9
RLI00132	10/25/24 10:57	54.5	32.8	2.1	10.6	-34.87	78.4	-34.88	78.4
RLI00134	10/25/24 10:02	53.3	38.8	0	7.9	-0.03	97.7	-0.03	97.8
RLI00135	10/29/24 13:14	49.9	40.4	0	9.7	-16.26	109.7	-16.19	109.7
RLI00137	10/3/24 8:03	28.4	17.6	9.1	44.9	-20.65	76.4	-4.03	63.2
RLI00137	10/3/24 8:41								
RLI00140	10/3/24 8:57	43.7	31.3	4.5	20.5	-1.38	89.4	-1.37	89.4
RLI00140	10/3/24 9:02								
RLI00140	10/30/24 11:26	49.3	40.6	0.7	9.4	-0.35	89.1	-0.35	89.1
RLI00140	10/30/24 11:52	51.5	40.6	0	7.9	-0.37	92.8	-6.79	94.3
RLI00141	10/29/24 10:32	46.7	38.9	1.2	13.2	-8.71	115.2	-8.7	115.3
RLI00142	10/30/24 10:52	57.7	41.7	0.1	0.5	-0.21	82.8	-0.18	82.8
RLI00220	10/29/24 9:09	53.6	38.4	0.7	7.3	-2.51	72.3	-3.37	72.5
RLI00275	10/14/24 14:31	60.2	39.8	0	0	-43.95	101.9	-46.24	101.5
RLI00276	10/23/24 13:49	56.1	40.4	0.2	3.3	-26.49	94.5	-27.28	94.5
RLI00277	10/10/24 9:53	54.2	40.1	0	5.7	-1.03	114.3	-1.08	114.6
RLI00277	10/23/24 14:42	45.1	38.4	0	16.5	-0.93	114.6	-0.93	114.6
RLI00278	10/23/24 14:33	49	41.1	0	9.9	-7.8	113.2	-7.17	113.2
RLI00279	10/30/24 9:52	47.4	41.2	0	11.4	-3.91	128.9	-3.9	128.9
RLI00280	10/23/24 14:56	43.1	35.8	0	21.1	-6.04	109.7	-2.9	109.3
RLI00281	10/10/24 10:19	49.8	39.1	0	11.1	-3.62	116.4	-3.56	116.4
RLI00282	10/29/24 9:47	53.4	43.6	0	3	-12.35	110	-12.39	110.1
RLI00283	10/29/24 10:46	58.8	41.1	0.1	0	-26.82	120	-26.85	120
RLI00284	10/29/24 10:33	58.9	40.7	0.2	0.2	-26.98	88.1	-27.01	88.2
RLI00285	10/15/24 9:48	59.1	39.8	0.2	0.9	-45.86	89.7	-47.61	78.1
RLI00286	10/29/24 9:47	45.6	40.9	0	13.5	-1.03	108	-0.98	108
RLI00287	10/29/24 9:49	44.2	41.1	0.8	13.9	-37.13	104.7	-38.78	105
RLI0100C	10/9/24 13:46	5.3	4.2	16.8	73.7	-46.68	84.1	-38.55	84.4
RLI0100C	10/9/24 13:48	5.3	3.7	17	74	-33.36	84.4	-33.35	84.4
RLI0102C	10/29/24 12:34	55.8	38.4	0	5.8	-37.73	92.8	-37.71	92.8
RLI0103C	10/10/24 11:40	55.2	40.1	0	4.7	-0.31	103.6	-2	104.9
RLI0105C	10/30/24 8:36	49.9	43.2	0.4	6.5	-12.96	56.8	-13.48	57
RLI0106C	10/30/24 9:26	41.5	40.3	2.7	15.5	-0.09	75.3	-0.09	75.5
RLI0107C	10/29/24 13:12	37.3	31.9	3.2	27.6	-0.01	88.1	-0.03	88.1
RLI0117D	10/3/24 9:49	4.3	6.9	16.4	72.4	-12.93	81.5	-18.09	81.6
RLI0117D	10/3/24 11:29								
RLI0124G	10/29/24 9:18	62	37.6	0.1	0.3	-39.11	64.8	-38.67	65.3
RLI0126C	10/29/24 12:47	42.3	37.4	0	20.3	-28.28	94.9	-24.5	95.1
RLI0127B	10/25/24 10:20	52.7	35.3	0.8	11.2	-10.75	101.1	-10.82	101.6
RLI0128A	10/10/24 10:09	41.9	35.7	1	21.4	-1.41	116.2	-1.13	116.1
RLI0130E	10/29/24 11:13	48.1	34.4	0	17.5	-5.69	73.7	-5.7	73.7
RLIHC101	10/29/24 9:22	57.7	42.3	0	0	-24.65	99.7	-24.26	99.9
RLIHC102	10/29/24 9:27	57	42.8	0.3	-0.1	-38.5	111.1	-38.46	111
RLLC0176	10/25/24 10:41	18	17.6	9.5	54.9	-34.27	70.5	-3.29	67.5

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Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	10/9/24 13:33	54.5	38.2	0.2	7.1	-33.76	86	-33.75	86
RLI00008	10/25/24 9:40	50.8	30.9	2.8	15.5	-33.5	69.6	-33.46	69.6
RLLC0176	10/25/24 10:47	14.8	14.3	11.5	59.4	-0.09	69.9	-0.22	70.5
RLLC0177	10/10/24 11:48	55.5	39	0	5.5	-38.06	109.3	-41.66	109.3
RLLC0179	10/15/24 9:40	58.4	36.2	1.3	4.1	-7.06	81.8	-35.08	82.3
RLLC0179	10/23/24 14:37	54.5	42.9	0	2.6	-0.3	110.2	-0.29	110.1
RLLC0180	10/10/24 10:29	51.3	39.1	0.3	9.3	-40.82	109.4	-39.89	109.5
RLLC0181	10/10/24 10:24	52.2	37.4	0.7	9.7	-33.99	110.1	-33.22	110.1
RLLC0183	10/25/24 10:32	55	37.1	0.7	7.2	-0.72	68.5	-2	71.1
RLLC0184	10/25/24 9:50	58.2	38.4	0	3.4	-26.45	101.4	-26.35	101.4
RLLC0184	10/25/24 9:53	57.8	38.8	0	3.4	-26.16	101.6	-26.16	101.6
RLLC0185	10/30/24 7:55	60.2	36.8	0.3	2.7	-1	96.1	-0.97	96.3
RLLC0186	10/14/24 10:09	51	34.3	2.7	12	-43.77	65.9	-43.85	69.3
RLLC0187	10/14/24 10:03	57.4	39.1	0.4	3.1	-46.02	75.6	-46.06	83.1
RLLC0188	10/30/24 8:16	57.8	36.9	0.5	4.8	-29.37	74.4	-29.97	74.5
RLLC0189	10/14/24 10:20	37.2	34	0.6	28.2	-0.24	98.3	-0.22	98.6
RLLC0190	10/10/24 11:28	52.3	39.6	0	8.1	-33.95	117.8	-33.91	117.9
RLLC0194	10/10/24 9:59	50.1	39.2	0	10.7	-2.95	108.8	-2.92	108.8
RLLC0195	10/30/24 9:58	58.9	40.6	0.5	0	-2.54	57.8	-11.67	57.6
RLLC0196	10/10/24 9:47	60.9	39.1	0	0	-38.42	92.7	-39.38	92.9
RLLC0198	10/29/24 13:23	38.4	25.5	0.1	36	-3.21	81.6	-3.22	82.1
RLLC0199	10/29/24 11:48	56.4	37.1	0	6.5	-0.15	71.5	-24.66	77.5
RLLC0200	10/29/24 11:43	58.4	40.5	0.8	0.3	-23.72	86.2	-23.74	86.9
RLLC0201	10/29/24 11:37	57.4	42.6	0	0	-27.65	94.5	-29.06	96.5
RLLC0202	10/29/24 13:30	56.3	35.3	1.1	7.3	-29.08	72.4	-29.64	72.4
RLLC0204	10/29/24 13:04	44.2	34.6	0	21.2	-1.35	106.3	-1.35	106.3
RLLC0205	10/29/24 12:59	36.8	31.2	2.7	29.3	-0.15	88.5	-0.12	88.9
RLLC0206	10/29/24 12:49	45.7	34.6	0	19.7	-3.51	97.9	-3.51	97.9
RLLC0209	10/29/24 12:52	44	35.1	0	20.9	-0.97	94	-0.96	94.1
RLLC0210	10/29/24 13:01	31	29.4	0.3	39.3	-0.15	82.1	-0.14	82.7
RLLC0212	10/29/24 10:17	54.3	39.2	3.2	3.3	-0.15	59	-0.15	58.7
RLLC0214	10/29/24 10:13	57.2	40.9	0	1.9	-5.27	108	-5.24	108
RLLC0215	10/29/24 10:06	58.3	41	0	0.7	-38.57	82.8	-38.54	83
RLLC0217	10/15/24 10:05	59.7	36	1	3.3	-41.77	78.9	-42.52	80
RLLC0221	10/29/24 13:27	41.1	30.1	0	28.8	-2.82	78.6	-3.33	78.3
RLLC0223	10/29/24 11:29	54.5	39.1	0	6.4	-33.81	116.1	-33.78	116.1
RLLC0224	10/29/24 11:32	56.6	43.4	0	0	-15.26	111.7	-18.42	111.7
RLLC0226	10/29/24 10:55	55.5	41.9	2.7	-0.1	-35.58	78.1	-34.76	78.1
RLLC0227	10/14/24 14:08	55.3	34.7	0.1	9.9	-29.77	86.3	-38.19	86.5
RLLC0229	10/29/24 11:46	41.5	32.4	0	26.1	-4.2	89.1	-4.19	89.1
RLLC0230	10/29/24 10:43	3.4	15	16.8	64.8	-17.74	66.3	-17.71	66.4
RLLC0231	10/25/24 9:22	56.1	38.4	0	5.5	-5.6	98	-35.81	97.1
RLLC0232	10/25/24 9:29	50.6	36.1	0.3	13	-4.28	93.1	-4.29	93.2
RLLC0233	10/23/24 10:45	56.1	43.5	0.1	0.3	-6.75	97.1	-9.39	97.6
RLLC0234	10/23/24 13:57	49.1	36.5	0	14.4	-9.48	107.1	-9.44	107.1
RLLC0235	10/23/24 14:06	55.1	40.2	0	4.7	-2.34	105.8	-2.35	105.9
RLLC0236	10/23/24 14:15	51.3	37.9	0	10.8	-2.95	106.2	-2.92	106.2
RLLC0237	10/3/24 8:05	40	30.6	1.1	28.3	-24.07	93.3	-27.42	93.3
RLLC0237	10/23/24 13:14	57.7	40.3	0	2	-26.72	97.8	-20.5	97.6
RLLC0241	10/29/24 12:14	57.6	41.5	0	0.9	-40.3	100.3	-40.26	100.3
RLLC0242	10/29/24 12:19	52.9	43	0	4.1	-30.26	111.1	-30.27	111.1
RLLC0243	10/29/24 9:34	48	37.6	0	14.4	-0.35	108.8	-0.36	108.8
RLLC0244	10/29/24 9:38	49	40	0	11	-41.99	105.5	-41.33	105.7
RLLC0245	10/29/24 9:40	44.9	37.5	0	17.6	-6.41	107.4	-3.84	107.5
RLLC0246	10/29/24 10:26	47.8	40.6	0.5	11.1	-18.04	111.3	-18.01	111.3
RLLC0247	10/29/24 11:00	46.4	35.9	0.1	17.6	-3.15	101.4	-1.77	101.5

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - October 3, 9, 10, 14, 15, 23, 24, 25, 29, and 30, 2024

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (°F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (°F)
RLI00003	10/9/24 13:33	54.5	38.2	0.2	7.1	-33.76	86	-33.75	86
RLI00008	10/25/24 9:40	50.8	30.9	2.8	15.5	-33.5	69.6	-33.46	69.6
RLLC0248	10/29/24 11:07	49.8	38.6	0	11.6	-3.72	101.9	-3.75	101.9
RLLC0249	10/14/24 9:39	45.6	36.8	0	17.6	-41.43	113.9	-26.13	113.9
RLLC0250	10/14/24 9:20	52.1	39.9	0	8	-2.43	111.7	-2.98	112.1
RLLC0251	10/10/24 11:54	49	38.3	0	12.7	-1.42	113.6	-1.41	113.6
RLLC0252	10/23/24 13:30	49.5	40.3	0	10.2	-13.71	115.3	-13.14	115.3
RLLC0253	10/15/24 10:20	46.6	34.4	0.1	18.9	-29.75	110.7	-15.95	111.1
RLLC0254	10/3/24 11:50	59.3	39.5	0.2	1	-1.38	103.4	-1.39	103.1
RLLC0254	10/9/24 10:51	59.5	39.8	0	0.7	-1.45	106	-1.59	106.3
RLLC0255	10/30/24 11:10	50.4	39.8	0	9.8	-15.42	69.5	-15.43	69.5
RLLC0256	10/29/24 9:26	57.1	39.1	1.4	2.4	-8.83	89.6	-8.83	89.6
RLLC0257	10/9/24 13:27	55.1	34.6	0.4	9.9	-0.19	88.8	-19.04	90.5
RLLC0258	10/9/24 13:21	51.7	34.3	0.2	13.8	-43.31	91.8	-43.31	91.8
RLLC0259	10/9/24 13:10	53.1	36.7	0.1	10.1	-38.54	83.6	-38.59	83.6
RLLC0260	10/29/24 12:44	42.8	36.2	0	21	-1.56	95	-1.09	95
RLLC0261	10/29/24 12:40	45.2	34.9	0	19.9	-6.21	99.1	-3.5	98.7
RLLC0262	10/29/24 12:30	45	34.2	0.1	20.7	-4.83	88.4	-4.8	88.4
RLLC0263	10/14/24 9:51	49.1	39.2	0	11.7	-7.47	114.1	-7.12	114.1
RLLC0264	10/30/24 8:26	50.3	41.9	0	7.8	-4.11	109.3	-4.16	109.6
RLLC0265	10/29/24 9:59	42.6	35.5	3.9	18	-1.11	114.1	-0.51	113.6
RLLC0266	10/29/24 9:56	43	34.5	2.9	19.6	-0.54	72.5	-0.53	72.9
RLLC0267	10/29/24 9:52	53.2	41.7	0.5	4.6	-31.58	115.6	-29.34	115.6
RLLC0268	10/29/24 10:02	43.4	35.3	1.8	19.5	-16.28	123.2	-16.23	123.2
RLLC0269	10/29/24 10:38	54.7	44.3	0.1	0.9	-11.73	113.5	-17.31	113.1
RLLC0270	10/29/24 10:35	55	42.6	0	2.4	-8.77	115.4	-16.16	115.3
RLLC0271	10/29/24 10:55	56.7	43.3	0	0	-38.7	97.2	-38.45	97.2
RLLC0272	10/29/24 10:07	50.4	39.9	0.1	9.6	-5.07	113.8	-5.12	113.8
RLLC0274	10/30/24 8:43	52.6	41.5	0	5.9	-2.36	110.5	-4.68	111.3

There are 126 total collectors; 122 vertical wells and 4 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

APPENDIX J

WELLFIELD DEVIATION LOGS

REDWOOD LANDFILL, INC
WELLFIELD DEVIATIONS AND 15-DAY REMONITORING REPORT

MONITORING PERFORMED BY: Rick Reed, Jimmie Brunning, and Ben Tarver
UPDATED DATE: 11/26/24
FLOW SENSING DEVICE: Landtec GEM

Well ID	Time	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Initial Static Pressure (" w.c.)	Initial Temperature (°F)	Adjusted Static Pressure (" w.c.)	Adjusted Temperature (°F)	Comments	Duration of Exceedance (Days)
RLI0114A	3/26/24 15:47	40.1	21.9	7.2	30.8	-27.37	77.6	-26.2	78.1	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	3/26/24 15:49	38.5	21	7.8	32.7	-26.43	78.2	-26.28	78.2	NSPS/EG CAI	
RLI0114A	4/2/24 10:45	29.1	16.7	8.8	45.4	-46.74	71.4	-46.86	71.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	4/2/24 10:50	36.3	19.4	7.7	36.6	-47.73	71.7	-47.73	71.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	5/8/24 12:00	36.7	20.1	7.4	35.8	-51.68	85.9	-51.47	85.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	5/8/24 12:08	35.4	19.5	7.6	37.5	-50.99	85.9	-51.63	85.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	5/29/24 11:18	35	21.1	7.1	36.8	-46.67	86.4	-45.26	86.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	5/29/24 11:21	33.7	20.3	7.6	38.4	-45.21	86.4	-45.13	86.7	NSPS/EG CAI	
RLI0114A	6/18/24 11:27	35.2	20.1	7.5	37.2	-51.02	87.6	-49.9	87.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	6/18/24 11:31	36.7	21	6.4	35.9	-49.61	89	-49.05	89.3	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0114A	7/3/24 9:15	39.5	30	1.8	28.7	-18.21	94	-26.07	94	No Adj. Made	
RLI0114A was monitored on 3/26/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 7/3/24											99
RLI0129E	3/14/24 13:22	0	0.5	20.4	79.1	-26.84	69.7	-26.3	70.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E	3/14/24 13:29	0	0.3	20.4	79.3	-26.04	73.9	-26.21	74.2	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E	3/27/24 14:52	0	0.2	20.9	78.9	-19.8	62.6	-19.34	63.1	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E	3/27/24 14:54	0	0.2	20.9	78.9	-19.81	63.8	-19.79	63.8	NSPS/EG CAI;Barely Open	
RLI0129E	4/2/24 14:52	0	7.6	13.1	79.3	-21.67	86.2	-21.52	86	NSPS/EG CAI;Inc. Flow/Vac.	
RLI0129E	4/2/24 14:57	0	5.9	15.8	78.3	-21.74	85.8	-21.19	86.5	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0129E	5/14/24 13:20	0	0.5	19.9	79.6	-20.72	78.1	-20.72	78.1	NSPS/EG CAI;Barely Open	
RLI0129E	5/14/24 13:23	0	0.2	20.1	79.7	-20.84	78.9	-20.84	78.9	NSPS/EG CAI;Barely Open	
RLI0129E	5/29/24 11:43	0	0.3	19	80.7	-23.8	85	-23.75	85	NSPS/EG CAI;Barely Open	
RLI0129E	5/29/24 11:46	0	0.1	19.3	80.6	-24.21	85.7	-24.21	85.7	NSPS/EG CAI;Barely Open	
RLI0129E	6/18/24 8:53	1.2	8.1	14.5	76.2	-24.35	75.7	-24.5	75.6	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E	6/18/24 8:56	1.2	6.9	15.5	76.4	-23.89	75.3	-23.98	75.5	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0129E	7/2/24 11:11	2.8	14.2	8	75	-22.88	101.6	-23.03	102.1	NSPS/EG CAI;Inc. Flow/Vac.	
RLI0129E	7/2/24 11:17	1.8	12	8.5	77.7	-11.69	102.8	-1.43	102.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E was monitored on 3/14/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Well decommissioned pursuant to AN #30065 on 7/11/24											118
RLLC0225	4/17/24 13:46	26.3	16.6	10.1	47	-26.73	85.2	-28.42	84.8	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0225	4/17/24 13:50	16.5	11.1	14.5	57.9	-27.28	82.1	-27.45	81.9	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0225	5/14/24 12:49	11	7.8	15	66.2	-21.12	74.3	-21.13	74.3	NSPS/EG CAI;Barely Open	
RLLC0225	6/12/24 10:23	14.7	6.9	16.2	62.2	-24.9	88	-24.72	87.9	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0225	7/10/24 7:01	64.4	35.6	0	0	-37.12	63.3	-38.68	63.6	Fully Open;No Adj. Made	
RLLC0225 was monitored on 3/27/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Well decommissioned pursuant to AN #30065 on 7/19/24											113
RLLC0230	3/26/24 15:14	9.7	7.3	17.3	65.7	-26.34	75.8	-26.86	76.1	NSPS/EG CAI;Barely Open	
RLLC0230	3/26/24 15:18	6	4.5	18.6	70.9	-26.93	78.3	-26.93	78.4	NSPS/EG CAI	
RLLC0230	4/3/24 14:44	1.1	1.2	20.2	77.5	-32.23	75	-32.1	74.8	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0230	4/3/24 14:48	2.3	1.9	19.8	76	-32.02	72.9	-32.11	72.7	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0230	5/7/24 12:05	7.6	4.6	18.4	69.4	-42.29	72.5	-42.32	72.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0230	6/12/24 9:37	14.8	10.5	14.7	60	-43.36	83.9	-43.35	84.1	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0230	6/12/24 9:40	12.6	8.8	15.6	63	-43.31	84.2	-43.26	84.1	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0230	7/10/24 15:48	50.1	37.1	1.9	10.9	-7.14	110.3	-7.1	110.4	No Adj. Made	
RLLC0230 was monitored on 3/26/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 7/10/24											106
RLLC0256	3/26/24 14:38	1.2	1.3	19.5	78	-41.62	73.2	-36.36	73.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0256	3/26/24 14:43	0.7	0.7	20	78.6	-24.86	73.4	-24.86	73.4	NSPS/EG CAI	
RLLC0256	4/3/24 14:06	0.4	0.6	20.2	78.8	-25.35	74.9	-25.4	74.9	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0256	4/3/24 14:10	0.4	0.7	20	78.9	-25.22	74.3	-25.16	74.2	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0256	5/6/24 15:36	63.9	36	0.1	0	0.14	77.6	-3.52	76.7	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0256 was monitored on 3/26/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 5/6/24											41
RLLC0256 was monitored on 5/6/2024 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 5/6/2024											
RLLC0273	3/26/24 15:29	5.1	3.7	18.5	72.7	-41.87	72.1	-43.24	72.4	NSPS/EG CAI;Barely Open	
RLLC0273	3/26/24 15:31	3.9	2.8	19	74.3	-43.54	72.5	-42.42	72.5	NSPS/EG CAI;Barely Open	
RLLC0273	4/2/24 10:16	22.4	16.1	10.7	50.8	-46.64	65.2	-46.38	65.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0273	4/2/24 10:21	4.9	3.9	18.1	73.1	-46.2	65.3	-46.9	65.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0273	5/8/24 11:33	54.1	38.6	0.9	6.4	-49.63	80.9	-49.55	80.6	No Adj. Made	
RLLC0273 was monitored on 3/26/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 5/8/24											43
RLLC0191	4/3/24 10:36	0	0.2	20.4	79.4	-48.68	57.5	-51.97	57.5	No Adj. Made;NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0191	4/3/24 10:40	0	0.3	20.4	79.3	-50.7	58.4	-48.5	58	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0191	5/7/24 14:15	0	0.1	19.7	80.2	-36.27	80.8	-35.87	80	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0191	5/7/24 14:20	0	0.1	19.5	80.4	-29.64	80	-27.47	80.2	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0191	5/29/24 10:54	0	0.1	19.5	80.4	-45.7	78.8	-44.19	79	NSPS/EG CAI;Barely Open;Adjusted for Odor/SEM	
RLLC0191	5/29/24 10:56	0	0.1	19.2	80.7	-44.31	79.3	-43.84	79.2	NSPS/EG CAI;Barely Open;Adjusted for Odor/SEM	
RLLC0191	5/31/24 10:56	0	0.2	19.7	80.1	-51.22	83.3	-49.29	83.1	NSPS/EG CAI;Inc. Flow/Vac.;Adjusted for Odor/SEM	
RLLC0191	5/31/24 10:58	0	0.1	19.5	80.4	-50.99	80.9	-51.39	81	NSPS/EG CAI;Fully Open;Adjusted for Odor/SEM	
RLLC0191	6/11/24 13:53	0.1	0.3	18.7	80.9	-49.89	90.2	-50.02	89.4	NSPS/EG CAI	
RLLC0191	6/12/24 8:45	0	0.7	20.6	78.7	-50.53	78.1	-51.81	78.3	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0191	7/1/24 15:18	0.2	0.1	19.9	79.8	-50.23	90	-47.43	89	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0191	7/2/24 11:41	0.2	0.3	20.2	79.3	-49.92	93.9	-0.15	94.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0191 was monitored on 4/3/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Well decommissioned pursuant to AN #30065 on 7/19/24											107
RLI00019	5/9/24 13:56	39.6	22.9	6.7	30.8	-41.7	89.8	-41.88	89.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00019	5/9/24 14:05	40.1	23.1	6.7	30.1	-42.06	90.4	-41.78	90.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00019	5/14/24 11:44	45.9	26.4	5.7	22	-44.45	69.5	-42.32	69.5	NSPS/EG CAI;Barely Open	
RLI00019	5/14/24 11:47	42.3	24.7	7	26	-45.41	69.6	-44.8	69.6	NSPS/EG CAI;Barely Open	
RLI00019	5/29/24 11:30	48	27.8	3.9	20.3	-37.31	78.7	-34.98	78.8	Barely Open	
RLI00019 was monitored on 5/9/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 5/29/24											20
RLI00134	5/9/24 10:56	53.4	41	0	5.6	0.06	114.1	-0.35	115	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00134 was monitored on 5/9/2024 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 5/9/2024											

