WASTE MANAGEMENT

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1. ☐ RECEIVED IN ENFORCEMENT: 05/30/2023

May 30, 2023

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

Director of the Air Division
USEPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105
Attn: Air-3
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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

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 November 1, 2022 to April 30, 2023, 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.

Ramin A. Khany

Ramin Khany
District Manager

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

November 1, 2022 to April 30, 2023

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

For Submittal to:
The Bay Area Air Quality Management District
375 Beale Street, Suite 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 November 1, 2022 to April 30, 2023. 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.

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 November 1, 2022 to April 30, 2023. 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, 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)
November 2022	721.00	4.33
December 2022	742.67	14.37
January 2023	716.17	64.90
February 2023	672.00	7.57
March 2023	490.50	82.57
April 2023	22.63	0.27
Total Hours:	**3,364.97**	**174.00**

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.

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 in 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)
November 2022	11.08	23.33
December 2022	20.00	20.00
January 2023	34.08	36.75
February 2023	27.67	3.83
March 2023	724.75	258.83
April 2023	720.00	423.00
Total Hours:	**1,537.58**	**765.75**

Appendix B contains the S-64 and S-65 Engine SSM logs, and S-71 Downtime Log which lists dates, times, and lengths of shutdowns for the reporting period.

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, 2 wells (out of a possible 5) remains 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

Total 2022 Downtime:	39.53
November 1, 2022 through April 30, 2023 Downtime:	34.03
January 1, 2023 through April 30, 2023 Total Downtime:	34.03
Total 2023 Downtime:	34.03

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	1/12/2022	3/11/2022	1,509	1,459
A-51	1/12/2023	3/9/2023	1,498	1,448
A-60 Zone A	7/13/2022	9/11/2022	1,582	1,532
A-60 Zone B	7/17/2018	9/14/2018	1,605	1,555

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 November 1, 2022 to April 30, 2023.

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 July 2022. Zone B was tested in July 2018, 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:

- November 30, 2022
- December 28, 2022
- January 25, 2023
- February 23, 2023
- March 31, 2023
- April 30, 2023

No breaches of cover integrity (e.g., cover cracks or exposed garbage) were found during the reporting period. If areas of concern were observed, repairs were documented as required.

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 Fourth Quarter 2022 SEM event was conducted by Roberts Environmental Services (RES) personnel on November 15, 2022. Six exceedances were identified. Corrective action and re-monitoring are described below:

- The first 10-day re-monitoring was completed on November 16, 2022. All locations were observed at less than 500 ppmv as methane.

- 1-month remonitoring was completed on December 13, 2022. All locations cleared.

The First Quarter 2023 SEM was conducted by RES on January 24, 2023. Two exceedances were identified. Corrective action and re-monitoring are described below:

- 10-day re-monitoring was completed on January 27, 2023. All locations cleared.
- 1-month remonitoring was completed February 23, 2023. All locations cleared.

Per the Compliance Agreement between RLI and BAAQMD, the SEM frequency was increased to bi-monthly. In the First Quarter 2023, the bi-monthly Instantaneous SEM was performed on March 28, 2023. There were no exceedances of 500-ppm$_v$ methane detected. No re-monitoring was required.

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:

Fourth Quarter 2022 – November 15, 2022
First Quarter 2023 – January 24, 2023

No exceedances were identified during either 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 November 1, 2022 to April 30, 2023. 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 (November 1, 2022 to April 30, 2023)	94,794 tons
Current Waste In Place as of May 1, 2023	15.06 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 November 1, 2022 to April 30, 2023 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:

- November 7, 17, 28, 29, and 30, 2022
- December 1, 2, 5, 6, 7, and 8, 2022
- January 17, 18, 29, and 20, 2023
- February 7, 8, and 9, 2023
- March 13, 14, 15, 17, 24, 28, 29, 30, and 31, 2023
- April 4, 5, 6, 7, 10, 12, 14, 21, 25, 26, and 27, 2023

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

A total of twenty-nine (29) deviations from the wellhead standards in 8-34-305 occurred during the reporting period. All but nine exceedances were addressed prior to the end of this reporting period (as of May 1, 2023).

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 for November 1, 2022 to April 30, 2023 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	979	1,057	49.8	62,071,279	68,263,525	3,915,334
A-60	4,170	1,276	47.3	319,193,115	584,718,556	2,962,848
S-64	2,806	530	49.4	89,207,490	188,148,342	973,647
S-65	3,578	517	49.7	110,939,834	194,413,338	974,205
Total	4,309	2,249	48.4	581,411,718	1,035,543,762	--

[1] Methane content was determined from the 7/17/18, 7/13/22, 7/14/22, and 1/12/23 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 and 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.

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.

Zero (0) wells were added to and six (6) wells were removed from the collection system during the reporting period (November 1, 2022 to April 30, 2023).

As of the end of this reporting period, 137 total collectors (132 vertical wells and 5 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 November 1, 2022 to April 30, 2023. 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)
November-2022	10,160	119,000
December-2022	10,961	119,182
January-2023	9,634	118,113
February-2023	8,468	117,272
March-2023	8,637	116,472
April-2023	10,834	116,917

Pursuant to Title V Permit Condition Number 13123 Part 7, all yard waste material was processed within 72 hours of receipt. 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 November 1, 2022 to April 30, 2023.

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)
November-2022	181	3,163
December-2022	297	3,220
January-2023	385	3,365
February-2023	356	3,470
March-2023	486	3,724
April-2023	300	3,857

Pursuant to Title V Permit Condition Number 16516, the Static Pressure Performance Test (Leak Test) for S-55 was performed on March 16, 2023. S-55 also passed the 2022 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 no 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)
November-2022	10,160	119,000
December-2022	10,961	119,182
January-2023	9,634	118,113
February-2023	8,468	117,272
March-2023	8,637	116,472
April-2023	10,834	116,917

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 less than the permit limit of 15.31 tons.
- Mean vehicle fleet weight for all off-site vehicles traveling on gravel or dirt roads was 16.63 tons, which does not exceed the permit limit of 16.63 tons.
- The mean vehicle fleet weight for all on-site landfilling and construction related vehicles was 12.6 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. 2022 calendar year VMT on gravel roads was 25,925 VMT, below the limit of 87,080 VMT. 2023 partial calendar year VMT on gravel roads was 7,621 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. 2022 calendar year VMT on dirt roads was 121,858 VMT, below the limit of 198,650 VMT. 2023 partial calendar year VMT on dirt roads was 35,864 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. 2022 calendar year VMT on paved roads was 81,670 VMT, below the limit of 205,880 VMT. 2023 partial calendar year VMT on paved roads was 22,415 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. 2022 calendar year VMT on dirt roads is 17,821 VMT, below the limit of 19,080 VMT. 2023 partial calendar year VMT on dirt roads is 6,019 VMT, below the 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 (November 1, 2022 to April 30, 2023) 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/RAE 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), 2-12 (Engine Inlet before pre-treatment), and Appendix M. As previously discussed, RLI has 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 Characterization Results

Compound	Fourth Quarter 2022 Result (ppm$_v$)	First Quarter 2023 Result (ppm$_v$)
Hydrogen Sulfide	340	1,900
Carbonyl Sulfide	0.38	1.40
Methyl Mercaptan	0.61	1.90
Ethyl Mercaptan	ND	ND
Dimethyl Sulfide	0.21	0.45
Carbon Disulfide	ND	ND
Total Reduced Sulfur	**343**	**1,913**

ND = not detected
N/A = not applicable

Table 2-12 Engine Inlet (pre-treatment) Characterization Results

Compound	Fourth Quarter 2022 Result (ppm$_v$)	First Quarter 2023 Result (ppm$_v$)
Hydrogen Sulfide	420	1,500
Carbonyl Sulfide	0.33	0.88
Methyl Mercaptan	0.50	1.60
Ethyl Mercaptan	ND	0.35
Dimethyl Sulfide	ND	0.32
Carbon Disulfide	ND	ND
Total Reduced Sulfur	**424**	**1,511**

ND = not detected
N/A = not applicable

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 all the Quarters, 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)
2022 Q2	540	599.7
2022 Q3	581	615.1
2022 Q4	663	606.8
2023 Q1	1,674	864.5

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 12, 2023. 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 9, 2023.

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	<SRL	300
Benzene	551	1,500
Benzyl Chloride	<SRL	500
Carbon Tetrachloride	<SRL	200
Chlorobenzene	<SRL	200
Chloroethane	146	500
Chloroform	<SRL	200
1,4-Dichlorobenzene	174	1,000
Ethylbenzene	1,973	4,000
Ethylene Dibromide	<SRL	200
Ethylene Dichloride	190	200
Ethylidene Dichloride	<SRL	500
Hexane	535	2,000
Isopropyl Alcohol	3,557	10,000
Methyl Alcohol	5,543	300,000
Methyl Ethyl Ketone	6,740	15,000
Methylene Chloride	<SRL	1,000
Methyl tert-Butyl Ether	<SRL	500
Perchloroethylene	95	1,000
Styrene	147	500
1,1,2,2-Tetrachloroethane	<SRL	200
Toluene	3,823	20,000
1,1,1-Trichloroethane	<SRL	200
Trichloroethylene	72	500
Vinyl Chloride	55	2,000
Vinylidene Chloride	<SRL	500
Xylenes	4,530	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 on December 7, 2022 and March 29, 2023 at the Flare and the Engine Inlet (pre-treatment). Laboratory analyses were performed by ALS Environmental (ALS). Results from this sampling are presented in Table 2-15 below.

Table 2-15 Toxic Air Contaminants Sampling

Species	**4th Quarter 2022 Flare** (ppb$_v$)	**4th Quarter 2022 Engine Inlet** (ppb$_v$)	**1st Quarter 2023 Flare** (ppb$_v$)	**1st Quarter 2023 Engine Inlet** (ppb$_v$)	**Limit** (ppb$_v$)
Ethylbenzene	2,200	2,400	1,600	1,400	4,000
1,4-Dichlorobenzene	230	300	150	130	1,000

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:

- November 22, 2022
- December 21, 2022
- January 18, 2023
- February 24, 27, and 28, 2023
- March 28, 2023
- April 27, 2023

During the February monitoring, an average reading of 102 ppb H_2S was detected at the SouthEast 2 location on 2/27/23, which is above the 30 ppb 1-hour average. As required by the H_2S Plan, the SouthEast 2 location was remonitored on 2/28/23 with a reading of 170 ppb over 3 minutes and 243 ppb H_2S over 60 minutes. Based on these readings, RLI investigated the landfill and other possible surrounding areas/sources. RLI determined the elevated H_2S readings were not coming from the landfill. It appears the Stormwater Impoundment Pond (Pond) has had substantial infill of water due to the recent rains and is the source of the elevated H_2S readings for February. RLI has implemented corrective actions which includes increased water circulation and aeration of the Pond to minimize H_2S generation. RLI continues corrective actions and monitoring of the effects of the corrective actions implemented.

Except for February, there were no H_2S concentrations observed above 30 ppb averaged over 60 minutes or 60 ppb averaged over 3 minutes for the other months.

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)
November 2022	1,017,220	16,670,100
December 2022	1,332,160	15,569,620
January 2023	4,514,140	17,227,580
February 2023	4,796,500	20,062,040
March 2023	4,391,060	23,164,380
April 2023	3,848,060	25,759,920

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 8, 2022	2.1	1.8	ND<0.51	9.15
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 November 1, 2022 to April 30, 2023 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)
November 2022	0	0	0
December 2022	0	0	0
January 2023	0	0	0
February 2023	0	0	0
March 2023	0	0	0
April 2023	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 SO_2. 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)
2022	2	1,112	24.1	28.2
2022	3	1,057	21.4	29.8
2022	4	1,029	19.7	28.9
2023	1	1,055	18.9	49.5
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 2023 Annual Compliance Demonstration Test (Source Test) was conducted on January 12, 2023. The Test Report was submitted to BAAQMD on March 9, 2023. 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)	6.6	15	---	In Compliance
CO (ppm_v @ 15% O_2)	29.4	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<2.3	---	30	In Compliance
NMOC Inlet (ppm_v)	193	360	---	In Compliance

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 2022 Source Test was performed on by Blue Sky Environmental, LLC on July 13, 2022 with the flare operating in Zone A. The Test Report was submitted to BAAQMD on September 11, 2022. 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)	12.2	15	---	In Compliance
CO (ppm_v @ 15% O_2)	34.7	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<2.9	---	30	In Compliance
NMOC Inlet (ppm_v)	195	360	---	In Compliance

The 2018 Source Test was performed on by Blue Sky Environmental, LLC on July 17, 2018 with the flare operating in Zone B. The Test Report was submitted to BAAQMD on September 14, 2018 and was included in the November 2018 semi-annual report. The revised Test Report was submitted on March 15, 2019 and was included in the May 2019 semi-annual report.

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.

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)	12.6	15	---	In Compliance
CO (ppm_v @ 15% O_2)	78.2	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<9.1	---	30	In Compliance
NMOC Inlet (ppm_v)	233	360		In Compliance

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.

Zero (0) wells were added to and six (6) wells were removed to the collection system during the reporting period (November 1, 2022 to April 30, 2023).

As of the end of this reporting period, 137 total collectors (132 vertical wells and 5 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 agreement includes enhanced monitoring and reporting activities for RLI:

- The frequency for H_2S monitoring using Draeger/RAE 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 are required to be submitted to BAAQMD by the 20th day of each month.

All terms of the Agreement were complied with during the reporting period. The monthly compliance reports were submitted to BAAQMD on the following days:

- December 16, 2022
- January 6, 2023
- February 3, 2023
- March 10, 2023
- April 12, 2023
- May 4, 2023

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 (November 1, 2022 to April 30, 2023) are noted in this section and included in Appendix B. The following information is included as required:

- During the reporting period, 9 A-51 Flare SSM events, 59 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, 19 wellfield SSM events occurred. The time and duration of these events are included in Appendix D, Wellfield SSM Log.

- During the reporting period, 27 S-64 Engine (#1) SSM events, 17 S-65 Engine (#2) SSM events occurred. The time, duration, and cause of each event are included in Appendix B, Flare & Engine SSM Logs

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

- In all 132 flare, wellfield, and engine 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)).

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.***

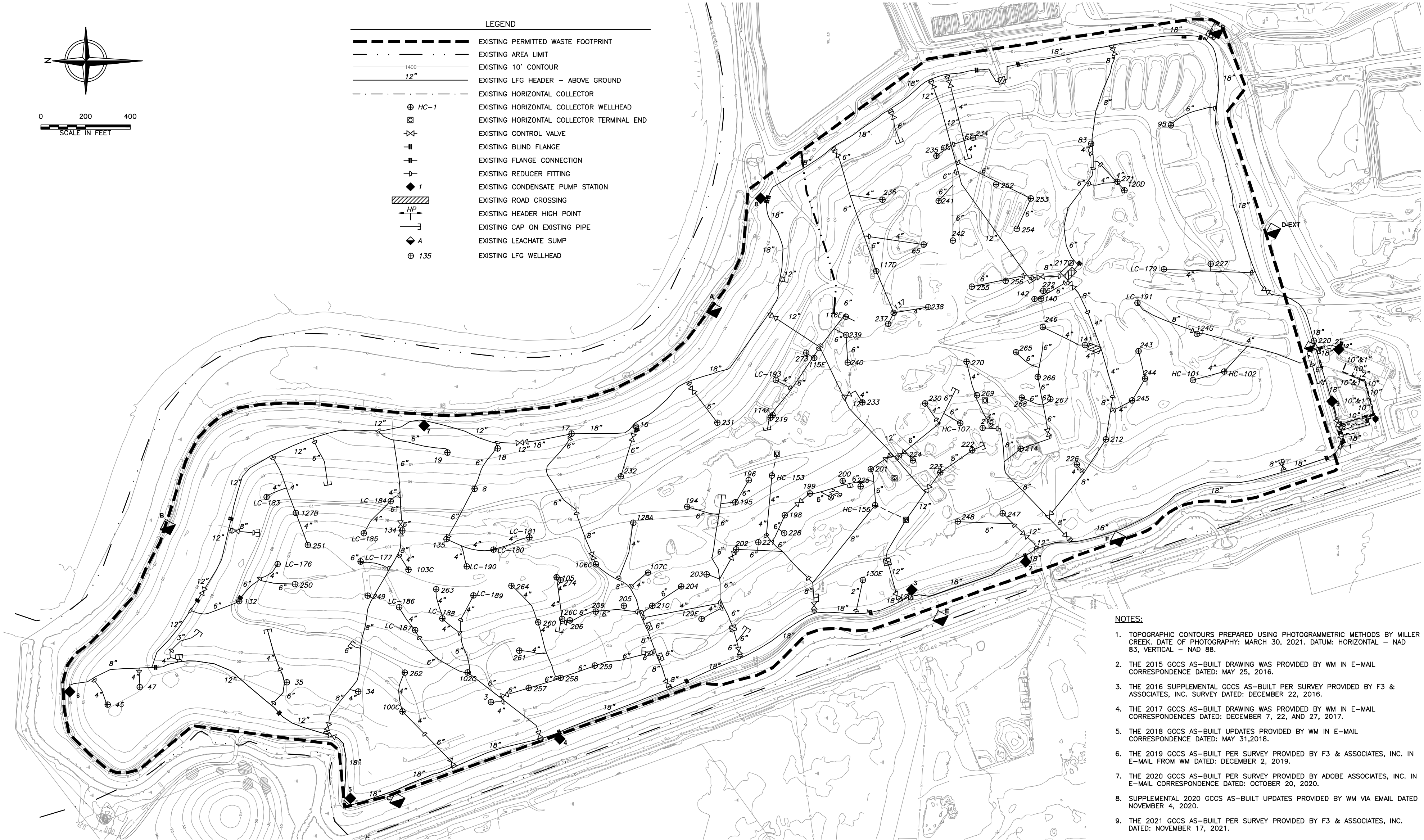
Ramin S. Khany

Signature of Responsible Official **May 30, 2023**
Date

Ramin Khany
Name of Responsible Official

APPENDIX A

SITE MAP



LEGEND

▬ ▬ ▬	EXISTING PERMITTED WASTE FOOTPRINT
— · · —	EXISTING AREA LIMIT
1400	EXISTING 10' CONTOUR
12"	EXISTING LFG HEADER – ABOVE GROUND
— · — · —	EXISTING HORIZONTAL COLLECTOR
⊕ HC-1	EXISTING HORIZONTAL COLLECTOR WELLHEAD
⊠	EXISTING HORIZONTAL COLLECTOR TERMINAL END
⋈	EXISTING CONTROL VALVE
⊣	EXISTING BLIND FLANGE
⊣⊢	EXISTING FLANGE CONNECTION
▷	EXISTING REDUCER FITTING
◆ 1	EXISTING CONDENSATE PUMP STATION
▨	EXISTING ROAD CROSSING
HP	EXISTING HEADER HIGH POINT
⊐	EXISTING CAP ON EXISTING PIPE
◆ A	EXISTING LEACHATE SUMP
⊕ 135	EXISTING LFG WELLHEAD

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

1" 1/2" 0" 1"

File: X:\PROJECTS\REDWOOD\210036 – 2021 GCCS Phasing Plans\As-Built\200136_REDWOOD_AS-BUILT_DRAFT_211220.DWG Layout: S1 User: GERARDO.PAREDES Dec 20, 2021 – 8:59pm

APPENDIX B

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

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	☒ Shutdown ☐ Startup ☐ Malfunction	A-51 Flare	10/11/22 12:40 12/28/22 10:26	10/11/22 12:42 12/28/22 10:28	0.03 0.03	1869.77	After A60 maintenance/repair, operate system with A60 only.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	12/28/2022
2	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	12/28/22 11:46 1/11/23 8:16	12/28/22 11:48 1/11/23 8:18	0.03 0.03	332.50	After A51 maintenance, operate system with A60 only.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	1/11/2023
3	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	1/12/23 12:06 3/14/23 12:22	1/12/23 12:08 3/14/23 12:24	0.03 0.03	1464.27	Manual shutdown for inspection and maintenance. After A51 source test, operate system with A60 only.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	3/14/2023
4	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	3/16/23 9:10 3/21/23 15:26	3/16/23 9:12 3/21/23 15:28	0.03 0.03	126.27	Manual shutdown to operate system with A60 only.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	3/21/2023
5	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	3/21/23 17:54 3/21/23 18:44	3/21/23 17:56 3/21/23 18:46	0.03 0.03	0.83	Power surge shutdown. Manual startup.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☐ No		Mike Chan	3/21/2023
6	☒ Shutdown ☐ Startup ☐ Malfunction	A-51 Flare	3/21/23 19:54 3/21/23 22:05	3/21/23 19:56 3/21/23 22:07	0.03 0.03	2.18	Power surge shutdown. PG&E power outage 3/21/23 10:05 pm (landslide from storm)	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☐ No		Mike Chan	3/21/2023
7	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	3/21/23 22:05 3/23/23 11:38	3/21/23 22:07 3/23/23 11:40	0.03 0.03	37.55	PG&E power outage (landslide from storm) Breakdown report (RCA #08R81). PG&E back online 3/23/23 11:10am	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☐ No		Mike Chan	3/23/2023
8	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	3/28/23 11:14 3/28/23 11:44	3/28/23 11:16 3/28/23 11:46	0.03 0.03	0.50	Varying flow/temperature alarm shutdown. Engine #2 restarting	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☐ No		Mike Chan	3/28/2023
9	☒ Shutdown ☒ Startup ☐ Malfunction	A-51 Flare	4/18/23 13:30 4/19/23 12:00	4/18/23 13:32 4/19/23 12:02	0.03 0.03	22.50	Manual shutdown. Engine #2 restarting.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	4/19/2023

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	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/1/22 11:36 11/1/22 12:26	11/1/22 11:38 11/1/22 12:28	0.03 0.03	0.83	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/1/2022
2	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/2/22 17:04 11/2/22 17:40	11/2/22 17:06 11/2/22 17:42	0.03 0.03	0.60	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/2/2022
3	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/5/22 3:22 11/5/22 4:12	11/5/22 3:24 11/5/22 4:14	0.03 0.03	0.83	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/5/2022
4	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/6/22 10:52 11/6/22 11:00	11/6/22 10:54 11/6/22 11:02	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/6/2022
5	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/7/22 19:20 11/7/22 20:00	11/7/22 19:22 11/7/22 20:02	0.03 0.03	0.67	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/7/2022
6	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/9/22 2:02 11/9/22 2:50	11/9/22 2:04 11/9/22 2:52	0.03 0.03	0.80	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/9/2022
7	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/10/22 7:34 11/10/22 8:20	11/10/22 7:36 11/10/22 8:22	0.03 0.03	0.77	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/10/2022
8	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/11/22 12:16 11/11/22 12:52	11/11/22 12:18 11/11/22 12:54	0.03 0.03	0.60	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/11/2022
9	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/12/22 18:10 11/12/22 18:50	11/12/22 18:12 11/12/22 18:52	0.03 0.03	0.67	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/12/2022
10	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/15/22 4:14 11/15/22 5:10	11/15/22 4:16 11/15/22 5:12	0.03 0.03	0.93	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/15/2022
11	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/16/22 14:34 11/16/22 15:16	11/16/22 14:36 11/16/22 15:18	0.03 0.03	0.70	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/16/2022
12	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	11/20/22 10:26 11/20/22 10:34	11/20/22 10:28 11/20/22 10:36	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	11/20/2022

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		A-60 Zone A	11/22/22 4:42	11/22/22 4:44	0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	11/22/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		11/22/22 4:50	11/22/22 4:52	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			
14		A-60 Zone A	11/26/22 11:46	11/26/22 11:48	0.03	0.20	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	11/26/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		11/26/22 11:58	11/26/22 12:00	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			
15		A-60 Zone A	11/28/22 14:12	11/28/22 14:14	0.03	0.20	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	11/28/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		11/28/22 14:24	11/28/22 14:26	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			
16		A-60 Zone A	11/30/22 0:24	11/30/22 0:26	0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	11/30/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		11/30/22 0:30	11/30/22 0:32	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			
17		A-60 Zone A	11/30/22 15:18	11/30/22 15:20	0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	11/30/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		11/30/22 15:24	11/30/22 15:26	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			
18		A-60 Zone A	12/2/22 15:48	12/2/22 15:50	0.03	1.23	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/2/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/2/22 17:02	12/2/22 17:04	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	☒ Automatic (Go to 9)		☐ No	☒ No			
19		A-60 Zone A	12/5/22 12:04	12/5/22 12:06	0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/5/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/5/22 12:12	12/5/22 12:14	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			
20		A-60 Zone A	12/5/22 14:32	12/5/22 14:34	0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/5/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/5/22 14:40	12/5/22 14:42	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			
21		A-60 Zone A	12/5/22 14:58	12/5/22 15:00	0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/5/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/5/22 15:06	12/5/22 15:08	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			
22		A-60 Zone A	12/6/22 22:00	12/6/22 22:02	0.03	9.13	Low temperature/flame loss alarm shutdown. Manual restart.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/7/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/7/22 7:08	12/7/22 7:10	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		A-60 Zone A	12/8/22 15:04	12/8/22 15:06	0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/8/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/8/22 15:10	12/8/22 15:12	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		A-60 Zone A	12/10/22 9:08	12/10/22 9:10	0.03	0.50	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	12/10/2022
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		12/10/22 9:38	12/10/22 9:40	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			

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
25	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/11/22 15:08 12/11/22 15:20	12/11/22 15:10 12/11/22 15:22	0.03 0.03	0.20	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/11/2022
26	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/11/22 15:48 12/11/22 15:56	12/11/22 15:50 12/11/22 15:58	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/11/2022
27	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/12/22 21:18 12/12/22 21:36	12/12/22 21:20 12/12/22 21:38	0.03 0.03	0.30	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/12/2022
28	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/17/22 15:16 12/17/22 15:24	12/17/22 15:18 12/17/22 15:26	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/17/2022
29	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/19/22 22:16 12/19/22 22:30	12/19/22 22:18 12/19/22 22:32	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/19/2022
30	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/20/22 13:32 12/20/22 13:38	12/20/22 13:34 12/20/22 13:40	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/20/2022
31	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/23/22 0:38 12/23/22 0:48	12/23/22 0:40 12/23/22 0:50	0.03 0.03	0.17	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/23/2022
32	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/25/22 11:02 12/25/22 11:14	12/25/22 11:04 12/25/22 11:16	0.03 0.03	0.20	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/25/2022
33	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/27/22 19:40 12/27/22 19:46	12/27/22 19:42 12/27/22 19:48	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/27/2022
34	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/28/22 10:18 12/28/22 11:52	12/28/22 10:20 12/28/22 11:54	0.03 0.03	1.57	Manual shutdown and startup for flare maintenance.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	12/28/2022
35	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/29/22 13:48 12/29/22 13:54	12/29/22 13:50 12/29/22 13:56	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/29/2022
36	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	12/30/22 20:44 12/30/22 21:08	12/30/22 20:46 12/30/22 21:10	0.03 0.03	0.40	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	12/30/2022
37	☒ Shutdown ☒ Startup ☐ Malfunction	A-60 Zone A	1/3/23 8:06 1/3/23 8:14	1/3/23 8:08 1/3/23 8:16	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☐ 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) ☐ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☒ No ☐ Yes (Go to 10) ☒ No		Mike Chan	1/3/2023

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
38		A-60 Zone A	1/4/23 23:14	1/4/23 23:16	0.03	0.87	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/5/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/5/23 0:06	1/5/23 0:08	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			
39		A-60 Zone A	1/6/23 6:46	1/6/23 6:48	0.03	0.17	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/6/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/6/23 6:56	1/6/23 6:58	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			
40		A-60 Zone A	1/9/23 19:20	1/9/23 19:22	0.03	13.57	Engine plant start/stop engines cause varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/10/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/10/23 8:54	1/10/23 8:56	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			
41		A-60 Zone A	1/11/23 8:08	1/11/23 8:10	0.03	28.07	Manual shutdown for inspection and maintenance and A51 source test.	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/12/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		1/12/23 12:12	1/12/23 12:14	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			
42		A-60 Zone A	1/13/23 11:22	1/13/23 11:24	0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/13/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/13/23 11:28	1/13/23 11:30	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			
43		A-60 Zone A	1/15/23 13:00	1/15/23 13:02	0.03	0.17	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/15/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/15/23 13:10	1/15/23 13:12	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			
44		A-60 Zone A	1/17/23 13:28	1/17/23 13:30	0.03	0.23	Manual shutdown to connect generator.	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/17/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		1/17/23 13:42	1/17/23 13:44	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			
45		A-60 Zone A	1/17/23 20:12	1/17/23 20:14	0.03	12.03	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/18/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/18/23 8:14	1/18/23 8:16	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			
46		A-60 Zone A	1/20/23 11:36	1/20/23 11:38	0.03	0.47	Varying flow/temperature alarm shutdown due to testing generator & auto transfer switch.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/20/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/20/23 12:04	1/20/23 12:06	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			
47		A-60 Zone A	1/27/23 4:32	1/27/23 4:34	0.03	1.60	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/27/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/27/23 6:08	1/27/23 6:10	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			
48		A-60 Zone A	1/27/23 7:52	1/27/23 7:54	0.03	2.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/27/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/27/23 9:58	1/27/23 10:00	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			
49		A-60 Zone A	1/27/23 20:34	1/27/23 20:36	0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/27/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/27/23 20:40	1/27/23 20:42	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			
50		A-60 Zone A	1/29/23 2:16	1/29/23 2:18	0.03	0.10	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	1/29/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		1/29/23 2:22	1/29/23 2:24	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			

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
51	☐	A-60 Zone A	1/31/23 17:32	1/31/23 17:34	0.03	14.07	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	2/1/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		2/1/23 7:36	2/1/23 7:38	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	☐ Automatic (Go to 9)		☒ No	☐ No			
52	☐	A-60 Zone A	3/14/23 9:46	3/14/23 9:48	0.03	1.03	High flow/temperature alarm shutdown. Both engines offline.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/14/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		3/14/23 10:48	3/14/23 10:50	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			
53	☐	A-60 Zone A	3/14/23 11:12	3/14/23 11:14	0.03	0.70	High flow/temperature alarm shutdown. Both engines offline.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/14/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		3/14/23 11:54	3/14/23 11:56	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			
54	☐	A-60 Zone A	3/14/23 12:16	3/14/23 12:18	0.03	45.00	High flow/temperature alarm shutdown. Both engines off. Run A51.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/16/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		3/16/23 9:16	3/16/23 9:18	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			
55	☐	A-60 Zone A	3/21/23 15:04	3/21/23 15:06	0.03	7.02	High flow/temp alarm shutdown. Run A51. PG&E power outage 3/21/23 10:05 pm (landslide from storm)	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/21/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☐ Startup		3/21/23 22:05	3/21/23 22:07	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			
56	☐	A-60 Zone A	3/21/23 22:05	3/21/23 22:07	0.03	15.25	PG&E power outage. Breakdown report filed (RCA #08R81). Manual startup on generator.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/22/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		3/22/23 13:20	3/22/23 13:22	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	☐ Automatic (Go to 9)		☒ No	☐ No			
57	☐	A-60 Zone A	3/22/23 18:24	3/22/23 18:26	0.03	13.37	High flow/temp alarm shutdown. Manual startup on generator. PG&E back online 3/23/23 11:10am (auto switch)	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/23/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		3/23/23 7:46	3/23/23 7:48	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	☐ Automatic (Go to 9)		☒ No	☐ No			
58	☐	A-60 Zone A	3/28/23 11:26	3/28/23 11:28	0.03	0.20	Varying flow/temperature alarm shutdown. Restarting Engine #2	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	3/28/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		3/28/23 11:38	3/28/23 11:40	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			
59	☐	A-60 Zone A	4/30/23 10:02	4/30/23 10:04	0.03	0.27	Varying flow/temperature alarm shutdown.	☒ 113: Inspection/Maintenance	☐ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/30/2023
	☒ Shutdown							☐ 116: Well Raising	☒ Automatic (Go to 9)		☐ No	☒ No			
	☒ Startup		4/30/23 10:18	4/30/23 10:20	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	☒ Automatic (Go to 9)		☐ No	☒ No			

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		A-60 Zone B	12/18/19 13:28	12/18/19 13:30	0.03	29506.53	Manual shutdown. Running on A60A only.	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	5/1/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		Zone B shut down as of May 1, 2023					☐ 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			

(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)	11/6/22 0:25	11/6/22 0:27	0.03	11.08	PG&E / High Voltage Maintenance	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	11/6/2022
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		11/6/22 11:30	11/6/22 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			
2		Engine #1 (S-64)	12/16/22 19:00	12/16/22 19:02	0.03	20.00	high oxygen	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	12/17/2022
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		12/17/22 15:00	12/17/22 15:02	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			
3		Engine #1 (S-64)	1/2/23 11:10	1/2/23 11:12	0.03	2.50	detonation sensor #2	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/2/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		1/2/23 13:40	1/2/23 13:42	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			
4		Engine #1 (S-64)	1/2/23 17:25	1/2/23 17:27	0.03	1.25	detonation sensor #9	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/2/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		1/2/23 18:40	1/2/23 18:42	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			
5		Engine #1 (S-64)	1/3/23 8:45	1/3/23 8:47	0.03	1.83	service engine	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/3/2023
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		1/3/23 10:35	1/3/23 10:37	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		Engine #1 (S-64)	1/8/23 9:00	1/8/23 9:02	0.03	3.25	Triple E testing	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/8/2023
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		1/8/23 12:15	1/8/23 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			
7		Engine #1 (S-64)	1/8/23 19:30	1/8/23 19:32	0.03	2.00	Triple E testing	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/8/2023
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		1/8/23 21:30	1/8/23 21:32	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			
8		Engine #1 (S-64)	1/9/23 8:30	1/9/23 8:32	0.03	6.75	Triple E testing	x 113: Inspection/Maintenance	x Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/9/2023
	x Shutdown							116: Well Raising	Automatic (Go to 9)		x No	No			
	x Startup		1/9/23 15:15	1/9/23 15:17	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)	1/9/23 16:30	1/9/23 16:32	0.03	16.50	Johnson Matthey	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	1/10/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		1/10/23 9:00	1/10/23 9:02	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			
10		Engine #1 (S-64)	2/9/23 13:45	2/9/23 13:47	0.03	0.50	detonation #9	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	2/9/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		2/9/23 14:15	2/9/23 14:17	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			
11		Engine #1 (S-64)	2/10/23 12:05	2/10/23 12:07	0.03	0.92	detonation 19	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	2/10/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		2/10/23 13:00	2/10/23 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			
12		Engine #1 (S-64)	2/12/23 12:35	2/12/23 12:37	0.03	2.42	temp sensor wire harness shorted	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	2/12/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		2/12/23 15:00	2/12/23 15:02	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			

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)	2/15/23 6:00	2/15/23 6:02	0.03	8.50	replace wire harness/secure/replace bellow/temp sensnors	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/15/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/15/23 14:30	2/15/23 14:32	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)	2/17/23 4:20	2/17/23 4:22	0.03	4.83	exhaust sensor low #6	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/17/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/17/23 9:10	2/17/23 9:12	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			
15			Engine #1 (S-64)	2/17/23 12:10	2/17/23 12:12	0.03	3.42	detonation #19	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/17/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/17/23 15:35	2/17/23 15:37	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			
16			Engine #1 (S-64)	2/18/23 23:30	2/18/23 23:32	0.03	1.00	oil sensor	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/19/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/19/23 0:30	2/19/23 0:32	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)	2/19/23 3:25	2/19/23 3:27	0.03	0.83	oil sensor	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/19/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/19/23 4:15	2/19/23 4:17	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 #1 (S-64)	2/19/23 14:00	2/19/23 14:02	0.03	0.58	detonation #19	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/19/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/19/23 14:35	2/19/23 14:37	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			
19			Engine #1 (S-64)	2/19/23 16:30	2/19/23 16:32	0.03	0.92	johnson matthey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/19/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/19/23 17:25	2/19/23 17:27	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			
20			Engine #1 (S-64)	2/20/23 13:45	2/20/23 13:47	0.03	3.50	johnson matthey/bridges	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/20/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/20/23 17:15	2/20/23 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			
21			Engine #1 (S-64)	2/27/23 10:25	2/27/23 10:27	0.03	0.25	replace johnson matthey pump	x	113: Inspection/Maintenance	x	Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/27/2023
	x	Shutdown								116: Well Raising		Automatic (Go to 9)		x	No		No			
	x	Startup		2/27/23 10:40	2/27/23 10:42	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			
22			Engine #1 (S-64)	3/1/23 13:25	3/1/23 13:27	0.03	0.25	bad harness	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	3/1/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		3/1/23 13:40	3/1/23 13:42	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			
23			Engine #1 (S-64)	3/1/23 13:45	3/1/23 13:47	0.03	0.25	detonation #10	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	3/1/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		3/1/23 14:00	3/1/23 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			
24			Engine #1 (S-64)	3/1/23 14:30	3/1/23 14:32	0.03	0.50	detonation #10	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	3/1/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		3/1/23 15:00	3/1/23 15:02	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			

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
25		Engine #1 (S-64)	3/1/23 15:45	3/1/23 15:47	0.03	0.75	detonation #10	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	3/1/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		3/1/23 16:30	3/1/23 16:32	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			
26		Engine #1 (S-64)	3/1/23 17:00	3/1/23 17:02	0.03	0.25	bad rod bearing	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	3/1/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	x Startup		3/1/23 17:15	3/1/23 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			
27		Engine #1 (S-64)	3/1/23 20:15	3/1/23 20:17	0.03	1443.75	bad rod bearing	x 113: Inspection/Maintenance	Manual (Go to 7)	Procedures 1 to 3	Yes (Go to 9)	Yes (Go to 10)		C Johnson	5/1/2023
	x Shutdown							116: Well Raising	x Automatic (Go to 9)		No	x No			
	Startup		S-64 offline as of May 1, 2023					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			

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
1			Engine #2 (S-65)	11/6/22 0:25	11/6/22 0:27	0.03	10.33	PG&E / High Voltage Maintenance	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	11/6/2022
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		11/6/22 10:45	11/6/22 10:47	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			
2			Engine #2 (S-65)	11/8/22 3:45	11/8/22 3:47	0.03	4.00	johnson mathey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	11/8/2022
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		11/8/22 7:45	11/8/22 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			
3			Engine #2 (S-65)	11/13/22 23:00	11/13/22 23:02	0.03	9.00	Johnson mathey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	11/14/2022
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		11/14/22 8:00	11/14/22 8:02	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			
4			Engine #2 (S-65)	12/16/22 19:00	12/16/22 19:02	0.03	20.00	high oxygen	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	12/17/2022
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		12/17/22 15:00	12/17/22 15:02	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			Engine #2 (S-65)	1/8/23 11:15	1/8/23 11:17	0.03	1.75	Triple E inspection	x	113: Inspection/Maintenance	x	Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	1/8/2023
	x	Shutdown								116: Well Raising		Automatic (Go to 9)		x	No		No			
	x	Startup		1/8/23 13:00	1/8/23 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			
6			Engine #2 (S-65)	1/9/23 8:30	1/9/23 8:32	0.03	6.75	Triple E inspection	x	113: Inspection/Maintenance	x	Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	1/9/2023
	x	Shutdown								116: Well Raising		Automatic (Go to 9)		x	No		No			
	x	Startup		1/9/23 15:15	1/9/23 15:17	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			
7			Engine #2 (S-65)	1/11/23 8:30	1/11/23 8:32	0.03	28.25	Johnson Matthey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	1/12/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		1/12/23 12:45	1/12/23 12:47	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			
8			Engine #2 (S-65)	2/15/23 11:30	2/15/23 11:32	0.03	2.00	johnson mathey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/15/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/15/23 13:30	2/15/23 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			
9			Engine #2 (S-65)	2/19/23 16:25	2/19/23 16:27	0.03	1.17	johnson mathey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/19/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/19/23 17:35	2/19/23 17:37	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 #2 (S-65)	2/20/23 13:30	2/20/23 13:32	0.03	0.50	johnson mathey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/20/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/20/23 14:00	2/20/23 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			
11			Engine #2 (S-65)	2/27/23 10:35	2/27/23 10:37	0.03	0.17	johnson matthey	x	113: Inspection/Maintenance		Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	2/27/2023
	x	Shutdown								116: Well Raising	x	Automatic (Go to 9)			No	x	No			
	x	Startup		2/27/23 10:45	2/27/23 10:47	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			
12			Engine #2 (S-65)	3/3/23 12:05	3/3/23 12:07	0.03	2.08	engine service	x	113: Inspection/Maintenance	x	Manual (Go to 7)	Procedures 1 to 3		Yes (Go to 9)		Yes (Go to 10)		C Johnson	3/3/2023
	x	Shutdown								116: Well Raising		Automatic (Go to 9)		x	No		No			
	x	Startup		3/3/23 14:10	3/3/23 14:12	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			

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)	3/14/23 6:30	3/14/23 6:32	0.03	40.75	engine service	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		C Johnson	3/15/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		3/15/23 23:15	3/15/23 23:17	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			
14		Engine #2 (S-65)	3/16/23 3:00	3/16/23 3:02	0.03	5.00	engine service	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		C Johnson	3/16/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		3/16/23 8:00	3/16/23 8:02	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			
15		Engine #2 (S-65)	3/17/23 9:00	3/17/23 9:02	0.03	2.25	engine service	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		C Johnson	3/17/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		3/17/23 11:15	3/17/23 11:17	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			
16		Engine #2 (S-65)	3/21/23 11:45	3/21/23 11:47	0.03	169.00	S71 media changeout. coolant to oil temp diff. PG&E outage 3/21/23 22:05 (landslide). No electricity export.	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		C Johnson	3/28/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		3/28/23 12:45	3/28/23 12:47	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			
17		Engine #2 (S-65)	3/30/23 8:15	3/30/23 8:17	0.03	462.75	PG&E outage 3/21/23 22:05 (landslide). No electricity export until PG&E gave approval on 4/18/23 to restart.	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		C Johnson	4/18/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		4/18/23 15:00	4/18/23 15:02	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			

REDWOOD LANDFILL, INC.
WMRE TREATMENT SYSTEM (S-71) 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
No S-71 SSM events in November 2022															
No S-71 SSM events in December 2022															
No S-71 SSM events in January 2023															
No S-71 SSM events in February 2023															
1	☒ Shutdown ☒ Startup ☐ Malfunction	Treatment System (S-71)	3/21/23 11:45 3/28/23 12:45	3/21/23 11:47 3/28/23 12:47	0.03 0.03	169.00	Media change	☒ 113: Inspection/Maintenance ☐ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		C Johnson	3/28/2023
No S-71 SSM events in April 2023															

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

Redwood Landfill, Novato, CA
GCCS DOWNTIME REPORT Period: November 1, 2022 to April 30, 2023

SHUTDOWN DATE/TIME	START-UP DATE/TIME	TOTAL DOWNTIME (hours)	COMMENTS/ACTION TAKEN
		0.00	No GCCS Downtime in November 2022
		0.00	No GCCS Downtime in December 2022
		0.00	No GCCS Downtime in January 2023
		0.00	No GCCS Downtime in February 2023
03/14/23 09:46	03/14/23 10:48	1.03	High flow/temperature alarm shutdown. Both engines offline.
03/14/23 11:12	03/14/23 11:54	0.70	High flow/temperature alarm shutdown. Both engines offline.
03/14/23 12:16	03/14/23 12:22	0.10	High flow/temperature alarm shutdown. Both engines offline.
03/21/23 15:04	03/21/23 15:26	0.37	High flow/temp alarm shutdown.
03/21/23 17:54	03/21/23 18:44	0.83	High flow/temp alarm shutdown.
03/21/23 19:54	03/22/23 13:20	17.43	High flow/temp alarm shutdown. PG&E power outage 3/21/23 10:05 pm (landslide from storm). Breakdown report filed (RCA #08R81).
03/22/23 18:24	03/23/23 07:46	13.37	High flow/temp alarm shutdown. Manual startup on generator. PG&E back online 3/23/23 11:10am (auto switch)
03/28/23 11:26	03/28/23 11:38	0.20	Varying flow/temperature alarm shutdown. Restarting Engine #2
		0.00	No GCCS Downtime in April 2023

Combined Emission Control Devices	
Total 2022 Downtime:	**39.53**
November 1, 2022 through April 30, 2023 Downtime:	**34.03**
January 1, 2023 through April 30, 2023 Total Downtime:	**34.03**
Total 2023 Downtime:	**34.03**

APPENDIX C

CORRESPONDENCE

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

May 1, 2023

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:

- 2 Horizontal collectors RLIHC107 and RLHC0156 were decommissioned on 4/27/2023.
- 4 Vertical wells RLLC0203, RLLC0219, RLLC0228, and RLLC0238 were decommissioned on 4/27/2023.

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 23, 2022 Well Actions Letter, prior to the completion of this well action, RLI had 143 total collectors (136 vertical wells and 7 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	23	0	4	-
Actions Remaining Under AN 30065	46	27	50	11	Unlimited
Active Collector Count after Actions in this Letter	137 Total Collectors: 132 Vertical LFG Wells and 5 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

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Monday, May 1, 2023 12:14 PM
To: Davis Zhu
Cc: McCutcheon, Alisha; Simrun Dhoot
Subject: Redwood Landfill Well Actions Notification May 2023
Attachments: 2023.05.01 - RLI Well Actions Letter decom 6 wells HC107 HC0156 LC0203 LC0219 LC0228 LC0238.pdf

Hi Davis,

Attached is the Well Actions Notification letter that Redwood Landfill has decommissioned 6 wells to the collection system. We are currently planning on installing 10+ new wells this year, but I awaiting more information before I can submit any details on that.

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

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	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0252	10/18/22 14:02 12/8/22 13:49	10/18/22 14:04 12/8/22 13:51	0.03 0.03	1,223.78	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	12/8/2022
2	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0253	10/18/22 12:05 12/2/22 11:03	10/18/22 12:07 12/2/22 11:05	0.03 0.03	1,078.97	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	12/2/2022
3	☒ Shutdown ☐ Startup ☐ Malfunction	RLLC0254	10/19/22 10:18 Well offline as of May 1, 2023	10/19/22 10:20	0.03	4,645.70	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	5/1/2023
4	☒ Shutdown ☒ Startup ☐ Malfunction	RLI00276	10/31/22 16:30 12/8/22 14:15	10/31/22 16:32 12/8/22 14:17	0.03 0.03	909.75	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	12/8/2022
5	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0241	11/23/22 14:30 11/30/22 10:12	11/23/22 14:32 11/30/22 10:14	0.03 0.03	163.70	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	11/30/2022
6	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0241	11/30/22 10:33 1/18/23 9:00	11/30/22 10:35 1/18/23 9:02	0.03 0.03	1,174.45	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	1/18/2023
7	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0235	12/2/22 12:05 1/18/23 9:30	12/2/22 12:07 1/18/23 9:32	0.03 0.03	1,125.42	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	1/18/2023
8	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0236	12/16/22 15:10 12/28/22 15:00	12/16/22 15:12 12/28/22 15:02	0.03 0.03	287.83	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	12/28/2022
9	☒ Shutdown ☐ Startup ☐ Malfunction	RLI00065	12/21/22 16:00 Well offline as of May 1, 2023	12/21/22 16:02	0.03	3,128.00	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☐ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	5/1/2023
10	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0242	1/17/23 14:00 4/14/23 9:40	1/17/23 14:02 4/14/23 9:42	0.03 0.03	2,083.67	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	4/14/2023
11	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0241	1/20/23 10:00 4/14/23 10:20	1/20/23 10:02 4/14/23 10:22	0.03 0.03	2,016.33	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	4/14/2023
12	☒ Shutdown ☒ Startup ☐ Malfunction	RLLC0270	4/13/23 14:30 5/12/23 10:40	4/13/23 14:32 5/12/23 10:42	0.03 0.03	692.17	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance ☒ 116: Well Raising ☐ 117: Gas Collection ☐ 118: Construction Activities	☒ 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) ☒ No ☐ Yes (Go to 9) ☒ No	☐ Yes (Go to 10) ☐ No ☐ Yes (Go to 10) ☐ No		Mike Chan	5/12/2023

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		RLLC0269	4/18/23 13:50	4/18/23 13:52	0.03	572.50	Well raising, well located in active fill area	☐ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	5/12/2023
	☒ Shutdown							☒ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☒ Startup		5/12/23 10:20	5/12/23 10:22	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	☐ Automatic (Go to 9)		☒ No	☐ No			
14		RLIHC107	4/27/23 14:50	4/27/23 14:52	0.03	N/A	Well decommissioned pursuant to AN #30065 on 4/27/23	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/27/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		N/A					☐ 117: Gas Collection	N/A						
	☐ Malfunction							☐ 118: Construction Activities							
15		RLHC0156	4/27/23 14:20	4/27/23 14:22	0.03	N/A	Well decommissioned pursuant to AN #30065 on 4/27/23	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/27/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		N/A					☐ 117: Gas Collection	N/A						
	☐ Malfunction							☐ 118: Construction Activities							
16		RLLC0203	4/27/23 12:30	4/27/23 12:32	0.03	N/A	Well decommissioned pursuant to AN #30065 on 4/27/23	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/27/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		N/A					☐ 117: Gas Collection	N/A						
	☐ Malfunction							☐ 118: Construction Activities							
17		RLLC0219	4/27/23 11:55	4/27/23 11:57	0.03	N/A	Well decommissioned pursuant to AN #30065 on 4/27/23	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/27/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		N/A					☐ 117: Gas Collection	N/A						
	☐ Malfunction							☐ 118: Construction Activities							
18		RLLC0228	4/27/23 12:10	4/27/23 12:12	0.03	N/A	Well decommissioned pursuant to AN #30065 on 4/27/23	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/27/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		N/A					☐ 117: Gas Collection	N/A						
	☐ Malfunction							☐ 118: Construction Activities							
19		RLLC0238	4/27/23 11:40	4/27/23 11:42	0.03	N/A	Well decommissioned pursuant to AN #30065 on 4/27/23	☒ 113: Inspection/Maintenance	☒ Manual (Go to 7)	Procedures 1 to 3	☐ Yes (Go to 9)	☐ Yes (Go to 10)		Mike Chan	4/27/2023
	☒ Shutdown							☐ 116: Well Raising	☐ Automatic (Go to 9)		☒ No	☐ No			
	☐ Startup		N/A					☐ 117: Gas Collection	N/A						
	☐ Malfunction							☐ 118: Construction Activities							

(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-ou -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 equipmen -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 **November 1, 2022 to April 30, 2023**

REPORT PREPARED BY: Michael Chan **DATE:** May 25, 2023

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 November 2022					
No deviations or inoperative monitors during the month of December 2022					
No deviations or inoperative monitors during the month of January 2023					
No deviations or inoperative monitors during the month of February 2023					
No deviations or inoperative monitors during the month of March 2023					
No deviations or inoperative monitors during the month of April 2023					

COMMENTS:

1 In accordance with Title V Permit Condition Number 19867, Part 22b, 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 1459°F (3/11/22 to 3/8/23) or 1448°F (3/9/23 to current) limits established during the January 12, 2022 and January 12, 2023 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 **November 1, 2022 to April 30, 2023**

REPORT PREPARED BY: Michael Chan **DATE:** May 25, 2023

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 November 2022					
No deviations or inoperative monitors during the month of December 2022					
No deviations or inoperative monitors during the month of January 2023					
No deviations or inoperative monitors during the month of February 2023					
No deviations or inoperative monitors during the month of March 2023					
No deviations or inoperative monitors during the month of April 2023					

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 1,525°F (9/10/21 - 9/10/22) or 1,532°F (9/11/22 - current) limits established during the July 13, 2021 and July 13, 2022 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 current) limits established in the July 17, 2018 Source Test. 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 November 1, 2022 to April 30, 2023

Date & Time	Date & Time	Total Missing Data Hours	Total Missing Data Days	Comments
There was no missing data for November 2022				
There was no missing data for December 2022				
There was no missing data for January 2023				
There was no missing data for February 2023				
There was no missing data for March 2023				
There was no missing data for April 2023				

Flare A-51	Hours	Days
Total Missing Data:	0.00	0.00
Total Complete Data:	4,343.00	180.96
Missing Data Percentage:	0.00%	0.00%

Emission Control Devices

A-60 Flare Missing Data Summary

Redwood Landfill, Novato, CA

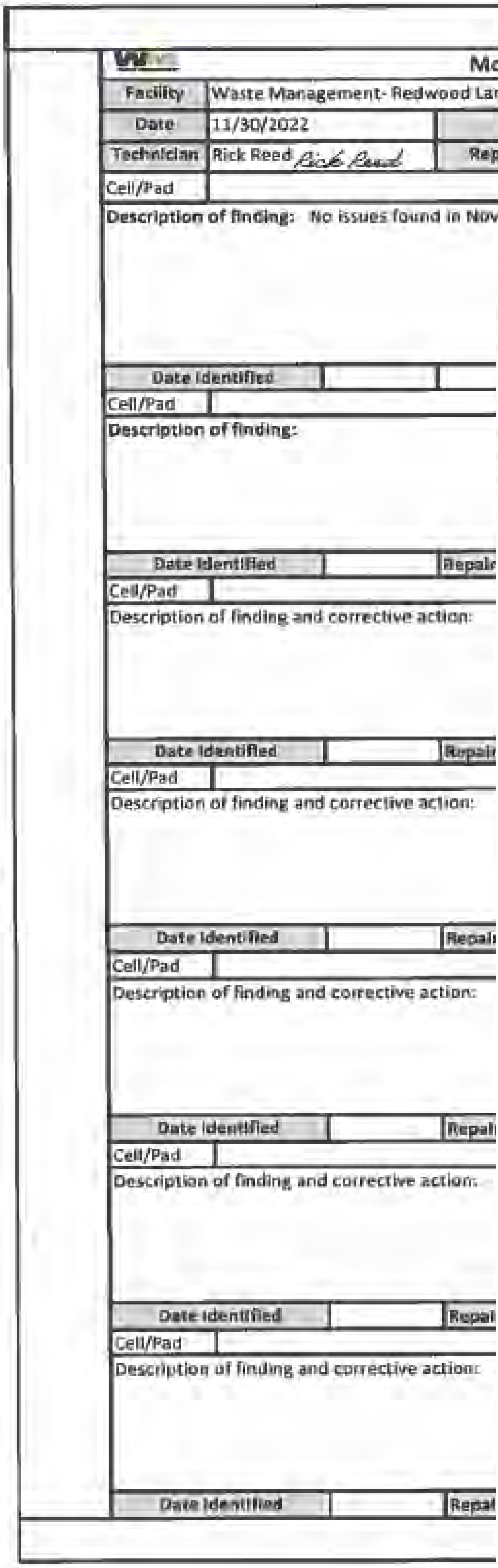
FLARE MISSING DATA REPORT November 1, 2022 to April 30, 2023

Date & Time	Date & Time	Total Missing Data Hours	Total Missing Data Days	Comments
There was no missing data for November 2022				
There was no missing data for December 2022				
There was no missing data for January 2023				
There was no missing data for February 2023				
There was no missing data for March 2023				
There was no missing data for April 2023				

Flare A-60	Hours	Days
Total Missing Data:	0.00	0.00
Total Complete Data:	4,343.00	180.96
Missing Data Percentage:	0.00%	0.00%

APPENDIX G

COVER INTEGRITY MONITORING REPORTS



Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill					
Date	11/30/2022	Received	Manager	Ramin Khany	Date	11/30/2022
Technician	Rick Reed *Rick Reed*	Repairs Complete	Manager		Date	11/30/22
Cell/Pad			Cell/Pad			

Description of finding: No issues found in November.

Description of corrective action:

Date Identified		
Cell/Pad		

Description of finding:

Date Identified		Repair
Cell/Pad		

Description of finding and corrective action:

Date Identified		Repair
Cell/Pad		

Description of finding and corrective action:

Date Identified		Repai
Cell/Pad		

Description of finding and corrective action:

Date Identified		Repai
Cell/Pad		

Description of finding and corrective action:

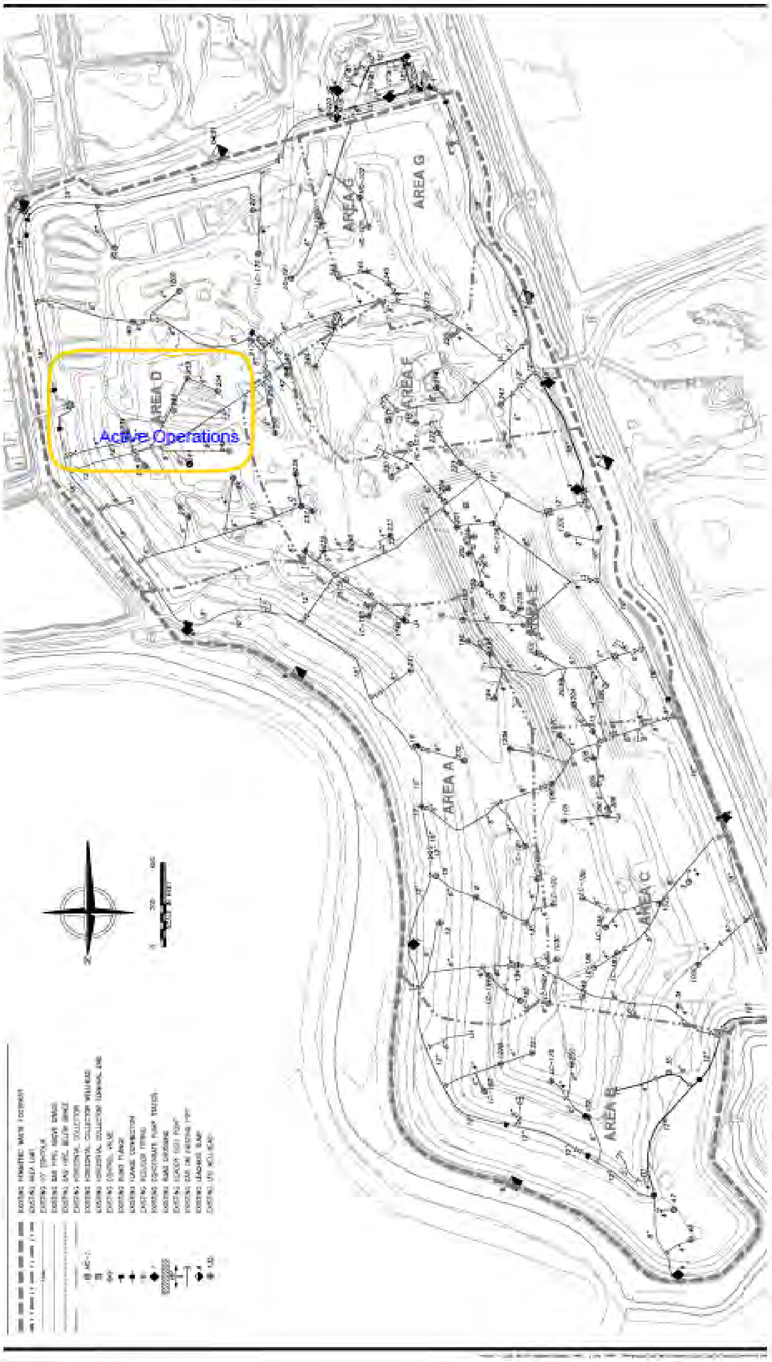
Date Identified		Repai
Cell/Pad		

Description of finding and corrective action:

Date Identified		Repai

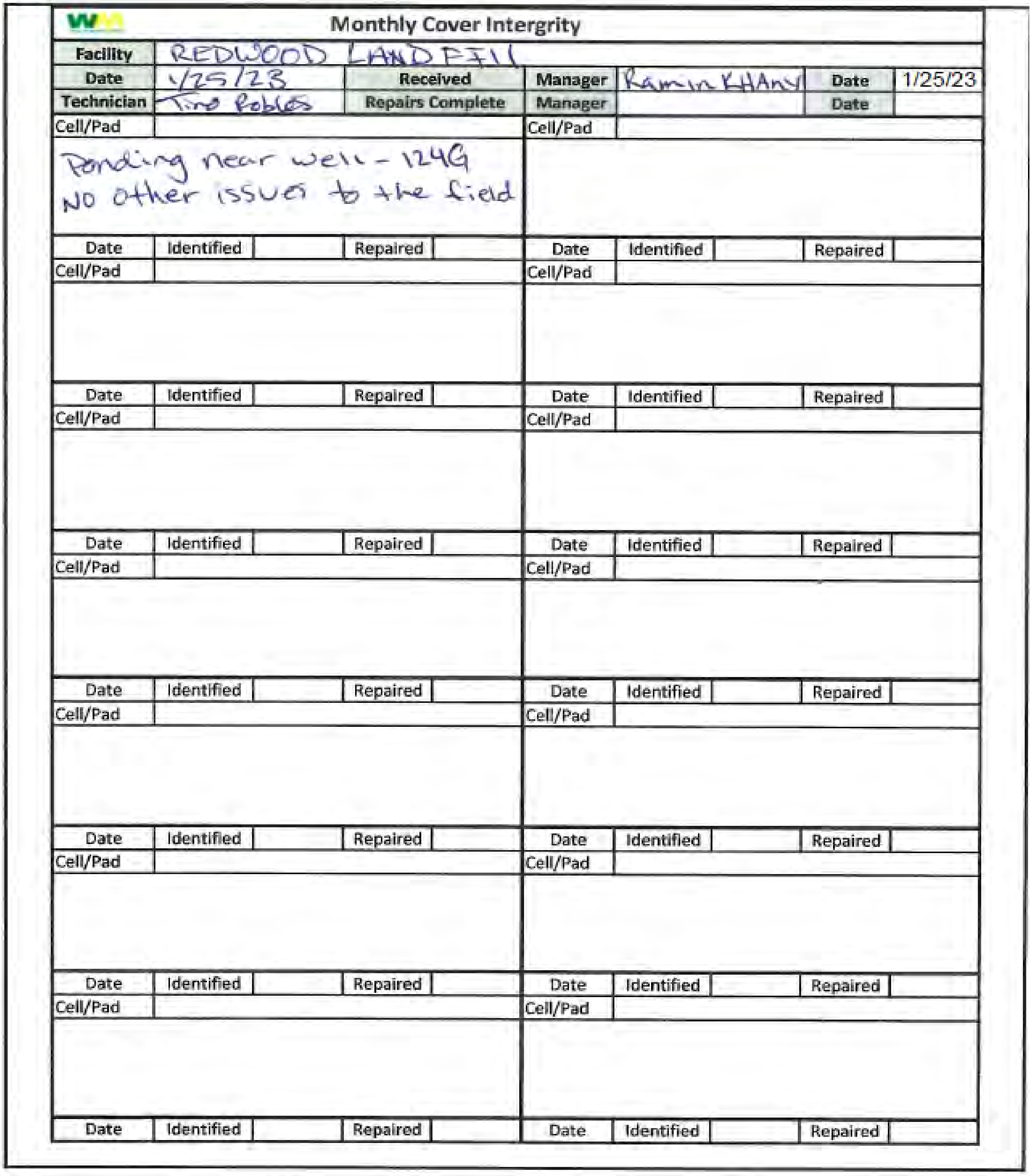
Redwood Cover Integrity
November - 2022

No issues found



Monthly Cover Integrity Inspection Form

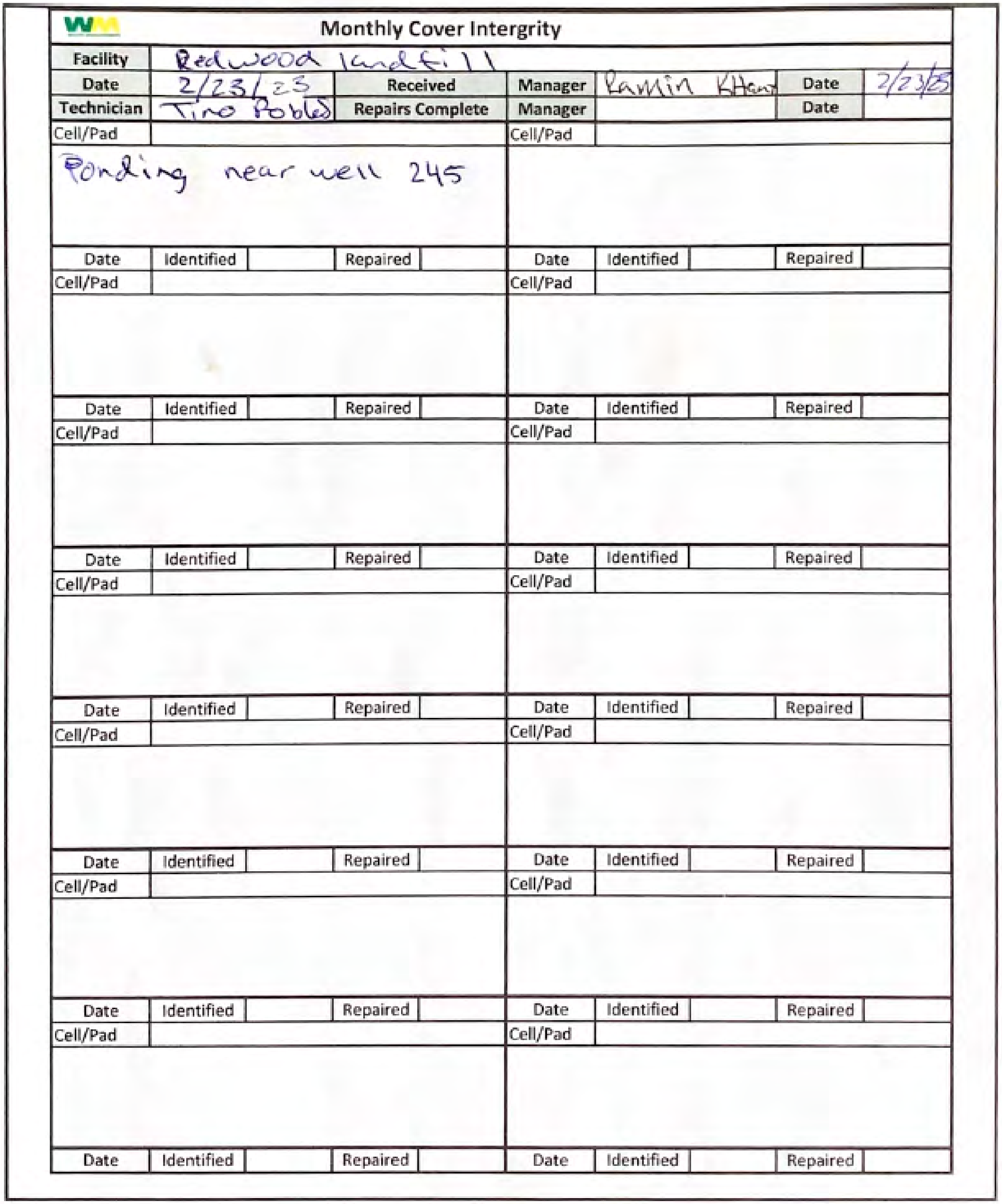
Facility	Waste Management- Redwood Landfill						
Date	12/28/2022	**Received**		**Manager**	Ramin Khany	**Date**	12/29/2022
Technician	James Dutra	**Repairs Complete**		**Manager**		**Date**	
Cell/Pad				Cell/Pad			
Minimal ponding throughout site, more rain expected in days ahead. Nothing else noted.				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 Intergrity

Facility	REDWOOD LANDFILL				
Date	1/25/23	**Received**	**Manager**	Ramin KHAN	**Date** 1/25/23
Technician	Tino Robles	**Repairs Complete**	**Manager**		**Date**

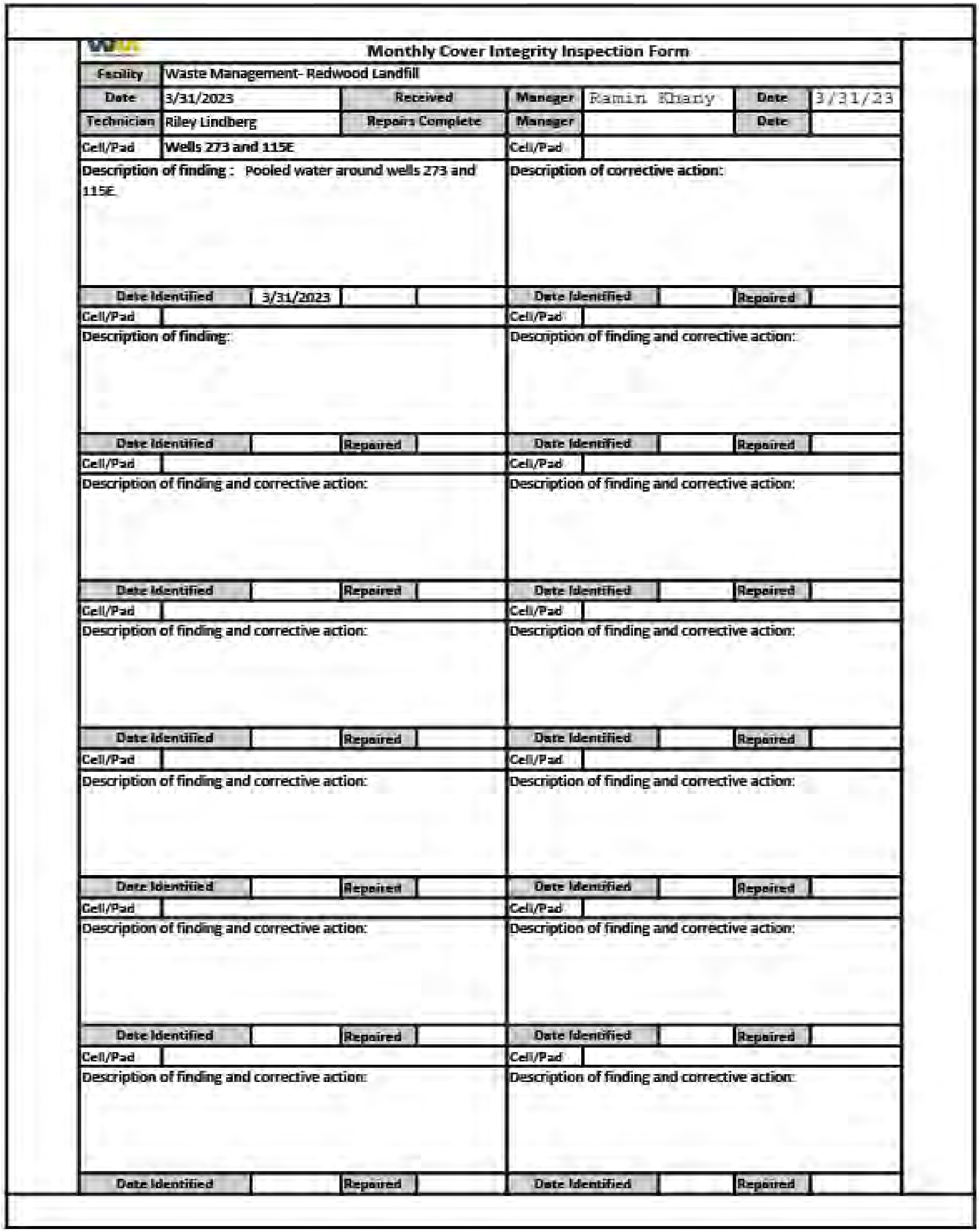
Cell/Pad					Cell/Pad				
Ponding near well - 124G No other issues to the field									
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	



Monthly Cover Intergrity

Facility	Redwood landfill					
Date	2/23/23	**Received**	**Manager**	Ramin Khany	**Date**	2/23/23
Technician	Tino Robles	**Repairs Complete**	**Manager**		**Date**	

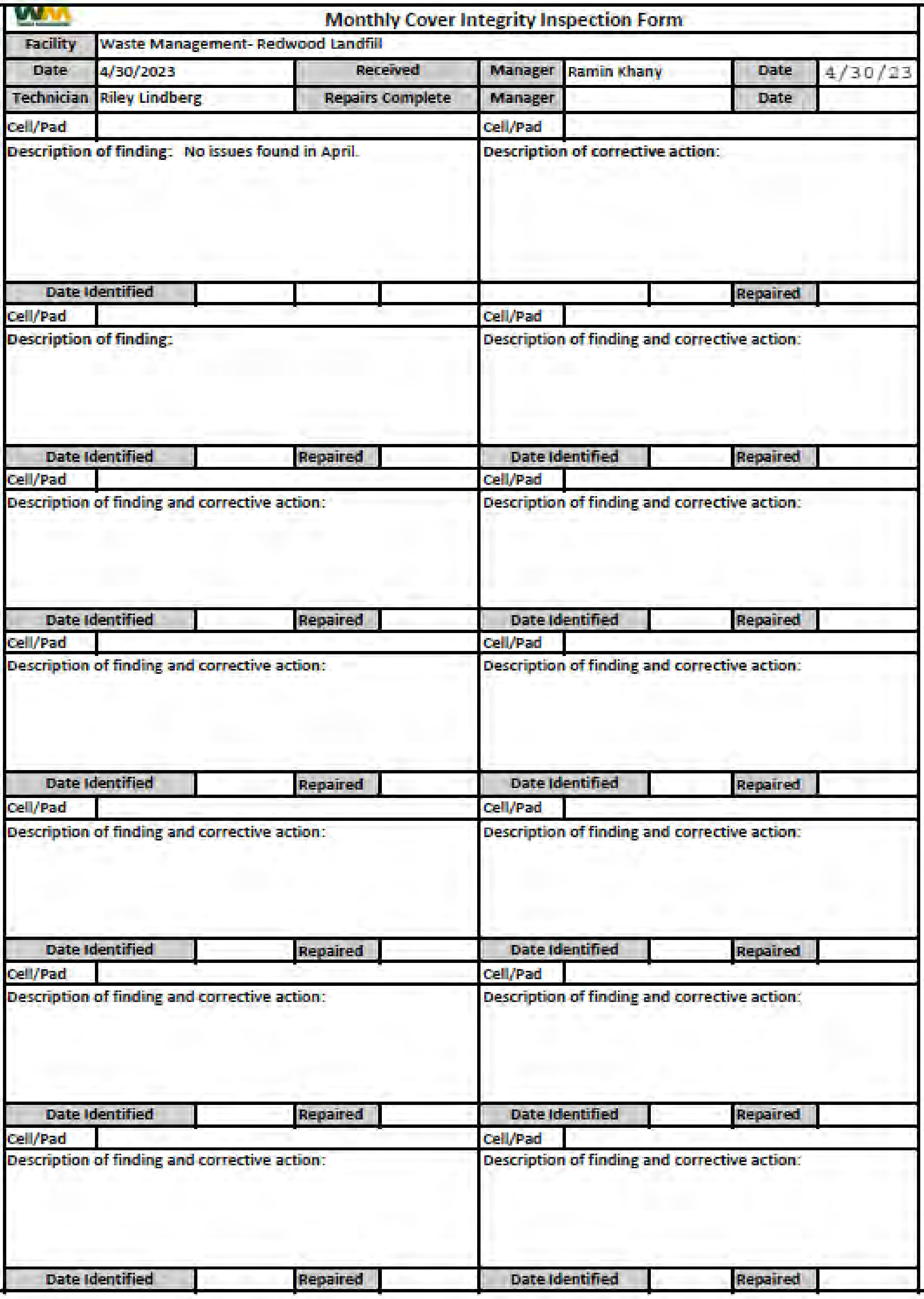
Cell/Pad					Cell/Pad				
Ponding near well 245									
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	
Cell/Pad					Cell/Pad				
Date	Identified		Repaired		Date	Identified		Repaired	



Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill					
Date	3/31/2023	**Received**	**Manager**	Ramin Khany	**Date**	3/31/23
Technician	Riley Lindberg	**Repairs Complete**	**Manager**		**Date**	

Cell/Pad	**Wells 273 and 115E**			**Cell/Pad**			
Description of finding : Pooled water around wells 273 and 115E.				**Description of corrective action:**			
Date Identified	3/31/2023			**Date Identified**		**Repaired**	
Cell/Pad				**Cell/Pad**			
Description of finding:				**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	4/30/2023	**Received**	**Manager**	Ramin Khany	**Date**	4/30/23
Technician	Riley Lindberg	**Repairs Complete**	**Manager**		**Date**	

Cell/Pad

Description of finding: No issues found in April.