RLI0100C	5/10/24 10:49	1.3	2.6	18.8	77.3	-49.27	80.3	-49.3	80.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0100C	5/10/24 10:54	32.1	27.9	2.9	37.1	-49.19	82.6	-49.33	81.3	Fully Open;Inc. Flow/Vac.	
RLI0100C was monitored on 5/10/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 5/10/2024											
RLLC0176	5/9/24 11:14	25.2	19.7	9.9	45.2	-36.97	82.4	-36.81	82.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0176	5/9/24 11:20	21.5	17.8	11	49.7	-24.46	82	-24.12	81.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0176	6/6/24 9:31	18.6	14.8	12.4	54.2	-13.51	83.6	-28.89	82.9	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0176	6/6/24 9:42	48.2	37.1	0.4	14.3	-30.08	86.8	-27.64	87.2	Inc. Flow/Vac.	
RLLC0176 was monitored on 5/9/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 6/6/24											28
RLLC0198	5/14/24 12:31	1.8	3.7	18.3	76.2	-17.05	72.8	-17.03	72.8	NSPS/EG CAI;Barely Open	
RLLC0198	5/14/24 12:33	0.9	2	19.2	77.9	-16.87	72.4	-16.88	72.4	NSPS/EG CAI;Barely Open	
RLLC0198	5/29/24 11:51	0.1	1.1	18.9	79.9	-18.68	86	-18.74	85.9	NSPS/EG CAI;Barely Open	
RLLC0198	5/29/24 11:53	0.2	1.5	18.8	79.5	-19.37	85	-19.79	84.9	NSPS/EG CAI;Barely Open	
RLLC0198	6/12/24 10:52	64.9	31.5	0.2	3.4	-5.4	85.7	-14.66	85.3	Barely Open;No Adj. Made	
RLLC0198 was monitored on 5/14/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 6/12/24											29
RLLC0199	5/14/24 12:35	0.2	1	19.7	79.1	-21.22	72.4	-21.23	72.4	NSPS/EG CAI;Barely Open	
RLLC0199	5/14/24 12:38	0.3	1.2	19.7	78.8	-21.86	72.2	-22.01	72.2	NSPS/EG CAI;Barely Open	
RLLC0199	5/29/24 11:57	0.2	0.9	19	79.9	-22.75	85.3	-22.7	85.3	NSPS/EG CAI;Barely Open	
RLLC0199	5/29/24 12:01	0.3	1.3	18.9	79.5	-22.79	82.7	-22.84	82.7	NSPS/EG CAI;Barely Open	
RLLC0199	6/12/24 10:45	56.6	33.4	1.2	8.8	-24.77	85.6	-24.74	85.6	Barely Open;No Adj. Made	
RLLC0199 was monitored on 5/14/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 6/12/24											29
RLLC0205	5/8/24 14:21	36.9	31.6	0	31.5	0.33	90.1	-0.01	90.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0205 was monitored on 5/8/2024 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 5/8/2024											
RLI00018	6/18/24 12:02	26.4	19	8.3	46.3	-21.05	93.5	-19.51	93.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00018	6/18/24 12:07	44.5	29.2	1.9	24.4	-26.35	93.9	-23.75	93.7	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI00018 was monitored on 6/18/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was remonitored and cleared on 6/18/2024											
RLI00137	6/13/24 13:50	34.9	21.8	6.5	36.8	-46.46	88.5	-44.39	88.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00137	6/13/24 13:54	35.8	21.7	6.4	36.1	-41.4	87.2	-40.4	88.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00137	7/10/24 15:39	34.1	20.7	6.9	38.3	-38.97	100.4	-38.91	100.3	NSPS/EG CAI;Barely Open;No Adj. Made	
RLI00137	8/27/24 15:49	59.6	33.5	1.5	5.4	-6.02	105.1	-6.04	105.4		
RLI00137 was monitored on 6/13/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 8/27/24											75
RLI0117D	6/13/24 14:04	20	15.2	11.2	53.6	-30.5	86.7	-32.19	86.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0117D	6/13/24 14:11	18.7	14.1	11.7	55.5	-12.79	86.9	-10.35	86.9	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0117D	7/2/24 15:08	5.9	7.9	12.5	73.7	-5.47	122	-5.33	122	NSPS/EG CAI;Inc. Flow/Vac.	
RLI0117D	7/2/24 15:12	5.8	7.8	12.5	73.9	-4.64	121.2	-4.6	121.2	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0117D	8/14/24 14:44	3.1	4.3	15.4	77.2	-5.13	97.3	-4.57	97.3	NSPS/EG CAI;Inc. Flow/Vac.	
RLI0117D	8/14/24 14:52	8.2	10.2	12.2	69.4	-13.43	97.6	-5.07	96	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0117D	9/10/24 15:57	3.7	4.8	16.6	74.9	-4.3	88.4	-4.16	88.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0117D	9/10/24 16:00	3.6	4.7	16.9	74.8	-4.13	88.1	-3.84	87.7	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0117D	9/19/24 10:54	4.1	5.2	16.5	74.2	-4.6	83.3	-4.58	83.3	NSPS/EG CAI;Barely Open	
RLI0117D	10/3/24 9:49	4.3	6.9	16.4	72.4	-12.93	81.5	-18.09	81.6	NSPS/EG CAI	
RLI0117D was monitored on 6/13/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Well decommissioned pursuant to AN #30065 on 10/3/24											
RLLC0257	6/17/24 11:32	24.7	16.9	10.6	47.8	-40.06	80.8	-39.2	81.5	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0257	6/17/24 11:34	12.6	8.7	15.5	63.2	-38.43	86.6	-38.37	86.8	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0257	7/2/24 10:54	60.5	34.1	0.5	4.9	-0.45	97.3	-0.37	98.2	Barely Open;No Adj. Made	
RLLC0257 was monitored on 6/17/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 7/2/2024											15
RLLC0262	6/3/24 14:04	12.7	9	15.1	63.2	-48.52	81	-48.44	81.1	NSPS/EG CAI;Barely Open	
RLLC0262	6/3/24 14:06	9.6	6.7	16.2	67.5	-47.88	81.3	-47.92	81.4	NSPS/EG CAI;Barely Open	
RLLC0262	7/2/24 10:08	64	35.5	0.2	0.3	-20.46	88.3	-20.36	88.3	No Adj. Made	
RLLC0262 was monitored on 6/3/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 7/2/2024											29
RLLC0273	6/5/24 9:47	25.8	21.5	6.7	46	-24.65	92.7	-24.9	93.5	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0273	6/5/24 9:50	29.2	25	4.1	41.7	-24.45	91.6	-24.42	91.6	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0273 was monitored on 6/5/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was remonitored and cleared on 6/5/2024											
RLI00140	7/10/24 13:38	6.4	5.5	16.4	71.7	-0.14	100.1	-0.13	100.3	NSPS/EG CAI;Barely Open;No Adj. Made	
RLI00140	7/10/24 13:39	7.5	5.5	16.3	70.7	-0.15	103.4	-0.15	103.5	NSPS/EG CAI;Barely Open;No Adj. Made	
RLI00140	8/14/24 8:40	14.7	10.6	15.3	59.4	-0.03	84.2	-0.02	84.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00140	8/14/24 8:49	35.1	27	6.6	31.3	-0.07	88.4	-0.17	88.6	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00140	9/10/24 9:41	40.4	31.3	5.3	23	-0.11	76.4	-0.07	76.2	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00140	9/10/24 10:29	27.3	21.2	10.2	41.3	-0.08	76.9	-0.06	76.9	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI00140	9/19/24 10:40	27.1	19.1	10.8	43	-0.17	79.9	-0.15	79.9	NSPS/EG CAI;Barely Open	
RLI00140	10/3/24 8:57	43.7	31.3	4.5	20.5	-1.38	89.4	-1.37	89.4	Barely Open	
RLI00140 was monitored on 7/10/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 10/3/24											85
RLLC0230	8/14/24 9:41	13.9	11.7	14.3	60.1	-38.95	76	-39.12	75.9	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0230	8/14/24 9:54	16.3	13	13.9	56.8	-41.49	76.1	-26.08	73.2	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0230	8/27/24 12:20	20.6	12.5	12.9	54	-18.97	94.5	-18.97	94.6	NSPS/EG CAI;Barely Open	
RLLC0230	9/11/24 10:14	4	3.3	18	74.7	-37.24	78.8	-32.95	78.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0230	9/11/24 10:23	4.4	3	18.1	74.5	-18.48	81.5	-18.47	81.7	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0230	10/29/24 10:43	3.4	15	16.8	64.8	-17.74	66.3	-17.71	66.4	NSPS/EG CAI;Barely Open;No Adj. Made	
RLLC0230 was monitored on 8/14/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 11/1/2024											79
RLLC0273	8/12/24 10:32	4.9	6	16.5	72.6	-13.95	78.5	-13.63	78.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0273	8/12/24 10:39	4.8	6.5	15.6	73.1	-6.15	79.5	-5.62	79.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0273 was monitored on 8/12/2024 and was found to be in exceedance for Oxygen. Well decommissioned pursuant to AN #30065 on 8/12/24											
RLI00045	9/12/24 13:35	53.3	34.2	0.2	12.3	0.03	93.6	-0.06	92.8	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00045 was monitored on 9/12/2024 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 9/12/2024											
RLI00137	9/13/24 9:19	0	0.1	21	78.9	-36.04	92	-36.43	92.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00137	9/13/24 9:24	0	0.1	20.8	79.1	-35.84	92.2	-35.63	92.2	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00137	9/19/24 10:48	26.7	16.9	9.7	46.7	-37.27	94.3	-38.62	94.3	NSPS/EG CAI	
RLI00137	9/19/24 10:51	26.9	17.3	9.7	46.1	-40.15	93.9	-40.18	94.2	NSPS/EG CAI	
RLI00137	10/3/24 8:03	28.4	17.6	9.1	44.9	-20.65	76.4	-4.03	63.2	NSPS/EG CAI	
RLI00137 was monitored on 9/13/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 11/1/2024											49
RLI0106C	9/10/24 13:33	36.7	29.1	6	28.2	-17.57	102.9	-3.58	102.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0106C	9/10/24 13:56	45.8	36	2.5	15.7	-4.45	104.1	-4.37	104.1	No Adj. Made	
RLI0106C was monitored on 9/10/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was remonitored and cleared on 9/10/2024											
RLLC0176	9/11/24 14:51	11.1	10.5	14	64.4	-42.82	91	-39.28	91	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0176	9/11/24 14:57	11.3	10.4	14.2	64.1	-41.54	90.7	-38.62	90.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0176	10/25/24 10:41	18	17.6	9.5	54.9	-34.27	70.5	-3.29	67.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0176	10/25/24 10:47	14.8	14.3	11.5	59.4	-0.09	69.9	-0.22	70.5	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0176 was monitored on 9/11/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 11/1/2024											50

RLLC0257	9/11/24 11:50	31	22.4	7.7	38.9	-0.22	86.3	-0.17	86.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0257	9/11/24 12:06	40	28.8	4.8	26.4	-0.4	88.2	-0.37	88.2	No Adj. Made	
RLLC0257 was monitored on 9/11/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was remonitored and cleared on 9/11/2024											
RLI0100C	10/9/24 13:46	5.3	4.2	16.8	73.7	-46.68	84.1	-38.55	84.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0100C	10/9/24 13:48	5.3	3.7	17	74	-33.36	84.4	-33.35	84.4	NSPS/EG CAI;Barely Open	
RLI0100C was monitored on 10/9/2024 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 11/1/2024											22

APPENDIX K

MONTHLY LANDFILL GAS FLOW RATES

REDWOOD LANDFILL, INC.
Novato, CA

Yearly LFG for A-51 & A-60 Flares and S-64 & S-65 Engines (Engines #1 & #2)

Month	A-51 Flare Total Flow Corrected to HHV of 500 BTU/scf (scf)	A-60 Flare Total Flow Corrected to HHV of 500 BTU/scf (scf)	S-64 Engine Total Flow Corrected to HHV of 500 BTU/scf (scf)	S-65 Engine Total Flow Corrected to HHV of 500 BTU/scf (scf)	Combined A-51, A-60, S64, and S65 Corrected to HHV of 500 BTU/scf (scf)	Consecutive 12-Month Corrected Total for A-51 Flare (scf)	Consecutive 12-Month Corrected Total for A-60 Flare (scf)	Consecutive 12-Month Corrected Total for S-64 Engine (#1) (scf)	Consecutive 12-Month Corrected Total for S-65 Engine (#2) (scf)	Combined A-51, A-60, S-64, and S-65 Corrected 12-Month Throughput[1]
Nov-23	0	94,322,025	0	0	94,322,025	291,768,959	760,411,344	67,152,182	102,069,396	1,221,401,881
Dec-23	193,176	99,007,388	0	0	99,200,564	291,904,975	817,992,603	45,441,233	81,957,922	1,237,296,732
Jan-24	37,088,307	70,782,473	0	0	107,870,780	327,394,271	847,686,609	24,996,616	62,843,700	1,262,921,196
Feb-24	48,183,426	50,304,208	0	0	98,487,634	375,577,697	840,749,244	713,920	39,181,922	1,256,222,783
Mar-24	55,174,366	51,858,639	0	0	107,033,005	411,135,405	821,286,387	47,369	22,299,103	1,254,768,264
Apr-24	13,486,696	59,997,633	16,670,500	17,766,980	107,921,810	380,758,434	826,817,160	16,717,869	28,552,190	1,252,845,654
May-24	260,332	64,582,365	24,320,114	23,784,853	112,947,664	332,262,795	829,231,720	40,990,614	41,551,834	1,244,036,963
Jun-24	1,473,660	57,635,119	22,529,166	20,820,139	102,458,084	281,535,009	825,069,262	63,519,780	62,371,973	1,232,496,025
Jul-24	0	76,861,849	9,343,866	14,397,658	100,603,373	226,455,686	844,376,342	72,863,646	76,769,631	1,220,465,305
Aug-24	0	61,302,316	15,356,685	17,992,612	94,651,612	177,494,624	849,484,473	88,220,331	94,762,242	1,209,961,670
Sep-24	0	89,956,266	0	19,015	89,975,281	155,859,963	871,806,725	88,220,331	94,781,257	1,210,668,277
Oct-24	0	76,037,545	3,111,731	1,830,788	80,980,064	155,859,963	852,647,825	91,332,063	96,612,046	1,196,451,897

Notes:

[1]Pursuant to Title V Permit Condition Number 19867 Part 20, as modified in renewal application dated September 22, 2016 to match BAAQMD Permit To Operate, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 and A-60 Landfill Gas Flares shall each not exceed 4,320,000 scf during any one day, and the combined throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 and A-60 Flares shall not exceed 2,625 million scf during any consecutive 12-month period.

HHV= higher heating value
BTU = British Thermal Units
scf= standard cubic feet

MONTHLY LFG Input to Flare (A-51)
WM - REDWOOD LANDFILL, Novato, CA

A-51 (Flare)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMscf)[2]	SO2 Emissions (tons)[2]
May-24	744.00	740.57	3.43	1,195	52.2	246,160	260,332	128,496	130	0.008	0.00	67.56	0.01
June-24	720.00	697.00	23.00	1,010	52.2	1,393,437	1,473,660	727,374	737	0.008	0.00	67.56	0.05
July-24	744.00	744.00	0.00	0		0	0	0	0	0.008	0.00	40.36	0.00
August-24	744.00	744.00	0.00	0		0	0	0	0	0.008	0.00	40.36	0.00
September-24	720.00	720.00	0.00	0		0	0	0	0	0.008	0.00	40.36	0.00
October-24	744.00	744.00	0.00	0		0	0	0	0	0.008	0.00	TBD	TBD
TOTAL/ AVG:	**4,416.00**	**4,389.57**	**26.43**	**1,034**	**52.2**	**1,639,597**	**1,733,992**	**855,870**	**867.00**	**--**	**--**	**--**	**--**

NOTES:

The A-51 Flare commenced operation on June 21, 2005.

[1]CH_4 content and CO emission factor was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.

[2]SO_2 emission factors are calculated on a quarterly basis and are derived from the average of all weekly samples and the quarterly lab sample (flare inlets only). SO2 Emissions are updated at the end of each quarter when the quarterly average emission factor is calculated.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value
TBD=To Be Determined.

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: May-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
5/1/2024	0.00	52.2	0	0	0	1,013	0	0
5/2/2024	0.00	52.2	0	0	0	1,013	0	0
5/3/2024	0.00	52.2	0	0	0	1,013	0	0
5/4/2024	0.00	52.2	0	0	0	1,013	0	0
5/5/2024	0.00	52.2	0	0	0	1,013	0	0
5/6/2024	0.00	52.2	0	0	0	1,013	0	0
5/7/2024	0.00	52.2	0	0	0	1,013	0	0
5/8/2024	0.00	52.2	0	0	0	1,013	0	0
5/9/2024	0.00	52.2	0	0	0	1,013	0	0
5/10/2024	0.00	52.2	0	0	0	1,013	0	0
5/11/2024	0.00	52.2	0	0	0	1,013	0	0
5/12/2024	0.00	52.2	0	0	0	1,013	0	0
5/13/2024	0.00	52.2	0	0	0	1,013	0	0
5/14/2024	0.00	52.2	0	0	0	1,013	0	0
5/15/2024	0.00	52.2	0	0	0	1,013	0	0
5/16/2024	2.57	52.2	1,195	184,058	96,078	1,013	97	194,655
5/17/2024	0.00	52.2	0	0	0	1,013	0	0
5/18/2024	0.00	52.2	0	0	0	1,013	0	0
5/19/2024	0.00	52.2	0	0	0	1,013	0	0
5/20/2024	0.00	52.2	0	0	0	1,013	0	0
5/21/2024	0.87	52.2	1,194	62,102	32,417	1,013	33	65,677
5/22/2024	0.00	52.2	0	0	0	1,013	0	0
5/23/2024	0.00	52.2	0	0	0	1,013	0	0
5/24/2024	0.00	52.2	0	0	0	1,013	0	0
5/25/2024	0.00	52.2	0	0	0	1,013	0	0
5/26/2024	0.00	52.2	0	0	0	1,013	0	0
5/27/2024	0.00	52.2	0	0	0	1,013	0	0
5/28/2024	0.00	52.2	0	0	0	1,013	0	0
5/29/2024	0.00	52.2	0	0	0	1,013	0	0
5/30/2024	0.00	52.2	0	0	0	1,013	0	0
5/31/2024	0.00	52.2	0	0	0	1,013	0	0
Totals/ Average:	**3.43**	**52.2**	**1,195**	**246,160.0**	**128,496**	**1,013**	**130**	**260,332**
						Maximum:	**97**	**194,655**

Notes:

The A-51 Flare commenced operation on June 21, 2005.

*CH_4 content was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Jun-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
6/1/2024	0.00	52.2	0	0	0	1,013	0	0
6/2/2024	0.00	52.2	0	0	0	1,013	0	0
6/3/2024	0.00	52.2	0	0	0	1,013	0	0
6/4/2024	0.00	52.2	0	0	0	1,013	0	0
6/5/2024	16.50	52.2	996	985,779	514,577	1,013	521	1,042,532
6/6/2024	4.20	52.2	1,001	252,207	131,652	1,013	133	266,727
6/7/2024	0.00	52.2	0	0	0	1,013	0	0
6/8/2024	0.00	52.2	0	0	0	1,013	0	0
6/9/2024	0.00	52.2	0	0	0	1,013	0	0
6/10/2024	0.00	52.2	0	0	0	1,013	0	0
6/11/2024	2.30	52.2	1,126	155,451	81,145	1,013	82	164,401
6/12/2024	0.00	52.2	0	0	0	1,013	0	0
6/13/2024	0.00	52.2	0	0	0	1,013	0	0
6/14/2024	0.00	52.2	0	0	0	1,013	0	0
6/15/2024	0.00	52.2	0	0	0	1,013	0	0
6/16/2024	0.00	52.2	0	0	0	1,013	0	0
6/17/2024	0.00	52.2	0	0	0	1,013	0	0
6/18/2024	0.00	52.2	0	0	0	1,013	0	0
6/19/2024	0.00	52.2	0	0	0	1,013	0	0
6/20/2024	0.00	52.2	0	0	0	1,013	0	0
6/21/2024	0.00	52.2	0	0	0	1,013	0	0
6/22/2024	0.00	52.2	0	0	0	1,013	0	0
6/23/2024	0.00	52.2	0	0	0	1,013	0	0
6/24/2024	0.00	52.2	0	0	0	1,013	0	0
6/25/2024	0.00	52.2	0	0	0	1,013	0	0
6/26/2024	0.00	52.2	0	0	0	1,013	0	0
6/27/2024	0.00	52.2	0	0	0	1,013	0	0
6/28/2024	0.00	52.2	0	0	0	1,013	0	0
6/29/2024	0.00	52.2	0	0	0	1,013	0	0
6/30/2024	0.00	52.2	0	0	0	1,013	0	0
Totals/ Average:	**23.00**	**52.2**	**1,010**	**1,393,437.0**	**727,374**	**1,013**	**737**	**1,473,660**
						Maximum:	**521**	**1,042,532**

Notes:

The A-51 Flare commenced operation on June 21, 2005.

*CH_4 content was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.
scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Jul-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
7/1/2024	0.00	52.2	0	0	0	1,013	0	0
7/2/2024	0.00	52.2	0	0	0	1,013	0	0
7/3/2024	0.00	52.2	0	0	0	1,013	0	0
7/4/2024	0.00	52.2	0	0	0	1,013	0	0
7/5/2024	0.00	52.2	0	0	0	1,013	0	0
7/6/2024	0.00	52.2	0	0	0	1,013	0	0
7/7/2024	0.00	52.2	0	0	0	1,013	0	0
7/8/2024	0.00	52.2	0	0	0	1,013	0	0
7/9/2024	0.00	52.2	0	0	0	1,013	0	0
7/10/2024	0.00	52.2	0	0	0	1,013	0	0
7/11/2024	0.00	52.2	0	0	0	1,013	0	0
7/12/2024	0.00	52.2	0	0	0	1,013	0	0
7/13/2024	0.00	52.2	0	0	0	1,013	0	0
7/14/2024	0.00	52.2	0	0	0	1,013	0	0
7/15/2024	0.00	52.2	0	0	0	1,013	0	0
7/16/2024	0.00	52.2	0	0	0	1,013	0	0
7/17/2024	0.00	52.2	0	0	0	1,013	0	0
7/18/2024	0.00	52.2	0	0	0	1,013	0	0
7/19/2024	0.00	52.2	0	0	0	1,013	0	0
7/20/2024	0.00	52.2	0	0	0	1,013	0	0
7/21/2024	0.00	52.2	0	0	0	1,013	0	0
7/22/2024	0.00	52.2	0	0	0	1,013	0	0
7/23/2024	0.00	52.2	0	0	0	1,013	0	0
7/24/2024	0.00	52.2	0	0	0	1,013	0	0
7/25/2024	0.00	52.2	0	0	0	1,013	0	0
7/26/2024	0.00	52.2	0	0	0	1,013	0	0
7/27/2024	0.00	52.2	0	0	0	1,013	0	0
7/28/2024	0.00	52.2	0	0	0	1,013	0	0
7/29/2024	0.00	52.2	0	0	0	1,013	0	0
7/30/2024	0.00	52.2	0	0	0	1,013	0	0
7/31/2024	0.00	52.2	0	0	0	1,013	0	0
Totals/ Average:	**0.00**	**#DIV/0!**	**#DIV/0!**	**0.0**	**0**	**1,013**	**0**	**0**
						Maximum:	**0**	**0**

Notes:
The A-51 Flare commenced operation on June 21, 2005.
*CH_4 content was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.
scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Aug-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
8/1/2024	0.00	52.2	0	0	0	1,013	0	0
8/2/2024	0.00	52.2	0	0	0	1,013	0	0
8/3/2024	0.00	52.2	0	0	0	1,013	0	0
8/4/2024	0.00	52.2	0	0	0	1,013	0	0
8/5/2024	0.00	52.2	0	0	0	1,013	0	0
8/6/2024	0.00	52.2	0	0	0	1,013	0	0
8/7/2024	0.00	52.2	0	0	0	1,013	0	0
8/8/2024	0.00	52.2	0	0	0	1,013	0	0
8/9/2024	0.00	52.2	0	0	0	1,013	0	0
8/10/2024	0.00	52.2	0	0	0	1,013	0	0
8/11/2024	0.00	52.2	0	0	0	1,013	0	0
8/12/2024	0.00	52.2	0	0	0	1,013	0	0
8/13/2024	0.00	52.2	0	0	0	1,013	0	0
8/14/2024	0.00	52.2	0	0	0	1,013	0	0
8/15/2024	0.00	52.2	0	0	0	1,013	0	0
8/16/2024	0.00	52.2	0	0	0	1,013	0	0
8/17/2024	0.00	52.2	0	0	0	1,013	0	0
8/18/2024	0.00	52.2	0	0	0	1,013	0	0
8/19/2024	0.00	52.2	0	0	0	1,013	0	0
8/20/2024	0.00	52.2	0	0	0	1,013	0	0
8/21/2024	0.00	52.2	0	0	0	1,013	0	0
8/22/2024	0.00	52.2	0	0	0	1,013	0	0
8/23/2024	0.00	52.2	0	0	0	1,013	0	0
8/24/2024	0.00	52.2	0	0	0	1,013	0	0
8/25/2024	0.00	52.2	0	0	0	1,013	0	0
8/26/2024	0.00	52.2	0	0	0	1,013	0	0
8/27/2024	0.00	52.2	0	0	0	1,013	0	0
8/28/2024	0.00	52.2	0	0	0	1,013	0	0
8/29/2024	0.00	52.2	0	0	0	1,013	0	0
8/30/2024	0.00	52.2	0	0	0	1,013	0	0
8/31/2024	0.00	52.2	0	0	0	1,013	0	0
Totals/ Average:	**0.00**			**0.0**	**0**	**1,013**	**0**	**0**
						Maximum:	**0**	**0**

Notes:
The A-51 Flare commenced operation on June 21, 2005.
*CH_4 content was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.
scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Sep-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
9/1/2024	0.00	52.2	0	0	0	1,013	0	0
9/2/2024	0.00	52.2	0	0	0	1,013	0	0
9/3/2024	0.00	52.2	0	0	0	1,013	0	0
9/4/2024	0.00	52.2	0	0	0	1,013	0	0
9/5/2024	0.00	52.2	0	0	0	1,013	0	0
9/6/2024	0.00	52.2	0	0	0	1,013	0	0
9/7/2024	0.00	52.2	0	0	0	1,013	0	0
9/8/2024	0.00	52.2	0	0	0	1,013	0	0
9/9/2024	0.00	52.2	0	0	0	1,013	0	0
9/10/2024	0.00	52.2	0	0	0	1,013	0	0
9/11/2024	0.00	52.2	0	0	0	1,013	0	0
9/12/2024	0.00	52.2	0	0	0	1,013	0	0
9/13/2024	0.00	52.2	0	0	0	1,013	0	0
9/14/2024	0.00	52.2	0	0	0	1,013	0	0
9/15/2024	0.00	52.2	0	0	0	1,013	0	0
9/16/2024	0.00	52.2	0	0	0	1,013	0	0
9/17/2024	0.00	52.2	0	0	0	1,013	0	0
9/18/2024	0.00	52.2	0	0	0	1,013	0	0
9/19/2024	0.00	52.2	0	0	0	1,013	0	0
9/20/2024	0.00	52.2	0	0	0	1,013	0	0
9/21/2024	0.00	52.2	0	0	0	1,013	0	0
9/22/2024	0.00	52.2	0	0	0	1,013	0	0
9/23/2024	0.00	52.2	0	0	0	1,013	0	0
9/24/2024	0.00	52.2	0	0	0	1,013	0	0
9/25/2024	0.00	52.2	0	0	0	1,013	0	0
9/26/2024	0.00	52.2	0	0	0	1,013	0	0
9/27/2024	0.00	52.2	0	0	0	1,013	0	0
9/28/2024	0.00	52.2	0	0	0	1,013	0	0
9/29/2024	0.00	52.2	0	0	0	1,013	0	0
9/30/2024	0.00	52.2	0	0	0	1,013	0	0
Totals/ Average:	**0.00**			**0.0**	**0**	**1,013**	**0**	**0**
						Maximum:	**0**	**0**

Notes:

The A-51 Flare commenced operation on June 21, 2005.

*CH4 content was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Oct-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
10/1/2024	0.00	52.2	0	0	0	1,013	0	0
10/2/2024	0.00	52.2	0	0	0	1,013	0	0
10/3/2024	0.00	52.2	0	0	0	1,013	0	0
10/4/2024	0.00	52.2	0	0	0	1,013	0	0
10/5/2024	0.00	52.2	0	0	0	1,013	0	0
10/6/2024	0.00	52.2	0	0	0	1,013	0	0
10/7/2024	0.00	52.2	0	0	0	1,013	0	0
10/8/2024	0.00	52.2	0	0	0	1,013	0	0
10/9/2024	0.00	52.2	0	0	0	1,013	0	0
10/10/2024	0.00	52.2	0	0	0	1,013	0	0
10/11/2024	0.00	52.2	0	0	0	1,013	0	0
10/12/2024	0.00	52.2	0	0	0	1,013	0	0
10/13/2024	0.00	52.2	0	0	0	1,013	0	0
10/14/2024	0.00	52.2	0	0	0	1,013	0	0
10/15/2024	0.00	52.2	0	0	0	1,013	0	0
10/16/2024	0.00	52.2	0	0	0	1,013	0	0
10/17/2024	0.00	52.2	0	0	0	1,013	0	0
10/18/2024	0.00	52.2	0	0	0	1,013	0	0
10/19/2024	0.00	52.2	0	0	0	1,013	0	0
10/20/2024	0.00	52.2	0	0	0	1,013	0	0
10/21/2024	0.00	52.2	0	0	0	1,013	0	0
10/22/2024	0.00	52.2	0	0	0	1,013	0	0
10/23/2024	0.00	52.2	0	0	0	1,013	0	0
10/24/2024	0.00	52.2	0	0	0	1,013	0	0
10/25/2024	0.00	52.2	0	0	0	1,013	0	0
10/26/2024	0.00	52.2	0	0	0	1,013	0	0
10/27/2024	0.00	52.2	0	0	0	1,013	0	0
10/28/2024	0.00	52.2	0	0	0	1,013	0	0
10/29/2024	0.00	52.2	0	0	0	1,013	0	0
10/30/2024	0.00	52.2	0	0	0	1,013	0	0
10/31/2024	0.00	52.2	0	0	0	1,013	0	0
Totals/ Average:	**0.00**			**0.0**	**0**	**1,013**	**0**	**0**
						Maximum:	**0**	**0**

Notes:
The A-51 Flare commenced operation on June 21, 2005.
*CH_4 content was determined from the January 12, 2023 (March 9, 2023 - March 7, 2024) and January 10, 2024 (March 8, 2024 - present) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.
scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

MONTHLY LFG Input to Flare (A-60)
WM - REDWOOD LANDFILL, Novato, CA

A-60 (Flare)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMBtu)[2]	SO2 Emissions (tons)[2]
May-24	744.00	3.80	740.20	1,501	47.8	66,641,407	64,582,365	31,876,784	32,291	0.084	1.36	67.56	2.25
June-24	720.00	0.53	719.47	1,378	47.8	59,472,666	57,635,119	28,447,739	28,818	0.084	1.21	67.56	2.01
July-24	744.00	5.57	738.43	1,790	47.8	79,312,391	76,861,849	37,937,734	38,431	0.084	1.62	40.36	1.60
August-24	744.00	0.73	743.27	1,418	47.8	63,256,782	61,302,316	30,257,806	30,651	0.084	1.29	40.36	1.28
September-24	720.00	3.10	716.90	2,158	47.8	92,824,290	89,956,266	44,400,921	44,978	0.084	1.89	40.36	1.87
October-24	744.00	3.97	740.03	1,927	43.9	85,553,034	76,037,545	37,530,871	38,019	0.084	1.60	TBD	TBD
TOTAL/ AVG:	**4,416.00**	**17.70**	**4,398.30**	**1,694**	**47.2**	**447,060,570**	**426,375,459**	**210,451,855**	**213,187.73**	**--**	**--**	**--**	**--**

NOTES:

The A-60 Flare commenced operation on April 1, 2009.

[1]CH_4 content and CO emission factor was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - current) source tests.

[2]SO_2 emission factors are calculated on a quarterly basis and are derived from the average of all weekly samples and the quarterly lab sample (flare inlets only). SO2 Emissions are updated at the end of each quarter when the quarterly average emission factor is calculated.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value
TBD=To Be Determined.

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: May-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
5/1/2024	24.00	47.8	1,524	2,194,169	1,049,543	1,013	1,063	2,126,375
5/2/2024	24.00	47.8	1,508	2,171,670	1,038,781	1,013	1,052	2,104,571
5/3/2024	24.00	47.8	1,537	2,213,295	1,058,692	1,013	1,072	2,144,910
5/4/2024	24.00	47.8	1,529	2,202,317	1,053,441	1,013	1,067	2,134,271
5/5/2024	24.00	47.8	1,535	2,210,534	1,057,371	1,013	1,071	2,142,234
5/6/2024	24.00	47.8	1,536	2,212,008	1,058,076	1,013	1,072	2,143,663
5/7/2024	24.00	47.8	1,515	2,182,240	1,043,837	1,013	1,057	2,114,815
5/8/2024	24.00	47.8	1,524	2,194,144	1,049,531	1,013	1,063	2,126,351
5/9/2024	24.00	47.8	1,555	2,239,349	1,071,155	1,013	1,085	2,170,159
5/10/2024	24.00	47.8	1,551	2,232,743	1,067,995	1,013	1,082	2,163,757
5/11/2024	24.00	47.8	1,544	2,223,023	1,063,345	1,013	1,077	2,154,337
5/12/2024	24.00	47.8	1,532	2,206,545	1,055,463	1,013	1,069	2,138,369
5/13/2024	24.00	47.8	1,531	2,204,608	1,054,537	1,013	1,068	2,136,491
5/14/2024	24.00	47.8	1,527	2,198,857	1,051,786	1,013	1,065	2,130,918
5/15/2024	24.00	47.8	1,544	2,222,786	1,063,232	1,013	1,077	2,154,108
5/16/2024	21.27	47.8	1,553	1,981,570	947,850	1,013	960	1,920,345
5/17/2024	24.00	47.8	1,529	2,201,564	1,053,081	1,013	1,067	2,133,542
5/18/2024	24.00	47.8	1,529	2,202,117	1,053,345	1,013	1,067	2,134,077
5/19/2024	24.00	47.8	1,531	2,205,083	1,054,764	1,013	1,068	2,136,952
5/20/2024	24.00	47.8	1,592	2,292,522	1,096,589	1,013	1,111	2,221,689
5/21/2024	22.93	47.8	1,557	2,142,147	1,024,660	1,013	1,038	2,075,960
5/22/2024	24.00	47.8	1,574	2,267,150	1,084,453	1,013	1,099	2,197,101
5/23/2024	24.00	47.8	1,521	2,190,071	1,047,583	1,013	1,061	2,122,404
5/24/2024	24.00	47.8	1,479	2,129,796	1,018,752	1,013	1,032	2,063,991
5/25/2024	24.00	47.8	1,458	2,099,863	1,004,434	1,013	1,017	2,034,983
5/26/2024	24.00	47.8	1,478	2,128,928	1,018,337	1,013	1,032	2,063,150
5/27/2024	24.00	47.8	1,473	2,121,345	1,014,709	1,013	1,028	2,055,801
5/28/2024	24.00	47.8	1,403	2,020,911	966,668	1,013	979	1,958,470
5/29/2024	24.00	47.8	1,287	1,852,751	886,232	1,013	898	1,795,506
5/30/2024	24.00	47.8	1,283	1,846,904	883,435	1,013	895	1,789,840
5/31/2024	24.00	47.8	1,285	1,850,397	885,106	1,013	897	1,793,225
Totals/ Average:	**740.20**	**47.8**	**1,501**	**66,641,407.0**	**31,876,784**	**1,013**	**32,291**	**64,582,365**
						Maximum:	**1,111**	**2,221,689**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2022 (9/11/22 - 9/7/23) and July 12, 2023 (9/8/23 - current) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Jun-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
6/1/2024	24.00	47.8	1,290	1,858,204	888,840	1,013	900	1,800,790
6/2/2024	24.00	47.8	1,285	1,850,805	885,301	1,013	897	1,793,620
6/3/2024	24.00	47.8	1,421	2,046,306	978,816	1,013	992	1,983,081
6/4/2024	24.00	47.8	1,543	2,221,781	1,062,751	1,013	1,077	2,153,134
6/5/2024	24.00	47.8	1,304	1,877,248	897,950	1,013	910	1,819,246
6/6/2024	24.00	47.8	1,962	2,825,709	1,351,630	1,013	1,369	2,738,402
6/7/2024	24.00	47.8	2,028	2,919,985	1,396,725	1,013	1,415	2,829,765
6/8/2024	24.00	47.8	1,581	2,276,357	1,088,857	1,013	1,103	2,206,024
6/9/2024	24.00	47.8	1,563	2,250,766	1,076,616	1,013	1,091	2,181,223
6/10/2024	24.00	47.8	1,646	2,370,761	1,134,013	1,013	1,149	2,297,511
6/11/2024	23.47	47.8	1,614	2,272,877	1,087,192	1,013	1,101	2,202,651
6/12/2024	24.00	47.8	1,499	2,158,446	1,032,456	1,013	1,046	2,091,756
6/13/2024	24.00	47.8	1,311	1,887,749	902,973	1,013	915	1,829,423
6/14/2024	24.00	47.8	1,223	1,760,741	842,221	1,013	853	1,706,339
6/15/2024	24.00	47.8	1,218	1,754,458	839,215	1,013	850	1,700,250
6/16/2024	24.00	47.8	1,214	1,747,566	835,918	1,013	847	1,693,571
6/17/2024	24.00	47.8	1,194	1,719,443	822,466	1,013	833	1,666,317
6/18/2024	24.00	47.8	1,199	1,725,956	825,582	1,013	836	1,672,629
6/19/2024	24.00	47.8	1,142	1,644,203	786,477	1,013	797	1,593,401
6/20/2024	24.00	47.8	1,135	1,634,803	781,980	1,013	792	1,584,292
6/21/2024	24.00	47.8	1,235	1,778,364	850,650	1,013	862	1,723,417
6/22/2024	24.00	47.8	1,349	1,942,493	929,159	1,013	941	1,882,475
6/23/2024	24.00	47.8	1,368	1,969,549	942,100	1,013	954	1,908,695
6/24/2024	24.00	47.8	1,369	1,971,619	943,090	1,013	955	1,910,701
6/25/2024	24.00	47.8	1,360	1,958,805	936,961	1,013	949	1,898,283
6/26/2024	24.00	47.8	1,355	1,951,194	933,320	1,013	945	1,890,907
6/27/2024	24.00	47.8	1,255	1,806,624	864,168	1,013	875	1,750,804
6/28/2024	24.00	47.8	1,224	1,761,885	842,768	1,013	854	1,707,447
6/29/2024	24.00	47.8	1,221	1,758,946	841,362	1,013	852	1,704,599
6/30/2024	24.00	47.8	1,228	1,769,023	846,182	1,013	857	1,714,365
Totals/ Average:	**719.47**	**47.8**	**1,378**	**59,472,666.0**	**28,447,739**	**1,013**	**28,818**	**57,635,119**
						Maximum:	**1,415**	**2,829,765**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2022 (9/11/22 - 9/7/23) and July 12, 2023 (9/8/23 - current) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Jul-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
7/1/2024	24.00	47.8	1,224	1,762,606	843,113	1,013	854	1,708,146
7/2/2024	20.73	47.8	1,339	1,665,570	796,697	1,013	807	1,614,108
7/3/2024	21.70	47.8	1,409	1,833,979	877,253	1,013	889	1,777,314
7/4/2024	24.00	47.8	1,458	2,099,243	1,004,137	1,013	1,017	2,034,382
7/5/2024	24.00	47.8	1,546	2,226,813	1,065,158	1,013	1,079	2,158,010
7/6/2024	24.00	47.8	1,378	1,984,060	949,041	1,013	961	1,922,758
7/7/2024	24.00	47.8	1,362	1,961,779	938,384	1,013	951	1,901,165
7/8/2024	24.00	47.8	1,355	1,950,559	933,017	1,013	945	1,890,292
7/9/2024	24.00	47.8	1,396	2,010,355	961,619	1,013	974	1,948,240
7/10/2024	24.00	47.8	1,381	1,988,000	950,926	1,013	963	1,926,576
7/11/2024	24.00	47.8	1,353	1,948,001	931,793	1,013	944	1,887,813
7/12/2024	24.00	47.8	1,733	2,495,145	1,193,510	1,013	1,209	2,418,052
7/13/2024	24.00	47.8	2,173	3,129,740	1,497,058	1,013	1,517	3,033,039
7/14/2024	24.00	47.8	2,176	3,133,184	1,498,705	1,013	1,518	3,036,377
7/15/2024	24.00	47.8	2,180	3,139,689	1,501,817	1,013	1,521	3,042,681
7/16/2024	24.00	47.8	2,139	3,080,082	1,473,305	1,013	1,492	2,984,916
7/17/2024	24.00	47.8	2,094	3,015,276	1,442,306	1,013	1,461	2,922,112
7/18/2024	24.00	47.8	2,211	3,183,211	1,522,635	1,013	1,542	3,084,858
7/19/2024	24.00	47.8	2,349	3,381,940	1,617,694	1,013	1,639	3,277,447
7/20/2024	24.00	47.8	2,349	3,381,988	1,617,716	1,013	1,639	3,277,494
7/21/2024	24.00	47.8	2,348	3,381,672	1,617,565	1,013	1,639	3,277,187
7/22/2024	24.00	47.8	2,348	3,381,637	1,617,549	1,013	1,639	3,277,153
7/23/2024	24.00	47.8	2,303	3,315,810	1,586,061	1,013	1,607	3,213,360
7/24/2024	24.00	47.8	1,878	2,704,592	1,293,696	1,013	1,311	2,621,027
7/25/2024	24.00	47.8	1,663	2,394,351	1,145,297	1,013	1,160	2,320,372
7/26/2024	24.00	47.8	1,728	2,487,965	1,190,076	1,013	1,206	2,411,093
7/27/2024	24.00	47.8	1,710	2,461,710	1,177,517	1,013	1,193	2,385,650
7/28/2024	24.00	47.8	1,705	2,455,096	1,174,353	1,013	1,190	2,379,240
7/29/2024	24.00	47.8	1,700	2,448,511	1,171,204	1,013	1,186	2,372,859
7/30/2024	24.00	47.8	1,709	2,461,566	1,177,448	1,013	1,193	2,385,510
7/31/2024	24.00	47.8	1,700	2,448,261	1,171,084	1,013	1,186	2,372,616
Totals/ Average:	**738.43**	**47.8**	**1,790**	**79,312,391.0**	**37,937,734**	**1,013**	**38,431**	**76,861,849**
						Maximum:	**1,639**	**3,277,494**

Notes:
The A-60 Flare commenced operation on April 1, 2009.
*CH_4 content was determined from the July 13, 2022 (9/11/22 - 9/7/23) and July 12, 2023 (9/8/23 - current) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.
scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Aug-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
8/1/2024	24.00	47.8	1,421	2,045,714	978,533	1,013	991	1,982,507
8/2/2024	24.00	47.8	1,277	1,838,453	879,393	1,013	891	1,781,650
8/3/2024	24.00	47.8	1,279	1,841,966	881,073	1,013	893	1,785,054
8/4/2024	24.00	47.8	1,262	1,817,578	869,408	1,013	881	1,761,420
8/5/2024	24.00	47.8	1,239	1,784,290	853,485	1,013	865	1,729,160
8/6/2024	23.90	47.8	1,336	1,916,188	916,576	1,013	928	1,856,983
8/7/2024	24.00	47.8	1,427	2,055,063	983,004	1,013	996	1,991,567
8/8/2024	24.00	47.8	1,425	2,052,284	981,675	1,013	994	1,988,874
8/9/2024	24.00	47.8	1,422	2,047,466	979,371	1,013	992	1,984,205
8/10/2024	23.83	47.8	1,453	2,077,776	993,869	1,013	1,007	2,013,578
8/11/2024	24.00	47.8	1,631	2,348,290	1,123,265	1,013	1,138	2,275,734
8/12/2024	24.00	47.8	1,451	2,089,063	999,268	1,013	1,012	2,024,517
8/13/2024	24.00	47.8	1,285	1,850,692	885,247	1,013	897	1,793,511
8/14/2024	24.00	47.8	1,157	1,665,429	796,630	1,013	807	1,613,972
8/15/2024	24.00	47.8	1,130	1,627,259	778,372	1,013	788	1,576,981
8/16/2024	24.00	47.8	1,119	1,610,989	770,589	1,013	781	1,561,214
8/17/2024	24.00	47.8	1,104	1,589,509	760,315	1,013	770	1,540,397
8/18/2024	24.00	47.8	1,110	1,597,900	764,328	1,013	774	1,548,529
8/19/2024	23.87	47.8	1,171	1,677,402	802,357	1,013	813	1,625,575
8/20/2024	24.00	47.8	1,136	1,635,235	782,187	1,013	792	1,584,711
8/21/2024	24.00	47.8	1,094	1,575,250	753,494	1,013	763	1,526,579
8/22/2024	23.83	47.8	1,168	1,670,911	799,252	1,013	810	1,619,284
8/23/2024	24.00	47.8	1,340	1,929,083	922,744	1,013	935	1,869,479
8/24/2024	24.00	47.8	1,302	1,874,619	896,692	1,013	908	1,816,698
8/25/2024	24.00	47.8	1,307	1,881,501	899,984	1,013	912	1,823,368
8/26/2024	24.00	47.8	1,308	1,883,062	900,731	1,013	912	1,824,880
8/27/2024	23.90	47.8	1,669	2,394,060	1,145,158	1,013	1,160	2,320,090
8/28/2024	23.93	47.8	2,267	3,255,840	1,557,376	1,013	1,578	3,155,243
8/29/2024	24.00	47.8	2,240	3,225,890	1,543,050	1,013	1,563	3,126,219
8/30/2024	24.00	47.8	2,225	3,204,099	1,532,626	1,013	1,553	3,105,101
8/31/2024	24.00	47.8	2,218	3,193,921	1,527,758	1,013	1,548	3,095,237
Totals/ Average:	**743.27**	**47.8**	**1,418**	**63,256,782.0**	**30,257,806**	**1,013**	**30,651**	**61,302,316**
						Maximum:	**1,578**	**3,155,243**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2022 (9/11/22 - 9/7/23) and July 12, 2023 (9/8/23 - current) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Sep-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
9/1/2024	24.00	47.8	2,220	3,196,840	1,529,154	1,013	1,549	3,098,066
9/2/2024	21.27	47.8	2,283	2,913,371	1,393,561	1,013	1,412	2,823,356
9/3/2024	24.00	47.8	2,349	3,383,026	1,618,213	1,013	1,639	3,278,499
9/4/2024	23.90	47.8	2,295	3,291,657	1,574,508	1,013	1,595	3,189,954
9/5/2024	24.00	47.8	2,217	3,193,077	1,527,354	1,013	1,547	3,094,419
9/6/2024	24.00	47.8	2,191	3,154,851	1,509,069	1,013	1,529	3,057,374
9/7/2024	24.00	47.8	2,160	3,110,022	1,487,626	1,013	1,507	3,013,931
9/8/2024	24.00	47.8	2,147	3,091,882	1,478,949	1,013	1,498	2,996,351
9/9/2024	24.00	47.8	2,147	3,091,137	1,478,593	1,013	1,498	2,995,629
9/10/2024	24.00	47.8	2,031	2,923,921	1,398,608	1,013	1,417	2,833,580
9/11/2024	24.00	47.8	2,208	3,178,847	1,520,547	1,013	1,540	3,080,629
9/12/2024	24.00	47.8	2,214	3,188,227	1,525,034	1,013	1,545	3,089,719
9/13/2024	24.00	47.8	2,191	3,154,509	1,508,906	1,013	1,529	3,057,043
9/14/2024	24.00	47.8	2,164	3,116,670	1,490,806	1,013	1,510	3,020,373
9/15/2024	23.90	47.8	2,165	3,104,903	1,485,178	1,013	1,504	3,008,970
9/16/2024	24.00	47.8	2,178	3,136,684	1,500,379	1,013	1,520	3,039,769
9/17/2024	24.00	47.8	2,160	3,110,329	1,487,773	1,013	1,507	3,014,228
9/18/2024	23.83	47.8	2,020	2,888,944	1,381,877	1,013	1,400	2,799,683
9/19/2024	24.00	47.8	2,179	3,138,475	1,501,236	1,013	1,521	3,041,504
9/20/2024	24.00	47.8	2,153	3,100,978	1,483,300	1,013	1,503	3,005,166
9/21/2024	24.00	47.8	2,124	3,057,915	1,462,702	1,013	1,482	2,963,434
9/22/2024	24.00	47.8	2,123	3,056,519	1,462,034	1,013	1,481	2,962,081
9/23/2024	24.00	47.8	2,116	3,046,744	1,457,358	1,013	1,476	2,952,608
9/24/2024	24.00	47.8	2,114	3,043,913	1,456,004	1,013	1,475	2,949,864
9/25/2024	24.00	47.8	2,104	3,029,267	1,448,998	1,013	1,468	2,935,671
9/26/2024	24.00	47.8	2,067	2,976,169	1,423,600	1,013	1,442	2,884,213
9/27/2024	24.00	47.8	2,086	3,003,151	1,436,506	1,013	1,455	2,910,362
9/28/2024	24.00	47.8	2,134	3,072,692	1,469,770	1,013	1,489	2,977,754
9/29/2024	24.00	47.8	2,106	3,032,595	1,450,590	1,013	1,469	2,938,896
9/30/2024	24.00	47.8	2,109	3,036,975	1,452,685	1,013	1,472	2,943,141
Totals/ Average:	**716.90**	**47.8**	**2,158**	**92,824,290.0**	**44,400,921**	**1,013**	**44,978**	**89,956,266**
						Maximum:	**1,639**	**3,278,499**

Notes:
The A-60 Flare commenced operation on April 1, 2009.
*CH_4 content was determined from the July 13, 2022 (9/11/22 - 9/7/23) and July 12, 2023 (9/8/23 - current) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.
scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Oct-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
10/1/2024	24.00	47.8	2,148	3,093,825	1,479,879	1,013	1,499	2,998,234
10/2/2024	24.00	47.8	2,167	3,120,342	1,492,563	1,013	1,512	3,023,932
10/3/2024	24.00	47.8	2,135	3,073,722	1,470,263	1,013	1,489	2,978,752
10/4/2024	24.00	47.8	2,066	2,974,694	1,422,894	1,013	1,441	2,882,784
10/5/2024	24.00	47.8	2,129	3,065,304	1,466,236	1,013	1,485	2,970,594
10/6/2024	24.00	47.8	2,108	3,036,164	1,452,297	1,013	1,471	2,942,355
10/7/2024	24.00	47.8	2,154	3,102,190	1,483,880	1,013	1,503	3,006,341
10/8/2024	24.00	47.8	2,160	3,110,700	1,487,950	1,013	1,507	3,014,588
10/9/2024	24.00	47.8	2,143	3,086,224	1,476,243	1,013	1,495	2,990,868
10/10/2024	24.00	47.8	2,120	3,052,728	1,460,221	1,013	1,479	2,958,407
10/11/2024	24.00	47.8	2,075	2,988,194	1,429,352	1,013	1,448	2,895,867
10/12/2024	24.00	47.8	2,068	2,978,369	1,424,652	1,013	1,443	2,886,345
10/13/2024	24.00	47.8	2,079	2,993,153	1,431,724	1,013	1,450	2,900,673
10/14/2024	24.00	47.8	2,061	2,968,486	1,419,925	1,013	1,438	2,876,768
10/15/2024	24.00	47.8	2,039	2,936,702	1,404,721	1,013	1,423	2,845,966
10/16/2024	24.00	47.8	2,031	2,924,969	1,399,109	1,013	1,417	2,834,595
10/17/2024	24.00	47.8	2,014	2,899,821	1,387,080	1,013	1,405	2,810,224
10/18/2024	24.00	37.9	2,042	2,940,597	1,114,486	1,013	1,129	2,257,949
10/19/2024	24.00	37.9	2,042	2,940,740	1,114,540	1,013	1,129	2,258,059
10/20/2024	24.00	37.9	2,050	2,951,789	1,118,728	1,013	1,133	2,266,543
10/21/2024	24.00	37.9	2,073	2,985,094	1,131,351	1,013	1,146	2,292,116
10/22/2024	23.80	37.9	1,668	2,382,218	902,861	1,013	915	1,829,196
10/23/2024	24.00	37.9	1,832	2,638,620	1,000,037	1,013	1,013	2,026,075
10/24/2024	24.00	37.9	2,017	2,904,356	1,100,751	1,013	1,115	2,230,121
10/25/2024	23.60	37.9	1,933	2,737,457	1,037,496	1,013	1,051	2,101,967
10/26/2024	24.00	37.9	1,914	2,755,861	1,044,471	1,013	1,058	2,116,099
10/27/2024	24.00	37.9	1,886	2,715,746	1,029,268	1,013	1,043	2,085,296
10/28/2024	24.00	37.9	1,240	1,786,079	676,924	1,013	686	1,371,448
10/29/2024	21.07	37.9	934	1,180,458	447,394	1,013	453	906,419
10/30/2024	24.00	37.9	1,177	1,694,408	642,181	1,013	651	1,301,058
10/31/2024	23.57	37.9	1,085	1,534,024	581,395	1,013	589	1,177,906
Totals/ Average:	**740.03**	**43.9**	**1,927**	**85,553,034.0**	**37,530,871**	**1,013**	**38,019**	**76,037,545**
						Maximum:	**1,512**	**3,023,932**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 12, 2023 (9/8/23 - current) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

MONTHLY LFG Input to Landfill Gas Engine (S-64)
WM - REDWOOD LANDFILL, Novato, CA

S-64 (Engine #1)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMBtu)[2]	SO2 Emissions (tons)[2]
May-24	744.00	15.75	728.25	556	49.4	24,283,236	24,320,114	12,004,005	12,160	0.111	0.68	0.50	6.02E-03
June-24	720.00	61.08	658.92	569	49.4	22,495,004	22,529,166	11,120,023	11,265	0.111	0.63	0.50	5.58E-03
July-24	744.00	454.00	290.00	536	49.4	9,329,698	9,343,866	4,611,977	4,672	0.111	0.26	0.50	2.31E-03
August-24	744.00	316.25	427.75	597	49.4	15,333,399	15,356,685	7,579,805	7,678	0.111	0.43	0.50	3.80E-03
September-24	720.00	720.00	0.00	0		0	0	0	0	0.111	0.00	0.50	0.00E+00
October-24	744.00	656.25	87.75	590	49.4	3,107,013	3,111,731	1,535,899	1,556	0.111	0.09	0.50	7.71E-04
TOTAL/ AVG:	**4,416.00**	**2,223.33**	**2,192.67**	**567**	**49.4**	**74,548,349**	**74,661,563**	**36,851,709**	**37,331**	**--**	**--**	**--**	**--**

NOTES:

The S-64 Engine (#1) commenced operation on April 27, 2017.

[1]CH_4, CO, and SO_2 content was determined from the July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: May-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
5/01/2024	24.00	49.4	600	864,270	427,237	1,013	433	865,583
5/02/2024	23.75	49.4	599	862,503	426,364	1,013	432	863,813
5/03/2024	24.00	49.4	571	822,709	406,692	1,013	412	823,958
5/04/2024	24.00	49.4	569	819,224	404,969	1,013	410	820,468
5/05/2024	24.00	49.4	575	827,654	409,136	1,013	414	828,911
5/06/2024	24.00	49.4	579	833,559	412,056	1,013	417	834,825
5/07/2024	23.75	49.4	576	830,050	410,321	1,013	416	831,311
5/08/2024	23.75	49.4	568	818,405	404,565	1,013	410	819,648
5/09/2024	24.00	49.4	557	802,505	396,705	1,013	402	803,724
5/10/2024	24.00	49.4	554	797,160	394,062	1,013	399	798,370
5/11/2024	23.25	49.4	506	729,035	360,386	1,013	365	730,142
5/12/2024	24.00	49.4	522	751,047	371,267	1,013	376	752,187
5/13/2024	24.00	49.4	524	754,861	373,153	1,013	378	756,007
5/14/2024	19.00	49.4	425	611,927	302,496	1,013	306	612,856
5/15/2024	20.50	49.4	440	634,277	313,544	1,013	318	635,240
5/16/2024	22.25	49.4	490	704,954	348,482	1,013	353	706,024
5/17/2024	24.00	49.4	531	764,670	378,002	1,013	383	765,831
5/18/2024	24.00	49.4	532	766,280	378,797	1,013	384	767,444
5/19/2024	24.00	49.4	534	769,518	380,398	1,013	385	770,686
5/20/2024	22.00	49.4	460	662,873	327,680	1,013	332	663,880
5/21/2024	24.00	49.4	533	767,357	379,330	1,013	384	768,522
5/22/2024	24.00	49.4	532	765,832	378,576	1,013	383	766,995
5/23/2024	23.75	49.4	544	782,713	386,921	1,013	392	783,902
5/24/2024	24.00	49.4	573	825,446	408,045	1,013	413	826,700
5/25/2024	24.00	49.4	579	834,239	412,392	1,013	418	835,506
5/26/2024	24.00	49.4	577	831,248	410,914	1,013	416	832,511
5/27/2024	24.00	49.4	582	837,601	414,054	1,013	419	838,873
5/28/2024	22.25	49.4	532	766,640	378,976	1,013	384	767,805
5/29/2024	24.00	49.4	570	820,618	405,659	1,013	411	821,864
5/30/2024	24.00	49.4	564	812,783	401,785	1,013	407	814,017
5/31/2024	24.00	49.4	563	811,277	401,041	1,013	406	812,509
Totals/ Average:	**728.25**	**49.4**	**556**	**24,283,236.5**	**12,004,005**	**1,013**	**12,160**	**24,320,114**
						Maximum:	**433**	**865,583**

Notes:

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Jun-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
6/01/2024	24.00	49.4	563	810,088	400,453	1,013	406	811,318
6/02/2024	24.00	49.4	565	814,028	402,401	1,013	408	815,264
6/03/2024	24.00	49.4	570	821,233	405,962	1,013	411	822,480
6/04/2024	24.00	49.4	573	825,082	407,865	1,013	413	826,335
6/05/2024	7.08	49.4	167	240,776	119,023	1,013	121	241,141
6/06/2024	0.00							
6/07/2024	5.50	49.4	109	156,681	77,453	1,013	78	156,919
6/08/2024	24.00	49.4	531	764,926	378,128	1,013	383	766,088
6/09/2024	24.00	49.4	538	774,549	382,885	1,013	388	775,725
6/10/2024	24.00	49.4	555	798,520	394,735	1,013	400	799,733
6/11/2024	24.00	49.4	557	801,424	396,170	1,013	401	802,641
6/12/2024	24.00	49.4	576	828,758	409,682	1,013	415	830,016
6/13/2024	24.00	49.4	601	864,780	427,489	1,013	433	866,093
6/14/2024	24.00	49.4	609	876,555	433,310	1,013	439	877,886
6/15/2024	24.00	49.4	607	874,066	432,080	1,013	438	875,393
6/16/2024	24.00	49.4	609	877,464	433,759	1,013	439	878,796
6/17/2024	24.00	49.4	611	880,146	435,085	1,013	441	881,482
6/18/2024	23.83	49.4	588	847,232	418,815	1,013	424	848,519
6/19/2024	24.00	49.4	603	868,626	429,390	1,013	435	869,945
6/20/2024	24.00	49.4	609	877,604	433,828	1,013	439	878,936
6/21/2024	24.00	49.4	601	865,930	428,058	1,013	434	867,245
6/22/2024	22.50	49.4	535	770,567	380,917	1,013	386	771,737
6/23/2024	24.00	49.4	549	790,150	390,597	1,013	396	791,350
6/24/2024	24.00	49.4	552	794,621	392,808	1,013	398	795,828
6/25/2024	24.00	49.4	553	796,880	393,924	1,013	399	798,090
6/26/2024	24.00	49.4	555	798,612	394,780	1,013	400	799,825
6/27/2024	24.00	49.4	538	775,038	383,127	1,013	388	776,215
6/28/2024	24.00	49.4	531	764,954	378,142	1,013	383	766,116
6/29/2024	24.00	49.4	533	766,959	379,133	1,013	384	768,123
6/30/2024	24.00	49.4	534	768,757	380,022	1,013	385	769,924
Totals/ Average:	**658.92**	**49.4**	**569**	**22,495,003.9**	**11,120,023**	**1,013**	**11,265**	**22,529,166**
						Maximum:	**441**	**881,482**

Notes:
The S-64 Engine (#1) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Jul-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
7/01/2024	24.00	49.4	535	770,346	380,807	1,013	386	771,516
7/02/2024	22.17	49.4	483	695,964	344,038	1,013	349	697,021
7/03/2024	24.00	49.4	531	765,178	378,253	1,013	383	766,340
7/04/2024	23.17	49.4	504	688,359	340,279	1,013	345	689,404
7/05/2024	22.83	49.4	504	725,745	358,760	1,013	363	726,847
7/06/2024	24.00	49.4	548	788,533	389,798	1,013	395	789,731
7/07/2024	24.00	49.4	553	796,424	393,699	1,013	399	797,634
7/08/2024	24.00	49.4	554	797,755	394,357	1,013	399	798,967
7/09/2024	24.00	49.4	548	789,349	390,201	1,013	395	790,548
7/10/2024	24.00	49.4	538	775,348	383,280	1,013	388	776,526
7/11/2024	24.00	49.4	539	775,479	383,345	1,013	388	776,656
7/12/2024	14.08	49.4	293	421,619	208,420	1,013	211	422,259
7/13/2024	0.00							
7/14/2024	0.00							
7/15/2024	0.00							
7/16/2024	0.00							
7/17/2024	0.00							
7/18/2024	0.00							
7/19/2024	0.00							
7/20/2024	0.00							
7/21/2024	0.00							
7/22/2024	0.00							
7/23/2024	0.00							
7/24/2024	10.42	49.4	241	346,476	171,275	1,013	174	347,002
7/25/2024	4.75	49.4	130	187,174	92,526	1,013	94	187,458
7/26/2024	0.00							
7/27/2024	0.00							
7/28/2024	0.00							
7/29/2024	0.00							
7/30/2024	0.00							
7/31/2024	0.58	49.4	5	5,949	2,941	1,013	3	5,958
Totals/ Average:	**290.00**	**49.4**	**536**	**9,329,697.6**	**4,611,977**	**1,013**	**4,672**	**9,343,866**
						Maximum:	**399**	**798,967**

Notes:

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Aug-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
8/01/2024	16.67	49.4	394	567,451	280,510	1,013	284	568,313
8/02/2024	24.00	49.4	584	841,386	415,925	1,013	421	842,664
8/03/2024	24.00	49.4	585	842,316	416,385	1,013	422	843,595
8/04/2024	24.00	49.4	588	847,200	418,799	1,013	424	848,486
8/05/2024	24.00	49.4	593	854,155	422,237	1,013	428	855,452
8/06/2024	24.00	49.4	587	844,920	417,672	1,013	423	846,203
8/07/2024	24.00	49.4	582	837,719	414,112	1,013	419	838,991
8/08/2024	24.00	49.4	585	841,861	416,160	1,013	422	843,139
8/09/2024	24.00	49.4	588	846,535	418,470	1,013	424	847,821
8/10/2024	22.83	49.4	562	809,525	400,175	1,013	405	810,755
8/11/2024	0.00							
8/12/2024	0.00							
8/13/2024	0.00							
8/14/2024	11.00	49.4	622	419,756	207,499	1,013	210	420,393
8/15/2024	24.00	49.4	618	890,077	439,994	1,013	446	891,429
8/16/2024	24.00	49.4	617	888,754	439,341	1,013	445	890,104
8/17/2024	24.00	49.4	617	888,780	439,353	1,013	445	890,130
8/18/2024	24.00	49.4	615	885,182	437,575	1,013	443	886,526
8/19/2024	24.00	49.4	607	874,367	432,228	1,013	438	875,694
8/20/2024	24.00	49.4	604	869,089	429,619	1,013	435	870,409
8/21/2024	24.00	49.4	602	866,712	428,444	1,013	434	868,028
8/22/2024	17.25	49.4	490	617,613	305,307	1,013	309	618,551
8/23/2024	0.00							
8/24/2024	0.00							
8/25/2024	0.00							
8/26/2024	0.00							
8/27/2024	0.00							
8/28/2024	0.00							
8/29/2024	0.00							
8/30/2024	0.00							
8/31/2024	0.00							
Totals/ Average:	**427.75**	**49.4**	**597**	**15,333,398.7**	**7,579,805**	**1,013**	**7,678**	**15,356,685**
						Maximum:	**446**	**891,429**

Notes:
The S-64 Engine (#1) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Sep-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
9/01/2024	0.00							
9/02/2024	0.00							
9/03/2024	0.00							
9/04/2024	0.00							
9/05/2024	0.00							
9/06/2024	0.00							
9/07/2024	0.00							
9/08/2024	0.00							
9/09/2024	0.00							
9/10/2024	0.00							
9/11/2024	0.00							
9/12/2024	0.00							
9/13/2024	0.00							
9/14/2024	0.00							
9/15/2024	0.00							
9/16/2024	0.00							
9/17/2024	0.00							
9/18/2024	0.00							
9/19/2024	0.00							
9/20/2024	0.00							
9/21/2024	0.00							
9/22/2024	0.00							
9/23/2024	0.00							
9/24/2024	0.00							
9/25/2024	0.00							
9/26/2024	0.00							
9/27/2024	0.00							
9/28/2024	0.00							
9/29/2024	0.00							
9/30/2024	0.00							
Totals/ Average:	**0.00**			**0.0**	**0**		**0**	**0**
						Maximum:	**0**	**0**

Notes:
The S-64 Engine (#1) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Oct-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
10/01/2024	0.00							
10/02/2024	0.00							
10/03/2024	0.00							
10/04/2024	0.00							
10/05/2024	0.00							
10/06/2024	0.00							
10/07/2024	0.00							
10/08/2024	0.00							
10/09/2024	0.00							
10/10/2024	0.00							
10/11/2024	0.00							
10/12/2024	0.00							
10/13/2024	0.00							
10/14/2024	0.00							
10/15/2024	0.00							
10/16/2024	0.00							
10/17/2024	0.00							
10/18/2024	0.00							
10/19/2024	0.00							
10/20/2024	0.00							
10/21/2024	0.00							
10/22/2024	0.00							
10/23/2024	0.00							
10/24/2024	0.00							
10/25/2024	0.00							
10/26/2024	0.00							
10/27/2024	0.00							
10/28/2024	16.67	49.4	321	461,958	228,361	1,013	231	462,659
10/29/2024	24.00	49.4	606	872,863	431,485	1,013	437	874,189
10/30/2024	23.08	49.4	607	873,604	431,851	1,013	437	874,931
10/31/2024	24.00	49.4	624	898,587	444,201	1,013	450	899,952
Totals/ Average:	**87.75**	**49.4**	**590**	**3,107,012.7**	**1,535,899**	**1,013**	**1,556**	**3,111,731**
						Maximum:	**450**	**899,952**

Notes:
The S-64 Engine (#1) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2022 (9/12/22 - current) source tests.