Cell/Pad

Description of corrective action:

Date Identified

Repaired

Cell/Pad

Description of finding:

Cell/Pad

Description of finding and corrective action:

Date Identified **Repaired**

Date Identified **Repaired**

Cell/Pad

Description of finding and corrective action:

Cell/Pad

Description of finding and corrective action:

Date Identified **Repaired**

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Date Identified **Repaired**

Date Identified **Repaired**

Cell/Pad

Description of finding and corrective action:

Cell/Pad

Description of finding and corrective action:

Date Identified **Repaired**

Date Identified **Repaired**

APPENDIX H

SURFACE EMISSIONS MONITORING / COMPONENT LEAK

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

January 10, 2023

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

Re: Fourth Quarter 2022 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 Fourth Quarter 2022 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 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)(2).

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.

FOURTH QUARTER 2022 SEM AND COMPONENT LEAK RESULTS

The following is a summary of the SEM and component leak monitoring results completed for the Fourth Quarter 2022.

Instantaneous Surface Emissions Monitoring Results

The Instantaneous surface monitoring was performed on November 15, 2022 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 six (6) exceedances of 500 ppm_v as methane detected on November 15, 2022. 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 November 16, 2022. 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 December 13, 2022. 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 November 15, 2022. 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 November 14, 15, and 16, 2022 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 November 15, 2022. 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

2022 QUARTER: 4
PERFORMED BY: RES
LANDFILL NAME: **Redwood Landfill, Inc.**

Flag Number	Grid Number	Latitude	Longitude	Date of Monitoring	Concentration of Emission (ppm_v)	Comments
O12	50	38.16473	-122.56326	11/15/2022	2,000	Well 272
O31	122	38.16686	-122.56614	11/15/2022	1,300	Well 225
O32	157	38.16909	-122.56786	11/15/2022	1,398	Well 204
O11	131	38.16897	-122.56664	11/15/2022	1,500	Well 194
O1	113	38.16419	-122.56597	11/15/2022	5,188	Well 226
O2	134	38.16510	-122.56668	11/15/2022	2,500	Well 247

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)

2022 QUARTER: 4

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: James Dutra/Garry Carpenter

LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Corrective Action		1st 10-day Follow-Up			2nd 10-day Follow-Up			1st 30-day 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	
O12	11/15/2022	2,000	11/16/2022	added/compacted soil	11/16/2022	25		n/a			12/13/2022	0		Well 272
O31	11/15/2022	1,300	11/16/2022	added/compacted soil	11/16/2022	5		n/a			12/13/2022	0		Well 225
O32	11/15/2022	1,398	11/16/2022	added/compacted soil	11/16/2022	21		n/a			12/13/2022	31		Well 204
O11	11/15/2022	1,500	11/16/2022	added/compacted soil	11/16/2022	120		n/a			12/13/2022	20		Well 194
O1	11/15/2022	5,188	11/16/2022	added/compacted soil	11/16/2022	33		n/a			12/13/2022	25		Well 226
O2	11/15/2022	2,500	11/16/2022	added/compacted soil	11/16/2022	6		n/a			12/13/2022	0		Well 247

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

2022 QUARTER: 4

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: James Dutra/Garry Carpenter

LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			Comments
Flag Number	Monitoring Date	Reading ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	
O12	11/15/2022	2,000	11/16/2022	25		n/a			Well 272
O31	11/15/2022	1,300	11/16/2022	5		n/a			Well 225
O32	11/15/2022	1,398	11/16/2022	21		n/a			Well 204
O11	11/15/2022	1,500	11/16/2022	120		n/a			Well 194
O1	11/15/2022	5,188	11/16/2022	33		n/a			Well 226
O2	11/15/2022	2,500	11/16/2022	6		n/a			Well 247

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

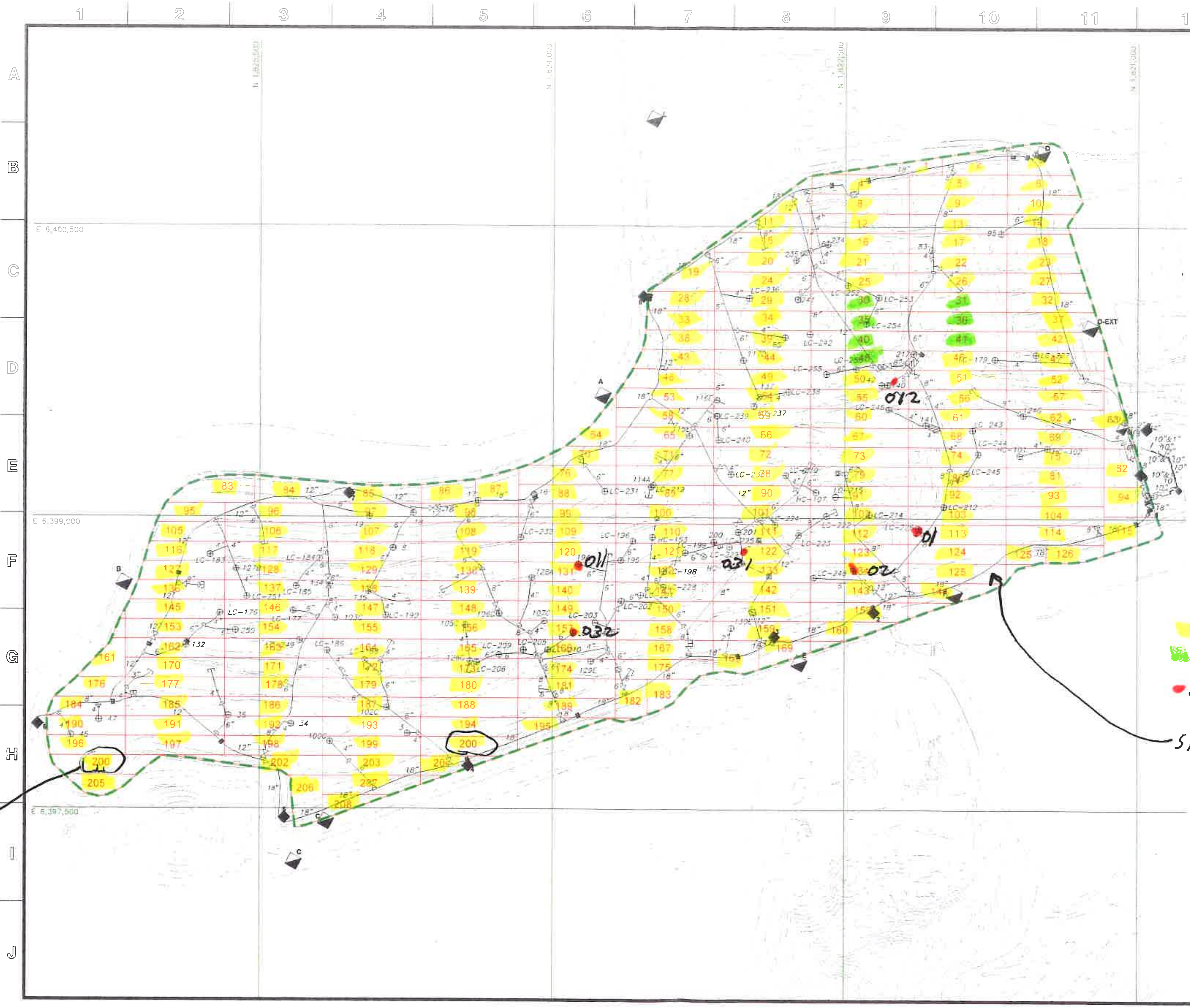
2022 QUARTER: 4

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					



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SHould BE 201

SHould BE GRid 135

Z

250 125 0 250 500 750

D SIZE: 1"=250' (22"X34")

B SIZE: 1"=500' (11"X17")

NOTES:

1. TOPOGRAPHIC DATA BASED ON AERIAL MAPPING PREPARED BY MILLER CREEK ASSOCIATES DATED MARCH 30, 2021
2. LOCATIONS DEPICTED FOR THE EXISTING GCCS COMPONENTS PROVIDED TO SCS BY WASTE MANAGEMENT, VARIOUS DATES.

LEGEND

— — —	LIMIT WASTE BOUNDARY
———	ABOVE GRADE HDPE SDR 17 LFG HEADER/LATERAL
– – –	BELOW GRADE HDPE SDR 17 LFG HEADER/LATERAL
EW-1 ⊕	LFG EXTRACTION WELL
⋈	LFG VALVE
◖	LFG REDUCER
▨	ROAD/BENCH CROSSING
52	SEM GRID BLOCK

Instantaneous
11-15-22

🟨 GRids monitored
🟩 Active-test
● 500+ppm

PRELIMINARY PLAN
FOR REVIEW AND PLANNING PURPOSES ONLY

NO	REVISION	DATE
△		
△		
△		
△		
△		
△		

SHEET TITLE:
SEM GRID AND PENETRATION MAP

PROJECT TITLE:
SURFACE EMISSIONS
MONITORING PLANS
REDWOOD LANDFILL
NOVATO, CALIFORNIA

CLIENT:
WASTE MANAGEMENT

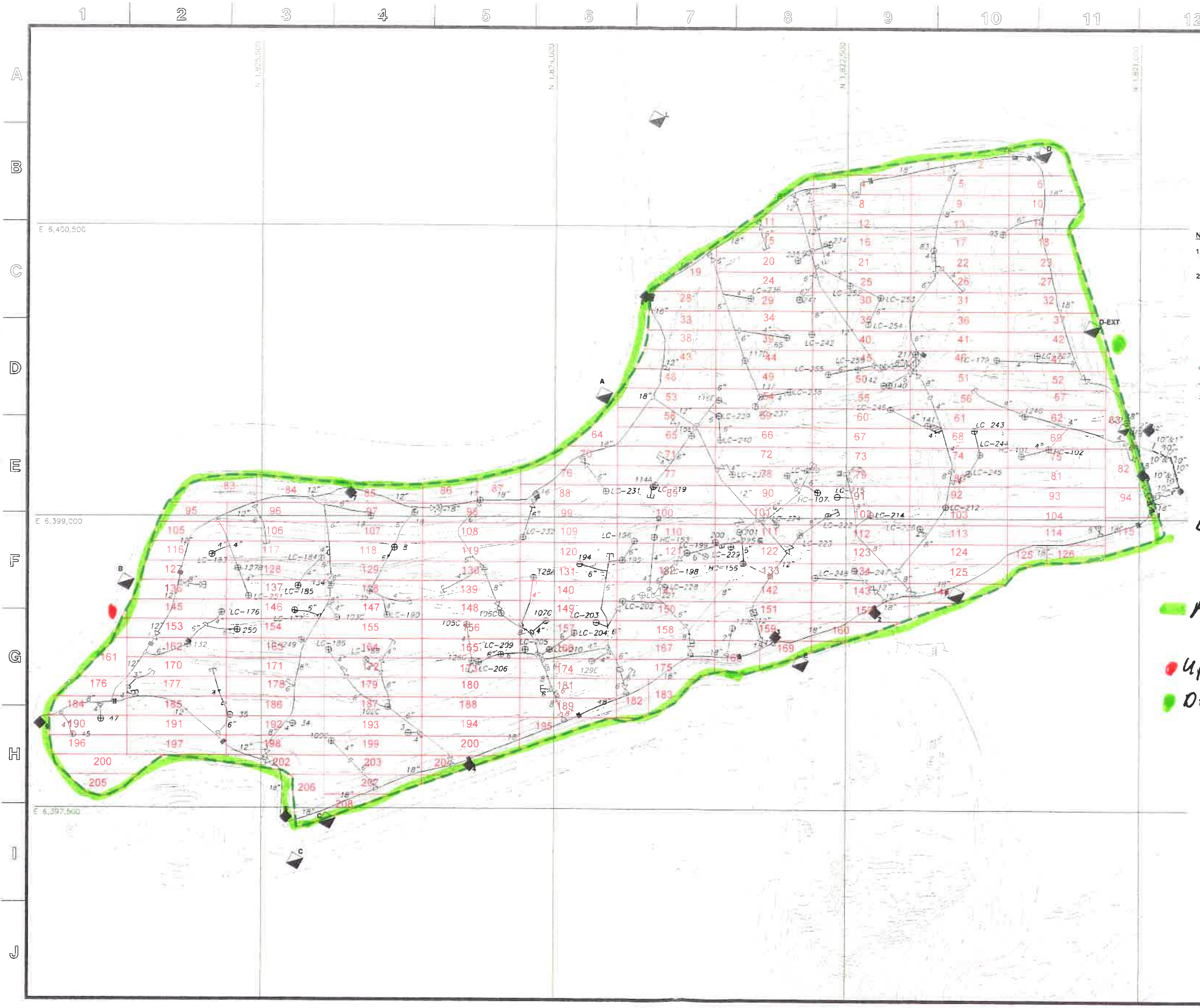
SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3900 KILROY AIRPORT WAY STE 100
LONG BEACH, CA 90806
(562) 426-9544

PROJ NO: 01221102.00
DSN BY: ATV/RR
DWN BY: ATV/RR
CHK BY: DF
ACAD FILE: N:/SALT LAKE
APP BY:

DATE: 11-09-2021

SCALE: AS SHOWN

3



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D SIZE: 1"=250' (22"X34")
B SIZE: 1"=500' (11"X17")

NOTES:

1. TOPOGRAPHIC DATA BASED ON AERIAL MAPPING PREPARED BY MILLER CREEK ASSOCIATES DATED MARCH 30, 2021.
2. LOCATIONS DEPICTED FOR THE EXISTING GCCS COMPONENTS PROVIDED TO SCS BY WASTE MANAGEMENT; VARIOUS DATES.

LEGEND

— — —	LIMIT WASTE BOUNDARY
———	ABOVE GRADE HDPE SDR 17 LFG HEADER/LATERAL
— — —	BELOW GRADE HDPE SDR 17 LFG HEADER/LATERAL
FW-1 ⊕	LFG EXTRACTION WELL
⋈	LFG VALVE
▯	LFG REDUCER
▨	ROAD/BENCH CROSSING
☐	SEM GRID BLOCK

4th Quarter 2022
NSPS

🟩 perimeter sweep

● upwind

● Downwind

NO	REVISION	DATE

SHEET TITLE:
SEM GRID AND PENETRATION MAP

PROJECT TITLE:
SURFACE EMISSIONS
MONITORING PLANS
REDWOOD LANDFILL
NOVATO, CALIFORNIA

CLIENT:
WASTE MANAGEMENT

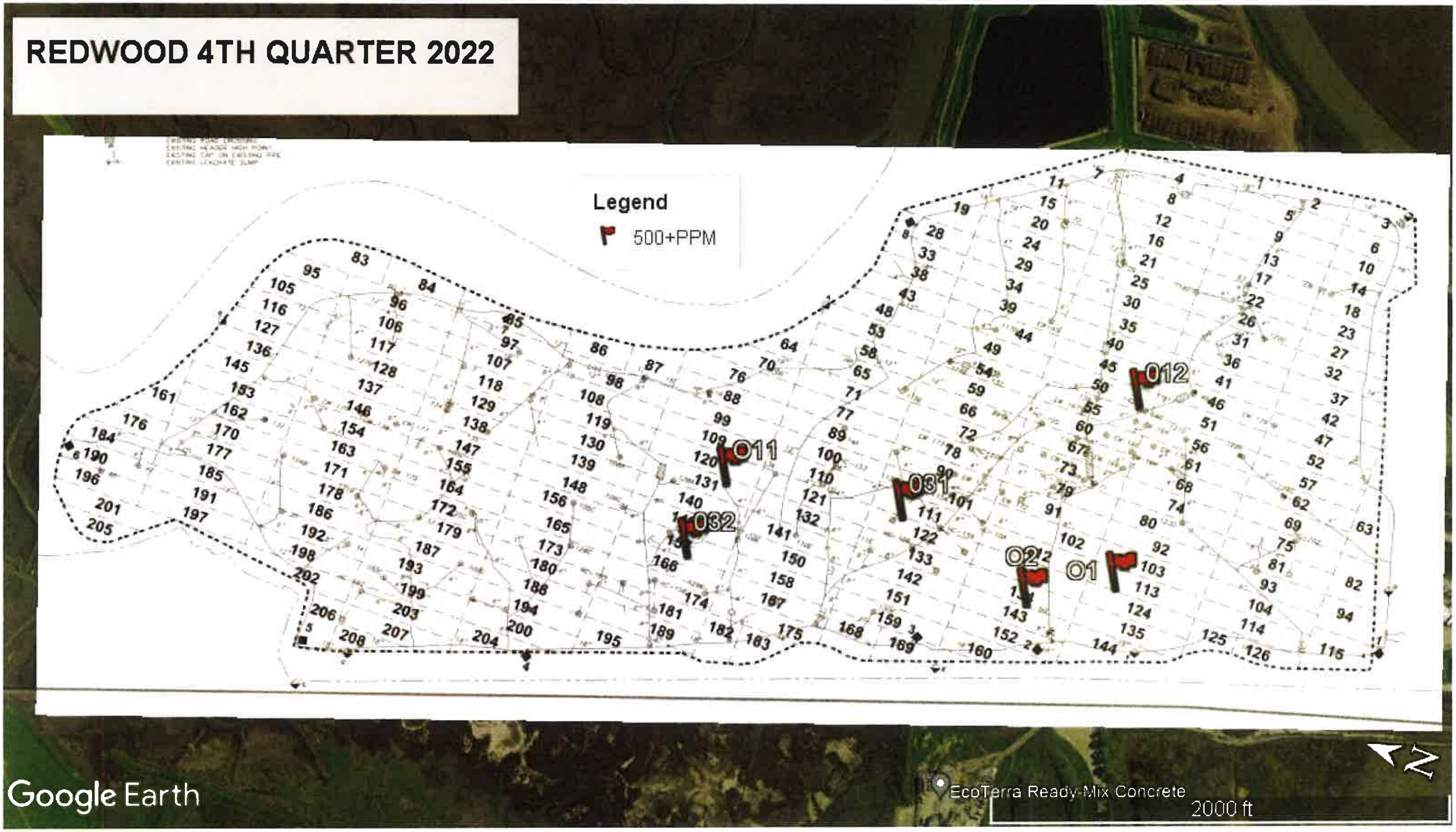
SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3900 KILROY AIRPORT WAY STE 100
LONG BEACH, CA 90806
(562) 426-9544

PROJ NO: 01221102.00
DWN BY: ATV/RR
ACAD FILE: N:/SALT LAKE
DSN BY: ATV/RR
CHK BY: DF
APP BY:

DATE: 11-09-2021
SCALE: AS SHOWN

3

REDWOOD 4TH QUARTER 2022



Orange Flag Landfill Surface Emissions Monitoring

Exceedances and Monitoring Log

Site: REDWOOD

Quarter / Year: 4th 2022
Technician: LEIGHWARE
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-12	50	2,060	11-25-22										WEll 272
O-31	122	1,300	↓										WEll 225
O-32	157	1398	↓										WEll 204
O-11	131	1500	↓										WEll 194
O-1	113	5188	↓										WEll 226
O-2	134	2500	↓										WEll 247
O-													
O-													
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REDWOOD 4TH QTR 2022

wpt ID	lat	lon	time	name	cmt
1	38.16472602	-122.563263	2022-11-15T19:42:55Z	O12	2000Ppm Well272
2	38.16686098	-122.566136	2022-11-15T15:34:48Z	O31	1300 Ppm well 225
3	38.16909299	-122.567859	2022-11-15T15:48:02Z	O32	1398Ppm well204
4	38.16896902	-122.566635	2022-11-15T16:49:25Z	O11	1500Ppm well194
5	38.164191	-122.565968	2022-11-15T19:35:58Z	O1	5188Ppmwell226
6	38.16510396	-122.566681	2022-11-15T19:31:38Z	O2	2500Ppmwell247

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade | Miguel Estrada
Chris Hughes | Alex Pesik
George Stroup

Date: 11-15-22 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 34 Precip: 0 Upwind BG: 2.2 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	0530	0545	11	0	1	8	
2	CH	0530	0545	9	0	1	8	
3	GS	0530	0545	13	0	1	8	
4	ME	0530	0545	26	0	1	8	
5	AP	0530	0545	11	0	1	8	
6	LW	0545	0600	20	1	1	4	
7	ch	0545	0600	51	1	1	4	
8	GS	0545	0600	38	1	1	4	
9	ME	0545	0600	76	1	1	4	
10	AP	0545	0600	14	1	1	4	
11	LW	0600	0615	61	0	1	8	
12	ch	0600	0615	54	0	1	8	
13	GS	0600	0615	79	0	1	8	
14	ME	0600	0615	11	0	1	8	
15	AP	0600	0615	65	0	1	8	
16	LW	0615	0630	31	1	2	6	
17	ch	0615	0630	20	1	2	6	
18	GS	0615	0630	34	1	2	6	
19	ME	0615	0630	106	1	2	6	
20	AP	0615	0630	85	1	2	6	
21	LW	0630	0645	41	1	1	6	
22	ch	0630	0645	36	1	1	6	
23	GS	0630	0645	58	1	1	6	
24	ME	0630	0645	71	1	1	6	
25	AP	0630	0645	58	1	1	6	
26	LW	0645	0700	20	1	1	6	
27	ch	0645	0700	14	1	1	6	
28	GS	0645	0700	59	1	1	6	
29	ME	0645	0700	44	1	1	6	
32	AP	0645	0700	62	1	1	6	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEISh WADE | MIGUEL ESTRADA
ChRIS Hughes | ALEX PESIK
GEORGE STROUD

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 41 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
33	LW	0700	0715	71	2	2	5	
34	Ch	0700	0715	44	2	2	5	
37	GS	0700	0715	16	2	2	5	
38	ME	0700	0715	26	2	2	5	
39	AP	0700	0715	44	2	2	5	
42	LW	0715	0730	15	2	2	5	
43	Ch	0715	0730	62	2	2	5	
44	GS	0715	0730	20	2	2	5	
46	ME	0715	0730	25	2	2	5	
47	AP	0715	0730	31	2	2	5	
48	LW	0730	0745	70	2	3	4	
49	Ch	0730	0745	31	2	3	4	
50	GS	0730	0745	2,000	2	3	4	Well 272
51	ME	0730	0745	19	2	3	4	
52	AP	0730	0745	29	2	3	4	
53	LW	0745	0800	41	3	4	4	
54	Ch	0745	0800	68	3	4	4	
55	GS	0745	0800	36	3	4	4	
56	ME	0745	0800	23	3	4	4	
57	AP	0745	0800	45	3	4	4	
58	LW	0800	0815	71	3	5	6	
59	Ch	0800	0815	61	3	5	6	
60	GS	0800	0815	58	3	5	6	
61	ME	0800	0815	49	3	5	6	
62	AP	0800	0815	22	3	5	6	
63	LW	0815	0830	15	2	2	5	
64	Ch	0815	0830	77	2	2	5	
65	GS	0815	0830	38	2	2	5	
66	ME	0815	0830	52	2	2	5	
67	AP	0815	0830	35	2	2	5	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE, Chris Hughes, GEORGE STROUP, MIGUEL ESTRADA, ALEX PESIK

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 45 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
68	LW	0830	0845	28	1	2	5	
69	Ch	0830	0845	24	1	2	5	
70	GS	0830	0845	46	1	2	5	
71	ME	0830	0845	31	1	2	5	
72	AP	0830	0845	77	1	2	5	
73	LW	0845	0900	42	1	2	6	
74	Ch	0845	0900	107	1	2	6	
75	GS	0845	0900	60	1	2	6	
76	ME	0845	0900	82	1	2	6	
77	AP	0845	0900	49	1	2	6	
78	LW	0900	0915	70	2	2	6	
79	Ch	0900	0915	46	2	2	6	
80	GS	0900	0915	36	2	2	6	
81	ME	0900	0915	19	2	2	6	
82	AP	0900	0915	24	2	2	6	
83	LW	0915	0930	45	2	2	5	
84	Ch	0915	0930	37	2	2	5	
85	GS	0915	0930	87	2	2	5	
86	ME	0915	0930	52	2	2	5	
87	AP	0915	0930	74	2	2	5	
88	LW	0930	0945	42	1	1	6	
89	Ch	0930	0945	27	1	1	6	
90	GS	0930	0945	61	1	1	6	
91	ME	0930	0945	37	1	1	6	
92	AP	0930	0945	35	1	1	6	
93	LW	0945	1000	61	1	1	6	
94	Ch	0945	1000	28	1	1	6	
95	GS	0945	1000	40	1	1	6	
96	ME	0945	1000	21	1	1	6	
97	AP	0945	1000	34	1	1	6	

Attach Calibration Sheet
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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Luis Wade, Miguel Estrada, Chris Hughes, Alex Pesik, George Stroup

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 56 Precip: 0 Upwind BG: 2.2 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	1000	1015	26	2	3	5	
99	Ch	1000	1015	42	2	3	5	
100	GS	1000	1015	21	2	3	5	
101	ME	1000	1015	45	2	3	5	
102	AP	1000	1015	47	2	3	5	
103	LW	1015	1030	89	2	2	5	
104	Ch	1015	1030	31	2	2	5	
105	GS	1015	1030	54	2	2	5	
106	ME	1015	1030	21	2	2	5	
107	AP	1015	1030	16	2	2	5	
108	LW	1030	1045	34	1	2	7	
109	Ch	1030	1045	26	1	2	7	
110	GS	1030	1045	49	1	2	7	
111	ME	1030	1045	66	1	2	7	
112	AP	1030	1045	51	1	2	7	
113	LW	1045	1100	5,188	2	4	7	Well 226
114	Ch	1045	1100	31	2	4	7	
115	GS	1045	1100	52	2	4	7	
116	ME	1045	1100	40	2	4	7	
117	AP	1045	1100	22	2	4	7	
118	LW	1100	1115	26	2	3	7	
119	Ch	1100	1115	41	2	3	7	
120	GS	1100	1115	68	2	3	7	
121	ME	1100	1115	32	2	3	7	
122	AP	1100	1115	1,300	2	3	7	Well 225
123	LW	1115	1130	45	1	1	6	
124	Ch	1115	1130	60	1	1	6	
125	GS	1115	1130	37	1	1	6	
126	ME	1115	1130	55	1	1	6	
127	AP	1115	1130	41	1	1	6	

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEISHWADE | MIGUEL ESTRADA
CHRIS HUGHES | ALEX PESIK
GEORGE STROUP

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 60 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
128	LW	1130	1145	65	1	2	6	
129	CH	1130	1145	40	1	2	6	
130	GS	1130	1145	27	1	2	6	
131	ME	1130	1145	1500	1	2	6	WELL 194
132	AP	1130	1145	45	1	2	6	
133	LW	1145	1200	78	1	3	6	
134	CH	1145	1200	2500	1	3	6	WELL 247
135	GS	1145	1200	42	1	3	6	
136	ME	1145	1200	68	1	3	6	
137	AP	1145	1200	21	1	3	6	
138	LW	1200	1215	17	2	3	8	
139	CH	1200	1215	41	2	3	8	
140	GS	1200	1215	66	2	3	8	
141	ME	1200	1215	74	2	3	8	
142	AP	1200	1215	37	2	3	8	
143	LW	1215	1230	78	3	4	8	
144	CH	1215	1230	52	3	4	8	
145	GS	1215	1230	49	3	4	8	
146	ME	1215	1230	62	3	4	8	
147	AP	1215	1230	30	3	4	8	
148	LW	1230	1245	41	3	5	8	
149	CH	1230	1245	32	3	5	8	
150	GS	1230	1245	127	3	5	8	
151	ME	1230	1245	85	3	5	8	
152	AP	1230	1245	47	3	5	8	
153	LW	1245	1300	58	1	3	8	
154	CH	1245	1300	40	1	3	8	
155	GS	1245	1300	68	1	3	8	
156	ME	1245	1300	21	1	3	8	
157	AP	1245	1300	1398	1	3	8	WELL 204

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Chris Hughes, George Stroup, Miguel Estrada, Alex Pesik

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 65 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
158	LW	1300	1315	82	2	4	6	
159	CH	1300	1315	78	2	4	8	
160	GS	1300	1315	28	2	4	6	
161	AM	1300	1315	31	2	4	8	
162	AP	1300	1315	26	2	4	6	
163	LW	1315	1330	39	2	2	7	
164	CH	1315	1330	85	2	2	7	
165	GS	1315	1330	22	2	2	7	
166	ME	1315	1330	61	2	2	7	
167	AP	1315	1330	45	2	2	7	
168	LW	1330	1345	39	1	3	7	
169	CH	1330	1345	52	1	3	7	
170	GS	1330	1345	26	1	3	7	
171	ME	1330	1345	86	1	3	7	
172	AP	1330	1345	40	1	3	7	
173	LW	1345	1400	31	1	2	6	
174	CH	1345	1400	34	1	2	6	
175	GS	1345	1400	42	1	2	6	
176	ME	1345	1400	39	1	2	6	
177	AP	1345	1400	24	1	2	6	
178	LW	1400	1415	31	0	1	6	
179	CH	1400	1415	22	0	1	6	
180	GS	1400	1415	58	0	1	6	
181	ME	1400	1415	36	0	1	6	
182	AP	1400	1415	25	0	1	6	
183	LW	1415	1430	33	2	4	6	
184	CH	1415	1430	63	2	4	6	
185	GS	1415	1430	36	2	4	6	
186	ME	1415	1430	51	2	4	6	
187	AP	1415	1430	60	2	4	6	

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE / CHRIS HESLOP / GEORGE STROUP / MIGUEL ESTRADA / ALEX PESIC

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 68 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
188	LW	1430	1445	49	2	3	6	
189	CH	1430	1445	34	2	3	6	
190	GS	1430	1445	38	2	3	6	
191	ME	1430	1445	54	2	3	6	
192	AP	1430	1445	21	2	3	6	
193	LW	1445	1510	36	2	3	6	
194	CH	1445	1500	50	2	3	6	
195	GS	1445	1500	27	2	3	6	
196	ME	1445	1510	46	2	3	6	
197	AP	1445	1500	41	2	3	6	
198	LW	1510	1515	54	0	1	6	
199	CH	1500	1515	16	0	1	6	
200	GS	1500	1515	11	0	1	6	
201	ME	1500	1515	35	0	1	6	
202	AP	1500	1515	19	0	1	6	
203	LW	1515	1530	41	0	1	6	
204	CH	1515	1530	30	0	1	6	
205	GS	1515	1530	25	0	1	6	
206	ME	1515	1530	16	0	1	6	
207	AP	1515	1530	29	0	1	6	
208	LW	1530	1545	40	2	2	7	

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade

Date: 11-15-22 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	
30								Active-trash
35								
40								
45								
31								
36								
41								

Attach Calibration Sheet
Attach site map showing grid ID

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4th QuaRteR 2022

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
1		P-2	Other (See Comments) (OT)	38.16264033	-122.5593088	3	11-15-22	7	
2		P-4	Other (See Comments) (OT)	38.16458567	-122.5597367	4		9	
3		P-5	Other (See Comments) (OT)	38.1659435	-122.559745	7		11	
4		P-6	Other (See Comments) (OT)	38.16590933	-122.5597347	7		7	
5		P-7	Other (See Comments) (OT)	38.16601117	-122.5596422	7		8	
6		P-8	Other (See Comments) (OT)	38.16601483	-122.5596808	7		6	
7		P-1	Other (See Comments) (OT)	38.16237717	-122.559976	10		14	
8		P-9	Other (See Comments) (OT)	38.16708483	-122.560793	15		27	
9	59567	LC-234	LFG Collector - Standard	38.1654038	-122.5607993	16		31	
10	877	83	LFG Collector - Standard	38.1640668	-122.5610008	17		20	
11	889	95	LFG Collector - Standard	38.1630983	-122.5606295	17		19	
12	59568	LC-235	LFG Collector - Standard	38.1659611	-122.5611811	20		25	
13	62176	LC-252	LFG Collector - Standard	38.164918	-122.5618217	25		37	
14	59569	LC-236	LFG Collector - Standard	38.1666116	-122.5618882	29		20	
15	59574	LC-241	LFG Collector - Standard	38.1659295	-122.5619612	29		44	
16	62177	LC-253	LFG Collector - Standard	38.1648188	-122.5617898	30		62	
17		P-10	Other (See Comments) (OT)	38.16413217	-122.5619648	31		40	
18	62178	LC-254	LFG Collector - Standard	38.1649718	-122.5622977	35		19	
19		P-14	Other (See Comments) (OT)	38.16814117	-122.562457	38		26	
20	859	65	LFG Collector - Standard	38.1660924	-122.5624656	39		44	
21	59575	LC-242	LFG Collector - Standard	38.1657546	-122.5624878	39		38	
22		P-16	Other (See Comments) (OT)	38.1681825	-122.5629578	43		56	
23		P-17	Other (See Comments) (OT)	38.1682025	-122.5629357	43		62	
24	36862	117 D	LFG Collector - Standard	38.1667142	-122.5629642	44		20	
25	49444	LC-179	LFG Collector - Standard	38.1714265	-122.5672832	46		17	
26	54623	LC-217	LFG Collector - Standard	38.1642982	-122.5627832	46		25	
27	56613	LC-227	LFG Collector - Standard	38.1625588	-122.5627977	47		31	
28		P-47	Other (See Comments) (OT)	38.1684925	-122.5632173	48		70	
29	41945	140	LFG Collector - Standard	38.1646417	-122.5634152	50		34	
30	44328	142	LFG Collector - Standard	38.1647059	-122.5633469	50		15	
31	62179	LC-255	LFG Collector - Standard	38.1654921	-122.563161	50		38	
32	62180	LC-256	LFG Collector - Standard	38.1651125	-122.563103	50		22	
33		P-19	Other (See Comments) (OT)	38.1686105	-122.5637285	53		41	
34	36861	116 E	LFG Collector - Standard	38.1670675	-122.5636515	54		68	
35	41725	137	LFG Collector - Standard	38.1664956	-122.5635508	54		35	
36	59570	LC-237	LFG Collector - Standard	38.1665481	-122.5637343	54		30	
37	59571	LC-238	LFG Collector - Standard	38.1660756	-122.5635479	54		47	
38		P-11	Other (See Comments) (OT)	38.16337667	-122.5635122	56		23	
39	59572	LC-239	LFG Collector - Standard	38.1670255	-122.5639206	59		61	
40	41996	141	LFG Collector - Standard	38.1641195	-122.5641272	60		27	

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
41	62170	LC-246	LFG Collector - Standard	38.1646082	-122.5640043	60	11-15-22	58	
42	36869	124 G	LFG Collector - Standard	38.1627022	-122.5638785	62		22	
43	56162	220	LFG Collector - Standard	38.1613197	-122.5642922	63		37	
44		P-21	Other (See Comments) (OT)	38.16887917	-122.5642652	64		20	
45		P-22	Other (See Comments) (OT)	38.16887883	-122.5642492	64		48	
46		P-23	Other (See Comments) (OT)	38.1688705	-122.5642428	64		41	
47		P-82	Other (See Comments) (OT)	38.1688325	-122.5641177	64		33	
48		P-83	Other (See Comments) (OT)	38.16892133	-122.5643035	64		77	
49		P-84	Other (See Comments) (OT)	38.16910133	-122.564327	64		26	
50		P-85	Other (See Comments) (OT)	38.16914767	-122.5644217	64		35	
51	36860	115 E	LFG Collector - Standard	38.1674718	-122.564332	65		38	
52	59573	LC-240	LFG Collector - Standard	38.1670241	-122.5644225	66		19	
53	59576	LC-243	LFG Collector - Standard	38.1634542	-122.5641759	68		28	
54	59577	LC-244	LFG Collector - Standard	38.1633506	-122.5645797	74		107	
55	44039	HC-101	LFG Collector - Standard	38.1628293	-122.5646008	75		34	
56	44040	HC-102	LFG Collector - Standard	38.1623785	-122.5644932	75		60	
57	56619	LC-230	LFG Collector - Standard	38.1660713	-122.5650072	78		15	
58	56624	LC-233	LFG Collector - Standard	38.1668967	-122.5649932	78		49	
59	59578	LC-245	LFG Collector - Standard	38.1634761	-122.5650176	80		36	
60		P-86	Other (See Comments) (OT)	38.16314633	-122.5649933	80		18	
61		P-48	Other (See Comments) (OT)	38.17419167	-122.5651825	83		45	
62		P-43	Other (See Comments) (OT)	38.1730765	-122.5652423	84		37	
63		P-36	Other (See Comments) (OT)	38.17149783	-122.5653047	85		20	
64		P-38	Other (See Comments) (OT)	38.17183867	-122.5653647	85		81	
65	811	17	LFG Collector - Standard	38.1703617	-122.5655321	87		74	
66	810	16	LFG Collector - Standard	38.1696262	-122.5654417	88		42	
67	56620	LC-231	LFG Collector - Standard	38.1686286	-122.565354	88		18	
68	36859	114 A	LFG Collector - Standard	38.1679373	-122.5652196	89		27	
69	54625	LC-219	LFG Collector - Standard	38.1679709	-122.5652163	89		41	
70	54621	LC-215	LFG Collector - Standard	38.1650547	-122.5653325	91		37	
71	43673	HC-107	LFG Collector - Standard	38.1656909	-122.5652975	91		26	
72		P-49	Other (See Comments) (OT)	38.17493067	-122.5655627	95		40	
73	812	18	LFG Collector - Standard	38.1713486	-122.5657009	97		62	
74	813	19	LFG Collector - Standard	38.1720321	-122.5657371	97		30	
75	54620	LC-214	LFG Collector - Standard	38.1644529	-122.5654859	102		15	
76	56608	LC-222	LFG Collector - Standard	38.1654792	-122.5656981	102		47	
77	54618	LC-212	LFG Collector - Standard	38.1639036	-122.5656472	103		89	
78		P-50	Other (See Comments) (OT)	38.17512867	-122.5660458	105		54	
79	56621	LC-232	LFG Collector - Standard	38.1697835	-122.5661705	109		37	
80	54599	LC-196	LFG Collector - Standard	38.1682071	-122.5661163	110		22	

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
81	56618	LC-229	LFG Collector - Standard	38.1672291	-122.5664904	110	11-15-22	49	
82	45852	HC-153	LFG Collector - Standard	38.1679467	-122.5661684	110		71	
83	54603	LC-200	LFG Collector - Standard	38.167125	-122.5662454	111		28	
84	54605	LC-201	LFG Collector - Standard	38.166682	-122.5660752	111		42	
85	56609	LC-223	LFG Collector - Standard	38.1658602	-122.5660864	111		50	
86	56610	LC-224	LFG Collector - Standard	38.1662079	-122.5659064	111		66	
87	56612	LC-226	LFG Collector - Standard	38.1641725	-122.5658872	113		5188	
88	52613	LC-183	LFG Collector - Standard	38.1741572	-122.5665373	116		39	
89		P-51	Other (See Comments) (OT)	38.17522917	-122.5664445	116		40	
90	52614	LC-184	LFG Collector - Standard	38.1729705	-122.5670855	117		18	
91	802	8	LFG Collector - Standard	38.1716005	-122.566374	118		26	
92	54598	LC-195	LFG Collector - Standard	38.1683749	-122.5665931	121		54	
93	54602	LC-199	LFG Collector - Standard	38.1674912	-122.5663974	121		32	
94	56611	LC-225	LFG Collector - Standard	38.1669138	-122.566333	122		1300	
95		P-52	Other (See Comments) (OT)	38.1753825	-122.5669377	127		41	
96	36872	127 B	LFG Collector - Standard	38.1738351	-122.5667563	128		65	
97	36873	128 A	LFG Collector - Standard	38.1698037	-122.5673679	131		38	
98	54597	LC-194	LFG Collector - Standard	38.1689615	-122.5665835	131		1500	
99	54601	LC-198	LFG Collector - Standard	38.1677646	-122.566832	132		95	
100	45855	HC-156	LFG Collector - Standard	38.1666548	-122.5666904	133		17	
101		P-13	Other (See Comments) (OT)	38.16627267	-122.5667888	133		110	
102	62171	LC-247	LFG Collector - Standard	38.1650576	-122.5667205	134		2500	
103	62172	LC-248	LFG Collector - Standard	38.1656523	-122.5668544	134		42	
104		P-53	Other (See Comments) (OT)	38.175473	-122.567267	136		68	
105	62175	LC-251	LFG Collector - Standard	38.1736281	-122.5672672	137		21	
106	41722	134	LFG Collector - Standard	38.1725194	-122.5670213	138		17	
107	41723	135	LFG Collector - Standard	38.1721529	-122.5672934	138		45	
108	56607	LC-221	LFG Collector - Standard	38.1681175	-122.5672286	141		37	
109	56617	LC-228	LFG Collector - Standard	38.1677564	-122.5670458	141		18	
110		P-12	Other (See Comments) (OT)	38.16712983	-122.5670528	141		62	
111	49441	LC-176	LFG Collector - Standard	38.1740513	-122.5675294	145		49	
112		P-55	Other (See Comments) (OT)	38.17551583	-122.5676485	145		32	
113	36848	103 C	LFG Collector - Standard	38.172415	-122.5677142	147		30	
114	52620	LC-190	LFG Collector - Standard	38.1634359	-122.5634027	147		22	
115	36851	106 C	LFG Collector - Standard	38.1700882	-122.5675715	148		41	
116	54607	LC-202	LFG Collector - Standard	38.1683618	-122.5672804	150		36	
117		P-54	Other (See Comments) (OT)	38.17572183	-122.5679133	153		55	
118	62174	LC-250	LFG Collector - Standard	38.1738242	-122.5678612	154		40	
119	36850	105 C	LFG Collector - Standard	38.1706173	-122.5677909	156		21	
120	36852	107 C	LFG Collector - Standard	38.1694971	-122.5676143	157		77	

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
121	54609	LC-203	LFG Collector - Standard	38.1687352	-122.5676688	157	11-15-22	59	
122	54610	LC-204	LFG Collector - Standard	38.1690544	-122.5678759	157		1398	
123	36875	130 E	LFG Collector - Standard	38.1667905	-122.5677676	159		78	
124		P-56	Other (See Comments) (OT)	38.17588233	-122.5682602	161		14	
125	41720	132	LFG Collector - Standard	38.1719093	-122.5679846	162		26	
126	62173	LC-249	LFG Collector - Standard	38.1729121	-122.5680262	163		39	
127	52616	LC-186	LFG Collector - Standard	38.1722291	-122.5686197	164		17	
128	54615	LC-209	LFG Collector - Standard	38.1700423	-122.5682426	165		22	
129	54611	LC-205	LFG Collector - Standard	38.1697844	-122.5682198	166		61	
130	54616	LC-210	LFG Collector - Standard	38.1694802	-122.5681831	166		31	
131	52618	LC-188	LFG Collector - Standard	38.171603	-122.5680363	172		40	
132	36871	126 C	LFG Collector - Standard	38.1705307	-122.5683679	174		28	
133	36874	129 E	LFG Collector - Standard	38.1688503	-122.5683779	174		34	
134	54612	LC-206	LFG Collector - Standard	38.1703914	-122.5684577	174		16	
135		P-61	Other (See Comments) (OT)	38.17628833	-122.5690028	176		18	
136	829	35	LFG Collector - Standard	38.1739165	-122.5693927	186		51	
137	36847	102 C	LFG Collector - Standard	38.1716815	-122.5692653	187		60	
138		P-81	Other (See Comments) (OT)	38.16884867	-122.569311	189		34	
139	839	45	LFG Collector - Standard	38.1760433	-122.5697611	190		19	
140	841	47	LFG Collector - Standard	38.1757422	-122.5694936	190		25	
141		P-74	Other (See Comments) (OT)	38.17652617	-122.5696552	190		38	
142	828	34	LFG Collector - Standard	38.1730762	-122.5695551	192		17	
143	797	3	LFG Collector - Standard	38.1713895	-122.569684	193		15	
144		P-76	Other (See Comments) (OT)	38.17518783	-122.570047	197		41	
145		P-77	Other (See Comments) (OT)	38.17460717	-122.5700413	197		28	
146		P-78	Other (See Comments) (OT)	38.17432767	-122.5702018	197		35	
147	36845	100 C	LFG Collector - Standard	38.1724647	-122.5698034	199		16	
148		P-75	Other (See Comments) (OT)	38.17632433	-122.5704643	200		11	
149		P-79	Other (See Comments) (OT)	38.17342533	-122.5702742	202		19	
150	52622	LC-192	LFG Collector - Standard	38.1679347	-122.5646219			14	
151		P-44	Other (See Comments) (OT)					22	
152		P-45	Other (See Comments) (OT)					16	
153		P-73	Other (See Comments) (OT)					11	

Redwood Landfill
Penetrations Workbook

WELL	GRID	PPM	DATE							
266	73	21	11-15-22							Not on map or log
267	79	17								
268	79	40								
269	79	18								
270	67-73	13								
265	67	27								
259	195	25								
258	189	31								
262	193	17								
261	180	30								
274	186	24								
264	156	18								
257	200	16								Not [illegible] on map
272	50	2,000								

Attachment B

Integrated Surface Emission Monitoring Event Records

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

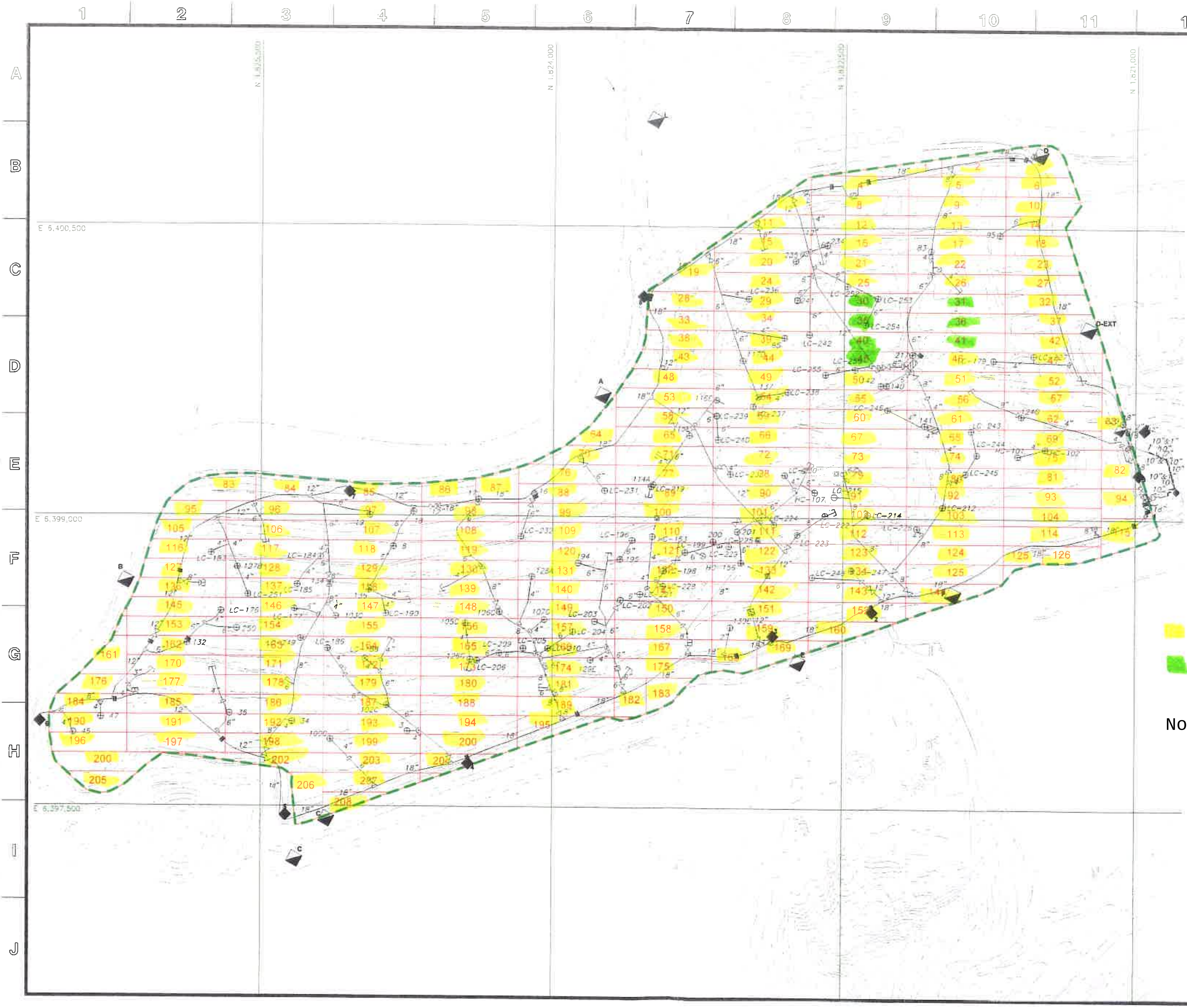
2022 QUARTER: 4

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									



N:\Salt Lake City\Redwood Landfill - Novato, CA\SEM Emissions Monitoring Plans\Redwood LF Surface Emissions Monitoring Plans.dwg Nov 09, 2021 - 2:11pm By: 7747r_r

Z

250 125 0 250 500 750

D SIZE: 1"=250' (22"X34")

B SIZE: 1"=500' (11"X17")

NOTES:

1. TOPOGRAPHIC DATA BASED ON AERIAL MAPPING PREPARED BY MILLER CREEK ASSOCIATES DATED MARCH 30, 2021.
2. LOCATIONS DEPICTED FOR THE EXISTING GCCS COMPONENTS PROVIDED TO SCS BY WASTE MANAGEMENT, VARIOUS DATES.

LEGEND

— — —	LIMIT WASTE BOUNDARY
———	ABOVE GRADE HDPE SDR 17 LFG HEADER/LATERAL
– – –	BELOW GRADE HDPE SDR 17 LFG HEADER/LATERAL
EW-1 ⊕	LFG EXTRACTION WELL
⋈	LFG VALVE
◖	LFG REDUCER
▨	ROAD/BENCH CROSSING
52	SEM GRID BLOCK

Integrated 11-14-22
11-15-22
11-16-22

🟨 Grids monitored

🟩 Active-work

No Exceedances

PRELIMINARY PLAN
FOR REVIEW AND PLANNING PURPOSES ONLY

NO	REVISION	DATE
△		
△		
△		
△		
△		
△		

SHEET TITLE:
SEM GRID AND PENETRATION MAP

PROJECT TITLE:
SURFACE EMISSIONS
MONITORING PLANS
REDWOOD LANDFILL
NOVATO, CALIFORNIA

CLIENT:
WASTE MANAGEMENT

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3900 KILROY AIRPORT WAY STE 100
LONG BEACH, CA 90806
(562) 426-9544

PROJ. NO. 01221102.00
DWN. BY: ATV/RR
DSN. BY: ATV/RR
CHK. BY: DF
ACAD FILE: N/SALT LAKE
APP. BY:

DATE: 11-09-2021

SCALE: AS SHOWN

3

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE | MIGUEL ESTRADA
CHRIS HUGHES | ALEX PESIC
GEORGE STROUP

Cal. Gas Exp. Date: 7-10-24

Date: 11-14-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 70 Precip: 0 Upwind BG: 2.2 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	4.18	6	9	15	
2	CH	1200	1225	3.71	6	9	15	
3	GS	1200	1225	5.60	6	9	15	
4	ME	1200	1225	5.44	6	9	15	
5	AP	1200	1225	4.81	6	9	15	
6	LW	1225	1250	4.10	6	8	16	
7	CH	1225	1250	9.65	6	8	16	
8	GS	1225	1250	10.24	6	8	16	
9	ME	1225	1250	9.50	6	8	16	
10	AP	1225	1250	5.34	6	8	16	
11	LW	1250	1315	9.65	5	7	16	
12	CH	1250	1315	12.41	5	7	16	
13	GS	1250	1315	10.11	5	7	16	
14	ME	1250	1315	5.48	5	7	16	
15	AP	1250	1315	11.71	5	7	16	
16	LW	1315	1340	9.20	5	8	16	
17	CH	1315	1340	7.88	5	8	16	
18	GS	1315	1340	5.06	5	8	16	
19	ME	1315	1340	9.52	5	8	16	
20	AP	1315	1340	14.71	5	8	16	
21	LW	1340	1405	11.20	4	6	16	
22	CH	1340	1405	12.68	4	6	16	
23	GS	1340	1405	6.32	4	6	16	
24	ME	1340	1405	11.77	4	6	16	
25	AP	1340	1405	9.50	4	6	16	
26	LW	1405	1430	9.12	3	5	16	
27	CH	1405	1430	6.14	3	5	16	
28	GS	1405	1430	14.66	3	5	16	
29	ME	1405	1430	8.31	3	5	16	
32	AP	1405	1430	10.14	3	5	16	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE | MIGUEL ESTRADA
CHRIS HUGHES | ALEX PESIK
GEORGE STROUP

Cal. Gas Exp. Date: 7-10-24

Date: 11-14-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 72 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
33	LW	1430	1455	9.12	3	4	1	
34	CH	1430	1455	7.55	3	4	1	
37	GS	1430	1455	5.18	3	4	1	
38	ME	1430	1455	8.65	3	4	1	
39	AP	1430	1455	7.21	3	4	1	
42	LW	1455	1520	5.66	3	5	1	
43	CH	1455	1520	8.29	3	5	1	
44	GS	1455	1520	7.66	3	5	1	
46	ME	1455	1520	6.41	3	5	1	
47	AP	1455	1520	5.38	3	5	1	
48	LW	1520	1545	11.74	1	1	16	
49	Ch	1520	1545	9.10	1	1	16	
50	GS	1520	1545	7.42	1	1	16	
51	ME	1520	1545	5.18	1	1	16	
52	AP	1520	1545	5.25	1	1	16	
53	LW	1545	1610	6.11	2	2	2	
54	Ch	1545	1610	6.27	2	2	2	
55	GS	1545	1610	5.11	2	2	2	
56	ME	1545	1610	6.21	2	2	2	
57	AP	1545	1610	5.74	2	2	2	
58	LW	1610	1635	8.06	3	4	6	
59	Ch	1610	1635	7.31	3	4	6	
60	GS	1610	1635	5.48	3	4	6	
61	ME	1610	1635	6.06	3	4	6	
62	AP	1610	1635	5.20	3	4	6	
63	LW	1635	1700	7.11	1	2	7	
64	Ch	1635	1700	6.47	1	2	7	
65	GS	1635	1700	5.98	1	2	7	
66	ME	1635	1700	6.30	1	2	7	
67	AP	1635	1700	6.77	1	2	7	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGHWADE

Cal. Gas Exp. Date: ______

Date: 11-14-22 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	
30								ACTIVE-AREAS
35								
40								
45								
31								
36								
41								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade; Miguel Estrada; Chris Hughes; Alex Pesic; George Stroop

Cal. Gas Exp. Date: 7-10-24

Date: 11-15-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 72 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
68	LW	1555	1620	10.51	2	4	6	
69	CH	1555	1620	12.74	2	4	6	
70	GS	1555	1620	9.61	2	4	6	
71	ME	1555	1620	7.54	2	4	6	
72	AP	1555	1620	6.49	2	4	6	
73	LW	1620	1645	7.11	2	4	7	
74	CH	1620	1645	6.42	2	4	7	
75	GS	1620	1645	8.06	2	4	7	
76	ME	1620	1645	6.49	2	4	7	
77	AP	1620	1645	7.26	2	4	7	
78	LW	1645	1710	6.94	1	3	9	
79	CH	1645	1710	6.27	1	3	9	
80	GS	1645	1710	8.45	1	3	9	
81	ME	1645	1710	6.40	1	3	9	
82	AP	1645	1710	7.13	1	3	9	
83	LW	1710	1735	5.30	2	4	8	
84	CH	1710	1735	5.17	2	4	8	
85	GS	1710	1735	4.62	2	4	8	
86	ME	1710	1735	5.17	2	4	8	
87	AP	1710	1735	4.85	2	4	8	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIS LWAOE — MIGUEL ESTRADA
CHRIS HUGHES — ALEX PESIK
GEORGE STROUP

Cal. Gas Exp. Date: 7-10-24

Date: 11-16-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 32 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
88	LW	0525	0550	5.71	1	3	7	
89	Ch	0525	0550	6.10	1	3	7	
90	GS	0525	0550	6.98	1	3	7	
91	ME	0525	0550	5.41	1	3	7	
92	AP	0525	0550	6.07	1	3	7	
93	LW	0550	0615	6.30	2	4	6	
94	Ch	0550	0615	5.51	2	4	6	
95	GS	0550	0615	4.80	2	4	6	
96	ME	0550	0615	5.75	2	4	6	
97	AP	0550	0615	5.21	2	4	6	
98	LW	0615	0640	4.90	2	3	6	
99	Ch	0615	0640	5.18	2	3	6	
100	GS	0615	0640	6.05	2	3	6	
101	ME	0615	0640	6.31	2	3	6	
102	AP	0615	0640	5.79	2	3	6	
103	LW	0640	0705	5.50	1	1	6	
104	Ch	0640	0705	6.11	1	1	6	
105	GS	0640	0705	6.02	1	1	6	
106	ME	0640	0705	5.70	1	1	6	
107	AP	0640	0705	5.41	1	1	6	
108	LW	0705	0730	5.89	1	3	6	
109	Ch	0705	0730	5.20	1	3	6	
110	GS	0705	0730	8.25	1	3	6	
111	ME	0705	0730	6.91	1	3	6	
112	AP	0705	0730	9.40	1	3	6	
113	LW	0730	0755	7.26	1	3	6	
114	Ch	0730	0755	6.04	1	3	6	
115	GS	0730	0755	5.82	1	3	6	
116	ME	0730	0755	5.07	1	3	6	
117	AP	0730	0755	4.60	1	3	6	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade | Miguel Estrada
Chris Hughes | Alex Pesik
George Stroup

Cal. Gas Exp. Date: 7-16-24

Date: 11-16-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 37 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
118	LW	0755	0820	4.21	1	3	2	
119	CH	0755	0820	5.06	1	3	2	
120	GS	0755	0820	10.41	1	3	2	
121	ME	0755	0820	7.16	1	3	2	
122	AP	0755	0820	5.49	1	3	2	
123	LW	0820	0845	5.06	1	3	4	
124	CH	0820	0845	5.32	1	3	4	
125	GS	0820	0845	5.07	1	3	4	
126	ME	0820	0845	4.76	1	3	4	
127	AP	0820	0845	5.11	1	3	4	
128	LW	0845	0910	5.46	1	3	6	
129	CH	0845	0910	4.31	1	3	6	
130	GS	0845	0910	5.90	1	3	6	
131	ME	0845	0910	7.12	1	3	6	
132	AP	0845	0910	6.89	1	3	6	
133	LW	0910	0935	6.03	1	2	6	
134	CH	0910	0935	5.10	1	2	6	
135	GS	0910	0935	5.45	1	2	6	
136	ME	0910	0935	4.77	1	2	6	
137	AP	0910	0935	5.81	1	2	6	
138	LW	0935	1000	5.29	3	5	6	
139	CH	0935	1000	5.46	3	5	6	
140	GS	0935	1000	5.32	3	5	6	
141	ME	0935	1000	6.10	3	5	6	
142	AP	0935	1000	4.60	3	5	6	
143	LW	1000	1025	5.19	1	4	6	
144	CH	1000	1025	5.57	1	4	6	
145	GS	1000	1025	6.14	1	4	8	
146	ME	1000	1025	5.98	1	4	8	
147	AP	1000	1025	6.11	1	4	6	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE — MIGUEL ESTRADA
CHRIS HUGHES — ALEX PASIC
GEORGE STROUP

Cal. Gas Exp. Date: 7-10-24

Date: 11-16-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 51 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
148	LW	1025	1050	8.71	1	3	6	
149	CH	1025	1050	7.26	1	3	6	
150	GS	1025	1050	10.98	1	3	6	
151	ME	1025	1050	13.26	1	3	6	
152	AP	1025	1050	8.70	1	3	6	
153	LW	1050	1115	5.54	3	5	6	
154	CH	1050	1115	7.74	3	5	6	
155	GS	1050	1115	9.26	3	5	6	
156	ME	1050	1115	6.81	3	5	6	
157	AP	1050	1115	9.30	3	5	6	
158	LW	1115	1140	6.11	2	4	6	
159	CH	1115	1140	6.35	2	4	6	
160	GS	1115	1140	5.41	2	4	6	
161	ME	1115	1140	6.03	2	4	6	
162	AP	1115	1140	4.98	2	4	6	
163	LW	1140	1205	5.50	0	0	16	
164	CH	1140	1205	6.12	0	0	16	
165	GS	1140	1205	6.34	0	0	16	
166	ME	1140	1205	7.11	0	0	16	
167	AP	1140	1205	8.21	0	0	16	
168	LW	1205	1230	5.54	1	2	6	
169	CH	1205	1230	5.07	1	2	6	
170	GS	1205	1230	5.48	1	2	6	
171	ME	1205	1230	7.26	1	2	6	
172	AP	1205	1230	6.97	1	2	6	
173	LW	1230	1255	6.41	1	3	6	
174	CH	1230	1255	6.26	1	3	6	
175	GS	1230	1255	5.42	1	3	6	
176	ME	1230	1255	4.16	1	3	6	
177	AP	1230	1255	5.21	1	3	6	

Attach Calibration Sheet
Attach site map showing grid ID

Page 3 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEISLWADR — Miguel Estrada
Chris Hughes — ACEL PASIK
GEORGE STROUP

Cal. Gas Exp. Date: 7-10-24

Date: 11-16-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 60 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
178	LW	1255	1320	6.24	1	2	6	
179	CH	1255	1320	5.50	1	2	6	
180	GS	1255	1320	5.28	1	2	6	
181	ME	1255	1320	6.07	1	2	6	
182	AP	1255	1320	5.92	1	2	6	
183	LW	1320	1345	5.45	2	3	6	
184	CH	1320	1345	4.12	2	3	6	
185	GS	1320	1345	5.09	2	3	6	
186	ME	1320	1345	5.50	2	3	6	
187	AP	1320	1345	7.13	2	3	6	
188	LW	1345	1410	6.45	4	5	5	
189	CH	1345	1410	5.22	4	5	5	
190	GS	1345	1410	6.08	4	5	5	
191	ME	1345	1410	6.15	4	5	5	
192	AP	1345	1410	6.45	4	5	5	
193	LW	1410	1435	5.81	3	5	7	
194	CH	1410	1435	6.36	3	5	7	
195	GS	1410	1435	5.70	3	5	7	
196	ME	1410	1435	4.28	3	5	7	
197	AP	1410	1435	5.12	3	5	7	
198	LW	1435	1500	4.66	1	1	6	
199	CH	1435	1500	5.92	1	1	6	
200	GS	1435	1500	6.17	1	1	6	
201	ME	1435	1500	4.50	1	1	6	
202	AP	1435	1500	5.18	1	1	6	
203	LW	1500	1525	5.67	2	3	6	
204	CH	1500	1525	5.41	2	3	6	
205	BS	1500	1525	6.28	2	3	6	
206	ME	1500	1525	5.01	2	3	6	
207	AP	1500	1525	5.25	2	3	6	

Attach Calibration Sheet
Attach site map showing grid ID

Page 4 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIS LWANT, CHRIS HUGHES, GEORGE STROUP, MIGUEL ASTRADA, ALEX PAVSIK

Cal. Gas Exp. Date: 7-10-24

Date: 11-16-22 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 64 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.6

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
208	LW	1525	1550	4.75	1	2	7	

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

2022 QUARTER: 4

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								

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

2022 QUARTER: 4

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								

LANDFILL NAME: REDWOOD

QUARTERLY LFG COMPONENT LEAK MONITORING

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

DATE OF SAMPLING: 11-15-22
TECHNICIAN: Leishman8

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)
NOEXCEEDANCES							

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.

REDWOOD 3520+ ENGINE PLANT, CA

Site Map

8950 Redwood Hwy, Novato, CA 94948

11-15-22

No Exceedances

REV	DATE	BY	DESCRIPTION
△	3-1-16	RAA	ISSUED FOR CONSTRUCTION
△	10-26-15	RAA	BUILDING PERMIT APPLICATION SET
△	10-2-15	RAA	95% DESIGN RESUBMITTAL
△	8-7-15	RAA	ISSUED FOR GAS TREATMENT SKID BID
△	6-12-15	RAA	95% DESIGN SUBMITTAL
△	5-8-15	RAA	50% DESIGN SUBMITTAL

SCALE: AS SHOWN
DATE: 5-5-15
DRAWN: JFD
CHECKED: RFC
APPROVED: RAA

ACEng
www.ac-engineering.com

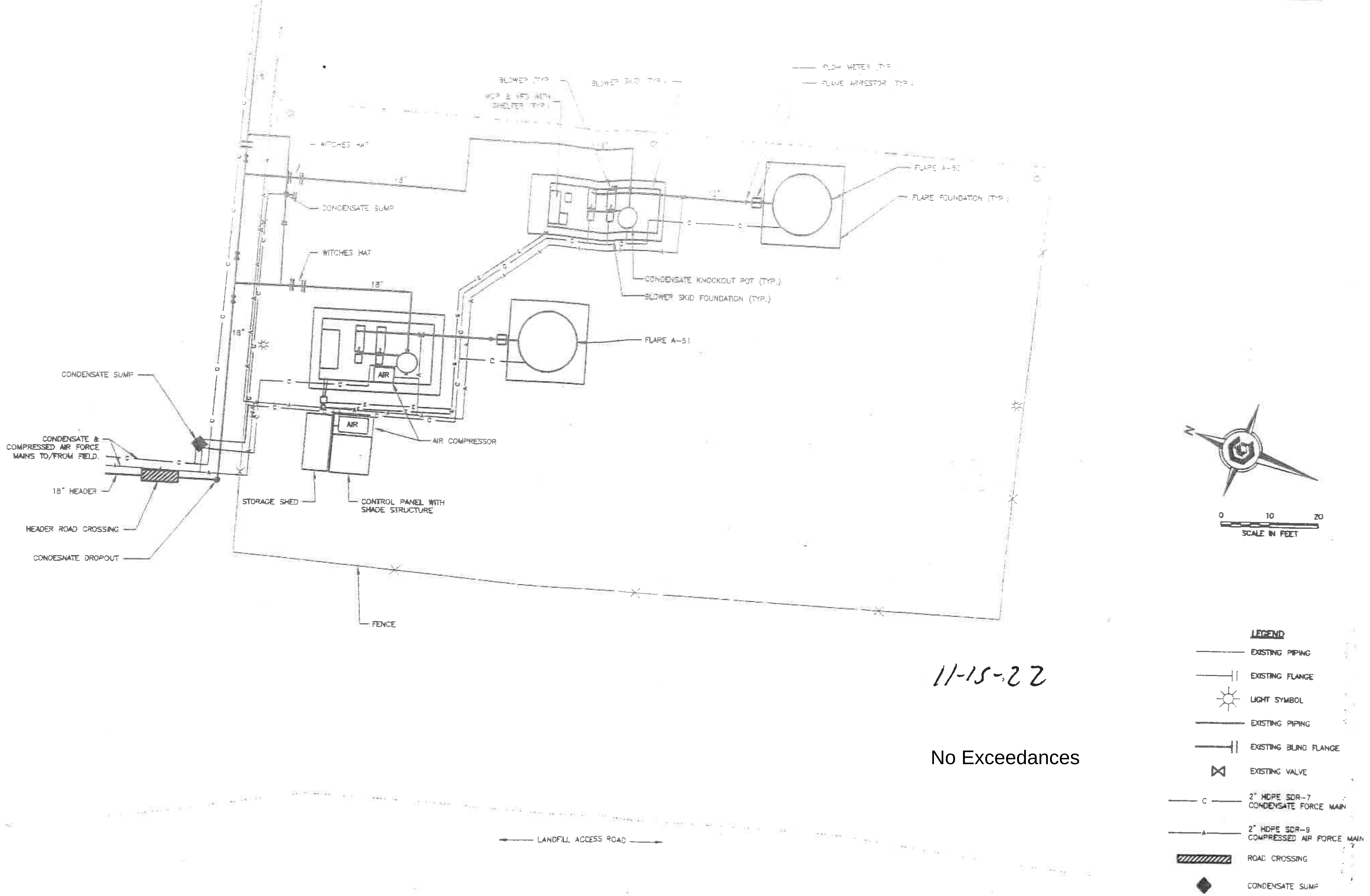
CLIENT
WASTE MANAGEMENT RENEWABLE ENERGY
LANDFILL TO GAS ENERGY PROJECT
REDWOOD LANDFILL NOVATO, CA

DESCRIPTION
PROPOSED CONDITIONS AND
HAZARDOUS AREA CLASSIFICATIONS

PROJECT NO.
1003 005 001

SHEET
G-5

7/25/2017



11-15-22

No Exceedances

DRAFT

WASTE MANAGEMENT

PAUL J. STOUT P.E.

P.E. Lic. No. 36282 Date

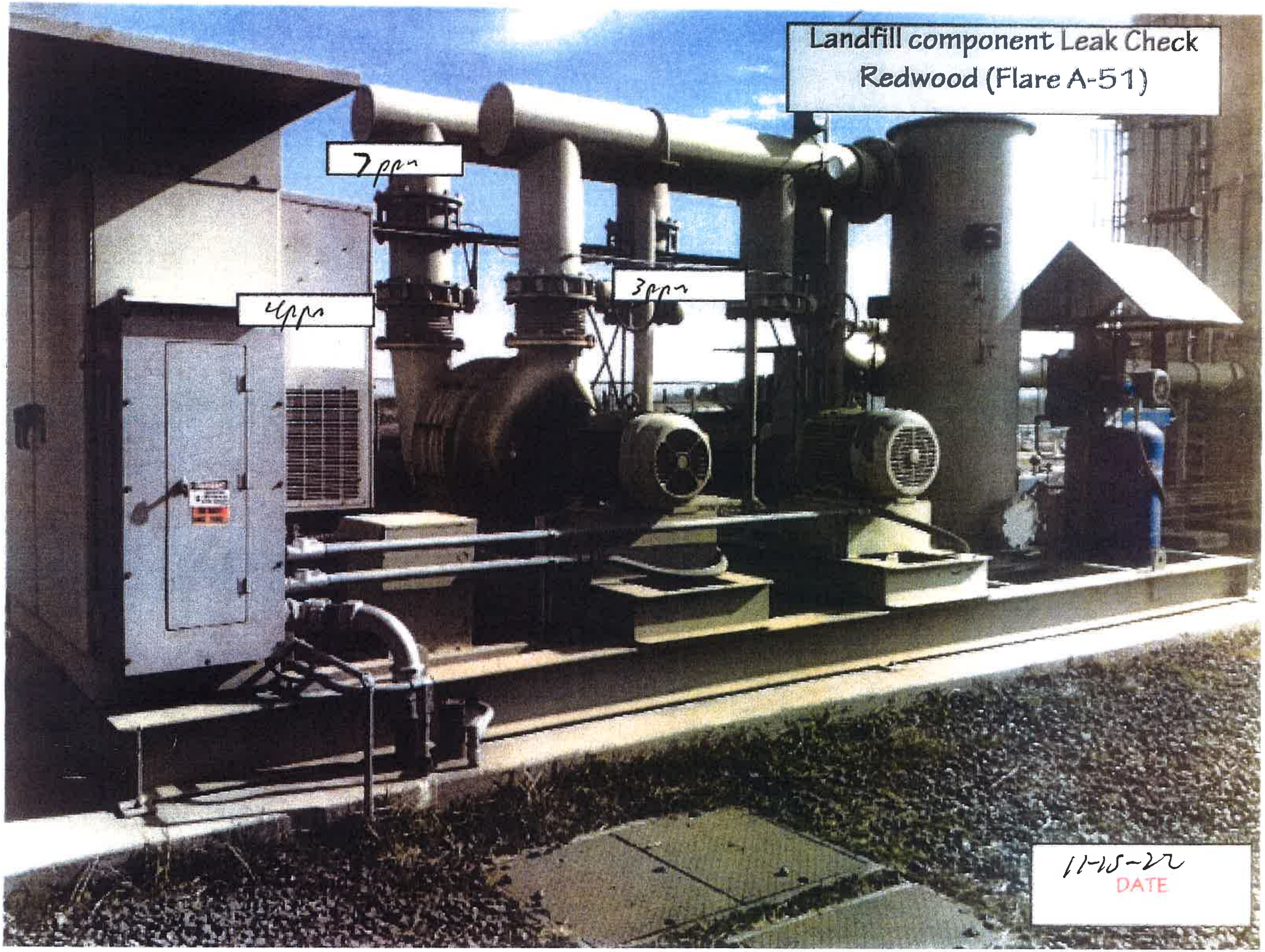
CORNERSTONE
Environmental Group, LLC

WASTE MANAGEMENT OF CALIFORNIA, INC.
REDWOOD LANDFILL, INC.
NOVATO, MARIN COUNTY, CALIFORNIA

LFG FLARE AND GCCS AS-BUILT

SHEET NO.
1

PROJECT NO.