MONTHLY LFG Input to Landfill Gas Engine (S-65)
WM - REDWOOD LANDFILL, Novato, CA

S-65 (Engine #2)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMBtu)[2]	SO2 Emissions (tons)[2]
May-24	744.00	15.25	728.75	540	49.7	23,621,346	23,784,853	11,739,809	11,892	0.049	0.29	0.4990	5.89E-03
June-24	720.00	61.17	658.83	523	49.7	20,677,013	20,820,139	10,276,475	10,410	0.049	0.25	0.4990	5.16E-03
July-24	744.00	299.00	445.00	536	49.7	14,298,683	14,397,658	7,106,445	7,199	0.049	0.18	0.4990	3.57E-03
August-24	744.00	204.00	540.00	552	49.7	17,868,923	17,992,612	8,880,855	8,996	0.049	0.22	0.4990	4.46E-03
September-24	720.00	718.33	1.67	189	49.7	18,884	19,015	9,385	10	0.049	0.00	0.4990	4.71E-06
October-24	744.00	687.75	56.25	539	49.7	1,818,203	1,830,788	903,647	915	0.049	0.02	0.4990	4.54E-04
TOTAL/ AVG:	**4,416.00**	**1,985.50**	**2,430.50**	**537**	**49.7**	**78,303,052**	**78,845,065**	**38,916,617**	**39,423**	**--**	**--**	**--**	**--**

NOTES:

The S-65 Engine (#2) commenced operation on April 27, 2017.

[1]CH_4, CO, and SO_2 content was determined from the July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: May-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
5/01/2024	24.00	49.7	577	831,584	413,297	1,013	419	837,341
5/02/2024	23.50	49.7	573	824,649	409,850	1,013	415	830,357
5/03/2024	24.00	49.7	571	821,596	408,333	1,013	414	827,283
5/04/2024	24.00	49.7	568	817,500	406,298	1,013	412	823,159
5/05/2024	24.00	49.7	573	824,797	409,924	1,013	415	830,506
5/06/2024	24.00	49.7	577	830,351	412,684	1,013	418	836,098
5/07/2024	24.00	49.7	593	853,231	424,056	1,013	430	859,138
5/08/2024	24.00	49.7	570	820,633	407,854	1,013	413	826,313
5/09/2024	24.00	49.7	526	757,466	376,461	1,013	381	762,709
5/10/2024	22.75	49.7	492	709,059	352,402	1,013	357	713,967
5/11/2024	24.00	49.7	525	755,904	375,684	1,013	381	761,136
5/12/2024	24.00	49.7	524	754,884	375,177	1,013	380	760,109
5/13/2024	24.00	49.7	526	757,172	376,315	1,013	381	762,414
5/14/2024	21.00	49.7	450	647,523	321,819	1,013	326	652,006
5/15/2024	18.75	49.7	395	569,068	282,827	1,013	287	573,007
5/16/2024	24.00	49.7	538	774,019	384,687	1,013	390	779,377
5/17/2024	24.00	49.7	538	775,049	385,199	1,013	390	780,414
5/18/2024	24.00	49.7	523	752,491	373,988	1,013	379	757,700
5/19/2024	24.00	49.7	526	757,497	376,476	1,013	381	762,740
5/20/2024	22.00	49.7	440	633,196	314,699	1,013	319	637,579
5/21/2024	24.00	49.7	504	725,112	360,380	1,013	365	730,131
5/22/2024	21.00	49.7	435	626,109	311,176	1,013	315	630,443
5/23/2024	23.75	49.7	517	744,834	370,182	1,013	375	749,990
5/24/2024	24.00	49.7	543	781,881	388,595	1,013	394	787,293
5/25/2024	24.00	49.7	549	790,092	392,676	1,013	398	795,561
5/26/2024	24.00	49.7	546	786,681	390,981	1,013	396	792,127
5/27/2024	24.00	49.7	551	793,274	394,257	1,013	399	798,765
5/28/2024	24.00	49.7	550	792,046	393,647	1,013	399	797,528
5/29/2024	24.00	49.7	539	776,150	385,747	1,013	391	781,523
5/30/2024	24.00	49.7	534	769,029	382,207	1,013	387	774,352
5/31/2024	24.00	49.7	534	768,468	381,929	1,013	387	773,788
Totals/ Average:	**728.75**	**49.7**	**540**	**23,621,346.3**	**11,739,809**	**1,013**	**11,892**	**23,784,853**
						Maximum:	**430**	**859,138**

Notes:
The S-65 Engine (#2) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Jun-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
6/01/2024	24.00	49.7	533	767,871	381,632	1,013	387	773,186
6/02/2024	24.00	49.7	535	770,667	383,021	1,013	388	776,001
6/03/2024	24.00	49.7	540	777,770	386,552	1,013	392	783,154
6/04/2024	24.00	49.7	542	780,833	388,074	1,013	393	786,238
6/05/2024	7.08	49.7	168	242,493	120,519	1,013	122	244,172
6/06/2024	0.00							
6/07/2024	5.42	49.7	111	159,717	79,379	1,013	80	160,822
6/08/2024	24.00	49.7	505	727,448	361,541	1,013	366	732,483
6/09/2024	24.00	49.7	511	736,508	366,045	1,013	371	741,607
6/10/2024	24.00	49.7	327	470,379	233,778	1,013	237	473,635
6/11/2024	24.00	49.7	274	394,069	195,852	1,013	198	396,797
6/12/2024	24.00	49.7	546	786,000	390,642	1,013	396	791,440
6/13/2024	24.00	49.7	568	818,104	406,598	1,013	412	823,767
6/14/2024	24.00	49.7	575	827,647	411,340	1,013	417	833,376
6/15/2024	24.00	49.7	574	826,143	410,593	1,013	416	831,861
6/16/2024	24.00	49.7	575	828,669	411,849	1,013	417	834,405
6/17/2024	24.00	49.7	577	830,664	412,840	1,013	418	836,414
6/18/2024	23.83	49.7	556	800,607	397,902	1,013	403	806,149
6/19/2024	24.00	49.7	570	820,997	408,036	1,013	413	826,680
6/20/2024	24.00	49.7	574	827,094	411,066	1,013	416	832,819
6/21/2024	24.00	49.7	567	816,176	405,640	1,013	411	821,826
6/22/2024	22.50	49.7	508	732,231	363,919	1,013	369	737,300
6/23/2024	24.00	49.7	521	750,214	372,856	1,013	378	755,407
6/24/2024	24.00	49.7	524	754,484	374,978	1,013	380	759,706
6/25/2024	24.00	49.7	525	755,982	375,723	1,013	381	761,215
6/26/2024	24.00	49.7	525	756,282	375,872	1,013	381	761,517
6/27/2024	24.00	49.7	510	734,792	365,191	1,013	370	739,878
6/28/2024	24.00	49.7	504	725,471	360,559	1,013	365	730,493
6/29/2024	24.00	49.7	506	728,410	362,020	1,013	367	733,452
6/30/2024	24.00	49.7	506	729,291	362,458	1,013	367	734,339
Totals/ Average:	**658.83**	**49.7**	**523**	**20,677,012.8**	**10,276,475**	**1,013**	**10,410**	**20,820,139**
						Maximum:	**418**	**836,414**

Notes:
The S-65 Engine (#2) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Jul-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
7/01/2024	24.00	49.7	506	728,638	362,133	1,013	367	733,682
7/02/2024	24.00	49.7	504	726,263	360,953	1,013	366	731,290
7/03/2024	24.00	49.7	503	724,582	360,117	1,013	365	729,598
7/04/2024	22.00	49.7	481	656,599	326,330	1,013	331	661,144
7/05/2024	14.08	49.7	314	452,503	224,894	1,013	228	455,636
7/06/2024	24.00	49.7	518	746,413	370,967	1,013	376	751,580
7/07/2024	24.00	49.7	524	754,044	374,760	1,013	380	759,263
7/08/2024	24.00	49.7	546	786,483	390,882	1,013	396	791,927
7/09/2024	24.00	49.7	548	789,441	392,352	1,013	397	794,906
7/10/2024	24.00	49.7	540	777,473	386,404	1,013	391	782,855
7/11/2024	24.00	49.7	539	776,306	385,824	1,013	391	781,680
7/12/2024	13.17	49.7	303	435,821	216,603	1,013	219	438,838
7/13/2024	0.00							
7/14/2024	0.00							
7/15/2024	0.00							
7/16/2024	0.00							
7/17/2024	0.00							
7/18/2024	0.00							
7/19/2024	0.00							
7/20/2024	0.00							
7/21/2024	0.00							
7/22/2024	0.00							
7/23/2024	0.00							
7/24/2024	11.75	49.7	234	336,639	167,310	1,013	169	338,970
7/25/2024	24.00	49.7	524	754,231	374,853	1,013	380	759,452
7/26/2024	24.00	49.7	561	808,215	401,683	1,013	407	813,809
7/27/2024	24.00	49.7	582	838,356	416,663	1,013	422	844,159
7/28/2024	24.00	49.7	582	837,584	416,279	1,013	422	843,382
7/29/2024	24.00	49.7	584	841,037	417,996	1,013	423	846,859
7/30/2024	24.00	49.7	585	842,832	418,888	1,013	424	848,666
7/31/2024	24.00	49.7	578	685,220	340,554	1,013	345	689,963
Totals/ Average:	**445.00**	**49.7**	**536**	**14,298,682.5**	**7,106,445**	**1,013**	**7,199**	**14,397,658**
						Maximum:	**424**	**848,666**

Notes:
The S-65 Engine (#2) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Aug-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
8/01/2024	24.00	49.7	547	788,076	391,674	1,013	397	793,531
8/02/2024	24.00	49.7	552	794,345	394,789	1,013	400	799,843
8/03/2024	24.00	49.7	552	795,288	395,258	1,013	400	800,793
8/04/2024	24.00	49.7	554	798,205	396,708	1,013	402	803,730
8/05/2024	24.00	49.7	558	803,497	399,338	1,013	405	809,059
8/06/2024	24.00	49.7	555	798,858	397,032	1,013	402	804,387
8/07/2024	24.00	49.7	550	792,415	393,830	1,013	399	797,900
8/08/2024	24.00	49.7	553	796,012	395,618	1,013	401	801,522
8/09/2024	24.00	49.7	556	800,651	397,924	1,013	403	806,193
8/10/2024	22.83	49.7	537	773,742	384,550	1,013	390	779,098
8/11/2024	0.00							
8/12/2024	0.00							
8/13/2024	0.00							
8/14/2024	11.00	49.7	536	361,873	179,851	1,013	182	364,378
8/15/2024	24.00	49.7	545	785,240	390,264	1,013	395	790,676
8/16/2024	24.00	49.7	556	800,094	397,647	1,013	403	805,632
8/17/2024	24.00	49.7	555	798,670	396,939	1,013	402	804,199
8/18/2024	24.00	49.7	552	795,598	395,412	1,013	401	801,105
8/19/2024	24.00	49.7	548	788,456	391,863	1,013	397	793,913
8/20/2024	24.00	49.7	543	782,186	388,746	1,013	394	787,600
8/21/2024	24.00	49.7	542	781,052	388,183	1,013	393	786,459
8/22/2024	17.83	49.7	526	662,134	329,081	1,013	333	666,718
8/23/2024	23.33	49.7	539	760,391	377,914	1,013	383	765,655
8/24/2024	24.00	49.7	544	783,230	389,265	1,013	394	788,652
8/25/2024	24.00	49.7	536	772,546	383,955	1,013	389	777,893
8/26/2024	24.00	49.7	532	766,162	380,782	1,013	386	771,465
8/27/2024	9.00	49.7	225	290,202	144,231	1,013	146	292,211
8/28/2024	0.00							
8/29/2024	0.00							
8/30/2024	0.00							
8/31/2024	0.00							
Totals/ Average:	**540.00**	**49.7**	**552**	**17,868,923.0**	**8,880,855**	**1,013**	**8,996**	**17,992,612**
						Maximum:	**405**	**809,059**

Notes:
The S-65 Engine (#2) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Sep-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
9/01/2024	0.00							
9/02/2024	0.00							
9/03/2024	0.00							
9/04/2024	0.00							
9/05/2024	0.00							
9/06/2024	0.00							
9/07/2024	0.00							
9/08/2024	0.00							
9/09/2024	0.00							
9/10/2024	1.67	49.7	315	18,884	9,385	1,013	10	19,015
9/11/2024	0.00							
9/12/2024	0.00							
9/13/2024	0.00							
9/14/2024	0.00							
9/15/2024	0.00							
9/16/2024	0.00							
9/17/2024	0.00							
9/18/2024	0.00							
9/19/2024	0.00							
9/20/2024	0.00							
9/21/2024	0.00							
9/22/2024	0.00							
9/23/2024	0.00							
9/24/2024	0.00							
9/25/2024	0.00							
9/26/2024	0.00							
9/27/2024	0.00							
9/28/2024	0.00							
9/29/2024	0.00							
9/30/2024	0.00							
Totals/ Average:	**1.67**	**49.7**	**189**	**18,884.3**	**9,385**	**1,013**	**10**	**19,015**
						Maximum:	**10**	**19,015**

Notes:
The S-65 Engine (#2) commenced operation on April 27, 2017.
*Methane (CH_4) content was determined from the July 14 & 15, 2021 (9/13/21 - 9/11/22) and July 14 & 15, 2022 (9/12/22 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Oct-24

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
10/01/2024	0.00							
10/02/2024	0.00							
10/03/2024	0.00							
10/04/2024	0.00							
10/05/2024	0.00							
10/06/2024	0.00							
10/07/2024	0.00							
10/08/2024	0.00							
10/09/2024	0.00							
10/10/2024	0.00							
10/11/2024	0.00							
10/12/2024	0.00							
10/13/2024	0.00							
10/14/2024	0.00							
10/15/2024	0.00							
10/16/2024	0.00							
10/17/2024	0.00							
10/18/2024	0.00							
10/19/2024	0.00							
10/20/2024	0.00							
10/21/2024	0.00							
10/22/2024	0.00							
10/23/2024	0.00							
10/24/2024	0.00							
10/25/2024	0.00							
10/26/2024	0.00							
10/27/2024	0.00							
10/28/2024	16.25	49.7	355	510,942	253,938	1,013	257	514,479
10/29/2024	24.00	49.7	548	789,713	392,487	1,013	398	795,179
10/30/2024	2.92	49.7	68	98,394	48,902	1,013	50	99,075
10/31/2024	13.08	49.7	291	419,154	208,319	1,013	211	422,055
Totals/ Average:	**56.25**	**49.7**	**539**	**1,818,202.8**	**903,647**	**1,013**	**915**	**1,830,788**
						Maximum:	**398**	**795,179**

Notes:

The S-65 Engine (#2) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 14 & 15, 2022 (9/12/22 - current) source tests.

APPENDIX L

VOC SOILS LOGS

Redwood Landfill
Facility Number A1179
Title V Permit Condition Number 19867, Part 14

VOC Laden Soil

Month	VOC Emission Rate (lbs/month)	12-Month Rolling Total (lbs)
November-23	0.00	0.00
December-23	0.00	0.00
January-24	0.00	0.00
February-24	0.00	0.00
March-24	0.00	0.00
April-24	0.00	0.00
May-24	0.00	0.00
June-24	0.00	0.00
July-24	0.00	0.00
August-24	0.00	0.00
September-24	0.00	0.00
October-24	0.00	0.00
TOTALS:	**0.00**	

VOC Laden Soils is defined as soils containing concentrations of VOC less than 50 parts per million by weight (ppm_w).

APPENDIX M

H_2S TWICE WEEKLY AND QUARTERLY MONITORING

REDWOOD LANDFILL, INC.
Novato, CA

Total Reduced Sulfur Content - Quarter 2 - 2024

Date	Pre-Treatment LFG to Flares H_2S (ppm_v)[1]	Pre-Treatment LFG to Flares Calculated TRS (ppm_v)[1]	Flare & Engine Combined H_2S Reading (ppm_v)	Flare & Engine Combined Calculated TRS (ppm_v)
4/1/24 15:02	2,800	2,842	953.5	967.8
4/4/24 14:15	4,000	4,060	792.4	804.3
4/8/24 14:55	3,447	3,499	276.3	280.5
4/9/24 14:00	3,170	3,217	175.4	178.1
4/16/24 16:00	3,027	3,072	427.6	434.1
4/18/24 15:40	3,006	3,051	453.2	460.0
4/24/24 12:50	2,813	2,855	315.1	319.9
4/26/24 9:05	2,975	3,019	443.4	450.1
4/29/24 12:20	2,567	2,605	172.7	175.3
4/30/24 9:15	2,442	2,479	171.3	173.9
5/9/24 16:00	2,347	2,382	187.8	190.6
5/10/24 9:25	2,373	2,409	316.0	320.8
5/14/24 15:30	2,481	2,518	207.6	210.7
5/16/24 8:20	1,829	1,857	216.0	219.2
5/20/24 12:00	1,760	1,786	197.1	200.1
5/21/24 8:00	1,904	1,933	200.4	203.4
5/21/24 8:00	1,904	1,933	236.0	238.9
5/29/24 8:40	2,013	2,043	159.8	162.2
5/31/24 12:20	1,634	1,658	101.4	103.0
6/3/24*	1,923	1,951	116.1	117.9
6/4/24 14:05	1,873	1,901	143.8	146.0
6/10/24 8:20	1,707	1,732	363.1	368.5
6/13/24 7:10	1,706	1,732	174.1	176.7
6/17/24 8:00	1,600	1,624	187.7	190.5
6/21/24 9:40	1,562	1,586	89.9	91.2
6/26/24 16:30	1,647	1,672	83.8	85.1
6/27/24 6:45	1,576	1,600	158.8	161.2
Quarterly Average:	-	-	271.1	275.2

[1] Sulfur treatment of landfill gas to both flares initiated on July 17, 2023.

[2] After July 17, 2023, TRS readings are after-treatment readings

ppm_v= parts per million by volume TRS= total reduced sulfur * Quarterly LFG lab analysis

Title V Permit Condition Number 19867 Part 31b

As of March 31, 2005, the Permit Holder shall analyze the landfill gas for H2S concentration on a weekly basis. The landfill gas sample shall be drawn from the main landfill gas header using a Draeger/RAE tube. The TRS content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS=1.015*H2S measured by the Draeger/RAE Tube. The Permit Holder shall maintain records of all Draeger/RAE tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger/RAE tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. The concentration of TRS in collected landfill gas shall not exceed a peak of 370 ppmv, and on a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit of 350 ppmv.

November 22, 2016 Compliance Agreement

Per Condition 2.1 of the Compliance Agreement, H2S sampling using Draeger/RAE tubes shall be twice per week. Analytical sampling shall remain on quarterly intervals.

REDWOOD LANDFILL, INC.
Novato, CA

Total Reduced Sulfur Content (Flares & Engines Combined) - Quarter 3 - 2024

Date	Pre-Treatment H_2S Reading (ppm_v)[1]	Pre-Treatment Calculated TRS (ppm_v)[1]	After-Treatment H_2S Reading (ppm_v)[2]	After-Treatment Calculated TRS (ppm_v)[2]
7/2/24 8:05	1,572.7	1,596.3	91.6	92.9
7/3/24 8:00	1,681.6	1,706.8	88.8	90.2
7/8/24 9:15	1,591.3	1,615.1	95.5	97.0
7/9/24 8:00	1,489.7	1,512.0	136.0	138.1
7/18/24 13:00	1,100.0	1,116.5	300.0	304.5
7/19/24 8:20	1,300.0	1,319.5	200.0	203.0
7/23/24 12:40	1,450.0	1,471.8	150.0	152.3
7/24/24 10:30	1,500.0	1,522.5	350.0	355.3
7/29/24 15:00	1,644.2	1,668.8	302.6	307.1
7/30/24 11:00	1,496.9	1,519.3	377.5	383.2
8/6/24 12:30	1,375.1	1,395.7	84.4	85.7
8/7/24 7:50	1,474.7	1,496.9	93.7	95.1
8/7/24 7:50	1,474.7	1,496.9	31.0	31.8
8/12/24*	1,371.2	1,391.8	113.1	114.8
8/15/24 8:30	1,492.0	1,514.3	127.6	129.5
8/19/24 10:45	1,318.9	1,338.7	97.8	99.3
8/20/24 6:55	1,357.6	1,378.0	64.4	65.4
8/26/24 1:30	1,247.3	1,266.0	77.7	78.9
8/27/24 16:25	1,400.0	1,421.0	100.0	101.5
9/2/24 10:20	1,500.0	1,522.5	500.0	507.5
9/4/24 13:00	1,250.0	1,268.8	500.0	507.5
9/12/24 8:10	1,700.0	1,725.5	500.0	507.5
9/13/24 7:55	1,600.0	1,624.0	500.0	507.5
9/17/24 8:40	1,200.0	1,218.0	200.0	203.0
9/18/24 11:00	1,300.0	1,319.5	100.0	101.5
9/25/24 12:50	1,200.0	1,218.0	100.0	101.5
9/26/24 13:00	1,175.0	1,192.6	100.0	101.5
9/30/24 11:15	1,000.0	1,015.0	150.0	152.3
Quarterly Average:	1,402.2	1,423.3	197.6	200.5

[1] Sulfur treatment of landfill gas to both flares initiated on July 17, 2023.

[2] After July 17, 2023, TRS readings are after-treatment readings

ppm_v= parts per million by volume TRS= total reduced sulfur * Quarterly LFG lab analysis

Title V Permit Condition Number 19867 Part 31b

As of March 31, 2005, the Permit Holder shall analyze the landfill gas for H2S concentration on a weekly basis. The landfill gas sample shall be drawn from the main landfill gas header using a Draeger/RAE tube. The TRS content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS=1.015*H2S measured by the Draeger/RAE Tube. The Permit Holder shall maintain records of all Draeger/RAE tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger/RAE tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. The concentration of TRS in collected landfill gas shall not exceed a peak of 370 ppmv, and on a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit of 350 ppmv.

November 22, 2016 Compliance Agreement

Per Condition 2.1 of the Compliance Agreement, H2S sampling using Draeger/RAE tubes shall be twice per week. Analytical sampling shall remain on quarterly intervals.

REDWOOD LANDFILL, INC.
Novato, CA

Total Reduced Sulfur Content (Flares & Engines Combined) - Quarter 4 - 2023

Date	Pre-Treatment H_2S Reading (ppm_v)[1]	Pre-Treatment Calculated TRS (ppm_v)[1]	After-Treatment H_2S Reading (ppm_v)[2]	After-Treatment Calculated TRS (ppm_v)[2]
10/4/24 12:50	1,225.0	1,243.4	50.0	50.8
10/8/24 12:50	1,125.0	1,141.9	50.0	50.8
10/10/24 8:30	1,275.0	1,294.1	50.0	50.8
10/14/24 11:30	1,125.0	1,141.9	100.0	101.5
10/17/24 13:00	1,025.0	1,040.4	100.0	101.5
10/23/24 9:40	1,258.1	1,276.9	243.5	247.2
10/24/24 8:44	1,200.0	1,218.0	250.0	253.8
10/24/24 8:44	1,200.0	1,218.0	180.0	184.5
10/28/24 13:45	1,104.7	1,121.2	22.1	22.4
10/31/24 10:00	1,244.8	1,263.5	41.4	42.0
Quarterly Average:	TBD	TBD	TBD	TBD

[1] Sulfur treatment of landfill gas to both flares initiated on July 17, 2023.

[2] After July 17, 2023, TRS readings are after-treatment readings

H_2S= hydrogen sulfide

ppm_v= parts per million by volume

TRS= total reduced sulfur

Title V Permit Condition Number 19867 Part 31b

As of March 31, 2005, the Permit Holder shall analyze the landfill gas for H2S concentration on a weekly basis. The landfill gas sample shall be drawn from the main landfill gas header using a Draeger/RAE tube. The TRS content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS=1.015*H2S measured by the Draeger/RAE Tube. The Permit Holder shall maintain records of all Draeger/RAE tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger/RAE tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. The concentration of TRS in collected landfill gas shall not exceed a peak of 370 ppmv, and on a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit of 350 ppmv.

November 22, 2016 Compliance Agreement

Per Condition 2.1 of the Compliance Agreement, H2S sampling using Draeger/RAE tubes shall be twice per week. Analytical sampling shall remain on quarterly intervals.

REDWOOD LANDFILL, INC.
Novato, CA

Rolling Quarterly Average Total Reduced Sulfur Content

Year	Quarter	Calculated TRS (ppm_v)	Rolling Quarterly Average Annual TRS (ppm_v)	Quarterly SO_2 Emission Factor (lb/MMscf)
2023	4	329	991.8	55.53
2024	1	326	650.5	55.03
2024	2	400	351.0	67.56
2024	3	239	323.3	40.36
2024	4*	TBD	TBD	TBD

*Quarterly results will be calculated at the end of the quarter.
H_2S = hydrogen sulfide
ppm_v = parts per million by volume
TRS = total reduced sulfur
TBD = To Be Determined.
Quarterly SO2 Emission Factor based on TRS concentrations to Flares A-51 and A-60 only.

Title V Permit Condition Number 19867 Part 31b
As of March 31, 2005, the Permit Holder shall analyze the landfill gas for H2S concentration on a weekly basis. The landfill gas sample shall be drawn from the main landfill gas header using a Draeger/RAE tube. The TRS content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS=1.015*H2S measured by the Draeger/RAE Tube. The Permit Holder shall maintain records of all Draeger/RAE tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger/RAE tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. On a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit of 350 ppmv.

SO2 EF = Calculated TRS (ppmv) * 0.0283168 m3/scf * 1000 L/m3 * 1 mol/22.4 L * 64.06 g/mol * 1 lb/453.592 g * 273.15 K / 288.7 K

APPENDIX N

PERFORMANCE TEST REPORT

Redwood Landfill, Inc.

BAAQMD Facility A1179
NST-8970

Annual Compliance Emissions Test Report #24010
Landfill Gas Flare A-51

Located at:
Redwood Landfill, Inc.
8950 Redwood Highway
Novato, CA 94945

Prepared for:
SCS Engineers
3117 Fite Circle Suite 108
Sacramento, CA 95827
Attn: Maria Bowen
mbowen@scsengineers.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Gloria Espena and Marco Hernandez
gespena@baaqmd.gov / mhernandez@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
January 10, 2024

Final Report Submitted on:
March 7, 2024
Submitted on March 8, 2024

Performed and Reported by:
Blue Sky Environmental, Inc.
2273 Lobert Street
Castro Valley, CA 94546
bluesky@blueskyenvironmental.com
Office (510) 525-1261 / Cell (810) 923-3181

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes, it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (810) 923-3181.