Landfill component Leak Check
Redwood (Flare A-51)

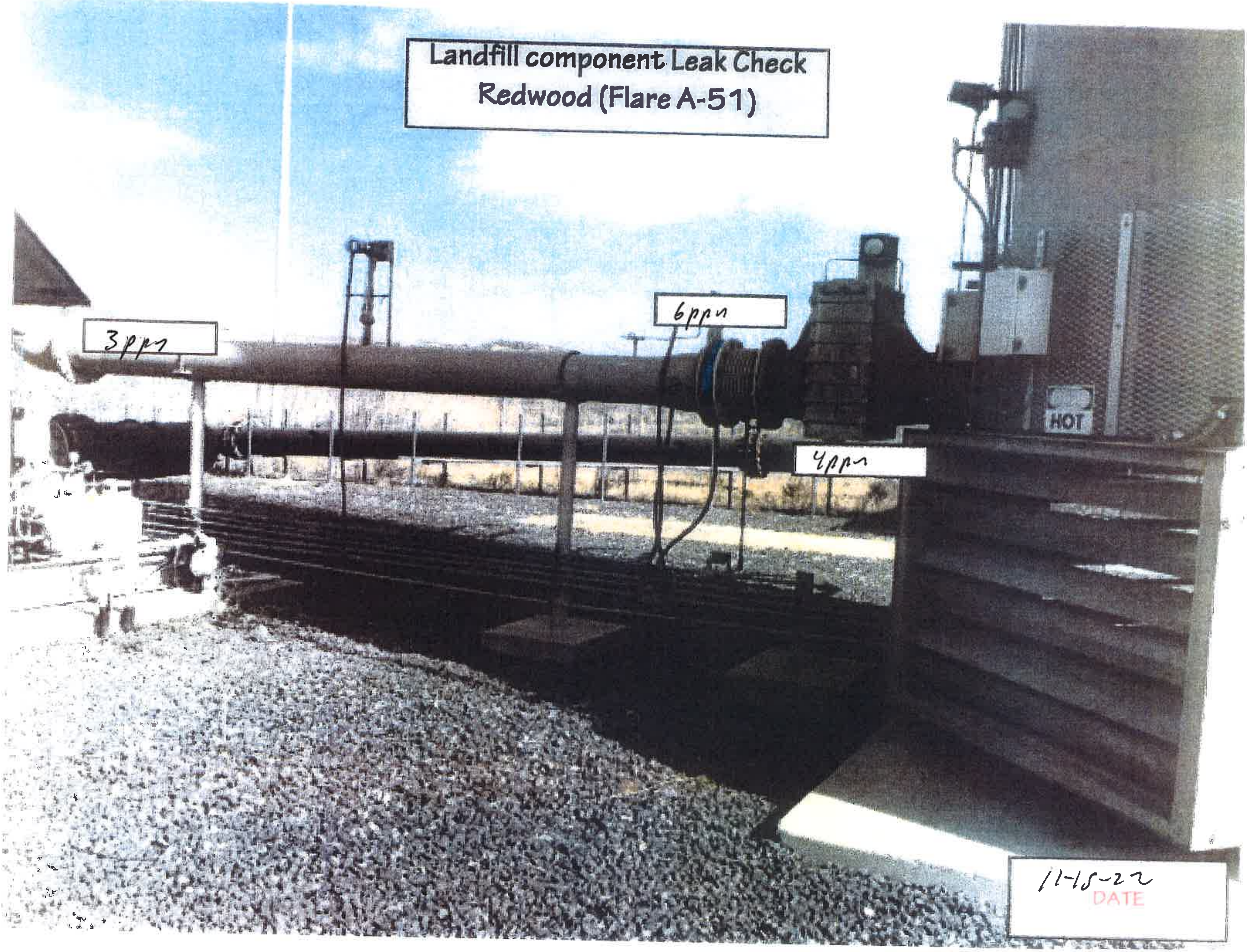
7ppm

4ppm

3ppm

11-15-22
DATE

Landfill component Leak Check
Redwood (Flare A-51)



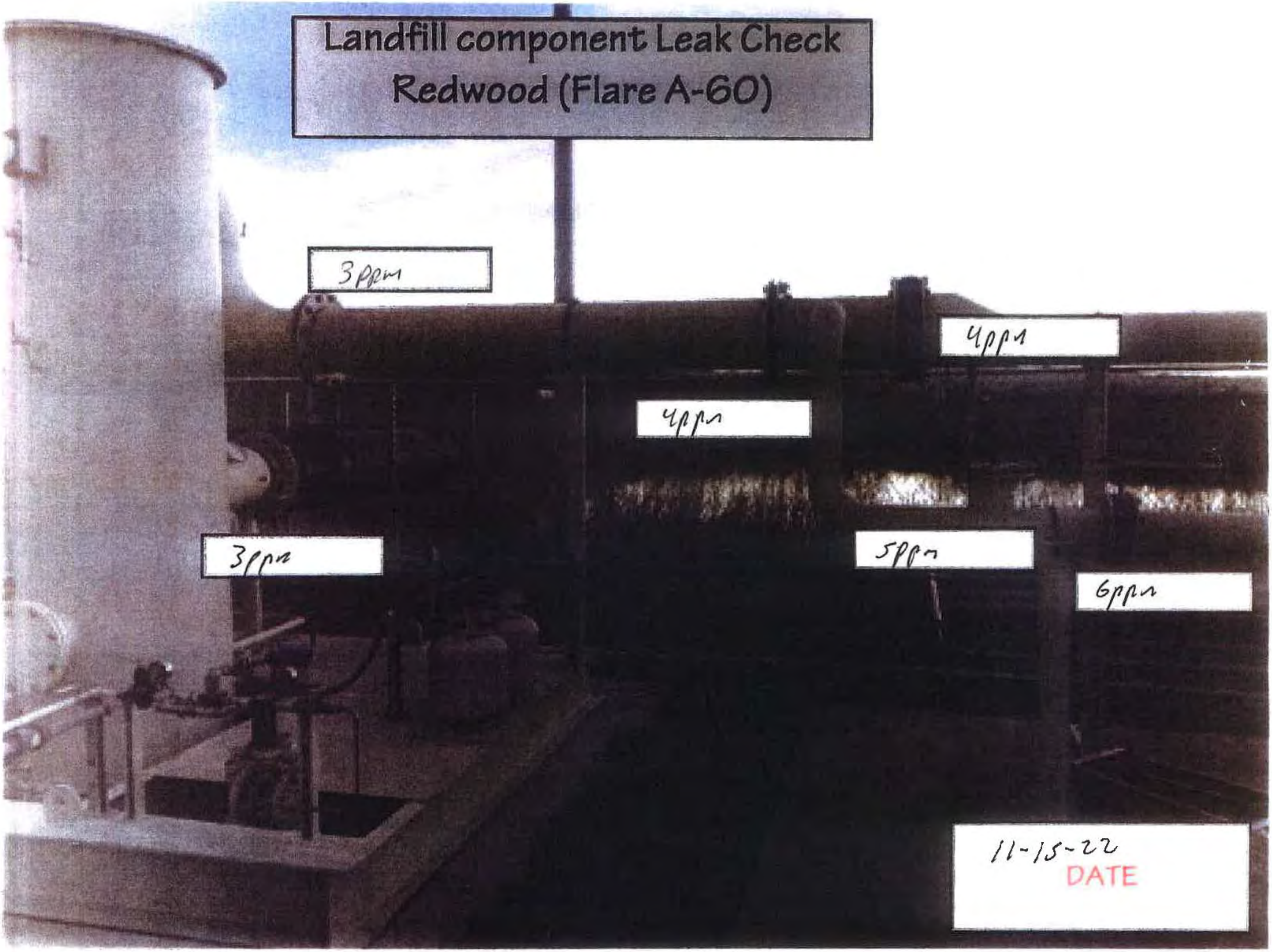
3ppm

6ppm

4ppm

11-15-22

DATE



Landfill component Leak Check
Redwood (Flare A-60)

3ppm

4ppm

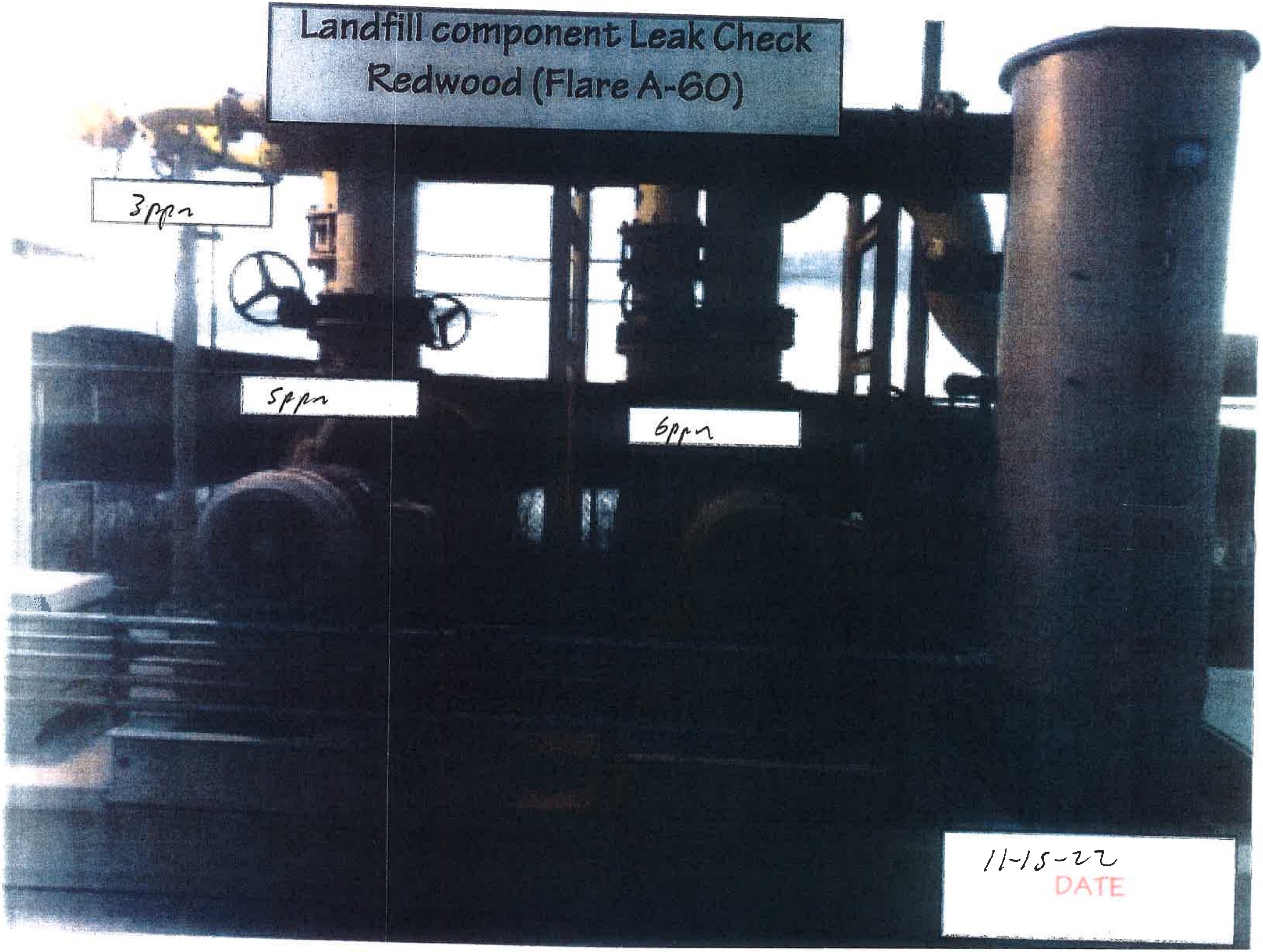
4ppm

3ppm

5ppm

6ppm

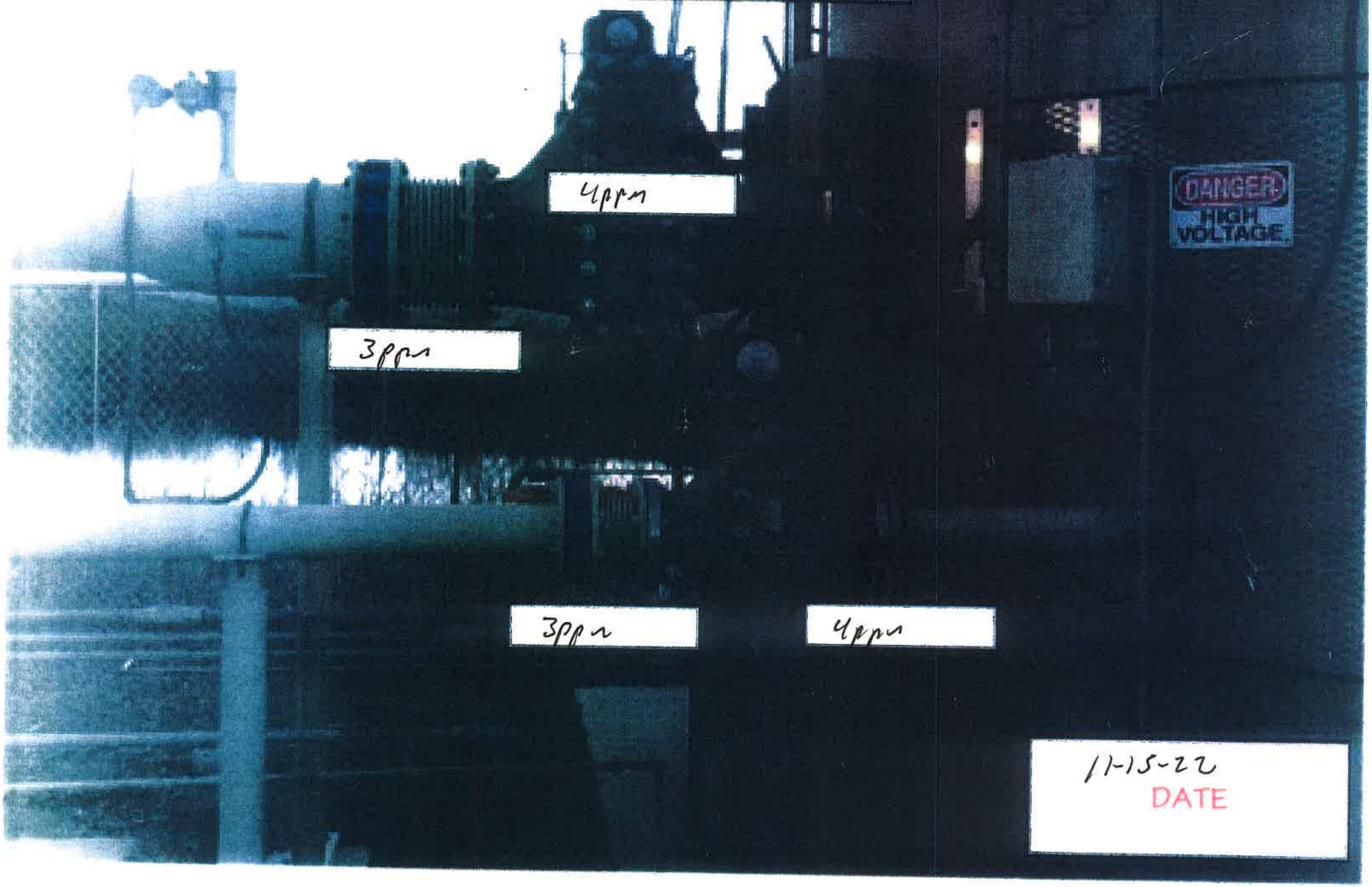
11-15-22
DATE



Landfill component Leak Check
Redwood (Flare A-60)

11-15-22
DATE

Landfill component Leak Check
Redwood (Flare A-60)



4ppm

3ppm

3ppm

4ppm

11-15-22
DATE

Attachment D

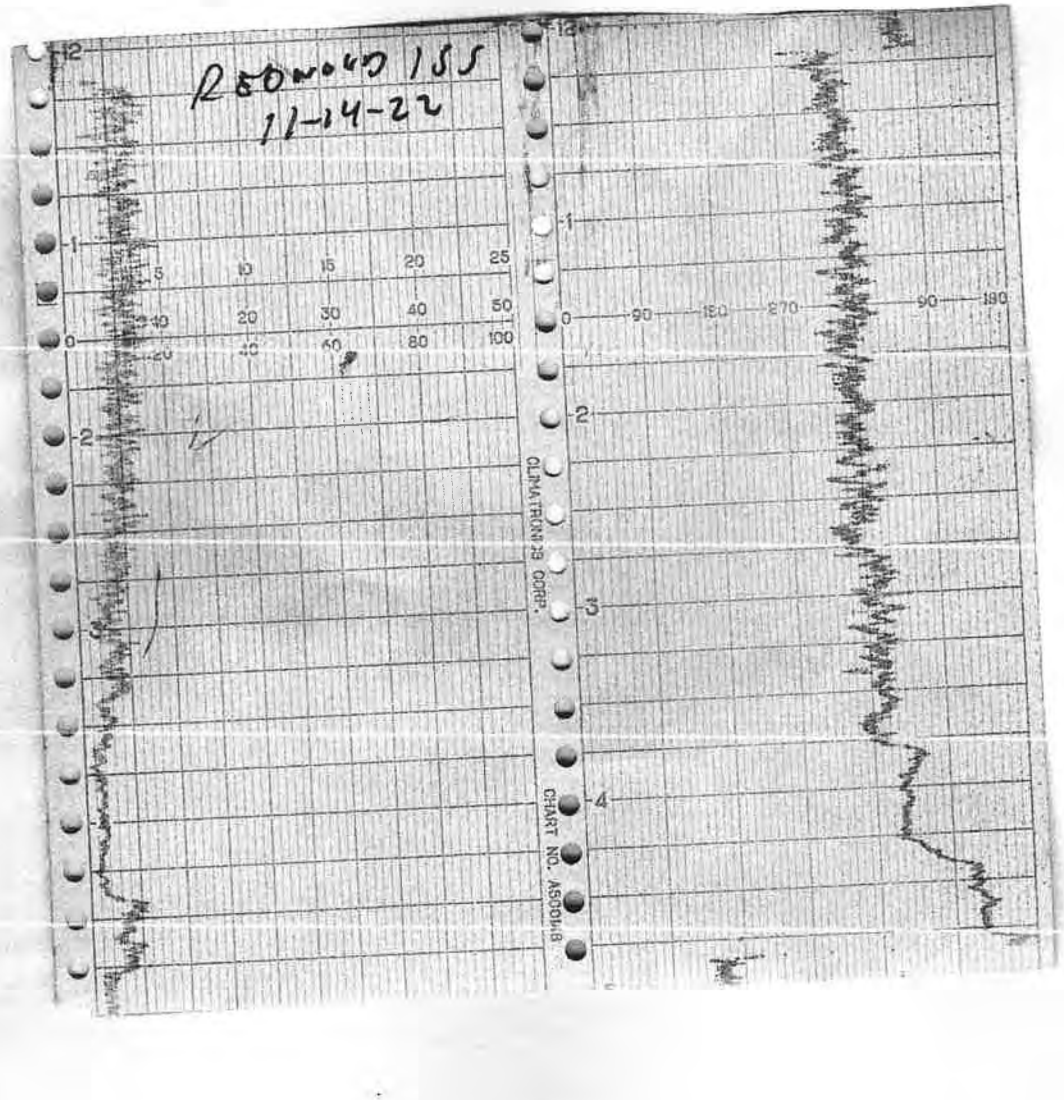
Weather Station Data

RES
Environmental Inc.

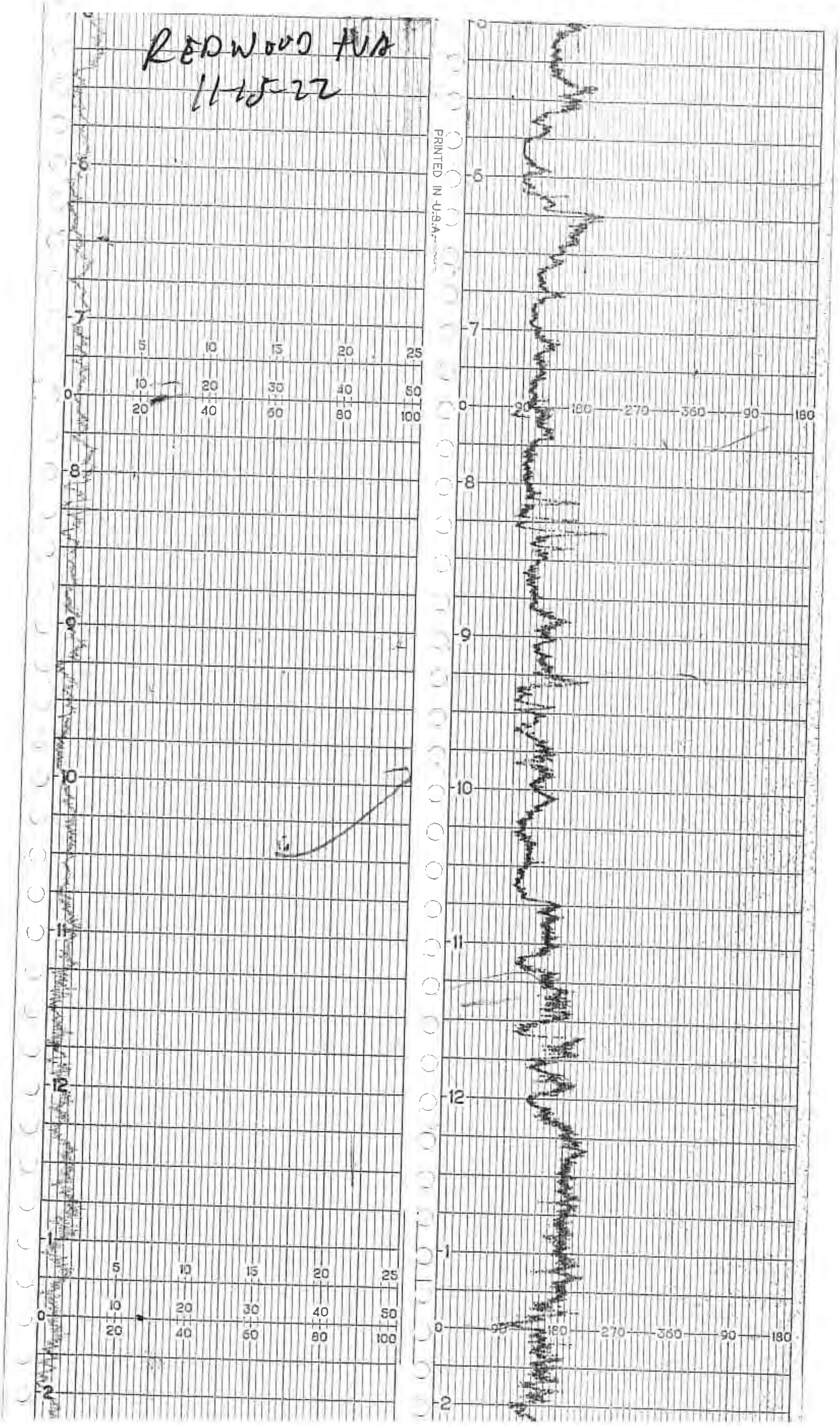
16-POINT WIND DIRECTION INDEX

NO	DIRECTION	DEGREES		
		FROM	CENTER	TO
16	NORTH (N)	348.8	369.0	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

WIND SPEED & DIRECTION CHART ROLL

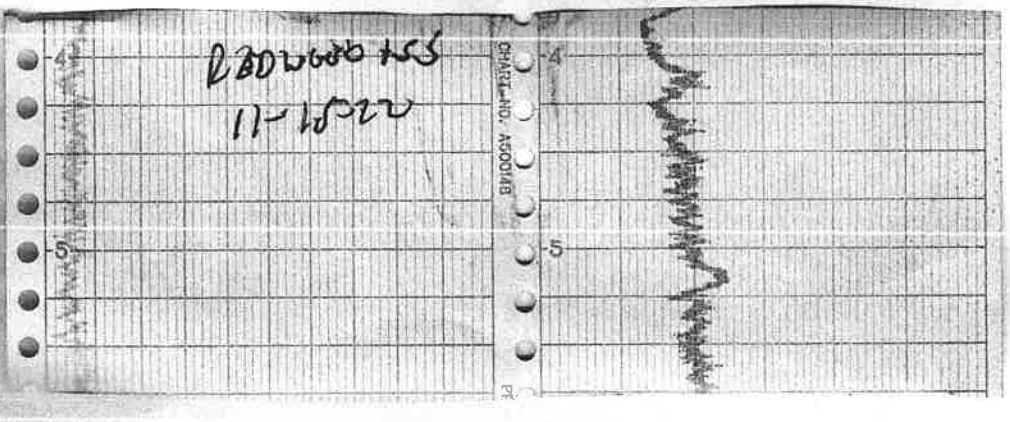


WIND SPEED & DIRECTION CHART ROLL



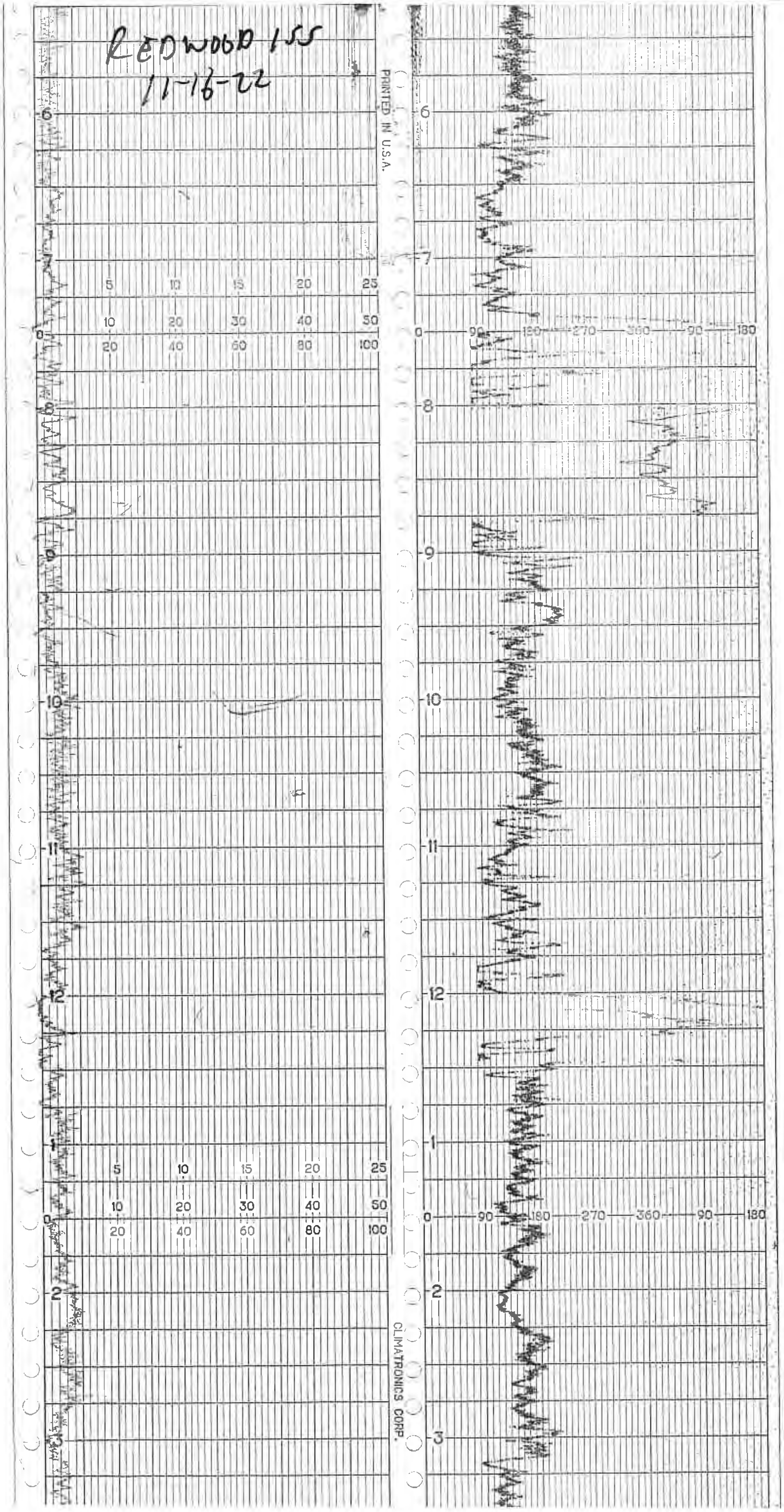
REDWOOD HS
11-15-22

WIND SPEED & DIRECTION CHART ROLL



RBD2000 155
11-15-22

WIND SPEED & DIRECTION CHART ROLL



REDWOOD 155
11-16-22

Attachment E

Calibration Records

RESPONSE TIME TEST RECORD

Date: 10/27/2022 Location: Redwood Landfill

Expiration Date (3 months): 1/27/2023

Time: 09:18 hh:mm

Instrument Make: Micro FID Model: FID S/N: CZMF340

Measurement #1:

Stabilized Reading Using Calibration Gas: 501 ppm

90% of the Stabilized Reading: 451 ppm

Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 3 seconds (1)

Measurement #2:

Stabilized Reading Using Calibration Gas: 501 ppm

90% of the Stabilized Reading: 451 ppm

Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 3 seconds (2)

Measurement #3:

Stabilized Reading Using Calibration Gas: 503 ppm

90% of the Stabilized Reading: 453 ppm

Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 3 seconds (3)

Calculate Response Time:

$$\frac{(1) + (2) + (3)}{3} = \quad 3 \text{ seconds} \quad \text{(must be less than 30 seconds)}$$

Performed By: R. Reed

CALIBRATION PRECISION TEST RECORD

Landfill Name: Redwood Landfill Date: 10/27/2022

Expiration Date (3 months): 1/27/2023

Time: 09:18 hh:mm

Instrument Make: Micro FID Model: FID S/N: CZMF340

Calibration Gas Standard: 500 ppm

Measurement #1:

Meter Reading for Zero Air: 0.4 ppm (1)

Meter Reading for Calibration Gas: 501 ppm (2)

Measurement #2:

Meter Reading for Zero Air: 0.2 ppm (3)

Meter Reading for Calibration Gas: 501 ppm (4)

Measurement #3:

Meter Reading for Zero Air: 0.3 ppm (5)

Meter Reading for Calibration Gas: 503 ppm (6)

Calculate Precision:

$$\frac{[(500) - (2)] + [(500) - (4)] + |(500) - (6)|]}{3} \quad x \quad \frac{1}{500} \quad x \quad \frac{100}{1}$$

= 0.3 % (must be < than 10%)

Performed By: R. Reed

Calibration Gas Certification Data and Expiration Date:

QED, Air, Ultra Zero THC <0.1 ppm Analytical Accuracy ± 2% Exp: 8/1/2024
Lot #4123701

QED, Methane 500ppm Analytical Accuracy ± 2% Exp: 1/1/2025 Lot #4202001

INCLUDE A COPY OF THE CALIBRATION GAS CERTIFICATION SHEET FROM GAS SUPPLIER/MANUFACTURER

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 11-16-22

Time: 10:30 AM _______ PM

Instrument Make: Photo VAC_____ Model: MICRO FID S/N: CZMF340

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
3. Adjust meter to read 500 ppm.

Background Determination Procedure

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

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 1.5 ppm

Performed By: GC

RESPONSE TIME TEST RECORD

Date: 11-30-22

Expiration Date (3 months): 2-28-23

Time: ______ AM 1:04 PM

Instrument Make: PhotoVac Model: MicroFid S/N: C2PD312

Measurement #1:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 5 seconds (a)

Measurement #2:

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: 5 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (c)

Calculate Response Time:

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

Performed By: B Carpenter

CALIBRATION PRECISION TEST RECORD

Date: 11-30-22

Expiration Date (3 months): 2-30.22

Time: ______ AM 1:13 PM

Instrument Make: PhotoVac Model: MicroFID S/N: CZPD 312

Measurement #1:

Meter Reading for Zero Air: 0 ppm (a)

Meter Reading for Calibration Gas: 500 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: 498 ppm (f)

Calculate Precision:

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

______ % (must be < than 10%)

Performed By: Gary Carpenter

CALIBRATION PRECISION TEST RECORD

Date: 11-30-22

Expiration Date (3 months): 2-30-22

Time: ______ AM 1:13 PM

Instrument Make: PhotoVac Model: MicroFID S/N: CZPD 312

Measurement #1:

Meter Reading for Zero Air: 0 ppm (a)

Meter Reading for Calibration Gas: 500 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: 498 ppm (f)

Calculate Precision:

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

______ % (must be < than 10%)

Performed By: Gary Carpenter

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 12-13-22

Time: 8:00 AM ________ PM

Instrument Make: Photo VAC Model: MICRO FID S/N: CZPD312

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

3. Adjust meter to read 500 ppm.

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 1 ppm (a)
2. Downwind Reading (highest in 30 seconds): 0 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = .5 ppm

Performed By: Garry Carpenter

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME REDWOOD INSTRUMENT MAKE: THERMO
MODEL TVA1000 EQUIPMENT # 10 SERIAL # 1036346773
MONITORING DATE 11-15-22 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: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.6 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	495 ppm	445 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	0.13 ppm	495 ppm	5
#2	0.10 ppm	501 ppm	1
#3	0.09 ppm	500 ppm	0
Calculate Precision	$\frac{[\text{STD-B1}] + [\text{STD-B2}] + [\text{STD-B3}]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.40 #DIV/0! Must be less than 10%

Performed By

Date/Time 11-15-22 ~0520

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 11 SERIAL # 1036346779

MONITORING DATE 11-15-22 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
2.2 ppm	2.6 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	490 ppm	440 ppm	6
#2	510 ppm	450 ppm	6
#3	500 ppm	450 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 = 500 ppm

Measurement #	**Meter Reading for Zero Air (A)**	**Meter Reading for Calibration Gas (B)**	**Calculate Precision [STD – (B)]**
#1	0.09 ppm	490 ppm	10
#2	0.06 ppm	500 ppm	0
#3	0.05 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.66 #DIV/0! Must be less than 10%

Performed By Chris Hughes Date/Time 11-15-22 0520

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 11-15-22 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:** $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.6 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	503 ppm	453 ppm	6
#2	495 ppm	445 ppm	6
#3	500 ppm	450 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 = 500 **ppm**

Measurement #	**Meter Reading for Zero Air (A)**	**Meter Reading for Calibration Gas (B)**	**Calculate Precision [STD – (B)]**
#1	0.11 ppm	503 ppm	3
#2	0.04 ppm	495 ppm	5
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.53 #DIV/0! Must be less than 10%

Performed By: GEORGE STROUP Date/Time: 11-15-22 – 0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME REDWOOD INSTRUMENT MAKE: THERMO

MODEL TVA100 EQUIPMENT # 13 SERIAL # 1162746775

MONITORING DATE: 11-15-22 TIME 0520

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe Stabilized reading = 506 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	2.6 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	500 ppm	450 ppm	7
#3	500 ppm	450 ppm	7
Calculate Response Time (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	0.11 ppm	500 ppm	0
#3	0.07 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.73 #DIV/0! Must be less than 10%

Performed By MIGUEL ESTRADA Date/Time 11-15-22 0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO
MODEL TVA1000 EQUIPMENT # 16 SERIAL # 1162746776
MONITORING DATE: 11-15-22 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
2.2 ppm	2.6 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	506 ppm	456 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	506 ppm	6
#2	0.08 ppm	498 ppm	2
#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 ALEX PESIK Date/Time 11-15-22 0520

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THermo

MODEL TVA1000 EQUIPMENT # 10 SERIAL # 1036346773

MONITORING DATE 11-14-22 TIME 1155

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
2.2 ppm	2.6 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 (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	0.11 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

Date/Time 11-14-22- 1155

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE tHermo
MODEL tvA 1000 EQUIPMENT # 11 SERIAL # 1036346774
MONITORING DATE 11-14-22 TIME 1155

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
2.2 ppm	2.6 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	24 ppm	21.6 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	0.10 ppm	23 ppm	2
#2	0.07 ppm	24 ppm	1
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		4.0 #DIV/0! Must be less than 10%

Performed By Chris Hughes Date/Time 11-14-22 -1155

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE tHermo

MODEL TVA 1000 EQUIPMENT # 12 SERIAL # 1036246741

MONITORING DATE 11-14-22 TIME 1155

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
2.2 ppm	2.6 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	0.09 ppm	24 ppm	1
#2	0.06 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3}$ **X** $\frac{1}{25}$ **X** $\frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By GEORGE STRUP Date/Time 11-14-22 - 1155

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 13 SERIAL # 1102796775

MONITORING DATE 11-14-22 TIME 1155

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
2.2 ppm	2.6 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	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	0.13 ppm	23 ppm	2
#2	0.10 ppm	25 ppm	0
#3	0.08 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By MIGUEL ESTRADA Date/Time 11-14-22 -1155

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 16 SERIAL # 1102746776

MONITORING DATE 11-14-22 TIME 1155

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: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.6 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	0.06 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3}$ X $\frac{1}{25}$ X $\frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By ALEX PESIK Date/Time 11-14-22 - 1155

RES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO
MODEL TVA1000 EQUIPMENT # 10 SERIAL # 1036346773
MONITORING DATE 11-15-22 TIME: 1550

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
2.2 ppm	2.6 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	0.12 ppm	24 ppm	1
#2	0.06 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 LEISHWANT Date/Time 11-15-22 1550

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 11 SERIAL # 1036346774

MONITORING DATE 11-15-22 TIME 1550

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
2.2 ppm	2.6 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 $\frac{(1+2+3)}{3}$		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	0.10 ppm	23 ppm	2
#2	0.06 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By Chris Hughes Date/Time 11-15-22-1550

CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 12 SERIAL # 1036246741

MONITORING DATE 1115-22 TIME: 1550

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: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.6 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	0.09 ppm	24 ppm	1
#2	0.07 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		1.3 #DIV/0! Must be less than 10%

Performed By GEORGE STROUD Date/Time 11-15-22 -1550

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT # 13 SERIAL # 1102746725

MONITORING DATE 11-15-22 TIME 1550

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
2.2 ppm	2.6 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	24 ppm	21.6 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	0.14 ppm	23 ppm	2
#2	0.08 ppm	24 ppm	1
#3	0.06 ppm	25 ppm	0
Calculate Precision	**$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3}$ X $\frac{1}{25}$ X $\frac{100}{1}$**		4.0 #DIV/0! Must be less than 10%

Performed By MIGUEL ESTRADA Date/Time 11-15-22-1550

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME Redwood INSTRUMENT MAKE Thermo
MODEL TVA1000 EQUIPMENT # 16 SERIAL # 1102746776
MONITORING DATE 11-15-22 TIME 1550

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
2.2 ppm	2.6 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	0.13 ppm	24 ppm	1
#2	0.10 ppm	25 ppm	0
#3	0.09 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 Alex posik Date/Time 11-15-22-1550

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO
MODEL TVA1000 EQUIPMENT # 10 SERIAL # 1036346773
MONITORING DATE 11-16-22 TIME: 0520

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: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.6 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	0.07 ppm	25 ppm	0
#3	0.04 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 LEISHWADR Date/Time 11-16-22 0520

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CALIBRATION PROCEDURE AND BACKGROUND REPORT - INTEGRATED

LANDFILL NAME Redwood INSTRUMENT MAKE THERMO
MODEL TVA 1000 EQUIPMENT # 11 SERIAL # 1036346774
MONITORING DATE 11-16-22 TIME: 0520

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
2.2 ppm	2.6 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	0.14 ppm	24 ppm	1
#2	0.09 ppm	24 ppm	1
#3	0.06 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 Chris Hughes Date/Time 11-16-22 0520

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO

MODEL TVA1000 EQUIPMENT #: 12 SERIAL # 1036246741

MONITORING DATE 11-16-22 TIME 0520

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
2.2 ppm	2.6 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	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	0.07 ppm	23 ppm	2
#2	0.05 ppm	25 ppm	0
#3	0.05 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By GEORGE STROUP Date/Time 11-16-22 0520

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO
MODEL TVA1000 EQUIPMENT # 13 SERIAL # 1102746725
MONITORING DATE: 11-16-22 TIME 0520

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
2.2 ppm	2.6 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 (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	0.14 ppm	24 ppm	1
#2	0.10 ppm	25 ppm	0
#3	0.08 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 MIGUEL ESTRADA Date/Time 11-16-22-0520

RES

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME REDWOOD INSTRUMENT MAKE THERMO
MODEL TVA1000 EQUIPMENT # 16 SERIAL #: 1102746776
MONITORING DATE 11-16-22 TIME 0520

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: $\frac{(\text{Upwind} + \text{Downwind})}{2}$
2.2 ppm	2.6 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	24 ppm	21.6 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	0.12 ppm	23 ppm	2
#2	0.08 ppm	24 ppm	1
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[\text{STD-B1}] + [\text{STD-B2}] + [\text{STD-B3}]}{3} \times \frac{1}{25} \times \frac{100}{1}$		4.0 #DIV/0! Must be less than 10%

Performed By ALEX PASIK Date/Time 11-16-22-0520

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 11-5-22 Time: 0830

Model # TVA 1000

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 19 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 10-1-22

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. 7
2. 7
3. 6

Average 6.6

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES

Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 11-5-22 Time: 0845

Model # TVA 1000

Serial # #11 1036346274

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.6 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 10-4-22

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. 6
3. 6

Average 6.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 11-5-22 Time: 0900

Model # TVA 1000

Serial # #12 1036246741

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.1 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 10-1-22

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. 7
3. 7

Average 6.6

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 11-5-22 Time: 0915

Model # TVA 1000

Serial # #13 1102746775

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 10-1-22

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. 7
2. 7
3. 7

Average 7.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 11-5-22 Time: 1000

Model # TVA 1000

Serial # #16 1107746776

INSTRUMENT INTEGRITY CHECKLIST

Battery test	[✓ Pass] / Fail
Reading following ignition	2.1 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	10-1-22
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. 6
3. 6

Average 6.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH_4 gas.

Comments:

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 10

SERIAL NUMBER: 1036346773

TECHNICIAN:

DATE: 10-1-22

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	0.69	< 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.

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Van#11

SERIAL NUMBER: 1036346774

TECHNICIAN:

DATE: 10-1-22

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	0.60	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #12

SERIAL NUMBER: 1036246741

TECHNICIAN:

DATE: 10-1-22

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	0.57	< 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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 110274677S

TECHNICIAN:

DATE: 10-1-22

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	0.01	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #16

SERIAL NUMBER: 1102746776

TECHNICIAN:

DATE: 10-1-22

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	0.61	< 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

INTERMOUNTAIN
SPECIALTY GASES
"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


nviroSupply
Service
INC.
Concentration (Mole%)
Accuracy
- 20.9% Oxygen
- Bal. Nitrogen
Contents: 3.6ft³ @ 70°F and 1,000 PSIG
Exp Date
7/10/202
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 L
103-01-100
Oxygen
Lot #

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800-552-5003 ● www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

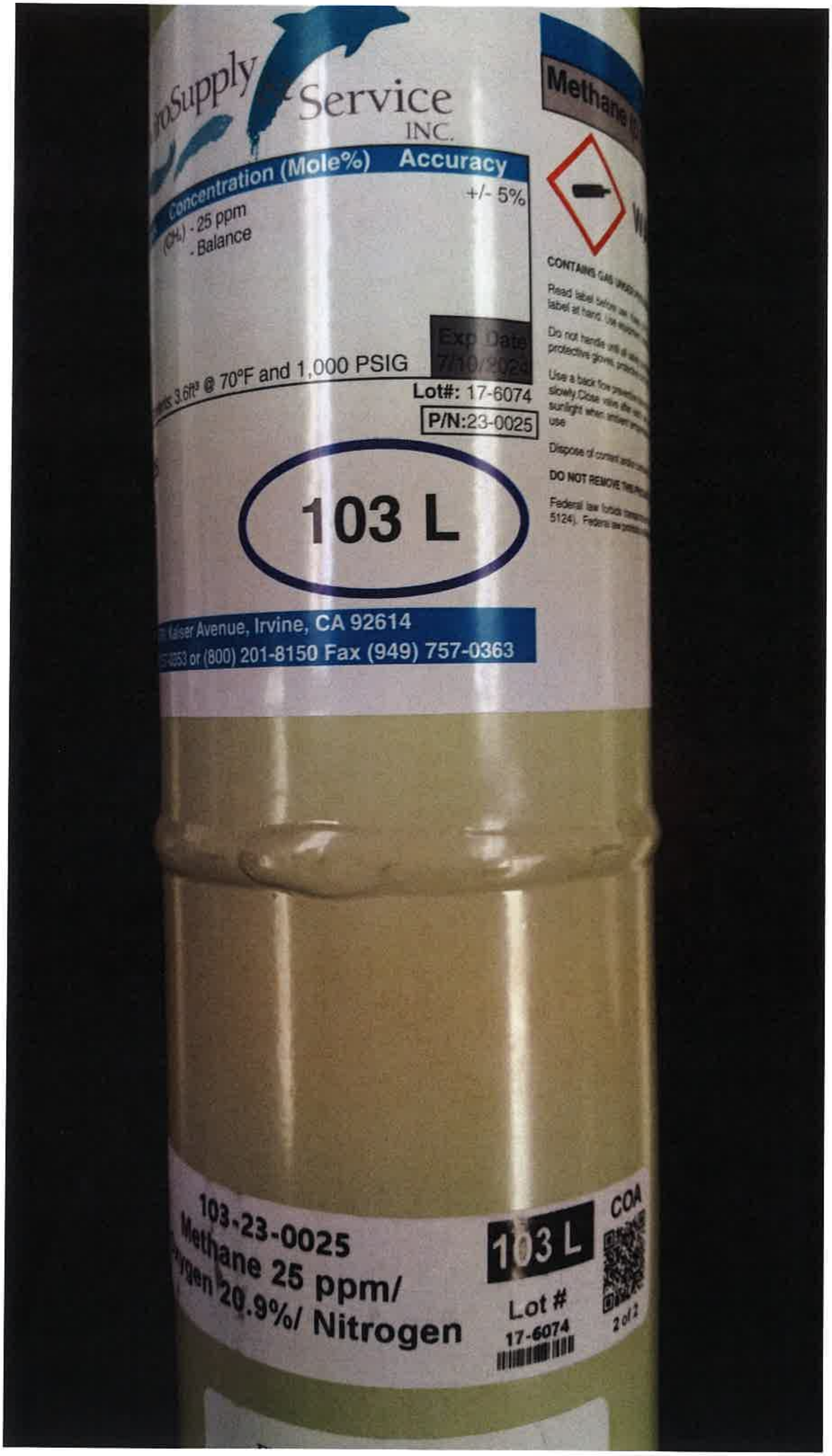
Lot # 17-6074

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


roSupply
Service
INC.
Concentration (Mole%)
Accuracy
(CH₄) - 25 ppm
- Balance
+/- 5%
Exp Date
7/10/2024
nts: 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
Methane
CONTAINS GAS
Read label before use
label at hand.
Do not handle until all
protective gloves
Use a back flow
slowly. Close valve
sunlight when
use
Dispose of content
DO NOT REMOVE THIS
Federal law forbids
5124). Federal law
103-23-0025
Methane 25 ppm/
ygen 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	

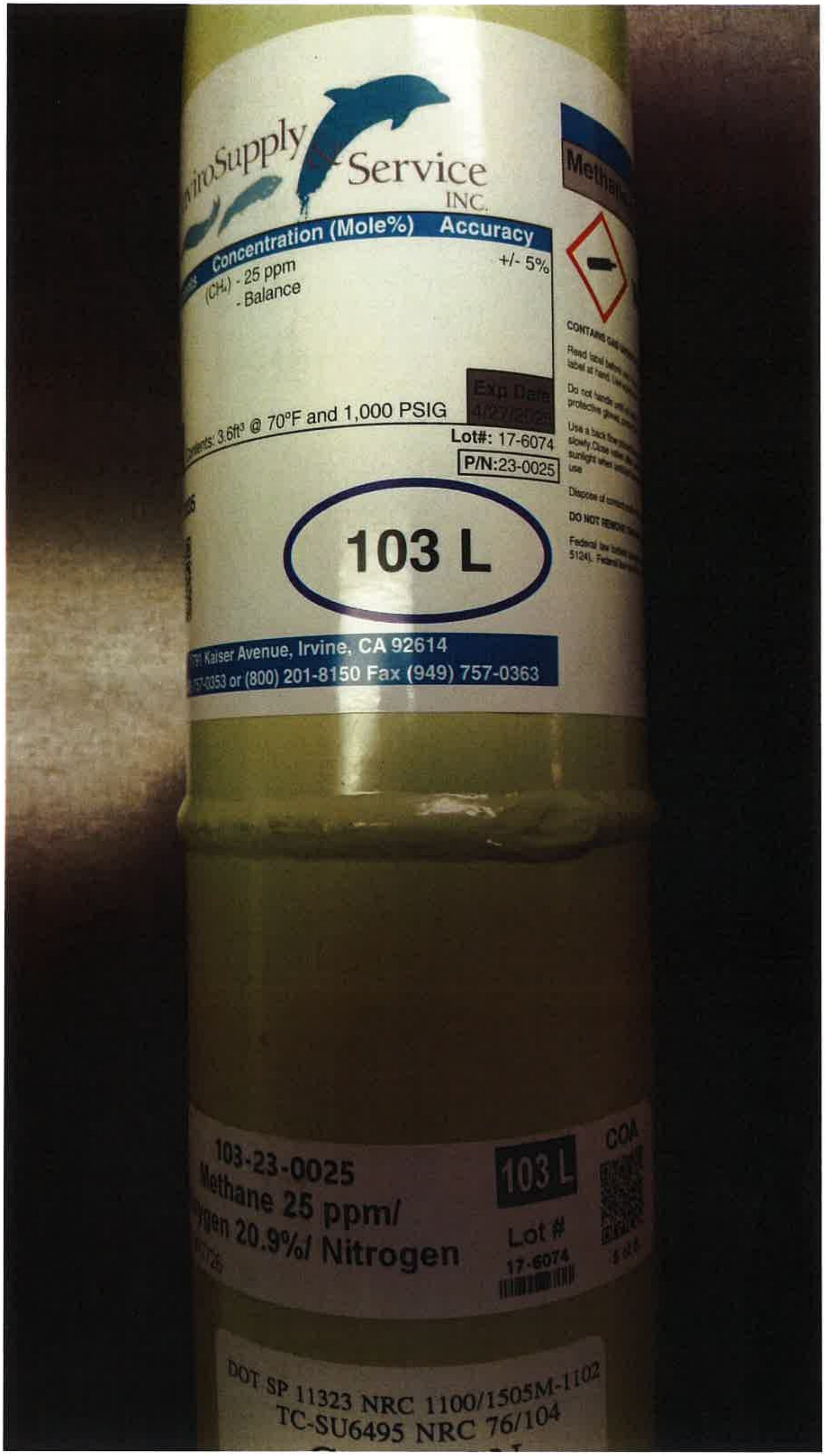
Lot # 17-6074

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


viroSupply Service INC.
Concentration (Mole%)
Accuracy
(CH₄) - 25 ppm
- Balance
+/- 5%
Exp Date
ntents: 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
Metha
CONTAINS GAS
DO NOT REMOVE
103-23-0025
ethane 25 ppm/
gen 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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CERTIFICATE OF ANALYSIS

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

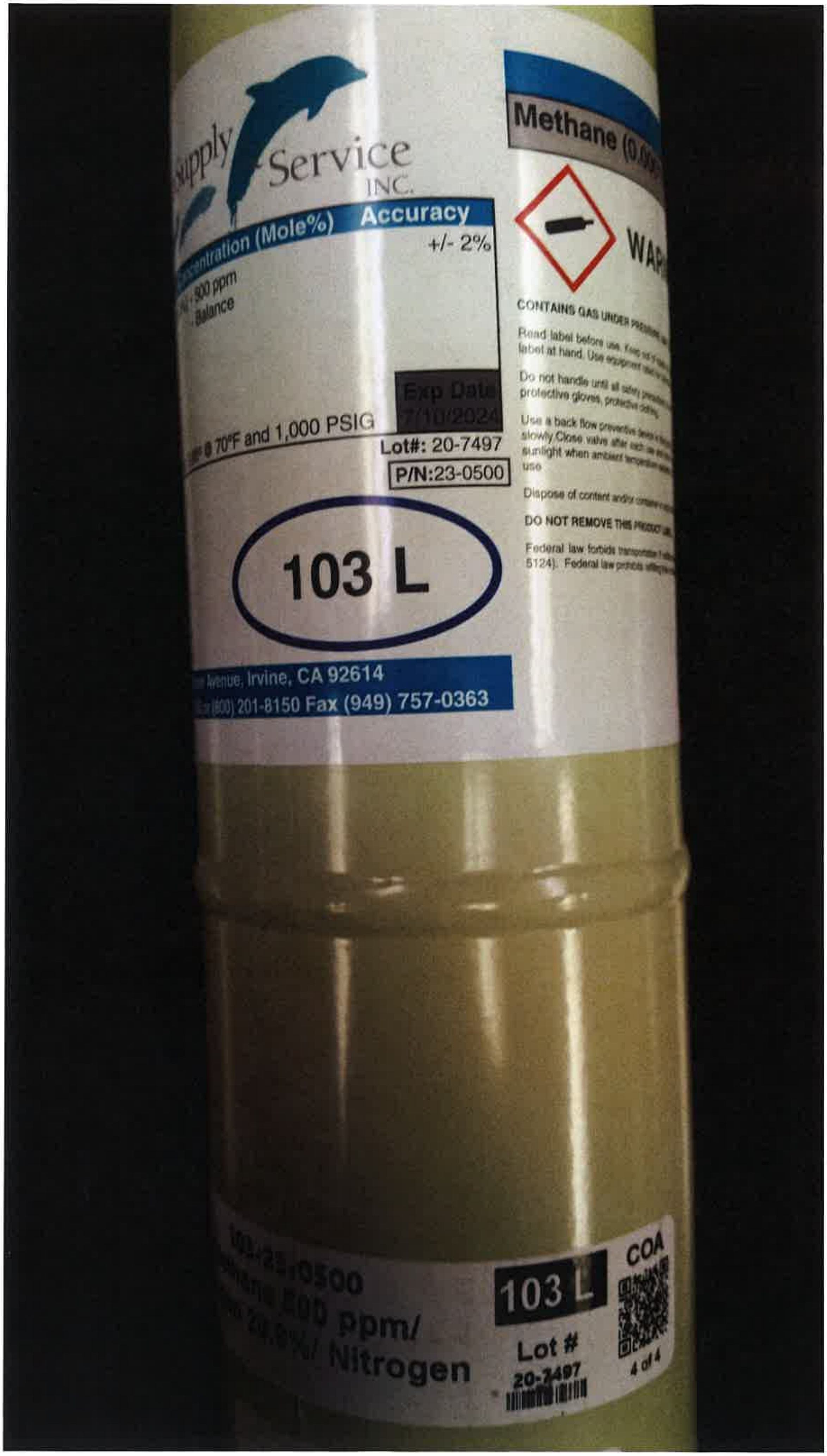
Method of Preparation:

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


Supply Service INC.
Methane (0.0
Concentration (Mole%)
Accuracy
+/- 2%
500 ppm
Balance
Exp Date
7/10/2024
@ 70°F and 1,000 PSIG
Lot#: 20-7497
P/N:23-0500
WAR
CONTAINS GAS UNDER PRESSURE
Read label before use.
label at hand.
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
DO NOT REMOVE THIS PRODUCT LABEL
Federal law forbids transportation
5124). Federal law prohibits
103 L
Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
23-0500
500 ppm/
Nitrogen
103 L
COA
Lot #
20-7497
4 of 4

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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	500 ppm	± 2%
Air	Balance	

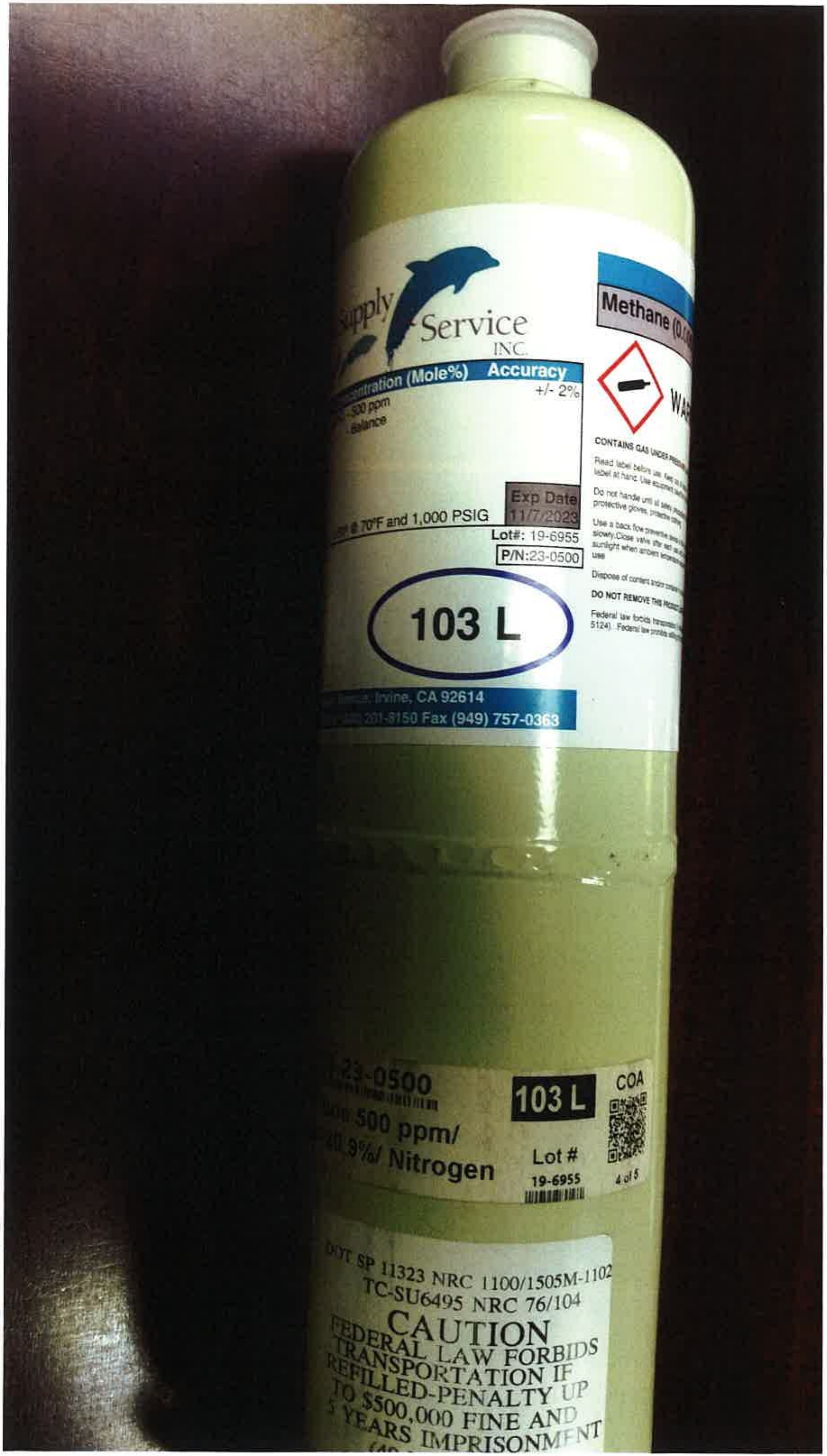
Lot # 19-6955

Mfg. Date:	7/24/2019
Parent Cylinder ID Number:	001763

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: 7/24/2019


Supply Service INC.
Concentration (Mole%)
Accuracy
+/- 2%
500 ppm
Balance
@ 70°F and 1,000 PSIG
Exp Date
11/7/2023
Lot#: 19-6955
P/N:23-0500
103 L
Irvine, CA 92614
201-8150 Fax (949) 757-0363
Methane (0.0
CONTAINS GAS UNDER PRESSURE
Read label before use
Do not handle until all safety
protective gloves, protective clothing
Use a back flow preventive
Dispose of content and/or container
DO NOT REMOVE THIS PRODUCT
Federal law forbids transportation
5124). Federal law prohibits
23-0500
500 ppm/
20.9%/ Nitrogen
103 L
Lot #
19-6955
COA
4 of 5
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104
CAUTION
FEDERAL LAW FORBIDS
TRANSPORTATION IF
REFILLED-PENALTY UP
TO $500,000 FINE AND
5 YEARS IMPRISONMENT

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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy (+/-)
Methane	500 ppm	2%
Oxygen	20.9 %	2%
Nitrogen	Balance UHP	

Lot #	**18-6641**
Mfg. Date:	12/18/2018
Expiration Date:	
Transfill Date:	see cylinder
Parent Cylinder ID Number:	001763

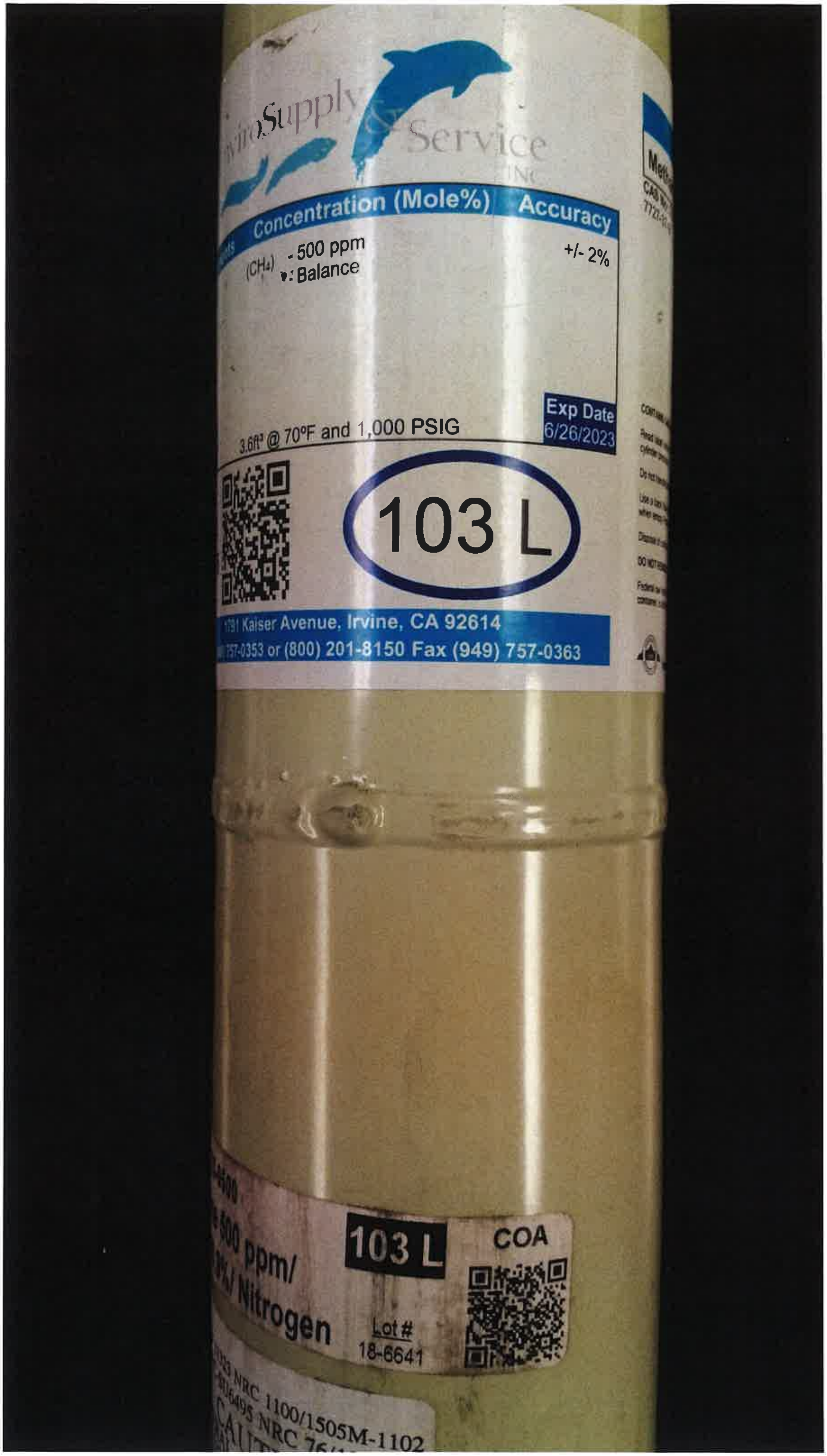
Method of Preparation:

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: 12/18/2018


viroSupply & Service INC
Concentration (Mole%)
Accuracy
(CH₄) - 500 ppm
: Balance
+/- 2%
Exp Date
6/26/2023
3.6ft³ @ 70ºF and 1,000 PSIG
103 L
1791 Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
500 ppm/
Nitrogen
103 L
COA
Lot #
18-6641
NRC 1100/1505M-1102
NRC 76/

NorLAB

A DIVISION OF NORCO, INC.

Calibration Gases & Equipment

CERTIFICATE OF ANALYSIS

Premier Safety & Service

46400 Continental Drivve
Chesterfield ,MI 48047

Cust Number 07152
Order Number 62891146
PO Number 04548169

Lot Number	9-326-80
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	1

Date on Manufacture	12/31/2019
Expires	12/2022
Analytical Accuracy	+/- 2 %

Customer Part# N/A

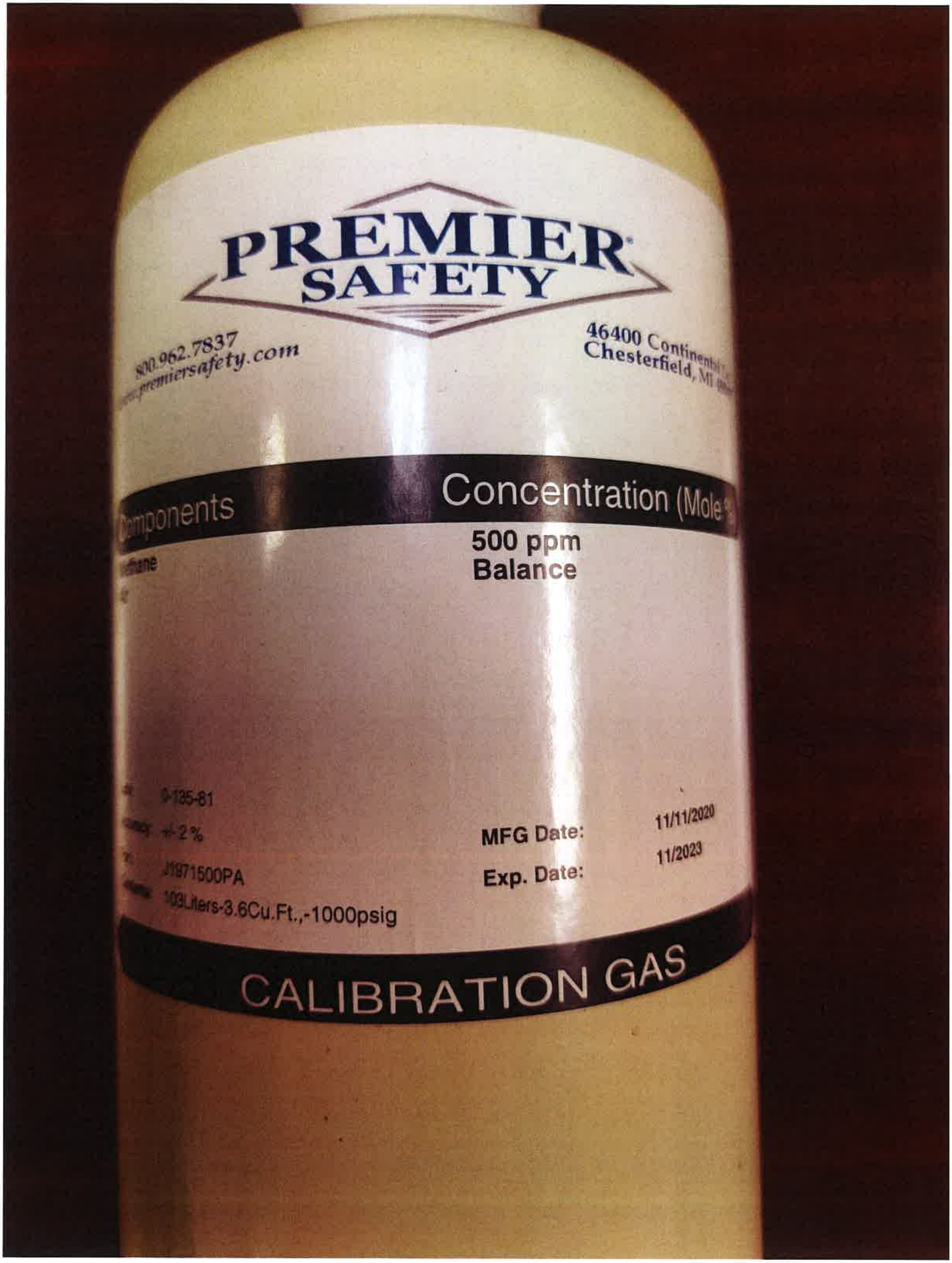
Component	**Reported Concentration**	**Requested Concentration**
Methane	500 ppm	500 ppm
Air	Balance	Balance

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 20180519 and 20180224

Approved: ______________________ Date Signed: 12/31/2019
David Reed
Lab Technician



PREMIER SAFETY
800.962.7837
premiersafety.com
46400 Continent
Chesterfield, MI
omponents
Concentration (Mole
ethane
500 ppm
Balance
9-135-81
+/-2 %
J1971500PA
103Liters-3.6Cu.Ft.,-1000psig
MFG Date:
11/11/2020
Exp. Date:
11/2023
CALIBRATION GAS

NorLAB®
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Calibration Gases & Equipment

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

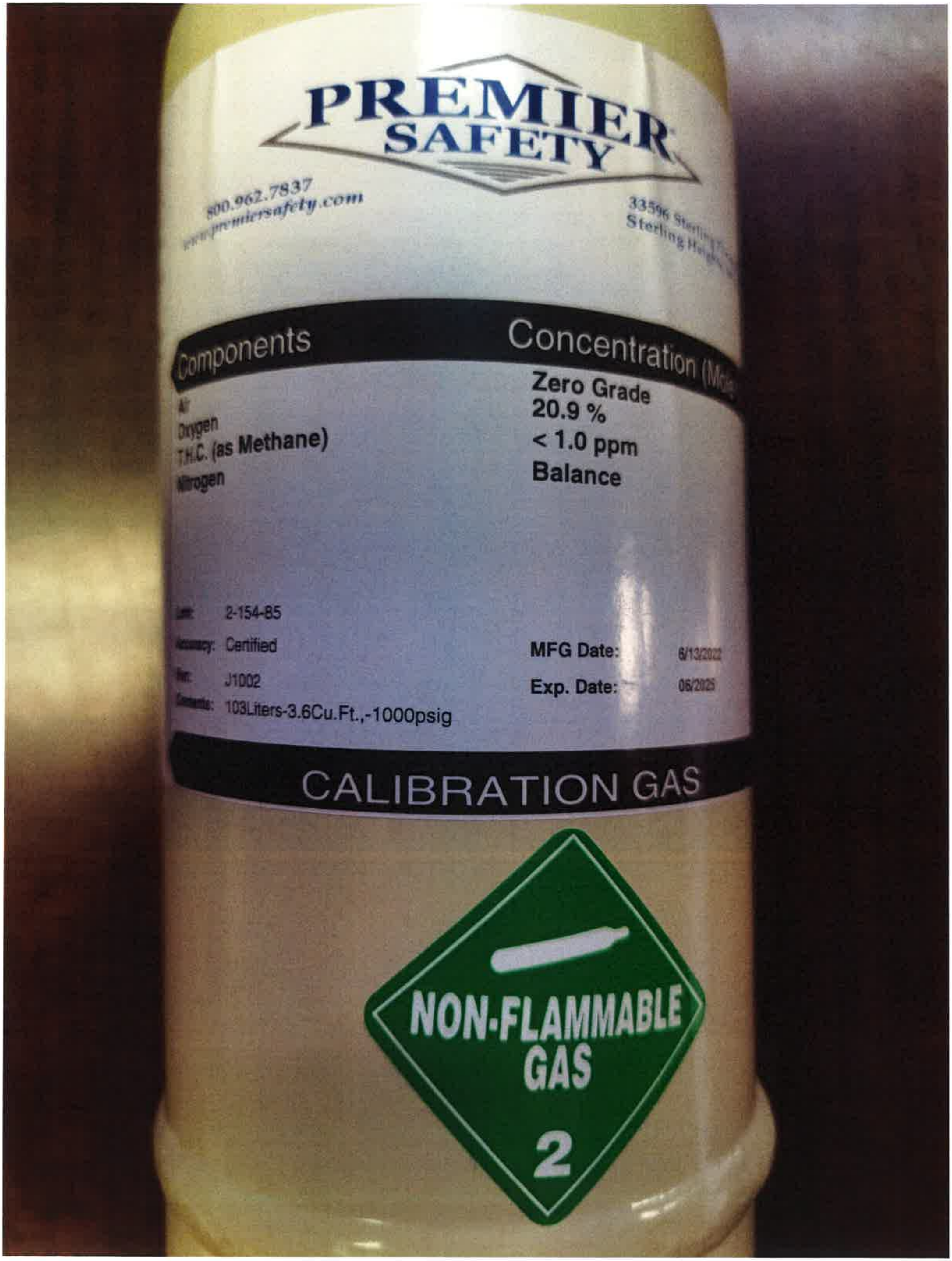
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

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: Date Signed: 6/13/2022

David Reed
Lab Technician



PREMIER SAFETY

800.962.7837
www.premiersafety.com

33596 Sterling
Sterling Heights

Components	Concentration (Mol
Air	Zero Grade
Oxygen	20.9 %
T.H.C. (as Methane)	< 1.0 ppm
Nitrogen	Balance

Lot: 2-154-85

Accuracy: Certified

Part: J1002

Contents: 103Liters-3.6Cu.Ft.,-1000psig

MFG Date: 6/13/2022

Exp. Date: 06/2025

CALIBRATION GAS

NorLAB®
A DIVISION OF NORCO, INC.
Calibration Gases & Equipment

CERTIFICATE OF ANALYSIS

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

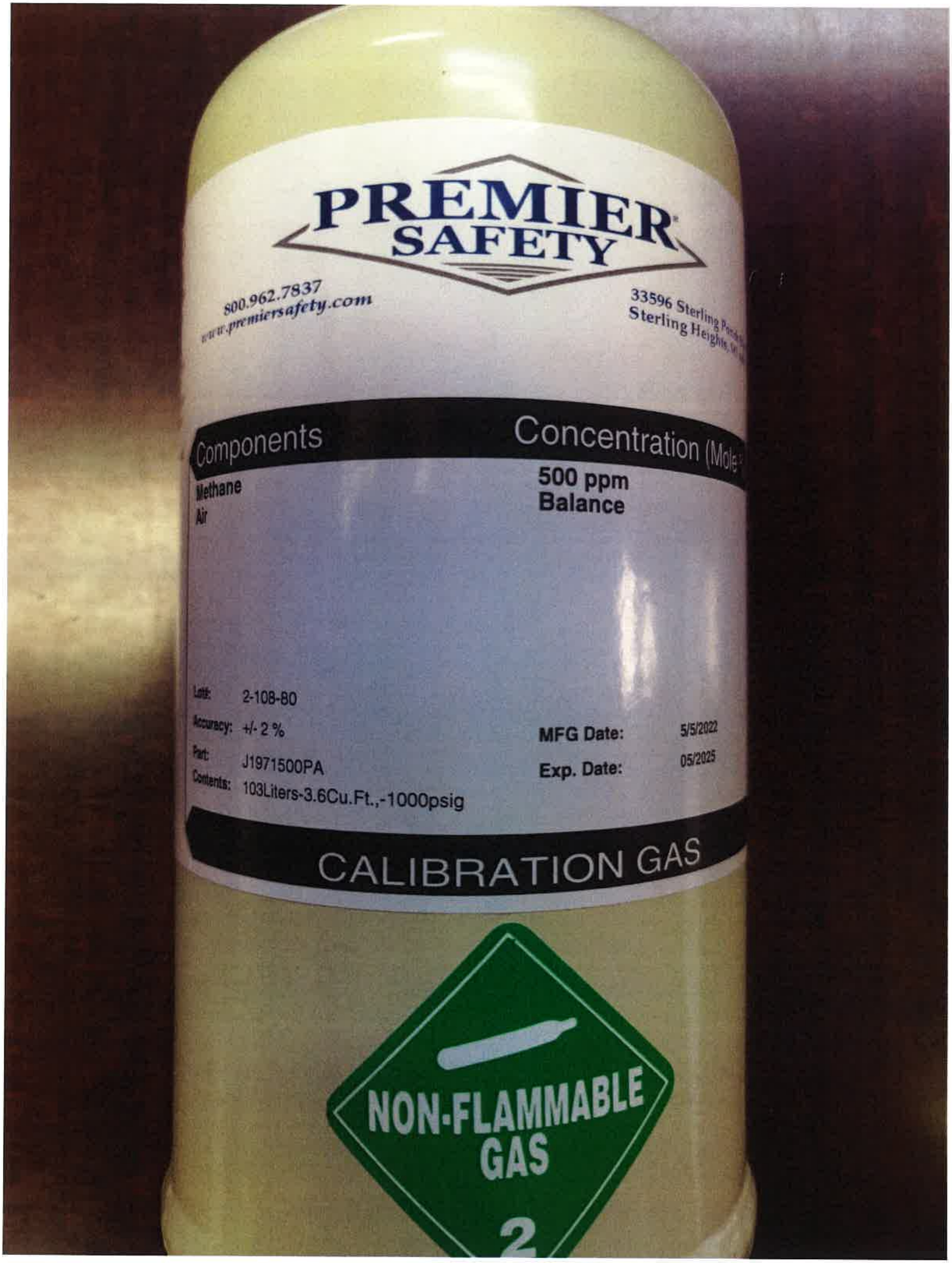
Date on Manufacture 6/10/2022
Expires 06/2025
Analytical Accuracy +/- 2 %

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: Date Signed: 6/10/2022
David Reed
Lab Technician



Components	Concentration (Mole
Methane	500 ppm
Air	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


EQUIPCO
SALES & SERVICE
2100 MERIDIAN PARK BLVD
Concord, CA 94520
TO REORDER CALL 1 (888) 234-5678
AIR, ULTRA ZERO
THC <0.2 PPM
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
Lot# 260362
P/N AIR-ZER-103L
EXP: JAN/2025
EQUIPCO
SALES & SERVICE
2100 MERIDIAN PARK BLVD
Concord, CA 94520
TO REORDER CALL 1 (888) 234-5678
METHANE 500ppm
AIR BALANCE
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
Lot# 260447
P/N MET-500-103L
EXP: JAN/2025

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

April 12, 2023

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

Re: First Quarter 2023 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 First Quarter 2023 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.

FIRST QUARTER 2023 SEM AND COMPONENT LEAK RESULTS

The following is a summary of the SEM and component leak monitoring results completed for the First Quarter 2023.

Instantaneous Surface Emissions Monitoring Results

The Instantaneous surface monitoring was performed on January 24, 2023 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 two (2) exceedances of 500 ppm_v as methane detected on January 24, 2023. 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 January 27, 2023. 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 February 23, 2023. 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 January 24, 2023. 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 January 23, 24, and 25, 2023 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 January 24, 2023. 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

2023 QUARTER: 1
PERFORMED BY: RES
LANDFILL NAME: Redwood Landfill, Inc.

Flag Number	Grid Number	Latitude	Longitude	Date of Monitoring	Concentration of Emission (ppm$_v$)	Comments
O1	113	38.16420	-122.56601	1/24/2023	800	well 226
O11	137	38.17295	-122.56710	1/24/2023	776	well 185

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)

2023 QUARTER: 1

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: James Dutra

LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Corrective Action		1st 10-day Follow-Up			2nd 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	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Comments
O1	1/24/2023	800	1/27/2023	Added/Compacted Soil	1/27/2023	100		n/a			2/23/2023	54		well 226
O11	1/24/2023	776	1/27/2023	Added/Compacted Soil	1/27/2023	348		n/a			2/23/2023	185		well 185

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

2023 QUARTER: 1

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: James Dutra

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	1/24/2023	800	1/27/2023	100		n/a			well 226
O11	1/24/2023	776	1/27/2023	348		n/a			well 185

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

2023 QUARTER: 1

INITIAL MONITORING PERFORMED BY: RES

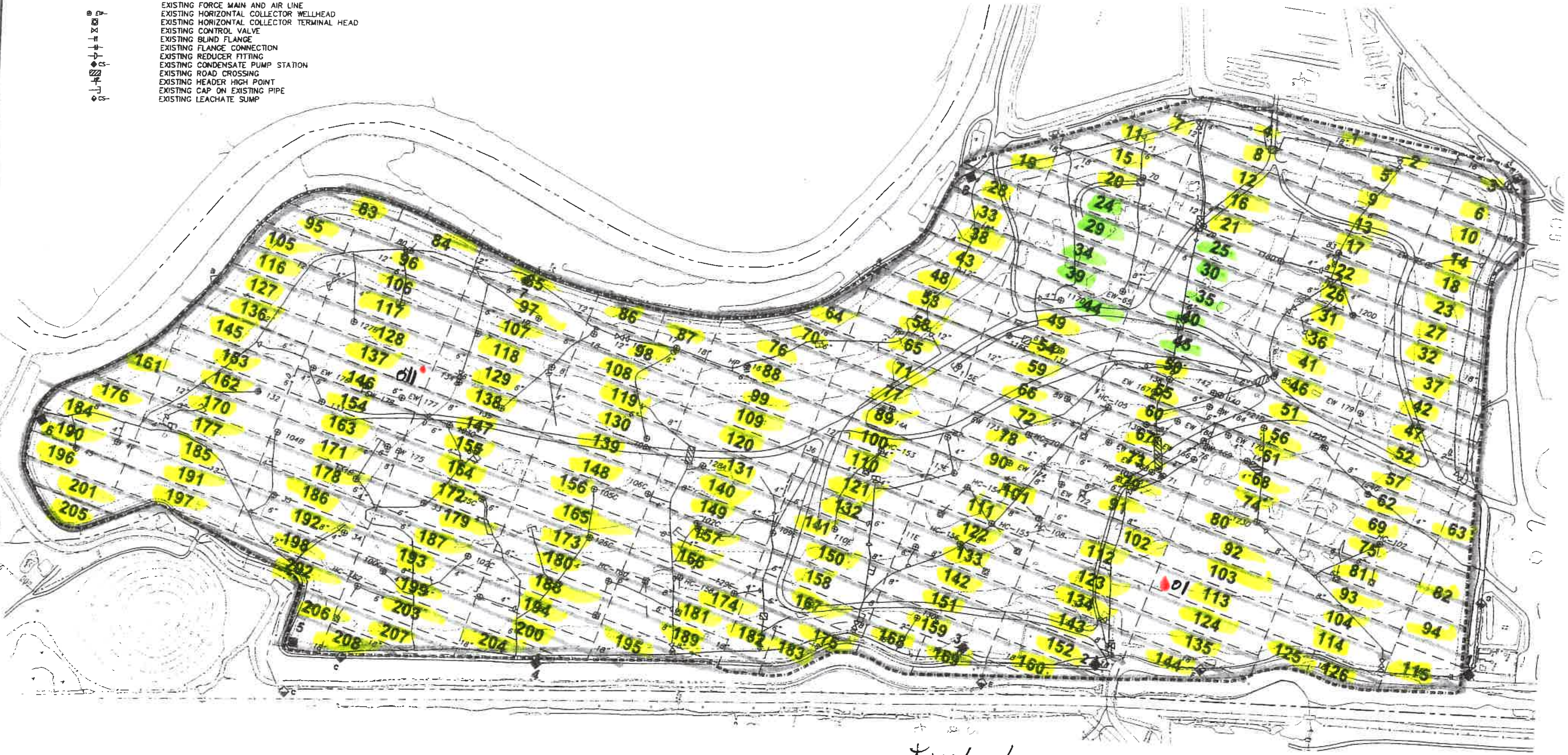
FOLLOW-UP MONITORING PERFORMED BY:

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					

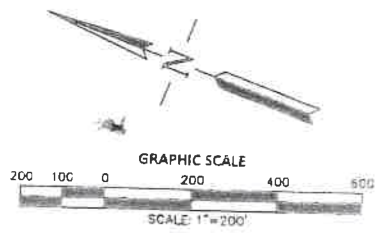
LEGEND

EXISTING 10' CONTOUR
EXISTING LFG HEADER-ABOVE GROUND
EXISTING HORIZONTAL COLLECTOR
EXISTING FORCE MAIN AND AIR LINE
EXISTING HORIZONTAL COLLECTOR WELLHEAD
EXISTING HORIZONTAL COLLECTOR TERMINAL HEAD
EXISTING CONTROL VALVE
EXISTING BLIND FLANGE
EXISTING FLANGE CONNECTION
EXISTING REDUCER FITTING
EXISTING CONDENSATE PUMP STATION
EXISTING ROAD CROSSING
EXISTING HEADER HIGH POINT
EXISTING CAP ON EXISTING PIPE
EXISTING LEACHATE SUMP



Instantaneous 1-24-23

🟨 Grids monitored
🟩 Active trash
🟥 500+ppm



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

REDWOOD LANDFILL
AS-BUILT GCCS PLAN
2015 GCCS IMPROVEMENTS
NOVATO
CALIFORNIA
MARIN COUNTY

DESIGN BY: N/A
DRAWN BY: STAFF
DATE: NOV 2015
SCALE: 1"=200'
PAGE 1 OF 1
JOB NUMBER: 15341

LEGEND

	EXISTING 10' CONTOUR
12"	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

🟩 1st Quarter 2023 NSPS Perimeter Sweep

● upwind

● Downwind

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.
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REDWOOD LANDFILL
AS-BUILT GCCS PLAN
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MARIN COUNTY
NOVATO

DESIGN BY: N/A
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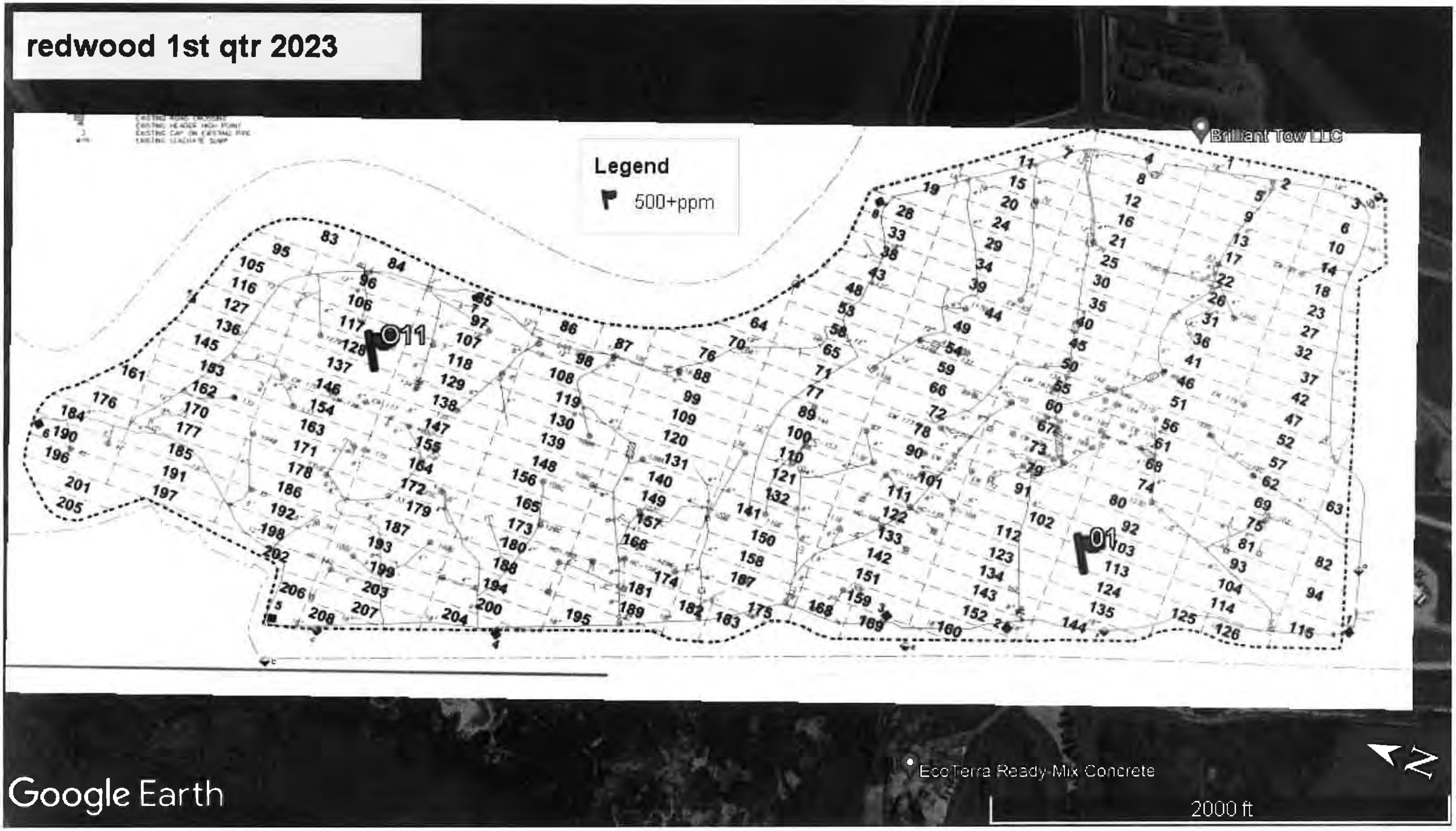
redwood 1st qtr 2023
Legend
500+ppm
011
01
Brilliant Tow LLC
EcoTerra Ready Mix Concrete
2000 ft
N
Google Earth

Orange Flag Landfill Surface Emissions Monitoring
Exceedances and Monitoring Log

Site: REDWOOD

Quarter / Year: 1st 2023
Technician: LEISHWARE
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	113	800	1-24-23										WEll 226
O- 11	137	776											WEll 185
O-													
O-													
O-													
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wpt			redwood 1st 2023		
ID	lat	lon	time	name	cmt
1	38.16419503	-122.566014	2023-01-24T20:10:12Z	O1	800Ppmwell226
2	38.17294599	-122.567096	2023-01-24T16:26:23Z	O11	776Ppmwell185

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade — Miguel Estrada
Chris Hughes — Steven Vesadi
George Stroup

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25

Temperature: 36 Precip: 0 Upwind BG: 2.2 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	0530	0545	18	3	4	12	
2	CH	0530	0545	12	3	4	12	
3	GS	0530	0545	14	3	4	12	
4	ME	0530	0545	12	3	4	12	
5	SV	0530	0545	18	3	4	12	
6	LW	0545	0610	12	4	5	12	
7	CH	0545	0600	26	4	5	12	
8	GS	0545	0600	70	4	5	12	
9	ME	0545	0600	37	4	5	12	
10	SV	0545	0600	21	4	5	12	
11	LW	0600	0615	98	3	4	12	
12	CH	0600	0615	115	3	4	12	
13	GS	0600	0615	26	3	4	12	
14	ME	0600	0615	17	3	4	12	
15	SV	0600	0615	91	3	4	12	
16	LW	0615	0630	121	2	3	12	
17	CH	0615	0630	27	2	3	12	
18	GS	0615	0630	12	2	3	12	
19	ME	0615	0630	56	2	3	12	
20	SV	0615	0630	94	2	3	12	
21	LW	0630	0645	136	3	4	12	
22	CH	0630	0645	36	3	4	12	
23	GS	0630	0645	15	3	4	12	
26	ME	0630	0645	51	3	4	12	
27	SV	0630	0645	20	3	4	12	
28	LW	0645	0700	54	3	5	12	
31	CH	0645	0700	45	3	5	12	
32	GS	0645	0700	16	3	5	12	
33	ME	0645	0700	41	3	5	12	
36	SV	0645	0700	35	3	5	12	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 2

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Lewis Wade | Michael Estrada
Chris Hughes | Steven Velardi
George Strong

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 38 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
37	LW	0700	0715	16	2	2	16	
38	CH	0700	0715	54	2	2	16	
41	GS	0700	0715	27	2	2	16	
42	ME	0700	0715	14	2	2	16	
43	SV	0700	0715	34	2	2	16	
46	LW	0715	0730	31	3	3	4	
47	CH	0715	0730	16	3	3	4	
48	GS	0715	0730	41	3	3	4	
49	ME	0715	0730	87	3	3	4	
50	SV	0715	0730	81	3	3	4	
51	LW	0730	0745	34	2	3	2	
52	CH	0730	0745	26	2	3	2	
53	GS	0730	0745	38	2	3	2	
54	ME	0730	0745	61	2	3	2	
55	SV	0730	0745	86	2	3	2	
56	LW	0745	0800	107	2	3	16	
57	CH	0745	0800	92	2	3	16	
58	GS	0745	0800	62	2	3	16	
59	ME	0745	0800	45	2	3	16	
60	SV	0745	0800	33	2	3	16	
61	LW	0800	0815	28	3	3	3	
62	CH	0800	0815	114	3	3	3	
63	GS	0800	0815	76	3	3	3	
64	ME	0800	0815	81	3	3	3	
65	SV	0800	0815	29	3	3	3	
66	LW	0815	0830	32	4	4	4	
67	CH	0815	0830	102	4	4	4	
68	GS	0815	0830	45	4	4	4	
69	ME	0815	0830	51	4	4	4	
70	SV	0815	0830	48	4	4	4	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade — Miguel Estrada
Chris Hughes — Steven Vesadi
George Stroup

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 41 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
71	LW	0830	0845	38	5	5	4	
72	CH	0830	0845	50	5	5	4	
73	GS	0830	0845	41	5	5	4	
74	ME	0830	0845	45	5	5	4	
75	SV	0830	0845	124	5	5	4	
76	LW	0845	0900	30	1	2	14	
77	CH	0845	0900	85	1	2	14	
78	GS	0845	0900	116	1	2	14	
79	ME	0845	0900	54	1	2	14	
80	SV	0845	0900	71	1	2	14	
81	LW	0900	0915	65	1	2	14	
82	CH	0900	0915	40	1	2	14	
83	GS	0900	0915	24	1	2	14	
84	ME	0900	0915	51	1	2	14	
85	SV	0900	0915	78	1	2	14	
86	LW	0915	0930	29	1	1	2	
87	CH	0915	0930	30	1	1	2	
88	GS	0915	0930	65	1	1	2	
89	ME	0915	0930	55	1	1	2	
90	SV	0915	0930	71	1	1	2	
91	LW	0930	0945	118	1	2	6	
92	CH	0930	0945	46	1	2	6	
93	GS	0930	0945	37	1	2	6	
94	ME	0930	0945	41	1	2	6	
95	SV	0930	0945	40	1	2	6	
96	LW	0945	1000	27	2	2	4	
97	CH	0945	1000	21	2	2	4	
98	GS	0945	1000	34	2	2	4	
99	ME	0945	1000	71	2	2	4	
100	SV	0945	1000	58	2	2	4	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE, MIGUEL ESTRADA, CHRIS HUGHES, STEVEN VESADO, GEORGE STROUP

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 48 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
101	LW	1000	1015	85	1	2	2	
102	CH	1000	1015	36	1	2	2	
103	GS	1000	1015	45	1	2	2	
104	ME	1000	1015	30	1	2	2	
105	SV	1000	1015	71	1	2	2	
106	LW	1015	1030	28	1	2	3	
107	CH	1015	1030	31	1	2	3	
108	GS	1015	1030	20	1	2	3	
109	ME	1015	1030	23	1	2	3	
110	SV	1015	1030	71	1	2	3	
111	LW	1030	1045	54	2	3	2	
112	CH	1030	1045	68	2	3	2	
113	GS	1030	1045	800	2	3	2	Well 226
114	ME	1030	1045	39	2	3	2	
115	SV	1030	1045	74	2	3	2	
116	LW	1045	1100	41	2	3	14	
117	CH	1045	1100	22	2	3	14	
118	GS	1045	1100	28	2	3	14	
119	ME	1045	1100	64	2	3	14	
120	SV	1045	1100	41	2	3	14	
121	LW	1100	1115	54	4	6	2	
122	CH	1100	1115	36	4	6	2	
123	GS	1100	1115	47	4	6	2	
124	ME	1100	1115	18	4	6	2	
125	SV	1100	1115	61	4	6	2	
126	LW	1115	1130	40	3	3	16	
127	CH	1115	1130	31	3	3	16	
128	GS	1115	1130	24	3	3	16	
129	ME	1115	1130	68	3	3	16	
130	SV	1115	1130	45	3	3	16	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Lois Wanok, Chris Hughes, George Stroup, Miguel Estrada, Steven Vasiaoi

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 56 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
131	LW	1200	1215	87	2	3	15	
132	CH	1200	1215	85	2	3	15	
133	GS	1200	1215	71	2	3	15	
134	ME	1200	1215	66	2	3	15	
135	SV	1200	1215	31	2	3	15	
136	LW	1215	1230	35	2	2	16	
137	CH	1215	1230	776	2	2	16	Well 185
138	GS	1215	1230	36	2	2	16	
139	ME	1215	1230	71	2	2	16	
140	SV	1215	1230	52	2	2	16	
141	LW	1230	1245	66	3	4	16	
142	CH	1230	1245	81	3	4	16	
143	GS	1230	1245	52	3	4	16	
144	ME	1230	1245	66	3	4	16	
145	SV	1230	1245	51	3	4	16	
146	LW	1245	1300	30	3	3	16	
147	CH	1245	1300	39	3	3	16	
148	GS	1245	1300	81	3	3	16	
149	ME	1245	1300	112	3	3	16	
150	SV	1245	1300	47	3	3	16	
151	LW	1300	1315	136	2	3	2	
152	CH	1300	1315	71	2	3	2	
153	GS	1300	1315	60	2	3	2	
154	ME	1300	1315	81	2	3	2	
155	SV	1300	1315	46	2	3	2	
156	LW	1315	1330	39	3	4	2	
157	CH	1315	1330	120	3	4	2	
158	GS	1315	1330	84	3	4	2	
159	ME	1315	1330	47	3	4	2	
160	SV	1315	1330	31	3	4	2	

Attach Calibration Sheet
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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leighware / Miguel Estacor
Chris Hughes / Steven Vesadi
George Stroup

Cal. Gas Exp. Date: 1/10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 61 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
161	LW	1330	1345	11	5	5	2	
162	CH	1330	1345	25	5	5	2	
163	GS	1330	1345	38	5	5	2	
164	ME	1330	1345	60	5	5	2	
165	SV	1330	1345	49	5	5	2	
166	LW	1345	1400	81	2	3	15	
167	CH	1345	1400	55	2	3	15	
168	GS	1345	1400	34	2	3	15	
169	ME	1345	1400	22	2	3	15	
170	SV	1345	1400	38	2	3	15	
171	LW	1400	1415	84	3	3	16	
172	CH	1400	1415	65	3	3	16	
173	GS	1400	1415	48	3	3	16	
174	ME	1400	1415	85	3	3	16	
175	SV	1400	1415	22	3	3	16	
176	LW	1415	1430	51	3	3	16	
177	CH	1415	1430	84	3	3	16	
178	GS	1415	1430	54	3	3	16	
179	ME	1415	1430	66	3	3	16	
180	SV	1415	1430	21	3	3	16	
181	LW	1430	1445	37	4	4	2	
182	CH	1430	1445	20	4	4	2	
183	GS	1430	1445	45	4	4	2	
184	ME	1430	1445	30	4	4	2	
185	SV	1430	1445	22	4	4	2	
186	LW	1445	1500	26	3	3	16	
187	CH	1445	1500	32	3	3	16	
188	GS	1445	1500	77	3	3	16	
189	ME	1445	1500	41	3	3	16	
190	SV	1445	1500	36	3	3	16	

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Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEISH WADE / MIGUEL ESTRADA
Chris Hughes / STEVEN VASADY
GEORGE STROUP

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 67 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
191	LW	1500	1515	17	4	4	16	
192	CH	1500	1515	21	4	4	16	
193	GS	1500	1515	15	4	4	16	
194	ME	1500	1515	28	4	4	16	
195	SV	1500	1515	21	4	4	16	
196	LW	1515	1530	16	2	3	16	
197	CH	1515	1530	37	2	3	16	
198	GS	1515	1530	45	2	3	16	
199	ME	1515	1530	14	2	3	16	
200	SV	1515	1530	22	2	3	16	
201	LW	1530	1545	18	4	5	1	
202	CH	1530	1545	19	4	5	1	
203	GS	1530	1545	31	4	5	1	
204	ME	1530	1545	18	4	5	1	
205	SV	1530	1545	16	4	5	1	
206	LW	1545	1600	11	3	4	2	
207	CH	1545	1600	14	3	4	2	
208	GS	1545	1600	24	3	4	2	

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Lozs hwaor

Cal. Gas Exp. Date:

Date: 1-24-23 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	
24								Active-faces
25								↓
29								↓
30								↓
34								↓
35								↓
39								↓
40								↓
44								↓
45								↓

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
1		P-2	Other (See Comments) (OT)	38.16264033	-122.5593088	3	1-24-22	18	
2		P-4	Other (See Comments) (OT)	38.16458567	-122.5597367	4		12	
3		P-5	Other (See Comments) (OT)	38.1659435	-122.559745	7		14	
4		P-6	Other (See Comments) (OT)	38.16590933	-122.5597347	7		26	
5		P-7	Other (See Comments) (OT)	38.16601117	-122.5596422	7		11	
6		P-8	Other (See Comments) (OT)	38.16601483	-122.5596808	7		19	
7		P-1	Other (See Comments) (OT)	38.16237717	-122.559976	10		21	
8		P-9	Other (See Comments) (OT)	38.16708483	-122.560793	15		19	
9	59567	LC-234	LFG Collector - Standard	38.1654038	-122.5607993	16		25	
10	877	83	LFG Collector - Standard	38.1640668	-122.5610008	17		14	
11	889	95	LFG Collector - Standard	38.1630983	-122.5606295	17		27	
12	59568	LC-235	LFG Collector - Standard	38.1659611	-122.5611811	20		16	
13	62176	LC-252	LFG Collector - Standard	38.164918	-122.5618217	25			Active
14	59569	LC-236	LFG Collector - Standard	38.1666116	-122.5618882	29			
15	59574	LC-241	LFG Collector - Standard	38.1659295	-122.5619612	29			
16	62177	LC-253	LFG Collector - Standard	38.1648188	-122.5617898	30			↓
17		P-10	Other (See Comments) (OT)	38.16413217	-122.5619648	31		18	
18	62178	LC-254	LFG Collector - Standard	38.1649718	-122.5622977	35			Active
19		P-14	Other (See Comments) (OT)	38.16814117	-122.562457	38		31	
20	859	65	LFG Collector - Standard	38.1660924	-122.5624656	39			Active
21	59575	LC-242	LFG Collector - Standard	38.1657546	-122.5624878	39			↓
22		P-16	Other (See Comments) (OT)	38.1681825	-122.5629578	43		22	
23		P-17	Other (See Comments) (OT)	38.1682025	-122.5629357	43		34	
24	36862	117 D	LFG Collector - Standard	38.1667142	-122.5629642	44			Active
25	49444	LC-179	LFG Collector - Standard	38.1714265	-122.5672832	46		18	
26	54623	LC-217	LFG Collector - Standard	38.1642982	-122.5627832	46		29	
27	56613	LC-227	LFG Collector - Standard	38.1625588	-122.5627977	47		16	
28		P-47	Other (See Comments) (OT)	38.1684925	-122.5632173	48		41	
29	41945	140	LFG Collector - Standard	38.1646417	-122.5634152	50		21	
30	44328	142	LFG Collector - Standard	38.1647059	-122.5633469	50		81	
31	62179	LC-255	LFG Collector - Standard	38.1654921	-122.563161	50		26	
32	62180	LC-256	LFG Collector - Standard	38.1651125	-122.563103	50		45	
33		P-19	Other (See Comments) (OT)	38.1686105	-122.5637285	53		58	
34	36861	116 E	LFG Collector - Standard	38.1670675	-122.5636515	54		21	
35	41725	137	LFG Collector - Standard	38.1664956	-122.5635508	54		38	
36	59570	LC-237	LFG Collector - Standard	38.1665481	-122.5637343	54		26	
37	59571	LC-238	LFG Collector - Standard	38.1660756	-122.5635479	54		51	
38		P-11	Other (See Comments) (OT)	38.16337667	-122.5635122	56		107	
39	59572	LC-239	LFG Collector - Standard	38.1670255	-122.5639206	59		45	
40	41996	141	LFG Collector - Standard	38.1641195	-122.5641272	60	↓	33	

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
41	62170	LC-246	LFG Collector - Standard	38.1646082	-122.5640043	60	1-24-23	38	
42	36869	124 G	LFG Collector - Standard	38.1627022	-122.5638785	62		25	
43	56162	220	LFG Collector - Standard	38.1613197	-122.5642922	63		76	
44		P-21	Other (See Comments) (OT)	38.16887917	-122.5642652	64		81	
45		P-22	Other (See Comments) (OT)	38.16887883	-122.5642492	64		42	
46		P-23	Other (See Comments) (OT)	38.1688705	-122.5642428	64		38	
47		P-82	Other (See Comments) (OT)	38.1688325	-122.5641177	64		36	
48		P-83	Other (See Comments) (OT)	38.16892133	-122.5643035	64		51	
49		P-84	Other (See Comments) (OT)	38.16910133	-122.564327	64		26	
50		P-85	Other (See Comments) (OT)	38.16914767	-122.5644217	64		14	
51	36860	115 E	LFG Collector - Standard	38.1674718	-122.564332	65		25	
52	59573	LC-240	LFG Collector - Standard	38.1670241	-122.5644225	66		32	
53	59576	LC-243	LFG Collector - Standard	38.1634542	-122.5641759	68		18	
54	59577	LC-244	LFG Collector - Standard	38.1633506	-122.5645797	74		45	
55	44039	HC-101	LFG Collector - Standard	38.1628293	-122.5646008	75		24	
56	44040	HC-102	LFG Collector - Standard	38.1623785	-122.5644932	75		37	
57	56619	LC-230	LFG Collector - Standard	38.1660713	-122.5650072	78		82	
58	56624	LC-233	LFG Collector - Standard	38.1668967	-122.5649932	78		116	
59	59578	LC-245	LFG Collector - Standard	38.1634761	-122.5650176	80		71	
60		P-86	Other (See Comments) (OT)	38.16314633	-122.5649933	80		39	
61		P-48	Other (See Comments) (OT)	38.17419167	-122.5651825	83		24	
62		P-43	Other (See Comments) (OT)	38.1730765	-122.5652423	84		51	
63		P-36	Other (See Comments) (OT)	38.17149783	-122.5653047	85		38	
64		P-38	Other (See Comments) (OT)	38.17183867	-122.5653647	85		49	
65	811	17	LFG Collector - Standard	38.1703617	-122.5655321	87		30	
66	810	16	LFG Collector - Standard	38.1696262	-122.5654417	88		65	
67	56620	LC-231	LFG Collector - Standard	38.1686286	-122.565354	88		41	
68	36859	114 A	LFG Collector - Standard	38.1679373	-122.5652196	89		55	
69	54625	LC-219	LFG Collector - Standard	38.1679709	-122.5652163	89		20	
70	54621	LC-215	LFG Collector - Standard	38.1650547	-122.5653325	91		46	
71	43673	HC-107	LFG Collector - Standard	38.1656909	-122.5652975	91		118	
72		P-49	Other (See Comments) (OT)	38.17493067	-122.5655627	95		40	
73	812	18	LFG Collector - Standard	38.1713486	-122.5657009	97		18	
74	813	19	LFG Collector - Standard	38.1720321	-122.5657371	97		21	
75	54620	LC-214	LFG Collector - Standard	38.1644529	-122.5654859	102		36	
76	56608	LC-222	LFG Collector - Standard	38.1654792	-122.5656981	102		19	
77	54618	LC-212	LFG Collector - Standard	38.1639036	-122.5656472	103		45	
78		P-50	Other (See Comments) (OT)	38.17512867	-122.5660458	105		71	
79	56621	LC-232	LFG Collector - Standard	38.1697835	-122.5661705	109		23	
80	54599	LC-196	LFG Collector - Standard	38.1682071	-122.5661163	110		36	

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
81	56618	LC-229	LFG Collector - Standard	38.1672291	-122.5664904	110	1-24-23	25	
82	45852	HC-153	LFG Collector - Standard	38.1679467	-122.5661684	110		47	
83	54603	LC-200	LFG Collector - Standard	38.167125	-122.5662454	111		30	
84	54605	LC-201	LFG Collector - Standard	38.166682	-122.5660752	111		34	
85	56609	LC-223	LFG Collector - Standard	38.1658602	-122.5660864	111		16	
86	56610	LC-224	LFG Collector - Standard	38.1662079	-122.5659064	111		27	
87	56612	LC-226	LFG Collector - Standard	38.1641725	-122.5658872	113		800	
88	52613	LC-183	LFG Collector - Standard	38.1741572	-122.5665373	116		79	
89		P-51	Other (See Comments) (OT)	38.17522917	-122.5664445	116		41	
90	52614	LC-184	LFG Collector - Standard	38.1729705	-122.5670855	117		22	
91	802	8	LFG Collector - Standard	38.1716005	-122.566374	118		28	
92	54598	LC-195	LFG Collector - Standard	38.1683749	-122.5665931	121		35	
93	54602	LC-199	LFG Collector - Standard	38.1674912	-122.5663974	121		54	
94	56611	LC-225	LFG Collector - Standard	38.1669138	-122.566333	122		36	
95		P-52	Other (See Comments) (OT)	38.1753825	-122.5669377	127		31	
96	36872	127 B	LFG Collector - Standard	38.1738351	-122.5667563	128		24	
97	36873	128 A	LFG Collector - Standard	38.1698037	-122.5673679	131		20	
98	54597	LC-194	LFG Collector - Standard	38.1689615	-122.5665835	131		17	
99	54601	LC-198	LFG Collector - Standard	38.1677646	-122.566832	132		85	
100	45855	HC-156	LFG Collector - Standard	38.1666548	-122.5666904	133		24	
101		P-13	Other (See Comments) (OT)	38.16627267	-122.5667888	133		71	
102	62171	LC-247	LFG Collector - Standard	38.1650576	-122.5667205	134		66	
103	62172	LC-248	LFG Collector - Standard	38.1656523	-122.5668544	134		29	
104		P-53	Other (See Comments) (OT)	38.175473	-122.567267	136		35	
105	62175	LC-251	LFG Collector - Standard	38.1736281	-122.5672672	137		50	
106	41722	134	LFG Collector - Standard	38.1725194	-122.5670213	138		36	
107	41723	135	LFG Collector - Standard	38.1721529	-122.5672934	138		29	
108	56607	LC-221	LFG Collector - Standard	38.1681175	-122.5672286	141		25	
109	56617	LC-228	LFG Collector - Standard	38.1677564	-122.5670458	141		66	
110		P-12	Other (See Comments) (OT)	38.16712983	-122.5670528	141		34	
111	49441	LC-176	LFG Collector - Standard	38.1740513	-122.5675294	145		51	
112		P-55	Other (See Comments) (OT)	38.17551583	-122.5676485	145		46	
113	36848	103 C	LFG Collector - Standard	38.172415	-122.5677142	147		39	
114	52620	LC-190	LFG Collector - Standard	38.1634359	-122.5634027	147		22	
115	36851	106 C	LFG Collector - Standard	38.1700882	-122.5675715	148		87	
116	54607	LC-202	LFG Collector - Standard	38.1683618	-122.5672804	150		47	
117		P-54	Other (See Comments) (OT)	38.17572183	-122.5679133	153		60	
118	62174	LC-250	LFG Collector - Standard	38.1738242	-122.5678612	154		81	
119	36850	105 C	LFG Collector - Standard	38.1706173	-122.5677909	156		39	
120	36852	107 C	LFG Collector - Standard	38.1694971	-122.5676143	157		120	

REDWOOD LANDFILL - MONITORING POINTS FOR SEM - UPDATED ON 11-14-2021

No.	Point ID	DESCRIPTION	POINT TYPE	LATITUDE	LONGITUDE	SEM GRID BLOCK NO.	DATE	READING (PPM)	NOTES
121	54609	LC-203	LFG Collector - Standard	38.1687352	-122.5676688	157	1-24-23	60	
122	54610	LC-204	LFG Collector - Standard	38.1690544	-122.5678759	157		34	
123	36875	130 E	LFG Collector - Standard	38.1667905	-122.5677676	159		21	
124		P-56	Other (See Comments) (OT)	38.17588233	-122.5682602	161		11	
125	41720	132	LFG Collector - Standard	38.1719093	-122.5679846	162		25	
126	62173	LC-249	LFG Collector - Standard	38.1729121	-122.5680262	163		38	
127	52616	LC-186	LFG Collector - Standard	38.1722291	-122.5686197	164		60	
128	54615	LC-209	LFG Collector - Standard	38.1700423	-122.5682426	165		49	
129	54611	LC-205	LFG Collector - Standard	38.1697844	-122.5682198	166		81	
130	54616	LC-210	LFG Collector - Standard	38.1694802	-122.5681831	166		30	
131	52618	LC-188	LFG Collector - Standard	38.171603	-122.5680363	172		65	
132	36871	126 C	LFG Collector - Standard	38.1705307	-122.5683679	174		41	
133	36874	129 E	LFG Collector - Standard	38.1688503	-122.5683779	174		30	
134	54612	LC-206	LFG Collector - Standard	38.1703914	-122.5684577	174		85	
135		P-61	Other (See Comments) (OT)	38.17628833	-122.5690028	176		51	
136	829	35	LFG Collector - Standard	38.1739165	-122.5693927	186		26	
137	36847	102 C	LFG Collector - Standard	38.1716815	-122.5692653	187		32	
138		P-81	Other (See Comments) (OT)	38.16884867	-122.569311	189		41	
139	839	45	LFG Collector - Standard	38.1760433	-122.5697611	190		19	
140	841	47	LFG Collector - Standard	38.1757422	-122.5694936	190		27	
141		P-74	Other (See Comments) (OT)	38.17652617	-122.5696552	190		36	
142	828	34	LFG Collector - Standard	38.1730762	-122.5695551	192		21	
143	797	3	LFG Collector - Standard	38.1713895	-122.569684	193		15	
144		P-76	Other (See Comments) (OT)	38.17518783	-122.570047	197		37	
145		P-77	Other (See Comments) (OT)	38.17460717	-122.5700413	197		11	
146		P-78	Other (See Comments) (OT)	38.17432767	-122.5702018	197		16	
147	36845	100 C	LFG Collector - Standard	38.1724647	-122.5698034	199		14	
148		P-75	Other (See Comments) (OT)	38.17632433	-122.5704643	200		22	
149		P-79	Other (See Comments) (OT)	38.17342533	-122.5702742	202		19	
150	52622	LC-192	LFG Collector - Standard	38.1679347	-122.5646219			11	
151		P-44	Other (See Comments) (OT)					19	
152		P-45	Other (See Comments) (OT)					14	
153		P-73	Other (See Comments) (OT)					16	

Redwood Landfill
Penetrations Workbook

WEll	GRID	PPM	DATE							
266	73	41	1-24-23							not on map or log
267	79	20								
268	79	37								
269	79	26								
270	67-73	51								
265	67	102								
259	195	21								
258	184	30								
262	193	26								
261	180	21								
274	186	14								
264	156	16								
257	200	19								Not [illegible] on [illegible]
185	137	776								

Attachment B

Integrated Surface Emission Monitoring Event Records

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

2023 QUARTER: 1

INITIAL MONITORING PERFORMED BY: RES

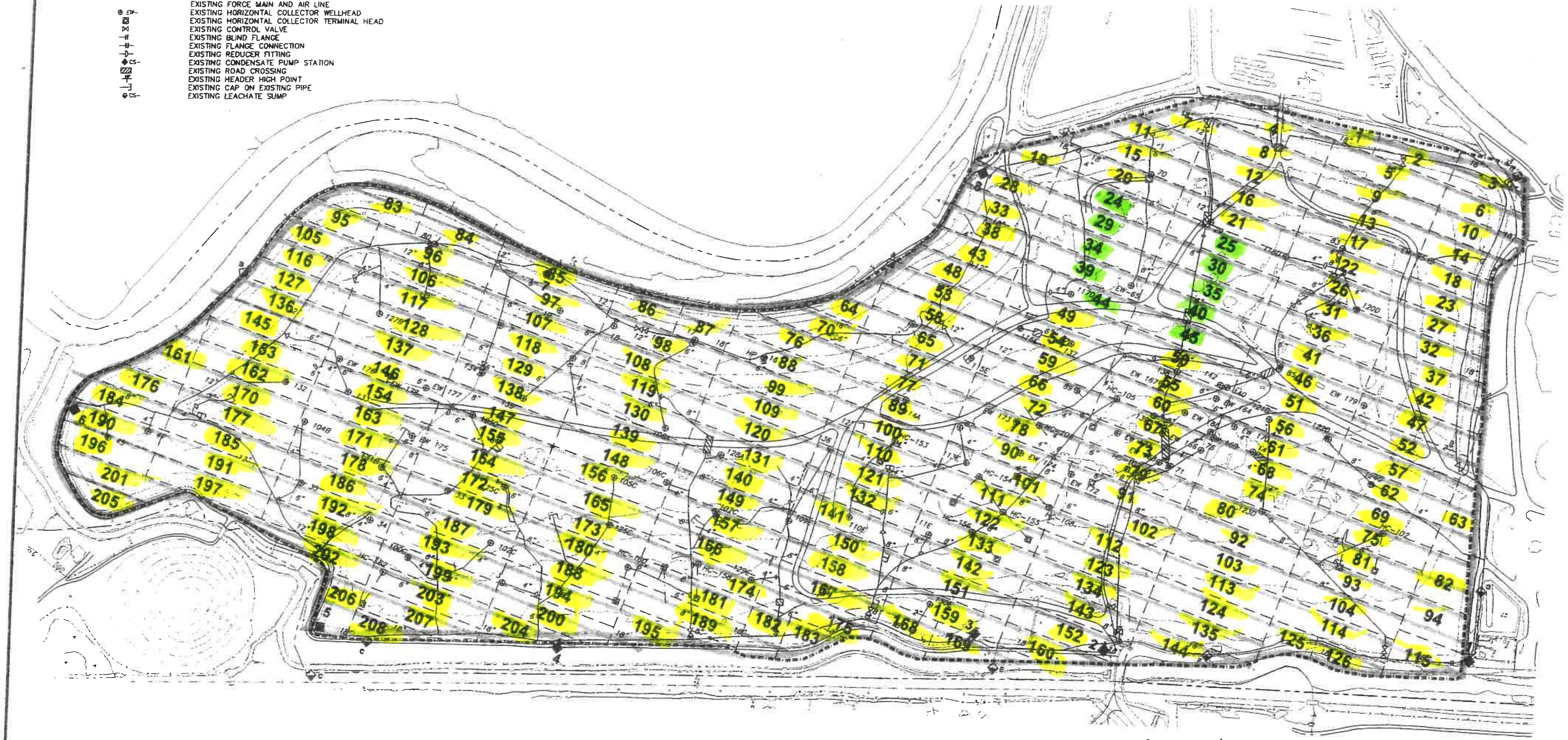
FOLLOW-UP MONITORING PERFORMED BY:

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									

LEGEND

— — —	EXISTING 10' CONTOUR
——12"——	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



Integrated 1-23-23
1-24-23

🟨 grids monitored 1-25-23

🟩 Active-trash

No Exceedances

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

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade | Miguel Estrada
Chris Hughes | Steven Vasadi
George Stroup

Cal. Gas Exp. Date: 11-10-23

Date: 1-23-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 57 Precip: 0 Upwind BG: 2.2 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	1230	1255	4.18	2	3	3	
2	CH	1230	1255	3.72	2	3	3	
3	GS	1230	1255	3.91	2	3	3	
4	ME	1230	1255	4.18	2	3	3	
5	SV	1230	1255	4.31	2	3	3	
6	LW	1255	1320	5.66	2	3	16	
7	CH	1255	1320	8.31	2	3	16	
8	GS	1255	1320	7.45	2	3	16	
9	ME	1255	1320	6.15	2	3	16	
10	SV	1255	1320	5.30	2	3	16	
11	LW	1320	1345	9.17	1	2	4	
12	CH	1320	1345	11.61	1	2	4	
13	GS	1320	1345	6.24	1	2	4	
14	ME	1320	1345	5.18	1	2	4	
15	SV	1320	1345	10.36	1	2	4	
16	LW	1345	1410	14.22	1	2	16	
17	CH	1345	1410	8.41	1	2	16	
18	GS	1345	1410	5.06	1	2	16	
19	ME	1345	1410	9.31	1	2	16	
20	SV	1345	1410	14.70	1	2	16	
21	LW	1410	1435	16.35	2	2	16	
22	CH	1410	1435	8.51	2	2	16	
23	GS	1410	1435	6.02	2	2	16	
26	ME	1410	1435	8.19	2	2	16	
27	SV	1410	1435	6.44	2	2	16	
28	LW	1435	1500	10.57	3	4	1	
31	CH	1435	1500	8.75	3	4	1	
32	GS	1435	1500	6.14	3	4	1	
33	ME	1435	1500	8.64	3	4	1	
36	SV	1435	1500	6.41	3	4	1	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Lesli Wade, Chris Hughes, George Stroup, Miguel Estrada, Steven Vesadi

Cal. Gas Exp. Date: 11-10-23

Date: 1-23-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 62 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
37	LW	1500	1525	4.20	2	3	15	
38	CH	1500	1525	8.95	2	3	15	
41	GS	1500	1525	10.64	2	3	15	
42	ME	1500	1525	4.90	2	3	15	
43	SV	1500	1525	7.18	2	3	15	
46	LW	1525	1550	6.52	2	2	16	
47	CH	1525	1550	6.06	2	2	16	
48	GS	1525	1550	8.55	2	2	16	
49	ME	1525	1550	10.71	2	2	16	
50	SV	1525	1550	11.45	2	2	16	
51	LW	1550	1615	7.29	3	3	16	
52	CH	1550	1615	6.15	3	3	16	
53	GS	1550	1615	7.38	3	3	16	
54	ME	1550	1615	6.80	3	3	16	
55	SV	1550	1615	5.34	3	3	16	
56	LW	1615	1640	5.91	2	3	16	
57	CH	1615	1640	6.37	2	3	16	
58	GS	1615	1640	5.82	2	3	16	
59	ME	1615	1640	6.19	2	3	16	
60	SV	1615	1640	5.47	2	3	16	
61	LW	1640	1705	5.02	2	3	16	
62	CH	1640	1705	4.75	2	3	16	
63	GS	1640	1705	5.89	2	3	16	
64	ME	1640	1705	8.71	2	3	16	
65	SV	1640	1705	10.48	2	3	16	
66	LW	1705	1730	8.40	2	3	2	
67	CH	1705	1730	7.72	2	3	2	
68	GS	1705	1730	6.35	2	3	2	
69	ME	1705	1730	5.31	2	3	2	
70	SV	1705	1730	9.15	2	3	2	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGHWADE

Cal. Gas Exp. Date: ______

Date: 1-23-23 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	
24								Active trash
25								
29								
30								
34								
35								
39								
40								
44								
45								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade | Miguel Alcazar
Chris Hughes | Steven Vesnot
George Strong

Cal. Gas Exp. Date: 11-10-23

Date: 1-24-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 68 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
71	LW	1610	1635	7.28	2	3	16	
72	Ch	1610	1635	6.81	2	3	16	
73	GS	1610	1635	6.45	2	3	16	
74	ME	1610	1635	7.39	2	3	16	
75	SV	1610	1635	6.50	2	3	16	
76	LW	1635	1700	6.80	3	4	15	
77	Ch	1635	1700	9.41	3	4	15	
78	GS	1635	1700	10.16	3	4	15	
79	ME	1635	1700	9.40	3	4	15	
80	SV	1635	1700	6.82	3	4	15	
81	LW	1700	1725	6.31	3	4	16	
82	Ch	1700	1725	7.11	3	4	16	
83	GS	1700	1725	5.51	3	4	16	
84	ME	1700	1725	5.18	3	4	16	
85	SV	1700	1725	5.32	3	4	16	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade — Miguel Estrada
Chris Hughes — Steven Vasadi
George Stroup

Cal. Gas Exp. Date: 11-10-23

Date: 1-25-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 32 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
86	LW	0530	0555	4.21	2	2	10	
87	Ch	0530	0555	3.10	2	2	10	
88	GS	0530	0555	6.07	2	2	10	
89	ME	0530	0555	6.13	2	2	10	
90	SV	0530	0555	5.98	2	2	10	
91	LW	0555	0620	8.64	0	1	9	
92	Ch	0555	0620	10.22	0	1	9	
93	GS	0555	0620	8.14	0	1	9	
94	ME	0555	0620	6.81	0	1	9	
95	SV	0555	0620	6.27	0	1	9	
96	LW	0620	0645	5.40	2	2	4	
97	Ch	0620	0645	5.38	2	2	4	
98	GS	0620	0645	5.27	2	2	4	
99	ME	0620	0645	6.03	2	2	4	
100	SV	0620	0645	5.45	2	2	4	
101	LW	0645	0710	7.89	1	2	2	
102	Ch	0645	0710	9.30	1	2	2	
103	GS	0645	0710	6.55	1	2	2	
104	ME	0645	0710	6.06	1	2	2	
105	SV	0645	0710	5.41	1	2	2	
106	LW	0710	0735	7.38	1	2	2	
107	Ch	0710	0735	6.55	1	2	2	
108	GS	0710	0735	6.81	1	2	2	
109	ME	0710	0735	6.20	1	2	2	
110	SV	0710	0735	10.46	1	2	2	
111	LW	0735	0800	8.60	1	2	2	
112	Ch	0735	0800	7.75	1	2	2	
113	GS	0735	0800	6.42	1	2	2	
114	ME	0735	0800	6-11	1	2	2	
115	SV	0735	0800	5.99	1	2	2	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Miguel Estrada, Chris Hughes, Steven Vosroi, George Strong

Cal. Gas Exp. Date: 11-10-23

Date: 1-25-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 40 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
116	LW	0800	0825	6.27	1	1	2	
117	CH	0800	0825	5.44	1	1	2	
118	GS	0800	0825	5.19	1	1	2	
119	ME	0800	0825	5.21	1	1	2	
120	SV	0800	0825	5.44	1	1	2	
121	LW	0825	0850	7.80	1	1	2	
122	CH	0825	0850	9.46	1	1	2	
123	GS	0825	0850	6.13	1	1	2	
124	ME	0825	0850	5.27	1	1	2	
125	SV	0825	0850	5.01	1	1	2	
126	LW	0850	0915	4.98	0	0	2	
127	CH	0850	0915	4.67	0	0	2	
128	GS	0850	0915	5.52	0	0	2	
129	ME	0850	0915	5.71	0	0	2	
130	SV	0850	0915	10.58	0	0	2	
131	LW	0915	0940	13.71	0	1	3	
132	CH	0915	0940	8.44	0	1	3	
133	GS	0915	0940	6.12	0	1	3	
134	ME	0915	0940	7.05	0	1	3	
135	SV	0915	0940	6.13	0	1	3	
136	LW	0940	1005	5.17	0	1	2	
137	CH	0940	1005	5.81	0	1	2	
138	GS	0940	1005	9.66	0	1	2	
139	ME	0940	1005	12.41	0	1	2	
140	SV	0940	1005	10.79	0	1	2	
141	LW	1005	1030	8.52	0	1	2	
142	CH	1005	1030	6.59	0	1	2	
143	GS	1005	1030	5.11	0	1	2	
144	ME	1005	1030	6.06	0	1	2	
145	SV	1005	1030	5.92	0	1	2	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Miguel Estrada
Chris Hughes
George Strong

Cal. Gas Exp. Date: 11-10-23

Date: 1-25-23 Instrument Used: TVA1000 Grid Spacing: 25

Temperature: 57 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
146	LW	1030	1055	7.14	0	1	2	
147	CH	1030	1055	6.92	0	1	2	
148	GS	1030	1055	12.26	0	1	2	
149	ME	1030	1055	14.59	0	1	2	
150	SV	1030	1055	11.66	0	1	2	
151	LW	1055	1120	8.20	1	1	2	
152	CH	1055	1120	6.15	1	1	2	
153	GS	1055	1120	5.71	1	1	2	
154	ME	1055	1120	6.18	1	1	2	
155	SV	1055	1120	5.32	1	1	2	
156	LW	1120	1145	8.71	1	2	2	
157	CH	1120	1145	9.23	1	2	2	
158	GS	1120	1145	11.66	1	2	2	
159	ME	1120	1145	9.30	1	2	2	
160	SV	1120	1145	6.26	1	2	2	
161	LW	1215	1240	5.50	0	1	2	
162	CH	1215	1240	6.07	0	1	2	
163	GS	1215	1240	5.98	0	1	2	
164	ME	1215	1240	7.15	0	1	2	
165	SV	1215	1240	8.21	0	1	2	
166	LW	1240	1305	6.55	0	1	2	
167	CH	1240	1305	6.20	0	1	2	
168	GS	1240	1305	5.48	0	1	2	
169	ME	1240	1305	5.85	0	1	2	
170	SV	1240	1305	7.14	0	1	2	
171	LW	1305	1330	9.26	0	0	4	
172	CH	1305	1330	8.41	0	0	4	
173	GS	1305	1330	7.22	0	0	4	
174	ME	1305	1330	6.89	0	0	4	
175	SV	1305	1330	5.40	0	0	4	

Attach Calibration Sheet
Attach site map showing grid ID

Page 3 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade | Mike Estrada
Chris Hughes | Steven Vesador
George Staton

Cal. Gas Exp. Date: 11-10-23

Date: 1-25-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 60 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
176	LW	1330	1355	4.70	0	1	4	
177	CH	1330	1355	6.24	0	1	4	
178	GS	1330	1355	6.89	0	1	4	
179	ME	1330	1355	5.51	0	1	4	
180	SV	1330	1355	6.74	0	1	4	
181	LW	1355	1420	5.31	0	0	4	
182	CH	1355	1420	8.15	0	0	4	
183	GS	1355	1420	6.50	0	0	4	
184	ME	1355	1420	5.67	0	0	4	
185	SV	1355	1420	6.13	0	0	4	
186	LW	1420	1445	7.38	0	0	6	
187	CH	1420	1445	5.22	0	0	6	
188	GS	1420	1445	6.79	0	0	6	
189	ME	1420	1445	6.13	0	0	6	
190	SV	1420	1445	5.38	0	0	6	
191	LW	1445	1510	7.31	0	1	4	
192	CH	1445	1510	8.49	0	1	4	
193	GS	1445	1510	7.15	0	1	4	
194	ME	1445	1510	7.23	0	1	4	
195	SV	1445	1510	6.52	0	1	4	
196	LW	1510	1535	5.87	0	0	12	
197	CH	1510	1535	6.05	0	0	12	
198	GS	1510	1535	5.35	0	0	12	
199	ME	1510	1535	5.70	0	0	12	
200	SV	1510	1535	6.18	0	0	12	
201	LW	1535	1600	5.44	1	3	10	
202	CH	1535	1600	4.71	1	3	10	
203	GS	1535	1600	5.80	1	3	10	
204	ME	1535	1600	6.16	1	3	10	
205	SV	1535	1600	5.39	1	3	10	

Attach Calibration Sheet
Attach site map showing grid ID

Page 4 of 5

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Luis Ward | Megan Calhoun
Chris Hughes | Steven Vesnadi
George Stroup

Cal. Gas Exp. Date: 11-10-23

Date: 1-25-23 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 66 Precip: 0 Upwind BG: 2.2 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
206	LW	1600	1625	5.24	2	3	16	
207	CH	1600	1625	6.46	2	3	16	
208	GS	1600	1625	5.31	2	3	16	

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

2023 QUARTER: 1

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								

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

2023 QUARTER: 1

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								

LANDFILL NAME: REDWOOD

QUARTERLY LFG COMPONENT LEAK MONITORING

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

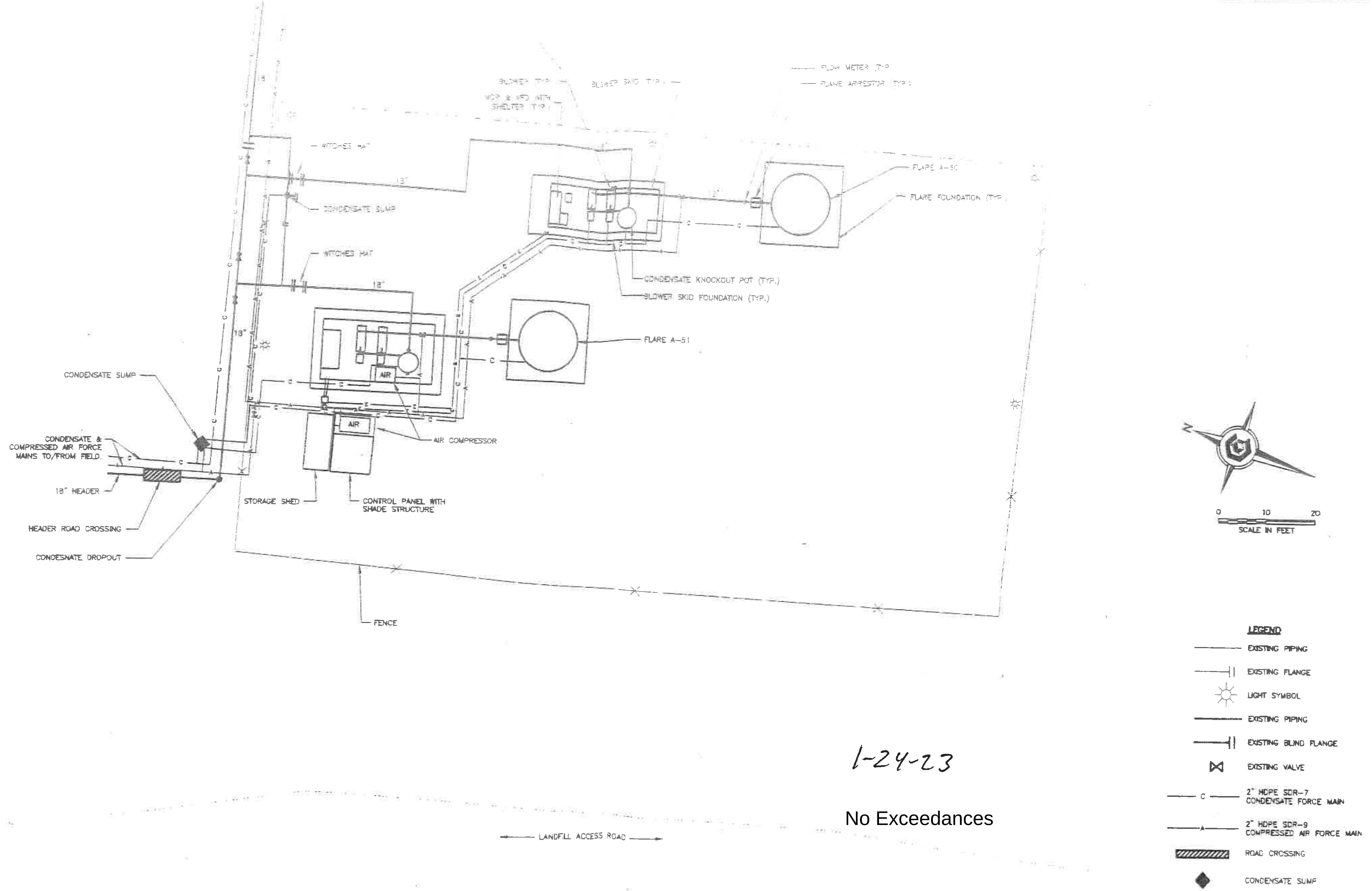
DATE OF SAMPLING: 1-24-23
TECHNICIAN: LEISH WADE

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.



1-24-23

No Exceedances

DRAFT

WASTE MANAGEMENT

PAUL J. STOUT P.E.

P.E. LIC. No. 0326? Date

CORNERSTONE Environmental Group LLC

WASTE MANAGEMENT OF CALIFORNIA, INC
REDWOOD LANDFILL, INC
NOVATO, MARIN COUNTY, CALIFORNIA

LFG FLARE AND GCCS AS-BUILT

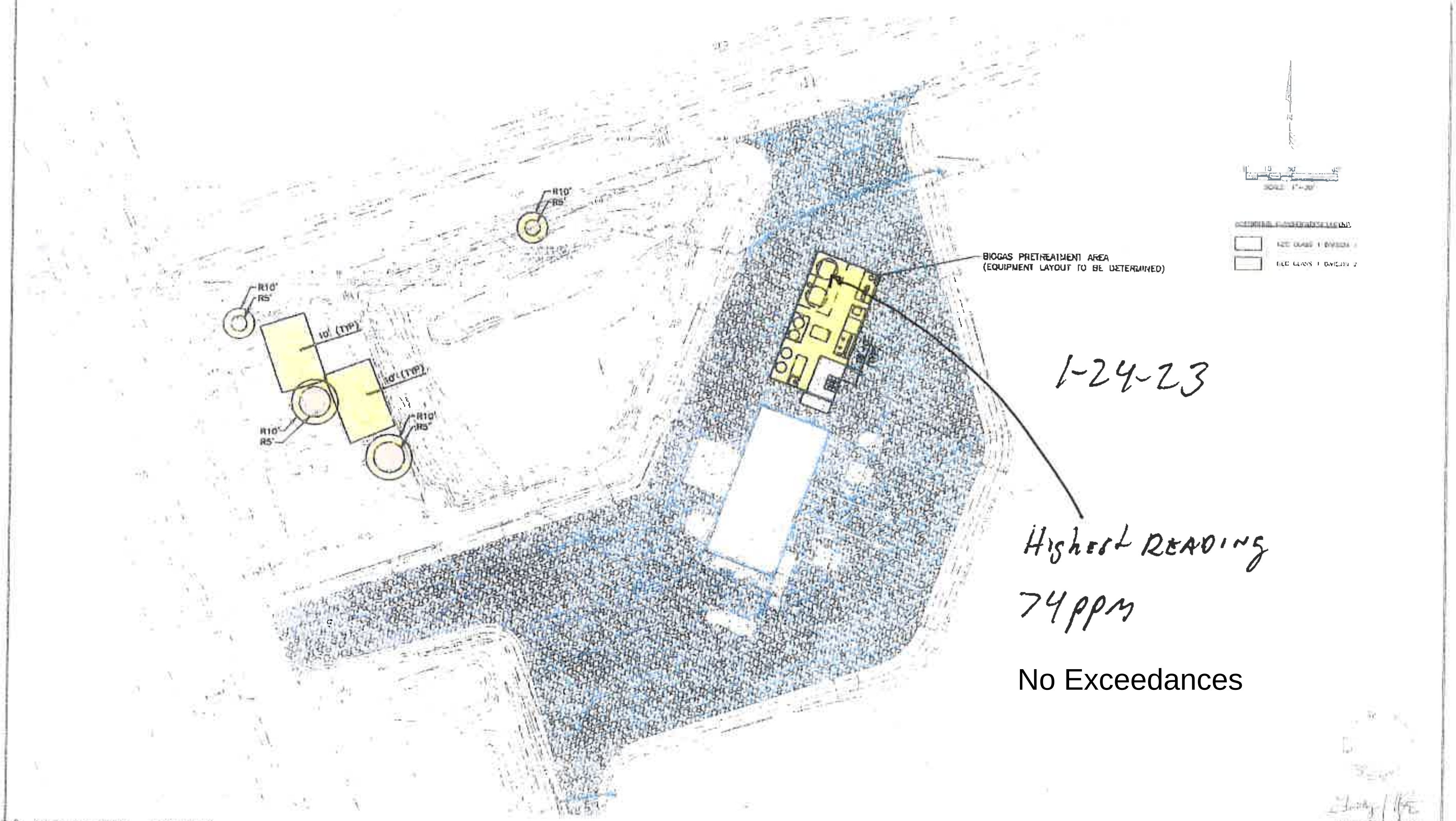
SHEET NO
1

PROJECT NO.

REDWOOD 3520+ ENGINE PLANT, CA

Site Map

8950 Redwood Hwy, Novato, CA 94948



1-24-23

Highest READING

74 ppm

No Exceedances

REV	DATE	BY	DESCRIPTION
△	3-1-16	RAA	ISSUED FOR CONSTRUCTION
△	10-26-15	RAA	BUILDING PERMIT APPLICATION SET
△	10-2-15	RAA	95% DESIGN RESUBMITTAL
△	8-7-15	RAA	ISSUED FOR GAS TREATMENT SKID BID
△	6-12-15	RAA	95% DESIGN SUBMITTAL
△	5-8-15	RAA	50% DESIGN SUBMITTAL

SCALE: AS SHOWN
DATE: 5-5-15
DRAWN: JFD
CHECKED: RFC
APPROVED: RAA

ACEng
www.ac-engineering.com

CLIENT
WASTE MANAGEMENT RENEWABLE ENERGY
LANDFILL TO GAS ENERGY PROJECT
REDWOOD LANDFILL, NOVATO, CA

DESCRIPTION
PROPOSED CONDITIONS AND
HAZARDOUS AREA CLASSIFICATIONS

PROJECT NO
1003.005.001

SHEET
6-a

7/25/2017

Landfill component Leak Check
Redwood (Flare A-51)

1-24-23

Landfill component Leak Check
Redwood (Flare A-51)

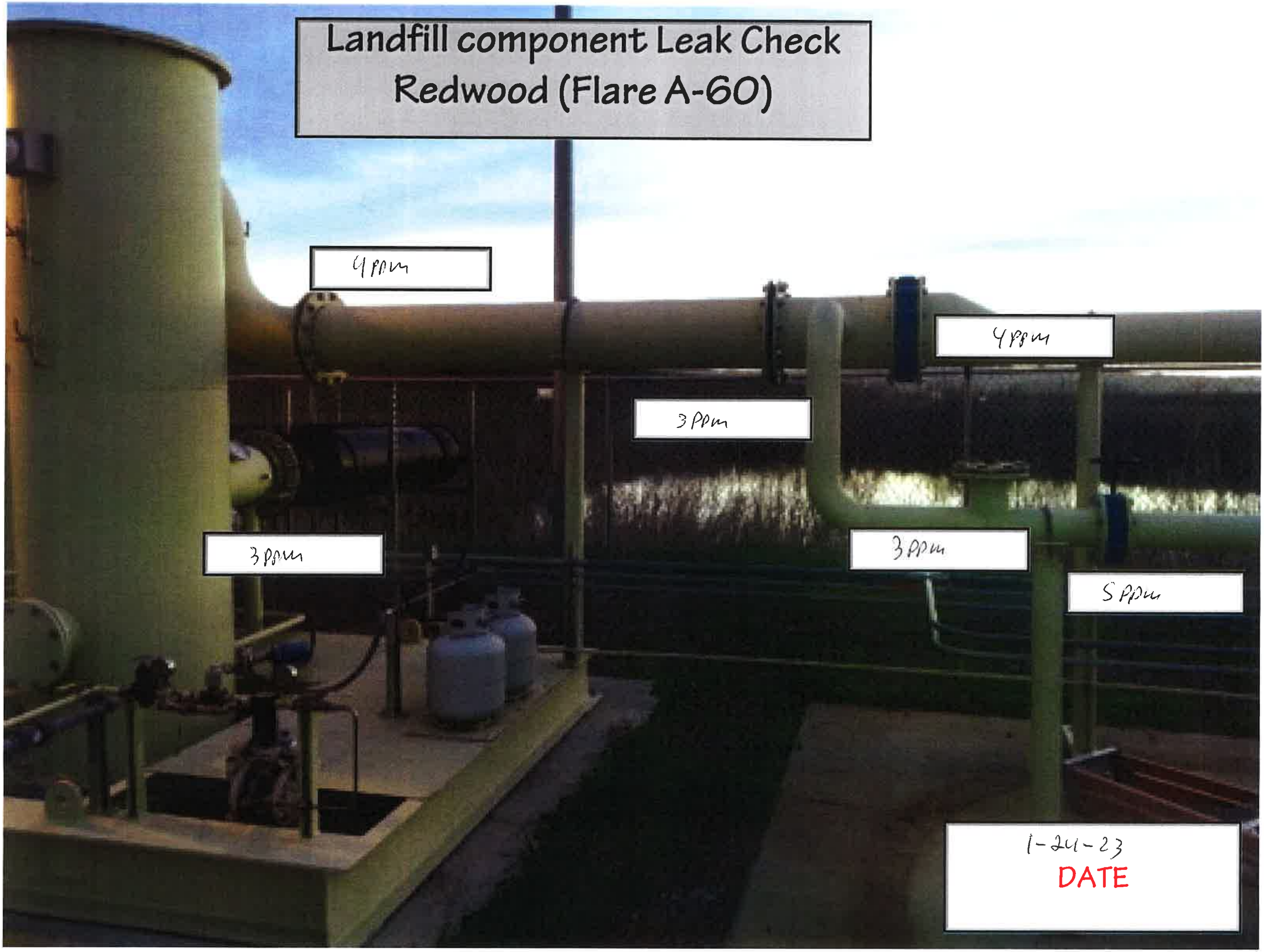
4 ppm

4 ppm

3 ppm

1-24-23

Landfill component Leak Check
Redwood (Flare A-60)



4 ppm

4 ppm

3 ppm

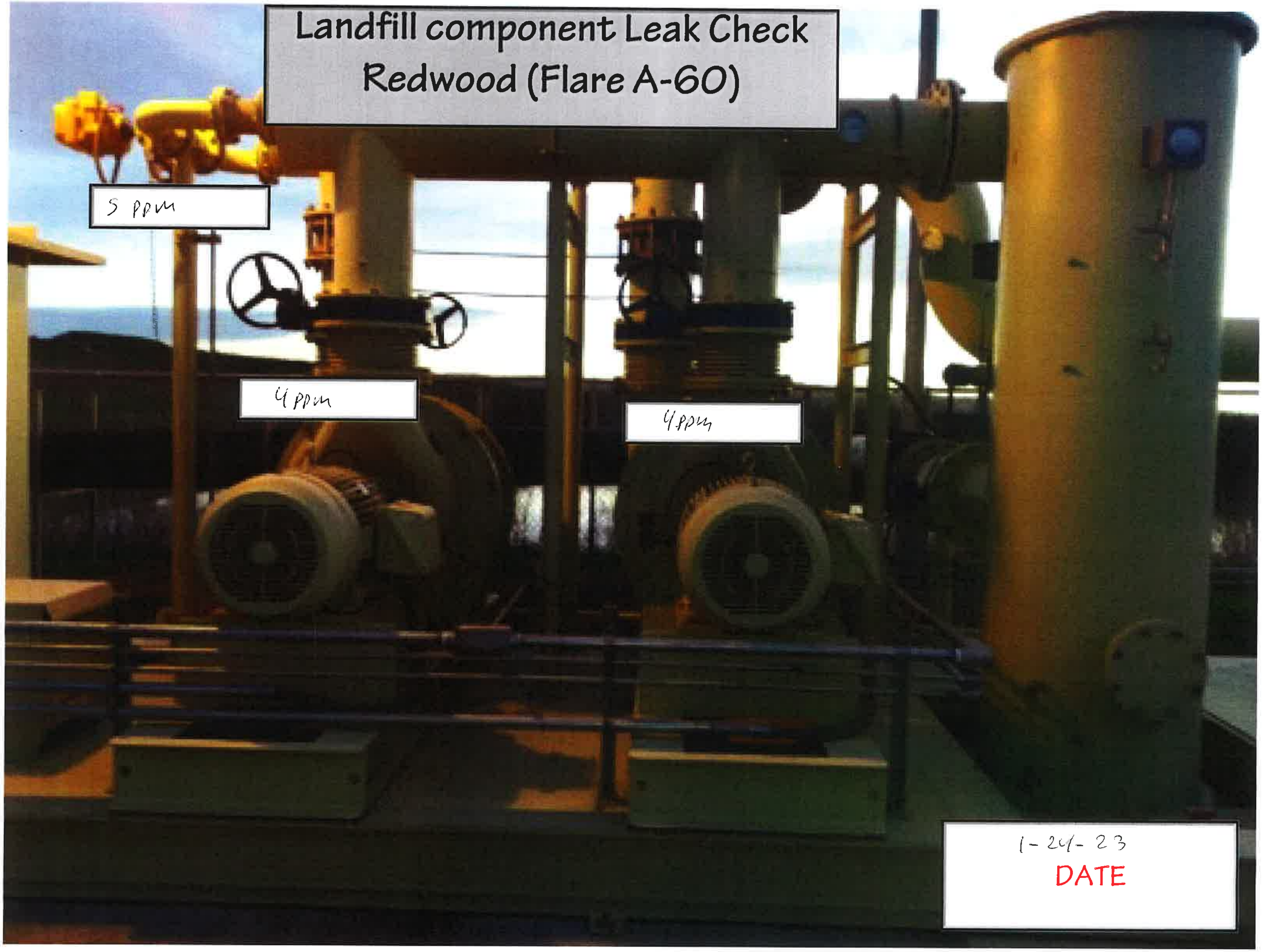
3 ppm

3 ppm

5 ppm

1-24-23
DATE

Landfill component Leak Check
Redwood (Flare A-60)



5 ppm

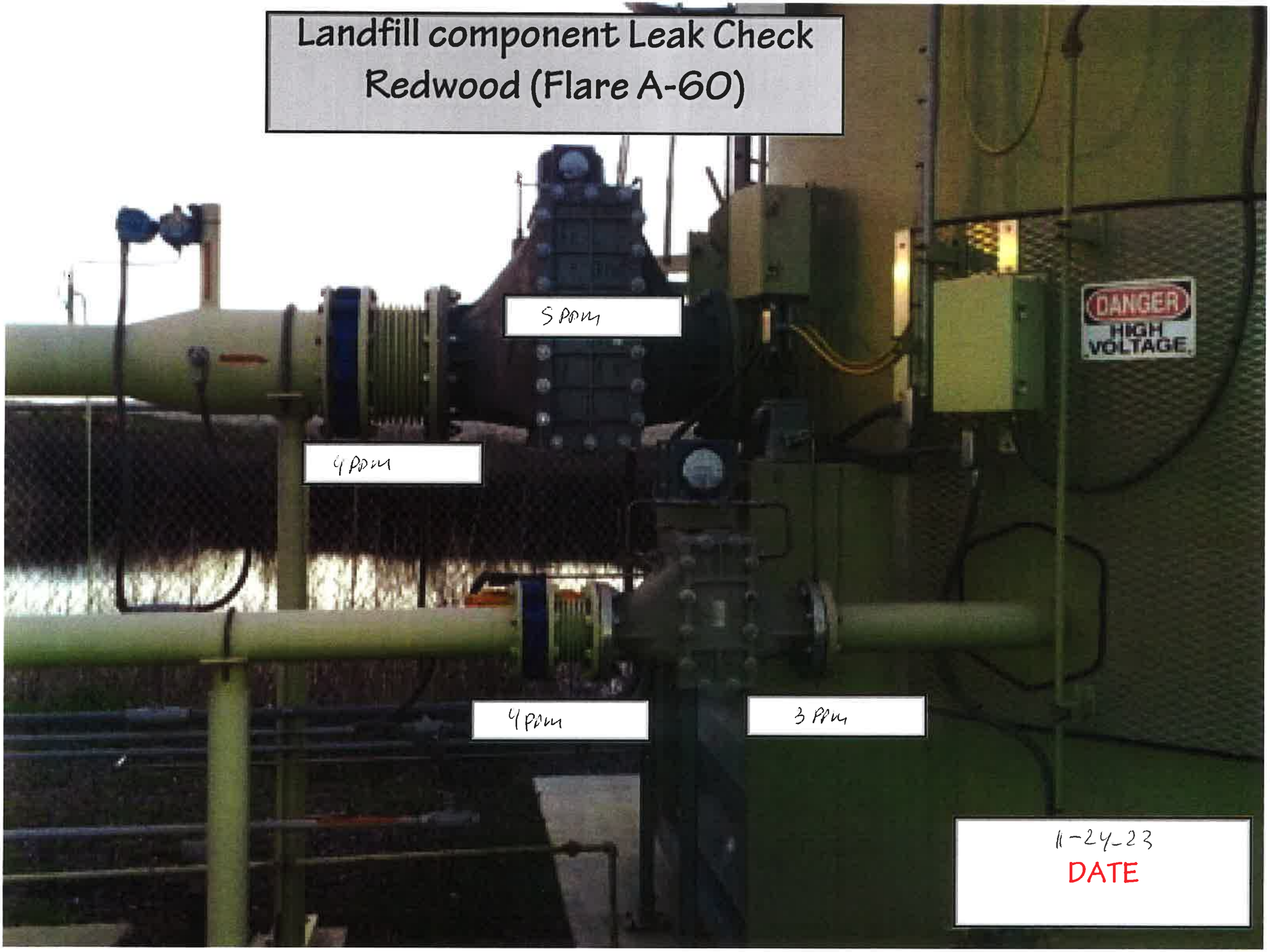
4 ppm

4ppm

1-24-23

DATE

Landfill component Leak Check
Redwood (Flare A-60)



11-24-23
DATE

Attachment D

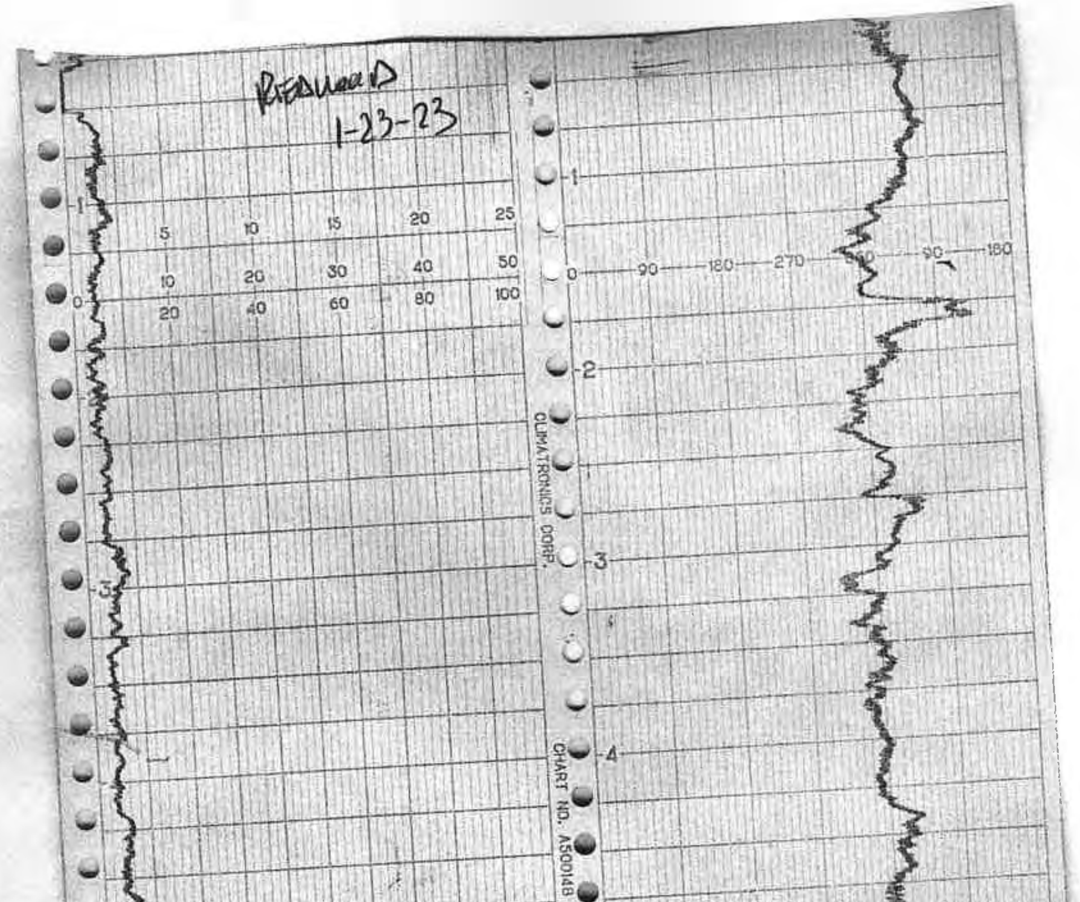
Weather Station Data

RES
Environmental Inc.