Jeramie Richardson

Project Manager

Blue Sky Environmental, Inc.

TABLE OF CONTENTS

SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by SCS Engineers to perform emissions testing for Waste Management of Alameda County, Inc. (WMAC) at the Redwood Landfill Inc. (RLI) in Novato, California. Testing was conducted to demonstrate that Landfill Gas Flare A-51 is operating in compliance with the Bay Area Air Quality Management District (BAAQMD) Permit to Operate for Facility 1179. Results of the test program are presented in this report.

The source test information is summarized in Table 1-1. Test results derived from the source test are summarized in Table 1-2. Results for individual test runs are provided in Appendix A. The flare met all compliance emission criteria.

Table 1-1 Source Test Information

Test Location:	Redwood Landfill Inc. 8950 Redwood Highway, Novato, CA 94945
Source Contact:	Maria Bowen, SCS Engineers (619) 455-9518
Source Tested:	Flare A-51 – 90 MMBtu/hr industrial landfill gas flare
Source Test Date:	January 10, 2024
Test Objective:	Determine compliance with conditions 19867 and 25634 of Bay Area Air Quality Management District (BAAQMD) permit to operate A1179
Test Performed by:	Blue Sky Environmental, Inc 2273 Lobert Street, Castro Valley, CA 94546 Jaime Rios (925) 482-4504 bluesky@blueskyenvironmental.com
Test Parameters:	Landfill Gas Fuel Analysis O_2, N_2, CO_2, BTU, THC, CH_4, NMOC, HHV, F-Factor, sulfur, toxic air contaminants and volumetric flow rate Flare Emissions THC, CH_4, NMOC, NO_X, CO, O_2, SO_2, volumetric flow rate and temperature

Table 1-2 Compliance Summary

Emission Parameter	Average Results (Flare A-51)	Permit Limit	Compliance Status
NO_X, ppmvd @ 15% O_2	13.9	15	In Compliance
NO_X, lb/MMBtu	0.0548	0.06	In Compliance
CO, ppmvd @ 15% O_2	3.3	82	In Compliance
CO, lb/MMBtu	0.0079	0.20	In Compliance
NMOC, ppmvd @ 3% O_2 as hexane (C_6H_{14})	<0.91	360	In Compliance
NMOC, ppmvd @ 3% O_2 as CH_4	<5.5	30*	In Compliance
NMOC Destruction Efficiency, %	>87.99%	>98%*	--
CH_4 Destruction Efficiency, %	>99.97%	>99%	In Compliance
Total Reduced Sulfurs in Fuel, ppmv	388	370	Exceeds Limit[1]
SO_2, ppmvd	26.4	300	In Compliance
SO_2, lb/MMBtu	0.1245	1.69	In Compliance

**NMOC permit limits are 30 ppmvd @ 3% O_2 or DE >98%*

[1]On October 6, 2016, Redwood Landfill proposed a permit modification to increase the peak limit. This modification is still under review by BAAQMD.

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This annual source test was performed to demonstrate that landfill gas Flare A-51 is operating in compliance with conditions 19867 and 25634 of Bay Area Air Quality Management District (BAAQMD) Title V permit A1179.

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA), Bay Area Air Quality Management District (BAAQMD) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Traverse Point Determination
EPA Method 3A	O_2 and CO_2 Emissions, Stack Gas Molecular Weight
EPA Method 10	CO Emissions
EPA Method 7E	NO_X Emissions and NO_2 Converter Check
EPA Method 4	Stack Moisture
EPA Method 19	Stack Gas Flow Rate Calculation
EPA Method 25C	Analysis of landfill gas for TNMHC (NMOC)
EPA Method ALT-097	THC, CH_4 and NMOC Emissions
ASTM D-1945/3588	Fuel Analysis for BTU, F-Factors and Fixed Gases
ASTM D-5504	Total Reduced Sulfur Compounds (TRS) in Fuel
EPA Method TO-15	Toxic Organic Compounds in Fuel
BAAQMD ST-19A	SO_2 calculated from TRS

2.3. Test Date

Testing was conducted on January 9, 2024.

2.4. Sampling and Observing Personnel

Testing was conducted by Jaime Rios and Timothy Eandi, representing Blue Sky Environmental, Inc.

Ben Tarver of Waste Management was on-site to oversee flare operations and assist in coordinating testing and the collection of process data to verify the accuracy of digitally recorded data collected during testing.

BAAQMD was notified of the scheduled source test in a source test protocol submitted by SCS Engineers on behalf of Waste Management on December 22, 2023. A Source Test Protocol acknowledgement (NST-8970) was received on December 28, 2023. No agency observers from the district were present during the test program. A copy of the source test protocol and email correspondence are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill Inc. is a multi-material landfill with a gas collection system with a landfill gas treatment and desorption system (S-71) that is abated by two industrial landfill gas enclosed flares. Flare A-51 is a standby abatement devise that has a 90 MMBtu/hr multiple nozzle burner manufactured by Perennial Energy. The Flare shell is approximately 45 feet high and 136 inches in diameter. Permit Condition 19867 Section 30 does not apply to Flare A-51. Flare A-51 is a standby abatement device that was never connected to the Gas Treatment System, S-71, and therefore was not tested with the desorption process.

2.6. Source Operating Conditions

The flare was operated on landfill gas under normal operating conditions during testing with no condensate injection. The average exhaust temperature at normal operating condition was 1,497 °F. The operating exhaust temperature, and flow records are provided in Appendix F.

The fuel volumetric flow rate was continuously measured and recorded by the LFG flow meter at 2-minute intervals and averaged 800 SCFM.

Landfill gas samples collected at the head of the flare had an average methane content of 52.2%. Oxygen content of the fuel samples averaged 1.0%.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

Sampling was conducted at the 136-inch diameter (ID) exhaust stack through ports that were accessed with a 40-foot boom lift. The four-inch flange ports on the flare were located approximately 35 feet above grade, approximately four stack diameters downstream from the burners and one stack diameter upstream from the exhaust.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental conducted two perpendicular 8-point traverses of the stack to check for the presence of stratification. O_2 stratification was greater than 10%; therefore, subsequent CEM sampling was conducted using all traverse points. The traverse points for the 136-inch diameter stack with 4-inch ports were 4.4, 14.3, 26.4, 43.9, 92.1, 109.6, 121.7 and 131.6 inches.

3.3. Sample Train Description

Sampling system diagrams are provided in Appendix H. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Description

Three consecutive thirty-minute gaseous emissions tests were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4) and non-methane organic compounds (NMOC) at the flare exhaust stack. The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. Any drift or bias was corrected using EPA Method 7E. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of three landfill gas samples (one per test run) in 6-liter Silco silanized SUMMA cannisters for analysis of fixed gases by ASTM D-1945. The sampling times and cannister pressures are provided on the laboratory chain-of-custody. The molar composition was used to determine the HHV and F-factor by ASTM D-3588. The samples were also analyzed for non-methane organic compounds (NMOC) by EPA Method 25C and sulfur compounds by ASTM D-5504. Total reduced sulfur (TRS) results were used to calculate the SO_2 emission concentration of the stack gas. The samples were also analyzed for volatile organic compounds by EPA Method TO-15. All samples were analyzed by Atmospheric Analysis & Consulting, Inc (AAC) in Ventura, California.

The sampling and analysis methods are described below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas. A continuous representative gas sample is extracted from the sampling point and conditioned to remove water and particulate material. A small portion of the sample is passed through a fuel cell type paramagnetic oxygen analyzer which measures the electrical current generated by the oxidation reaction at the gas/fuel cell interface. Carbon dioxide is determined by passing the sample through a non-dispersive infrared analyzer (NDIR) tuned to a frequency at which carbon dioxide absorbs infrared radiation.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. A continuous representative gas sample is extracted from the sampling point and conditioned to remove water and particulate material. Nitric oxide is determined by passing the sample through a chemiluminescent analyzer. The chemiluminescent process is based on the light given off when nitric oxide and ozone react. Nitrogen dioxide (NO_2) concentrations are determined by passing the sample through a catalyst which reduces the NO_2 to NO. The total oxides of nitrogen concentration (NO_2 + NO) is then determined by chemiluminescence.

Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide in stationary source emissions using a continuous instrumental analyzer. A continuous representative gas sample is extracted from the sampling point and conditioned to remove water and particulate material. Carbon monoxide is determined by passing the sample through a non-dispersive infrared analyzer (NDIR) tuned to a frequency at which carbon monoxide absorbs infrared radiation.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless-steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 psi is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run.

System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

EPA Method 4 – Determination of Moisture Content in Stack Gas

This method is used to determine the moisture content of stack gas. The sample is extracted and condensed in Greenburg-Smith impingers immersed in an ice bath and in a final impinger silica gel trap. The moisture is condensed in a solution of de-ionized water, or solutions of another type of sampling train if the moisture is being determined as part of another sampling method, such as EPA Method 5, SCAQMD Method 201.7 or BAAQMD ST-32. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively.

QA/QC procedures require that a minimum of 21 cubic feet of sample is pulled using a leak tight pump. The sample volume is measured with a calibrated dry gas meter. The impingers are immersed in an ice bath to maintain a gas outlet temperature of less than 68°F. Pre-test leak checks are performed for each run using a minimum of 15 inches of mercury vacuum. Post-test leak checks are performed at the highest sample vacuum or greater. The leak test is acceptable if the leak rate is less than 0.02 cubic feet per minute or 4% of the average sampling rate, whichever is less. If the final leak check exceeds the criteria, either the volume is corrected based on the leak rate or the run is voided and repeated.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates

This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D-1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

EPA Method 25C – Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gas

This method is used to sample and measure NMOC in landfill gases. The method is written for evacuated tank sampling but is adaptable to Tedlar bag sampling procedures. The sampling equipment consists of a stainless steel or glass lined probe with a short stainless-steel or Teflon transfer line to a Tedlar bag housed in a sealed chamber. The chamber is evacuated by pump at a prescribed rate for the test duration and the Tedlar bag capacity, so the sample is integrated over the test period. The sample is injected into a GC column where the methane and CO_2 are flushed through and removed then the NMOC (ROC) fraction is oxidized to form CO_2 then reduced to methane and analyzed.

EPA Method ALT-097 Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

This is an acceptable alternative to EPA Method 25A for the determination of total hydrocarbons, methane, and non-methane organic compounds in stationary source emissions. The test uses TECO 55C GC/FID methane/non-methane analyzer. Heated Teflon sample gas transfer lines are used to provide a continuous sample to the analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. A system linearity check is performed prior to testing and during testing and calibration drift checks are performed after every run. All data is corrected according to EPA Method 25A.

EPA Compendium Method TO-15 – Determination of Toxic Organic Compounds in Ambient Air

This method is used to measure volatile organic compounds that are included in the hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990 by GC/MS (gas chromatography/mass spectroscopy). Samples are collected in pre-evacuated 6-Liter SUMMA canisters with pre-set flow controllers set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days for the TO-15 Method list of volatile organics. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consisted of capillary orifice tubing designed to sample for a pre-set duration of 0.75hrs.

ASTM D-1945 – Analysis of Natural Gas by Gas Chromatography

This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

BAAQMD Source Test Procedure ST-19 – Sulfur Dioxide, Continuous Sampling

This method is used to quantify sulfur dioxide emissions and determine compliance with Regulations 9-1-302, 9-1-304 through 310, and 10-1-301.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO Model 42C	$NO/NO_2/NO_X$	Chemiluminescence
TECO Model 48C	CO	Gas Filter Correlation (GFC)/IR
TECO Model 55C	CH_4/NMOC/THC	Flame Ionization (FID)
Servomex Model 1440	CO_2	Infrared (IR)
Servomex Model 1440	O_2	Paramagnetic

3.6. System Performance Criteria

The analyzer data recording system consists of a Honeywell DPR300 strip chart recorder supported by a data acquisition system (DAS). The instrument response is recorded on strip charts and DAS. The averages are corrected for drift using BAAQMD and EPA Method 7E equations.

Instrument Linearity	≤2% Full Scale
Instrument Bias	≤5% Full Scale
System Response Time	≤± 2 minutes
NO_X Converter Efficiency *(EPA Method 7E)*	≥ 90%
Instrument Zero Drift	≤± 3% Full Scale
Instrument Span Drift	≤± 3% Full Scale

3.7. Comments: Limitations and Data Qualifications

This source test was performed in accordance with the protocol submitted to BAAQMD. No deviations from the protocol or anomalies were observed during testing. The flare did not meet the Total Reduced Sulfurs permit limit, all over measured emissions from the flare comply with the permit limits.

On October 6, 2016, Redwood Landfill proposed a permit modification to increase the peak limit for this compound. This modification is still under review by BAAQMD. Per the November 2016 Compliance Agreement between Redwood Landfill and BAAQMD, enforcement actions are not expected if the Agreement is complied with.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to this, and do not warrant the accuracy of information supplied by others.

SECTION 4. APPENDICES

A
Tabulated Results

TABLE #1

Redwood Landfill, Inc.
Flare A-51
1,497°F

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	1/10/24	1/10/24	1/10/24		
Test Time	0841-0917	0935-1013	1030-1106		
Standard Temperature, °F	70	70	70		
Process Parameters:					
Flare Temperature, °F	1,497	1,499	1,496	1,497	>1,400
Fuel:					
Fuel Flow Rate, SCFM	799	801	800	800	
Fuel Heat Input, MMBtu/hr	24.7	25.1	24.6	24.8	
Total Reduced Sulfurs as H_2S, ppmv in Fuel	362	413	390	388	370
Stack Gas:					
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	11,602	12,029	11,698	11,776	
Oxygen (O_2), % volume dry	13.9	14.1	14.0	14.0	
Carbon Dioxide (CO_2), % volume dry	6.1	6.1	6.1	6.1	
Water Vapor (H_2O), % volume *(EPA Method 4)*	11.8	13.4	5.4	10.2	
NO_X Emissions (reported as NO_2):					
NOx, ppmvd	15.7	16.4	16.4	16.2	
NOx, ppmvd @ 15% O_2	13.3	14.2	14.1	13.9	15
NOx, lb/hr	1.30	1.41	1.37	1.36	
NOx, lb/MMBtu	0.0527	0.0560	0.0559	0.0548	0.06
CO Emissions:					
CO, ppmvd	4.9	3.3	3.3	3.8	
CO, ppmvd @ 15% O_2	4.2	2.8	2.8	3.3	82
CO, lb/hr	0.25	0.17	0.17	0.20	
CO, lb/MMBtu	0.0101	0.0068	0.0068	0.0079	0.20
SO_2 Emissions:					
SO_2, ppmvd *(calculated)*	24.9	27.5	26.7	26.4	300
SO_2, ppmvd @ 15% O_2	21.1	23.8	22.9	22.6	
SO_2, ppmvd @ 3% O_2	64.1	72.2	69.5	68.6	
SO_2, lb/hr	2.88	3.29	3.10	3.09	
SO_2, lb/MMBtu	0.1163	0.1309	0.1263	0.1245	1.69
THC Emissions (reported as CH_4):					
THC, ppmv wet *(EPA Method ALT-097)*	<10.0	<10.0	<10.0	<10.0	
THC, ppmvd	<11.3	<11.5	<10.6	<11.2	
THC, lb/hr	<0.33	<0.34	<0.31	<0.33	
Methane (CH_4) Emissions:					
CH_4, ppmvd *(EPA Method 25A)*	<10.0	<10.0	<10.0	<10.0	
CH_4, lb/hr	<0.288	<0.299	<0.290	<0.292	
NMOC Emissions (reported as CH_4):					
NMOC, ppmvd *(EPA Method 25A)*	<1.0	<1.0	4.3	<2.1	
NMOC, lb/hr	<0.029	<0.030	0.125	<0.061	
NMOC, ppmvd @ 3% O_2 as CH_4	<2.6	<2.6	11.2	<5.5	30*
NMOC, ppmvd @ 3% O_2 as hexane (C_6H_{14})	<0.43	<0.44	1.87	<0.91	360
Inlet Hydrocarbons (reported as CH_4):					
Inlet NMOC, ppmvd *(EPA Method 25C)*	267	262	253	261	
Inlet NMOC, lb/hr	0.53	0.52	0.50	0.52	
NMOC Destruction Efficiency, %	>94.56%	>94.27%	>75.15%	>87.99%	>98%*
Inlet CH_4, % *(ASTM D-1945)*	521,000	528,000	517,000	522,000	
Inlet CH_4, lb/hr	1,033	1,050	1,027	1,037	
CH_4 Destruction Efficiency, %	>99.97%	>99.97%	>99.97%	>99.97%	>99%
Inlet THC (TOC), %	521,267	528,262	517,253	522,261	
Inlet THC (TOC), lb/hr	1,033.9	1,050.4	1,027.2	1,037.2	
THC (TOC) Destruction Efficiency, %	>99.97%	>99.97%	>99.97%	>99.97%	>98%

** NMOC permit limits are 30 ppmvd @ 3% O_2 or DE >98%*
[1] On October 6, 2016, Redwood Landfill proposed a permit modification to increase the peak limit. This modification is still under review by BAAQMD.

DEFINITIONS:

ppmvd = parts per million concentration by volume expressed on a dry gas basis
lb/hr = pound per hour emission rate
Tstd. = standard temperature (°R = °F+460)
MW = molecular weight
DSCFM = dry standard cubic feet per minute
NO_X = oxides of nitrogen, reported as NO_2 (MW = 46)
CO = carbon monoxide (MW = 28)
TOC = THC = total organic compounds as CH_4, including CH_4 (MW = 16)
THC = total hydrocarbons, reported as CH_4 (MW = 16)
NMOC = total non-methane organic compounds, reported as CH_4 (MW = 16)
SO_2 = Sulfur dioxide (MW = 64.1)

CALCULATIONS:

ppm @ 15% O_2 = ppm · 5.9 / (20.9 - %O_2)
ppm @ 3% O_2 = ppm · 17.9 / (20.9 - %O_2)
lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
lb/MMBtu = lb/hr / fuel heat input, MMBtu/hr
Destruction Efficiency (DE) = (inlet, lb/hr- outlet, lb/hr) / inlet, lb/hr
NMOC, ppm as CH_4 = THC - CH_4
NMOC, ppm as hexane = NMOC, ppm as CH_4 / 6
< Value = 2% of Analyzer Range
SO_2, calculated = H_2S · inlet, DSCFM / exhaust, DSCFM

TABLE # 2

Landfill Gas Characterization

Redwood Landfill, Inc.

Flare A-51

Parameter		Run 1	Run 2	Run 3	Average Results	Permit Limits
Sample ID		1-LFG-Flare A-51	2-LFG-Flare A-51	3-LFG-Flare A-51		
Sample Date		1/10/24	1/10/24	1/10/24		
Acrylonitrile	ppb	<44.7	<45.6	<42.8	<45.2	300
Benzene	ppb	93.8	68.4	66.7	81.1	1,500
Benzyl Chloride (Chloromethylbenzene)	ppb	<44.7	<45.6	<42.8	<45.2	500
Carbon Tetrachloride (Tetrachloromethane)	ppb	<44.7	<45.6	<42.8	<45.2	200
Chlorobenzene	ppb	<44.7	<45.6	<42.8	<45.2	200
Chloroethane	ppb	<44.7	<45.6	<42.8	<45.2	500
Chloroform	ppb	<44.7	<45.6	<42.8	<45.2	200
1,1 Dichloroethane (Ethylidene Dichloride)	ppb	<44.7	<45.6	<42.8	<45.2	500
1,1 Dichloroethene (Vinylidene Chloride)	ppb	<44.7	<45.6	<42.8	<45.2	500
1,2 Dichloroethane (Ethylene Dichloride)	ppb	<44.7	<45.6	<42.8	<45.2	200
1,4 Dichlorobenzene	ppb	<44.7	<45.6	<42.8	<45.2	1,000
Ethylbenzene	ppb	322	266	262	294	4,000
Ethlyene Dibromide (1,2 Dibromoethane)	ppb	<44.7	<45.6	<42.8	<45.2	200
Hexane	ppb	50.0	<45.6	<42.8	<47.8	2,000
Isopropyl Alcohol (IPA)	ppb	383	225	216	304	10,000
Methyl Alcohol (Methanol)	ppb	765	725	814	745	300,000
2-Butanone (Methyl Ethyl Ketone) (MEK)	ppb	866	578	577	722	15,000
Methylene Chloride	ppb	<89.3	<91.2	<355.0	<90.3	1,000
Methyl tert Butyl Ether (MTBE)	ppb	<44.7	<45.6	<42.8	<45.2	500
Perchloroethylene (Tetrachloroethene)	ppb	<44.7	<45.6	<42.8	<45.2	1,000
Styrene	ppb	<44.7	<45.6	<42.8	<45.2	500
Toluene	ppb	858	720	737	789	20,000
1,1,1 Trichlororethane	ppb	<44.7	<45.6	<42.8	<45.2	200
1,1,2,2 Tetrachloroethane	ppb	<44.7	<45.6	<42.8	<45.2	200
Trichloroethylene (Trichloroethene)	ppb	<44.7	<45.6	<42.8	<45.2	500
Vinyl Chloride	ppb	<44.7	<45.6	<42.8	<45.2	2,000
Xylenes	ppb	755	641	615	698	20,000
Carbon Disulfide	ppm	<0.089	<0.091	<0.086	<0.089	
Carbonyl Sulfide (COS/SO_2)	ppm	<0.089	<0.091	<0.086	<0.089	
Dimethyl Sulfide	ppm	<0.089	<0.091	<0.086	<0.089	
Ethyl Mercaptan	ppm	<0.089	<0.091	<0.086	<0.089	
Methyl Mercaptan	ppm	0.819	0.749	0.947	0.838	
Hydrogen Sulfide	ppm	359	410	386	385	
Total Reduced Sulfurs as H_2S	ppm	362	413	390	388	370

Redwood Landfill, Inc.

BAAQMD Facility # 1179

Annual Compliance Emissions Test Report #24192

Landfill Gas Flare A-51 Retest

Located at:
Redwood Landfill, Inc.
8950 Redwood Highway
Novato, CA 94945

Prepared for:
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Sacramento, CA 95827
Attn: Maria Bowen
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For Submittal to:
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Testing Performed on:
May 16, 2024

Final Report Submitted on:
June 28, 2024

Performed and Reported by:
Blue Sky Environmental, Inc.
2273 Lobert Street
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bluesky@blueskyenvironmental.com
Office (510) 525-1261 / Cell (810) 923-3181

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes, it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (810) 923-3181.

Jeramie Richardson

Project Manager

Blue Sky Environmental, Inc.

TABLE OF CONTENTS

SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by SCS Engineers to perform landfill gas testing for the Redwood Landfill Inc. (RLI) in Novato, California. The initial annual compliance test was conducted January 10, 2024. Retesting was conducted May 16, 2024, to demonstrate that Landfill Gas Flare A-51 is operating in compliance with the Bay Area Air Quality Management District (BAAQMD) Permit to Operate for Facility 1179. Results of the H_2S retest program are presented in this report.

The source test information is summarized in Table 1-1. Test results derived from the source test are summarized in Table 1-2. Results for individual test runs are provided in Appendix A. The flare met all compliance emission criteria.

Table 1-1 Source Test Information

Test Location:	Redwood Landfill Inc. 8950 Redwood Highway, Novato, CA 94945
Source Contact:	Maria Bowen, SCS Engineers (619) 455-9518
Source Tested:	Flare A-51 – 90 MMBtu/hr industrial landfill gas flare
Source Test Date:	May 16, 2024
Test Objective:	Determine compliance with Total Reduced Sulfur (TRS) content in the landfill gas.
Test Performed by:	Blue Sky Environmental, Inc 2273 Lobert Street, Castro Valley, CA 94546 Jeramie Richardson (810) 923-3181 bluesky@blueskyenvironmental.com
Test Parameters:	Landfill Gas Fuel Analysis H_2S, Total Reduced Sulfur

Table 1-2 Compliance Summary

Emission Parameter	Average Results (Flare A-51)	Permit Limit	Compliance Status
Total Reduced Sulfurs in Fuel, ppmv	198	350	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This retest was performed to demonstrate that landfill gas Flare A-51 is operating in compliance with Total Reduced Sulfur (TRS) content in the landfill gas.

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA), Bay Area Air Quality Management District (BAAQMD) and ASTM International sampling and analytical methods were used:

ASTM D-5504	Total Reduced Sulfur Compounds (TRS) in Fuel

2.3. Test Date

Testing was conducted on May 16, 2024.

2.4. Sampling and Observing Personnel

Testing was conducted by Jeramie Richardson, representing Blue Sky Environmental, Inc.

Ben Tarver of Waste Management was on-site to oversee flare operations and assist in coordinating testing and the collection of process data to verify the accuracy of digitally recorded data collected during testing.

BAAQMD was notified of the scheduled retest in a source test protocol submitted by SCS Engineers on behalf of Redwood Landfill Inc. on April 30. 2024. A Source Test Protocol acknowledgement (NST-9315) was received on May 3, 2024 for the test. No agency observers from the district were present during the test program. This was a retest to follow Annual testing on January 10, 2024, and the report submitted on March 7, 2024. A copy of the source test protocol and email correspondence are provided in Appendix D.

2.5. Source/Process Description

Redwood Landfill Inc. is a multi-material landfill with a gas collection system that is abated by two industrial landfill gas enclosed flares. Flare A-51 has a 90 MMBtu/hr multiple nozzle burner manufactured by Perennial Energy. The Flare shell is approximately 45 feet high and 136 inches in diameter.

2.6. Source Operating Conditions

The flare was operated on landfill gas under normal operating conditions during testing with no condensate injection. The fuel volumetric flow rate was continuously measured and recorded by the LFG flow meter at 2-minute intervals and averaged 1,184.5 SCFM.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

Sampling was conducted at the inlet of the Flare.

3.2. Sampling Procedure Description

Blue Sky Environmental collected a total of three thirty-minute integrated landfill gas samples in 6-liter Silco cannisters for analysis of sulfur compounds by ASTM D-5504. All samples were analyzed by Atmospheric Analysis & Consulting, Inc (AAC) in Ventura, California.

The sampling and analysis methods are described below:

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed 7 days.

3.3. Comments: Limitations and Data Qualifications

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of Laboratory results.
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

Redwood Landfill, Inc.

BAAQMD Facility # A1179

Annual Compliance Emissions Test Report #24314
Landfill Gas Flare A-60(A) and Gas Treatment System S-71

Located at:
Redwood Landfill
8950 Redwood Highway
Novato, California 94945

Prepared for:
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Attn: Maria Bowen
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For Submittal to:
Bay Area Air Quality Management District
Source Test Division
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San Francisco, CA 94105

Attn: Marco Hernandez and Gloria Espena
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sourcetest@baaqmd.gov

Testing Performed on:
August 19 and 20, 2024

Final Report Submitted on:
October 18, 2024

Performed and Reported by:
Blue Sky Environmental, Inc.
2273 Lobert Street
Castro Valley, CA 94546

Office (510) 525 1261/Cell (810) 923 3181
bluesky@blueskyenvironmental.com

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (810) 923-3181.

Jeramie Richardson

Principal Project Manager

Blue Sky Environmental, Inc.

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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by Waste Management to perform compliance emissions testing at Redwood Landfill, Inc. located in Novato, California. Testing was conducted to demonstrate that the facility's Landfill Gas Flare A-60 (A) and Willexa Gas Treatment and Desorption System (S-71) are operating in compliance with their associated Bay Area Air Quality Management District's (BAAQMD) air contaminant discharge permit. The source test information is summarized in Table 1.1. Test results derived from the source test are summarized in Tables 1.2 and 1.3. Results for individual test runs are included in Appendix A.

Table 1.1 Source Test Information

Test Location:	Redwood Landfill, Inc. 8950 Redwood Highway, Novato, California 94945
Source Contact:	Maria Bowen, SCS Engineers (619) 455-9518
Source Tested:	Enclosed Landfill Gas Flare A-60 (A) and LFG Treatment & Desorption System (S-71)
Source Test Dates:	August 19 and 20, 2024
Test Objective:	Determine compliance with Bay Area Air Quality Management District (BAAQMD) Title V Permit A1179, condition 19867 and condition 25635, part 13, and BAAQMD Regulation 8, Rule 34
Test Performed by:	Blue Sky Environmental, Inc. 2273 Lobert Street, Castro Valley, CA 94546 Jeramie Richardson (810) 923 -3181 bluesky@blueskyenvironmental.com
Test Parameters:	**Landfill Gas** O_2, N_2, CO_2, BTU, THC, CH_4, NMOC, HHV, F-Factor, Sulfur & VOC Species, Volumetric Flow Rate, Landfill Gas **Flare Emissions** THC, CH_4, NMOC, NOx, CO, O_2, SO_2, Volumetric Flow Rate, Temperature

Table 1.2
Enclosed Landfill Gas Flare A-60 (A) Compliance Summary

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
NOx, lb/MMBtu	0.046	0.06	In Compliance
NOx, ppmvd @ 15% O_2	11.6	15	In Compliance
CO, lb/MMBtu	0.120	0.20	In Compliance
CO, ppmvd @ 15% O_2	50.0	82	In Compliance
Total Reduced Sulfur as H_2S	48.2	370	In Compliance
SO_2, ppmvd	4.0	300	In Compliance
SO_2, lb/MMBtu	0.0225	1.69	In Compliance
NMOC, ppm @ 3% O_2 as CH_4	<3.4	30 or	In Compliance
NMOC Destruction Efficiency, %	86.044%	>98%	
CH_4 Destruction Efficiency %	99.963%	>99%	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This performance test was conducted to demonstrate compliance of Enclosed Landfill Gas Flare A-60 (A) with the emission limits specified in Bay Area Air Quality Management District (BAAQMD) Title V Permit A1179, Permit Condition 19867, Part 30 and Permit Condition 25636, Part 4. This testing also satisfies the compliance requirements of BAAQMD Regulation 8 Rule 34.