16-POINT WIND DIRECTION INDEX

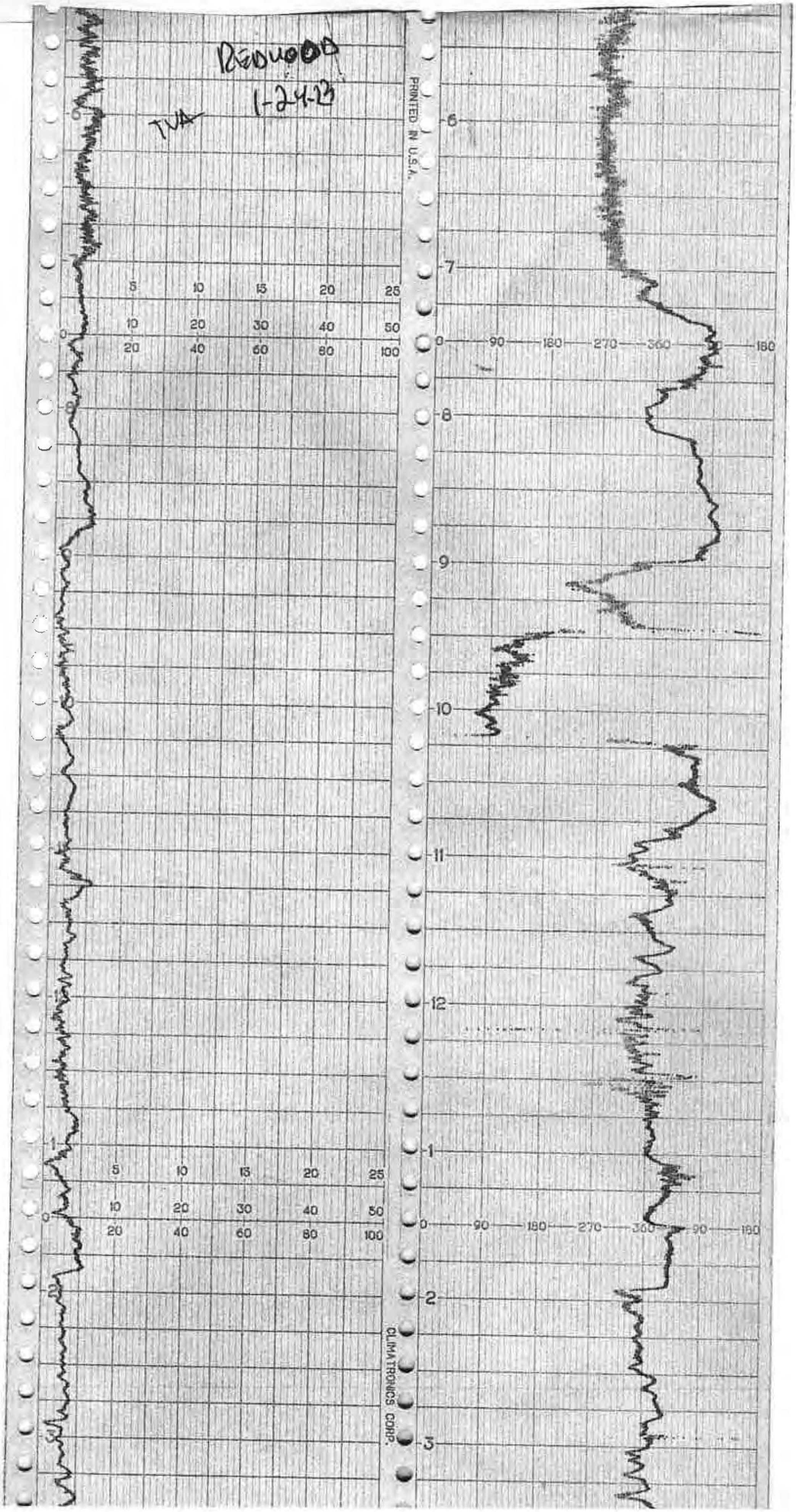
NO	DIRECTION	DEGREES		
		FROM	CENTER	TO
16	NORTH (N)	348.8	360.0	011.3
1	NORTH-NORTHEAST (NNE)	011.3	022.5	033.8
2	NORTHEAST (NE)	033.8	045.0	056.3
3	EAST-NORTHEAST (ENE)	056.3	067.5	078.8
4	EAST (E)	078.8	090.0	101.3
5	EAST-SOUTHEAST (ESE)	101.3	112.5	123.8
6	SOUTHEAST (SE)	123.8	135.0	146.3
7	SOUTH-SOUTHEAST (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

WIND SPEED & DIRECTION CHART ROLL



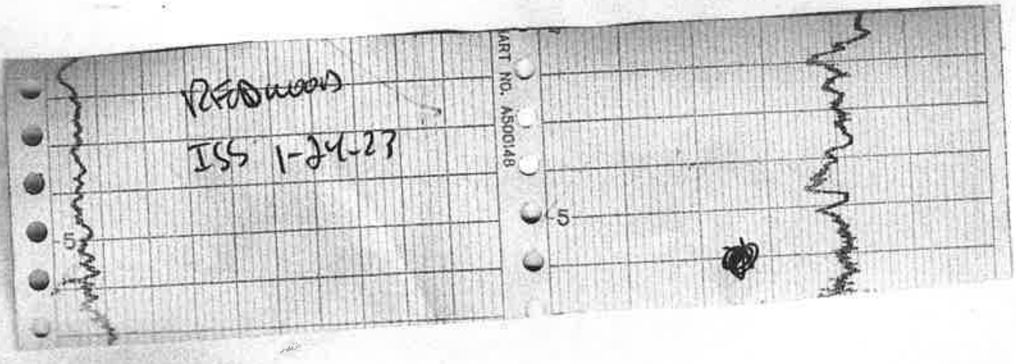
REDWOOD
1-23-23

WIND SPEED & DIRECTION CHART ROLL

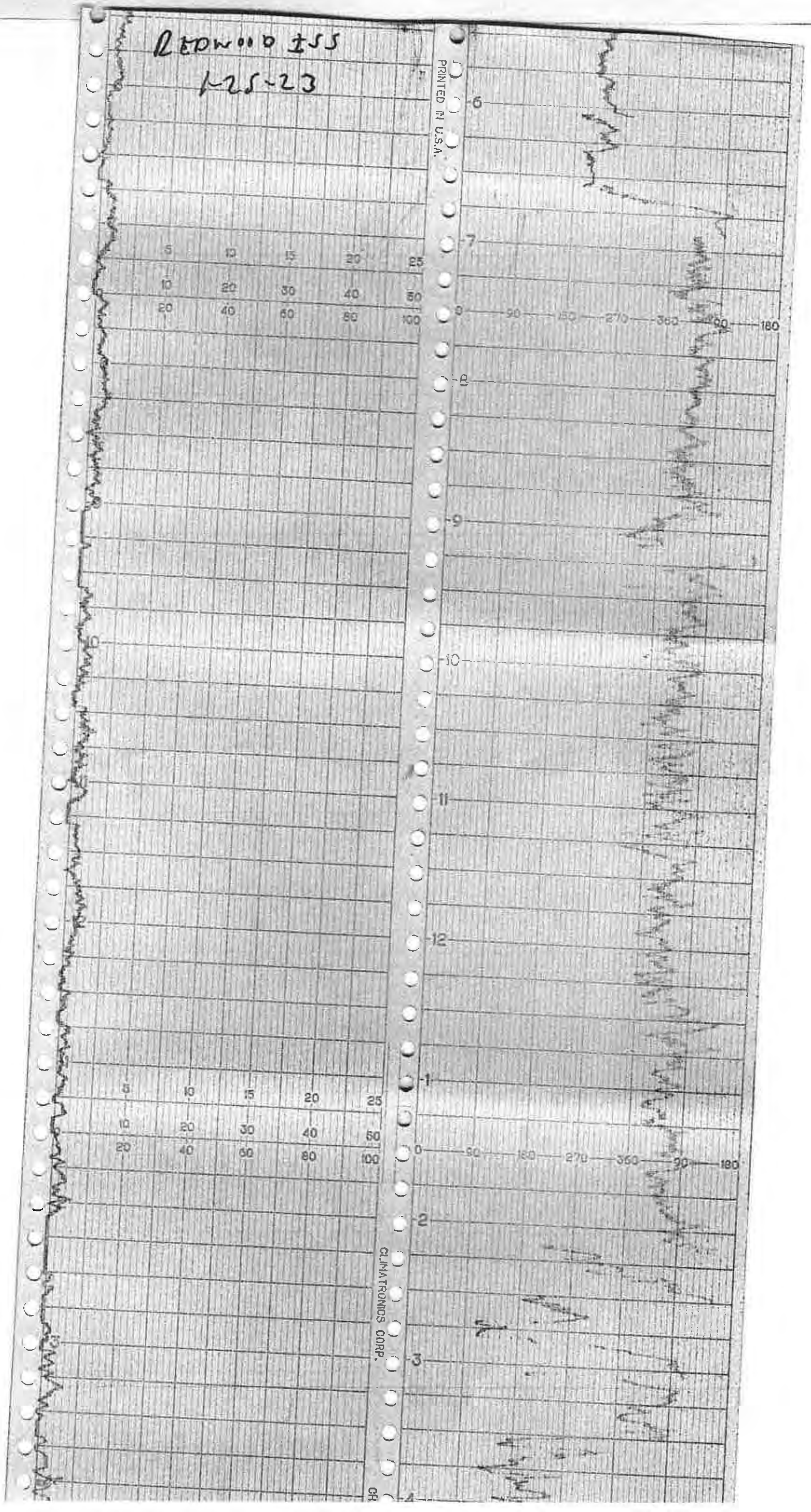


REDWOOD
1-24-23
TVA

WIND SPEED & DIRECTION CHART ROLL



WIND SPEED & DIRECTION CHART ROLL


REDWOOD ISS
1-25-23

Attachment E

Calibration Records

RESPONSE TIME TEST RECORD

Date: 1/27/23

Expiration Date (3 months): 4/27/23

Time: 11:50 [✓ AM] PM

Instrument Make: photo VAC Model: MICro FID S/N: CZP0312

Measurement #1:

Stabilized Reading Using Calibration Gas: 498 ppm
90% of the Stabilized Reading: 448 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 3 seconds (a)

Measurement #2:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 2 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 497 ppm
90% of the Stabilized Reading: 447 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 3 seconds (c)

Calculate Response Time:

$$\frac{(a) + (b) + (c)}{3} =$$ 2.66 seconds (must be less than 30 seconds)

Performed By: J D

CALIBRATION PRECISION TEST RECORD

Date: 1/27/23
Expiration Date (3 months): 4/27/23
Time: 1205 AM [✓ PM]
Instrument Make: Photovac Model: Micro FID S/N: CZP0312

Measurement #1:

Meter Reading for Zero Air: 0 ppm (a)
Meter Reading for Calibration Gas: 498 ppm (b)

Measurement #2:

Meter Reading for Zero Air: 0 ppm (c)
Meter Reading for Calibration Gas: 497 ppm (d)

Measurement #3:

Meter Reading for Zero Air: 0 ppm (e)
Meter Reading for Calibration Gas: 499 ppm (f)

Calculate Precision:

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

0.4 % (must be < than 10%)

Performed By: JD

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 1/27/23

Time: ______ AM 12:25 [✓ PM]

Instrument Make: Photo VAC Model: MICRO FID S/N: CZPD312 [redacted]

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
3. Adjust meter to read 500 ppm.

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 0 ppm (a)
2. Downwind Reading (highest in 30 seconds): 0 ppm (b)

Calculate Background Value:

$$\frac{(a) + (b)}{2}$$ Background = 0 ppm

Performed By: JD

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 2/23/23

Time: 11:00 [✓ AM] ________ PM

Instrument Make: Photo VAC______ Model: MICRO FID S/N: CZP0312 [redacted]

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
3. Adjust meter to read 500 ppm.

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 0 ppm (a)
2. Downwind Reading (highest in 30 seconds): 0 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 0 ppm

Performed By: J D

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 1-24-23 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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	498 ppm	448 ppm	10
#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	0.11 ppm	498 ppm	2
#2	0.07 ppm	502 ppm	2
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.26 #DIV/0! Must be less than 10%

Performed By: Leis Gwaob Date/Time: 1-24-23 - 0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME REDWIND INSTRUMENT MAKE: Thermo
MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774
MONITORING DATE: 1-24-23 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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	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	0.09 ppm	507 ppm	7
#2	0.05 ppm	500 ppm	0
#3	0.03 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: Chris Hughes Date/Time 1-24-23 0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 1-24-23 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:** $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	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	0.08 ppm	504 ppm	4
#2	0.05 ppm	500 ppm	0
#3	0.04 ppm	500 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.26 #DIV/0! Must be less than 10%

Performed By: GEORGE STROUP Date/Time: 1-24-23-0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo
MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775
MONITORING DATE: 1-24-23 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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	4
#2	502 ppm	452 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	0.14 ppm	495 ppm	5
#2	0.09 ppm	502 ppm	2
#3	0.07 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: MIKAEL ESKANDAR Date/Time: 1-24-23-0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

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

MONITORING DATE: 1-24-23 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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	503 ppm	453 ppm	5
#2	498 ppm	448 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	0.13 ppm	503 ppm	3
#2	0.06 ppm	498 ppm	2
#3	0.05 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.33 #DIV/0! Must be less than 10%

Performed By: STEVEN UESARI Date/Time: 1-24-23-0520

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 1-23-23 TIME: 1230

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:** $\frac{(Upwind + Downwind)}{2}$
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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 $\frac{(1+2+3)}{3}$			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	0.12 ppm	24 ppm	1
#2	0.09 ppm	24 ppm	1
#3	0.09 ppm	25 ppm	6
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3}$ X $\frac{1}{25}$ X $\frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By: Leos Alvarado Date/Time: 1-23-23 - 1230

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME Redwood INSTRUMENT MAKE: Thermo
MODEL TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346772
MONITORING DATE 1-23-23 TIME 1230

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 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 (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	0.08 ppm	24 ppm	1
#2	0.05 ppm	25 ppm	0
#3	0.03 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: Chris Hughes Date/Time: 1-23-23-1230

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME Roanoke INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE 1-23-23 TIME: 1230

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	0.11 ppm	24 ppm	1
#2	0.07 ppm	24 ppm	1
#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: George Stroup Date/Time: 1-23-23-1230

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1162746725

MONITORING DATE: 1-23-23 TIME: 1230

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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 **(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	0.14 ppm	24 ppm	1
#2	0.06 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: Date/Time: 1-23-23-1230

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWIN INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT # 16 SERIAL #: 1102746776

MONITORING DATE: 1-23-23 TIME: 1230

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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 (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	0.10 ppm	23 ppm	2
#2	0.07 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: Steven Vesnai Date/Time: 1-23-23-1230

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REONIIO INSTRUMENT MAKE tHErmo

MODEL: tVA1000 EQUIPMENT # 16 SERIAL #: 1036346773

MONITORING DATE: 1-24-23 TIME: 1605

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	24 ppm	21.6 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	0.09 ppm	24 ppm	1
#2	0.05 ppm	24 ppm	1
#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: Lois Lunok Date/Time: 1-24-23-1605

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 1-24-23 TIME: 1605

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	0.13 ppm	23 ppm	2
#2	0.09 ppm	25 ppm	0
#3	0.06 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: Chris Hughes Date/Time 1-24-23-1605

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE THERMO

MODEL: TVA 1000 EQUIPMENT # 12 SERIAL #: 1036246741

MONITORING DATE: 1-24-23 TIME 1605

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: $\frac{\text{(Upwind + Downwind)}}{2}$
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	0.10 ppm	24 ppm	1
#2	0.08 ppm	25 ppm	0
#3	0.06 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: George Stroup Date/Time: 1-24-23-1605

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO
MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775
MONITORING DATE 1-24-23 TIME 1605

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	22.5 ppm	7
#2	25 ppm	22.5 ppm	7
#3	25 ppm	22.5 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 = 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 $\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$			1.3 #DIV/0! Must be less than 10%

Performed By: Miguel Estrada Date/Time: 1-24-23 -1605

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE THERMO

MODEL: TVA1000 EQUIPMENT # 16 SERIAL #: 1162746776

MONITORING DATE: 1-24-23 TIME: 1605

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 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	24 ppm	21.6 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	0.11 ppm	23 ppm	2
#2	0.07 ppm	24 ppm	1
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		4.0 #DIV/0! Must be less than 10%

Performed By Steven Vesaoi Date/Time: 1-24-23-1605

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 1-25-23 TIME: 0525

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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: Lois h Warr Date/Time: 1-25-23 – 0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE Thermo

MODEL: TVA1000 EQUIPMENT # 11 SERIAL #: 1036346774

MONITORING DATE: 1-25-23 TIME: 0525

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	0.06 ppm	25 ppm	0
#3	0.04 ppm	25 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{25} \times \frac{100}{1}$		2.6 #DIV/0! Must be less than 10%

Performed By: Chris Hes Los Date/Time: 1-25-23-0525

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWING INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE 1-25-23 TIME: 0525

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	24 ppm	21.6 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	0.14 ppm	23 ppm	2
#2	0.09 ppm	24 ppm	1
#3	0.06 ppm	25 ppm	0
Calculate Precision	**[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1 / 25 X 100 / 1**		4.0 #DIV/0! Must be less than 10%

Performed By GEORGE STROUP Date/Time 1-25-23 -0525

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL tvA1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 1-25-23 TIME: 0525

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	0.09 ppm	24 ppm	1
#2	0.06 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: Michael Ashcroft Date/Time 1-25-23-0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo
MODEL: TVA 2020 EQUIPMENT #: 16 SERIAL #: 1102746776
MONITORING DATE: 1-25-23 TIME: 0525

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
2.2 ppm	2.8 ppm	2.5 ppm

Background Value = 2.5 **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	0.12 ppm	23 ppm	2
#2	0.06 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		2.6 #DIV/0! Must be less than 10%

Performed By: Steven Ursino Date/Time 1-25-23 -0525

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 1-7-23 Time: 0800

Model # TVA-1000

Serial # #10 1036346273

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 68 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 1-7-23

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. 5
2. 5
3. 5

Average 5.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH_4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 1-7-23 Time: 0815

Model # TVA 1000

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST

Battery test	[✓ Pass] / Fail
Reading following ignition	2.6 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	1-9-23
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. 6
3. 5

Average 5.6
Equal to or less than 30 seconds? [✓ Y] N
Instrument calibrated to CH4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 1-7-23 Time: 0830

Model # tva 1000

Serial # #12 1036246744

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	1-7-23
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. 5
2. 5
3. 6

Average 5.3

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 1-7-23 Time: 0845

Model # TVA 1000

Serial # #13 1102746775

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.6 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 1-7-23

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. 6
3. 6

Average 6.0

Equal to or less than 30 seconds? [✓ Y] N

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:

Date: 1-7-23 Time: 0930

Model # TVA 1000

Serial # #16 1102746716

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	1-7-23
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. 6
3. 6

Average 6.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to [illegible] gas.

Comments:

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 10

SERIAL NUMBER: 1036346773

TECHNICIAN: DATE: 1-7-23

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	0.49	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 11

SERIAL NUMBER: 1036346774

TECHNICIAN: M M

DATE: 1-7-23

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	10,011	+/- 2500
< 1	ZERO GAS	0.62	< 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.

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: NES Unit #12

SERIAL NUMBER: 1036246741

TECHNICIAN: M M DATE: 1-7-23

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	0.41	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 1102746775

TECHNICIAN: DATE: 1-9-23

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	0.01	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #16

SERIAL NUMBER: 1102746776

TECHNICIAN: M M DATE: 1-7-23

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	501	+/- 125
10000	10000	10104	+/- 2500
< 1	ZERO GAS	0.58	< 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.

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687 (USA)
Phone (800) 552-5003, Fax (208) 466-9143
www.isgases.com

INTERMOUNTAIN
SPECIALTY GASES
"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


viroSupply
Service
INC.
Concentration (Mole%)
Accuracy
- 20.9% Oxygen
- Bal. Nitrogen
Contents: 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
Oxygen
103 L
Lot #

INTERMOUNTAIN SPECIALTY GASES
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800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

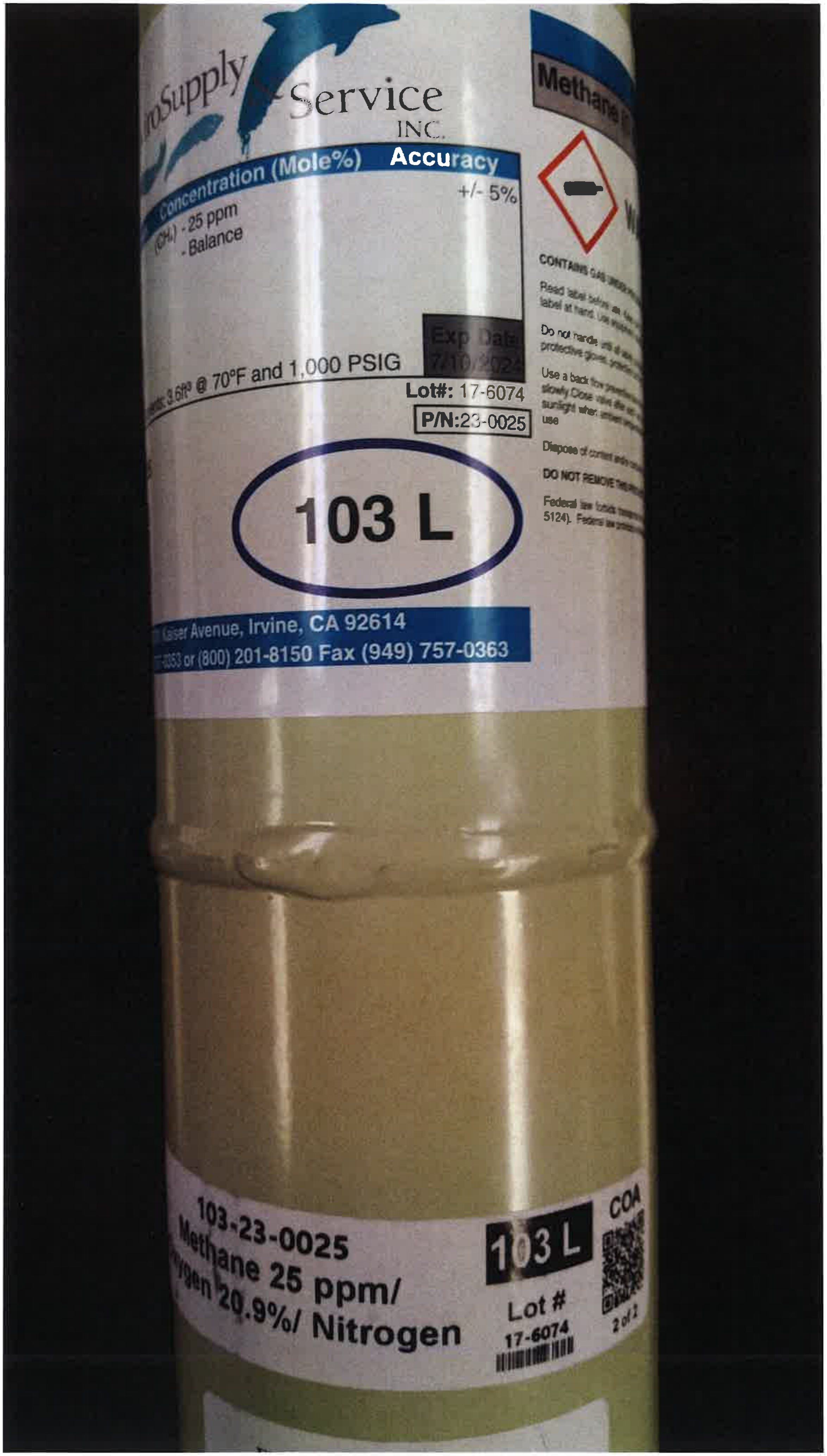
Lot # 17-6074

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


roSupply Service INC.
Concentration (Mole%)
Accuracy
(CH₄) - 25 ppm
- Balance
+/- 5%
Exp Date
7/10/2024
ents: 3.6ft³ @ 70°F and 1,000 PSIG
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
-0363 or (800) 201-8150 Fax (949) 757-0363
Methane
CONTAINS GAS UNDER
Read label before use
label at hand.
Do not handle until all
protective gloves
Use a back flow
slowly. Close valve
sunlight when
use
Dispose of content
DO NOT REMOVE THIS
Federal law forbids
5124). Federal law
103-23-0025
Methane 25 ppm/
xygen 20.9%/ Nitrogen
103 L
COA
Lot #
17-6074
2 of 2

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	

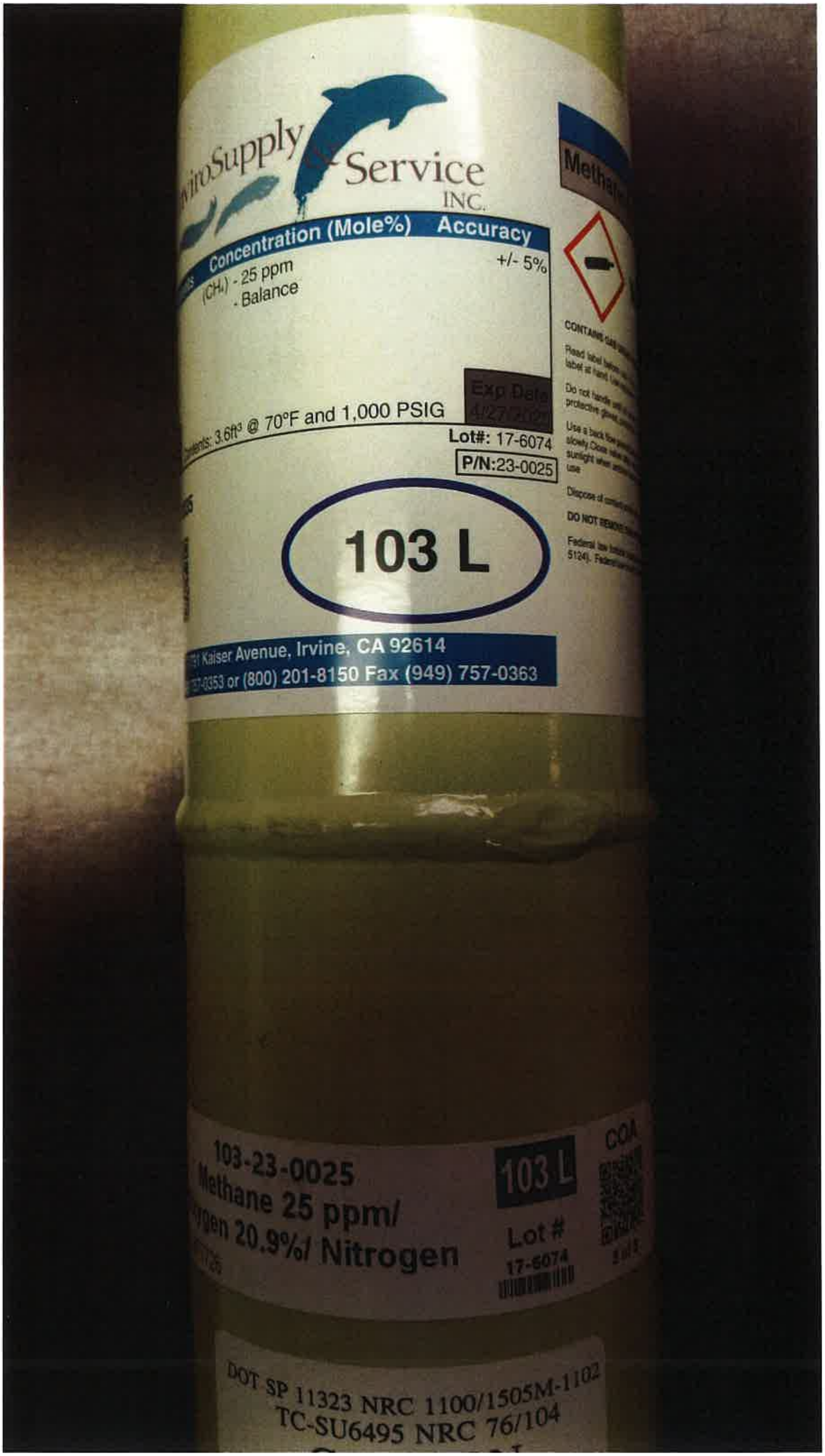
Lot # 17-6074

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


viroSupply
Service
INC.
Metha
Concentration (Mole%)
Accuracy
(CH$_4$) - 25 ppm
- Balance
+/- 5%
Exp Date
ntents: 3.6ft^3 @ 70°F and 1,000 PSIG
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
103-23-0025
ethane 25 ppm/
gen 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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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

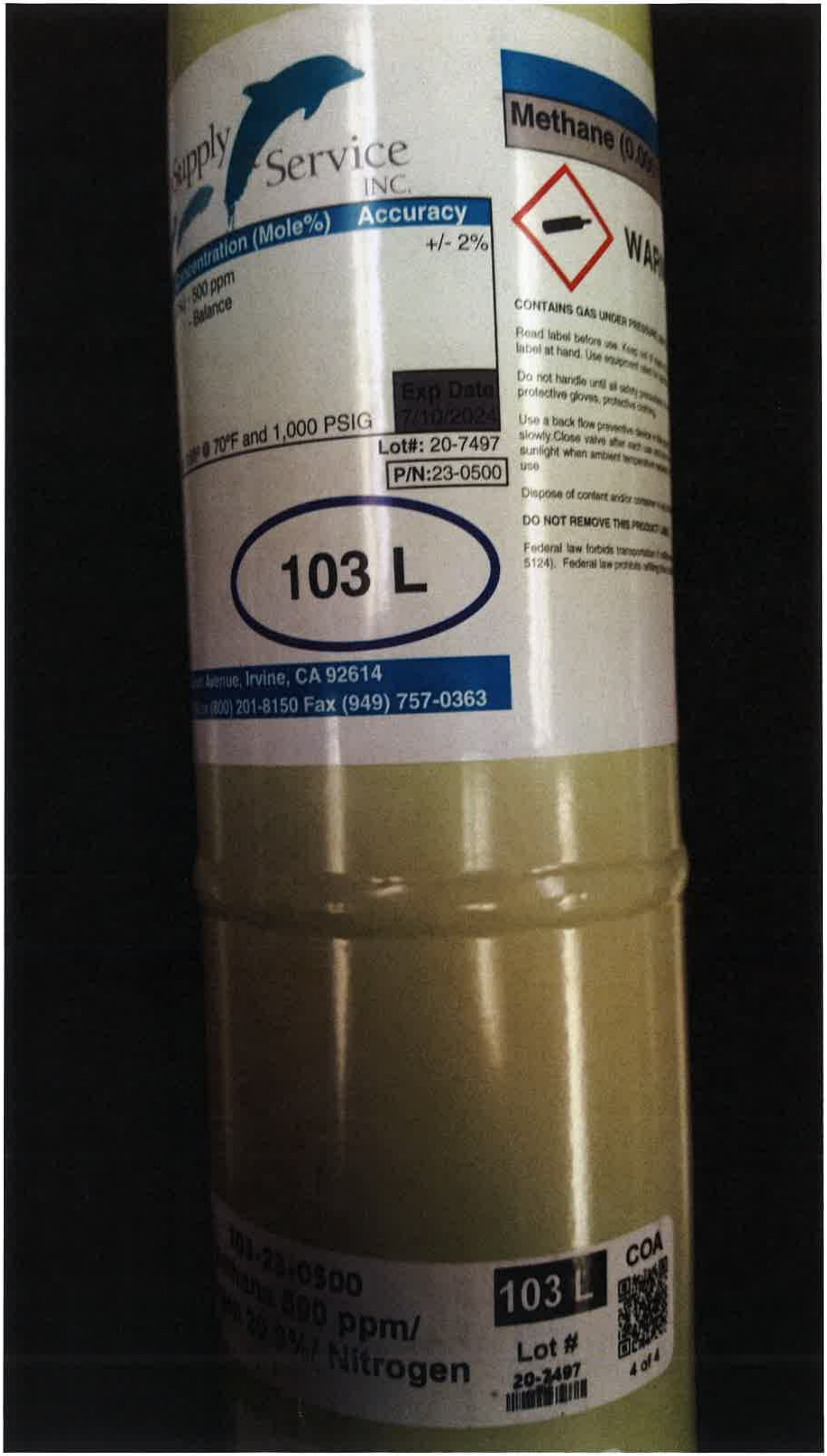
Method of Preparation:

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



Supply Service INC.
Concentration (Mole%)
Accuracy
+/- 2%
500 ppm
Balance
Exp Date
7/10/2024
@ 70°F and 1,000 PSIG
Lot#: 20-7497
P/N:23-0500
103 L
Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
Methane
CONTAINS GAS UNDER PRESSURE
DO NOT REMOVE THIS PRODUCT
103-23-0500
ppm/
Nitrogen
103 L
Lot #
20-7497
COA
4 of 4

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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	500 ppm	± 2%
Air	Balance	

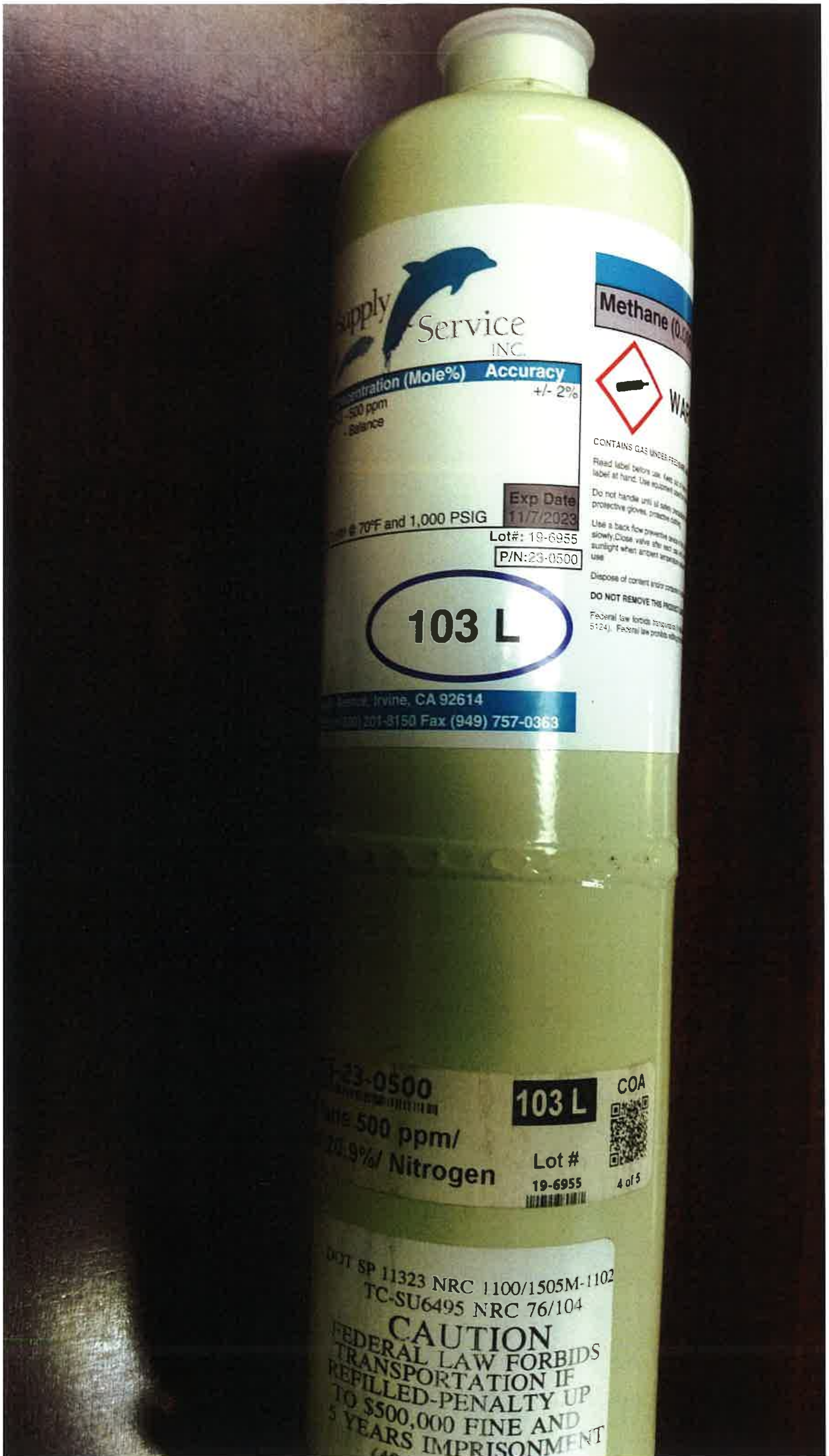
Lot # 19-6955

Mfg. Date: 7/24/2019
Parent Cylinder ID Number: 001763

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: 7/24/2019


Supply Service INC.
Methane
Concentration (Mole%)
Accuracy
+/- 2%
500 ppm
Balance
WA
CONTAINS GAS UNDER PRESSURE
Exp Date
11/7/2023
@ 70°F and 1,000 PSIG
Lot#: 19-6955
P/N:23-0500
DO NOT REMOVE THIS PRODUCT
103 L
Irvine, CA 92614
Fax (949) 757-0363
23-0500
103 L
COA
500 ppm/
20.9%/ Nitrogen
Lot #
19-6955
4 of 5
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104
CAUTION
FEDERAL LAW FORBIDS
TRANSPORTATION IF
REFILLED-PENALTY UP
TO $500,000 FINE AND
5 YEARS IMPRISONMENT

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www.isgases.com

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Composition	Certification	Analytical Accuracy (+/-)
Methane	500 ppm	2%
Oxygen	20.9 %	2%
Nitrogen	Balance UHP	

Lot #	**18-6641**
Mfg. Date:	12/18/2018
Expiration Date:	
Transfill Date:	see cylinder
Parent Cylinder ID Number:	001763

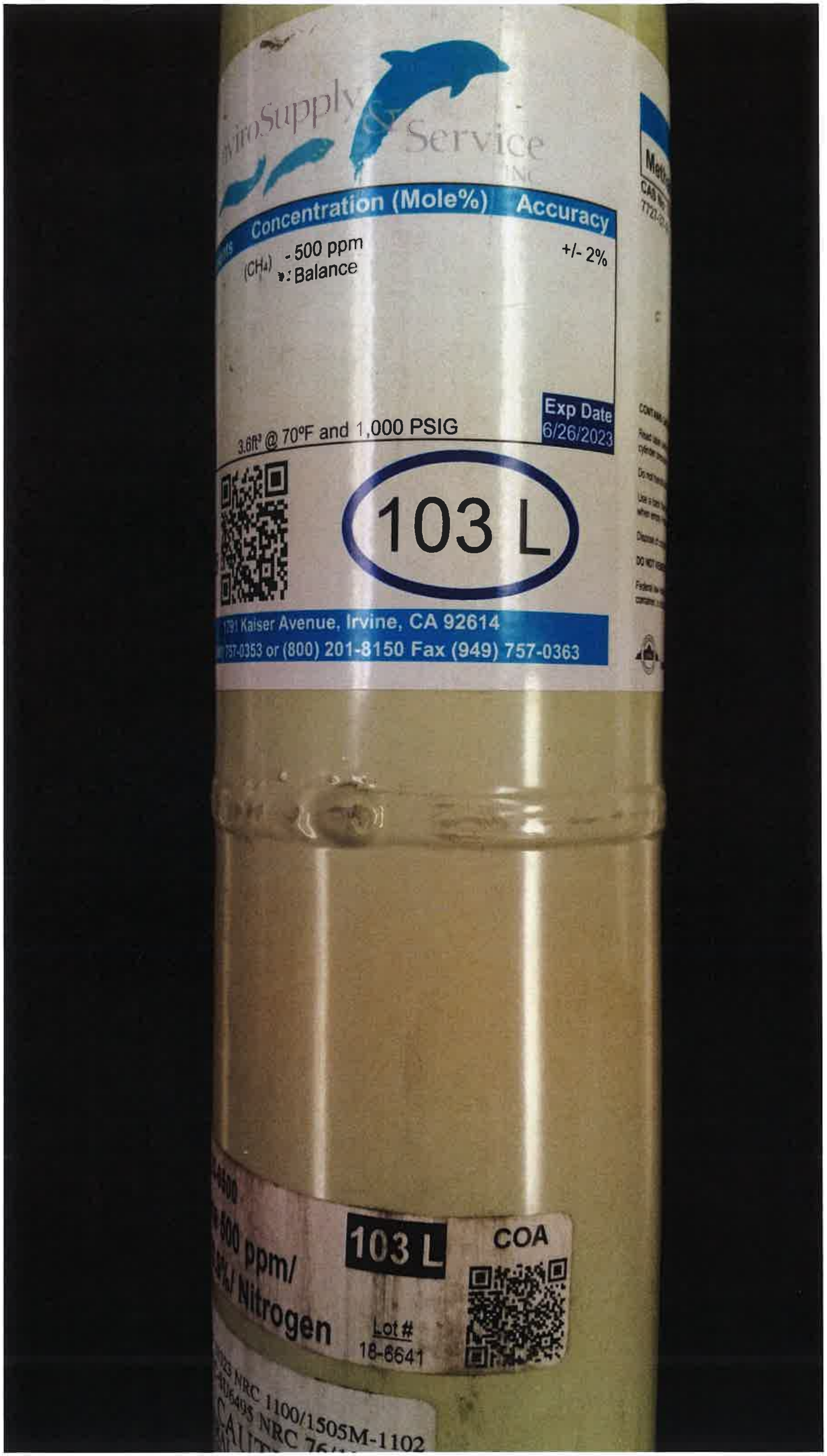
Method of Preparation:

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: 12/18/2018


EnviroSupply & Service INC
Concentration (Mole%)
Accuracy
(CH4) - 500 ppm
: Balance
+/- 2%
Exp Date
6/26/2023
3.6ft³ @ 70ºF and 1,000 PSIG
103 L
1791 Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
500 ppm/
Nitrogen
103 L
COA
Lot #
18-6641
NRC 1100/1505M-1102
NRC 75/
CAUTI

NorLAB
A DIVISION OF NORCO INC
Calibration Gases & Equipment

CERTIFICATE OF ANALYSIS

Premier Safety & Service

46400 Continental Drivve
Chesterfield ,MI 48047

Cust Number 07152
Order Number 62891146
PO Number 04548169

Lot Number 9-326-80
Norlab Part# J1971500PA
Cylinder Size 103 Liter
Number of Cyl 1

Customer Part# N/A

Date on Manufacture 12/31/2019
Expires 12/2022
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.

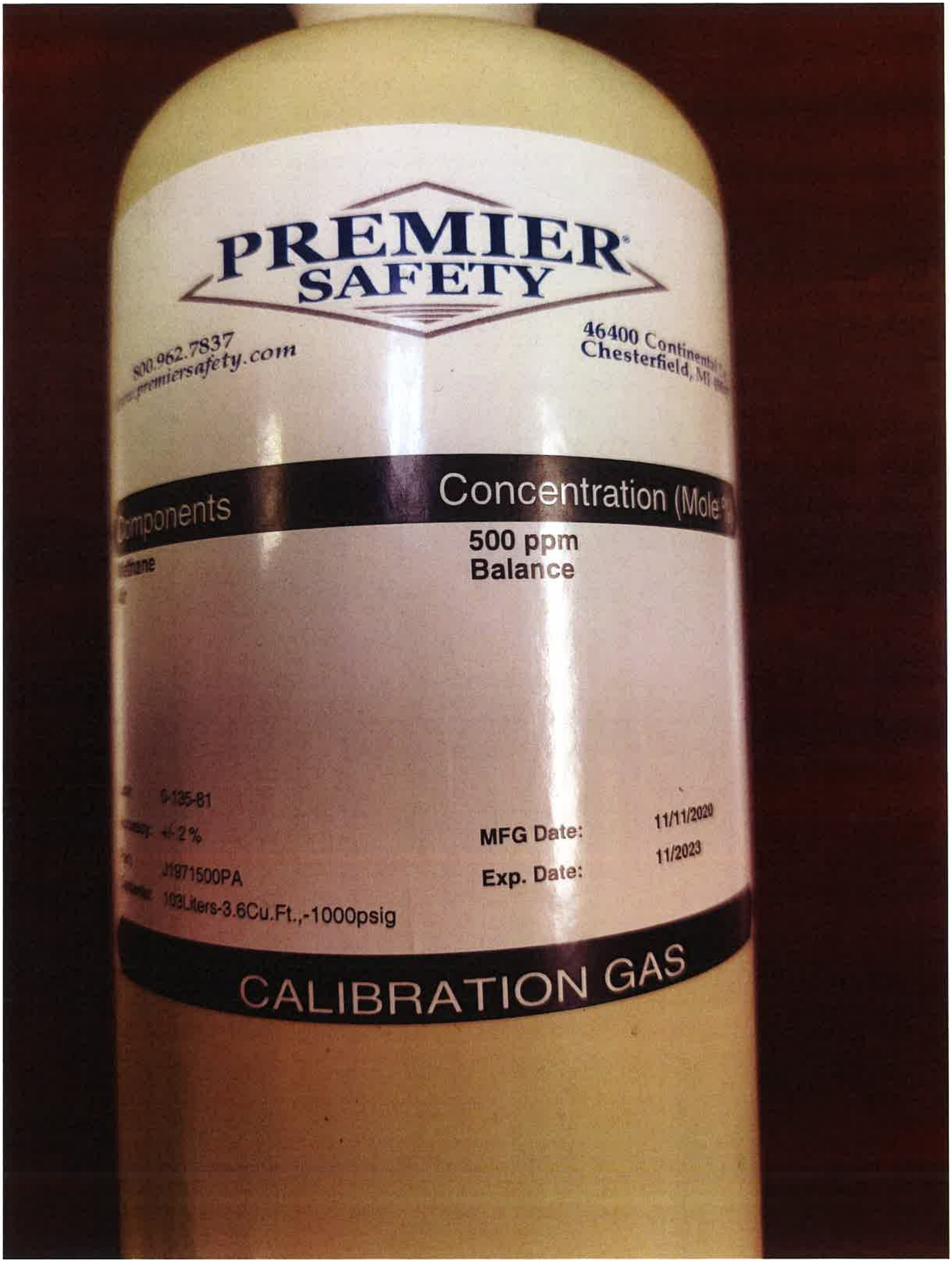
The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs.

NIST Traceable Numbers 20180519 and 20180224

Approved: Date Signed: 12/31/2019

David Reed
Lab Technician

898 W. GOWEN ROAD • BOISE, IDAHO 83705
Phone (208) 336-1643 • Fax (208) 331-3038 • 800-657-6672



omponents

ethane

Concentration (Mole

500 ppm

Balance

9-135-81

+/-2 %

J1971500PA

103Liters-3.6Cu.Ft.,-1000psig

MFG Date: 11/11/2020

Exp. Date: 11/2023

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Calibration Gases & Equipment

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

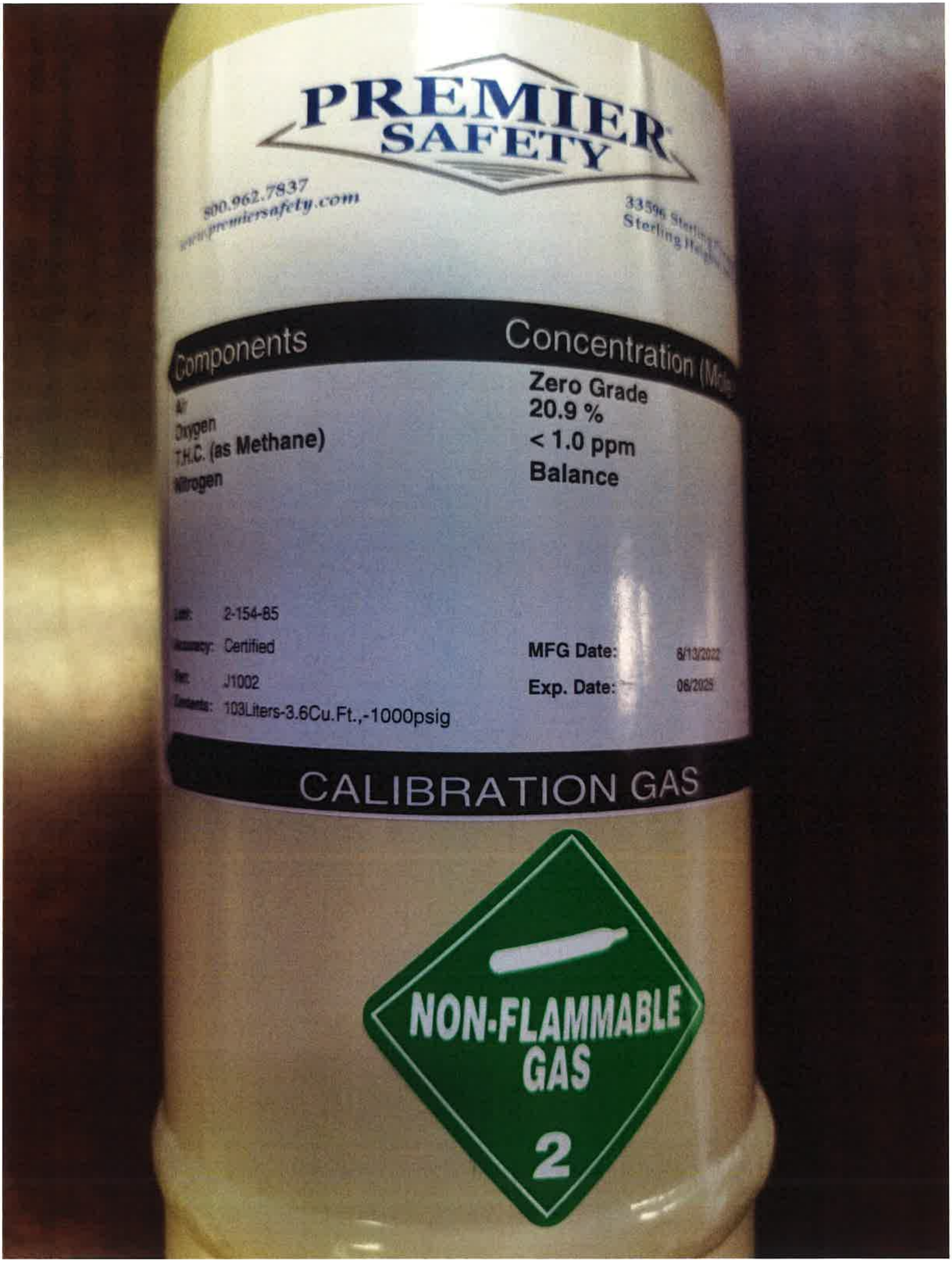
Storage: Keep away from heat, flames, and sparks. Store and use with adequate ventilation. Close valve when not in use and when empty. Never allow cylinder temperature to exceed 125 degrees F.

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: Date Signed: 6/13/2022
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
www.premiersafety.com

33596 Sterling
Sterling Heigh

Components	Concentration (Mol
Air	Zero Grade
Oxygen	20.9 %
T.H.C. (as Methane)	< 1.0 ppm
Nitrogen	Balance

Lot: 2-154-85
Accuracy: Certified
Ser: J1002
Contents: 103Liters-3.6Cu.Ft.,-1000psig

MFG Date: 6/13/2022
Exp. Date: 06/2025

CALIBRATION GAS

NorLAB®
A DIVISION OF NORCO, INC.
Calibration Gases & Equipment

CERTIFICATE OF ANALYSIS

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 %

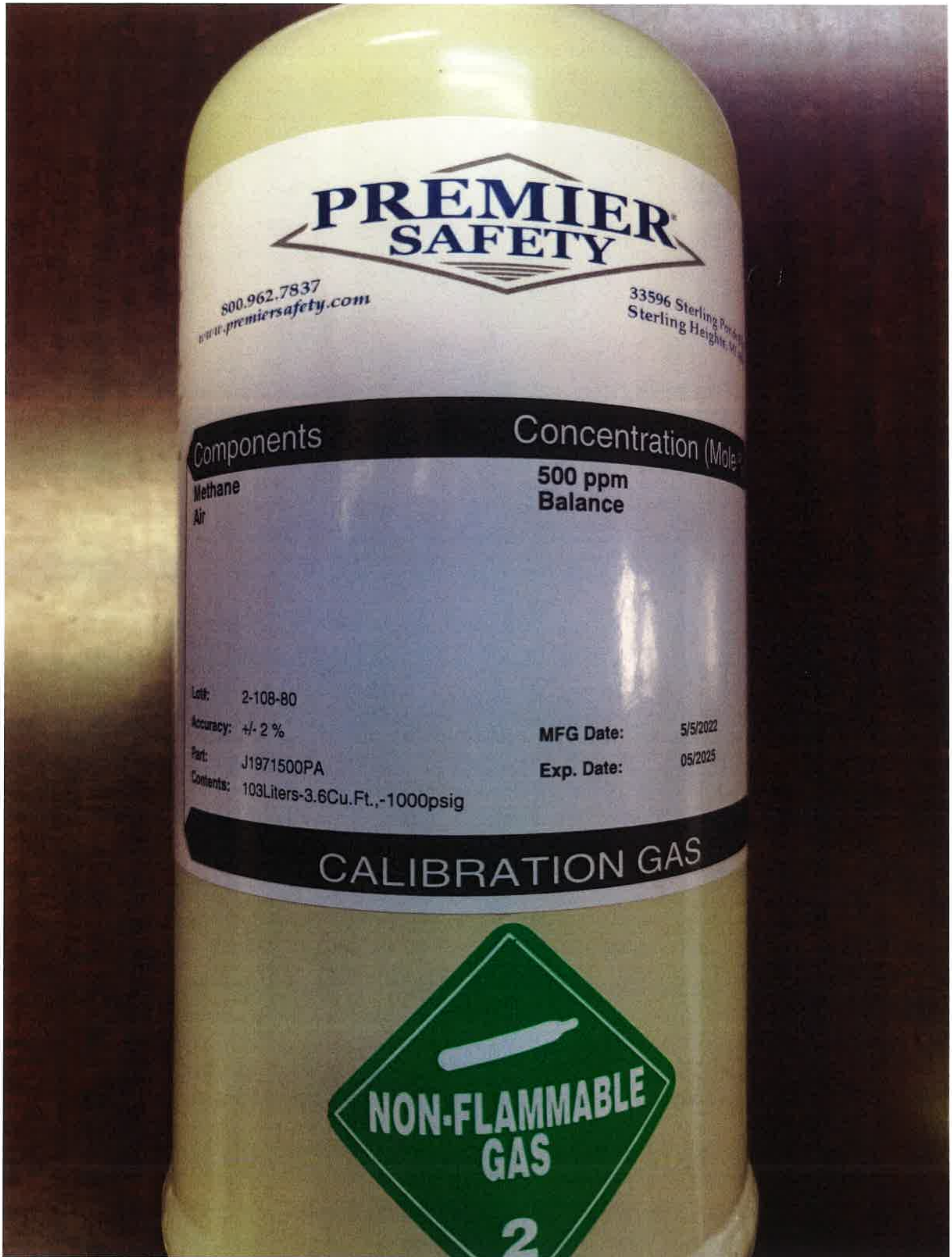
Customer Part# N/A

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: ______________________ Date Signed: 6/10/2022
David Reed
Lab Technician



PREMIER SAFETY

800.962.7837
www.premiersafety.com

33596 Sterling Pon
Sterling Heights, MI

Components	Concentration (Mole
Methane	500 ppm
Air	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


EQUIPCO
SALES & SERVICE
2100 MERIDIAN PARK BLVD
Concord, CA 94520
TO REORDER CALL 1 (888) 234-5678
AIR, ULTRA ZERO
THC <0.2 PPM
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
Lot# 260362
P/N AIR-ZER-103L
EXP: JAN/2025
EQUIPCO
SALES & SERVICE
2100 MERIDIAN PARK BLVD
Concord, CA 94520
TO REORDER CALL 1 (888) 234-5678
METHANE 500ppm
AIR BALANCE
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
Lot# 260447
P/N MET-500-103L
EXP: JAN/2025

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

April 13, 2023

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

Re: March 2023 Surface Emissions Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)"** contains the results of the March 2023 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.

MARCH 2023 SEM RESULTS

The Instantaneous surface monitoring was performed on March 28, 2023, 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 March 28, 2023. 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

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

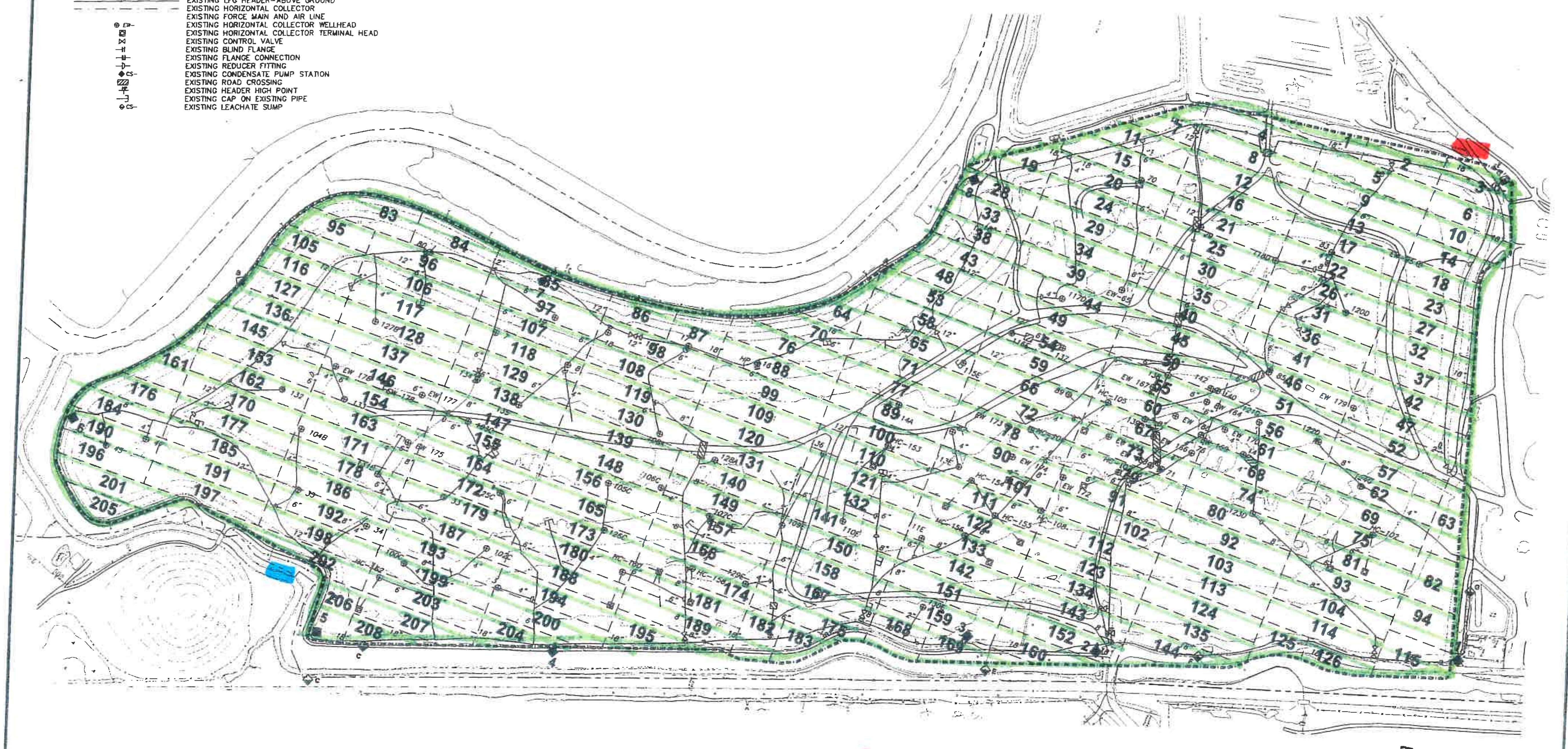
- Instrument and Gas Calibration Records

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
- ⊕ EP- 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



🟥 = DOWNWIND

🟦 = UPWIND

🟩 = ROUTE WALKED

NSPS 3-28-23

Linewalk

NO EXCEDANCES

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

REDWOOD LANDFILL

AS-BUILT GCCS PLAN

2015 GCCS IMPROVEMENTS

NOVATO CALIFORNIA MARIN COUNTY

DESIGN BY:	N/A
DRAWN BY:	STAFF
DATE:	NOV 2015
SCALE:	1"=200'
PAGE OF	1 1
JOB NUMBER: 15341	

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

2023 Month: March
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**			**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	
No Exceedances on March 28, 2023											

Attachment B

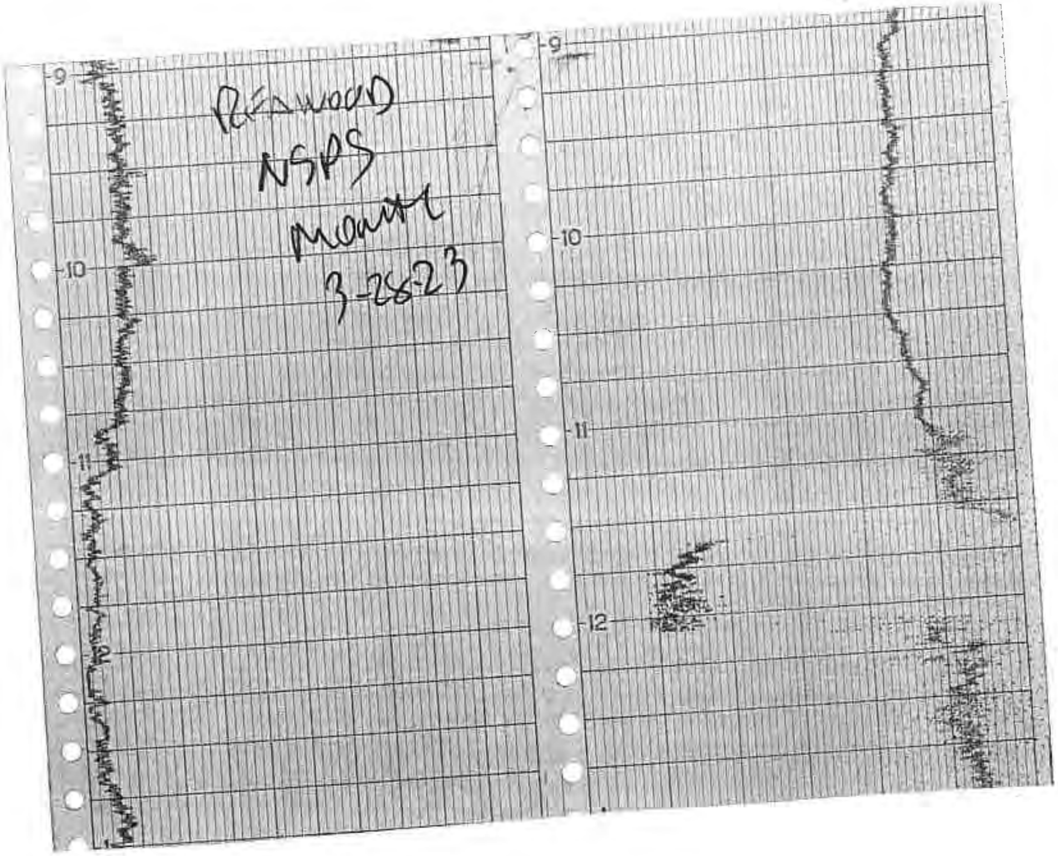
Weather Station Data

RES
Environmental Inc.

16-POINT WIND DIRECTION INDEX

NO	DIRECTION	DEGREES FROM	 CENTER	 TO
16	NORTH (N)	348.8	369.0	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

WIND SPEED & DIRECTION CHART ROLL



REDWOOD
NSPS
Monitor
3-28-23

Attachment C

Calibration Records

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 3-28-23 TIME: 0910

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	2.4 ppm	2.2 ppm

Background Value = 2.2 **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	515 ppm	455 ppm	5
#2	510 ppm	451 ppm	5
#3	510 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	0.11 ppm	515 ppm	5
#2	0.09 ppm	510 ppm	0
#3	0.04 ppm	503 ppm	0
Calculate Precision	**[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1**		0.33 #DIV/0! Must be less than 10%

Performed By: LEISH CLARK Date/Time: 3-28-23-0910

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 3-28-23 TIME: 0910

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	2.4 ppm	2.2 ppm

Background Value = 2.2 **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	491 ppm	441 ppm	6
#2	500 ppm	450 ppm	6
#3	500 ppm	450 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 = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.14 ppm	491 ppm	9
#2	0.09 ppm	500 ppm	0
#3	0.06 ppm	500 ppm	0
Calculate Precision	$\frac{\text{[STD-B1] + [STD-B2] + [STD-B3]}}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.60 #DIV/0! Must be less than 10%

Performed By: George Stroup Date/Time: 3-28-23-0910

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: Thermo
MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1636246741
MONITORING DATE: 3-28-23 TIME: 0910

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 506 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	2.4 ppm	2.2 ppm

Background Value = 2.2 **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	502 ppm	452 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	0.10 ppm	455 ppm	5
#2	0.08 ppm	502 ppm	2
#3	0.04 ppm	510 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: Jovani Medina Date/Time: 3-28-23-0910

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 13 SERIAL # 1102746775

MONITORING DATE: 3-28-23 TIME: 0910

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	2.4 ppm	2.2 ppm

Background Value = 2.2 **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	0.07 ppm	498 ppm	2
#3	0.05 ppm	500 ppm	0
Calculate Precision	$\frac{[STD-B1] + [STD-B2] + [STD-B3]}{3} \times \frac{1}{500} \times \frac{100}{1}$		0.40 #DIV/0! Must be less than 10%

Performed By: Date/Time: 3-28-23-0910

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE Thermo
MODEL: TVA1000 EQUIPMENT #: 16 SERIAL #: 1102746776
MONITORING DATE: 3-28-23 TIME: 0910

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	2.4 ppm	2.2 ppm

Background Value = 2.2 **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	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	0.11 ppm	504 ppm	4
#2	0.07 ppm	500 ppm	0
#3	0.05 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: Steven Vasnor Date/Time: 3-28-23- 0910

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 3-4-23 Time: 0845

Model # TVA 1000

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.0 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 1-7-23

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. 6
3. 6

Average 6.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 3-4-23 Time: 0900

Model # TVA 1000

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.0 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 1-7-23

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. 6
3. 5

Average 9.6

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH_4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 3-4-23 Time: 0915

Model # tva 1000

Serial # #12 1036246741

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.0 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 1-7-23

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. 5
2. 5
3. 6

Average 5.3

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH_4 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:

Date: 3-4-23 Time: 0930

Model # TVA 1000

Serial # #13 1102746775

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 1-7-23

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. 6
3. 6

Average 6.0

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

RES
Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site:

Purpose:

Operator:

Date: 3-4-23

Time: 1015

Model # TVA 1000

Serial # #16 1102746776

INSTRUMENT INTEGRITY CHECKLIST

Battery test [✓ Pass] / Fail

Reading following ignition 2.1 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 1-7-23

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 5.3

Equal to or less than 30 seconds? [✓ Y] N

Instrument calibrated to CH4 gas.

Comments:

465

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 10

SERIAL NUMBER: 1036346773

TECHNICIAN: DATE: 1-7-23

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	0,49	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit # 11

SERIAL NUMBER: 1036346774

TECHNICIAN: M M DATE: 1-7-23

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	10,011	+/- 2500
< 1	ZERO GAS	0.62	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #12

SERIAL NUMBER: 1036246741

TECHNICIAN: DATE: 1-9-23

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	0.41	< 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.

RES
Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 11027746775

TECHNICIAN: DATE: 1-9-23

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	0.01	< 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.

RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #16

SERIAL NUMBER: 1102746776

TECHNICIAN: DATE: 1-7-23

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	501	+/- 125
10000	10000	10104	+/- 2500
< 1	ZERO GAS	0.58	< 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.

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687 (USA)
Phone (800) 552-5003, Fax (208) 466-9143
www.isgases.com

INTERMOUNTAIN
SPECIALTY GASES
"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


viroSupply
Service
INC.
Concentration (Mole%)
Accuracy
- 20.9% Oxygen
- Bal. Nitrogen
Contents: 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 L
103-01-100
Oxygen
Lot #

INTERMOUNTAIN SPECIALTY GASES
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800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	25 ppm	± 5%
Air	Balance	

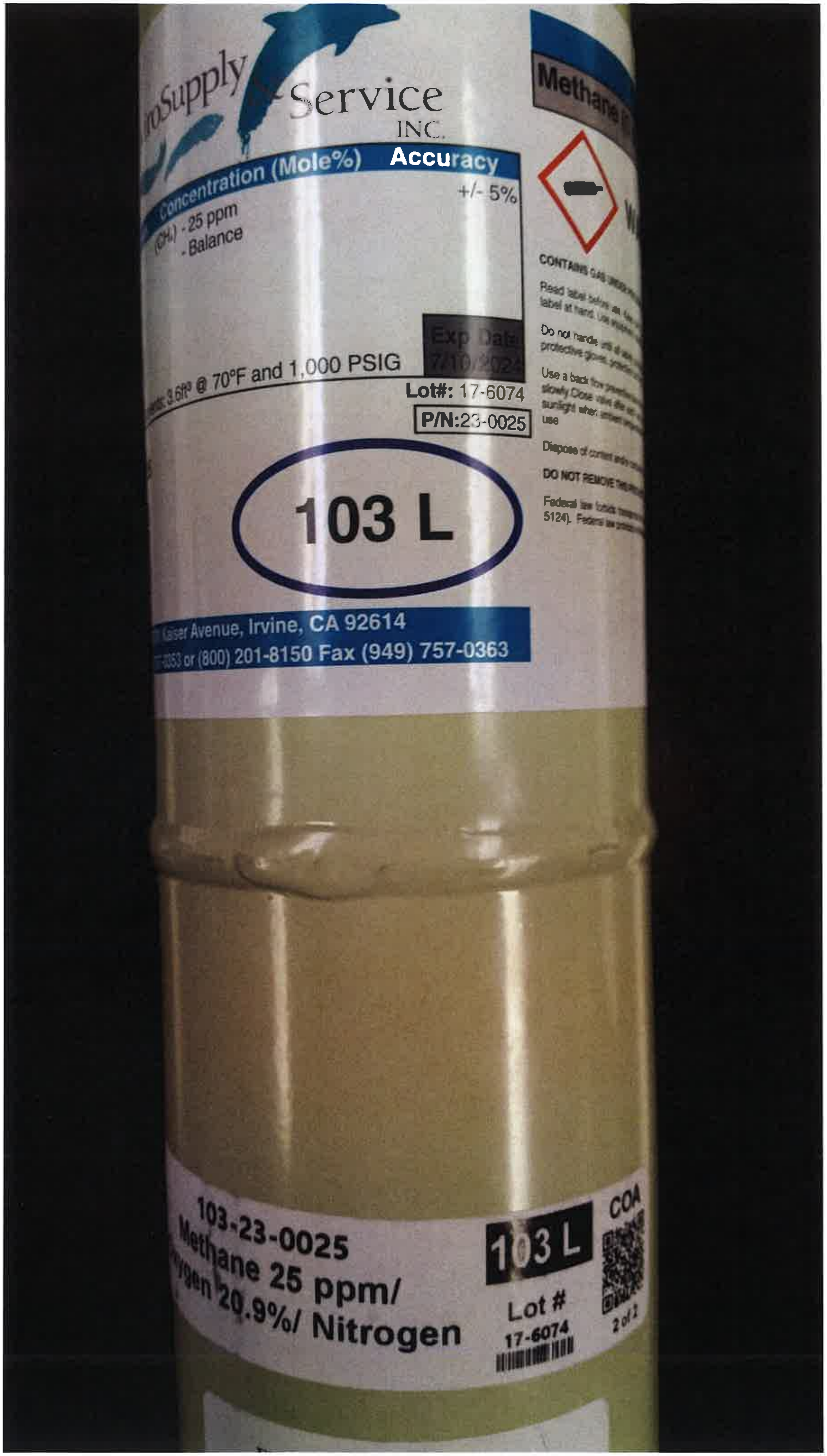
Lot # 17-6074

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


roSupply Service INC.
Concentration (Mole%)
Accuracy
(CH₄) - 25 ppm
- Balance
+/- 5%
Exp Date
7/10/2024
ents: 3.6ft³ @ 70°F and 1,000 PSIG
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
-0363 or (800) 201-8150 Fax (949) 757-0363
Methane
CONTAINS GAS UNDER
Read label before use
label at hand.
Do not handle until all
protective gloves
Use a back flow preventer
slowly. Close valve after
sunlight when ambient
use
Dispose of content and/or
DO NOT REMOVE THIS
Federal law forbids
5124). Federal law
103-23-0025
Methane 25 ppm/
ygen 20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
2 of 2

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	

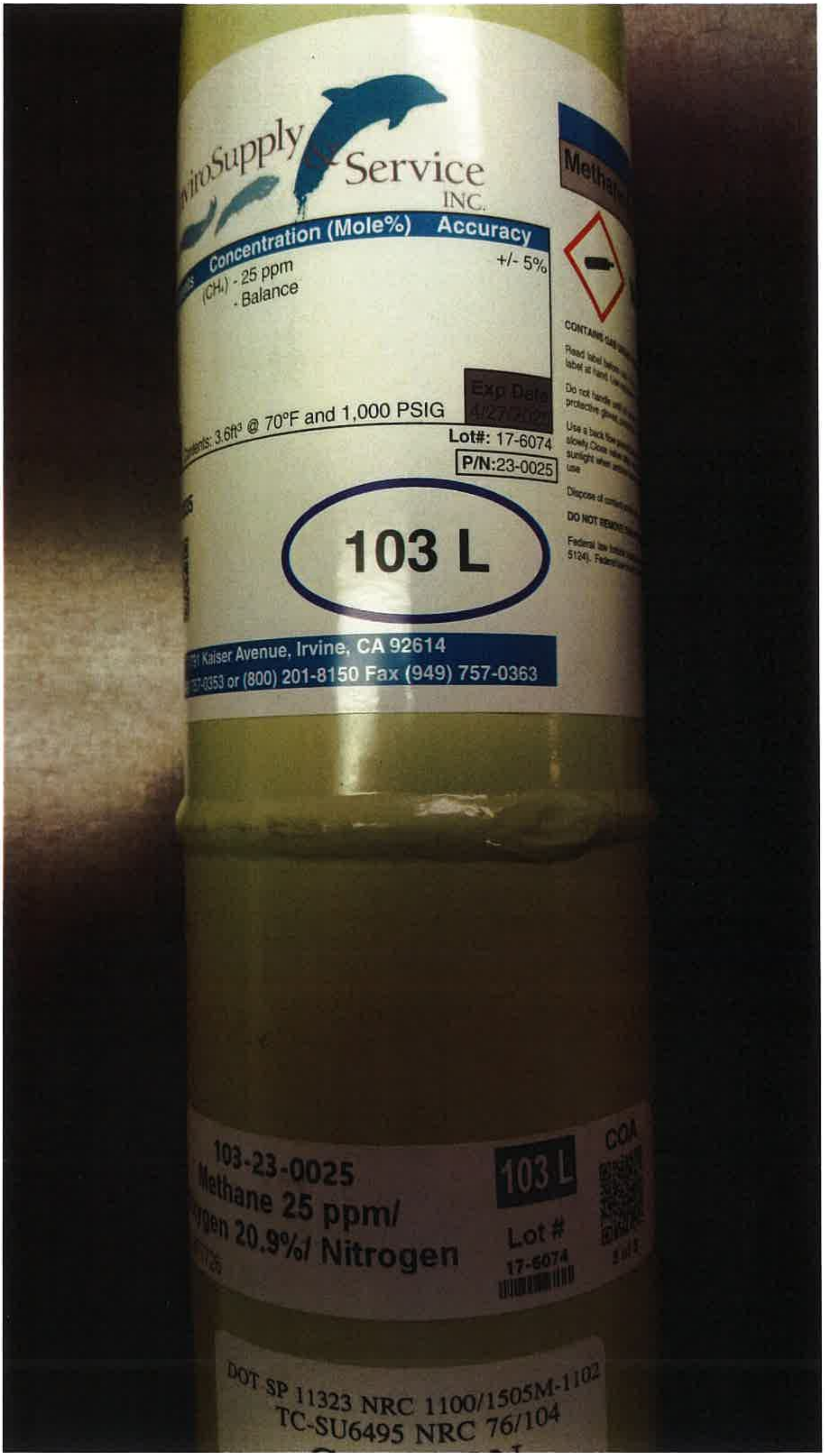
Lot # 17-6074

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


viroSupply & Service INC.
Concentration (Mole%)
Accuracy
(CH4) - 25 ppm
- Balance
+/- 5%
Exp Date
Contents: 3.6ft³ @ 70°F and 1,000 PSIG
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
Methane
103-23-0025
Methane 25 ppm/
gen 20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104

Intermountain Specialty Gases
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Nampa, ID 83687 (USA)
Phone (800) 552-5003, Fax (208) 466-9143
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INTERMOUNTAIN
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CERTIFICATE OF ANALYSIS

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

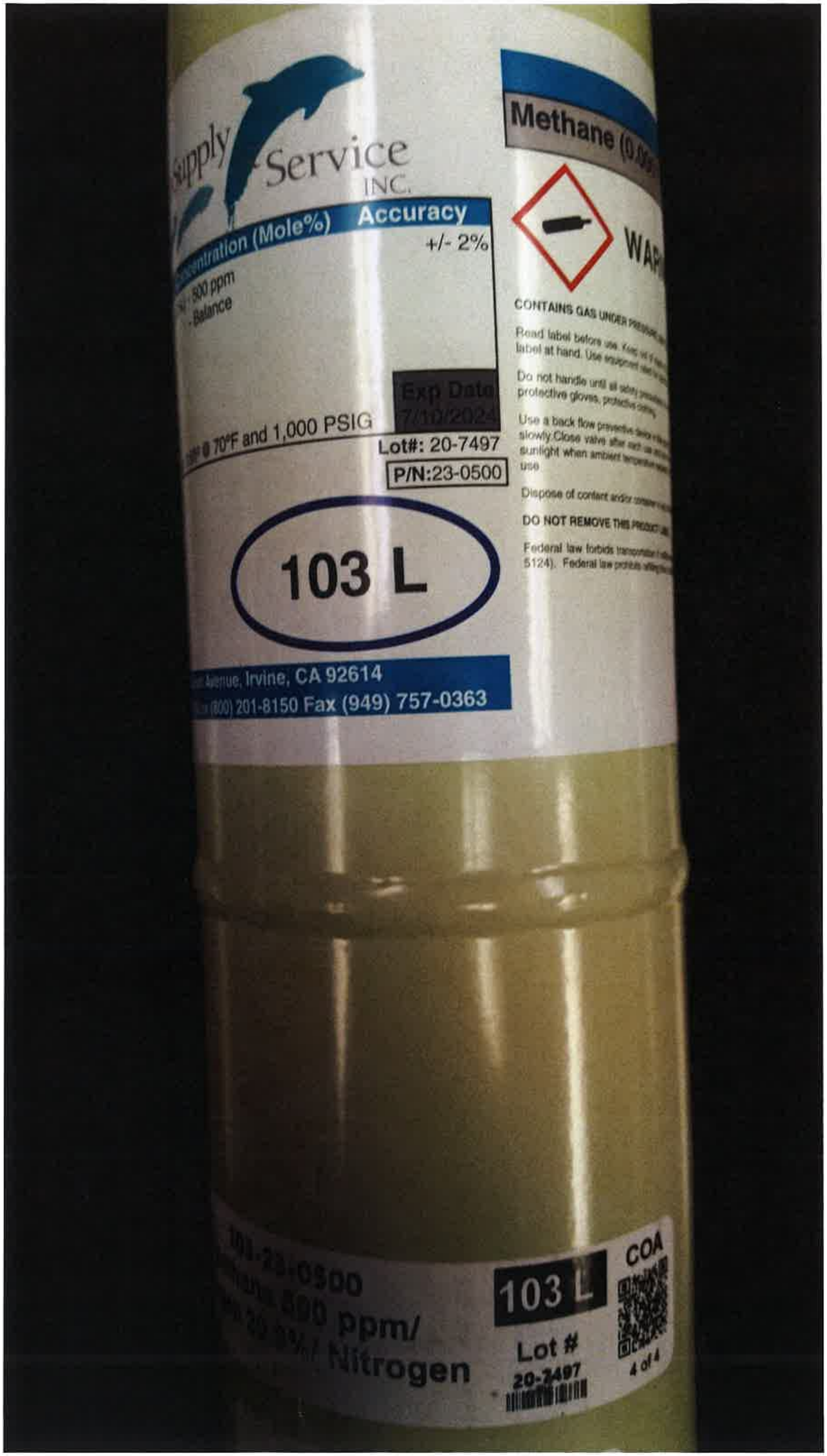
Method of Preparation:

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


Supply Service INC.
Concentration (Mole%)
Accuracy
+/- 2%
500 ppm
Balance
Exp Date
7/10/2024
@ 70°F and 1,000 PSIG
Lot#: 20-7497
P/N:23-0500
103 L
Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
Methane
CONTAINS GAS UNDER PRESSURE
Read label before use.
label at hand.
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
DO NOT REMOVE THIS PRODUCT LABEL
Federal law forbids transportation
5124). Federal law prohibits refilling
23-0500
500 ppm/
Nitrogen
103 L
Lot #
20-7497
COA
4 of 4

INTERMOUNTAIN SPECIALTY GASES
520 N. Kings Road • Nampa • Idaho • 83687
800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Methane	500 ppm	± 2%
Air	Balance	

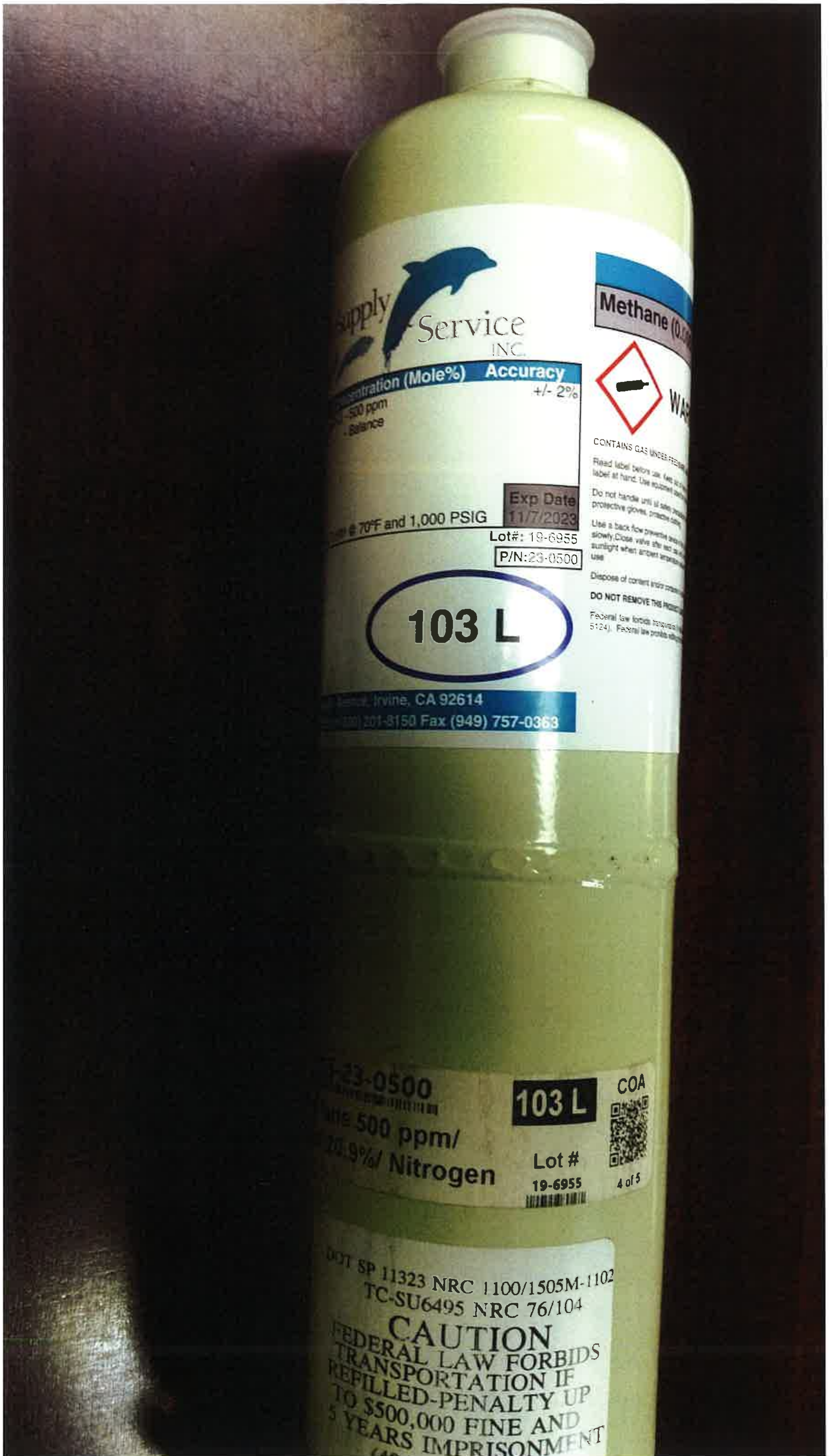
Lot # 19-6955

Mfg. Date: 7/24/2019
Parent Cylinder ID Number: 001763

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: 7/24/2019


Supply Service INC.
ntration (Mole%)
Accuracy
+/- 2%
500 ppm
Balance
Exp Date
11/7/2023
@ 70°F and 1,000 PSIG
Lot#: 19-6955
P/N:23-0500
103 L
Irvine, CA 92614
201-8150 Fax (949) 757-0363
Methane (0.
CONTAINS GAS UNDER PRE
DO NOT REMOVE THIS PRODU
23-0500
103 L
COA
500 ppm/
20.9%/ Nitrogen
Lot #
19-6955
4 of 5
DOT SP 11323 NRC 1100/1505M-1102
TC-SU6495 NRC 76/104
CAUTION
FEDERAL LAW FORBIDS
TRANSPORTATION IF
REFILLED-PENALTY UP
TO $500,000 FINE AND
5 YEARS IMPRISONMENT

Intermountain Specialty Gases
520 N. Kings Road
Nampa, ID 83687 (USA)
Phone (800) 552-5003, Fax (208) 466-9143
www.isgases.com

INTERMOUNTAIN
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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy (+/-)
Methane	500 ppm	2%
Oxygen	20.9 %	2%
Nitrogen	Balance UHP	

Lot #	18-6641
Mfg. Date:	12/18/2018
Expiration Date:	
Transfill Date:	see cylinder
Parent Cylinder ID Number:	001763

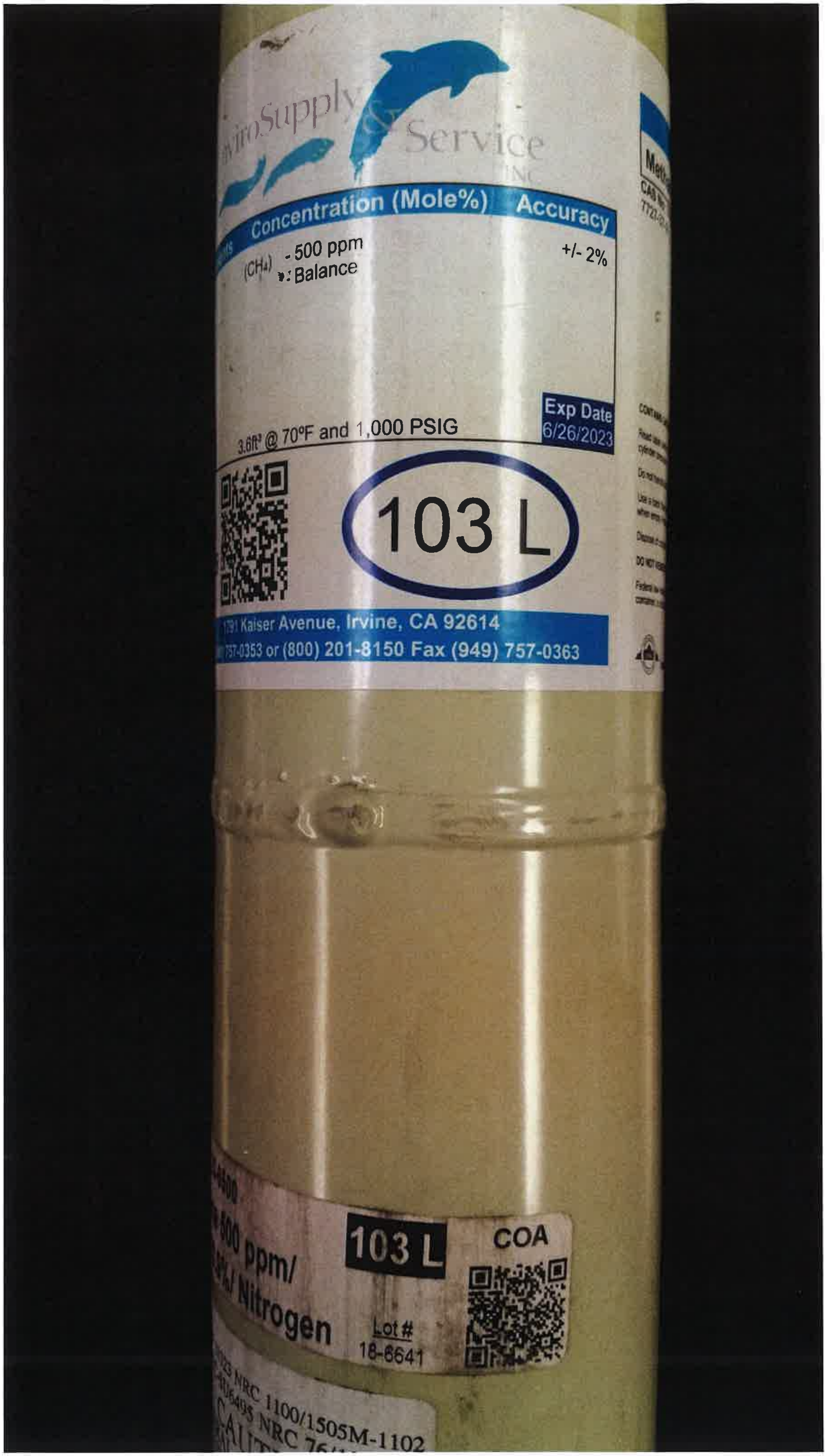
Method of Preparation:

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: 12/18/2018


viroSupply & Service
INC
Concentration (Mole%)
Accuracy
(CH4) - 500 ppm
: Balance
+/- 2%
Exp Date
6/26/2023
3.6ft³ @ 70ºF and 1,000 PSIG
103 L
1791 Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
CAS No
500 ppm/
Nitrogen
103 L
COA
Lot #
18-6641
NRC 1100/1505M-1102
NRC 76/

NorLab
A DIVISION OF NORCO INC.
· Calibration Gases & Equipment ·

CERTIFICATE OF ANALYSIS

Premier Safety & Service

46400 Continental Drivve
Chesterfield ,MI 48047

Cust Number 07152
Order Number 62891146
PO Number 04548169

Lot Number	9-326-80
Norlab Part#	J1971500PA
Cylinder Size	103 Liter
Number of Cyl	1

Date on Manufacture	12/31/2019
Expires	12/2022
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.

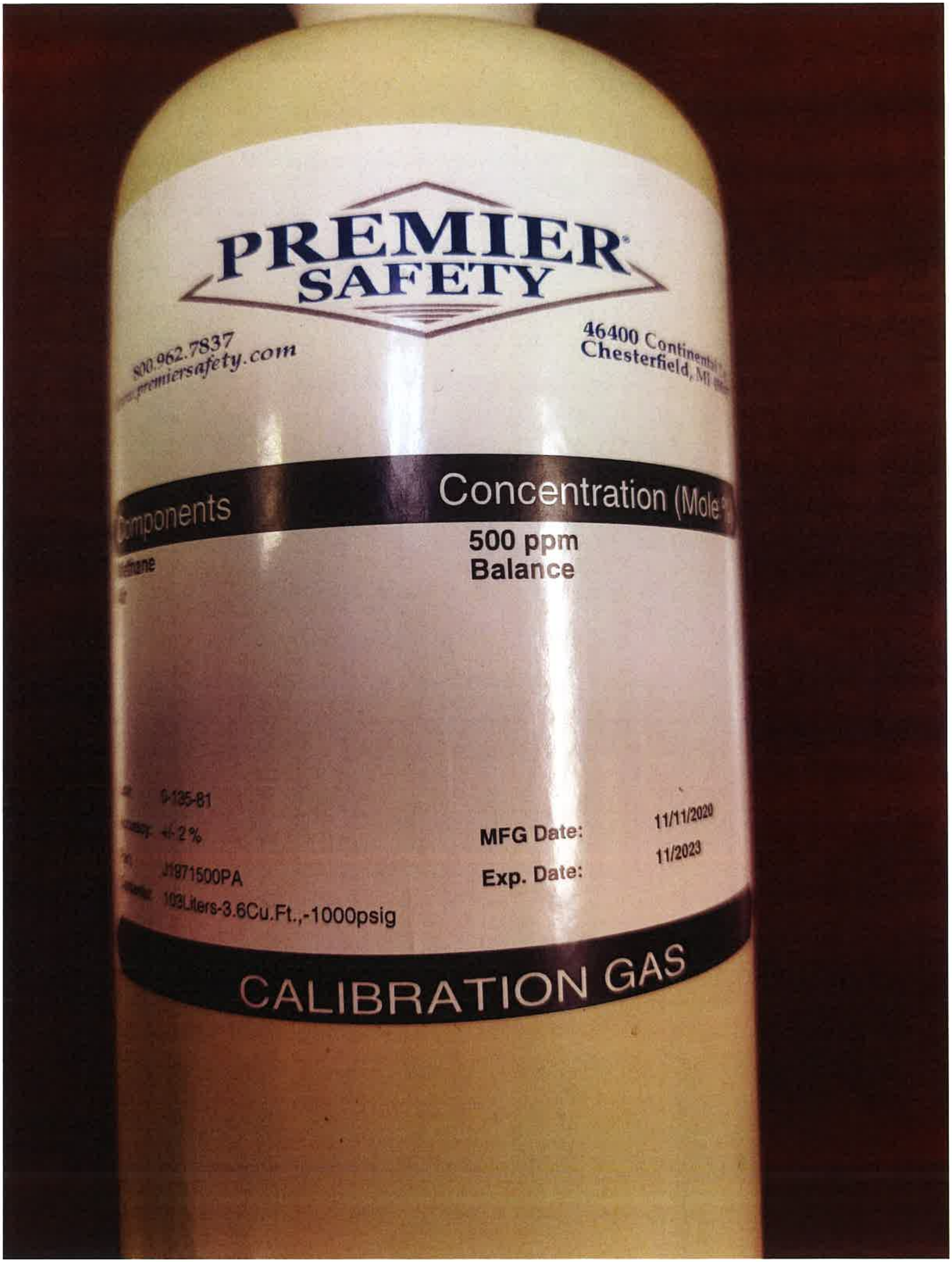
The cylinders in this lot were transfilled from cylinders prepared gravimetrically and traceable to the NIST by the certified weights used to calibrate the scale. The transfilled cylinders were then analyzed against standards traceable to the NIST by weights or SRMs.

NIST Traceable Numbers 20180519 and 20180224

Approved: D. Reed Date Signed: 12/31/2019

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
46400 Continental
Chesterfield, MI
Components
Concentration (Mole
500 ppm
Balance
9-135-81
+/- 2 %
J1971500PA
103Liters-3.6Cu.Ft.,-1000psig
MFG Date: 11/11/2020
Exp. Date: 11/2023
CALIBRATION GAS

NorLAB®
A DIVISION OF NORCO, INC.
Calibration Gases & Equipment

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

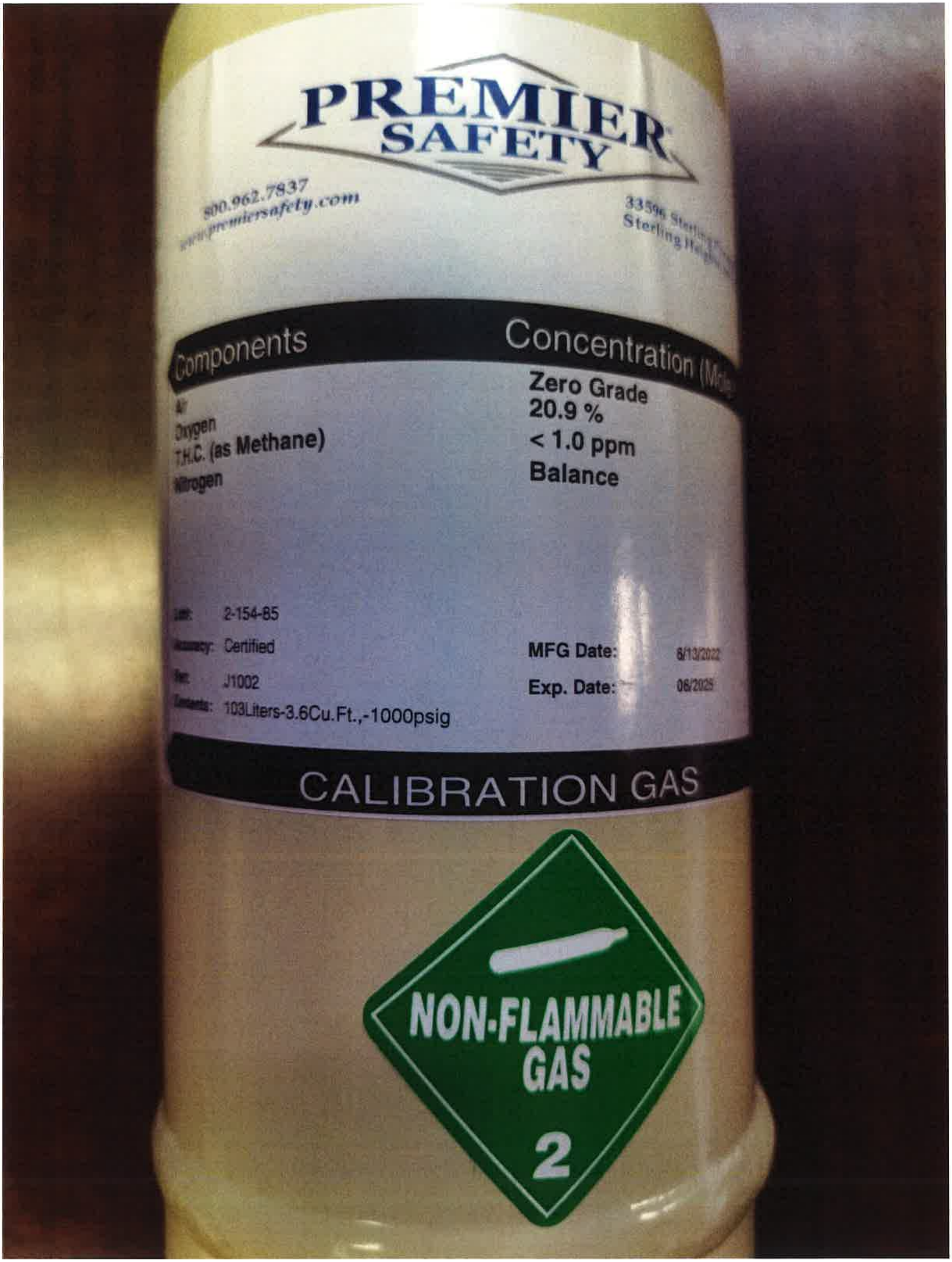
Component	**Reported Concentration**	**Requested Concentration**
Air	Zero Grade	Zero Grade
Oxygen	20.9 %	20.9 %
T.H.C. (as Methane)	< 1.0 ppm	< 1.0 ppm
Nitrogen	Balance	Balance

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: Date Signed: 6/13/2022
David Reed
Lab Technician



PREMIER SAFETY

800.962.7837
www.premiersafety.com

33596 Sterlin
Sterling Heigh

Components	Concentration (Mol
Air	Zero Grade
Oxygen	20.9 %
T.H.C. (as Methane)	< 1.0 ppm
Nitrogen	Balance

Lot: 2-154-85

Accuracy: Certified

Ser: J1002

Contents: 103Liters-3.6Cu.Ft.,-1000psig

MFG Date: 6/13/2022

Exp. Date: 06/2025

CALIBRATION GAS

NorLAB®
A DIVISION OF NORCO, INC.
Calibration Gases & Equipment

CERTIFICATE OF ANALYSIS

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

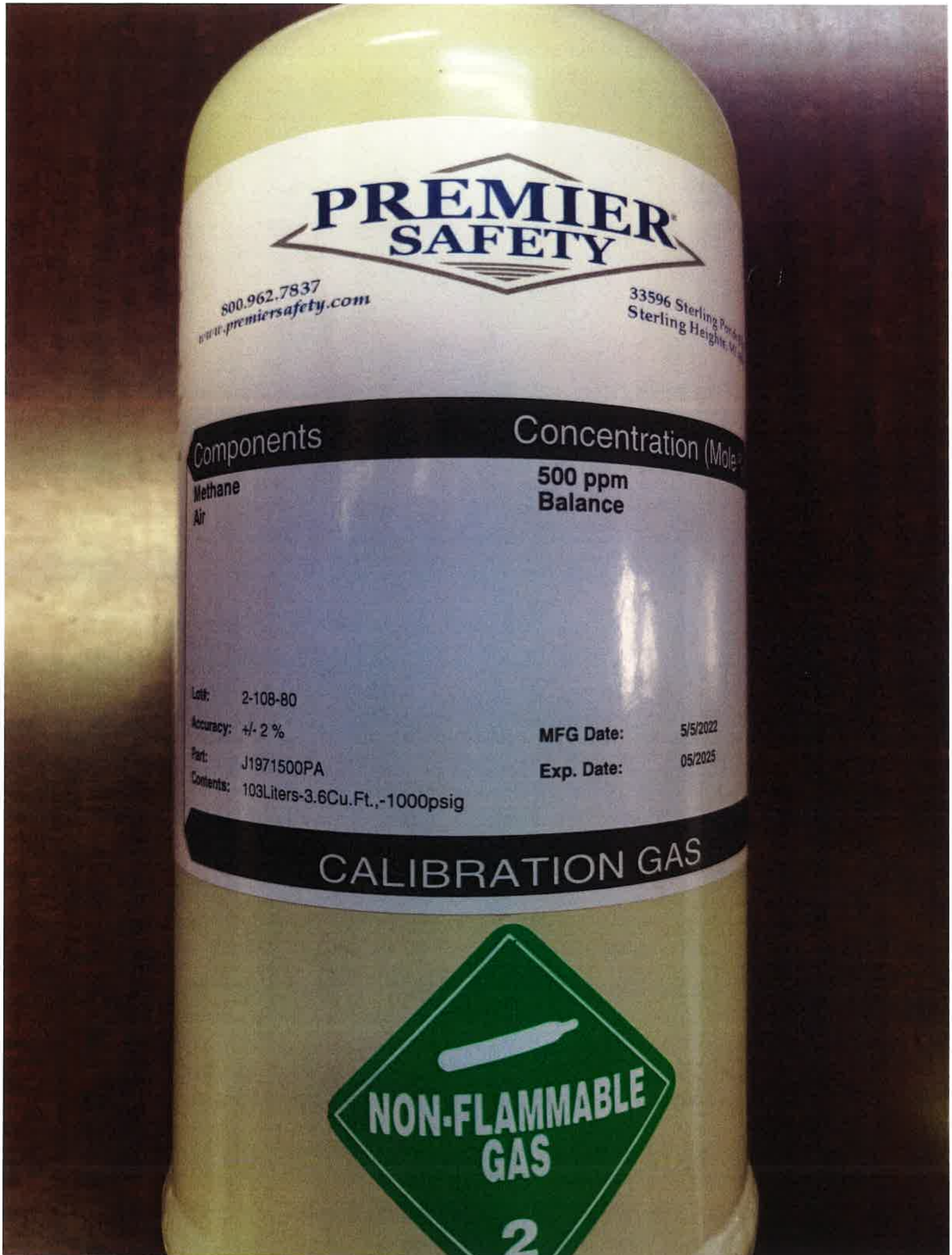
Date on Manufacture	6/10/2022
Expires	06/2025
Analytical Accuracy	+/- 2 %

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: Date Signed: 6/10/2022
David Reed
Lab Technician



Components	Concentration (Mole
Methane	500 ppm
Air	Balance

Lot#: 2-108-80

Accuracy: +/- 2 %

Part: J1971500PA

Contents: 103Liters-3.6Cu.Ft.,-1000psig

MFG Date: 5/5/2022

Exp. Date: 05/2025

APPENDIX I

WELLFIELD MONITORING LOGS

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - November 7, 17, 28, 29, and 30, 2022

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)
RLHC0153	11/7/22 6:49	46	37	0	17	-0.61	96.6	-0.6	96.5
RLHC0156	11/7/22 10:56	63.5	33.5	0	3	-0.02	78.7	-0.01	79.3
RLI00003	11/7/22 11:23	50.6	34.5	0.1	14.8	-21.18	72.3	-12.32	54.8
RLI00008	11/29/22 13:36	60	35	0.6	4.4	-31.65	76.9	-32.27	77.1
RLI00016	11/29/22 10:24	28.8	26.9	0.5	43.8	-15.13	68.7	-15.08	68.5
RLI00017	11/29/22 10:32	62.4	37.2	0.4	0	-7.07	73.2	-7.49	73.2
RLI00018	11/29/22 10:37	43.1	33.3	0.1	23.5	-1.18	70.3	-1.12	70.3
RLI00019	11/29/22 10:42	46.9	32.9	0.7	19.5	-32.31	66.1	-32.31	66.1
RLI00034	11/29/22 15:44	54	38	1.2	6.8	-25.15	81.6	-23.41	81.7
RLI00035	11/29/22 15:48	49.3	36.4	0.1	14.2	-29.76	77.7	-29.76	77.7
RLI00045	11/29/22 15:54	42.3	32.9	0.2	24.6	-1.56	76.2	-1.51	76.3
RLI00047	11/29/22 16:02	49	35.2	0.1	15.7	-0.85	81	-0.84	81
RLI00065	11/17/22 11:52	53.7	38.4	0	7.9	-40.98	109.5	-41.81	109.5
RLI00083	11/17/22 11:25	62.1	37.9	0	0	-45.86	95.8	-46.32	95.8
RLI00095	11/17/22 11:20	47.5	36.2	0	16.3	-1.05	101.4	-0.99	101.4
RLI00132	11/29/22 15:27	53	35.7	1.4	9.9	-29.23	99.3	-28.52	99.3
RLI00132	11/29/22 15:35	53.5	36	1.2	9.3	-29.8	99.3	-29.4	99.3
RLI00134	11/7/22 8:24	46.9	38.1	0	15	-20.49	114.9	-20.46	114.9
RLI00135	11/7/22 7:40	41.5	36.3	1.5	20.7	-1.25	115.8	-1.26	115.8
RLI00137	11/30/22 12:06	46.9	27.2	4.9	21	-12.25	86.2	-12.72	86.2
RLI00140	11/17/22 13:28	53.4	45.9	0	0.7	-3.64	75.4	-7.93	78.9
RLI00141	11/17/22 13:36	35	39.4	0.8	24.8	-2.48	119.3	-1.4	119.3
RLI00142	11/17/22 13:17	48.2	42.1	0	9.7	-32.59	104.5	-32.2	104.4
RLI00220	11/7/22 6:32	45.9	35.4	0.6	18.1	-1.4	49.5	-1.39	49.5
RLI00275	11/17/22 11:07	31.3	33	0	35.7	-38.47	99.9	-25.6	99.7
RLI00277	11/7/22 6:40	40.7	34.5	0	24.8	-0.6	104.6	-0.6	104.6
RLI00278	11/7/22 6:43	44	40.5	0	15.5	-0.66	98	-0.66	98.2
RLI00279	11/7/22 7:29	48.6	42.5	0.1	8.8	-1.62	128.4	-1.58	129
RLI00280	11/29/22 17:10	56.4	39	0	4.6	-1.53	113.4	-1.75	113.7
RLI00281	11/7/22 7:16	43.7	39.8	0	16.5	-2.85	108	-2.89	108
RLI00282	11/17/22 13:10	54.8	42.6	0	2.6	-0.87	105.4	-1.24	105.6
RLI00283	11/29/22 16:54	46.7	38.1	0.2	15	-2.95	103.9	-2.93	103.9
RLI00284	11/28/22 15:16	41.5	33.4	2.7	22.4	-47.7	64.4	-47.89	64.5
RLI00285	11/17/22 10:51	36.2	32.6	0	31.2	-41.17	105.3	-29.51	105.3
RLI00286	11/28/22 14:24	45.3	39.3	0	15.4	-0.25	93	-0.24	93
RLI00287	11/28/22 14:32	44.8	47.3	0.1	7.8	-32.51	101.7	-22.84	101.8
RLI00287	11/29/22 9:25	44.8	47.2	0.1	7.9	-24.25	102.9	-25.4	102.9
RLI0100C	11/29/22 16:21	60.3	39.5	0.2	0	-19.09	77.7	-21.85	76.5
RLI0102C	11/7/22 11:26	54.8	37.7	0	7.5	-44.1	94.1	-44.06	94.1
RLI0103C	11/7/22 8:27	52.8	39.6	0	7.6	-30.17	104.8	-30.51	105.5
RLI0105C	11/7/22 7:20	44.9	34.8	1.7	18.6	-4.33	115.8	-1.29	115.8
RLI0106C	11/7/22 7:24	52.5	43.2	0	4.3	-0.13	53.7	-0.82	55
RLI0107C	11/7/22 12:03	34.8	31.1	2.1	32	-0.12	100.5	-0.1	100.9
RLI0114A	11/29/22 11:21	38.4	22.6	6.8	32.2	-8.03	74.9	-7.2	74.9
RLI0114A	11/29/22 11:26	37.8	22.3	6.8	33.1	-7.78	76	-6.83	76.1
RLI0115E	11/29/22 10:55	56.5	35.5	1.4	6.6	-45.84	83.2	-45.31	83.4
RLI0116E	11/28/22 15:50	41.3	25.9	6.7	26.1	-0.02	70.3	-0.02	70.3
RLI0116E	11/28/22 16:02	47.4	29.3	4.9	18.4	-0.04	66.4	-0.06	66.3
RLI0117D	11/28/22 15:43	46	30.3	3.5	20.2	-43.5	63.1	-43.54	63.1
RLI0124G	11/28/22 13:57	53.6	39.3	0.1	7	-36.67	89	-36.6	89
RLI0126C	11/7/22 11:43	53.5	26.7	3.9	15.9	-38.86	78.1	-39.44	78.3
RLI0127B	11/29/22 15:05	49.9	35.8	0.4	13.9	-19.4	105.4	-19.37	105.3
RLI0128A	11/7/22 7:12	48	42.2	0	9.8	-0.4	114.1	-0.98	115.3
RLI0129E	11/7/22 11:04	61.3	34.3	0.6	3.8	-45.32	75.1	-47.49	75.2
RLI0130E	11/7/22 10:53	44.3	33	0	22.7	-3.96	58.7	-5.36	66.7
RLIHC101	11/28/22 13:47	58.1	40.6	0.1	1.2	-40.07	106.4	-40	106.4

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - November 7, 17, 28, 29, and 30, 2022

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)
RLHC0153	11/7/22 6:49	46	37	0	17	-0.61	96.6	-0.6	96.5
RLHC0156	11/7/22 10:56	63.5	33.5	0	3	-0.02	78.7	-0.01	79.3
RLIHC102	11/28/22 13:53	52.1	39.7	0.1	8.1	-31.6	104.5	-31.59	104.7
RLIHC107	11/30/22 12:35	35.1	36.8	1.3	26.8	-14.46	74	-14.99	73.9
RLLC0176	11/29/22 15:20	44.3	34.7	0.8	20.2	-27.44	69.3	-27.45	69.3
RLLC0177	11/7/22 8:21	50.8	40.1	0	9.1	-24.97	111	-25.27	111
RLLC0179	11/17/22 10:40	32.8	28.5	0.4	38.3	-5.52	83.6	-5.52	83.7
RLLC0180	11/7/22 7:37	50.2	39	0	10.8	-18.58	111.6	-21.89	111.5
RLLC0181	11/7/22 7:33	52.5	40.6	0.2	6.7	-8.93	108.4	-9.38	108.3
RLLC0183	11/29/22 15:10	37.1	31.7	0.3	30.9	-2.73	69.5	-2.72	69.4
RLLC0184	11/29/22 13:43	53.5	37.1	0.2	9.2	-5.11	101.6	-5.3	101.7
RLLC0185	11/7/22 8:18	27.7	32	1	39.3	-0.18	48.1	-0.21	48.3
RLLC0186	11/7/22 8:03	42.1	37.2	0	20.7	-42.17	102.8	-42.14	102.9
RLLC0187	11/7/22 7:59	47.3	38.6	0	14.1	-41.01	105.4	-41.03	105.6
RLLC0188	11/7/22 7:57	44.7	40.1	0	15.2	-30.24	109.7	-30.25	109.7
RLLC0189	11/7/22 7:45	42.7	38.9	0	18.4	-1.25	110.3	-1.28	111.6
RLLC0190	11/29/22 16:34	23.7	32.6	0.3	43.4	-0.15	60.7	-0.14	60.8
RLLC0191	11/7/22 7:42	28.9	34.7	0	36.4	-0.14	49.9	-0.13	49.9
RLLC0193	11/29/22 11:05	33.1	33.3	0	33.6	-7.14	107.1	-3.77	102.6
RLLC0194	11/7/22 7:08	40	38.7	0.2	21.1	-9.12	105.5	-0.87	103.6
RLLC0195	11/7/22 7:03	46.4	41.3	0.3	12	-14.08	104.9	-14.1	105
RLLC0196	11/7/22 6:46	50.5	39	0	10.5	-43.14	100	-45.1	99.9
RLLC0198	11/7/22 9:18	36	31.4	0	32.6	-5.2	104.6	-5.15	104.7
RLLC0199	11/7/22 9:13	45.9	35.3	0	18.8	-4.72	113.2	-4.71	113.4
RLLC0200	11/7/22 9:06	40.6	31.1	0	28.3	-0.71	88.3	-0.72	88.3
RLLC0201	11/7/22 9:01	41.2	33.3	0	25.5	-1.14	102.6	-1.14	102.6
RLLC0202	11/7/22 9:40	61.5	37.5	0	1	-11.45	48.2	-11.49	48.2
RLLC0203	11/29/22 16:45	41.5	30.1	2.4	26	-9.25	84.4	-9.2	84.5
RLLC0204	11/7/22 11:56	48.2	37	0	14.8	-1.12	104.1	-1.12	104.1
RLLC0205	11/7/22 11:50	36.7	33.1	0	30.2	-0.09	102.2	-0.09	102.2
RLLC0206	11/7/22 11:45	48.3	36.4	0	15.3	-2.96	93.3	-2.28	90.8
RLLC0209	11/7/22 11:48	46.9	36.3	0	16.8	-0.49	94.3	-0.48	94.2
RLLC0210	11/7/22 11:53	32.2	31.4	0.2	36.2	-0.15	87.1	-0.11	87.3
RLLC0212	11/28/22 14:57	58.1	41.9	0	0	-21.6	101.3	-22.04	101.4
RLLC0214	11/28/22 14:45	55.4	41.9	0.1	2.6	-45.99	104.6	-45.06	104.5
RLLC0215	11/30/22 12:27	64.1	35.6	0.2	0.1	-44.38	95.9	-44.08	95.4
RLLC0217	11/17/22 11:39	59.3	37.8	0	2.9	-14.41	90.4	-18.09	93.5
RLLC0219	11/29/22 11:39	29.7	31	0.9	38.4	-1.93	108.3	-0.81	107.9
RLLC0221	11/7/22 9:34	41	32.8	0	26.2	-13.01	96.4	-12.96	96.4
RLLC0222	11/30/22 12:31	47.3	38.6	0.1	14	-30.84	111.7	-30.88	111.7
RLLC0223	11/7/22 8:54	40.3	34.4	0.1	25.2	-2.91	104.1	-2.91	104.1
RLLC0224	11/7/22 8:56	49.4	37	0	13.6	-2.08	108.2	-2.08	108.2
RLLC0225	11/7/22 9:03	37.8	30.3	0	31.9	-0.66	85.1	-0.67	85.2
RLLC0226	11/28/22 14:50	46	39.6	2.2	12.2	-34.35	57.9	-33.43	57.8
RLLC0227	11/17/22 10:33	49.7	32.7	0.1	17.5	-1.29	90.8	-1.27	90.8
RLLC0228	11/7/22 9:20	40.1	32	0	27.9	-0.53	59.2	-0.53	59.3
RLLC0229	11/7/22 9:10	32.8	28.5	0	38.7	-0.28	63.6	-0.26	64.1
RLLC0230	11/30/22 12:41	57	42.8	0.2	0	-0.72	114.8	-0.83	115.1
RLLC0231	11/29/22 13:25	40.8	34.3	0.2	24.7	-3.08	96.8	-2.57	96.6
RLLC0232	11/29/22 13:30	51.8	36.9	0.1	11.2	-1.12	93.6	-1.07	93.6
RLLC0233	11/28/22 16:24	34.9	32.6	0.1	32.4	-0.91	105.8	-0.72	105.4
RLLC0234	11/17/22 12:25	40.5	46.3	0	13.2	-15.22	114.8	-15.6	114.8
RLLC0235	11/17/22 12:32	60.6	39.4	0	0	-0.16	108.8	-0.63	111.7
RLLC0236	11/17/22 12:40	44.9	35	0	20.1	-2	108.5	-1.32	108.5
RLLC0237	11/30/22 11:57	44.2	35.4	0.2	20.2	-11.57	93.5	-11.47	93.5
RLLC0238	11/30/22 11:49	38	35.4	0.1	26.5	-0.62	110	-0.59	110.1

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - November 7, 17, 28, 29, and 30, 2022

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)
RLHC0153	11/7/22 6:49	46	37	0	17	-0.61	96.6	-0.6	96.5
RLHC0156	11/7/22 10:56	63.5	33.5	0	3	-0.02	78.7	-0.01	79.3
RLLC0239	11/28/22 16:11	32.5	31.8	0	35.7	-0.13	87.8	-0.17	87.8
RLLC0240	11/28/22 16:18	35.3	32.6	0.1	32	-0.29	99.1	-0.22	98.4
RLLC0241	11/30/22 10:40	59.9	40.1	0	0	-3.98	99.5	-3.94	99.4
RLLC0242	11/17/22 11:59	55.9	40	0	4.1	-2.58	111.4	-3.77	111.8
RLLC0243	11/28/22 14:05	38.6	37.2	0.1	24.1	-0.57	119.7	-0.56	119.7
RLLC0244	11/28/22 14:09	41.5	37.6	0.1	20.8	-0.87	115.6	-0.83	115.6
RLLC0245	11/28/22 14:15	39.2	38.7	0	22.1	-2.03	115.3	-1.69	115
RLLC0246	11/17/22 14:06	55.5	44.5	0	0	-0.87	95.5	-1.88	95.6
RLLC0246	11/30/22 11:39	51.8	45	0.2	3	-1.57	96	-1.51	96
RLLC0247	11/7/22 10:33	47	36.9	0.7	15.4	-0.52	95.2	-0.5	95.3
RLLC0248	11/7/22 10:29	47.1	36.9	0	16	-3.83	104.4	-3.8	104.4
RLLC0249	11/7/22 8:06	40.6	36.8	0	22.6	-1.05	116.6	-0.41	114.7
RLLC0250	11/7/22 8:11	44	38.5	0	17.5	-1.11	110.3	-0.56	109.3
RLLC0251	11/7/22 8:14	39.3	36.7	0.4	23.6	-0.75	110.4	-0.75	110.4
RLLC0255	11/17/22 13:02	43.4	35.6	0.1	20.9	-8.77	108.3	-6.91	108.4
RLLC0256	11/28/22 15:31	49.4	40.9	0.1	9.6	-12.18	108.2	-12.18	108.2
RLLC0256	11/30/22 11:19	48.7	40.1	0.2	11	-12.1	109.1	-12.12	109.1
RLLC0257	11/7/22 11:17	63.2	27.2	1	8.6	-32.34	61.4	-42.27	61.4
RLLC0258	11/7/22 11:11	53.8	35.6	0.3	10.3	-45.87	64.3	-45.86	64.3
RLLC0259	11/7/22 11:08	51.7	34.7	0	13.6	-3.64	80.9	-3.62	80.9
RLLC0260	11/7/22 11:35	41.2	36.2	0	22.6	-1.37	97.2	-1.35	97.2
RLLC0261	11/7/22 11:33	42.9	35.6	0	21.5	-4.15	103.6	-2.74	103.4
RLLC0262	11/7/22 11:29	51.2	36.8	0	12	-0.62	86.7	-0.62	86.7
RLLC0263	11/7/22 7:55	40.2	39.6	0	20.2	-1.39	113.3	-1.34	113.3
RLLC0264	11/7/22 7:48	38.1	39.3	0	22.6	-1.25	112.4	-1.25	112.3
RLLC0265	11/17/22 13:55	56.4	43.6	0	0	-0.96	102	-1.13	102.1
RLLC0266	11/17/22 13:40	56	44	0	0	-3.45	103.3	-12.97	104.5
RLLC0267	11/28/22 14:40	37.4	42.2	0.5	19.9	-3.32	103.3	-2.8	103.2
RLLC0268	11/17/22 13:45	42.4	44.4	0	13.2	-0.06	95.5	-0.06	95.6
RLLC0269	11/30/22 12:20	44.2	42.8	0.2	12.8	-0.55	108.1	-0.51	108.1
RLLC0270	11/30/22 12:15	45.2	40.6	0	14.2	-2.85	112.5	-2.84	112.4
RLLC0271	11/17/22 11:00	41.1	35.2	0	23.7	-6.2	101.8	-5.46	101.7
RLLC0272	11/17/22 13:22	33.1	36.3	0	30.6	-1.52	108.3	-1.52	108.3
RLLC0273	11/29/22 10:50	46.9	37.3	0.1	15.7	-5	113.6	-5.04	113.7
RLLC0274	11/7/22 7:21	41.4	40.6	0	18	-1.12	115.7	-1.12	115.8

There are 143 total collectors; 136 vertical wells and 7 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - December 1, 2, 5, 6, 7, and 8, 2022

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)
RLHC0153	12/6/22 13:31	42.2	35.2	0	22.6	-0.77	98.5	-0.76	98.6
RLHC0156	12/7/22 13:45	66.1	33.8	0.1	0	-0.1	79.8	-0.1	79.8
RLI00003	12/7/22 13:10	46.1	36.9	0.2	16.8	-19.81	75.2	-19.75	75.2
RLI00008	12/7/22 12:18	60.6	35	0.3	4.1	-40.86	71.5	-39.69	73.6
RLI00016	12/7/22 11:59	29.9	26.6	0	43.5	-14.95	66.1	-14.9	66.1
RLI00017	12/7/22 12:04	59.8	36.3	0.2	3.7	-10.04	69.9	-10.9	70.3
RLI00018	12/7/22 12:09	36.6	32	0	31.4	-2.53	59.7	-2.47	59.6
RLI00019	12/7/22 12:13	38.8	26.7	1.7	32.8	-40.4	61.1	-38.97	59.7
RLI00034	12/7/22 13:00	55.1	37.8	0.6	6.5	-24.9	81.5	-24.94	81.4
RLI00035	12/7/22 12:56	51.5	36.8	0	11.7	-35.74	76.6	-35.13	76.6
RLI00045	12/7/22 12:48	39.9	31.9	0	28.2	-1.93	74.1	-1.74	74.3
RLI00047	12/7/22 12:45	45.6	34.3	0	20.1	-1.39	79.9	-1.38	79.9
RLI00065	12/1/22 14:13	54.9	40.6	0.1	4.4	-36.64	109.1	-38.04	109
RLI00083	12/1/22 10:46	61.1	38.7	0.2	0	-46.65	94.5	-46.92	94.6
RLI00095	12/1/22 9:52	45.9	36.6	0.3	17.2	-1.46	101	-1.41	101
RLI00132	12/7/22 12:39	52.4	34.9	0.7	12	-35.89	98	-39.87	97.9
RLI00134	12/6/22 14:48	46	36.7	0	17.3	-21.26	113.3	-20.98	113.2
RLI00135	12/6/22 14:21	35.2	35.1	0	29.7	-0.99	113.9	-0.59	112.9
RLI00137	12/5/22 15:08	53.7	30.5	3.1	12.7	-8.76	72.6	-10.16	72.7
RLI00140	12/1/22 12:49	38.8	40.8	0.3	20.1	-3.73	99.1	-3.69	99.1
RLI00141	12/1/22 13:03	34.6	40.1	1.3	24	-1.26	117.8	-1.11	117.8
RLI00142	12/1/22 11:42	40.8	39.8	0.6	18.8	-32.74	107.4	-34.8	107.5
RLI00220	12/1/22 9:40	48.2	36.8	0.8	14.2	-2.02	53.4	-1.96	53.5
RLI00275	12/1/22 10:53	36.5	35	0	28.5	-21	99.7	-16.33	99.4
RLI00276	12/8/22 14:40	58.1	41.8	0.1	0	-5.23	78.7	-5.28	78.9
RLI00277	12/6/22 13:44	46.2	38.6	0	15.2	-0.71	104.2	-0.71	104.2
RLI00278	12/6/22 13:39	42.7	40.5	0	16.8	-0.82	98.6	-0.81	98.5
RLI00279	12/6/22 16:08	53.4	44.4	0	2.2	-1.68	132	-1.7	132.3
RLI00279	12/8/22 10:05	53.3	44.1	0.2	2.4	-1.98	132.4	-0.76	130.8
RLI00280	12/7/22 11:50	55.6	38.1	0	6.3	-2.04	113	-2.34	113.3
RLI00281	12/6/22 13:59	38.3	37.3	0	24.4	-2.18	106.7	-1.82	110.7
RLI00282	12/1/22 11:31	49.4	43	0	7.6	-1.95	105.2	-1.89	105.2
RLI00283	12/5/22 15:18	47.8	38.3	0.1	13.8	-3.07	103.8	-3.03	103.8
RLI00284	12/1/22 11:01	51.6	39	0.3	9.1	-47.31	70.7	-44.41	71.7
RLI00285	12/1/22 10:33	36.7	33.6	0.1	29.6	-23.17	105	-23.07	105
RLI00286	12/1/22 13:34	43.6	39.4	0	17	-0.36	92	-0.31	92.2
RLI00287	12/1/22 13:08	45.4	47.4	0	7.2	-26	102.9	-25.65	103
RLI0100C	12/7/22 13:05	61.1	38.6	0.3	0	-23.01	76.5	-22.88	76.6
RLI0102C	12/8/22 10:42	56.3	37	0.2	6.5	-44.51	91.7	-44.5	91.6
RLI0103C	12/6/22 14:30	54.6	40.2	0	5.2	-34.91	105.4	-35.31	105.4
RLI0105C	12/6/22 15:52	26.9	33.4	0.4	39.3	-1.51	69.8	-1.46	69.7
RLI0106C	12/6/22 16:03	49.3	42.7	0.2	7.8	-0.34	64.1	-0.32	63.6
RLI0107C	12/6/22 10:17	52	39.5	0.2	8.3	-0.02	77.1	-0.02	77.3
RLI0114A	12/7/22 11:37	62.2	32.1	0.9	4.8	-1.32	60.1	-4.99	61.5
RLI0115E	12/7/22 11:22	59.9	34.9	1.6	3.6	-45.21	77.3	-46.76	77.8
RLI0116E	12/5/22 14:42	55.4	31.7	3.7	9.2	-0.09	72.1	-0.07	72.2
RLI0117D	12/5/22 14:38	4.9	4.1	17.8	73.2	-18.59	64.2	-17.88	63.6
RLI0117D	12/5/22 15:57	13.3	11.8	14.5	60.4	-40.03	55	-39.99	54.9
RLI0124G	12/1/22 10:05	54	39.5	0.1	6.4	-37.1	83.5	-37.11	84.8
RLI0126C	12/8/22 15:03	54.2	28	1.3	16.5	-40.6	80.8	-37.55	81.4
RLI0127B	12/7/22 12:29	50.7	36	0.2	13.1	-23.56	103.9	-23.52	103.9
RLI0128A	12/6/22 13:53	39.2	38.1	0	22.7	-1.46	114.4	-1.1	114.2
RLI0129E	12/7/22 13:33	48.9	31.1	0.6	19.4	-45.81	77.4	-43.61	77.4
RLI0130E	12/7/22 13:40	35.5	27.5	0	37	-8.34	78.2	-8.33	78.2
RLIHC101	12/1/22 10:16	58.3	41.1	0.1	0.5	-38.74	105.3	-40.55	104.7
RLIHC102	12/1/22 10:10	52.9	40.2	0.1	6.8	-34.23	103.4	-33.22	103.5

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - December 1, 2, 5, 6, 7, and 8, 2022

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)
RLHC0153	12/6/22 13:31	42.2	35.2	0	22.6	-0.77	98.5	-0.76	98.6
RLHC0156	12/7/22 13:45	66.1	33.8	0.1	0	-0.1	79.8	-0.1	79.8
RLIHC107	12/5/22 15:28	31.4	37.6	1.4	29.6	-0.91	60.5	-2.19	60.6
RLLC0176	12/6/22 14:58	43.2	34.3	0.3	22.2	-27.2	66	-27.93	65.8
RLLC0177	12/6/22 14:36	54.3	40.2	0	5.5	-25.3	109.6	-25.06	109.6
RLLC0179	12/1/22 10:24	36.7	30.1	0.2	33	-4.46	79	-4.4	79
RLLC0180	12/6/22 14:13	47.2	39	0	13.8	-21.98	110	-21.8	110
RLLC0181	12/6/22 14:03	52.6	38.8	0	8.6	-10.37	106.9	-10.14	107.1
RLLC0183	12/7/22 12:33	37	31.9	0	31.1	-3.33	64.6	-3.33	64.6
RLLC0184	12/7/22 12:24	53	36.7	0.1	10.2	-7.39	99.8	-7.14	99.8
RLLC0185	12/6/22 14:41	20.1	27.6	0.3	52	-0.26	62.6	-0.09	59.9
RLLC0186	12/6/22 15:11	43.3	36.4	0	20.3	-41.64	105.2	-41.76	105.5
RLLC0187	12/6/22 15:14	47.3	35.6	0	17.1	-41.95	106.3	-41.9	106.3
RLLC0188	12/6/22 15:18	45.3	37.7	0	17	-30.47	108.3	-30.45	108.3
RLLC0189	12/6/22 14:17	24.8	33	0	42.2	-0.24	66.8	-0.11	65.4
RLLC0189	12/6/22 15:23	43.5	38.9	0	17.6	-0.1	103.9	-0.11	104.1
RLLC0190	12/6/22 15:27	25.1	32	0	42.9	-0.1	72.8	-0.1	72.7
RLLC0191	12/1/22 9:59	55.4	37.2	0.1	7.3	-6.81	96.8	-6.79	96.8
RLLC0193	12/7/22 11:32	39.1	33.6	0.1	27.2	-3.09	101.3	-1.35	97.5
RLLC0194	12/6/22 13:48	46.9	40.3	0	12.8	-1.64	99.8	-1.6	99.8
RLLC0195	12/6/22 13:28	50.2	44.8	0	5	-12.13	93.7	-12.13	93.7
RLLC0196	12/6/22 13:35	49.7	36.9	0	13.4	-43.65	99.4	-43.42	99.4
RLLC0198	12/6/22 9:34	33	29.6	0.1	37.3	-5.5	105.2	-3.37	100.7
RLLC0199	12/6/22 9:24	43.4	34.7	0	21.9	-4.84	113.5	-4.8	113.4
RLLC0200	12/6/22 9:14	31.2	28.4	0	40.4	-1.31	84.9	-1.05	81.5
RLLC0201	12/6/22 9:06	41	32.4	0.2	26.4	-1.13	100.7	-1.09	100.8
RLLC0202	12/6/22 9:53	60.2	38.3	0	1.5	-0.02	53.3	-0.04	53.2
RLLC0202	12/6/22 13:25	60.8	38.3	0	0.9	-4.13	86.1	-4.06	86.2
RLLC0203	12/6/22 9:59	37.9	29.2	2.6	30.3	-9.31	84.3	-9.24	84.4
RLLC0204	12/6/22 10:12	45.1	35.9	0	19	-1.3	103.7	-1.31	103.9
RLLC0205	12/6/22 10:28	39.2	33.6	0	27.2	-0.25	98.2	-0.2	98.3
RLLC0205	12/8/22 15:16	39.8	32.6	0	27.6	-0.12	94.8	-0.1	94.9
RLLC0206	12/8/22 15:07	57.2	37	0	5.8	-0.61	86	-0.98	90
RLLC0209	12/8/22 15:12	54.7	36.8	0	8.5	-0.35	91.4	-0.64	94.5
RLLC0210	12/6/22 10:24	33	31.2	1.1	34.7	-0.04	77.2	-0.06	81.5
RLLC0212	12/1/22 13:28	58.1	41.8	0	0.1	-25.52	101.1	-25.36	101
RLLC0214	12/1/22 13:18	53.6	41.7	0.1	4.6	-45.36	106	-45.33	106
RLLC0215	12/5/22 15:36	63.3	36.6	0.1	0	-43.09	92.4	-45.81	92.6
RLLC0217	12/1/22 11:10	56.4	38.1	0.4	5.1	-14.2	92.4	-19.18	92.7
RLLC0219	12/7/22 11:40	42.5	34.1	0	23.4	-0.44	95	-0.4	95
RLLC0221	12/6/22 9:45	40.3	31.2	0.2	28.3	-11.52	93.3	-11.48	93.3
RLLC0222	12/5/22 15:32	47.1	39.4	0.1	13.4	-30.42	111.9	-30.32	111.9
RLLC0223	12/8/22 10:17	44.4	35.2	0	20.4	-4.23	100.8	-4.21	100.8
RLLC0224	12/8/22 10:13	60.7	39	0	0.3	-0.34	103.7	-0.56	105.5
RLLC0225	12/6/22 9:10	37.8	29.7	0	32.5	-1.15	85.9	-1.11	86
RLLC0226	12/1/22 13:23	53.7	43.1	1	2.2	-37.32	56.9	-36.89	56.9
RLLC0227	12/1/22 9:45	47.5	33.3	0.1	19.1	-1.58	87.5	-1.55	87.4
RLLC0228	12/6/22 9:39	34.3	27.4	2	36.3	-0.58	59.7	-0.51	59.6
RLLC0229	12/6/22 9:20	25.8	27.1	0.2	46.9	-0.45	68	-0.27	67.9
RLLC0230	12/5/22 15:23	56.2	43.7	0.1	0	-1.19	114.4	-1.25	114.6
RLLC0231	12/7/22 11:44	44.6	34.3	0	21.1	-2.43	94	-2.34	94.1
RLLC0232	12/7/22 11:54	50.2	35.7	0	14.1	-1.11	90.6	-1.05	90.7
RLLC0233	12/5/22 15:51	36.5	33	0.3	30.2	-0.8	105.9	-0.68	105.8
RLLC0234	12/8/22 15:38	45.9	44.6	0.1	9.4	-14.14	112	-14.09	112.1
RLLC0235	12/1/22 14:37	45.7	36	0.1	18.2	-0.97	112.3	-0.97	112.3
RLLC0236	12/1/22 14:30	49.9	37.2	0	12.9	-1.54	108.7	-1.49	108.8

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - December 1, 2, 5, 6, 7, and 8, 2022

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)
RLHC0153	12/6/22 13:31	42.2	35.2	0	22.6	-0.77	98.5	-0.76	98.6
RLHC0156	12/7/22 13:45	66.1	33.8	0.1	0	-0.1	79.8	-0.1	79.8
RLLC0237	12/5/22 15:00	47.1	36.2	0.1	16.6	-8.07	92.5	-7.61	92.4
RLLC0238	12/5/22 15:14	38.6	35.3	0.1	26	-0.79	108.4	-0.6	108.3
RLLC0239	12/5/22 14:47	33.7	32.1	0.1	34.1	-0.26	88.3	-0.2	88.2
RLLC0240	12/5/22 14:53	35.8	32.5	0.2	31.5	-0.29	100.4	-0.27	100.4
RLLC0242	12/1/22 14:07	55.9	41.5	0	2.6	-3.97	110.9	-4.31	111
RLLC0243	12/8/22 15:50	41.7	37.7	0.2	20.4	-0.91	116.6	-0.51	116.5
RLLC0244	12/8/22 15:53	42.5	37.3	0	20.2	-0.91	113	-0.89	113
RLLC0245	12/8/22 15:56	41.2	36.4	0	22.4	-2.5	112.1	-2.48	112.2
RLLC0246	12/1/22 13:54	53.6	45.9	0	0.5	-1.58	94.5	-2.46	94.9
RLLC0247	12/8/22 10:26	45.4	36.5	0	18.1	-0.2	93.8	-0.17	93.8
RLLC0248	12/8/22 10:32	44.5	36.6	0.2	18.7	-1.32	102.7	-1.3	102.7
RLLC0249	12/6/22 15:05	44.3	36.5	0	19.2	-0.35	110.1	-0.35	110.1
RLLC0250	12/6/22 15:01	51	40.3	0	8.7	-0.56	109.7	-0.56	109.7
RLLC0251	12/6/22 14:54	42.6	38	0	19.4	-0.86	109.5	-0.83	109.5
RLLC0252	12/8/22 14:27	53.8	46	0.1	0.1	-3.32	104.7	-3.25	104.7
RLLC0253	12/2/22 11:08	45	54.9	0.1	0	-3.36	95.8	-3.32	95.9
RLLC0255	12/1/22 11:24	44.2	37.5	0	18.3	-6.62	107.8	-6.58	107.8
RLLC0256	12/1/22 11:18	50	41.1	0	8.9	-12.72	108.5	-12.67	108.5
RLLC0257	12/7/22 13:19	0.8	0.3	4.2	94.7	-40.33	67	-41.02	66.8
RLLC0258	12/7/22 13:23	53.5	32.3	0.2	14	-46.12	67.9	-46.14	67.9
RLLC0259	12/7/22 13:28	48.7	35.7	0	15.6	-3.74	81.1	-3.7	81.1
RLLC0260	12/8/22 14:58	42	35.1	0	22.9	-1.03	95	-1.03	95.1
RLLC0261	12/8/22 14:56	49.2	36	0.2	14.6	-2.15	99.7	-2.12	99.7
RLLC0262	12/8/22 10:38	45.4	35.6	0.2	18.8	-0.54	84.5	-0.46	84.5
RLLC0263	12/6/22 14:26	40	38	0	22	-1.2	111.8	-1.08	111.5
RLLC0264	12/6/22 15:44	36.9	39.3	0	23.8	-1.39	111.5	-1.39	111.5
RLLC0265	12/1/22 13:49	48.5	42.7	0	8.8	-1.63	101.4	-1.56	101.5
RLLC0266	12/1/22 13:44	46	46.4	0.1	7.5	-14.58	102.8	-14.54	102.8
RLLC0267	12/1/22 13:13	38.1	41.8	0.7	19.4	-2.76	103.2	-2.13	103
RLLC0268	12/1/22 13:40	41.1	37.3	0	21.6	-0.08	62.5	-0.05	62.5
RLLC0269	12/5/22 15:40	44.5	43.3	0.1	12.1	-0.73	107.1	-0.7	107.1
RLLC0270	12/5/22 15:43	45.6	41.4	0.1	12.9	-3.1	111.3	-3.07	111.3
RLLC0271	12/1/22 10:40	41.4	36.3	0	22.3	-4.68	101.3	-4.67	101.3
RLLC0272	12/1/22 12:55	17.1	27.9	0.5	54.5	-0.21	102.3	-0.11	102.5
RLLC0273	12/7/22 11:26	47.8	36.4	0.1	15.7	-5.28	111.1	-5.23	111.1
RLLC0274	12/6/22 15:56	38.5	39	0	22.5	-0.89	114.7	-0.59	114.5

There are 143 total collectors; 136 vertical wells and 7 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - January 17, 18, 29, and 20, 2023