This report also includes results of fuel gas samples collected from the Willexa Waste Gas Treatment System S-71. There are no compliance limits associated with the results of this system.

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Velocity Traverses
EPA Method 3A	O_2, CO_2
EPA Method 10	CO
EPA Method 25A/ALT-097	THC/CH_4/NMOC
EPA Method 7E	NOx
EPA Method 6C	SO_2
EPA Method 4	Moisture
EPA Method 19	Flow Rate Calculation, DSCFM
EPA Method 25C	LFG Gas analysis for NMOC by GC
EPA Method TO-15	VOC Species
ASTM D-1945/3588	LFG Gas analysis for BTU and F-Factor
ASTM D-5504	Sulfur Species, H_2S and TRS in fuel

2.3. Test Date(s)

Testing was conducted on the Willexa Waste Gas Treatment System S-71 on August 19, 2024. Enclosed Landfill Gas Flare A60 (A) was tested on August 20, 2024.

2.4. Sampling and Observing Personnel

Testing was performed by Jeramie Richardson, Jaime Rios and Bryan Jones representing Blue Sky Environmental, Inc.

Charles Johnson (WMRE Plant Manager) and Jimmie Brunning (Operator) of Waste Management, and Jonathan Silva of SCS Engineers were present to operate and oversee flare operations and assist in coordinating testing and the collection of process data during testing.

BAAQMD was notified of the scheduled testing in a plan submitted by SCS Engineers on July 10, 2024. A Source Test Protocol acknowledgement was requested and received by SCS Engineers (NST #9539 and 9540); however, no agency observers were on site during the test program. A copy of the source test protocol and agency correspondence are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill and Recycling Center is a multi-material landfill with gas collection system treated by a Willexa landfill gas treatment system-desorption process (S-71) and abated by a landfill gas enclosed flare (A-60). Flare A-60 is divided into two discreet zones, A and B. Zone A is the large zone, with 4 sampling ports that require unique (not perpendicular) traverses of 133-inches in length. The Willexa treatment system is designed to remove non-methane organics, sulfurs, siloxanes and chlorinated compounds from up to 1,875 SCFM of landfill gas prior to its use as a fuel in the facility's engines. The Willexa treatment system has four cycles, Depress Cycle #1, Regen Cycle, Depress Cycle #2 and Stabilization. The treated waste gas is vented at separate times through 1-inch and 12-inch diameter pipes to zone A of Flare A60.

2.6. Source Operating Conditions

The A60 (A) flare was operated on landfill gas fuel at an average of 1,553 °F during the test program. Process data collected by the facility (LFG and waste gas flow rate records) are provided in Appendix F. There was no condensate injection. LFG flow rate averaged 1,096 SCFM with an average methane content of 37.9%. The Willexa (S-71) was not purging to the flare during this test.

The Willexa treatment system has main four stages (cycles) consisting of multiple steps that are generally described below:

1 Depress Cycle #1 – 1" line, ~100 SCFM initially for a few minutes. This cycle removes the landfill gas from the vessel and sends it to the Flare and introduces O_2 before the regen cycle starts.

2. Regen Cycle – 12" line from Willexa to the Flare.
   a. Starts at 300 SCFM and ramps up to ~2000 SCFM ~25 minutes.
   b. Once at 2000 SCFM system then starts the heating cycle.
   c. Heats media for an extended time ~ 10-12 hours.
   d. Heat Off, while blower continues to cool down media to 170 degrees or for approximately 6 hours.
   e. Blower ramps down from ~2000 SCFM to 0 SCFM in a few minutes.
   f. Shuts down blower.
3. Depress Cycle #2 – O_2 Purge – 1" line, for ~ 30-45 minutes at ~60 SCFM.
4. Stabilization Cycle – Shuts off valve to flare to stabilize methane.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

The two unequal stack segments (A and B) in Flare A-60 flare present a unique sampling configuration, as the cross-section is neither round, square, rectangular, or oval. The A-60 (A) Flare sampling was conducted via adjacent flange ports, both with a 133 inch traverse path length. The 4-inch flange port was located 35 feet above grade, approximately four stack diameters downstream from the burners and one stack diameter upstream from the exhaust exit. The port was accessed by a 40-foot boom-lift.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental, Inc. conducted sampling at the mid-point of the Flare A60 (A) stack. The stack was traversed during all three runs. Sampling points for the 12-inch diameter stack were 4.3, 14.0, 25.8, 43.0, 90.0, 107.2, 119.0 and 128.7 inches.

The Willexa (S-71) stack was also traversed during all three runs. Sampling points for the 12-inch diameter stack were 0.5, 1.3, 2.3, 3.9, 8.1, 9.7, 10.7 and 11.5 inches.

3.3. Sample Train Description

Sampling system diagrams are provided in Appendix H. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Description

Three 30-minute test runs were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4), and non-methane organic compounds (NMOC) at the flare exhaust.

The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Concurrent with the exhaust sampling, Blue Sky Environmental, Inc. collected a total of ten integrated 6-liter summa canister samples. Three LFG samples were collected from the Flare A60-A exhaust and analyzed for M18. An additional three LFG samples were collected from the A-60-A Flare One sample of the Willexa 1" purge line was collected. Three samples of the Willexa 12-inch purge gas were sampled. The samples were collected using Teflon tubing connections that were filled and purged prior to sampling. All the samples were analyzed for NMOC, HHV, F-Factor, Fixed Gases and Sulfur Species (incl. H_2S and TRS) and VOC Compounds.

Waste gas testing occurred over an approximate 4 hour period on August 19, 2024. Testing was performed during the period of highest concentrations of emissions from the Willexa treatment system. The first event is the LFG purge of the 1-inch line to the Flare. The second and third events were integrated samples taken a period spanning Steps 6,7,8 and 9. During this period the flows were recorded using an Shortridge AIRFOIL pitot fixed in the center of the duct approximately every 15 seconds, additional flows were performed using EPA Method 2 using a standard pitot tube.

The sampling and analysis methods are summarized below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 3 – Gas Analysis for the Determination of Dry Molecular Weight
This method is used to determine the dry molecular weight of stack gas. Measurements of gas constituents % O_2 and % CO_2 were made by BAAQMD Methods ST-14 and ST-5.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DPR3000 strip chart recorder supported by a Data Acquisition System (DAS).

System Performance Criteria

Instrument Linearity	≤ 2% Full Scale (checked)
Instrument Bias	≤ 5% Full Scale (checked)
System Response Time	≤± 2 minutes (checked)
NOx Converter Efficiency *(EPA Method 7E)*	≥ 90% (checked)

EPA Method ALT-097 Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

This is an acceptable alternative to EPA Method 25A for the determination of total hydrocarbons, methane, and non-methane organic compounds in stationary source emissions. The test uses TECO 55C GC/FID methane/non-methane analyzer. Heated Teflon sample gas transfer lines are used to provide a continuous sample to the analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. A system linearity check is performed prior to testing and during testing and calibration drift checks are performed after every run. All data is corrected according to EPA Method 25A.

EPA Method 4 – Determination of Moisture Content in Stack Gas

This method is used to determine the moisture content of stack gas. The sample is extracted and condensed in Greenburg-Smith impingers immersed in an ice bath and in a final impinger silica gel trap. The moisture is condensed in a solution of de-ionized water, or solutions of another type of sampling train if the moisture is being determined as part of another sampling method, such as EPA Method 5, SCAQMD Method 201.7 or BAAQMD ST-32. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively. QA/QC procedures require that a minimum of 21 cubic feet of sample is pulled using a leak tight pump. The sample volume is measured with a calibrated dry gas meter. The impingers are immersed in an ice bath to maintain a gas outlet temperature of less than 68°F. Pre-test leak checks are performed for each run using a minimum 15 inches of mercury vacuum. Post-test leak checks are performed at the highest sample vacuum or greater. The leak test is acceptable if the leak rate is less than 0.02 cubic feet per minute or 4% of the average sampling rate, whichever is less. If the final leak check exceeds the criteria, either the volume is corrected based on the leak rate or the run is voided and repeated.

EPA Compendium Method TO-15 – Determination of Toxic Organic Compounds in Ambient Air

This method is used to measure volatile organic compounds that are included in the hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990 by GC/MS (gas chromatography/mass spectroscopy). Samples are collected in pre-evacuated 6-Liter SUMMA canisters with pre-set flow controllers set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days for the TO-15 Method list of volatile organics. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consisted of capillary orifice tubing designed to sample for a pre-set duration of 0.75hrs.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography
This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence
This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates
This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

Willexa Gas Samples			
8/19/24	LFG Gas Sample	Willexa Purge Gas Sample 12”	Willexa Purge Gas Sample 1”
Run 1-Step 1 0813-0825	-		1”- 4
Run 2 0825-1025	-	12” - 1	-
Run 3 1025-1225	-	12” - 2	-
LFG Gas Samples			
8/20/24	-	-	-
Run 1 0901 - 0936	1-LFG-Flare A60(A)	-	-
Run 2 0955 - 1029	2-LFG-Flare A60(A)	-	-
Run 3 1049 - 1125	3-LFG-Flare A60(A)	-	-

The inlet volumetric Flow Rate and Flare Temperature was continuously measured and recorded by the facility Yokogawa monitors.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO 43C	SO_2	Pulsed Fluorescence
TECO 42C	NO_x	Chemiluminescence
TECO 48C	CO	GFC/IR
TECO 55C	THC/CH_4/NMOC	FID
Servomex 1400	CO_2	IR
Servomex 1400	O_2	Paramagnetic

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Data Acquisition System (DAS). The averages are corrected for drift using CARB Method 100 and EPA method 7E.

3.6. Summary and Comments

This source test was performed in accordance with the protocol submitted to BAAQMD. No deviations from the protocol or anomalies were observed during testing. The flare met all permit required limits.

Blue Sky Environmental, Inc. has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk. Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A. Tabulated Results

B. Calculations

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A
Tabulated Results

Table #1

Redwood Landfill, Inc.
Flare A-60 (A)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	8/20/24	8/20/24	8/20/24	--	
Test Time	0901-0936	0955-1029	1049-1125	--	
Standard Temperature, °F	70	70	70	--	
Process Parameters:					
Flare Temperature, °F	1,553	1,553	1,553	1,553	
Fuel Gas:					
LFG Fuel Flow Rate, SCFM	1,095	1,096	1,098	1,096	
Total Fuel Heat Input, MMBtu/hr	25.1	31.6	19.0	25.2	
Total Reduced Sulfur Compounds as H_2S, ppm *(ASTM D-5504)*	63.3	29.7	51.7	48.2	370
Inlet CH_4, ppm *(ASTM D-1945)*	378,000	475,000	284,000	379,000	
Inlet CH_4, lb/hr	1,027	1,292	774	1,031	
Inlet NMOC, ppm as CH_4 *(EPA Method 25C)*	109	107	88.7	102	
Inlet NMOC, lb/hr as CH_4	0.30	0.29	0.24	0.28	
Inlet THC, ppm as CH4	378,109	475,107	284,089	379,102	
Inlet THC, lb/hr as CH4	1,027.8	1,292.6	774.3	1,031.6	
Stack Gas:					
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	15,085	18,921	9,930	14,645	
Oxygen (O_2), % volume dry	15.5	15.5	14.7	15.2	
Carbon Dioxide (CO_2), % volume dry	4.7	4.8	5.5	5.0	
Moisture (H_2O), % volume dry	7.1	7.0	6.5	6.9	
NO_X Emissions (reported as NO_2):					
NOx, ppmvd	10.6	10.9	12.1	11.2	
NOx, ppmvd @ 15% O_2	11.6	11.8	11.5	11.6	15
NOx, lb/hr	1.14	1.47	0.86	1.16	
NOx, lb/MMBtu	0.045	0.047	0.045	0.046	0.06
NO, ppmvd	9.8	10.2	11.6	10.5	
NO_2, ppmvd	0.8	0.7	0.5	0.7	
NO_2/NO	0.077	0.067	0.047	0.063	
CO Emissions:					
CO, ppmvd	48.0	50.8	44.7	47.8	
CO, ppmvd @ 15% O_2	52.4	55.1	42.6	50.0	82
CO, lb/hr	3.15	4.17	1.93	3.08	
CO, lb/MMBtu	0.125	0.132	0.101	0.120	0.20
Sulfur Dioxide (SO_2) Emissions:					
SO_2, ppmvd (calculated)	4.6	1.7	5.7	4.0	300
SO_2, lb/hr	0.69	0.32	0.56	0.53	
SO_2, lb/MMBtu	0.0274	0.0102	0.0297	0.0225	1.69
THC Emissions (reported as CH_4):					
THC, ppmvd *(Sum CH_4 + NMOC)*	<11.8	<11.8	<11.8	<11.8	
THC, lb/hr	<0.443	<0.556	<0.290	<0.430	
THC Destruction Efficiency, %	99.95685%	99.95700%	99.96254%	99.95880%	
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method 25A)*	<10.0	<10.0	<10.0	<10.0	
CH_4, ppmvd	<10.8	<10.8	<10.7	<10.7	
CH_4, lb/hr	<0.403	<0.505	<0.264	<0.391	
CH_4 Destruction Efficiency, %	99.961%	99.961%	99.966%	99.963%	> 99%
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method 25A)*	<1.0	<1.0	<1.0	<1.0	
NMOC, ppmvd dry	<1.1	<1.1	<1.1	<1.1	
NMOC, lb/hr as CH_4	<0.040	<0.051	<0.026	<0.039	
NMOC, ppmvd @ 3% O_2	<3.6	<3.5	<3.1	<3.4	30*
NMOC, ppmvd @ 3% O_2 as hexane (C_6H_{14})	<0.594	<0.591	<0.516	<0.567	360
NMOC Destruction Efficiency, %	86.394%	82.644%	89.094%	86.044%	>98%*

** >98% NMOC destruction efficiency or <30 ppm NMOC @ 3% O_2*

Definitions:
ppm = parts per million concentration by volume expressed on a dry gas basis
lb/hr = pound per hour emission rate
Tstd. = standard temperature (°R = °F+460)
MW = molecular weight
DSCFM = dry standard cubic foot per minute
NO_X = oxides of nitrogen, reported as NO_2 (MW = 46)
CO = carbon monoxide (MW = 28)
THC = total hydrocarbons reported as methane (MW = 16)
NMOC = non-methane organic compounds, reported as methane
SO_2 = sulfur dioxide (MW = 64.1)

Calculations:
PPM @ 15% O_2 = ppm · 5.9 / (20.9 - %O_2)
PPM @ 3% O_2 = ppm · 17.9 / (20.9 - %O_2)
lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
lb/MMBtu = (lb/hr)/(MMBtu/hr)
lb/day = lb/hr · 24
Destruction Efficiency = (inlet lb/hr- outlet lb/hr) / inlet lb/hr
<Value = <2% of Analyzer Range
ppm dry = ppm wet · 100 / (100 - %$H_2$0)
SO_2 emission ppm = H_2S in fuel * fuel flow rate / stack gas flow rate
NMOC, ppm as hexane = NMOC, ppm as CH_4 / 6

Table #2

Redwood Landfill, Inc.

Landfill Gas Characterization

Parameter		Units	1-LFG-Flare A-60 (A)	2-LFG-Flare A-60 (A)	3-LFG-Flare A-60 (A)	Average Results	Permit Limits
Test Date			8/20/24	8/20/24	8/20/24	-	
Average NMOC as Hexane		ppm	18.2	17.8	14.8	16.9	
EPA TO-15 Results:							
Acrylonitrile		ppb	<48.2	<50.6	<41.8	<46.9	300
Benzene		ppb	79.1	217	337	211	1,500
Benzyl Chloride	Chloromethylbenzene	ppb	<48.2	<50.6	<41.8	<46.9	500
Carbon Tetrachloride		ppb	<48.2	<50.6	<41.8	<46.9	200
Chlorobenzene		ppb	<48.2	<50.6	<41.8	<46.9	200
Chloroethane		ppb	<48.2	<50.6	<41.8	<46.9	500
Chloroform		ppb	<48.2	<50.6	<41.8	<46.9	200
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<48.2	<50.6	<41.8	<46.9	500
1,1 Dichloroethene	Vinylidene Chloride	ppb	<48.2	<50.6	<41.8	<46.9	500
1,2 Dichloroethane	Ethylene Dichloride	ppb	<48.2	<50.6	<41.8	<46.9	200
1,4 Dichlorobenzene		ppb	<48.2	<50.6	<41.8	<46.9	1,000
Ethylbenzene		ppb	150	98.3	81.0	109.8	4,000
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<48.2	<50.6	<41.8	<46.9	200
Hexane		ppb	<48.2	<50.6	<41.8	<46.9	2,000
Isopropyl Alcohol	IPA	ppb	<193	<203	<167	<188	10,000
Methyl Alcohol	Methanol	ppb	778	852	675	768	300,000
Methyl Ethyl Ketone	MEK	ppb	205	164	148	172	15,000
Methylene Chloride		ppb	<96.5	<101	<83.5	<93.7	1,000
Methyl tert Butyl Ether	MTBE	ppb	<48.2	<50.6	<41.8	<46.9	500
Perchloroethylene	Tetrachloroethylene	ppb	<48.2	<50.6	<41.8	<46.9	1,000
Styrene		ppb	<48.2	<50.6	<41.8	<46.9	500
Toluene		ppb	332	254	233	273	20,000
1,1,1 Trichlororethane		ppb	<48.2	<50.6	<41.8	<46.9	200
1,1,2,2 Tetrachloroethane		ppb	<48.2	<50.6	<41.8	<46.9	200
Trichloroethylene	Trichloroethene	ppb	<48.2	50.6	<41.8	<46.9	500
Vinyl Chloride		ppb	<48.2	50.6	<41.8	<46.9	2,000
Xylenes		ppb	336.6	229.8	192.8	253.1	20,000
ASTM D-5504 Results:							
Carbon Disulfide		ppm	<0.096	<0.101	<0.084	<0.094	
Carbonyl Sulfide	COS	ppm	<0.096	<0.101	<0.084	<0.094	
Dimethyl Sulfide		ppm	<0.096	<0.101	<0.084	<0.094	
Ethyl Mercaptan		ppm	<0.096	<0.101	<0.084	<0.094	
Methyl Mercaptan		ppm	<0.096	0.383	<0.084	<0.188	
Hydrogen Sulfide		ppm	61.7	28.1	50.6	46.8	
Total Reduced Sulfur Compounds as H_2S		ppm	63.3	29.7	51.7	48.2	370

K
Willexa Purge Gas Characterization Results

TABLE # 3

REDWOOD LANDFILL

8/19/24

S-71 Willexa Waste Gas Characterization (Permit Condition 30)

RUN			1" Stage 4	12-1	12-2
SOURCE			**1"**	**12"**	**12"**
PROCESS STEP			**4**	**6/7/8**	**9**
Test Date			8/19/24	8/19/24	8/19/24
Test Time			0813-0825	0825-1025	1025-1225
GAS FLOW VELOCITY, SFPM			2,287	2,080	2,068
GAS MOISTURE, % (WB/DB)			1.6	4.4	4.4
GAS FLOW RATE, SCFM			12	1,634	1,624
GAS FLOW RATE, DSCFM			12	1,562	1,553
O_2		%	0.7	21.3	21.4
N_2		%	9.7	78.4	78.6
CO_2		%	40.0	0.3	<0.2
CH_4		%	49.6%	0.062%	0.002%
TRS as H2S		ppm	0.090	0.082	<0.089
NMOC (as Carbon)		ppm	224	<4.9	<5.3
NMOC (as Hexane)		ppm	37	1	<0.9
Acrylonitrile		ppb	<4.19	<4.10	<4.43
Benzene		ppb	<4.19	<4.10	<4.43
Benzyl Chloride	Chloromethylbenzene	ppb	<4.19	<4.10	<4.43
Carbon Tetrachloride		ppb	<4.19	<4.10	<4.43
Chlorobenzene		ppb	<4.19	<4.10	<4.43
Chloroethane		ppb	39.9	<4.10	<4.43
Chloroform		ppb	<4.19	<4.10	<4.43
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<4.19	<4.10	<4.43
1,1 Dichloroethene	Vinylidene Chloride	ppb	<4.19	<4.10	<4.43
1,2 Dichloroethane	Ethylene Dichloride	ppb	<4.19	<4.10	<4.43
1,4 Dichlorobenzene		ppb	<4.19	<4.10	<4.43
Ethylbenzene		ppb	<4.19	<4.10	<4.43
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<4.19	<4.10	<4.43
Hexane		ppb	<4.19	<4.10	<4.43
Isopropyl Alcohol	2-propanol(IPA)	ppb	<16.70	<16.40	<17.70
Methyl Alcohol	Methanol	ppb	580	2,950	1,760
Methyl Ethyl Ketone	MEK	ppb	<8.37	<8.21	<8.87
Methylene Chloride		ppb	<8.37	<8.21	<8.87
Methyl tert Butyl Ether	MTBE	ppb	<4.19	<4.10	<4.43
Perchloroethylene (PCE)	Tetrachloroethylene	ppb	<4.19	<4.10	<4.43
Styrene		ppb	<4.19	<4.10	<4.43
Toluene		ppb	<4.19	<4.10	<4.43
1,1,1 Trichlororethane		ppb	<4.19	<4.10	<4.43
1,1,2,2 Tetrachloroethane		ppb	<4.19	<4.10	<4.43
Trichloroethylene (TCE)	Trichloroethene	ppb	<4.19	<4.10	<4.43
Vinyl Chloride		ppb	32.10	<4.10	<4.43
Xylenes		ppb	<12.56	<12.31	<13.30
Carbon Disulfide		ppm	<0.084	<0.082	<0.089
Carbonyl Sulfide		ppm	<0.084	0.489	<0.089
Dimethyl Sulfide		ppm	<0.084	<0.082	<0.089
Ethyl Mercaptan		ppm	<0.084	<0.082	<0.089
Methyl Mercaptan		ppm	<0.084	<0.082	<0.089
Hydrogen Sulfide		ppm	0.090	0.082	<0.089
TRS as H2S		ppm	0.090	0.082	<0.089

TNMOC= (Ethane (C2) *2) + Propane (C3)*3) + (Isobutane (C4)*4) + Isopentane (C5)*5) + (Hexanes (C6)*6) + (C6*8)

REDWOOD LANDFILL, INC.
8950 Redwood Highway
P.O. Box 793
Novato, CA 94948
(415) 892-2851
(855) 242-0798 Fax

September 7, 2023

Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105

Re: Annual Compliance Emissions Source Test of Flare A60(B)
Title V Permit Condition Number 19867, Part 18, Facility A1179
Redwood Landfill, Inc., Novato, California

On behalf of Redwood Landfill, Inc. (RLI), this letter acknowledges that the July 12, 2023 source test of flare A60(B) shows that the inlet landfill gas exceeded the Total Reduced Sulfur (TRS) permit limit of 370 ppm H_2S. Since July 17, 2023, RLI has established sulfur treatment for the A60 flare and subsequent sulfur inlet concentrations have been below the TRS limit.

If you have any questions regarding this notification, please contact me at (510) 613-2852 or Alisha McCutcheon, Redwood Landfill Technical Manager, at (415) 373-8033.

Thank you,
Redwood Landfill, Inc.

Michael Chan

Michael Chan
Environmental Protection Specialist

Redwood Landfill, Inc.

BAAQMD Facility # A1179

Annual Compliance Emissions Test Report #23204

Landfill Gas Flare A-60(B)

Located at:
Redwood Landfill, Inc.
8950 Redwood Highway
Novato, California 94945

Prepared for:
SCS Engineers
3117 Fite Circle Suite 108
Sacramento, CA 95827

Attn: Maria Bowen
mbowen@scsengineers.com

For Submittal to:
Bay Area Air Quality Management District
Source Test Division
375 Beale Street, Suite 600
San Francisco, CA 94105

Attn: Marco Hernandez and Gloria Espena
mhernandez@baaqmd.gov / gespena@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
July 12, 2023

Final Report Submitted on:
September 8, 2023

Performed and Reported by:
Blue Sky Environmental, Inc.
624 San Gabriel Avenue
Albany, CA 94706

Office (510) 525 1261/Cell (810) 923 3181
bluesky@blueskyenvironmental.com

TABLE OF CONTENTS

SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by Waste Management to perform compliance emissions testing at Redwood Landfill, Inc. located in Novato, California. Testing was conducted to demonstrate that the facility's Landfill Gas Flare A-60 (B) is operating in compliance with their associated Bay Area Air Quality Management District's (BAAQMD) air contaminant discharge permit. The source test information is summarized in Table 1.1. Test results derived from the source test are summarized in Table 1.2 and Table 1.3. Results for individual test runs are included in Appendix A.

Table 1.1 Source Test Information

Test Location:	Redwood Landfill, Inc. 8950 Redwood Highway, Novato, California 94945
Source Contact:	Maria Bowen, SCS Engineers (619) 455-9518
Source Tested:	Enclosed Landfill Gas Flare A-60 (B)
Source Test Dates:	July 12, 2023
Test Objective:	Determine compliance with Bay Area Air Quality Management District (BAAQMD) permit condition 19687 and BAAQMD Regulation 8, Rule 34
Test Performed by:	Blue Sky Environmental, Inc. 2273 Lobert Street, Castro Valley, CA 94546 Jeramie Richardson (810) 923 -3181 jrichardson@blueskyenvironmental.com
Test Parameters:	**Landfill Gas** O_2, N_2, CO_2, BTU, THC, CH_4, NMOC, HHV, F-Factor, Sulfur & VOC Species, Volumetric Flow Rate, Landfill Gas **Flare Emissions** THC, CH_4, NMOC, NOx, CO, O_2, SO_2, Volumetric Flow Rate, Temperature

Table 1.2
Enclosed Landfill Gas Flare A-60 (B) Compliance Summary

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
NOx, lb/MMBtu	0.030	0.06	In Compliance
NOx, ppmvd @ 15% O_2	7.6	15	In Compliance
CO, lb/MMBtu	0.051	0.20	In Compliance
CO, ppmvd @ 15% O_2	21.0	82	In Compliance
SO_2, ppmvd	118.0	300	In Compliance
SO_2, lb/MMBtu	0.5938	1.69	In Compliance
NMOC, ppmvd @ 3% O_2 as CH_4	<3.1	30*	In Compliance
NMOC Destruction Efficiency, %	>97.969%	>98%*	
CH_4 Destruction Efficiency %	>99.966%	>99%	In Compliance
NMOC, ppmvd @ 3% O_2 as hexane	<1.1	360	In Compliance

*>98% NMOC Destruction Efficiency or 30 ppmvd NMOC as CH4 @ 3% O2

Table 1.3
Enclosed Landfill Gas Flare A-60 (B) Landfill Gas Characterization

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
Acrylonitrile	<42.9	300	In Compliance
Benzene	372	1,500	In Compliance
Benzyl Chloride, Chloromethylbenzene	<42.9	500	In Compliance
Carbon Tetrachloride	<42.9	200	In Compliance
Chlorobenzene	<42.9	200	In Compliance
Chloroethane	80.1	500	In Compliance
Chloroform	<42.9	200	In Compliance
1,1 Dichloroethane, Ethylidene Dichloride	<42.9	500	In Compliance
1,1 Dichloroethene, Vinylidene Chloride	<42.9	500	In Compliance
1,2 Dichloroethane, Ethylene Dichloride	59.5	200	In Compliance
1,4 Dichlorobenzene	216	1,000	In Compliance
Ethylbenzene	2,037	4,000	In Compliance
Ethlyene Dibromide, 1,2 Dibromoethane	<42.9	200	In Compliance
Hexane	289	2,000	In Compliance
Isopropyl Alcohol (IPA)	1,052	10,000	In Compliance
Methyl Alcohol, Methanol	1,487	300,000	In Compliance
Methyl Ethyl Ketone MEK	3,053	15,000	In Compliance
Methylene Chloride	<85.8	1,000	In Compliance
Methyl tert Butyl Ether MTBE	<42.9	500	In Compliance
Perchloroethylene, Tetrachloroethylene	47.8	1,000	In Compliance
Styrene	97.0	500	In Compliance
Toluene	3,533	20,000	In Compliance
1,1,1 Trichlororethane	<42.9	200	In Compliance
1,1,2,2 Tetrachloroethane	<42.9	200	In Compliance
Trichloroethylene, Trichloroethene	<44.4	500	In Compliance
Vinyl Chloride	<44.4	2,000	In Compliance
Xylenes	4,463	20,000	In Compliance
Total Reduced Sulfur Compounds as H2S	1,728	370	Exceeds Limit

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This performance test was conducted to demonstrate compliance of Enclosed Landfill Gas Flare A-60 (B) with the emission limits specified in Bay Area Air Quality Management District (BAAQMD) Permit Condition 19867. This testing also satisfies the compliance requirements of BAAQMD Regulation 8 Rule 34. The Willexa landfill gas treatment system (S-71) was not in operation at the time of the source test due to PG&E's direction to not operate the landfill gas engines until the landslide/power poles have been repaired by Caltrans/PG&E.

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Velocity Traverses
EPA Method 3A	O_2, CO_2
EPA Method 10	CO
EPA Method 25A/ALT-097	THC/CH_4/NMOC
EPA Method 7E	NOx
EPA Method 6C	SO_2
EPA Method 4	Moisture
EPA Method 19	Flow Rate Calculation, DSCFM
EPA Method 25C	LFG Gas analysis for NMOC by GC
EPA Method TO-15	VOC Species
ASTM D-1945/3588	LFG Gas analysis for BTU and F-Factor
ASTM D-5504	Sulfur Species, H_2S and TRS in fuel

2.3. Test Date(s)

Testing was conducted on July 12, 2023.

2.4. Sampling and Observing Personnel

Testing was performed by Jamie Rios and Timothy Eandi representing Blue Sky Environmental, Inc.