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)
RLHC0153	1/18/23 10:33	58.7	37.5	0.7	3.1	-0.1	95	-0.2	95
RLHC0156	1/19/23 7:41	60.2	28.5	2.4	8.9	-29.6	41	-29.6	41
RLI00003	1/19/23 8:17	37.8	29.2	1.1	31.9	-50.5	41	-47.5	41
RLI00008	1/19/23 11:15	56.9	34.7	1.4	7	-38.4	63	-39.7	63
RLI00016	1/20/23 7:39	53	26	1	20	-49.1	43	-47.5	44
RLI00017	1/20/23 7:34	58.4	34.1	1.8	5.7	-31.6	55	-32.5	57
RLI00018	1/20/23 7:29	60.5	33.6	1	4.9	-18.5	45	-13.8	46
RLI00019	1/20/23 7:23	36.4	42.3	2.2	19.1	-40.3	47	-37.4	49
RLI00034	1/19/23 8:24	59.2	40.6	0.1	0.1	-27.8	76	-26.3	76
RLI00035	1/19/23 8:29	59.3	40	0.6	0.1	-41.2	73	-43.8	74
RLI00045	1/19/23 8:35	57	37.5	0	5.5	-17.7	66	-16.5	70
RLI00047	1/19/23 8:38	58.9	37.6	0.2	3.3	-27.7	68	-25	76
RLI00083	1/17/23 8:41	59.4	39.6	0.8	0.2	-48.1	84	-49.3	84
RLI00095	1/17/23 8:34	60.5	36.3	3	0.2	-0.4	99	-0.4	99
RLI00132	1/19/23 8:50	60	39.9	0	0.1	-41.9	93	-31.2	93
RLI00134	1/19/23 11:08	55.6	41.8	0	2.6	-37.2	100	-37.2	101
RLI00135	1/19/23 14:39	45.4	51.8	0.7	2.1	-32.5	53	-26.4	53
RLI00137	1/19/23 7:24	58	38.9	3	0.1	-28.6	39	-33.1	39
RLI00140	1/17/23 10:18	60.5	35.3	2.3	1.9	-8.2	57	-9.6	59
RLI00141	1/17/23 10:30	45.3	49.3	0.4	5	-2.9	95	-3.1	95
RLI00142	1/17/23 10:13	55.9	43	0.9	0.2	-27	83	-27.5	83
RLI00220	1/17/23 7:37	55.7	38.6	1.1	4.6	-2.4	48	-2.3	48
RLI00275	1/17/23 8:30	55.1	38.2	1.3	5.4	-33.6	94	-34.8	95
RLI00276	1/20/23 8:42	55	44.9	0	0.1	-7.1	63	-33.9	78
RLI00277	1/18/23 13:12	54.3	45.6	0	0.1	-1.5	102	-1.8	103
RLI00278	1/20/23 7:04	54.8	44.2	0.2	0.8	-1	93	-4	96
RLI00279	1/18/23 13:04	54	45.9	0	0.1	-1.6	126	-1.4	128
RLI00280	1/19/23 11:35	55.2	38.1	0	6.7	-9.1	110	-5.2	111
RLI00281	1/20/23 7:10	49.2	44.7	0	6.1	-7.7	108	-2	108
RLI00282	1/17/23 10:08	53.7	46.2	0	0.1	-0.1	102	-0.2	103
RLI00283	1/17/23 14:35	56.2	38.6	0.6	4.6	-3.5	100	-3.1	100
RLI00284	1/17/23 8:50	24.8	29.2	3.5	42.5	-48.5	66	-48.7	67
RLI00285	1/17/23 8:21	28.8	20.2	3.2	47.8	-37.9	94	-38.9	97
RLI00286	1/17/23 10:57	56.2	39.5	0.5	3.8	-0.1	89	-0.2	89
RLI00287	1/17/23 10:55	51	41.6	1.4	6	-26.3	100	-27	100
RLI0100C	1/19/23 8:44	60	39.8	0.1	0.1	-31.1	61	-27.7	62
RLI0102C	1/18/23 12:11	54.4	39.2	0	6.4	-48.6	86	-48.2	87
RLI0103C	1/19/23 14:42	55.8	42.9	0.1	1.2	-40.3	95	-36.2	96
RLI0105C	1/18/23 12:51	48.9	39.6	1.4	10.1	-33.1	53	-44.9	54
RLI0106C	1/18/23 12:58	48.6	47.3	0.3	3.8	-0.2	52	-1.2	53
RLI0107C	1/18/23 11:08	45.2	36.2	1.7	16.9	-0.3	49	-0.1	48
RLI0114A	1/19/23 12:02	64.1	35.8	0	0.1	-10.6	62	-10	64
RLI0115E	1/20/23 7:54	52.1	40.2	0.7	7	-4.5	89	-0.5	88
RLI0116E	1/19/23 13:24	57.5	31.3	2.4	8.8	-44.2	58	-40.9	58
RLI0117D	1/20/23 7:58	45.5	37.6	3.4	13.5	-38.5	40	-38.9	40
RLI0124G	1/20/23 10:25	52.9	45.6	0	1.5	-0.4	108	-0.3	107
RLI0126C	1/18/23 11:53	54.7	35.7	0.8	8.8	-43.9	62	-33.3	61
RLI0127B	1/19/23 10:08	54.1	37.2	0.5	8.2	-23.7	98	-24	99
RLI0128A	1/19/23 13:44	51.3	46.6	0	2.1	-0.6	111	-2	113
RLI0129E	1/19/23 7:53	56.9	30	1.3	11.8	-52.8	49	-49	51
RLI0130E	1/19/23 7:47	66.7	33	0.2	0.1	-49.3	46	-50	43
RLIHC101	1/17/23 9:34	54.9	44.9	0.1	0.1	-43.6	102	-42.5	103
RLIHC102	1/17/23 9:38	56.2	41.4	2.3	0.1	-35.8	100	-35.5	102
RLIHC107	1/17/23 14:40	56.7	41.4	1.1	0.8	-36.3	63	-36.6	63
RLLC0176	1/19/23 8:54	54.4	45.3	0.1	0.2	-39.7	56	-41.2	58
RLLC0177	1/19/23 14:48	59	39.5	1.3	0.2	-33.1	102	-32.6	105

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - January 17, 18, 29, and 20, 2023

Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (^{o}F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (^{o}F)
RLHC0153	1/18/23 10:33	58.7	37.5	0.7	3.1	-0.1	95	-0.2	95
RLHC0156	1/19/23 7:41	60.2	28.5	2.4	8.9	-29.6	41	-29.6	41
RLLC0179	1/17/23 8:07	59.1	32.4	1.3	7.2	-0.6	81	-0.6	81
RLLC0180	1/19/23 14:01	53.4	42.4	0	4.2	-31.1	105	-29.4	106
RLLC0181	1/19/23 13:57	52	40.7	0	7.3	-19.5	105	-14.5	105
RLLC0183	1/19/23 10:04	34.4	31.4	0.1	34.1	-5.6	54	-5.4	54
RLLC0184	1/19/23 11:05	59.8	40.1	0	0.1	-3	96	-5.7	96
RLLC0185	1/19/23 14:45	34.3	32.4	2.2	31.1	-1.1	59	-1.1	66
RLLC0186	1/18/23 12:24	57.5	36.8	0.1	5.6	-47.5	80	-48	81
RLLC0187	1/18/23 12:20	55.2	34.6	0.4	9.8	-47.8	93	-48.8	95
RLLC0188	1/18/23 12:32	50.8	43.2	0	6	-32.3	104	-41.3	105
RLLC0189	1/18/23 12:37	53.8	46	0	0.2	-1	88	-4.9	96
RLLC0190	1/19/23 14:38	47.6	49.4	0.8	2.2	-24.6	53	-30.9	53
RLLC0191	1/17/23 9:09	60.5	39.1	0.2	0.2	-0.1	93	-0.1	93
RLLC0193	1/19/23 11:55	55.7	40.3	0.6	3.4	-15.7	61	-15.8	60
RLLC0194	1/18/23 13:07	54.8	43.2	0	2	-5.4	98	-4.3	99
RLLC0195	1/18/23 13:15	50.9	49	0	0.1	-11.4	83	-18.5	83
RLLC0196	1/18/23 13:18	50.4	49.5	0	0.1	-46.6	91	-48.3	95
RLLC0198	1/18/23 7:52	57.8	23.6	2.9	15.7	-0.5	34	-0.5	34
RLLC0199	1/18/23 7:44	57.8	31	1.6	9.6	-13.1	34	-12.9	34
RLLC0200	1/17/23 15:32	67.9	26.7	0.9	4.5	-48.3	61	-49.7	61
RLLC0201	1/17/23 15:43	67.3	12	1.5	19.2	-51	60	-51.1	61
RLLC0202	1/18/23 10:43	47.2	25	3.1	24.7	-50.2	53	-50.2	53
RLLC0203	1/18/23 10:51	51.2	32.8	2.9	13.1	-44.8	52	-44.6	52
RLLC0204	1/18/23 10:56	56.1	39.2	0	4.7	-3.8	97	-6.7	98
RLLC0205	1/18/23 11:37	63.3	36.2	0.4	0.1	-0.2	85	-1.3	86
RLLC0206	1/18/23 11:49	44.6	33.6	0.8	21	-7.1	90	-6.9	91
RLLC0209	1/18/23 11:46	54.8	36.6	0	8.6	-0.2	90	-1.3	94
RLLC0210	1/18/23 11:22	60.8	37.8	1.1	0.3	-0.2	83	-0.2	84
RLLC0212	1/17/23 11:02	39.9	41.2	1.2	17.7	-23.6	95	-24.1	95
RLLC0214	1/17/23 11:24	37.7	32.3	3.1	26.9	-33.8	52	-32.9	52
RLLC0215	1/17/23 11:27	53.6	44.8	1.4	0.2	-30.2	79	-27.6	79
RLLC0215	1/19/23 12:16	55.6	41.3	0.3	2.8	-49.5	57	-49.3	63
RLLC0217	1/20/23 10:21	51.9	40.8	1.8	5.5	-43	55	-38.2	55
RLLC0219	1/19/23 12:10	62.3	35.3	1.9	0.5	-13.4	105	-9.3	106
RLLC0221	1/18/23 10:39	46.4	31	2.2	20.4	-50.2	55	-50.1	56
RLLC0222	1/17/23 14:48	59	37.8	1.5	1.7	-44.8	100	-46.1	100
RLLC0223	1/17/23 15:01	57.5	41.9	0.4	0.2	-8.6	98	-8.3	98
RLLC0224	1/17/23 15:06	59.4	40	0.5	0.1	-2.5	94	-2.5	95
RLLC0225	1/17/23 15:28	66.4	16.7	3.4	13.5	-28.9	62	-36.8	61
RLLC0226	1/17/23 11:22	57.4	40.4	2	0.2	-35.1	54	-33	54
RLLC0227	1/17/23 8:13	56.2	34.4	0.6	8.8	-0.9	81	-0.9	81
RLLC0228	1/18/23 10:37	57.9	33.8	1.4	6.9	-33.6	50	-34	50
RLLC0229	1/18/23 7:32	17.2	9.8	3.5	69.5	-6.8	33	-10.5	33
RLLC0230	1/17/23 14:38	44.5	37.7	1.1	16.7	-3.2	107	-1.8	108
RLLC0231	1/19/23 11:49	56.7	38.9	0	4.4	-2.5	92	-6.8	93
RLLC0232	1/19/23 11:21	58.3	38.4	0	3.3	-8	86	-3.7	88
RLLC0233	1/17/23 15:10	50	40.4	1.4	8.2	-50.3	64	-51	64
RLLC0234	1/20/23 8:30	56.4	43.3	0.2	0.1	-32.2	109	-41	110
RLLC0235	1/20/23 8:23	54.4	45	0.4	0.2	-1.8	110	-8.7	112
RLLC0236	1/20/23 9:19	57.2	41.7	1	0.1	-6	101	-1.8	102
RLLC0237	1/19/23 7:17	60.5	39.2	0.1	0.2	-14.5	88	-18.6	89
RLLC0238	1/19/23 7:29	53.6	41.5	0.2	4.7	-49.2	39	-40.3	35
RLLC0239	1/19/23 13:28	59.7	40.2	0	0.1	-5.1	85	-0.5	90
RLLC0240	1/20/23 7:50	55.1	42.6	0	2.3	-1.4	99	-1.3	99
RLLC0241	1/20/23 10:45	54.8	45	0.1	0.1	-6.6	102	-1.5	103

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - January 17, 18, 29, and 20, 2023

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)
RLHC0153	1/18/23 10:33	58.7	37.5	0.7	3.1	-0.1	95	-0.2	95
RLHC0156	1/19/23 7:41	60.2	28.5	2.4	8.9	-29.6	41	-29.6	41
RLLC0242	1/17/23 14:02	58.2	40.8	0.8	0.2	-5.4	108	-4.9	108
RLLC0243	1/17/23 9:21	54.2	44.4	0.4	1	-25.4	108	-26.3	107
RLLC0244	1/17/23 9:26	55.1	38.5	1.4	5	-1.2	111	-1.2	111
RLLC0245	1/17/23 9:30	53.5	45.2	1.2	0.1	-2.7	111	-2.7	111
RLLC0246	1/17/23 10:33	26.4	43.2	1.4	29	-1.5	90	-1.5	90
RLLC0247	1/17/23 14:53	57.9	41	0.9	0.2	-0.7	93	-0.3	93
RLLC0248	1/17/23 14:57	55.5	42.6	0.2	1.7	-5.4	100	-4.7	100
RLLC0249	1/19/23 14:52	55	42.5	0.6	1.9	-21.7	88	-32.7	94
RLLC0250	1/19/23 8:57	52.5	47.3	0	0.2	-4	108	-5.2	109
RLLC0251	1/19/23 8:59	50.4	49.5	0	0.1	-0.9	107	-2.8	108
RLLC0252	1/20/23 8:50	54.1	45.7	0	0.2	-11.7	103	-5.2	103
RLLC0253	1/20/23 8:37	53.8	46	0	0.2	-4.1	103	-8.2	103
RLLC0255	1/17/23 9:54	56.2	43.6	0	0.2	-12.3	102	-12.4	102
RLLC0256	1/17/23 9:58	58.2	41.1	0.5	0.2	-52.2	89	-51.7	89
RLLC0257	1/19/23 8:06	60.8	38.6	0.1	0.5	-48.6	39	-48.4	39
RLLC0258	1/19/23 8:09	62.6	37.2	0	0.2	-53	48	-47.5	48
RLLC0259	1/19/23 8:13	64.4	33.6	0	2	-44.6	63	-35	65
RLLC0260	1/18/23 12:02	56.8	35.7	0	7.5	-1	48	-4.9	95
RLLC0261	1/18/23 12:07	58.6	38.7	0	2.7	-4.3	96	-11.8	98
RLLC0262	1/18/23 12:15	36.5	31.1	1.9	30.5	-10	79	-8.6	80
RLLC0263	1/18/23 12:29	45.4	40.1	0	14.5	-0.7	108	-0.6	108
RLLC0264	1/18/23 12:41	44.1	45.8	0	10.1	-3.2	108	-2.8	109
RLLC0265	1/17/23 10:37	54.5	44.8	0.6	0.1	-2.8	97	-1.7	97
RLLC0266	1/17/23 10:40	38.2	41.2	0.6	20	-8.9	98	-7.5	99
RLLC0267	1/17/23 10:50	47	43.8	0.8	8.4	-4.1	99	-3.1	100
RLLC0268	1/17/23 10:45	55.3	44.1	0.5	0.1	-0.4	69	-0.4	73
RLLC0269	1/17/23 11:34	48.4	34.5	0.9	16.2	-0.5	99	-0.5	101
RLLC0270	1/17/23 11:38	49	37	2.6	11.4	-10.4	107	-5.2	108
RLLC0271	1/17/23 8:45	49.1	36.9	1.3	12.7	-3.7	96	-3.7	96
RLLC0272	1/17/23 10:24	42.9	40.5	3.9	12.7	-1.9	49	-1.3	50
RLLC0273	1/19/23 12:13	56.8	41.7	0	1.5	-13.7	106	-16.1	107
RLLC0274	1/18/23 12:53	52.7	45.1	0.4	1.8	-0.6	109	-1.6	110

There are 143 total collectors; 136 vertical wells and 7 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - February 7, 8, and 9, 2023

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)
RLHC0153	2/8/23 7:32	53.1	38.5	0	8.4	-1.39	99.1	-2.19	100
RLHC0153	2/9/23 11:45	47.5	38.8	0	13.7	-3.01	101.7	-1.98	101.4
RLHC0156	2/8/23 7:11	63.6	36.3	0.1	0	-3.14	52.5	-5.42	53.1
RLI00003	2/8/23 10:19	60.3	30.7	1.2	7.8	-42.92	64.5	-42.93	65.2
RLI00008	2/8/23 13:27	58	32	3.1	6.9	-4.08	95.9	-4.08	95.9
RLI00016	2/9/23 7:07	56.2	28.8	2.6	12.4	-47.18	39.2	-47.17	39.2
RLI00017	2/9/23 7:10	58.9	28.2	3.4	9.5	-31.66	58.9	-32.63	60.2
RLI00018	2/9/23 7:15	60.4	33.6	1.3	4.7	-33.26	60.6	-33.84	60.2
RLI00019	2/9/23 7:22	64.9	30.3	3.6	1.2	-32.26	60.6	-33.14	61.2
RLI00034	2/8/23 11:55	60.4	38	0.1	1.5	-23.27	80.7	-22.29	80.6
RLI00035	2/8/23 11:47	59.6	36.4	0	4	-33.51	77.9	-35.36	77.9
RLI00045	2/8/23 11:40	15.6	19.7	0.3	64.4	-14.91	79.1	-11.65	78.8
RLI00047	2/8/23 11:44	14.5	20.7	0	64.8	-22.47	88.2	-20.06	85.7
RLI00083	2/9/23 9:21	55.6	36.7	0.2	7.5	-48.01	91	-47.37	91.1
RLI00095	2/9/23 9:26	54.4	37.8	0	7.8	-1.99	104.2	-2.89	104.3
RLI00132	2/8/23 12:48	59.6	38.6	0	1.8	-36.45	97.9	-30.95	98.1
RLI00134	2/7/23 12:38	57.5	41.9	0	0.6	-27.74	110.3	-29.84	110.5
RLI00135	2/7/23 12:34	55.6	44	0	0.4	-14.76	96.2	-32.22	99
RLI00137	2/8/23 16:46	54.1	32.9	2	11	-26.99	71	-46.33	72.5
RLI00140	2/7/23 9:22	56.3	43.4	0	0.3	-14.98	82.1	-15.38	82.7
RLI00141	2/7/23 9:32	49.3	47.2	0	3.5	-5.7	105.5	-20.13	106.5
RLI00141	2/9/23 11:19	43.3	44.6	0	12.1	-0.1	104	-0.09	103.6
RLI00142	2/7/23 9:18	58.7	41.3	0	0	-32.81	93.9	-34.71	93.9
RLI00220	2/7/23 7:00	55.7	36.8	0.7	6.8	-2.18	51.3	-3.45	53.4
RLI00275	2/9/23 9:35	55.2	38	0	6.8	-27.13	97.6	-49.19	99
RLI00276	2/9/23 8:23	57.3	42.7	0	0	-45.05	94.6	-46.58	94.4
RLI00277	2/7/23 13:46	48.4	40.2	0	11.4	-2.28	107	-2.24	106.9
RLI00278	2/7/23 13:42	46.5	38	0	15.5	-3.83	102.3	-1.47	102.1
RLI00279	2/7/23 13:31	55.9	43.3	0	0.8	-1.6	127.1	-2.14	129.7
RLI00280	2/8/23 13:39	46.2	36.4	0	17.4	-6.09	114.1	-2.42	113.4
RLI00281	2/7/23 13:56	53.4	43	0	3.6	-1.61	112.7	-2.04	112.6
RLI00282	2/7/23 9:05	58.2	41.8	0	0	-1.79	106.6	-2.97	107.1
RLI00283	2/7/23 8:32	59.7	39.8	0	0.5	-3.04	103	-3.35	103.1
RLI00284	2/9/23 9:06	61.4	34.9	3.1	0.6	-42.52	69	-45.51	67.7
RLI00285	2/9/23 9:38	55	36.2	0	8.8	-46.8	99.2	-50.26	99
RLI00286	2/7/23 7:42	56.7	42.3	0	1	-0.34	91.2	-0.8	92.3
RLI00287	2/7/23 7:46	55.1	44.9	0	0	-28.72	103.9	-38.25	103.9
RLI0100C	2/8/23 11:58	59.7	38.9	0	1.4	-22.16	79.1	-22.79	79.1
RLI0102C	2/8/23 11:26	59	39.1	0	1.9	-41.38	91.1	-41.43	91
RLI0103C	2/7/23 12:16	59	40.2	0	0.8	-32.96	100.5	-32.77	100.9
RLI0105C	2/7/23 13:19	50.2	44.7	0	5.1	-39.17	76.8	-42.52	78
RLI0106C	2/7/23 13:27	52.9	45.9	0	1.2	-1.29	65.4	-4.23	65.2
RLI0106C	2/8/23 10:30	50.4	30.8	3	15.8	-41.22	76.5	-41.24	76.2
RLI0107C	2/8/23 11:05	53.4	42.1	0.1	4.4	-0.18	106.3	-4.66	108.4
RLI0114A	2/9/23 7:32	44.2	30.9	1.9	23	-25.5	45.8	-23.53	45.6
RLI0115E	2/9/23 7:51	61.2	36.5	2.2	0.1	-3.61	65	-3.52	63.8
RLI0116E	2/8/23 17:01	49.4	31.4	3.3	15.9	-0.8	66.3	-0.81	66.7
RLI0117D	2/9/23 8:48	52.4	33.2	3.6	10.8	-0.73	92.7	-0.65	91.9
RLI0124G	2/7/23 7:19	60.7	39.2	0.1	0	-41.92	80.2	-42.79	78.9
RLI0126C	2/8/23 12:17	53.9	35.7	2	8.4	-4.65	98.7	-4.1	97.7
RLI0127B	2/8/23 12:56	50.8	35.6	0.3	13.3	-19.48	104.2	-18.1	104.2
RLI0128A	2/7/23 13:52	52.1	43.5	0	4.4	-2.38	117.3	-4.2	117.4
RLI0128A	2/9/23 11:37	48.7	45.2	0	6.1	-4.59	117.8	-1.75	117.7
RLI0129E	2/8/23 10:01	52.4	23.3	3.9	20.4	-43.48	53.2	-43.28	52.3
RLI0130E	2/8/23 7:16	69	30.6	0.2	0.2	-46.67	40.3	-46.86	40.3
RLIHC101	2/7/23 7:27	59.4	40.5	0	0.1	-40.11	106	-41.35	105.9

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - February 7, 8, and 9, 2023

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)
RLHC0153	2/8/23 7:32	53.1	38.5	0	8.4	-1.39	99.1	-2.19	100
RLHC0153	2/9/23 11:45	47.5	38.8	0	13.7	-3.01	101.7	-1.98	101.4
RLIHC102	2/7/23 7:24	59.5	40.4	0.1	0	-33.31	106.1	-37.92	106
RLIHC107	2/7/23 8:23	59.1	38.6	2.3	0	-0.05	101.6	-0.04	101.1
RLLC0176	2/7/23 12:54	41.7	33.5	1.2	23.6	-31.54	63.1	-35.51	63.5
RLLC0177	2/7/23 12:45	58.7	41.2	0	0.1	-28.81	110.1	-32.3	109.9
RLLC0179	2/9/23 9:45	65.4	27.6	2.1	4.9	-25.4	57.8	-50.04	56.7
RLLC0180	2/7/23 14:03	56.6	40.7	0	2.7	-27.58	109.9	-26.16	110
RLLC0181	2/7/23 14:00	55	35.7	0	9.3	-13.33	108.9	-14.95	108.9
RLLC0181	2/9/23 11:31	51.8	38.3	0	9.9	-15.95	109.1	-17.18	109.1
RLLC0183	2/8/23 12:51	36.9	28.2	0	34.9	-3.14	66.3	-3.12	66.4
RLLC0184	2/8/23 13:02	57.9	38.7	0	3.4	-16.72	101.5	-17.92	101.4
RLLC0185	2/7/23 12:41	57.2	42.8	0	0	-0.89	87.2	-3.26	88.9
RLLC0186	2/7/23 12:12	61.9	38.1	0	0	-45.97	74.1	-45.93	75.5
RLLC0187	2/7/23 12:09	62.6	36.1	0	1.3	-45.17	79.9	-45.23	88.9
RLLC0188	2/7/23 12:04	56.7	40.7	0	2.6	-42.66	108.7	-43.11	108.1
RLLC0189	2/7/23 12:26	55.5	42.1	0	2.4	-6.26	106.3	-8.98	107.1
RLLC0189	2/8/23 16:07	55.2	44	0	0.8	-9.9	104	-13.4	105
RLLC0190	2/7/23 12:29	53.1	41.1	0	5.8	-0.05	72.1	-0.16	74.9
RLLC0191	2/7/23 7:07	60.4	37.2	0.6	1.8	-6.69	95.7	-13.26	96.4
RLLC0193	2/9/23 7:43	62	36.8	0.3	0.9	-6.78	42.6	-18.02	42.9
RLLC0194	2/7/23 13:49	48.7	41.5	0	9.8	-4.03	104.9	-5.07	104.9
RLLC0194	2/9/23 11:42	45.9	42.9	0	11.2	-5.27	105.4	-1.26	104.9
RLLC0195	2/7/23 13:35	48.8	41.1	0	10.1	-13.86	94.1	-14.61	94
RLLC0195	2/8/23 15:46	49	42.5	0	8.5	-14.3	92	-19.3	92
RLLC0196	2/7/23 13:38	60.1	37.6	0	2.3	-45.77	95.6	-43.37	95.6
RLLC0198	2/8/23 8:14	61.1	37	0	1.9	-34.03	42.1	-33.3	42.7
RLLC0199	2/8/23 7:40	60.9	35.6	0.5	3	-37.93	43.8	-44.37	43.5
RLLC0200	2/8/23 7:44	61.8	33.6	0.1	4.5	-19.54	65.5	-44.68	68.9
RLLC0201	2/8/23 7:52	61.4	38.4	0.2	0	-40.24	54.5	-44.47	58.1
RLLC0202	2/8/23 8:56	58	34.5	0.5	7	-45	55.4	-45.04	54.3
RLLC0203	2/8/23 11:01	48.6	26.1	3.1	22.2	-5.48	107.3	-5.46	107.1
RLLC0204	2/8/23 10:54	53.5	38.5	0	8	-4.3	105.5	-9.75	106.5
RLLC0204	2/9/23 12:12	46.7	36.1	0.2	17	-17.65	106.3	-4.92	105.7
RLLC0205	2/8/23 10:40	39.8	32.7	0	27.5	-0.85	99.6	-0.26	95.8
RLLC0206	2/8/23 10:33	54.6	38.2	0	7.2	-9.56	98.1	-11.73	99.7
RLLC0206	2/9/23 12:03	52.1	38.5	0	9.4	-17.04	100.7	-17.02	100.7
RLLC0209	2/8/23 10:27	47.6	35.4	0.2	16.8	-3.89	98.7	-2.72	96.6
RLLC0210	2/8/23 10:48	54.3	32.2	2.4	11.1	-23.19	60.8	-23.06	60.4
RLLC0210	2/9/23 12:09	47.9	37.3	1.3	13.5	-30.99	67.8	-30.98	67.8
RLLC0212	2/7/23 7:50	58.6	41.4	0	0	-15.21	100.5	-19.75	100.6
RLLC0214	2/7/23 7:58	57.9	42.1	0	0	-48.29	63.4	-48.26	63.3
RLLC0215	2/8/23 7:26	61.1	29.2	2	7.7	-42.58	74.7	-39.61	74.9
RLLC0217	2/9/23 8:58	56.9	39.3	0.7	3.1	-35.38	85.3	-45.96	85.3
RLLC0219	2/9/23 7:39	55.4	27	3.7	13.9	-22.94	41.5	-23.66	41.6
RLLC0221	2/8/23 8:34	42.8	31.7	0.8	24.7	-46.28	65.7	-46.51	65.8
RLLC0222	2/7/23 8:12	60.7	39.3	0	0	-39.14	106.8	-43.06	106.9
RLLC0223	2/8/23 6:51	60.1	39.7	0.2	0	-7.6	98.7	-23.61	100
RLLC0224	2/8/23 7:56	59.4	40.6	0.1	-0.1	-2.29	100.6	-8.86	102
RLLC0225	2/8/23 8:00	35.7	30.4	0.1	33.8	-7.68	75.1	-7.67	75.3
RLLC0226	2/7/23 7:54	56.8	40.2	0.2	2.8	-44.16	37.5	-40.77	37.8
RLLC0227	2/9/23 10:06	59.7	36.1	0	4.2	-6.19	85.6	-10.53	85.7
RLLC0228	2/8/23 8:31	56.6	30.5	0.6	12.3	-8.26	52.9	-10.86	53.3
RLLC0229	2/8/23 8:08	61.8	38.2	0	0	-0.6	53.6	-11.95	69.6
RLLC0230	2/7/23 8:27	57.5	42.4	0.1	0	-0.26	110.2	-0.73	110.3
RLLC0231	2/9/23 7:02	54	35.9	0.3	9.8	-7.11	95.6	-12.42	96

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - February 7, 8, and 9, 2023

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)
RLHC0153	2/8/23 7:32	53.1	38.5	0	8.4	-1.39	99.1	-2.19	100
RLHC0153	2/9/23 11:45	47.5	38.8	0	13.7	-3.01	101.7	-1.98	101.4
RLLC0232	2/8/23 13:32	53.9	37.3	0	8.8	-3.94	95.6	-8.4	96.9
RLLC0232	2/9/23 11:25	52.8	38.3	0	8.9	-9.92	98	-9.99	98.1
RLLC0233	2/7/23 10:55	54	38.6	0	7.4	-5.69	107.4	-12.55	108.5
RLLC0234	2/9/23 8:10	51.6	43.2	0.1	5.1	-33.57	112.7	-37.1	112.8
RLLC0235	2/9/23 8:07	48.8	44.7	0.1	6.4	-11.99	114.9	-17.93	115.2
RLLC0236	2/9/23 8:03	58.9	41	0	0.1	-2.19	106.7	-5.67	107.1
RLLC0237	2/8/23 16:50	57.6	39.7	0	2.7	-22.9	91.7	-27.47	91.7
RLLC0238	2/8/23 16:42	57.2	38.6	0.9	3.3	-41.07	93.8	-40.72	89.2
RLLC0239	2/8/23 16:58	50.3	36.9	0	12.8	-1.34	94.5	-1.34	94.5
RLLC0240	2/8/23 16:56	55.2	39.2	0	5.6	-1.03	103.1	-2.29	103.6
RLLC0240	2/9/23 11:13	53.4	40.2	0	6.4	-2.57	103.6	-2.5	103.7
RLLC0243	2/7/23 7:15	58.1	41.7	0	0.2	-3.14	115.6	-27.98	116.4
RLLC0244	2/7/23 7:32	58.2	41.8	0	0	-3.39	118.9	-5.57	118.8
RLLC0244	2/8/23 15:30	57.2	42.7	0	0.1	-6	115	-7.2	115
RLLC0245	2/7/23 7:39	57.9	42.1	0	0	-2.66	114	-6.94	115.1
RLLC0245	2/8/23 15:35	57.4	42.5	0	0.1	-7.2	112	-11	112
RLLC0246	2/7/23 9:01	56.5	43.2	0	0.3	-1.25	94.3	-2.54	94.9
RLLC0247	2/8/23 7:00	58.7	41.3	0	0	-0.72	94.5	-1.21	94.9
RLLC0248	2/8/23 7:04	57.6	42.4	0	0	-4.78	102.6	-7.58	102.7
RLLC0249	2/7/23 13:06	61.1	38.9	0	0	-25.14	109.7	-31.32	109.9
RLLC0250	2/7/23 12:59	57.8	41.3	0	0.9	-3.45	113.9	-5.38	114.1
RLLC0250	2/8/23 16:13	57.3	42.5	0	0.2	-6	110	-8.1	110
RLLC0251	2/7/23 12:49	57.1	42	0	0.9	-2.58	111.6	-4.45	111.7
RLLC0251	2/8/23 16:17	55.7	42.8	0	1.5	-4.6	108	-6.3	108
RLLC0252	2/9/23 8:46	55.5	44.5	0	0	-5.66	107.6	-7.91	107.6
RLLC0253	2/9/23 8:19	53.8	46.2	0	0	-9.88	107.9	-15.58	108.1
RLLC0255	2/7/23 9:09	59.8	40.2	0	0	-19.26	104.4	-30.24	104.7
RLLC0256	2/7/23 9:13	60	40	0.1	-0.1	-46.6	95.5	-50.57	96.2
RLLC0257	2/8/23 10:09	57.2	39.9	0.2	2.7	-44.25	61.3	-44.26	62.2
RLLC0258	2/8/23 10:12	68.2	29.8	0.1	1.9	-43.38	58.7	-43.48	58.6
RLLC0259	2/9/23 11:52	59.6	37	0	3.4	-43.06	73.1	-43.14	73.1
RLLC0260	2/8/23 11:18	51	39.2	0	9.8	-3.73	100.2	-9.18	100.5
RLLC0260	2/9/23 11:59	49.9	40.1	0	10	-10.36	101.4	-5.66	101.4
RLLC0261	2/8/23 11:22	55	39.7	0	5.3	-10.47	103	-10.91	102.9
RLLC0262	2/8/23 12:43	58.7	35.2	0	6.1	-8.54	86.1	-17.22	86.7
RLLC0263	2/7/23 11:56	50.4	42.1	0.1	7.4	-0.8	112.8	-1.41	113.5
RLLC0263	2/8/23 16:03	50.6	44.4	0	5	-1.8	112	-2.3	112
RLLC0264	2/7/23 13:13	53.5	44.5	0	2	-2.81	114.4	-5.85	114.9
RLLC0264	2/8/23 15:53	53.1	46.2	0	0.7	-5.4	111	-7.7	111
RLLC0265	2/7/23 8:58	56.9	43	0	0.1	-1.09	100	-1.39	100.5
RLLC0266	2/7/23 8:54	52.1	45.2	0	2.7	-11.94	103.1	-21.2	103.4
RLLC0267	2/7/23 8:03	53.8	42.7	0.5	3	-2.26	103.1	-4.75	103.9
RLLC0268	2/7/23 8:49	53.8	44.6	0	1.6	-0.66	93.5	-3.17	102.6
RLLC0269	2/7/23 8:37	50.9	44.7	0	4.4	-0.88	106	-1.12	106.5
RLLC0270	2/7/23 8:42	55.2	42.6	0	2.2	-4.39	111.2	-7.84	111.5
RLLC0271	2/9/23 9:12	55.4	36.8	0	7.8	-4.7	100.7	-5.3	100.9
RLLC0272	2/7/23 9:26	57.5	42.5	0	0	-3.13	104.5	-12.46	105.6
RLLC0273	2/9/23 7:47	60	40	0	0	-19.34	111.4	-22.42	111.8
RLLC0274	2/7/23 13:23	54.7	43.5	0	1.8	-1.15	115.7	-1.16	115.6
RLLC0274	2/8/23 15:57	54.7	44.7	0	0.6	-1	112	-3.9	113

There are 143 total collectors; 136 vertical wells and 7 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

"H2O = in. w.c.= inches in water column

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - March 13, 14, 15, 17, 24, 28, 29, 30, and 31, 2023

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)
RLHC0153	3/14/23 14:42	60.6	39.3	0	0.1	-1.85	97.7	-1.88	97.7
RLHC0156	3/15/23 9:31	10.4	8.1	16.5	65	-42.28	54.1	-42.25	53.8
RLHC0156	3/15/23 9:52	26.2	12.2	10.1	51.5	-37.43	59.6	-39.65	58.9
RLI00003	3/15/23 12:08	57.7	38.8	0.3	3.2	-33.08	62.2	-33.07	62.2
RLI00008	3/31/23 7:46	0.5	5.8	16.4	77.3	-4.1	57	-4	57
RLI00008	3/31/23 7:48	0.2	4.1	16.9	78.8	-1.1	56	-1.6	56
RLI00016	3/30/23 9:08	66.7	29.5	1.4	2.4	-47.1	62	-45.4	62
RLI00017	3/31/23 8:00	63.7	35.9	0.2	0.2	-30.9	57	-33.9	56
RLI00018	3/31/23 7:54	62.7	31.6	1.9	3.8	-27.1	52	-27.3	51
RLI00019	3/31/23 8:09	40.5	24.6	6.6	28.3	-34.8	46	-33.9	46
RLI00019	3/31/23 8:13	32.9	20.4	9.7	37	-33	47	-34.2	46
RLI00034	3/30/23 9:51	57.9	35.6	1.4	5.1	-21.6	72	-22.3	72
RLI00035	3/30/23 9:56	60.9	39	0	0.1	-30.9	70	-32.9	70
RLI00045	3/30/23 10:20	26	24.9	0	49.1	-21.3	63	-21.2	63
RLI00047	3/30/23 10:24	50.3	32.7	0	17	-14.9	72	-14.9	72
RLI00083	3/24/23 9:02	61.8	38.1	0.1	0	-49.45	87.2	-48.68	83.8
RLI00095	3/24/23 8:25	48.1	34.3	0.1	17.5	-5.8	103.5	-5.74	103.5
RLI00132	3/31/23 7:34	59.9	40	0	0.1	-37.8	88	-33.9	87
RLI00134	3/14/23 9:25	58	41.3	0	0.7	-22.58	108.9	-19.89	108.9
RLI00135	3/14/23 9:06	56.5	43.3	0	0.2	-24.27	98.9	-22.29	98.9
RLI00137	3/29/23 9:44	54.2	33.4	1.9	10.5	-45.3	48	-42.7	48
RLI00140	3/24/23 10:51	54.6	45.1	0	0.3	-24.63	68.4	-24.88	68.4
RLI00141	3/28/23 14:07	51.3	48.6	0	0.1	0.2	53	-0.2	56
RLI00142	3/24/23 10:55	57.1	42.9	0	0	-36.69	89.2	-35.15	89.2
RLI00220	3/13/23 13:15	51.1	35.8	1.2	11.9	-12.15	69.9	-12.13	69.9
RLI00275	3/24/23 8:52	57.5	37.6	0	4.9	-52.03	96.4	-50.09	96.4
RLI00276	3/29/23 8:27	57.1	42.8	0	0.1	-47.1	82	-48.2	83
RLI00277	3/14/23 8:36	57.3	41.8	0	0.9	-1.62	104.8	-1.75	105
RLI00278	3/14/23 8:31	56.5	43.5	0	0	-0.35	96.2	-0.76	97.6
RLI00279	3/14/23 14:30	56.6	43.4	0	0	-2.31	130.9	-2.29	130.8
RLI00280	3/17/23 10:26	60.9	39	0.1	0	-0.77	105.7	-0.78	107.5
RLI00281	3/14/23 8:50	55.2	42.6	0	2.2	-1.34	110.8	-1.34	110.8
RLI00282	3/24/23 11:17	57.1	42.9	0	0	-4.2	105.5	-4.06	105.6
RLI00283	3/17/23 9:20	59.3	40.3	0.2	0.2	-3.13	101.4	-3.21	101.5
RLI00284	3/24/23 9:16	66.2	33.6	0.2	0	-48.13	55	-45.47	55.1
RLI00285	3/24/23 8:47	62.6	37.3	0	0.1	-46.87	57.2	-46.29	57.2
RLI00286	3/28/23 13:36	53.9	46	0	0.1	-1.1	92	-1.9	92
RLI00287	3/28/23 13:45	53.9	46	0	0.1	-38.4	101	-38.1	101
RLI0100C	3/30/23 9:44	60.2	39.7	0	0.1	-23.6	70	-24.5	69
RLI0102C	3/31/23 8:26	60.4	39.5	0	0.1	-43.7	83	-43.8	83
RLI0103C	3/14/23 9:18	58.8	41.2	0	0	-26.73	86.9	-23.48	86.6
RLI0105C	3/14/23 14:14	49.9	44.2	0.5	5.4	-38.08	81.9	-35.55	81.8
RLI0106C	3/14/23 14:23	55.9	43.8	0	0.3	-4.93	58.7	-4.57	58.7
RLI0107C	3/15/23 11:21	45.1	36.2	2.9	15.8	-3.22	103.9	-2.7	104
RLI0107C	3/15/23 11:25	44.8	37.1	2.8	15.3	-2.86	103.9	-2.83	103.9
RLI0114A	3/17/23 9:58	56.2	25.3	3.5	15	-9.21	55.9	-10.98	55.8
RLI0115E	3/29/23 12:17	62.8	37	0	0.2	-42.1	51	-43.4	50
RLI0116E	3/29/23 9:29	1.2	1.5	20.6	76.7	-0.1	49	-0.1	50
RLI0116E	3/29/23 9:32	1.2	1	20.8	77	-0.1	52	-0.1	52
RLI0117D	3/29/23 9:01	61	38.3	0.5	0.2	-25.6	53	-41.8	53
RLI0124G	3/24/23 9:48	58.3	35.4	1.4	4.9	-41.85	74.3	-41.74	74.6
RLI0126C	3/15/23 11:47	51.3	26	3.9	18.8	-35.79	71.1	-35.78	71.1
RLI0127B	3/30/23 9:27	52.2	34.3	2.1	11.4	-18	96	-18.1	96
RLI0128A	3/14/23 8:46	54.7	43.8	0	1.5	-0.95	113.2	-1.14	113.5
RLI0129E	3/15/23 12:25	53	23.6	4.4	19	-42.09	65.1	-42.09	65.1
RLI0130E	3/15/23 9:24	67.4	32.6	0	0	-43.12	59.5	-43.13	59.5

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - March 13, 14, 15, 17, 24, 28, 29, 30, and 31, 2023

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)
RLHC0153	3/14/23 14:42	60.6	39.3	0	0.1	-1.85	97.7	-1.88	97.7
RLHC0156	3/15/23 9:31	10.4	8.1	16.5	65	-42.28	54.1	-42.25	53.8
RLIHC101	3/24/23 9:58	60.5	39.4	0.1	0	-41.57	106.2	-42.41	106.2
RLIHC102	3/24/23 9:54	59.3	40.7	0.1	-0.1	-40.92	106.4	-40	106.4
RLIHC107	3/15/23 8:45	19.4	16.2	12.8	51.6	-20.6	48.6	-25.26	48.9
RLIHC107	3/15/23 9:41	25.1	24.8	9	41.1	-38.82	55.8	-36.13	55.3
RLLC0176	3/14/23 13:33	48.7	38.6	0.1	12.6	-14.61	81.6	-15.32	81.7
RLLC0177	3/14/23 9:37	59.7	40.3	0	0	-23.49	106.1	-21.25	106.1
RLLC0179	3/24/23 8:40	62.5	37.1	0.4	0	-33.34	51.2	-32.82	51.7
RLLC0180	3/14/23 9:01	58.6	41.3	0	0.1	-22.22	103.9	-26.6	103.9
RLLC0181	3/14/23 8:56	54	37.5	0	8.5	-13.98	106.2	-13.83	106.4
RLLC0183	3/31/23 8:21	64.3	34.3	0	1.4	-3.1	49	-2.6	49
RLLC0184	3/30/23 9:33	62.3	33.9	0	3.8	-2.2	57	-2.2	56
RLLC0185	3/14/23 9:31	57.8	42.2	0	0	0.11	87.4	-1.4	94.5
RLLC0186	3/14/23 13:48	61.6	38.4	0	0	-39.83	65.9	-39.85	66
RLLC0187	3/14/23 13:53	61.4	38.6	0	0	-39.74	77	-40.32	77.5
RLLC0188	3/14/23 13:56	58.9	41	0	0.1	-38.56	103.6	-38.53	103.6
RLLC0189	3/14/23 14:05	55.8	43.4	0	0.8	-12.36	104.1	-12.28	104.1
RLLC0190	3/31/23 7:24	52.6	47.1	0.2	0.1	-0.2	50	-0.3	50
RLLC0191	3/24/23 9:23	61	38.9	0.1	0	-10.61	94.6	-13.59	94.6
RLLC0193	3/17/23 9:53	62	37.7	0.3	0	-10.18	58	-15.05	58
RLLC0194	3/14/23 8:41	57.7	41.1	0	1.2	-0.63	94	-0.86	95.3
RLLC0195	3/14/23 14:36	54.4	43.7	0	1.9	-17.37	89.3	-16.71	89.3
RLLC0196	3/14/23 8:25	62.8	37.1	0.1	0	-35.31	89	-35.46	88.9
RLLC0196	3/15/23 12:04	62.2	37.8	0	0	-40.18	87.4	-39.76	87.4
RLLC0198	3/15/23 10:26	65.1	30.5	0.3	4.1	-30.61	58.8	-30.06	58.6
RLLC0199	3/15/23 10:21	66	33.7	0	0.3	-43.16	58.7	-43.57	58.8
RLLC0200	3/15/23 10:10	45.8	23.6	2.6	28	-42.14	62.8	-42.41	62.8
RLLC0201	3/15/23 9:59	57.7	33.5	1.4	7.4	-42.6	57.6	-42.14	57.6
RLLC0202	3/15/23 11:06	47.3	25.7	4.6	22.4	-43.09	62.3	-41.6	62.2
RLLC0203	3/15/23 11:12	55.4	34.9	1.5	8.2	-41.52	64.4	-40.35	64.4
RLLC0204	3/15/23 11:16	60.4	39.6	0	0	-2.11	99.5	-2.08	99.5
RLLC0205	3/15/23 11:35	57.8	37.5	0	4.7	-0.96	90.3	-0.95	90.4
RLLC0206	3/15/23 11:42	57.5	38.2	0	4.3	-17.54	94.1	-17.5	94.1
RLLC0209	3/15/23 11:38	52.5	33.3	0	14.2	-1.74	78.6	-1.72	78.6
RLLC0210	3/15/23 11:31	53	36.8	0.6	9.6	-25.66	61.8	-28.75	61.7
RLLC0212	3/28/23 14:41	57.6	42.3	0	0.1	-18	97	-17.9	97
RLLC0214	3/28/23 14:14	55	44.9	0	0.1	-45.9	61	-46.3	61
RLLC0215	3/15/23 9:02	65.2	34.6	0.2	0	-38.24	66.7	-39.21	67
RLLC0217	3/24/23 10:12	25.2	16.4	11.6	46.8	-48.12	57.3	-51.38	57.3
RLLC0217	3/24/23 10:22	28.7	17.7	11.1	42.5		57.7	-46.49	56.8
RLLC0219	3/17/23 10:06	0	8.1	13	78.9	-8.32	56.7	-10.82	56.8
RLLC0219	3/17/23 10:15	0	7.5	14.5	78	-1.53	57.6	-7.72	57.6
RLLC0221	3/15/23 10:55	12.4	7.1	16.5	64	-42.52	59.8	-42.31	59.8
RLLC0221	3/15/23 11:03	12.8	7	16.5	63.7	-43.14	59.7	-41.91	59.9
RLLC0222	3/15/23 9:08	59.6	40.4	0	0	-38.63	102.1	-38.7	102
RLLC0223	3/29/23 11:48	58.7	41.2	0	0.1	-23.2	94	-32.1	95
RLLC0224	3/29/23 11:42	59.5	40.3	0	0.2	-9	94	-15.7	95
RLLC0225	3/15/23 10:04	56.5	30.8	0.2	12.5	-36.52	56.4	-36.93	56.4
RLLC0226	3/28/23 14:32	58.3	41.4	0.2	0.1	-43.4	53	-43.2	54
RLLC0227	3/24/23 8:32	56.3	35.7	0	8	-12.14	79.4	-13.33	79.5
RLLC0228	3/15/23 10:31	16.1	12.5	10.5	60.9	-41.54	59.8	-41.74	59.5
RLLC0228	3/15/23 10:47	16.5	12.7	8.4	62.4	-6.51	61.5	-36.06	60.8
RLLC0229	3/15/23 10:16	49.3	31.7	1.2	17.8	-38.62	68.8	-38.71	68.7
RLLC0230	3/15/23 8:33	57	43	0	0	-2.54	111.9	-2.55	112.1
RLLC0231	3/17/23 10:21	53.4	36.3	0.3	10	-11.85	96	-11.83	96

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RLHC0153	3/14/23 14:42	60.6	39.3	0	0.1	-1.85	97.7	-1.88	97.7
RLHC0156	3/15/23 9:31	10.4	8.1	16.5	65	-42.28	54.1	-42.25	53.8
RLLC0232	3/17/23 10:33	58.6	37.8	0.2	3.4	-7.97	94.3	-8.63	94.8
RLLC0233	3/17/23 9:26	53.3	36.7	2.1	7.9	-33.21	81.1	-35.99	81
RLLC0234	3/29/23 8:36	58.7	41.2	0	0.1	-40.7	108	-40.2	108
RLLC0235	3/29/23 8:43	51	41.9	0	7.1	-22.7	108	-22.7	108
RLLC0236	3/29/23 8:49	58.2	41.7	0	0.1	-6.4	102	-8	102
RLLC0237	3/29/23 9:48	59.9	40	0	0.1	-28	85	-27.8	86
RLLC0238	3/29/23 9:53	15.1	10.7	16	58.2	-37.3	49	-38.8	49
RLLC0238	3/30/23 8:58	6.1	8.1	17.4	68.4	-39.9	62	-37.8	62
RLLC0239	3/17/23 9:33	48.9	34.8	0.2	16.1	-1.51	92.4	-1.44	92.4
RLLC0240	3/17/23 9:36	50.3	36	0.3	13.4	-2.22	100.3	-2.23	100.3
RLLC0243	3/24/23 9:29	58.3	40.5	0	1.2	-48.87	71.8	-49.14	71.7
RLLC0244	3/24/23 9:33	57.7	42.3	0	0	-44.09	102.6	-44.19	102.6
RLLC0245	3/24/23 9:39	58.6	41.2	0.1	0.1	-11.59	111.8	-12.73	111.9
RLLC0246	3/24/23 11:03	55.9	44.1	0	0	-4.28	94.3	-4.28	94.3
RLLC0247	3/15/23 9:14	59.4	40.6	0	0	-1.25	95.1	-1.22	95.1
RLLC0248	3/15/23 9:18	58.6	41.4	0	0	-8.75	99.6	-8.76	99.6
RLLC0249	3/14/23 13:43	58.6	41.3	0.1	0	-19.87	64.2	-23.01	64.6
RLLC0250	3/14/23 13:38	50.4	38.1	0	11.5	-11.63	107.3	-11.82	107.3
RLLC0251	3/14/23 9:44	49	39	0	12	-4.94	108.8	-4.86	108.7
RLLC0252	3/29/23 8:20	54.9	45	0	0.1	-8.8	105	-8.7	105
RLLC0253	3/29/23 8:14	56.1	43.7	0	0.2	-16.4	104	-19.8	104
RLLC0255	3/24/23 10:27	60.2	39.3	0.4	0.1	-37.76	100.6	-40.21	100.6
RLLC0256	3/24/23 10:33	25.1	17.2	11.9	45.8	-49.03	53.7	-49.12	53.7
RLLC0256	3/24/23 10:40	23.5	16.2	12.8	47.5	-48.3	53.7	-46.45	53.5
RLLC0257	3/15/23 12:12	59.7	39.8	0	0.5	-38.9	61.1	-38.88	61
RLLC0258	3/15/23 12:15	61.8	37.8	0	0.4	-37.78	57.9	-37.77	58.1
RLLC0259	3/15/23 12:18	62.5	37.1	0	0.4	-40.9	76.2	-40.87	76.2
RLLC0260	3/15/23 11:50	52.5	37.1	0	10.4	-3.69	97.2	-3.63	97.2
RLLC0261	3/15/23 11:54	58.8	38.9	0	2.3	-11.48	99.2	-11.42	99.1
RLLC0262	3/15/23 11:59	57.7	34.9	0.6	6.8	-19.12	81.1	-19.61	81.1
RLLC0263	3/14/23 9:12	55.6	43.9	0	0.5	-2.35	113.7	-3.33	114.2
RLLC0264	3/14/23 14:08	53.8	42.9	0	3.3	-7.21	112.3	-7.15	112.3
RLLC0265	3/24/23 11:12	57.6	42.4	0	0	-1.93	99.4	-1.93	99
RLLC0266	3/28/23 13:59	52	47.9	0	0.1	-20.7	96	-30	96
RLLC0267	3/28/23 13:52	55	44.7	0.1	0.2	-5	103	-6.5	103
RLLC0268	3/28/23 14:23	54.5	45.4	0	0.1	-4.8	103	-6.5	103
RLLC0269	3/15/23 8:58	54.4	45.6	0	0	-1.39	103.1	-1.35	103.1
RLLC0270	3/15/23 8:51	54.8	44.1	0	1.1	-6.32	108.7	-6.3	108.7
RLLC0271	3/24/23 9:09	62.5	37	0	0.5	-8.06	97.5	-8.27	97.5
RLLC0272	3/24/23 10:59	57	42.5	0	0.5	-27.44	99.7	-27.43	99.7
RLLC0273	3/29/23 12:12	58.7	41.2	0	0.1	-40.7	94	-42.7	94
RLLC0274	3/14/23 14:17	50.1	40.7	0	9.2	-4.7	113.7	-4.7	113.7

There are 143 total collectors; 136 vertical wells and 7 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)
RLHC0153	4/6/23 11:25	62.6	37.1	0.3	0	-42.04	74	-42.06	74
RLHC0156	4/5/23 10:45	29.7	19.4	7.4	43.5	-40.13	71.5	-2.78	70.6
RLHC0156	4/5/23 10:52	30.6	20.1	7	42.3	-5.66	72	-3.06	71.7
RLI00003	4/5/23 8:02	60.3	39.4	0.2	0.1	-32.01	56.8	-32	56.8
RLI00003	4/25/23 12:20	60.9	38.3	0.1	0.7	-22.9	79	-33.9	78
RLI00008	4/6/23 10:12	49.6	28.7	3.3	18.4	-6.88	59.1	-10	59.6
RLI00016	4/6/23 10:46	58.8	27.6	2.5	11.1	-46.25	68.6	-46.85	68.6
RLI00017	4/6/23 10:51	64.3	32.3	1.2	2.2	-32.7	69	-31.24	69
RLI00018	4/10/23 10:02	55.8	30.5	2.4	11.3	-28.6	73	-24.6	73
RLI00019	4/6/23 11:06	46.9	25.6	4.2	23.3	-32.39	63.8	-32.39	63.8
RLI00034	4/5/23 8:20	46.5	31.7	4.2	17.6	-20.64	75.3	-24.23	75.2
RLI00035	4/5/23 8:28	54.3	36.9	0.7	8.1	-33.84	73.1	-33.88	73.3
RLI00035	4/25/23 12:32	60.7	39.2	0	0.1	-13.8	75	-14.9	75
RLI00045	4/5/23 8:35	22.8	23.7	0	53.5	-19.79	64.4	-19.84	64.4
RLI00047	4/10/23 10:27	44.9	30.9	0	24.2	-13.4	76	-8.3	76
RLI00047	4/25/23 11:21	43.1	31.5	0	25.4	-4.6	77	-4.8	77
RLI00083	4/4/23 10:40	57.9	34.8	1.7	5.6	-48.2	84	-47.5	85
RLI00083	4/25/23 13:49	51	31.4	2.9	14.7	-29.1	87	-29.2	87
RLI00095	4/4/23 9:33	45.8	33.4	0	20.8	-6.4	102	-6.3	102
RLI00132	4/5/23 9:18	60.7	39.2	0.1	0	-33.27	88.6	-30.86	90.2
RLI00134	4/10/23 9:49	57.6	42.3	0	0.1	-30.3	104	-29	105
RLI00134	4/25/23 11:42	57.9	41.5	0	0.6	-28.9	105	-30.5	105
RLI00135	4/6/23 13:22	57.3	42.6	0.1	0	-32.77	100.6	-26.64	100.8
RLI00135	4/25/23 11:58	56.7	43.2	0	0.1	-33.1	101	-31.8	101
RLI00137	4/6/23 11:24	32.7	19.9	10.1	37.3	-45.69	69.4	-43.54	69.5
RLI00137	4/6/23 11:29	30	17.4	11.3	41.3	-43.64	69	-44.83	69.2
RLI00140	4/5/23 10:21	54.4	45.5	0	0.1	-17.6	77	-16.5	77
RLI00141	4/5/23 10:29	52.2	47.7	0	0.1	-0.2	80	-0.2	80
RLI00142	4/5/23 10:17	56.4	43.5	0	0.1	-36.2	90	-31.8	89
RLI00220	4/4/23 9:17	41.9	31.4	3.1	23.6	-23.8	70	-23.8	70
RLI00275	4/4/23 10:36	59	36.4	0	4.6	-50.2	94	-49.6	95
RLI00276	4/4/23 13:37	57.7	42.3	0	0	-47.2	90.6	-47.46	90.2
RLI00277	4/6/23 11:48	54.6	42.1	0.1	3.2	-2.53	106.8	-2.52	106.8
RLI00277	4/12/23 12:51	56.3	42.9	0	0.8	-3	102	-3.4	104
RLI00278	4/6/23 11:44	58.3	41.5	0.2	0	-1.3	101.7	-1.51	101.9
RLI00278	4/21/23 10:01	58.4	41.3	0	0.3	-1.2	99	-1.7	100
RLI00279	4/6/23 11:55	56.8	43.1	0.2	-0.1	-2.68	131.8	-2.47	130.9
RLI00280	4/6/23 9:53	60.4	39.5	0.1	0	-1.41	109.9	-1.49	110.3
RLI00281	4/6/23 12:23	56.2	43.6	0	0.2	-2.6	112.3	-2.47	112.4
RLI00281	4/12/23 12:56	55.5	44.4	0	0.1	-3.5	109	-3.8	109
RLI00282	4/5/23 10:09	55.6	44.3	0	0.1	-4	104	-4	104
RLI00283	4/10/23 8:35	57.6	42.3	0	0.1	-3.8	100	-3.7	100
RLI00284	4/10/23 7:54	60.7	39.2	0	0.1	-45.1	72	-44.8	72
RLI00285	4/4/23 9:48	62.3	37.6	0	0.1	-47	62	-47.1	63
RLI00286	4/4/23 11:53	55.6	44.3	0	0.1	-1.3	91	-43.1	91
RLI00287	4/4/23 12:27	56.9	42.9	0.1	0.1	-39.25	105.2	-38.82	105.2
RLI0100C	4/5/23 8:14	60.3	39.6	0.1	0	-25.3	69.5	-24.51	69.4
RLI0102C	4/5/23 9:25	61.4	38.5	0.1	0	-43.47	88.7	-43.43	88.7
RLI0103C	4/6/23 13:24	57.2	41.4	0	1.4	-36.87	98.5	-28.31	98.4
RLI0103C	4/21/23 8:58	58.4	41.5	0	0.1	-33.6	94	-32.7	94
RLI0105C	4/6/23 12:44	51.5	42.7	1.2	4.6	-39.56	84.3	-38.17	84.4
RLI0106C	4/6/23 12:13	55.1	44.8	0.1	0	-4.42	68.6	-4.38	68.5
RLI0107C	4/10/23 10:50	49.4	39.7	1.1	9.8	-1.4	80	-1.4	102
RLI0114A	4/10/23 9:33	0.7	2.7	18	78.6	-21	71	-21	71
RLI0114A	4/10/23 9:36	0.5	1.5	19.4	78.6	-21.7	71	-21	71
RLI0115E	4/10/23 9:22	65.1	34.1	0.6	0.2	-39.4	67	-36.2	66

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Device Name	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	Initial Static Pressure ("H2O)	Initial Temperature (^{o}F)	Adjusted Static Pressure ("H2O)	Adjusted Temperature (^{o}F)
RLHC0153	4/6/23 11:25	62.6	37.1	0.3	0	-42.04	74	-42.06	74
RLHC0156	4/5/23 10:45	29.7	19.4	7.4	43.5	-40.13	71.5	-2.78	70.6
RLI0116E	4/6/23 12:00	1.3	3.9	19.6	75.2	0	74.8	0.06	74.4
RLI0116E	4/6/23 12:04	1	1.2	20.5	77.3	0	73.3	0.1	73
RLI0117D	4/6/23 11:49	51.4	33.3	3.1	12.2	-45.61	72.9	-45.6	72.7
RLI0124G	4/5/23 9:38	59.6	35.5	1.4	3.5	-41.7	72	-41.6	73
RLI0126C	4/5/23 9:50	44.5	24.3	5.8	25.4	-39.88	72.5	-39.76	72.4
RLI0126C	4/5/23 9:56	49.8	25.9	4.6	19.7	-39.25	72.4	-39.24	72.2
RLI0127B	4/6/23 10:32	52	34.4	2	11.6	-18.14	100.8	-18.17	100.7
RLI0128A	4/6/23 12:08	55.5	44.1	0.1	0.3	-1.97	116.5	-2.24	116.5
RLI0128A	4/21/23 9:48	53.4	43	0	3.6	-7	111	-2.4	112
RLI0129E	4/10/23 11:11	24.4	11.6	12.4	51.6	-42.6	73	-44.5	73
RLI0129E	4/10/23 11:12	21.8	11.7	12.3	54.2	-47	72	-44.3	72
RLI0130E	4/5/23 10:37	69.4	30.4	0.2	0	-46.14	67.7	-46.73	67.7
RLIHC101	4/5/23 9:47	58.8	41.1	0	0.1	-44.8	102	-43.6	102
RLIHC102	4/5/23 9:42	58.1	41.8	0	0.1	-40.6	103	-41.6	103
RLIHC107	4/10/23 9:02	30	25.9	8.8	35.3	-6	70	-6.1	70
RLIHC107	4/10/23 9:05	23.7	20.5	11.1	44.7	-6.6	71	-6.5	71
RLLC0176	4/6/23 12:50	52.6	40.2	0	7.2	-31.12	76.3	-33.06	76.5
RLLC0177	4/6/23 13:01	59.2	40	0	0.8	-31.22	110.6	-28.98	110.6
RLLC0177	4/21/23 8:30	58.8	41.1	0	0.1	-32.4	104	-32.7	105
RLLC0179	4/4/23 9:42	54.5	33.3	1.5	10.7	-43.9	58	-44	58
RLLC0180	4/6/23 12:55	58.4	41.4	0.2	0	-27.18	107.6	-29.17	107.5
RLLC0181	4/6/23 12:50	57	37.8	0.2	5	-16.89	107.9	-17.53	107.8
RLLC0181	4/21/23 9:42	55.5	37.8	0	6.7	-25.5	103	-21.2	104
RLLC0183	4/6/23 10:26	60	33.7	0.2	6.1	-2.26	61.3	-2.61	59.6
RLLC0184	4/6/23 10:20	60.6	38.9	0.3	0.2	-18.82	98.4	-19.69	98.6
RLLC0185	4/6/23 13:20	57	42.4	0	0.6	-2.02	98	-1.93	98
RLLC0186	4/6/23 13:28	61.3	37.7	0	1	-42.83	71.9	-42.86	71.9
RLLC0186	4/21/23 8:44	61.2	38.7	0	0.1	-43.9	72	-44.1	72
RLLC0187	4/6/23 13:31	61.2	38.2	0	0.6	-42.67	85	-43.09	85
RLLC0187	4/21/23 8:49	61	38.9	0	0.1	-43.7	80	-43.6	80
RLLC0188	4/6/23 13:32	58.6	41.1	0.2	0.1	-41.32	106.3	-40.82	106.3
RLLC0188	4/21/23 9:13	58.4	41.5	0	0.1	-41.6	100	-41.7	100
RLLC0189	4/6/23 13:08	56.2	43.6	0.2	0	-11.67	106	-11.75	106.1
RLLC0189	4/21/23 9:07	53.6	42.3	0	4.1	-14.8	104	-16.7	105
RLLC0190	4/6/23 13:17	54.2	45.3	0.2	0.3	-0.01	78.6	-0.01	78.6
RLLC0191	4/4/23 11:44	61.3	38.6	0	0.1	-17	92	-17	92
RLLC0193	4/10/23 9:28	58.8	41.1	0	0.1	-18.5	69	-18.8	69
RLLC0194	4/6/23 11:59	57.1	41.9	0.1	0.9	-1.73	101	-1.69	101
RLLC0194	4/21/23 9:52	54.6	41.4	0	4	-5.2	99	-1.8	99
RLLC0195	4/6/23 11:33	51.5	42.1	0.2	6.2	-18.81	92.5	-17.88	92.6
RLLC0196	4/6/23 11:37	63.1	36.8	0.1	0	-45.36	90.8	-42.14	90.8
RLLC0196	4/21/23 9:57	63.5	36.4	0	0.1	-43.6	87	-43.7	88
RLLC0198	4/7/23 10:16	58.4	31.4	0	10.2	-33.3	58	-33.8	58
RLLC0199	4/7/23 10:09	64.1	35.8	0	0.1	-45.9	55	-46	55
RLLC0200	4/7/23 9:57	52.7	28	0	19.3	-46	57	-45.7	57
RLLC0201	4/7/23 9:49	66.3	32.5	1.1	0.1	-44.4	54	-27.1	54
RLLC0202	4/7/23 10:32	53.3	25.7	4.9	16.1	-49.6	53	-46	53
RLLC0203	4/10/23 10:59	24.9	18	10	47.1	-43	83	-41.9	83
RLLC0203	4/10/23 11:00	21.6	16.2	11.4	50.8	-41.9	81	-44.7	82
RLLC0204	4/10/23 10:54	59.3	40.6	0	0.1	-1.2	100	-1.2	100
RLLC0205	4/5/23 10:16	58.3	38.9	0	2.8	-0.11	89.2	-0.13	90.4
RLLC0206	4/5/23 10:02	60.4	39.6	0	0	-26.21	53.7	-30.02	52.7
RLLC0209	4/5/23 10:08	62.7	36.8	0	0.5	-0.84	72.2	-1.13	82.3
RLLC0210	4/5/23 10:21	52.9	38.6	0.8	7.7	-30.2	62.9	-30.26	62.9

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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)
RLHC0153	4/6/23 11:25	62.6	37.1	0.3	0	-42.04	74	-42.06	74
RLHC0156	4/5/23 10:45	29.7	19.4	7.4	43.5	-40.13	71.5	-2.78	70.6
RLLC0212	4/4/23 12:49	58.1	41.9	0	0	-17.5	101.3	-16.68	101.3
RLLC0214	4/4/23 12:36	56.4	43.6	0	0	-45.29	68.5	-45.94	68.5
RLLC0215	4/10/23 8:47	56.7	33.3	1.1	8.9	-44.7	67	-42.5	67
RLLC0217	4/10/23 7:48	52.4	36.2	2.5	8.9	-42.9	65	-43.2	66
RLLC0217	4/26/23 10:12	66.1	26.2	2.1	5.6	-45.7	74	-45.1	74
RLLC0219	4/10/23 9:39	11.1	11.3	7.1	70.5	-4.9	72	-4.9	72
RLLC0219	4/10/23 9:40	1.3	6.9	13.7	78.1	-10.5	72	-4.9	72
RLLC0221	4/7/23 10:25	61.1	34	0.5	4.4	-44.9	54	-44.8	54
RLLC0221	4/26/23 10:46	48.2	29.7	2.8	19.3	-44.3	75	-44.8	75
RLLC0222	4/10/23 8:58	58.3	41.6	0	0.1	-42.3	100	-43.2	100
RLLC0223	4/5/23 11:15	57.9	40.3	0	1.8	-30.51	98.8	-29.82	98.8
RLLC0223	4/12/23 9:29	58.2	41.7	0	0.1	-33.1	94	-35.2	94
RLLC0224	4/5/23 11:21	58.3	39.7	0.1	1.9	-15.07	99.3	-16.62	99.3
RLLC0225	4/7/23 9:53	65.9	34	0	0.1	-39.9	59	-40.1	58
RLLC0226	4/4/23 12:43	52.3	37	1.5	9.2	-44.61	66	-42.23	66.4
RLLC0226	4/26/23 10:31	48.5	32.7	3.3	15.5	-45.3	80	-43.6	80
RLLC0227	4/4/23 9:27	53.5	34.6	0	11.9	-18.4	77	-18.2	77
RLLC0228	4/7/23 10:21	72.2	24	2.4	1.4	-8.7	53	-10.7	53
RLLC0229	4/7/23 10:02	62.3	37.6	0	0.1	-38.2	63	-34.6	65
RLLC0230	4/10/23 9:09	55.7	44.2	0	0.1	-7.6	110	-4.1	111
RLLC0231	4/6/23 9:46	54.3	37.3	0.3	8.1	-13.93	95.5	-13.96	95.5
RLLC0232	4/6/23 10:02	59.2	38.9	0.2	1.7	-10.87	95.3	-11.44	95.5
RLLC0233	4/6/23 12:18	44.8	34.6	2.1	18.5	-24.66	100.1	-35.48	101.4
RLLC0234	4/4/23 13:19	54.4	40.7	0	4.9	-38.56	112.8	-39.82	112.8
RLLC0235	4/4/23 13:23	44.5	40	0	15.5	-25.38	111.8	-25.28	111.7
RLLC0236	4/6/23 11:47	57.8	40.3	0.1	1.8	-8.12	106.4	-8.16	106.4
RLLC0237	4/6/23 11:55	59.7	40	0	0.3	-27.94	88.2	-27.92	88.2
RLLC0238	4/6/23 11:33	1.9	4.7	18.9	74.5	-40.32	71.6	-41.52	71.4
RLLC0238	4/6/23 11:40	2.9	5.1	18.5	73.5	-38.97	70.1	-40.41	70.4
RLLC0239	4/6/23 12:08	52.8	36.6	0.1	10.5	-1.11	95.3	-1.06	95.2
RLLC0240	4/6/23 12:12	52.2	38.4	0	9.4	-2.61	102.3	-2.93	102.5
RLLC0241	4/14/23 10:24	61.6	38.1	0	0.3	-47.4	91	-46.3	91
RLLC0242	4/14/23 9:40	59.8	40.1	0	0.1	-8.3	99	-8.4	100
RLLC0243	4/4/23 13:07	58.1	41.8	0	0.1	-47.71	78	-47.71	78
RLLC0244	4/4/23 13:02	56.5	43.5	0	0	-47.16	92.6	-47.05	92.7
RLLC0245	4/4/23 12:54	57.2	42.8	0	0	-12.64	113.1	-12.55	113.1
RLLC0246	4/10/23 11:28	55	44.9	0	0.1	-3.1	94	-3	94
RLLC0247	4/5/23 11:01	59.3	40.7	0.1	-0.1	-1.05	98.1	-1.03	98
RLLC0247	4/12/23 13:13	57.8	42.1	0	0.1	-1.6	94	-1.7	95
RLLC0248	4/5/23 11:09	57.9	42.1	0	0	-11.17	100.4	-11.78	100.4
RLLC0249	4/6/23 13:05	58.1	41.3	0	0.6	-25.55	108.1	-26.22	107.9
RLLC0249	4/21/23 8:36	57.7	42.2	0	0.1	-28.2	104	-27.8	104
RLLC0250	4/6/23 12:42	48.3	38	0.2	13.5	-10.89	112.6	-11.64	112.5
RLLC0251	4/6/23 12:55	48.7	39.1	0	12.2	-6.43	111.3	-6.12	111.3
RLLC0252	4/10/23 8:23	56.3	43.6	0	0.1	-0.2	90	-0.2	76
RLLC0253	4/4/23 13:43	55.6	44.4	0	0	-19.26	107.9	-19.33	107.9
RLLC0255	4/5/23 10:05	58.1	41.8	0	0.1	-38.3	97	-38	97
RLLC0256	4/5/23 9:59	53	34.6	2.5	9.9	-24.1	65	-23.9	65
RLLC0257	4/5/23 7:54	58.3	41.7	0	0	-43.3	50.5	-43.29	50.5
RLLC0258	4/5/23 7:50	59.5	40.4	0	0.1	-40.55	49.7	-40.57	49.7
RLLC0259	4/5/23 7:45	61.8	38	0.2	0	-44.76	61.7	-44.5	61.8
RLLC0260	4/5/23 9:41	55.4	40.7	0.2	3.7	-1.87	96.3	-2.19	96.7
RLLC0261	4/5/23 9:31	59.7	39.7	0.1	0.5	-12.42	100.4	-13.49	100.4
RLLC0261	4/12/23 9:06	59	40.2	0.1	0.7	-15.7	95	-16.6	96

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - April 4, 5, 6, 7, 10, 12, 14, 21, 25, 26, and 27, 2023

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)
RLHC0153	4/6/23 11:25	62.6	37.1	0.3	0	-42.04	74	-42.06	74
RLHC0156	4/5/23 10:45	29.7	19.4	7.4	43.5	-40.13	71.5	-2.78	70.6
RLLC0262	4/5/23 8:50	39.9	25.2	6.7	28.2	-24.3	51	-24.28	51.5
RLLC0262	4/5/23 9:02	20.8	13.7	13.7	51.8	-25.41	56	-25.13	56.1
RLLC0262	4/5/23 9:11	57.6	33.5	1.6	7.3	-24.63	57	-25.28	57
RLLC0263	4/6/23 13:27	55.5	44.4	0.2	-0.1	-3.61	115.6	-3.69	115.6
RLLC0264	4/6/23 13:01	55	43.1	0.5	1.4	-7.29	111.9	-7.8	111.9
RLLC0264	4/12/23 13:05	55.2	44.7	0	0.1	-12.4	108	-12.9	108
RLLC0265	4/5/23 10:13	53.5	46.4	0	0.1	-6.4	97	-1.5	98
RLLC0266	4/5/23 10:39	46.4	45	0	8.6	-30	96	-29.9	97
RLLC0267	4/4/23 12:31	52.9	42.7	0.4	4	-6.69	106.7	-6.69	106.7
RLLC0268	4/10/23 8:52	55.5	44.4	0	0.1	-9.1	104	-9.1	104
RLLC0269	4/10/23 8:43	53.7	46.2	0	0.1	-1.2	102	-1.2	102
RLLC0270	4/10/23 8:39	51	48.9	0	0.1	-6.2	106	-42.4	106
RLLC0271	4/4/23 10:46	63	36.9	0	0.1	-8.3	95	-9	95
RLLC0272	4/5/23 10:25	56.2	43.7	0	0.1	-25.2	97	-25.2	97
RLLC0273	4/10/23 9:19	58.3	41.6	0	0.1	-40.7	89	-41	90
RLLC0274	4/6/23 12:40	54.7	42.7	0.2	2.4	-6.81	112.7	-7.48	112.7