Riley Lindberg of Waste Management, and Michael Flanagan of SCS Engineers were present to operate and oversee flare operations and assist in coordinating testing and the collection of process data during testing.

BAAQMD was notified of the scheduled testing in a plan submitted by SCS Engineers on June 16, 2023. A Source Test Protocol acknowledgement was requested and received by SCS Engineers (NST 8446); Marco Hernadez was to witness the test program. A copy of the source test protocol and agency correspondence are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill and Recycling Center is a multi-material landfill abated by a landfill gas enclosed flare (A-60). Flare A-60 is divided into two discreet zones, A and B. Zone A is the large zone, with 4 sampling ports that require unique (not perpendicular) traverses of 133-inches in length.

2.6. Source Operating Conditions

The A60 (B) flare was operated on landfill gas fuel at an average of 1,618 °F during the test program. Process data collected by the facility (LFG and waste gas flow rate records) are provided in Appendix F. There was no condensate injection. LFG flow rate averaged 204 SCFM with an average methane content of 47.8%.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

The two unequal stack segments (A and B) in Flare A-60 flare present a unique sampling configuration, as the cross-section is neither round, square, rectangular, or oval. The A-60 (B) Flare sampling was conducted via adjacent flange ports, both with a 133-inch traverse path length. The 4-inch flange port was located 35 feet above grade, approximately four stack diameters downstream from the burners and one stack diameter upstream from the exhaust exit. The port was accessed by a 40-foot boom-lift.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental conducted sampling at the mid-point of the Flare A60 (B) stack. The stack was traversed during all three runs. Sampling points for the 12-inch diameter stack were 4.3, 14.0, 25.8, 43.0, 90.0, 107.2, 119.0 and 128.7 inches.

3.3. Sample Train Description

Sampling system diagrams are provided in Appendix H. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Description

Three 32-minute test runs were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4), and non-methane organic compounds (NMOC) at the flare exhaust.

The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Concurrent with the exhaust sampling, Blue Sky collected a total of ten integrated 6-liter summa canister samples. Three LFG samples were collected from the Flare A60-A exhaust and analyzed for M18. An additional three LFG samples were collected from the A-60-A Flare One sample of the Willexa 1" purge line was collected. Three samples of the Willexa 12-inch purge gas were sampled. The samples were collected using Teflon tubing connections that were filled and purged prior to sampling. All the samples were analyzed for NMOC, HHV, F-Factor, Fixed Gases and Sulfur Species (incl. H_2S and TRS) and VOC Compounds.

The sampling and analysis methods are summarized below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 3 – Gas Analysis for the Determination of Dry Molecular Weight
This method is used to determine the dry molecular weight of stack gas. Measurements of gas constituents % O_2 and % CO_2 were made by BAAQMD Methods ST-14 and ST-5.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a a Data Acquisition System (DAS).

System Performance Criteria

Instrument Linearity	≤ 2% Full Scale (checked)
Instrument Bias	≤ 5% Full Scale (checked)
System Response Time	≤± 2 minutes (checked)
NOx Converter Efficiency *(EPA Method 7E)*	≥ 90% (checked)

EPA Method ALT-097 Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer
This is an acceptable alternative to EPA Method 25A for the determination of total hydrocarbons, methane, and non-methane organic compounds in stationary source emissions. The test uses TECO

55C GC/FID methane/non-methane analyzer. Heated Teflon sample gas transfer lines are used to provide a continuous sample to the analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. A system linearity check is performed prior to testing and during testing and calibration drift checks are performed after every run. All data is corrected according to EPA Method 25A.

EPA Method 4 – Determination of Moisture Content in Stack Gas

This method is used to determine the moisture content of stack gas. The sample is extracted and condensed in Greenburg-Smith impingers immersed in an ice bath and in a final impinger silica gel trap. The moisture is condensed in a solution of de-ionized water, or solutions of another type of sampling train if the moisture is being determined as part of another sampling method, such as EPA Method 5, SCAQMD Method 201.7 or BAAQMD ST-32. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively. QA/QC procedures require that a minimum of 21 cubic feet of sample is pulled using a leak tight pump. The sample volume is measured with a calibrated dry gas meter. The impingers are immersed in an ice bath to maintain a gas outlet temperature of less than 68°F. Pre-test leak checks are performed for each run using a minimum 15 inches of mercury vacuum. Post-test leak checks are performed at the highest sample vacuum or greater. The leak test is acceptable if the leak rate is less than 0.02 cubic feet per minute or 4% of the average sampling rate, whichever is less. If the final leak check exceeds the criteria, either the volume is corrected based on the leak rate or the run is voided and repeated.

EPA Compendium Method TO-15 – Determination of Toxic Organic Compounds in Ambient Air

This method is used to measure volatile organic compounds that are included in the hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990 by GC/MS (gas chromatography/mass spectroscopy). Samples are collected in pre-evacuated 6-Liter SUMMA canisters with pre-set flow controllers set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days for the TO-15 Method list of volatile organics. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consisted of capillary orifice tubing designed to sample for a pre-set duration of 0.75hrs.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography
This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence
This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates
This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO 43C	SO_2	Pulsed Fluorescence
TECO 42C	NO_x	Chemiluminescence
TECO 48C	CO	GFC/IR
TECO 55C	THC/CH_4/NMOC	FID
Servomex 1440	CO_2	IR
Servomex 1440	O_2	Paramagnetic

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Data Acquisition System (DAS), which can be supported by strip chart recorders.

The instrument response was recorded on DAS and some data is manually reduced. The averages were corrected for drift using BAAQMD & EPA Method 7E equations.

3.6. Summary and Comments

This source test was performed in accordance with the protocol submitted to BAAQMD. No deviations from the protocol or anomalies were observed during testing. The total reduced sulfur compounds as H_2S ppm did not meet the permit required limit. All other limits were met.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk. Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A. Tabulated Results

B. Calculations

C. Laboratory Reports

D. Field Data Sheets

E. Process Information

F. Gas Certificates & Equipment Calibrations

G. Sample Train Configuration and Stack Diagrams

H. Related Correspondence (Source Test Plan)

I. Permit to Operate

A
Tabulated Results

TABLE #1

Redwood Landfill, Inc.
Flare A-60 (B)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	7/12/23	7/12/23	7/12/23		
Test Time	1037-1113	1146-1221	1240-1316		
Standard Temperature, °F	70	70	70		
Process Parameters:					
Flare Temperature, °F	1,618	1,618	1,617	1,618	
Fuel Gas:					
LFG Fuel Flow Rate, SCFM	204	205	202	204	
Total Fuel Heat Input, MMBtu/hr	5.8	5.9	5.9	5.9	
Total Reduced Sulfur Compounds as H_2S, ppm *(ASTM D-5504)*	1,667	1,687	1,829	1,728	370
Inlet CH_4, ppm *(ASTM D-1945)*	472,000	480,000	483,000	478,333	
Inlet CH_4, lb/hr	239	244	242	242	
Inlet NMOC, ppm as CH_4 *(EPA Method 25C)*	703	698	717	706	
Inlet NMOC, lb/hr as CH_4	0.36	0.36	0.36	0.36	
Inlet THC, ppm as CH4	472,703	480,698	483,717	479,039	
Inlet THC, lb/hr as CH4	239.4	244.6	242.6	242.2	
Stack Gas:					
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	2,671	3,099	3,211	2,994	
Oxygen (O_2), % volume dry	13.7	14.6	14.9	14.4	
Carbon Dioxide (CO_2), % volume dry	5.3	5.3	5.2	5.3	
Moisture (H_2O), % volume dry	10.7	11.9	6.3	9.6	
NO_X Emissions (reported as NO_2):					
NOx, ppmvd	9.2	8.8	7.2	8.4	
NOx, ppmvd @ 15% O_2	7.6	8.2	7.0	7.6	15
NOx, lb/hr	0.18	0.19	0.16	0.18	
NOx, lb/MMBtu	0.030	0.033	0.028	0.030	0.06
CO Emissions:					
CO, ppmvd	24.5	23.3	21.6	23.1	
CO, ppmvd @ 15% O_2	20.1	21.7	21.1	21.0	82
CO, lb/hr	0.28	0.31	0.30	0.30	
CO, lb/MMBtu	0.049	0.053	0.051	0.051	0.20
Sulfur Dioxide (SO_2) Emissions:					
SO_2, ppm (calculated)	127.3	111.6	115.0	118.0	300
SO_2, lb/hr	3.38	3.44	3.67	3.50	
SO_2, lb/MMBtu	0.5804	0.5791	0.6219	0.5938	1.69
THC Emissions (reported as CH_4):					
THC, ppmvd *(EPA Method ALT 097)*	<11.2	<11.4	<10.7	<11.1	
THC, lb/hr	<0.074	<0.088	<0.085	<0.082	
THC Destruction Efficiency, %	100.000%	100.000%	100.000%	100.000%	
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method ALT 097)*	<10.0	<10.0	<10.0	<10.0	
CH_4, ppmvd	<11.2	<11.4	<10.7	<11.1	
CH_4, lb/hr	<0.074	<0.087	<0.085	<0.082	
CH_4 Destruction Efficiency, %	99.969%	99.964%	99.965%	99.966%	> 99%
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method ALT 097)*	<1.0	<1.0	<1.0	<1.0	
NMOC, ppmvd dry	<1.1	<1.1	<1.1	<1.1	
NMOC, lb/hr as CH_4	<0.007	<0.009	<0.009	<0.008	
NMOC, ppmvd @ 3% O_2	<2.8	<3.2	<3.2	<3.1	30*
NMOC, ppmvd @ 3% O_2 as hexane (C_6H_{14})	<0.466	<0.537	<0.527	<0.510	360
NMOC Destruction Efficiency, %	97.915%	97.541%	97.633%	97.696%	>98%*

** >98% NMOC destruction efficiency or <30 ppm NMOC @ 3% O_2*

WHERE,
ppm = parts per million concentration by volume expressed on a dry gas basis
lb/hr = pound per hour emission rate
Tstd. = standard temperature (°R = °F+460)
MW = molecular weight
DSCFM = dry standard cubic foot per minute
NO_X = oxides of nitrogen, reported as NO_2 (MW = 46)
CO = carbon monoxide (MW = 28)
THC = total hydrocarbons reported as methane (MW = 16)
NMOC = non-methane organic compounds, reported as methane
SO_2 = sulfur dioxide (MW = 64.1)

CALCULATIONS,
PPM @ 15% O_2 = ppm · 5.9 / (20.9 - %O_2)
PPM @ 3% O_2 = ppm · 17.9 / (20.9 - %O_2)
lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
lb/MMBtu = (lb/hr)/(MMBtu/hr)
lb/day = lb/hr · 24
Destruction Efficiency = (inlet lb/hr- outlet lb/hr) / inlet lb/hr
<Value = <2% of Analyzer Range
ppm dry = ppm wet · 100 / (100 - %H_20)
SO_2 emission ppm = H_2S in fuel * fuel flow rate / stack gas flow rate
NMOC, ppm as hexane = NMOC, ppm as CH_4 / 6

TABLE #2

Redwood Landfill, Inc.

Landfill Gas Characterization

Parameter		Units	1-LFG-Flare A-60 (B)	2-LFG-Flare A-60 (B)	3-LFG-Flare A-60 (B)	Average Results	Permit Limits
Test Date			7/12/23	7/12/23	7/12/23		
Average NMOC as Hexane		ppm	117	116	120		
EPA TO-15 Results:							
Acrylonitrile		ppb	<43.9	<36.7	<48.2	<42.9	300
Benzene		ppb	353	385	377	372	1,500
Benzyl Chloride	Chloromethylbenzene	ppb	<43.9	<36.7	<48.2	<42.9	500
Carbon Tetrachloride		ppb	<43.9	<36.7	<48.2	<42.9	200
Chlorobenzene		ppb	<43.9	<36.7	<48.2	<42.9	200
Chloroethane		ppb	80.8	85.2	74.2	80.1	500
Chloroform		ppb	<43.9	<36.7	<48.2	<42.9	200
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<43.9	<36.7	<48.2	<42.9	500
1,1 Dichloroethene	Vinylidene Chloride	ppb	<43.9	<36.7	<48.2	<42.9	500
1,2 Dichloroethane	Ethylene Dichloride	ppb	58.0	61.7	58.7	59.5	200
1,4 Dichlorobenzene		ppb	195	232	222	216	1,000
Ethylbenzene		ppb	1,930	2,100	2,080	2,037	4,000
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<43.9	<36.7	<48.2	<42.9	200
Hexane		ppb	285	295	288	289	2,000
Isopropyl Alcohol	IPA	ppb	836	1,090	1,230	1,052	10,000
Methyl Alcohol	Methanol	ppb	1,160	1,580	1,720	1,487	300,000
Methyl Ethyl Ketone	MEK	ppb	2,760	3,220	3,180	3,053	15,000
Methylene Chloride		ppb	<87.8	<73.4	<96.3	<85.8	1,000
Methyl tert Butyl Ether	MTBE	ppb	<43.9	<36.7	<48.2	<42.9	500
Perchloroethylene	Tetrachloroethylene	ppb	45.7	47.7	50.1	47.8	1,000
Styrene		ppb	86.9	104.0	100.0	97.0	500
Toluene		ppb	3,470	3,530	3,600	3,533	20,000
1,1,1 Trichlororethane		ppb	<43.9	<36.7	<48.2	<42.9	200
1,1,2,2 Tetrachloroethane		ppb	<43.9	<36.7	<48.2	<42.9	200
Trichloroethylene	Trichloroethene	ppb	<43.9	41.1	<48.2	<44.4	500
Vinyl Chloride		ppb	<43.9	41.1	<48.2	<44.4	2,000
Xylenes		ppb	4,230	4,620	4,540	4,463	20,000
ASTM D-5504 Results:							
Carbon Disulfide		ppm	0.177	0.184	0.235	0.199	
Carbonyl Sulfide	COS	ppm	<0.088	<0.073	<0.096	<0.086	
Dimethyl Sulfide		ppm	0.647	0.244	0.362	0.418	
Ethyl Mercaptan		ppm	0.258	0.390	0.274	0.307	
Methyl Mercaptan		ppm	1.10	0.839	0.919	0.953	
Hydrogen Sulfide		ppm	1,655	1,675	1,815	1,715	
Total Reduced Sulfur Compounds as H_2S		ppm	1,667	1,687	1,829	1,728*	370

*Total Reduced Sulfur Compounds as H_2S did not meet the permit limit

Redwood Landfill, Inc.

BAAQMD Facility #1179

Annual Compliance Emissions Test Report #22194
Landfill Gas Engines-Source S-64 and S-65

Located at:
Redwood Landfill
8950 Redwood Highway
Novato, California 94948

Prepared for:
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Testing Performed on:
July 14 - 15, 2022

Final Report Submitted on:
September 12, 2022

Performed and Reported by:
Blue Sky Environmental, Inc.
624 San Gabriel Avenue
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Office (510) 525 1261/Cell (810) 923 3181
bluesky@blueskyenvironmental.com

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (810) 923 - 3181.

Jeramie Richardson

Project Manager

Blue Sky Environmental, Inc.

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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by SCS Engineers to perform annual emissions testing for Waste Management at Redwood Landfill, Inc. located in Novato, California. Testing was conducted to demonstrate that the facility's two 2,739 BHP landfill gas-fired lean-burn IC engines are operating in compliance with their associated Bay Area Air Quality Management District's (BAAQMD) air contaminant discharge permit. The source test information is summarized in Table 1.1. Test results derived from the source test are summarized in Tables 1.2 and 1.3. Results for individual test runs are included in Appendix A. The engines met all compliance emission criteria.

Table 1.1 Source Test Information

Test Location:	Redwood Landfill, Inc. 8950 Redwood Highway, Novato, California 94948
Source Contact:	Alisha McCutcheon (415) 892-2851
Source Tested:	Engine #1 (S-64) – 2,739 BHp Caterpillar model G3502C landfill gas-fired IC engine equipped with oxidation catalyst and SCR with urea injection (S/N LGS00188). Engine #2 (S-65) – 2,739 BHp Caterpillar model G3502C landfill gas-fired IC engine equipped with oxidation catalyst and SCR with urea injection (S/N LGS0189).
Source Test Date:	July 14th – 15th, 2022
Test Objective:	Determine compliance with Bay Area Air Quality Management District (BAAQMD) air contaminant discharge permit for Facility #1179, Condition 25635, Part 13, and 40 CFR 60 Subpart JJJJ
Test Performed by:	Blue Sky Environmental, Inc. 624 San Gabriel Avenue, Albany, California 94706 Jeramie Richardson (810) 923 - 3181 jrichardson@blueskyenvironmental.com
Test Parameters:	**Landfill Gas** O_2, CO_2, BTU, THC, NMOC, HHV, F-Factor, Sulfur & Volumetric Flow Rate **Engine Emissions** THC, NMOC, CH_4, NO_X, CO, O_2, SO_2, PM_{10} (S-64), NH_3, Formaldehyde (S-64) & Volumetric Flow Rate.

Table 1.2
Engine #1 (S-64) Compliance Summary

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
NO_X, g/BHp-hr	0.0119	0.15	In Compliance
CO, g/BHp-hr	0.402	1.8	In Compliance
SO_2, ppm @ 15% O_2	<0.1795	9	In Compliance
SO_2, g/BHp-hr	<0.00358	0.18	In Compliance
Ammonia, ppm @ 15% O_2	0.04	10	In Compliance
CH_4, ppm @ 15% O_2	933.4	3,000	In Compliance
NMOC, ppm @ 15% O_2 as CH_4	4.1	32	In Compliance
NMOC, g/BHp-hr as CH_4	0.021	0.16	In Compliance
Formaldehyde, lb/hr	0.0373	0.51	In Compliance
Total Particulate, as PM_{10}, g/BHp	0.047	0.10	In Compliance
TRS in fuel, ppm as H_2S	2.99	150	In Compliance

Table 1.3
Engine #2 (S-65) Compliance Summary

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
NO_X, g/BHp-hr	0.086	0.15	In Compliance
CO, g/BHp-hr	0.168	1.8	In Compliance
SO_2, ppm @ 15% O_2	<0.1796	9	In Compliance
SO_2, g/BHp-hr	<0.00342	0.18	In Compliance
Ammonia, ppm @ 15% O_2	0.47	10	In Compliance
CH_4, ppm @ 15% O_2	781.0	3,000	In Compliance
NMOC, ppm @ 15% O_2 as CH_4	3.4	32	In Compliance
NMOC, g/BHp-hr as CH_4	0.016	0.16	In Compliance
TRS in fuel, ppm as H_2S	3.01	150	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This annual test was performed to demonstrate compliance of Engine #1 (S-64) and Engine #2 (S-65) with the emission limits specified in Bay Area Air Quality Management District (BAAQMD) Permit to Operate (PTO) for Facility 1179, Permit Condition 25635, Part 13. This testing also satisfies compliance requirements of 40 CFR 60, Subpart JJJJ – New Source Performance Standards for Spark Ignition Internal Combustion Engines

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA), Bay Area Air Quality Management District (BAAQMD), California Air Resources Board (CARB) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Velocity Traverses
EPA Method 2	Flow Rate Calculation, DSCFM
EPA Method 3A	O_2, CO_2
EPA Method 10	CO
EPA Method ALT-078	NMOC, CH_4
EPA Method 7E	NO_X
EPA Method 19	Flow Rate Calculation, DSCFM
EPA Method 25C	LFG Gas analysis for NMOC by GC
ASTM D-1945/3588	LFG Gas analysis for BTU and F-Factor
ASTM D-5504	Sulfur Species, H_2S and TRS
CARB Method 430	Formaldehyde
BAAQMD ST-1B/1A	NH_3
EPA Method 5/202	Particulate Matter (PM_{10} as total PM)

2.3. Test Date(s)

Testing was conducted on July 14th – 15th, 2022.

2.4. Sampling and Observing Personnel

Testing was performed by Jeramie Richardson, Wesley Alder, Zach Sales, Anthony Bomprezzi and Timothy Eandi representing Blue Sky Environmental, Inc.

Jon Silva of SCS Engineers and Michael Chan of Waste Management, were present to operate and oversee the Engine operations and assist in coordinating testing and the collection of process data during testing.

EPA and BAAQMD were notified of the scheduled testing in a plan submitted on June 14th, 2022 and revised June 17th, 2022. Source Test Protocol acknowledgements were received by Blue Sky Environmental (NST #7501 S-64 and NST #7502 S-65). No agency observers were on site during the test program. A copy of the source test protocol and BAAQMD acknowledgments are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill and Recycling Center generates clean renewable electricity from landfill gas produced from decomposing organic materials received at the site. The facility operates two identical 2,739 Bhp-hr Caterpillar G3502C, landfill gas engines equipped with oxidation catalysts and SCR with urea injection. Engine #1 (S-64) and Engine #2 (S-65) emissions vent through 30-inch diameter stacks (inner diameter approx. 28.5 inches).

2.6. Source Operating Conditions

The engines were operated on biogas fuel under normal conditions during the test program. Process data provided by the facility was recorded at 5-minute intervals. The operating kilowatt (kW) and fuel flow rate records are provided in Appendix F.

The average values are listed below.

Parameter	Engine #1 (S-64)	Engine #2 (S-65)
Generator Load, kW	1,197	1,201
Fuel Consumption Rate, SCFM	442.1	421.2

LFG samples collected at the header of Engine #1 (S-64) showed that the methane quality averaged 49.4% and the Oxygen content was 1.03%. LFG samples collected at the header of Engine #2 (S-65) showed that the Methane quality averaged 49.7% and the Oxygen content was 0.93%. Additional LFG data is provided in Appendix C.

Engine serial numbers and hours of operation at time of test

Engine #1 (S-64), SN: LGS00188, Hours of Operation: 41,123

Engine #2 (S-65), SN: LGS00189, Hours of Operation: 40,510

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

Sampling was conducted at the 30-inch diameter exhaust stack of each engine through 4-inch ports that were accessible from ground-level. Sampling ports were located approximately four stack diameters downstream from the nearest disturbance and approximately 1 ½ stack diameters upstream of nearest disturbance or exhaust.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental, Inc. conducted two perpendicular 12-point traverses of each stack to check for the presence of cyclonic flow. The traverse points for the 30-inch diameter stacks with 4-inch deep ports were 0.6, 1.9, 3.4, 5.1, 7.3, 10.3, 18.7, 21.8, 23.9, 25.6, 27.1 and 28.4 inches from the stack wall. Stratification was less than 10%; however, subsequent CEM and PM sampling was conducted using a full traverse across two axis of the stack. Ammonia and formaldehyde samples were collected from a point mid-stack.

3.3. Sample Train Descriptions

Sampling system diagrams are included in the Appendix G. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Descriptions

Three consecutive 60-minute gaseous emissions tests were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), ammonia (NH_3), methane (CH_4), and non-methane organic compounds (NMOC) at each engine exhaust stack.

The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Three 60-minute tests for particulate matter (PM) and three 30-minute test runs for formaldehyde were performed on Engine #1 (S-64).

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of six digester gas samples (three per engine) to determine the average Btu value by ASTM D-1945, and sulfur content by ASTM D-5504. The samples were collected in 6-liter SUMMA cannisters and analyzed by Atmospheric Analysis & Consulting, Inc (AAC) in Ventura, CA. Laboratory test results are provided in Appendix C.

The sampling and analysis methods are summarized below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

CARB/EPA Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
This method is used to determine the average velocity and the volumetric flow rate of stack gas using a standard S-type pitot tube and inclined manometer. Temperature is monitored using a K-type thermocouple and calibrated Omega temperature meter. The entire sampling system is leak checked prior to and at the end of the sampling program. Thermometer calibrations are performed using an Omega Model CL-601K simulator. Geometric calibrations of S-type pitot tubes are performed every 6 months or according to the guidelines outlined in California Air Resources Board (CARB) QA/QC Volume VI, Table 3.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

EPA Method 5 – Determination of Particulate Matter Emissions from Stationary Sources
This method is used to determine filterable particulate matter (PM) emissions from stationary sources. Particulate matter is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at 248 ± 25°F. The sampling equipment consists of a stainless steel or glass nozzle, a heated probe, heated filter box and filter holder with glass fiber filter, followed by a Teflon line and umbilical to four Greenburg-Smith impingers, a pump and a meter control module. Filterable particulate is determined gravimetrically from the probe/nozzle acetone rinse and filter, following evaporation and desiccation of these fractions. The first two impingers contain 100ml of de-ionized water each, a third short-stem impinger is left empty and the fourth impinger contains silica gel desiccant to dry the gas before the pump and gas meter. Moisture is condensed in the solution of de-ionized water and absorbed in the silica gel. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively.

QA/QC: consists of pitot leak checks performed by pressurizing each leg of the pitot separately to a pressure greater than 3" H_2O. The leak check is passed when no movement in the manometer fluid occurs over 15 seconds. Sampling system leak checks are performed before and after each test run by capping the nozzle, then pulling a vacuum greater than 15 inches of mercury and observing the meter rate. The leak check is passed, when the leak rate is less than 0.02 CFM or 4% of the average sample rate, whichever is less. The final leak check is performed at a vacuum at least as high as the highest vacuum pulled during the run. The impingers are kept in ice to maintain the temperature of the gas exiting the last impinger to below 68°F. No silicone grease is used on the components of the sampling train. The dry gas meter, pitot, thermocouples, gauges, and nozzles are all calibrated according to the methods and with a frequency of between 6 to 12 months as specified in CARB QA/QC Volume VI, Table 3. Nozzles are calibrated in the field to within 0.001" diameter and are inspected for damage prior to each test. Acetone rinse blanks are collected using equipment, reagents, proportions, and techniques that are identical to the test samples.

EPA Method 202 – Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources
This method is used to measure condensable particulate matter (CPM) emissions from stationary sources after filterable particulate matter (PM) has been removed. The concentrations and emission rates of PM_{10} are measured using a combination of EPA Methods 5 and EPA Method 202. The CPM is collected in dry impingers followed by a nitrogen purge after filterable PM has been collected. Test runs are ≥60 minutes in duration to collect sufficient sample volume to provide detection limits low enough to determine compliance with the permit conditions.
The apparatus includes a Pyrex/quartz sampling nozzle and Pyrex/quartz probe liner attached to a glass filter holder with glass-fiber filter heated to 248 ± 25°F. The filter holder is mounted to the end of the probe liner, which is attached to a length of heated Teflon tubing to connect the filter holder to the impinger train. The impinger train is connected to the control box, which contains the sampling pump and dry gas meter. A nozzle size is chosen to allow isokinetic sampling (i.e., within 10%) at all the traverse points at the calculated sampling rate.

The filterable "front-half" PM_{10} is recovered from the sampling apparatus as described in EPA Method 5. The sample fractions include the rinses of the internal sections of the nozzle, probe liner, the front-half of the filter holder, and the filter. The sample fractions are analyzed gravimetrically to determine the concentration of filterable PM_{10}.

The "back-half" contents are recovered and analyzed for condensable PM_{10} as described in EPA Method 202. The probe extension, condenser and first impinger contents are rinsed with water into the second impinger. Water is added as necessary for the subsequent purge. The condenser and first impinger are reattached to the second impinger and the condenser, and the impingers and CPM filter are purged with nitrogen for one hour.

After the purge, the sample is recovered in three fractions: 1) the CPM filter, 2) the water contents and rinses of the condenser, impingers, and filter holder, and 3) the acetone/hexane rinses of the condenser, impingers, and filter holder. The sample containers are transported to an environmental testing laboratory for analysis.

CARB Method 430 – Determination of Formaldehyde and Acetaldehyde in Emissions from Stationary Sources

This method is used to determine emissions of aldehydes and ketone compounds from stationary sources. Gaseous emissions are drawn through a short 1/8 inch Teflon sample line and two midget impingers in series, each containing a 10 ml aqueous acidic solution of 2,4-dinitrophenyl-hydrazine (DNPH). Ice is used to cool the impingers during sampling. The sample is drawn at a rate of 0.1 to 0.5 liters per minute for 12 to 60 minutes. After organic solvent extraction, the samples are analyzed using reverse phase HPLC with an ultraviolet (UV) absorption detector operated at 360 nm. Each impinger is analyzed separately.

EPA Method 25A/ALT-078: Sampling for Total Hydrocarbons, Methane and Non-Methane Hydrocarbons. EPA Method 25A (FID/GC Method) employs a heated TECO 55C FID with GC column, heated Teflon sample gas transfer lines to provide a continuous sample to the heated FID/GC Hydrocarbon Analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation. Methane is determined by the calibrated GC method in the TECO 55C NMHC/CH_4/THC Analyzer. Calibration gases are selected to fall within 25-35%, 45-55% and 80-90% of Range for Methane, Total Hydrocarbon and Non-Methane Hydrocarbons

EPA Method 25C – Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gas

This method is used to sample and measure NMOC in landfill gases. Gases are collected in a pre-evacuated 6-Liter SUMMA canister with pre-set flow controller set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consists of capillary orifice tubing designed to sample for a pre-set duration of 0.5 hrs. The sample is injected into a GC column where the methane and CO_2 are flushed through and removed then the NMOC (ROC) fraction is oxidized to form CO_2 then reduced to methane and analyzed.

EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

This method is used to determine emissions of volatile organics by gas chromatograph/mass spectroscopy (GC/MS). Gaseous emissions are drawn through a Teflon sample transfer line to a Tedlar bag held in a rigid leak proof bag container. The sample is drawn into the bag by evacuating the container to stack gas pressure to allow sample flow without using a pump to avoid contamination. Negative pressure is adjusted to maintain an integrated sample flow for the collection time. The bag samples are taken to a laboratory and analyzed within 72 hours.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates

This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

BAAQMD Source Test Procedure ST-1B – Ammonia Integrated Sampling
This method is used to quantify ammonia emissions and determine compliance with Regulation 7-303. The sample is extracted from the gas stream using a Teflon or stainless-steel probe and the ammonia is condensed/adsorbed in two Greenburg-Smith impingers containing 200ml of 0.1N HCl, followed by an empty knock-out impinger, and a fourth impinger containing 200g of pre-weighed silica gel. The moisture gained is determined volumetrically and gravimetrically. A minimum of 20 cubic feet of sample is pulled using a leak tight pump and sampling assembly and the volume is measured with a calibrated dry gas meter. Ammonia is analyzed according to BAAQMD Analytical Procedure Lab-1 with a Specific Ion Electrode, or Nessler's reagent and a spectrophotometer. Results are recorded on the field data sheet. The entire sampling system is leak checked prior to and at the end of each test run. All the sampling equipment is calibrated according to CARB schedules and this documentation is included in the final report. Reagent blanks are collected. Analytical QA/QC includes testing a reagent blank, laboratory blanks, and sample duplicates.

BAAQMD Method 1A – Determination of Ammonia in Effluents Collected in Acid Media using the Specific Ion Electrode
This method is used to determine the ammonia content in effluents absorbed in a dilute HCl solution according to BAAQMD Source Test Procedure ST-1B. A 49ml aliquot of sample is placed into a clean polypropylene beaker and made alkaline with the addition of an ammonia pH adjusting solution. This releases the ammonia for determination by the specific ion electrode method. The sample is placed on top of a magnetic stirrer and a clean Teflon coated magnetic stirring bar is added. The ammonia-specific ion electrode is placed into the sample and a concentration of ammonia (as N_2) is displayed on the meter.
An Orion 920A pH/Concentration/ISE meter with an Orion #95-11 ion-specific electrode is calibrated with 1mg/ml and 10mg/ml ammonia (NH_3) as nitrogen (N_2). The ammonia working standards are produced by diluting 100mg/ml ammonia as nitrogen with 0.1N HCl in 100:1 and 10:1 ratios, respectively. The standards are enhanced with a pH adjusting ionic strength adjuster to help the electrode read the nitrogen more effectively. Once the calibration is completed, the meter will calculate a standard curve for the electrode. The standard curve is acceptable between –54mv (millivolts) and –60mv.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography
This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels
This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used

Instrumentation	Parameter	Principle
TECO Model 42C	$NO_X/NO/NO_2$	Chemiluminescence
TECO Model 48C	CO	GFC/IR
Servomex Model 1440	CO_2	Infrared (IR)
Servomex Model 1440	O_2	Paramagnetic
TECO Model 43C	SO_2	Pulsed Fluorescence
TECO Model 55C	$THC/CH_4/NMOC$	Flame Ionization (FID)

3.6. System Performance Criteria

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DPR 3000 chart recorder, supported by a Data Acquisition System (DAS). The instrument response is recorded on strip charts and DAS. The averages are corrected for drift and bias using EPA Method 7E equations. All system performance criteria were met.

Instrument Linearity	≤2% Full Scale
Instrument Bias	≤5% Full Scale
System Response Time	≤± 2 minutes
NO_X Converter Efficiency *(EPA Method 7E)*	≥ 90%
Instrument Zero Drift	≤± 3% Full Scale
Instrument Span Drift	≤± 3% Full Scale

3.7. Comments: Limitations and Data Qualifications

This source test was performed in accordance with the protocol submitted to BAAQMD. No deviations from the protocol or anomalies were observed during testing. The measured emissions comply with the permitted limits.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A. Tabulated Results

B. Calculations

C. Laboratory Reports

D. Field Data Sheets

E. Process Information

F. Calibration Certificates and Quality Assurance Records

G. Sample Train Configuration and Stack Diagrams

H. Related Correspondence (Source Test Plan)

I. Bay Area Air Quality Management District (BAAQMD) PTO

A
Tabulated Results

TABLE #1

Redwood Landfill, Inc
Engine #1 (S-64)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	7/15/22	7/15/22	7/15/22	--	
Test Time	0943-1124	1256-1419	1520-1644	--	
Standard Temperature, °F	70	70	70	--	
Process Parameters:					
Generator, kW	1,190	1,194	1,206	1,197	
Engine, BHp	1,658	1,664	1,680	1,667	
Urea Injection Rate, gph	1.2	1.2	1.2	1.2	
Fuel:					
Fuel Flow Rate, SCFM	442.0	443.1	441.2	442.1	
Fuel Gross Calorific Value, Btu/cf @ 68°F	494.6	491.6	492.6	493.0	
Fuel Fd-Factor, DSCF/MMBtu @ 68°F	9,546	9,548	9,554	9,550	
Inlet NMOC, ppmv as CH_4 *(EPA Method 25C)*	732	749	596	692	
Inlet NMOC, lb/hr as CH_4	0.8	0.8	0.7	0.8	
Inlet CH_4, ppmv	496,000	493,000	494,000	494,333	
Inlet CH_4, lb/hr	544.2	542.3	541.1	542.6	
H_2S, ppm *(ASTM D5504)*	0.450	0.222	0.237	0.303	
TRS as H_2S, ppm *(ASTM D5504)*	2.87	3.16	2.95	2.99	150
Stack Gas:					
SCR Temperature, °F	825	825	825	825	
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	3,765	3,754	3,760	3,760	
Oxygen (O_2), % volume dry	9.3	9.3	9.4	9.3	
Carbon Dioxide (CO_2), % volume dry	10.3	10.4	10.3	10.3	
Moisture (H_2O), % volume dry	10.8	15.4	11.4	12.5	
NO_X Emissions (reported as NO_2):					
NO_X, ppm	17.7	15.4	16.0	16.4	
NO_X, ppm @ 15% O_2	9.0	7.9	8.2	8.3	
NOx, lb/hr	0.48	0.41	0.43	0.44	
NOx, g/BHp-hr	0.130	0.113	0.116	0.119	0.15
CO Emissions:					
CO, ppm	94.8	89.5	86.9	90.4	
CO, ppm @ 15% O_2	48.3	45.6	44.4	46.1	
CO, lb/hr	1.55	1.46	1.42	1.48	
CO, g/BHp-hr	0.424	0.398	0.383	0.402	1.8
SO_2 Emissions:					
SO_2, ppm *(calculated emission)*	<0.337	<0.373	<0.346	<0.352	
SO_2, ppm @ 15% O_2	<0.1716	<0.1900	<0.1769	<0.1795	9
SO_2, lb/hr	<0.01262	<0.01393	<0.01295	<0.01316	
SO_2, g/BHp-hr	<0.00345	<0.00380	<0.00350	<0.00358	0.18
Ammonia Emissions:					
Ammonia, ppm	0.05	0.04	0.13	0.07	
Ammonia, ppm @ 15% O_2	0.03	0.02	0.07	0.04	10
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method ALT 078)*	1,605.1	1,639.3	1,555.3	1,599.9	
CH_4, ppm	1,799.5	1,936.9	1,754.9	1,830.4	
CH_4, ppm @ 15% O_2	916.5	986.8	897.0	933.4	3,000
CH_4, lb/hr	16.82	18.05	16.38	17.1	
CH_4, g/BHp-hr	4.60	4.92	4.42	4.65	
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method ALT 078)*	7.0	7.5	6.8	7.1	
NMOC, ppm	7.9	8.8	7.6	8.1	
NMOC, ppm @ 15% O_2	4.0	4.5	3.9	4.1	32
NMOC, lb/hr	0.07	0.08	0.07	0.08	
NMOC, g/BHp-hr	0.020	0.022	0.019	0.021	0.16
THC Emissions (reported as CH_4):					
THC, ppm	1,807.4	1,945.7	1,762.5	1,838.5	
THC, lb/hr	16.89	18.13	16.45	17.16	
THC g/BHp-hr	4.62	4.94	4.44	4.67	
CH_4 Destruction Efficiency, %	96.9%	96.7%	97.0%	96.9%	
NMOC Destruction Efficiency, %	>95.5%	>89.9%	>91.9%	>92.4%	

WHERE:

ppm = parts per million concentration by volume expressed on a dry gas basis
lb/hr = pound per hour emission rate
lb/MMBtu = pound per million Btu
Tstd. = standard temperature (°R = °F+460)
MW = molecular weight
DSCFM = dry standard cubic foot per minute
NO_X = oxides of nitrogen, reported as NO_2 (MW = 46)
CO = carbon monoxide (MW = 28)
CH_4 = methane (MW = 16)
SO_2 = sulfur dioxide (MW = 64.1)
NMOC = non-methane organic compounds = POC

CALCULATIONS:

PPM @ 15% O_2 = ppm · 5.9 / (20.9 - %O_2)
lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
g/BHp-hr = lb/hr · 453.6/BHp-hr
Engine BHp = Engine kW · 1.3932 hp/kW
ppm dry = ppm wet · 100 / (100 - %$H_2$0)

Table #2

Total Particulate Results

Redwood Landfill, Inc
Engine #1 (S-64)

Parameter	Run #1	Run #2	Run #3	Average Results	Permit Limits
Test Date	07/15/22	07/15/22	07/15/22	--	
Test Time	0943-1124	1256-1418	1520-1643	--	
Engine kW	1,190	1,194	1,206	1,197	
Engine BHp	1,658	1,664	1,680	1,667	
Sample Volume, DSCF	31.51	32.58	32.57	32.22	
Isokinetic, %	99.3	99.4	109.1	102.6	
Duct Temperature, °F	911.0	917.7	919.3	916.0	
Stack Gas:					
Velocity, ft/sec	39.2	40.9	41.0	40.4	
Flow Rate, ACFM	10,788	11,259	11,292	11,113	
Flow Rate, DSCFM	3,716	3,839	3,885	3,813	
Water Vapor (H_2O), %	11.00	11.58	10.68	11.08	
Oxygen (O_2), %	9.32	9.32	9.36	9.33	
Carbon Dioxide (CO_2), %	10.29	10.40	10.32	10.34	
Filterable Particulate Emissions:					
Filterable Particulate, mg	22.64	0.72	0.05	7.80	
Filterable Particulate, gr/DSCF	0.01109	0.00034	0.00002	0.00382	
Filterable Particulate, lb/hr	0.3531	0.0112	0.0008	0.1217	
Condensable Particulate Emissions:					
Condensable Particulate, mg	3.37	4.03	2.50	3.30	
Condensable Particulate, gr/DSCF	0.00165	0.00073	0.00080	0.00106	
Condensable Particulate, lb/hr	0.0526	0.0241	0.0265	0.0344	
Total Particulate Emissions:					
Total Particulate as PM_{10}, mg	26.01	4.75	2.55	11.10	
Total Particulate as PM_{10}, gr/DSCF	0.0127	0.00225	0.0012	0.0054	
Total Particulate as PM_{10}, lb/hr	0.406	0.074	0.040	0.173	
Total Particulate as PM_{10}, g/BHp-hr	0.111	0.020	0.011	0.047	0.10

WHERE
DSCF = sample volume in dry standard cubic foot
DSCFM = dry standard cubic foot per minute
ACFM = actual cubic foot per minute
H_2O, volume % = stack gas percent water vapor
gr/DSCF = particulate concentration in grains per DSCF
Total Particulate = filterable and condensable particulate matter
Filterable (F/H)
Condensible (B/H)

CALCULATIONS
lb/hr Emission Rate = 0.00857 · gr/DSCF · DSCFM
12% CO_2 Correction = gr/DSCF · 12% / Actual CO_2%
Engine BHp = Engine kW · 1.3932 hp/kW

Table #3

Formaldehyde Method CARB 323

Redwood Landfill, Inc
Engine #1 (S-64)

Parameter	Run 1	Run 2 B	Run 3	Average Results	Permit Limits
Test Date	7/15/22	7/15/22	7/15/22		
Test Time	0943-1124	1256-1419	1520-1644		
Sample Duration, minutes	60	60	60	60	
Standard Temperature, °F	70	70	70	70	
Exhaust Flow Rate, DSCFM *(EPA Method 5/202)*	3,716	3,839	3,885	3,813	
Test Parameters:					
Meter Yd	1.0696	1.0696	1.0696	1.0696	
Average Meter Temperature, °C	26.1	32.5	36.1	31.6	
Average Meter Temperature, °F	79.0	90.5	97.0	88.8	
Meter Volume, L	9.372	9.756	9.848	9.659	
Total Corrected Volume, L	9.857	10.046	10.023	9.975	
Formaldehyde Emissions:					
Formaldehyde, ug/sample	13.6	31.5	32.8	26.0	
Formaldehyde, ug/DSCM	1,380	3,135	3,273	2,596	
Formaldehyde, ppb	1,110	2,523	2,633	2,089	
Formaldehyde, g/hr	8.7	20.46	21.6	16.9	
Formaldehyde, lb/hr	0.0192	0.0451	0.0476	0.0373	0.51

WHERE:
ml = milliliter
g = gram
ug = microgram
DSCFM = dry standard cubic feet per minute
DSCM = dry standard cubic meter
L = Liters

CALCULATIONS:
Formaldehyde, ppb = 1,000 · (ug/sample) · 24.14 / (30.0 MW · Vm std liters)
ug/DSCM = (1,000 L/DSCM) · (ug/sample) / (sample volume, L)
g/hr = ug/DSCM · (DSCFM · 60 min-hr / 35.3)/(1,000,000 g/ug)
lb/hr = (g/hr) / 453.6

TABLE #4

Redwood Landfill, Inc
Engine #2 (S-65)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	7/14/22	7/14/22	7/14/22	--	
Test Time	0837-0940	0958-1102	1119-1227	--	
Standard Temperature, °F	70	70	70	--	
Process Parameters:					
Generator, kW	1,199	1,203	1,200	1,201	
Engine, BHp	1,671	1,676	1,672	1,673	
Urea Injection Rate, gph	1.2	1.2	1.2	1.2	
Fuel:					
Fuel Flow Rate, SCFM	421.0	420.0	422.6	421.2	
Fuel Gross Calorific Value, Btu/cf @ 68°F	490.6	499.6	496.6	495.6	
Fuel Fd-Factor, DSCF/MMBtu @ 68°F	9,553	9,539	9,548	9,547	
Inlet NMOC, ppmv as CH_4 *(EPA Method 25C)*	536	570	582	563	
Inlet NMOC, lb/hr as CH_4	0.6	0.6	0.6	0.6	
Inlet CH_4, ppmv	492,000	501,000	498,000	497,000	
Inlet CH_4, lb/hr	514.2	522.4	522.4	519.7	
H_2S, ppm *(ASTM D5504)*	1.32	0.662	0.488	0.823	
TRS as H_2S, ppm *(ASTM D5504)*	3.22	3.19	2.62	3.01	150
Stack Gas:					
SCR Temperature, °F	825	825	825	825	
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	4,126	4,214	4,232	4,191	
Oxygen (O_2), % volume dry	10.9	11.0	11.0	11.0	
Carbon Dioxide (CO_2), % volume dry	8.9	8.9	8.9	8.9	
Moisture (H_2O), % volume dry	10.0	10.4	10.1	10.2	
NO_X Emissions (reported as NO_2):					
NO_X, ppm	10.9	10.6	10.5	10.7	
NO_X, ppm @ 15% O_2	6.4	6.3	6.3	6.3	
NOx, lb/hr	0.32	0.32	0.32	0.32	
NOx, g/BHp-hr	0.087	0.086	0.086	0.086	0.15
CO Emissions:					
CO, ppm	32.9	33.4	36.0	34.1	
CO, ppm @ 15% O_2	19.4	19.9	21.5	20.3	
CO, lb/hr	0.59	0.61	0.66	0.62	
CO, g/BHp-hr	0.160	0.166	0.180	0.168	1.8
SO_2 Emissions:					
SO_2, ppm *(calculated emission)*	<0.329	<0.318	<0.262	<0.303	
SO_2, ppm @ 15% O_2	<0.1939	<0.1890	<0.1560	<0.1796	9
SO_2, lb/hr	<0.01348	<0.01333	<0.01101	<0.01261	
SO_2, g/BHp-hr	<0.00366	<0.00361	<0.00299	<0.00342	0.18
Ammonia Emissions:					
Ammonia, ppm	0.64	1.28	0.47	0.80	
Ammonia, ppm @ 15% O_2	0.38	0.76	0.28	0.47	10
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method ALT 078)*	1,095.2	1,083.7	1,366.4	1,181.8	
CH_4, ppm	1,216.7	1,209.9	1,519.5	1,315.4	
CH_4, ppm @ 15% O_2	718.2	719.0	905.9	781.0	3,000
CH_4, lb/hr	12.46	12.66	15.96	13.7	
CH_4, g/BHp-hr	3.38	3.42	4.33	3.71	
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method ALT 078)*	4.8	4.6	5.8	5.1	
NMOC, ppm	5.4	5.2	6.5	5.7	
NMOC, ppm @ 15% O_2	3.2	3.1	3.9	3.4	32
NMOC, lb/hr	0.05	0.05	0.07	0.06	
NMOC, g/BHp-hr	0.015	0.015	0.018	0.016	0.16
THC Emissions (reported as CH_4):					
THC, ppm	1,222.1	1,215.1	1,526.0	1,321.0	
THC, lb/hr	12.52	12.71	16.03	13.75	
THC g/BHp-hr	3.40	3.44	4.35	3.73	
CH_4 Destruction Efficiency, %	97.6%	97.6%	96.9%	97.4%	
NMOC Destruction Efficiency, %	>98.9%	>97.8%	>96.2%	>97.6%	

WHERE:
ppm = parts per million concentration by volume expressed on a dry gas basis
lb/hr = pound per hour emission rate
lb/MMBtu = pound per million Btu
Tstd. = standard temperature (°R = °F+460)
MW = molecular weight
DSCFM = dry standard cubic foot per minute
NO_X = oxides of nitrogen, reported as NO_2 (MW = 46)
CO = carbon monoxide (MW = 28)
CH_4 = methane (MW = 16)
SO_2 = sulfur dioxide (MW = 64.1)
NMOC = non-methane organic compounds = POC

CALCULATIONS:
PPM @ 15% O_2 = ppm · 5.9 / (20.9 - %O_2)
lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
g/BHp-hr = lb/hr · 453.6/BHp-hr
Engine BHp = Engine kW · 1.3932 hp/kW
ppm dry = ppm wet · 100 / (100 - %$H_2$0)

APPENDIX O

S-55 STATIC PRESSURE PERFORMANCE TEST
(LEAK TEST)

MB SERVICES

P.O. Box 1299 Suisun City, CA 94585

707-290-7716 Mbservices1@yahoo.com

Letter of Transmittal

Date
03/07/2024

To:	RE:
REDWOOD LANDFILL 8950 REDWOOD HIGHWAY NOVATO, CA 94945	**Testing Results** **GDF# 8573**

Enclosed are copies of the Air Quality test results for your location for test performed Please see below for brief summary.

Test	Passed	Failed	Notes
Air Quality	✓	----	
TP-206.3	✓	----	

State law requires that you keep a copy of these test results at your location. For you convenience the test results were submitted to your local agency.

If you have any question please feel free to contact us at:
707-290-7716
707-439-3778
mbservices1@yahoo.com

Thank you,
MB Services

TP-206.3
AST Static Pressure Performance Test Report Form

Permit Number: GDF# 8573		Test Company: MB Services	
Site Name: Redwood Landfill		Technician: Brian Dunahay	
Site Address: 8950 Redwood Highway		Certification Number	Expiration Date
City: Novato CA	Zip: 94945	ICC: 8021436	08/16/2025
Date of Test:0 3/07/2024			

TEST INFORMATION			
Total number of nozzles: 1		Are the tanks manifolded? ☐ Yes ☒ No	
Phase I vapor recovery system executive order			VR-101
Phase I vapor recovery system configuration	☒ Direct-fill Remote-fill		
Phase II vapor recovery system executive order			N/A
Nitrogen introduction point	X Phase I vapor coupler	☐ Phase I vent line	☐ Phase II vapor riser
Pressure measuring device	X digital manometer		
Calibration date for pressure measuring device (must be within 180 days of the test)			01/10/2024
Ending value for digital manometer drift test if applicable (must be 0.01 in. w.c. or less)			0.00wc
Nitrogen introduction flow rate, F (must be between 1 and 5 CFM)			2 CFM
Number of hoses with over 100 ml (balance hoses must be drained prior to testing)			0

TANK INFORMATION					
Tank No.	1	2	3	4	ALL
Product grade	Unleaded				
Actual tank capacity (gallons)	1,000				1,000
Gasoline volume (gallons)	500				500
Ullage (gallons)[1]	500				500
If tanks are not manifolded, number of nozzles	1				1

2 IN. W.C. STATIC PRESSURE TEST					
Test No.	1	2	3	4	5
Start time	2:30 pm				
Initial Pressure, inches of water column (in. w.c.)	2.00				
Pressure at one minute, in. w.c.	2.05				
Pressure at two minutes, in. w.c.	2.09				
Pressure at three minutes, in. w.c.	2.19				
Pressure at four minutes, in. w.c.	2.16				
Pressure at five minutes, in. w.c.	2.18				
Allowable minimum pressure, in. w.c.	**1.28**				
Pass / Fail	**Pass**				

NOTE: [1]The minimum ullage shall be 25 percent and the maximum shall be 75% of the tank capacity.

I declare, under penalty of perjury under the laws of the state of California that based on information and belief formed after reasonable inquiry, the statements and information provided in this document are true, accurate, and complete.

Signature of Technician: Brian Dunahay Date: 03/07/2024

TABLE 1
TP-206.3

Leak Rate Criteria

ULLAGE (GALLONS)	MINIMUM PRESSURE AFTER 5 MINUTES, (INCHES OF WATER COLUMN)
100	**0.21**
150	0.45
200	**0.65**
250	0.82
300	**0.95**
350	1.05
400	**1.14**
450	1.22
500	**1.28**
550	1.33
600	**1.38**
650	1.42
700	**1.45**
750	1.48
800	**1.51**
850	1.54
900	**1.56**
950	1.58
1,000	**1.60**
1,200	1.66
1,400	**1.70**
1,600	1.74
1,800	**1.77**
2,000	1.79
2,200	**1.81**
2,400	1.82
2,600	**1.83**
2,800	1.85
3,000	**1.86**
3,500	1.88
4,000	**1.89**
4,500	1.90
5,000	**1.91**
6,000	1.93
7,000	**1.94**
8,000	1.94
9,000	**1.95**
10,000	1.96
15,000	**1.97**
20,000	1.98

NOTE: [1]The minimum ullage shall be 25 percent and the maximum shall be 75% of the tank capacity.

Chan, Michael

From: McCutcheon, Alisha
Sent: Tuesday, March 26, 2024 8:40 AM
To: Chan, Michael
Subject: FW: [EXTERNAL] Redwood Landfill Annual Air Quality Test Results
Attachments: Redwood Landfill AQ 3-7-24 Results.pdf

From: Byron Melendez <mbservices1@yahoo.com>
Sent: Monday, March 25, 2024 7:06 PM
To: GDFResults <gdfresults@baaqmd.gov>
Cc: McCutcheon, Alisha <amccutch@wm.com>
Subject: [EXTERNAL] Redwood Landfill Annual Air Quality Test Results

Hi, please open attachment to view the Annual Air Quality Test Results for Redwood Landfill at: 8950 Redwood Highway Novato, CA 94945, if you have any question please let us know.
Thank you, have a great day.

Sincerely,
MB Services
707-290-7716
707-290-1536

APPENDIX P

ROLLING QUARTERLY LFG INPUT AND CO AND SO2 EMISSIONS

QUARTERLY LFG Input to all LFG-Fired Combustion Equipment

WM - REDWOOD LANDFILL, Novato, CA

Quarter	Month	Total LFG Throughput (MMscf)				Monthly Total (MMscf)	Quarterly Total (MMscf)	Rolling 4-Qtr Total (MMscf)
		A-51	A-60	S-64	S-65			
2023 Q1	January	1.65	42.88	20.41	18.98	83.93	301.91	1,055
	February	0.00	59.73	24.25	23.50	107.48		
	March	18.65	74.43	0.67	16.77	110.51		
2023 Q2	April	41.71	56.84	0.00	11.43	109.98	346.09	1,147
	May	46.36	64.87	0.05	10.71	121.99		
	June	49.64	64.49	0.00	0.00	114.12		
2023 Q3	July	52.37	60.06	0.00	0.00	112.43	308.18	1,214
	August	46.55	58.64	0.00	0.00	105.19		
	September	20.57	69.98	0.00	0.00	90.55		
2023 Q4	October	0.00	98.23	0.00	0.00	98.23	297.91	1,254
	November	0.00	97.33	0.00	0.00	97.33		
	December	0.18	102.16	0.00	0.00	102.35		
2024 Q1	January	35.27	73.04	0.00	0.00	108.30	311.77	1,264
	February	45.81	51.91	0.00	0.00	97.72		
	March	52.23	53.51	0.00	0.00	105.74		
2024 Q2	April	12.75	61.91	16.65	17.64	108.95	327.78	1,246
	May	0.25	66.64	24.28	23.62	114.79		
	June	1.39	59.47	22.50	20.68	104.04		
2024 Q3	July	0.00	79.31	9.33	14.30	102.94	292.24	1,230
	August	0.00	63.26	15.33	17.87	96.46		
	September	0.00	92.82	0.00	0.02	92.84		
2024 Q4	October	0.00	85.55	3.11	1.82	90.48	90.48	1,022
	November							
	December							

Pursuant to Title V Permit Condition Number 25634 Part 1, the total landfill gas throughput to the landfill gas combustion equipment at Plant #1179 shall not exceed 2,625 million scf of landfill gas during any consecutive rolling 4-quarter period.

S-66, and S-67 have not been installed.

QUARTERLY CO EMISSIONS From All LFG-Fired Combustion Equipment

WM - REDWOOD LANDFILL, Novato, CA

Quarter	Month	Total CO Emissions (tons)				Monthly Total (tons)	Quarterly Total (tons)	Rolling 4-Qtr Total (tons)
		A-51	A-60	S-64	S-65			
2023 Q1	January	0.03	0.86	0.57	0.23	1.70	5.95	18.9
	February	0.00	1.20	0.68	0.29	2.17		
	March	0.35	1.50	0.02	0.21	2.08		
2023 Q2	April	0.78	1.15	0.00	0.14	2.07	6.61	22.0
	May	0.87	1.31	0.00	0.13	2.31		
	June	0.93	1.30	0.00	0.00	2.23		
2023 Q3	July	0.98	1.21	0.00	0.00	2.19	6.06	23.9
	August	0.87	1.18	0.00	0.00	2.06		
	September	0.39	1.42	0.00	0.00	1.81		
2023 Q4	October	0.00	2.00	0.00	0.00	2.00	6.08	24.7
	November	0.000	1.99	0.00	0.00	1.99		
	December	0.003	2.08	0.00	0.00	2.09		
2024 Q1	January	0.66	1.49	0.00	0.00	2.15	5.27	24.0
	February	0.86	1.06	0.00	0.00	1.92		
	March	0.11	1.09	0.00	0.00	1.20		
2024 Q2	April	0.03	1.26	0.46	0.22	1.97	6.39	23.8
	May	0.00	1.36	0.68	0.29	2.33		
	June	0.00	1.21	0.63	0.25	2.10		
2024 Q3	July	0.00	1.62	0.26	0.18	2.05	5.88	23.6
	August	0.00	1.29	0.43	0.22	1.94		
	September	0.00	1.89	0.00	0.00	1.89		
2024 Q4	October	0.00	1.60	0.09	0.02	1.71	1.71	19.3
	November							
	December							

Pursuant to Title V Permit Condition Number 25634 Part 2, the total CO emissions from all landfill gas combustion equipment at Plant #1179 shall not exceed 237.5 tons during any consecutive rolling 4-quarter period.

S-66, and S-67 have not been installed.

QUARTERLY SO_2 EMISSIONS From All LFG-Fired Combustion Equipment

WM - REDWOOD LANDFILL, Novato, CA

Quarter	Month	Total SO_2 Emissions (tons)				Monthly Total (tons)	Quarterly Total (tons)	Rolling 4-Qtr Total (tons)
		A-51	A-60	S-64	S-65			
2023 Q1	January	0.24	6.12	0.01	0.00	6.37	28.21	49.8
	February	0.00	8.53	0.01	0.01	8.54		
	March	2.66	10.63	0.00	0.00	13.30		
2023 Q2	April	5.63	7.67	0.00	0.00	13.30	43.73	87.3
	May	6.26	8.76	0.00	0.00	15.02		
	June	6.70	8.70	0.00	0.00	15.40		
2023 Q3	July	1.55	1.77	0.00	0.00	3.32	9.10	88.8
	August	1.37	1.73	0.00	0.00	3.11		
	September	0.61	2.07	0.00	0.00	2.67		
2023 Q4	October	0.00	2.73	0.00	0.00	2.73	8.27	89.3
	November	0.00	2.70	0.00	0.00	2.70		
	December	0.01	2.84	0.00	0.00	2.84		
2024 Q1	January	0.97	2.01	0.00	0.00	2.98	8.58	69.7
	February	1.26	1.43	0.00	0.00	2.69		
	March	1.44	1.47	0.00	0.00	2.91		
2024 Q2	April	0.43	2.09	0.00	0.00	2.53	6.87	32.8
	May	0.01	2.25	0.01	0.01	2.27		
	June	0.05	2.01	0.01	0.01	2.07		
2024 Q3	July	0.00	1.60	0.00	0.00	1.61	4.76	28.5
	August	0.00	1.28	0.00	0.00	1.28		
	September	0.00	1.87	0.00	0.00	1.87		
2024 Q4	October	TBD	TBD	0.00	0.00	TBD	TBD	TBD
	November							
	December							

Pursuant to Title V Permit Condition Number 25634 Part 3, the total SO2 emissions from all landfill gas combustion equipment at Plant #1179 shall not exceed 99 tons during any consecutive rolling 4-quarter period.

TBD=To Be Determined.

SO2 emissions from flares are updated at the end of each quarter when the quarterly average emission factor is calculated.