There are 143 total collectors; 136 vertical wells and 7 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: J. Dutra, R. Lindberg
UPDATED DATE: 05/25/23
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)
RLI00137	10/19/22 13:40	40.6	23.6	6.5	29.3	-16.4	103.8	-16.31	103.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00137	10/19/22 13:44	40.3	23.6	6.5	29.6	-30.07	103.6	-23.59	103	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00137	11/30/22 12:06	46.9	27.2	4.9	21	-12.25	86.2	-12.72	86.2	No Adj. Made	42
RLI00137 was monitored on 10/19/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 11/30/22											
RLI00284	10/7/22 9:23	9.4	9.3	17.6	63.7	-47.37	60.6	-47.43	60.7	NSPS/EG CAI;Barely Open;Surging;No Adj. Made	
RLI00284	10/7/22 9:39	14.6	9.4	16	60	-46.55	58.9	-45.23	58.9	NSPS/EG CAI;Barely Open;Surging;No Adj. Made	
RLI00284	10/12/22 9:02	48.9	36.5	1.6	13	-47.45	64.3	-46.8	63.2	Inc. Flow/Vac.;Surging;Watered In	
RLI00284 was monitored on 10/7/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 10/12/22											5
RLI0116E	10/19/22 11:47	16.5	9.9	14.6	59	-0.42	88.5	-0.4	88.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0116E	10/19/22 11:51	11.9	7.1	16.3	64.7	-0.81	88.3	-0.1	88.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0116E	11/28/22 15:50	41.3	25.9	6.7	26.1	-0.02	70.3	-0.02	70.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0116E	11/28/22 16:02	47.4	29.3	4.9	18.4	-0.04	66.4	-0.06	66.3	No Adj. Made	40
RLI0116E was monitored on 10/19/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 11/28/22											
RLI0117D	10/19/22 11:32	20.9	15.9	10.3	52.9	-42.13	89.3	-41.07	89.3	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0117D	10/19/22 11:38	20.4	15.2	10.9	53.5	-42.84	89.3	-43.26	89.3	NSPS/EG CAI;Inc. Flow/Vac.	
RLI0117D	11/28/22 15:43	46	30.3	3.5	20.2	-43.5	63.1	-43.54	63.1	No Adj. Made	40
RLI0117D was monitored on 10/19/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 11/28/22											
RLI0126C	10/25/22 13:29	31.1	17.5	9.8	41.6	-3.58	99.1	-0.24	98.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0126C	10/25/22 13:44	28.9	16.5	10.4	44.2	0.83	100.1	-0.78	97.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0126C	11/7/22 11:43	53.5	26.7	3.9	15.9	-38.86	78.1	-39.44	78.3	NSPS/EG CAI;Barely Open;No Adj. Made	13
RLI0126C was monitored on 10/25/2022 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/25/2022											
RLI0126C was monitored on 10/25/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 11/7/22											
RLI0129E	10/25/22 14:13	16.7	6.3	15.5	61.5	-45.71	82.4	-45.2	82.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E	10/25/22 14:21	17.3	6.5	15.5	60.7	-46.45	82.4	-46.38	82.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0129E	11/7/22 11:04	61.3	34.3	0.6	3.8	-45.32	75.1	-47.49	75.2	Barely Open;No Adj. Made	13
RLI0129E was monitored on 10/25/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 11/7/22											
RLI0114A	11/29/22 11:21	38.4	22.6	6.8	32.2	-8.03	74.9	-7.2	74.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0114A	11/29/22 11:26	37.8	22.3	6.8	33.1	-7.78	76	-6.83	76.1	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0114A	12/7/22 11:37	62.2	32.1	0.9	4.8	-1.32	60.1	-4.99	61.5	Inc. Flow/Vac.	8
RLI0114A was monitored on 11/29/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 12/7/22											
RLI00279	12/6/22 16:08	53.4	44.4	0	2.2	-1.68	132	-1.7	132.3	Inc. Flow/Vac.	
RLI00279	12/8/22 10:05	53.3	44.1	0.2	2.4	-1.98	132.4	-0.76	130.8	NSPS/EG CAI;Dec. Flow/Vac.	2
RLI00279 was monitored on 12/6/2022 and was found to be in exceedance for Temperature. Corrective actions were initiated. The well was re-monitored and cleared on 12/8/22											
RLI0117D	12/5/22 14:38	4.9	4.1	17.8	73.2	-18.59	64.2	-17.88	63.6	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0117D	12/5/22 15:57	13.3	11.8	14.5	60.4	-40.03	55	-39.99	54.9	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0117D	1/20/23 7:58	45.5	37.6	3.4	13.5	-38.5	40	-38.9	40		46
RLI0117D was monitored on 12/5/2022 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 1/20/23											
No well exceedances in February 2023											
RLHC0156	3/15/23 9:31	10.4	8.1	16.5	65	-42.28	54.1	-42.25	53.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLHC0156	3/15/23 9:52	26.2	12.2	10.1	51.5	-37.43	59.6	-39.65	58.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLHC0156	4/5/23 10:45	29.7	19.4	7.4	43.5	-40.13	71.5	-2.78	70.6	NSPS/EG CAI;Dec. Flow/Vac.	
RLHC0156	4/5/23 10:52	30.6	20.1	7	42.3	-5.66	72	-3.06	71.7	NSPS/EG CAI;Dec. Flow/Vac.	
RLHC0156 was monitored on 3/15/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											47
RLI00008	3/31/23 7:46	0.5	5.8	16.4	77.3	-4.1	57	-4	57	NSPS/EG CAI;No Adj. Made	
RLI00008	3/31/23 7:48	0.2	4.1	16.9	78.8	-1.1	56	-1.6	56	NSPS/EG CAI;Barely Open	
RLI00008	4/6/23 10:12	49.6	28.7	3.3	18.4	-6.88	59.1	-10	59.6	No Adj. Made	
RLI00008 was monitored on 3/31/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/6/2023											6
RLI00019	3/31/23 8:09	40.5	24.6	6.6	28.3	-34.8	46	-33.9	46	NSPS/EG CAI;No Adj. Made	
RLI00019	3/31/23 8:13	32.9	20.4	9.7	37	-33	47	-34.2	46	Barely Open;NSPS/EG CAI;No Adj. Made	
RLI00019	4/6/23 11:06	46.9	25.6	4.2	23.3	-32.39	63.8	-32.39	63.8	No Adj. Made	
RLI00019 was monitored on 3/31/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/6/2023											6
RLI00141	3/28/23 14:07	51.3	48.6	0	0.1	0.2	53	-0.2	56	Inc. Flow/Vac.;NSPS/EG CAI;Barely Open	
RLI00141 was monitored on 3/28/2023 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 3/28/2023											
RLI0116E	3/29/23 9:29	1.2	1.5	20.6	76.7	-0.1	49	-0.1	50	NSPS/EG CAI	
RLI0116E	3/29/23 9:32	1.2	1	20.8	77	-0.1	52	-0.1	52	NSPS/EG CAI	
RLI0116E	4/6/23 12:00	1.3	3.9	19.6	75.2	0	74.8	0.06	74.4	NSPS/EG CAI;Barely Open;No Adj. Made	
RLI0116E	4/6/23 12:04	1	1.2	20.5	77.3	0	73.3	0.1	73	NSPS/EG CAI;Barely Open;No Adj. Made	
RLI0116E was monitored on 3/29/2023 and was found to be in exceedance for Oxygen (and Pressure on 4/6/23). Corrective actions were initiated. Repairs are in progress as of 5/1/2023											33
RLIHC107	3/15/23 8:45	19.4	16.2	12.8	51.6	-20.6	48.6	-25.26	48.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLIHC107	3/15/23 9:41	25.1	24.8	9	41.1	-38.82	55.8	-36.13	55.3	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLIHC107	4/10/23 9:02	30	25.9	8.8	35.3	-6	70	-6.1	70	NSPS/EG CAI;Barely Open;No Adj. Made	
RLIHC107	4/10/23 9:05	23.7	20.5	11.1	44.7	-6.6	71	-6.5	71	NSPS/EG CAI;Barely Open;No Adj. Made	
RLIHC107 was monitored on 3/15/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											47
RLLC0185	3/14/23 9:31	57.8	42.2	0	0	0.11	87.4	-1.4	94.5	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0185 was monitored on 3/14/2023 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 3/14/2023											
RLLC0217	3/24/23 10:12	25.2	16.4	11.6	46.8	-48.12	57.3	-51.38	57.3	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0217	3/24/23 10:22	28.7	17.7	11.1	42.5		57.7	-46.49	56.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0217	4/10/23 7:48	52.4	36.2	2.5	8.9	-42.9	65	-43.2	66	No Adj. Made	
RLLC0217 was monitored on 3/24/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/10/2023											17

RLLC0219	3/17/23 10:06	0	8.1	13	78.9	-8.32	56.7	-10.82	56.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0219	3/17/23 10:15	0	7.5	14.5	78	-1.53	57.6	-7.72	57.6	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0219	4/10/23 9:39	11.1	11.3	7.1	70.5	-4.9	72	-4.9	72	NSPS/EG CAI;No Adj. Made	
RLLC0219	4/10/23 9:40	1.3	6.9	13.7	78.1	-10.5	72	-4.9	72	NSPS/EG CAI;Barely Open	
RLLC0219 was monitored on 3/17/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											45
RLLC0221	3/15/23 10:55	12.4	7.1	16.5	64	-42.52	59.8	-42.31	59.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0221	3/15/23 11:03	12.8	7	16.5	63.7	-43.14	59.7	-41.91	59.9	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0221	4/7/23 10:25	61.1	34	0.5	4.4	-44.9	54	-44.8	54	No Adj. Made	
RLLC0221 was monitored on 3/15/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/7/2023											23
RLLC0228	3/15/23 10:31	16.1	12.5	10.5	60.9	-41.54	59.8	-41.74	59.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0228	3/15/23 10:47	16.5	12.7	8.4	62.4	-6.51	61.5	-36.06	60.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0228	4/7/23 10:21	72.2	24	2.4	1.4	-8.7	53	-10.7	53	No Adj. Made	
RLLC0228 was monitored on 3/15/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/7/2023											23
RLLC0238	3/29/23 9:53	15.1	10.7	16	58.2	-37.3	49	-38.8	49	NSPS/EG CAI	
RLLC0238	3/30/23 8:58	6.1	8.1	17.4	68.4	-39.9	62	-37.8	62	NSPS/EG CAI	
RLLC0238	4/6/23 11:33	1.9	4.7	18.9	74.5	-40.32	71.6	-41.52	71.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0238	4/6/23 11:40	2.9	5.1	18.5	73.5	-38.97	70.1	-40.41	70.4	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLLC0238 was monitored on 3/29/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											33
RLLC0256	3/24/23 10:33	25.1	17.2	11.9	45.8	-49.03	53.7	-49.12	53.7	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0256	3/24/23 10:40	23.5	16.2	12.8	47.5	-48.3	53.7	-46.45	53.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0256	4/5/23 9:59	53	34.6	2.5	9.9	-24.1	65	-23.9	65	No Adj. Made	
RLLC0256 was monitored on 3/24/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/5/2023											12
RLI00137	4/6/23 11:24	32.7	19.9	10.1	37.3	-45.69	69.4	-43.54	69.5	NSPS/EG CAI;No Adj. Made	
RLI00137	4/6/23 11:29	30	17.4	11.3	41.3	-43.64	69	-44.83	69.2	NSPS/EG CAI;No Adj. Made	
RLI00137 was monitored on 4/6/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											25
RLI00279	4/6/23 11:55	56.8	43.1	0.2	-0.1	-2.68	131.8	-2.47	130.9	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00279 was monitored on 4/6/2023 and was found to be in exceedance for Temperature. Corrective actions were initiated. The well was re-monitored and cleared on 4/6/2023											
RLI0114A	4/10/23 9:33	0.7	2.7	18	78.6	-21	71	-21	71	NSPS/EG CAI;No Adj. Made	
RLI0114A	4/10/23 9:36	0.5	1.5	19.4	78.6	-21.7	71	-21	71	NSPS/EG CAI;Barely Open	
RLI0114A was monitored on 4/10/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											21
RLI0126C	4/5/23 9:50	44.5	24.3	5.8	25.4	-39.88	72.5	-39.76	72.4	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0126C	4/5/23 9:56	49.8	25.9	4.6	19.7	-39.25	72.4	-39.24	72.2	No Adj. Made	
RLI0126C was monitored on 4/5/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/5/2023											
RLI0129E	4/10/23 11:11	24.4	11.6	12.4	51.6	-42.6	73	-44.5	73	NSPS/EG CAI;No Adj. Made	
RLI0129E	4/10/23 11:12	21.8	11.7	12.3	54.2	-47	72	-44.3	72	NSPS/EG CAI;No Adj. Made	
RLI0129E was monitored on 4/10/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											21
RLLC0203	4/10/23 10:59	24.9	18	10	47.1	-43	83	-41.9	83	NSPS/EG CAI;No Adj. Made	
RLLC0203	4/10/23 11:00	21.6	16.2	11.4	50.8	-41.9	81	-44.7	82	NSPS/EG CAI;Barely Open;No Adj. Made	
RLLC0203 was monitored on 4/10/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. Repairs are in progress as of 5/1/2023											21
RLLC0262	4/5/23 8:50	39.9	25.2	6.7	28.2	-24.3	51	-24.28	51.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLLC0262	4/5/23 9:02	20.8	13.7	13.7	51.8	-25.41	56	-25.13	56.1	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0262	4/5/23 9:11	57.6	33.5	1.6	7.3	-24.63	57	-25.28	57	No Adj. Made	
RLLC0262 was monitored on 4/5/2023 and was found to be in exceedance for Oxygen. Corrective actions were initiated. The well was re-monitored and cleared on 4/5/2023											

APPENDIX K

MONTHLY LANDFILL GAS FLOW RATES

REDWOOD LANDFILL, INC.
Novato, CA

Yearly LFG for A-51 Flare, A-60 Flare, S-64 Engine (#1), and S-65 Engine (#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]
May-22	24,336	42,225,186	18,087,139	15,922,931	76,259,593	724,430	535,164,563	286,714,511	233,796,647	1,056,400,150
Jun-22	0	45,330,886	17,314,882	11,409,857	74,055,625	724,430	522,575,523	278,328,806	236,992,251	1,038,621,010
Jul-22	0	50,171,874	6,873,205	17,432,660	74,477,739	724,430	514,421,546	259,527,671	244,685,008	1,019,358,654
Aug-22	0	50,326,245	19,907,365	4,085,449	74,319,059	724,430	527,413,052	249,580,026	223,369,747	1,001,087,255
Sep-22	0	43,640,409	17,314,437	16,947,403	77,902,249	724,430	531,350,811	251,196,616	220,081,739	1,003,353,596
Oct-22	3,102,693	47,141,832	19,308,349	16,907,279	86,460,153	3,827,123	525,569,983	257,750,418	219,689,701	1,006,837,225
Nov-22	0	40,337,598	22,238,153	20,423,574	82,999,325	3,827,123	524,545,438	251,066,535	215,479,275	994,918,372
Dec-22	57,160	41,426,130	21,710,949	20,111,474	83,305,713	3,884,283	524,222,987	244,226,119	210,896,521	983,229,910
Jan-23	1,599,010	41,088,467	20,444,617	19,114,222	82,246,315	4,783,199	525,487,623	240,786,583	208,349,158	979,406,562
Feb-23	0	57,241,573	24,282,697	23,661,778	105,186,048	4,783,199	539,952,860	241,874,123	210,350,590	996,960,772
Mar-23	19,616,658	71,321,496	666,550	16,882,819	108,487,524	24,399,858	568,873,050	215,207,138	204,185,372	1,012,665,418
Apr-23	43,863,667	54,466,859	0	11,513,894	109,844,420	68,263,525	584,718,556	188,148,342	194,413,338	1,035,543,762

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]
November-22	721.00	721.00	0.00	0		0	0	0	0	0.083	0.00	111.96	0.00
December-22	744.00	742.67	1.33	738	47.8	59,065	57,160	28,213	29	0.083	0.00	111.96	0.00
January-23	744.00	716.17	27.83	989	47.8	1,652,291	1,599,010	789,245	800	0.083	0.03	284.30	0.23
February-23	672.00	672.00	0.00	0		0	0	0	0	0.083	0.00	284.30	0.00
March-23	743.00	490.50	252.50	1,231	51.9	18,652,393	19,616,658	9,682,457	9,808	0.071	0.35	284.30	2.65
April-23	720.00	22.63	697.37	997	51.9	41,707,530	43,863,667	21,650,379	21,932	0.071	0.78	TBD	TBD
TOTAL/ AVG:	**4,344.00**	**3,364.97**	**979.03**	**1,057**	**49.8**	**62,071,279**	**65,136,496**	**32,150,294**	**32,568.25**	**--**	**--**	**--**	**--**

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, 2022 (March 11, 2022 - March 8, 2023) and January 12, 2023 (March 9, 2023 - 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

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Nov-22

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
11/1/2022	0.00	47.8	0	0	0	1,013	0	0
11/2/2022	0.00	47.8	0	0	0	1,013	0	0
11/3/2022	0.00	47.8	0	0	0	1,013	0	0
11/4/2022	0.00	47.8	0	0	0	1,013	0	0
11/5/2022	0.00	47.8	0	0	0	1,013	0	0
11/6/2022	0.00	47.8	0	0	0	1,013	0	0
11/7/2022	0.00	47.8	0	0	0	1,013	0	0
11/8/2022	0.00	47.8	0	0	0	1,013	0	0
11/9/2022	0.00	47.8	0	0	0	1,013	0	0
11/10/2022	0.00	47.8	0	0	0	1,013	0	0
11/11/2022	0.00	47.8	0	0	0	1,013	0	0
11/12/2022	0.00	47.8	0	0	0	1,013	0	0
11/13/2022	0.00	47.8	0	0	0	1,013	0	0
11/14/2022	0.00	47.8	0	0	0	1,013	0	0
11/15/2022	0.00	47.8	0	0	0	1,013	0	0
11/16/2022	0.00	47.8	0	0	0	1,013	0	0
11/17/2022	0.00	47.8	0	0	0	1,013	0	0
11/18/2022	0.00	47.8	0	0	0	1,013	0	0
11/19/2022	0.00	47.8	0	0	0	1,013	0	0
11/20/2022	0.00	47.8	0	0	0	1,013	0	0
11/21/2022	0.00	47.8	0	0	0	1,013	0	0
11/22/2022	0.00	47.8	0	0	0	1,013	0	0
11/23/2022	0.00	47.8	0	0	0	1,013	0	0
11/24/2022	0.00	47.8	0	0	0	1,013	0	0
11/25/2022	0.00	47.8	0	0	0	1,013	0	0
11/26/2022	0.00	47.8	0	0	0	1,013	0	0
11/27/2022	0.00	47.8	0	0	0	1,013	0	0
11/28/2022	0.00	47.8	0	0	0	1,013	0	0
11/29/2022	0.00	47.8	0	0	0	1,013	0	0
11/30/2022	0.00	47.8	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 14, 2021 (March 10, 2021 - March 10, 2022) and January 12, 2022 (March 11, 2022 - 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: Dec-22

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
12/1/2022	0.00	47.8	0	0	0	1,013	0	0
12/2/2022	0.00	47.8	0	0	0	1,013	0	0
12/3/2022	0.00	47.8	0	0	0	1,013	0	0
12/4/2022	0.00	47.8	0	0	0	1,013	0	0
12/5/2022	0.00	47.8	0	0	0	1,013	0	0
12/6/2022	0.00	47.8	0	0	0	1,013	0	0
12/7/2022	0.00	47.8	0	0	0	1,013	0	0
12/8/2022	0.00	47.8	0	0	0	1,013	0	0
12/9/2022	0.00	47.8	0	0	0	1,013	0	0
12/10/2022	0.00	47.8	0	0	0	1,013	0	0
12/11/2022	0.00	47.8	0	0	0	1,013	0	0
12/12/2022	0.00	47.8	0	0	0	1,013	0	0
12/13/2022	0.00	47.8	0	0	0	1,013	0	0
12/14/2022	0.00	47.8	0	0	0	1,013	0	0
12/15/2022	0.00	47.8	0	0	0	1,013	0	0
12/16/2022	0.00	47.8	0	0	0	1,013	0	0
12/17/2022	0.00	47.8	0	0	0	1,013	0	0
12/18/2022	0.00	47.8	0	0	0	1,013	0	0
12/19/2022	0.00	47.8	0	0	0	1,013	0	0
12/20/2022	0.00	47.8	0	0	0	1,013	0	0
12/21/2022	0.00	47.8	0	0	0	1,013	0	0
12/22/2022	0.00	47.8	0	0	0	1,013	0	0
12/23/2022	0.00	47.8	0	0	0	1,013	0	0
12/24/2022	0.00	47.8	0	0	0	1,013	0	0
12/25/2022	0.00	47.8	0	0	0	1,013	0	0
12/26/2022	0.00	47.8	0	0	0	1,013	0	0
12/27/2022	0.00	47.8	0	0	0	1,013	0	0
12/28/2022	1.33	47.8	738	59,065	28,213	1,013	29	57,160
12/29/2022	0.00	47.8	0	0	0	1,013	0	0
12/30/2022	0.00	47.8	0	0	0	1,013	0	0
12/31/2022	0.00	47.8	0	0	0	1,013	0	0
Totals/ Average:	**1.33**	**47.8**	**738**	**59,065.0**	**28,213**	**1,013**	**29**	**57,160**
Notes:						**Maximum:**	**29**	**57,160**

The A-51 Flare commenced operation on June 21, 2005.

*CH_4 content was determined from the January 14, 2021 (March 10, 2021 - March 10, 2022) and January 12, 2022 (March 11, 2022 - 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: Jan-23

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
1/1/2023	0.00	47.8	0	0	0	1,013	0	0
1/2/2023	0.00	47.8	0	0	0	1,013	0	0
1/3/2023	0.00	47.8	0	0	0	1,013	0	0
1/4/2023	0.00	47.8	0	0	0	1,013	0	0
1/5/2023	0.00	47.8	0	0	0	1,013	0	0
1/6/2023	0.00	47.8	0	0	0	1,013	0	0
1/7/2023	0.00	47.8	0	0	0	1,013	0	0
1/8/2023	0.00	47.8	0	0	0	1,013	0	0
1/9/2023	0.00	47.8	0	0	0	1,013	0	0
1/10/2023	0.00	47.8	0	0	0	1,013	0	0
1/11/2023	15.77	47.8	996	942,586	450,242	1,013	456	912,191
1/12/2023	12.07	47.8	980	709,705	339,003	1,013	343	686,819
1/13/2023	0.00	47.8	0	0	0	1,013	0	0
1/14/2023	0.00	47.8	0	0	0	1,013	0	0
1/15/2023	0.00	47.8	0	0	0	1,013	0	0
1/16/2023	0.00	47.8	0	0	0	1,013	0	0
1/17/2023	0.00	47.8	0	0	0	1,013	0	0
1/18/2023	0.00	47.8	0	0	0	1,013	0	0
1/19/2023	0.00	47.8	0	0	0	1,013	0	0
1/20/2023	0.00	47.8	0	0	0	1,013	0	0
1/21/2023	0.00	47.8	0	0	0	1,013	0	0
1/22/2023	0.00	47.8	0	0	0	1,013	0	0
1/23/2023	0.00	47.8	0	0	0	1,013	0	0
1/24/2023	0.00	47.8	0	0	0	1,013	0	0
1/25/2023	0.00	47.8	0	0	0	1,013	0	0
1/26/2023	0.00	47.8	0	0	0	1,013	0	0
1/27/2023	0.00	47.8	0	0	0	1,013	0	0
1/28/2023	0.00	47.8	0	0	0	1,013	0	0
1/29/2023	0.00	47.8	0	0	0	1,013	0	0
1/30/2023	0.00	47.8	0	0	0	1,013	0	0
1/31/2023	0.00	47.8	0	0	0	1,013	0	0
Totals/ Average:	**27.83**	**47.8**	**989**	**1,652,291.0**	**789,245**	**1,013**	**800**	**1,599,010**
						Maximum:	**456**	**912,191**

Notes:

The A-51 Flare commenced operation on June 21, 2005.

*CH_4 content was determined from the January 14, 2021 (March 10, 2021 - March 10, 2022) and January 12, 2022 (March 11, 2022 - 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: Feb-23

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
2/1/2023	0.00	47.8	0	0	0	1,013	0	0
2/2/2023	0.00	47.8	0	0	0	1,013	0	0
2/3/2023	0.00	47.8	0	0	0	1,013	0	0
2/4/2023	0.00	47.8	0	0	0	1,013	0	0
2/5/2023	0.00	47.8	0	0	0	1,013	0	0
2/6/2023	0.00	47.8	0	0	0	1,013	0	0
2/7/2023	0.00	47.8	0	0	0	1,013	0	0
2/8/2023	0.00	47.8	0	0	0	1,013	0	0
2/9/2023	0.00	47.8	0	0	0	1,013	0	0
2/10/2023	0.00	47.8	0	0	0	1,013	0	0
2/11/2023	0.00	47.8	0	0	0	1,013	0	0
2/12/2023	0.00	47.8	0	0	0	1,013	0	0
2/13/2023	0.00	47.8	0	0	0	1,013	0	0
2/14/2023	0.00	47.8	0	0	0	1,013	0	0
2/15/2023	0.00	47.8	0	0	0	1,013	0	0
2/16/2023	0.00	47.8	0	0	0	1,013	0	0
2/17/2023	0.00	47.8	0	0	0	1,013	0	0
2/18/2023	0.00	47.8	0	0	0	1,013	0	0
2/19/2023	0.00	47.8	0	0	0	1,013	0	0
2/20/2023	0.00	47.8	0	0	0	1,013	0	0
2/21/2023	0.00	47.8	0	0	0	1,013	0	0
2/22/2023	0.00	47.8	0	0	0	1,013	0	0
2/23/2023	0.00	47.8	0	0	0	1,013	0	0
2/24/2023	0.00	47.8	0	0	0	1,013	0	0
2/25/2023	0.00	47.8	0	0	0	1,013	0	0
2/26/2023	0.00	47.8	0	0	0	1,013	0	0
2/27/2023	0.00	47.8	0	0	0	1,013	0	0
2/28/2023	0.00	47.8	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 14, 2021 (March 10, 2021 - March 10, 2022) and January 12, 2022 (March 11, 2022 - 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: Mar-23

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
3/1/2023	0.00	47.8	0	0	0	1,013	0	0
3/2/2023	0.00	47.8	0	0	0	1,013	0	0
3/3/2023	0.00	47.8	0	0	0	1,013	0	0
3/4/2023	0.00	47.8	0	0	0	1,013	0	0
3/5/2023	0.00	47.8	0	0	0	1,013	0	0
3/6/2023	0.00	47.8	0	0	0	1,013	0	0
3/7/2023	0.00	47.8	0	0	0	1,013	0	0
3/8/2023	0.00	47.8	0	0	0	1,013	0	0
3/9/2023	0.00	51.9	0	0	0	1,013	0	0
3/10/2023	0.00	51.9	0	0	0	1,013	0	0
3/11/2023	0.00	51.9	0	0	0	1,013	0	0
3/12/2023	0.00	51.9	0	0	0	1,013	0	0
3/13/2023	0.00	51.9	0	0	0	1,013	0	0
3/14/2023	11.67	51.9	2,603	1,822,148	945,877	1,013	958	1,916,347
3/15/2023	24.00	51.9	2,585	3,722,874	1,932,544	1,013	1,958	3,915,334
3/16/2023	9.13	51.9	2,348	1,286,452	667,797	1,013	676	1,352,957
3/17/2023	0.00	51.9	0	0	0	1,013	0	0
3/18/2023	0.00	51.9	0	0	0	1,013	0	0
3/19/2023	0.00	51.9	0	0	0	1,013	0	0
3/20/2023	0.00	51.9	0	0	0	1,013	0	0
3/21/2023	3.63	51.9	2,551	556,223	288,735	1,013	292	584,978
3/22/2023	0.00	51.9	0	0	0	1,013	0	0
3/23/2023	12.57	51.9	985	743,033	385,708	1,013	391	781,445
3/24/2023	24.00	51.9	945	1,360,365	706,165	1,013	715	1,430,691
3/25/2023	24.00	51.9	937	1,348,822	700,174	1,013	709	1,418,552
3/26/2023	24.00	51.9	916	1,319,578	684,993	1,013	694	1,387,796
3/27/2023	24.00	51.9	911	1,312,546	681,343	1,013	690	1,380,400
3/28/2023	23.50	51.9	778	1,097,038	569,472	1,013	577	1,153,751
3/29/2023	24.00	51.9	840	1,209,352	627,775	1,013	636	1,271,871
3/30/2023	24.00	51.9	998	1,436,858	745,873	1,013	756	1,511,139
3/31/2023	24.00	51.9	998	1,437,104	746,001	1,013	756	1,511,397
Totals/ Average:	**252.50**	**51.9**	**1,231**	**18,652,393.0**	**9,682,457**	**1,013**	**9,808**	**19,616,658**
						Maximum:	**1,958**	**3,915,334**

Notes:

The A-51 Flare commenced operation on June 21, 2005.

*CH_4 content was determined from the January 12, 2022 (March 11, 2022 - March 8, 2023) and January 12, 2023 (March 9, 2023 - 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: Apr-23

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
4/1/2023	24.00	51.9	998	1,436,913	745,902	1,013	756	1,511,197
4/2/2023	24.00	51.9	998	1,436,810	745,848	1,013	756	1,511,088
4/3/2023	24.00	51.9	998	1,437,029	745,962	1,013	756	1,511,319
4/4/2023	24.00	51.9	997	1,435,809	745,328	1,013	755	1,510,035
4/5/2023	24.00	51.9	998	1,437,146	746,022	1,013	756	1,511,442
4/6/2023	24.00	51.9	998	1,437,114	746,006	1,013	756	1,511,408
4/7/2023	24.00	51.9	998	1,436,896	745,893	1,013	756	1,511,179
4/8/2023	24.00	51.9	998	1,436,512	745,693	1,013	755	1,510,775
4/9/2023	24.00	51.9	998	1,436,642	745,761	1,013	755	1,510,912
4/10/2023	24.00	51.9	997	1,435,261	745,044	1,013	755	1,509,459
4/11/2023	24.00	51.9	998	1,437,698	746,309	1,013	756	1,512,022
4/12/2023	24.00	51.9	998	1,437,314	746,110	1,013	756	1,511,618
4/13/2023	24.00	51.9	997	1,436,399	745,635	1,013	755	1,510,656
4/14/2023	24.00	51.9	997	1,436,222	745,543	1,013	755	1,510,470
4/15/2023	24.00	51.9	997	1,436,123	745,491	1,013	755	1,510,366
4/16/2023	24.00	51.9	998	1,437,739	746,330	1,013	756	1,512,065
4/17/2023	24.00	51.9	998	1,436,799	745,842	1,013	756	1,511,077
4/18/2023	13.47	51.9	998	806,617	418,715	1,013	424	848,316
4/19/2023	11.90	51.9	957	683,189	354,643	1,013	359	718,508
4/20/2023	24.00	51.9	997	1,436,384	745,627	1,013	755	1,510,640
4/21/2023	24.00	51.9	997	1,435,184	745,004	1,013	755	1,509,378
4/22/2023	24.00	51.9	997	1,435,189	745,007	1,013	755	1,509,383
4/23/2023	24.00	51.9	997	1,435,009	744,913	1,013	755	1,509,194
4/24/2023	24.00	51.9	997	1,435,507	745,172	1,013	755	1,509,718
4/25/2023	24.00	51.9	997	1,436,142	745,501	1,013	755	1,510,386
4/26/2023	24.00	51.9	997	1,435,462	745,148	1,013	755	1,509,671
4/27/2023	24.00	51.9	997	1,435,268	745,048	1,013	755	1,509,466
4/28/2023	24.00	51.9	997	1,436,168	745,515	1,013	755	1,510,413
4/29/2023	24.00	51.9	997	1,435,735	745,290	1,013	755	1,509,958
4/30/2023	24.00	51.9	998	1,437,250	746,076	1,013	756	1,511,551
Totals/ Average:	**697.37**	**51.9**	**997**	**41,707,530.0**	**21,650,379**	**1,013**	**21,932**	**43,863,667**
						Maximum:	**756**	**1,512,065**

Notes:

The A-51 Flare commenced operation on June 21, 2005.

*CH_4 content was determined from the January 12, 2022 (March 11, 2022 - March 8, 2023) and January 12, 2023 (March 9, 2023 - 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]
November-22	721.00	4.33	716.67	979	47.3	42,092,959	40,337,598	19,909,970	20,169	0.084	0.85	111.96	2.36
December-22	744.00	14.37	729.63	987	47.3	43,228,860	41,426,130	20,447,251	20,713	0.084	0.87	111.96	2.42
January-23	744.00	64.90	679.10	1,052	47.3	42,876,503	41,088,467	20,280,586	20,544	0.084	0.86	284.30	6.09
February-23	672.00	7.57	664.43	1,498	47.3	59,732,539	57,241,573	28,253,491	28,621	0.084	1.20	284.30	8.49
March-23	743.00	82.57	660.43	1,878	47.3	74,425,175	71,321,496	35,203,108	35,661	0.084	1.50	284.30	10.58
April-23	720.00	0.27	719.73	1,316	47.3	56,837,079	54,466,859	26,883,938	27,233	0.084	1.15	TBD	TBD
TOTAL/ AVG:	**4,344.00**	**174.00**	**4,170.00**	**1,276**	**47.3**	**319,193,115**	**305,882,124**	**150,978,343**	**152,941.06**	**--**	**--**	**--**	**--**

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

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Nov-22

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
11/1/2022	23.77	47.3	1,017	1,450,381	686,030	1,013	695	1,389,897
11/2/2022	23.77	47.3	1,015	1,447,484	684,660	1,013	694	1,387,121
11/3/2022	24.00	47.3	1,008	1,452,011	686,801	1,013	696	1,391,459
11/4/2022	24.00	47.3	985	1,418,550	670,974	1,013	680	1,359,394
11/5/2022	23.63	47.3	1,020	1,446,141	684,025	1,013	693	1,385,834
11/6/2022	24.87	47.3	1,432	2,136,051	1,010,352	1,013	1,023	2,046,973
11/7/2022	23.67	47.3	985	1,398,683	661,577	1,013	670	1,340,355
11/8/2022	24.00	47.3	1,048	1,508,771	713,649	1,013	723	1,445,852
11/9/2022	23.50	47.3	958	1,351,200	639,118	1,013	647	1,294,852
11/10/2022	23.77	47.3	965	1,376,135	650,912	1,013	659	1,318,747
11/11/2022	23.67	47.3	963	1,368,104	647,113	1,013	656	1,311,051
11/12/2022	23.73	47.3	948	1,350,329	638,706	1,013	647	1,294,018
11/13/2022	24.00	47.3	964	1,388,505	656,763	1,013	665	1,330,602
11/14/2022	24.00	47.3	1,069	1,538,698	727,804	1,013	737	1,474,531
11/15/2022	23.57	47.3	952	1,346,148	636,728	1,013	645	1,290,011
11/16/2022	23.60	47.3	951	1,346,887	637,078	1,013	645	1,290,719
11/17/2022	24.00	47.3	963	1,387,158	656,126	1,013	665	1,329,311
11/18/2022	24.00	47.3	951	1,369,966	647,994	1,013	656	1,312,836
11/19/2022	24.00	47.3	938	1,351,170	639,103	1,013	647	1,294,824
11/20/2022	23.87	47.3	965	1,381,845	653,613	1,013	662	1,324,219
11/21/2022	24.00	47.3	962	1,385,111	655,158	1,013	664	1,327,349
11/22/2022	23.87	47.3	964	1,380,426	652,941	1,013	661	1,322,859
11/23/2022	24.00	47.3	938	1,351,208	639,121	1,013	647	1,294,860
11/24/2022	24.00	47.3	892	1,283,798	607,236	1,013	615	1,230,261
11/25/2022	24.00	47.3	896	1,289,736	610,045	1,013	618	1,235,951
11/26/2022	23.80	47.3	923	1,318,726	623,757	1,013	632	1,263,732
11/27/2022	24.00	47.3	933	1,343,358	635,408	1,013	644	1,287,337
11/28/2022	23.80	47.3	914	1,305,586	617,542	1,013	626	1,251,140
11/29/2022	24.00	47.3	907	1,306,120	617,795	1,013	626	1,251,652
11/30/2022	23.80	47.3	921	1,314,673	621,840	1,013	630	1,259,849
Totals/ Average:	**716.67**	**47.3**	**979**	**42,092,959.0**	**19,909,970**	**1,013**	**20,169**	**40,337,598**
						Maximum:	**1,023**	**2,046,973**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - 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 2,207,520,000 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: Dec-22

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
12/1/2022	23.57	47.3	913	1,290,563	610,436	1,013	618	1,236,744
12/2/2022	23.27	47.3	915	1,277,683	604,344	1,013	612	1,224,401
12/3/2022	24.00	47.3	927	1,334,408	631,175	1,013	639	1,278,761
12/4/2022	24.00	47.3	890	1,281,804	606,293	1,013	614	1,228,350
12/5/2022	23.60	47.3	918	1,300,216	615,002	1,013	623	1,245,994
12/6/2022	21.97	47.3	920	1,212,023	573,287	1,013	581	1,161,479
12/7/2022	16.90	47.3	1,015	1,029,161	486,793	1,013	493	986,243
12/8/2022	23.90	47.3	1,003	1,437,851	680,104	1,013	689	1,377,890
12/9/2022	24.00	47.3	1,006	1,448,196	684,997	1,013	694	1,387,803
12/10/2022	23.83	47.3	991	1,417,352	670,407	1,013	679	1,358,246
12/11/2022	23.67	47.3	975	1,384,285	654,767	1,013	663	1,326,558
12/12/2022	23.70	47.3	973	1,383,941	654,604	1,013	663	1,326,228
12/13/2022	24.00	47.3	986	1,419,403	671,378	1,013	680	1,360,211
12/14/2022	24.00	47.3	961	1,384,424	654,833	1,013	663	1,326,691
12/15/2022	24.00	47.3	959	1,381,653	653,522	1,013	662	1,324,035
12/16/2022	24.00	47.3	1,198	1,724,755	815,809	1,013	826	1,652,829
12/17/2022	23.87	47.3	1,672	2,394,708	1,132,697	1,013	1,147	2,294,844
12/18/2022	24.00	47.3	921	1,326,657	627,509	1,013	636	1,271,333
12/19/2022	23.77	47.3	925	1,319,379	624,066	1,013	632	1,264,358
12/20/2022	23.90	47.3	983	1,409,426	666,658	1,013	675	1,350,650
12/21/2022	24.00	47.3	973	1,401,562	662,939	1,013	672	1,343,114
12/22/2022	24.00	47.3	954	1,374,379	650,081	1,013	659	1,317,065
12/23/2022	23.83	47.3	971	1,388,035	656,541	1,013	665	1,330,151
12/24/2022	24.00	47.3	946	1,361,739	644,103	1,013	652	1,304,952
12/25/2022	23.80	47.3	982	1,402,149	663,216	1,013	672	1,343,677
12/26/2022	24.00	47.3	970	1,396,525	660,556	1,013	669	1,338,287
12/27/2022	23.90	47.3	957	1,372,891	649,377	1,013	658	1,315,639
12/28/2022	22.43	47.3	958	1,289,092	609,741	1,013	618	1,235,334
12/29/2022	23.90	47.3	954	1,367,676	646,911	1,013	655	1,310,641
12/30/2022	23.83	47.3	948	1,355,659	641,227	1,013	650	1,299,125
12/31/2022	24.00	47.3	945	1,361,265	643,878	1,013	652	1,304,498
Totals/ Average:	**729.63**	**47.3**	**987**	**43,228,860.0**	**20,447,251**	**1,013**	**20,713**	**41,426,130**
						Maximum:	**1,147**	**2,294,844**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - 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 2,207,520,000 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: Jan-23

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
1/1/2023	24.00	47.3	925	1,332,394	630,222	1,013	638	1,276,831
1/2/2023	24.00	47.3	984	1,416,966	670,225	1,013	679	1,357,876
1/3/2023	23.87	47.3	961	1,376,142	650,915	1,013	659	1,318,754
1/4/2023	23.60	47.3	910	1,288,521	609,470	1,013	617	1,234,787
1/5/2023	23.93	47.3	894	1,283,526	607,108	1,013	615	1,230,000
1/6/2023	23.83	47.3	914	1,307,406	618,403	1,013	626	1,252,885
1/7/2023	24.00	47.3	903	1,299,978	614,890	1,013	623	1,245,766
1/8/2023	24.00	47.3	1,017	1,464,654	692,781	1,013	702	1,403,575
1/9/2023	19.30	47.3	1,220	1,412,202	667,972	1,013	677	1,353,310
1/10/2023	15.13	47.3	940	853,532	403,721	1,013	409	817,938
1/11/2023	8.10	47.3	908	441,312	208,741	1,013	211	422,908
1/12/2023	11.83	47.3	972	689,806	326,278	1,013	331	661,040
1/13/2023	23.90	47.3	927	1,329,693	628,945	1,013	637	1,274,242
1/14/2023	24.00	47.3	889	1,279,774	605,333	1,013	613	1,226,405
1/15/2023	23.83	47.3	863	1,233,902	583,636	1,013	591	1,182,446
1/16/2023	24.00	47.3	842	1,212,648	573,583	1,013	581	1,162,078
1/17/2023	19.97	47.3	849	1,017,029	481,055	1,013	487	974,617
1/18/2023	15.80	47.3	1,034	979,904	463,495	1,013	470	939,040
1/19/2023	24.00	47.3	1,131	1,628,022	770,054	1,013	780	1,560,130
1/20/2023	23.60	47.3	1,284	1,818,496	860,149	1,013	871	1,742,661
1/21/2023	24.00	47.3	1,311	1,888,241	893,138	1,013	905	1,809,498
1/22/2023	24.00	47.3	1,284	1,849,240	874,691	1,013	886	1,772,123
1/23/2023	24.00	47.3	1,274	1,833,969	867,467	1,013	879	1,757,489
1/24/2023	24.00	47.3	1,283	1,846,925	873,596	1,013	885	1,769,905
1/25/2023	24.00	47.3	1,210	1,742,540	824,221	1,013	835	1,669,873
1/26/2023	24.00	47.3	1,108	1,595,895	754,858	1,013	765	1,529,343
1/27/2023	21.00	47.3	1,126	1,418,346	670,878	1,013	680	1,359,198
1/28/2023	24.00	47.3	1,130	1,627,700	769,902	1,013	780	1,559,822
1/29/2023	23.90	47.3	1,119	1,604,325	758,846	1,013	769	1,537,421
1/30/2023	24.00	47.3	1,122	1,615,389	764,079	1,013	774	1,548,024
1/31/2023	17.50	47.3	1,131	1,188,026	561,936	1,013	569	1,138,483
Totals/ Average:	**679.10**	**47.3**	**1,052**	**42,876,503.0**	**20,280,586**	**1,013**	**20,544**	**41,088,467**
						Maximum:	**905**	**1,809,498**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - 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 2,207,520,000 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: Feb-23

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
2/1/2023	16.43	47.3	1,199	1,182,319	559,237	1,013	567	1,133,014
2/2/2023	24.00	47.3	1,162	1,673,827	791,720	1,013	802	1,604,025
2/3/2023	24.00	47.3	1,151	1,657,550	784,021	1,013	794	1,588,427
2/4/2023	24.00	47.3	1,142	1,644,915	778,045	1,013	788	1,576,319
2/5/2023	24.00	47.3	1,140	1,641,868	776,604	1,013	787	1,573,399
2/6/2023	24.00	47.3	1,158	1,666,812	788,402	1,013	799	1,597,303
2/7/2023	24.00	47.3	1,342	1,932,233	913,946	1,013	926	1,851,655
2/8/2023	24.00	47.3	1,536	2,212,349	1,046,441	1,013	1,060	2,120,090
2/9/2023	24.00	47.3	1,648	2,372,661	1,122,269	1,013	1,137	2,273,716
2/10/2023	24.00	47.3	1,648	2,373,757	1,122,787	1,013	1,137	2,274,767
2/11/2023	24.00	47.3	1,597	2,299,573	1,087,698	1,013	1,102	2,203,676
2/12/2023	24.00	47.3	1,653	2,380,075	1,125,775	1,013	1,140	2,280,821
2/13/2023	24.00	47.3	1,572	2,263,405	1,070,591	1,013	1,085	2,169,016
2/14/2023	24.00	47.3	1,558	2,243,382	1,061,120	1,013	1,075	2,149,828
2/15/2023	24.00	47.3	1,799	2,590,704	1,225,403	1,013	1,241	2,482,666
2/16/2023	24.00	47.3	1,581	2,276,751	1,076,903	1,013	1,091	2,181,806
2/17/2023	24.00	47.3	1,745	2,513,256	1,188,770	1,013	1,204	2,408,448
2/18/2023	24.00	47.3	1,583	2,280,142	1,078,507	1,013	1,093	2,185,056
2/19/2023	24.00	47.3	1,674	2,410,578	1,140,203	1,013	1,155	2,310,052
2/20/2023	24.00	47.3	1,625	2,340,364	1,106,992	1,013	1,121	2,242,766
2/21/2023	24.00	47.3	1,578	2,271,864	1,074,592	1,013	1,089	2,177,123
2/22/2023	24.00	47.3	1,526	2,196,998	1,039,180	1,013	1,053	2,105,379
2/23/2023	24.00	47.3	1,539	2,215,524	1,047,943	1,013	1,062	2,123,132
2/24/2023	24.00	47.3	1,522	2,192,169	1,036,896	1,013	1,050	2,100,751
2/25/2023	24.00	47.3	1,533	2,207,680	1,044,233	1,013	1,058	2,115,615
2/26/2023	24.00	47.3	1,547	2,227,354	1,053,538	1,013	1,067	2,134,469
2/27/2023	24.00	47.3	1,564	2,252,406	1,065,388	1,013	1,079	2,158,476
2/28/2023	24.00	47.3	1,536	2,212,023	1,046,287	1,013	1,060	2,119,777
Totals/ Average:	**664.43**	**47.3**	**1,498**	**59,732,539.0**	**28,253,491**	**1,013**	**28,621**	**57,241,573**
						Maximum:	**1,241**	**2,482,666**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - 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 2,207,520,000 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: Mar-23

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
3/1/2023	24.00	47.3	1,692	2,436,849	1,152,630	1,013	1,168	2,335,228
3/2/2023	24.00	47.3	2,121	3,054,498	1,444,778	1,013	1,464	2,927,119
3/3/2023	24.00	47.3	2,147	3,091,781	1,462,412	1,013	1,481	2,962,848
3/4/2023	24.00	47.3	2,105	3,031,664	1,433,977	1,013	1,453	2,905,238
3/5/2023	24.00	47.3	2,096	3,017,586	1,427,318	1,013	1,446	2,891,747
3/6/2023	24.00	47.3	2,104	3,029,190	1,432,807	1,013	1,451	2,902,867
3/7/2023	24.00	47.3	2,107	3,034,570	1,435,352	1,013	1,454	2,908,022
3/8/2023	24.00	47.3	2,100	3,024,601	1,430,636	1,013	1,449	2,898,469
3/9/2023	24.00	47.3	2,104	3,029,309	1,432,863	1,013	1,451	2,902,981
3/10/2023	24.00	47.3	2,054	2,957,366	1,398,834	1,013	1,417	2,834,038
3/11/2023	24.00	47.3	2,051	2,953,790	1,397,143	1,013	1,415	2,830,611
3/12/2023	23.00	47.3	2,051	2,830,308	1,338,736	1,013	1,356	2,712,278
3/13/2023	24.00	47.3	2,049	2,950,700	1,395,681	1,013	1,414	2,827,650
3/14/2023	10.50	47.3	2,161	1,361,502	643,990	1,013	652	1,304,725
3/15/2023	0.00	47.3	0	0	0	1,013	0	0
3/16/2023	14.77	47.3	2,112	1,871,515	885,227	1,013	897	1,793,469
3/17/2023	24.00	47.3	2,097	3,019,589	1,428,266	1,013	1,447	2,893,666
3/18/2023	24.00	47.3	2,017	2,903,991	1,373,588	1,013	1,391	2,782,889
3/19/2023	24.00	47.3	1,990	2,865,313	1,355,293	1,013	1,373	2,745,824
3/20/2023	24.00	47.3	1,995	2,872,906	1,358,885	1,013	1,377	2,753,100
3/21/2023	15.03	47.3	2,069	1,865,915	882,578	1,013	894	1,788,103
3/22/2023	5.07	47.3	2,379	723,276	342,110	1,013	347	693,114
3/23/2023	16.27	47.3	1,626	1,586,559	750,442	1,013	760	1,520,396
3/24/2023	24.00	47.3	1,502	2,162,429	1,022,829	1,013	1,036	2,072,251
3/25/2023	24.00	47.3	1,502	2,162,242	1,022,740	1,013	1,036	2,072,072
3/26/2023	24.00	47.3	1,502	2,162,468	1,022,847	1,013	1,036	2,072,289
3/27/2023	24.00	47.3	1,502	2,162,909	1,023,056	1,013	1,036	2,072,711
3/28/2023	23.80	47.3	1,486	2,122,102	1,003,754	1,013	1,017	2,033,606
3/29/2023	24.00	47.3	1,420	2,045,171	967,366	1,013	980	1,959,883
3/30/2023	24.00	47.3	1,401	2,016,811	953,952	1,013	966	1,932,706
3/31/2023	24.00	47.3	1,443	2,078,265	983,019	1,013	996	1,991,597
Totals/ Average:	**660.43**	**47.3**	**1,878**	**74,425,175.0**	**35,203,108**	**1,013**	**35,661**	**71,321,496**
						Maximum:	**1,481**	**2,962,848**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH$_4$ content was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - 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.

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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: Apr-23

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
4/1/2023	24.00	47.3	1,444	2,080,052	983,865	1,013	997	1,993,310
4/2/2023	24.00	47.3	1,435	2,066,609	977,506	1,013	990	1,980,427
4/3/2023	24.00	47.3	1,422	2,047,296	968,371	1,013	981	1,961,920
4/4/2023	24.00	47.3	1,426	2,053,846	971,469	1,013	984	1,968,197
4/5/2023	24.00	47.3	1,442	2,076,878	982,363	1,013	995	1,990,268
4/6/2023	24.00	47.3	1,464	2,107,692	996,938	1,013	1,010	2,019,797
4/7/2023	24.00	47.3	1,478	2,128,730	1,006,889	1,013	1,020	2,039,958
4/8/2023	24.00	47.3	1,483	2,135,809	1,010,238	1,013	1,023	2,046,741
4/9/2023	24.00	47.3	1,492	2,148,534	1,016,257	1,013	1,029	2,058,936
4/10/2023	24.00	47.3	1,498	2,157,125	1,020,320	1,013	1,034	2,067,169
4/11/2023	24.00	47.3	1,509	2,172,525	1,027,604	1,013	1,041	2,081,926
4/12/2023	24.00	47.3	1,519	2,187,706	1,034,785	1,013	1,048	2,096,474
4/13/2023	24.00	47.3	1,528	2,200,051	1,040,624	1,013	1,054	2,108,304
4/14/2023	24.00	47.3	1,533	2,206,979	1,043,901	1,013	1,057	2,114,944
4/15/2023	24.00	47.3	1,559	2,244,445	1,061,622	1,013	1,075	2,150,847
4/16/2023	24.00	47.3	1,561	2,248,439	1,063,512	1,013	1,077	2,154,675
4/17/2023	24.00	47.3	1,556	2,240,147	1,059,590	1,013	1,073	2,146,728
4/18/2023	24.00	47.3	1,811	2,608,337	1,233,743	1,013	1,250	2,499,564
4/19/2023	24.00	47.3	1,593	2,294,228	1,085,170	1,013	1,099	2,198,554
4/20/2023	24.00	47.3	992	1,428,260	675,567	1,013	684	1,368,699
4/21/2023	24.00	47.3	988	1,423,135	673,143	1,013	682	1,363,787
4/22/2023	24.00	47.3	989	1,424,068	673,584	1,013	682	1,364,682
4/23/2023	24.00	47.3	978	1,408,048	666,007	1,013	675	1,349,330
4/24/2023	24.00	47.3	976	1,405,993	665,035	1,013	674	1,347,360
4/25/2023	24.00	47.3	974	1,402,254	663,266	1,013	672	1,343,777
4/26/2023	24.00	47.3	976	1,405,385	664,747	1,013	673	1,346,778
4/27/2023	24.00	47.3	975	1,403,674	663,938	1,013	673	1,345,138
4/28/2023	24.00	47.3	960	1,381,830	653,606	1,013	662	1,324,205
4/29/2023	24.00	47.3	958	1,378,979	652,257	1,013	661	1,321,473
4/30/2023	23.73	47.3	962	1,370,025	648,022	1,013	656	1,312,892
Totals/ Average:	**719.73**	**47.3**	**1,316**	**56,837,079.0**	**26,883,938**	**1,013**	**27,233**	**54,466,859**
						Maximum:	**1,250**	**2,499,564**

Notes:

The A-60 Flare commenced operation on April 1, 2009.

*CH_4 content was determined from the July 13, 2021 (9/10/21 - 9/10/22) and July 13, 2022 (9/11/22 - 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.

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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]
November-22	721.00	11.08	709.92	521	49.4	22,204,432	22,238,153	10,976,383	11,119	0.111	0.62	0.50	5.51E-03
December-22	744.00	20.00	724.00	499	49.4	21,678,027	21,710,949	10,716,164	10,855	0.111	0.60	0.50	5.38E-03
January-23	744.00	34.08	709.92	479	49.4	20,413,615	20,444,617	10,091,124	10,222	0.111	0.57	0.50	5.06E-03
February-23	672.00	27.67	644.33	627	49.4	24,245,876	24,282,697	11,985,536	12,141	0.111	0.68	0.50	6.01E-03
March-23	743.00	724.75	18.25	608	49.4	665,540	666,550	328,998	333	0.111	0.02	0.50	1.65E-04
April-23	720.00	720.00	0.00	0		0	0	0	0	0.111	0.00	0.50	0.00E+00
TOTAL/ AVG:	**4,344.00**	**1,537.58**	**2,806.42**	**530**	**49.4**	**89,207,490**	**89,342,965**	**44,098,206**	**44,671**	**--**	**--**	**--**	**--**

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, 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: Nov-22

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
11/01/2022	24.00	49.4	516	743,470	367,522	1,013	372	744,599
11/02/2022	24.00	49.4	520	749,221	370,365	1,013	375	750,359
11/03/2022	24.00	49.4	522	752,094	371,785	1,013	377	753,237
11/04/2022	24.00	49.4	525	755,907	373,670	1,013	379	757,055
11/05/2022	24.00	49.4	521	750,787	371,139	1,013	376	751,928
11/06/2022	13.92	49.4	277	415,641	205,465	1,013	208	416,272
11/07/2022	24.00	49.4	517	744,384	367,974	1,013	373	745,515
11/08/2022	24.00	49.4	509	733,563	362,624	1,013	367	734,677
11/09/2022	24.00	49.4	526	757,669	374,541	1,013	379	758,820
11/10/2022	24.00	49.4	527	758,540	374,971	1,013	380	759,692
11/11/2022	24.00	49.4	526	756,894	374,158	1,013	379	758,044
11/12/2022	24.00	49.4	525	755,865	373,649	1,013	379	757,013
11/13/2022	24.00	49.4	525	755,486	373,461	1,013	378	756,633
11/14/2022	24.00	49.4	525	755,631	373,533	1,013	378	756,779
11/15/2022	24.00	49.4	526	757,712	374,562	1,013	379	758,863
11/16/2022	24.00	49.4	529	761,277	376,324	1,013	381	762,433
11/17/2022	24.00	49.4	524	753,917	372,686	1,013	378	755,062
11/18/2022	24.00	49.4	521	750,501	370,997	1,013	376	751,641
11/19/2022	24.00	49.4	524	754,984	373,214	1,013	378	756,131
11/20/2022	24.00	49.4	525	756,700	374,062	1,013	379	757,850
11/21/2022	24.00	49.4	523	753,274	372,368	1,013	377	754,418
11/22/2022	24.00	49.4	520	748,870	370,191	1,013	375	750,008
11/23/2022	24.00	49.4	522	752,286	371,880	1,013	377	753,429
11/24/2022	24.00	49.4	526	756,947	374,184	1,013	379	758,097
11/25/2022	24.00	49.4	526	758,140	374,774	1,013	380	759,291
11/26/2022	24.00	49.4	522	751,647	371,564	1,013	376	752,789
11/27/2022	24.00	49.4	521	749,741	370,622	1,013	375	750,879
11/28/2022	24.00	49.4	517	743,895	367,732	1,013	373	745,025
11/29/2022	24.00	49.4	512	736,881	364,264	1,013	369	738,000
11/30/2022	24.00	49.4	509	732,505	362,101	1,013	367	733,617
Totals/ Average:	**709.92**	**49.4**	**521**	**22,204,431.8**	**10,976,383**	**1,013**	**11,119**	**22,238,153**
						Maximum:	**381**	**762,433**

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: Dec-22

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
12/01/2022	24.00	49.4	507	729,451	360,592	1,013	365	730,559
12/02/2022	24.00	49.4	511	735,496	363,580	1,013	368	736,613
12/03/2022	24.00	49.4	505	727,245	359,501	1,013	364	728,349
12/04/2022	24.00	49.4	507	729,983	360,854	1,013	366	731,091
12/05/2022	24.00	49.4	504	726,087	358,929	1,013	364	727,190
12/06/2022	24.00	49.4	504	725,428	358,603	1,013	363	726,530
12/07/2022	24.00	49.4	501	721,375	356,599	1,013	361	722,470
12/08/2022	24.00	49.4	501	721,931	356,874	1,013	362	723,027
12/09/2022	24.00	49.4	500	719,327	355,587	1,013	360	720,419
12/10/2022	24.00	49.4	493	710,002	350,977	1,013	356	711,080
12/11/2022	24.00	49.4	492	708,111	350,043	1,013	355	709,187
12/12/2022	24.00	49.4	493	710,018	350,985	1,013	356	711,096
12/13/2022	24.00	49.4	496	714,014	352,961	1,013	358	715,099
12/14/2022	24.00	49.4	497	715,878	353,882	1,013	358	716,965
12/15/2022	24.00	49.4	496	714,356	353,130	1,013	358	715,440
12/16/2022	19.00	49.4	417	600,199	296,698	1,013	301	601,111
12/17/2022	9.00	49.4	318	458,451	226,627	1,013	230	459,147
12/18/2022	24.00	49.4	490	706,273	349,134	1,013	354	707,345
12/19/2022	24.00	49.4	492	708,722	350,345	1,013	355	709,798
12/20/2022	24.00	49.4	493	710,310	351,130	1,013	356	711,389
12/21/2022	24.00	49.4	492	708,864	350,415	1,013	355	709,940
12/22/2022	24.00	49.4	489	704,503	348,259	1,013	353	705,573
12/23/2022	24.00	49.4	490	705,120	348,564	1,013	353	706,191
12/24/2022	24.00	49.4	492	707,788	349,883	1,013	354	708,863
12/25/2022	24.00	49.4	489	704,554	348,284	1,013	353	705,624
12/26/2022	24.00	49.4	487	701,239	346,646	1,013	351	702,304
12/27/2022	24.00	49.4	484	696,807	344,455	1,013	349	697,865
12/28/2022	24.00	49.4	483	695,461	343,789	1,013	348	696,517
12/29/2022	24.00	49.4	480	690,717	341,444	1,013	346	691,766
12/30/2022	24.00	49.4	478	688,291	340,245	1,013	345	689,336
12/31/2022	24.00	49.4	474	682,029	337,150	1,013	342	683,065
Totals/ Average:	**724.00**	**49.4**	**499**	**21,678,027.4**	**10,716,164**	**1,013**	**10,855**	**21,710,949**
						Maximum:	**368**	**736,613**

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: Jan-23

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
1/01/2023	24.00	49.4	474	682,982	337,620	1,013	342	684,019
1/02/2023	20.25	49.4	399	574,258	283,875	1,013	288	575,130
1/03/2023	22.17	49.4	430	618,487	305,739	1,013	310	619,427
1/04/2023	24.00	49.4	468	673,544	332,955	1,013	337	674,566
1/05/2023	24.00	49.4	468	673,289	332,829	1,013	337	674,312
1/06/2023	24.00	49.4	467	672,673	332,525	1,013	337	673,695
1/07/2023	24.00	49.4	463	666,191	329,320	1,013	334	667,203
1/08/2023	18.75	49.4	360	518,962	256,540	1,013	260	519,751
1/09/2023	9.75	49.4	268	297,369	146,999	1,013	149	297,820
1/10/2023	15.00	49.4	285	410,642	202,994	1,013	206	411,265
1/11/2023	24.00	49.4	448	644,752	318,722	1,013	323	645,731
1/12/2023	24.00	49.4	446	642,832	317,773	1,013	322	643,808
1/13/2023	24.00	49.4	448	645,426	319,055	1,013	323	646,406
1/14/2023	24.00	49.4	445	641,483	317,106	1,013	321	642,457
1/15/2023	24.00	49.4	447	643,264	317,987	1,013	322	644,241
1/16/2023	24.00	49.4	447	643,982	318,342	1,013	322	644,960
1/17/2023	24.00	49.4	452	651,566	322,091	1,013	326	652,556
1/18/2023	24.00	49.4	450	648,444	320,547	1,013	325	649,428
1/19/2023	24.00	49.4	447	643,897	318,299	1,013	322	644,874
1/20/2023	24.00	49.4	451	649,851	321,243	1,013	325	650,837
1/21/2023	24.00	49.4	457	658,125	325,333	1,013	330	659,124
1/22/2023	24.00	49.4	459	660,262	326,389	1,013	331	661,265
1/23/2023	24.00	49.4	462	665,528	328,992	1,013	333	666,539
1/24/2023	24.00	49.4	461	664,232	328,352	1,013	333	665,240
1/25/2023	24.00	49.4	500	720,695	356,263	1,013	361	721,789
1/26/2023	24.00	49.4	558	803,412	397,153	1,013	402	804,632
1/27/2023	24.00	49.4	567	815,903	403,328	1,013	409	817,142
1/28/2023	24.00	49.4	554	797,351	394,157	1,013	399	798,562
1/29/2023	24.00	49.4	551	793,839	392,421	1,013	398	795,045
1/30/2023	24.00	49.4	552	794,667	392,830	1,013	398	795,874
1/31/2023	24.00	49.4	553	795,708	393,345	1,013	398	796,916
Totals/ Average:	**709.92**	**49.4**	**479**	**20,413,615.3**	**10,091,124**	**1,013**	**10,222**	**20,444,617**
						Maximum:	**409**	**817,142**

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: Feb-23

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
2/01/2023	24.00	49.4	546	786,673	388,879	1,013	394	787,868
2/02/2023	24.00	49.4	551	793,895	392,448	1,013	398	795,101
2/03/2023	24.00	49.4	548	789,751	390,400	1,013	395	790,950
2/04/2023	24.00	49.4	546	786,938	389,010	1,013	394	788,133
2/05/2023	24.00	49.4	546	785,746	388,420	1,013	393	786,939
2/06/2023	24.00	49.4	546	786,884	388,983	1,013	394	788,079
2/07/2023	24.00	49.4	547	787,405	389,240	1,013	394	788,601
2/08/2023	24.00	49.4	583	840,073	415,276	1,013	421	841,348
2/09/2023	23.50	49.4	615	885,163	437,565	1,013	443	886,507
2/10/2023	23.08	49.4	610	878,752	434,396	1,013	440	880,086
2/11/2023	24.00	49.4	638	918,190	453,891	1,013	460	919,584
2/12/2023	21.58	49.4	575	828,602	409,605	1,013	415	829,860
2/13/2023	24.00	49.4	654	941,618	465,473	1,013	472	943,048
2/14/2023	24.00	49.4	668	962,383	475,738	1,013	482	963,845
2/15/2023	15.50	49.4	436	628,019	310,451	1,013	314	628,973
2/16/2023	24.00	49.4	658	948,002	468,629	1,013	475	949,442
2/17/2023	15.75	49.4	464	668,795	330,608	1,013	335	669,811
2/18/2023	23.50	49.4	643	926,471	457,985	1,013	464	927,878
2/19/2023	21.17	49.4	560	806,172	398,517	1,013	404	807,396
2/20/2023	20.50	49.4	613	882,969	436,481	1,013	442	884,310
2/21/2023	24.00	49.4	635	914,351	451,994	1,013	458	915,740
2/22/2023	24.00	49.4	673	968,803	478,911	1,013	485	970,274
2/23/2023	24.00	49.4	675	972,171	480,576	1,013	487	973,647
2/24/2023	24.00	49.4	664	956,101	472,632	1,013	479	957,553
2/25/2023	24.00	49.4	666	958,552	473,844	1,013	480	960,008
2/26/2023	24.00	49.4	667	960,437	474,776	1,013	481	961,896
2/27/2023	23.75	49.4	649	933,903	461,659	1,013	468	935,321
2/28/2023	24.00	49.4	659	949,057	469,150	1,013	475	950,498
Totals/ Average:	**644.33**	**49.4**	**627**	**24,245,875.5**	**11,985,536**	**1,013**	**12,141**	**24,282,697**
						Maximum:	**487**	**973,647**

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: Mar-23

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
3/01/2023	18.25	49.4	462	665,540	328,998	1,013	333	666,550
3/02/2023	0.00							
3/03/2023	0.00							
3/04/2023	0.00							
3/05/2023	0.00							
3/06/2023	0.00							
3/07/2023	0.00							
3/08/2023	0.00							
3/09/2023	0.00							
3/10/2023	0.00							
3/11/2023	0.00							
3/12/2023	0.00							
3/13/2023	0.00							
3/14/2023	0.00							
3/15/2023	0.00							
3/16/2023	0.00							
3/17/2023	0.00							
3/18/2023	0.00							
3/19/2023	0.00							
3/20/2023	0.00							
3/21/2023	0.00							
3/22/2023	0.00							
3/23/2023	0.00							
3/24/2023	0.00							
3/25/2023	0.00							
3/26/2023	0.00							
3/27/2023	0.00							
3/28/2023	0.00							
3/29/2023	0.00							
3/30/2023	0.00							
3/31/2023	0.00							
Totals/ Average:	**18.25**	**49.4**	**608**	**665,539.6**	**328,998**	**1,013**	**333**	**666,550**
						Maximum:	**333**	**666,550**

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: Apr-23

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
4/01/2023	0.00							
4/02/2023	0.00							
4/03/2023	0.00							
4/04/2023	0.00							
4/05/2023	0.00							
4/06/2023	0.00							
4/07/2023	0.00							
4/08/2023	0.00							
4/09/2023	0.00							
4/10/2023	0.00							
4/11/2023	0.00							
4/12/2023	0.00							
4/13/2023	0.00							
4/14/2023	0.00							
4/15/2023	0.00							
4/16/2023	0.00							
4/17/2023	0.00							
4/18/2023	0.00							
4/19/2023	0.00							
4/20/2023	0.00							
4/21/2023	0.00							
4/22/2023	0.00							
4/23/2023	0.00							
4/24/2023	0.00							
4/25/2023	0.00							
4/26/2023	0.00							
4/27/2023	0.00							
4/28/2023	0.00							
4/29/2023	0.00							
4/30/2023	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.

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]
November-22	721.00	23.33	697.67	485	49.7	20,283,173	20,423,574	10,080,737	10,212	0.049	0.25	0.4990	5.06E-03
December-22	744.00	20.00	724.00	460	49.7	19,973,219	20,111,474	9,926,690	10,056	0.049	0.25	0.4990	4.98E-03
January-23	744.00	36.75	707.25	447	49.7	18,982,823	19,114,222	9,434,463	9,557	0.049	0.23	0.4990	4.74E-03
February-23	672.00	3.83	668.17	586	49.7	23,499,117	23,661,778	11,679,061	11,831	0.049	0.29	0.4990	5.86E-03
March-23	743.00	258.83	484.17	577	49.7	16,766,759	16,882,819	8,333,079	8,441	0.049	0.21	0.4990	4.18E-03
April-23	720.00	423.00	297.00	642	49.7	11,434,742	11,513,894	5,683,067	5,757	0.049	0.14	0.4990	2.85E-03
TOTAL/ AVG:	**4,344.00**	**765.75**	**3,578.25**	**517**	**49.7**	**110,939,834**	**111,707,760**	**55,137,098**	**55,854**	**--**	**--**	**--**	**--**

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, 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: Nov-22

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**
11/01/2022	24.00	49.7	478	688,367	342,119	1,013	347	693,132
11/02/2022	24.00	49.7	482	694,257	345,046	1,013	350	699,063
11/03/2022	24.00	49.7	486	699,816	347,808	1,013	352	704,660
11/04/2022	24.00	49.7	488	702,069	348,929	1,013	353	706,929
11/05/2022	24.00	49.7	484	697,044	346,431	1,013	351	701,869
11/06/2022	14.67	49.7	267	400,991	199,293	1,013	202	403,767
11/07/2022	24.00	49.7	480	691,341	343,597	1,013	348	696,127
11/08/2022	20.00	49.7	394	567,978	282,285	1,013	286	571,909
11/09/2022	24.00	49.7	489	704,854	350,312	1,013	355	709,733
11/10/2022	24.00	49.7	490	705,487	350,627	1,013	355	710,370
11/11/2022	24.00	49.7	488	703,330	349,555	1,013	354	708,198
11/12/2022	24.00	49.7	487	701,825	348,807	1,013	353	706,683
11/13/2022	23.00	49.7	466	671,344	333,658	1,013	338	675,992
11/14/2022	16.00	49.7	333	479,854	238,488	1,013	242	483,176
11/15/2022	24.00	49.7	490	704,973	350,372	1,013	355	709,853
11/16/2022	24.00	49.7	491	707,227	351,492	1,013	356	712,123
11/17/2022	24.00	49.7	487	701,275	348,534	1,013	353	706,129
11/18/2022	24.00	49.7	484	696,678	346,249	1,013	351	701,500
11/19/2022	24.00	49.7	487	700,865	348,330	1,013	353	705,717
11/20/2022	24.00	49.7	489	703,675	349,726	1,013	354	708,545
11/21/2022	24.00	49.7	487	701,006	348,400	1,013	353	705,858
11/22/2022	24.00	49.7	483	695,821	345,823	1,013	350	700,638
11/23/2022	24.00	49.7	487	701,605	348,698	1,013	353	706,461
11/24/2022	24.00	49.7	489	704,869	350,320	1,013	355	709,749
11/25/2022	24.00	49.7	488	703,178	349,480	1,013	354	708,046
11/26/2022	24.00	49.7	485	697,743	346,778	1,013	351	702,573
11/27/2022	24.00	49.7	483	695,701	345,764	1,013	350	700,517
11/28/2022	24.00	49.7	480	690,602	343,229	1,013	348	695,382
11/29/2022	24.00	49.7	477	687,400	341,638	1,013	346	692,158
11/30/2022	24.00	49.7	474	681,997	338,952	1,013	343	686,718
Totals/ Average:	**697.67**	**49.7**	**485**	**20,283,173.4**	**10,080,737**	**1,013**	**10,212**	**20,423,574**
						Maximum:	**356**	**712,123**

Notes:

The S-65 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-65 Engine (#2) Heat Input Rate

MONTH: Dec-22

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
12/01/2022	24.00	49.7	471	678,882	337,404	1,013	342	683,581
12/02/2022	24.00	49.7	475	684,422	340,158	1,013	345	689,159
12/03/2022	24.00	49.7	469	675,141	335,545	1,013	340	679,815
12/04/2022	24.00	49.7	472	680,075	337,998	1,013	342	684,783
12/05/2022	24.00	49.7	470	677,361	336,648	1,013	341	682,049
12/06/2022	24.00	49.7	470	676,399	336,171	1,013	341	681,081
12/07/2022	24.00	49.7	467	673,101	334,531	1,013	339	677,761
12/08/2022	24.00	49.7	466	671,281	333,627	1,013	338	675,927
12/09/2022	24.00	49.7	464	667,769	331,881	1,013	336	672,391
12/10/2022	24.00	49.7	458	659,947	327,994	1,013	332	664,516
12/11/2022	24.00	49.7	458	660,014	328,027	1,013	332	664,583
12/12/2022	24.00	49.7	460	662,287	329,156	1,013	333	666,871
12/13/2022	24.00	49.7	462	665,559	330,783	1,013	335	670,166
12/14/2022	24.00	49.7	463	666,505	331,253	1,013	336	671,118
12/15/2022	24.00	49.7	461	664,447	330,230	1,013	335	669,047
12/16/2022	19.00	49.7	362	520,908	258,891	1,013	262	524,514
12/17/2022	9.00	49.7	170	244,474	121,503	1,013	123	246,166
12/18/2022	24.00	49.7	458	659,319	327,682	1,013	332	663,883
12/19/2022	24.00	49.7	460	661,909	328,969	1,013	333	666,491
12/20/2022	24.00	49.7	459	661,140	328,586	1,013	333	665,716
12/21/2022	24.00	49.7	458	659,399	327,721	1,013	332	663,963
12/22/2022	24.00	49.7	455	655,777	325,921	1,013	330	660,317
12/23/2022	24.00	49.7	457	657,505	326,780	1,013	331	662,056
12/24/2022	24.00	49.7	458	659,175	327,610	1,013	332	663,738
12/25/2022	24.00	49.7	456	657,066	326,562	1,013	331	661,615
12/26/2022	24.00	49.7	454	654,416	325,245	1,013	329	658,945
12/27/2022	24.00	49.7	451	649,509	322,806	1,013	327	654,005
12/28/2022	24.00	49.7	450	648,065	322,088	1,013	326	652,551
12/29/2022	24.00	49.7	447	643,554	319,847	1,013	324	648,009
12/30/2022	24.00	49.7	446	641,859	319,004	1,013	323	646,302
12/31/2022	24.00	49.7	442	635,953	316,069	1,013	320	640,355
Totals/ Average:	**724.00**	**49.7**	**460**	**19,973,219.3**	**9,926,690**	**1,013**	**10,056**	**20,111,474**
						Maximum:	**345**	**689,159**

Notes:

The S-65 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-65 Engine (#2) Heat Input Rate

MONTH: Jan-23

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
1/01/2023	24.00	49.7	442	636,509	316,345	1,013	320	640,914
1/02/2023	24.00	49.7	445	640,547	318,352	1,013	322	644,981
1/03/2023	24.00	49.7	441	635,264	315,726	1,013	320	639,661
1/04/2023	24.00	49.7	435	626,101	311,172	1,013	315	630,435
1/05/2023	24.00	49.7	434	625,183	310,716	1,013	315	629,510
1/06/2023	24.00	49.7	433	623,260	309,760	1,013	314	627,575
1/07/2023	24.00	49.7	429	618,145	307,218	1,013	311	622,424
1/08/2023	22.25	49.7	395	568,388	282,489	1,013	286	572,322
1/09/2023	17.25	49.7	405	449,991	223,646	1,013	227	453,106
1/10/2023	24.00	49.7	424	611,278	303,805	1,013	308	615,509
1/11/2023	8.50	49.7	146	209,956	104,348	1,013	106	211,409
1/12/2023	11.25	49.7	201	289,540	143,902	1,013	146	291,545
1/13/2023	24.00	49.7	419	603,619	299,999	1,013	304	607,797
1/14/2023	24.00	49.7	416	598,947	297,677	1,013	302	603,093
1/15/2023	24.00	49.7	417	600,028	298,214	1,013	302	604,182
1/16/2023	24.00	49.7	418	601,310	298,851	1,013	303	605,472
1/17/2023	24.00	49.7	422	607,326	301,841	1,013	306	611,530
1/18/2023	24.00	49.7	420	605,061	300,715	1,013	305	609,249
1/19/2023	24.00	49.7	418	602,040	299,214	1,013	303	606,208
1/20/2023	24.00	49.7	422	607,770	302,062	1,013	306	611,977
1/21/2023	24.00	49.7	426	613,489	304,904	1,013	309	617,736
1/22/2023	24.00	49.7	428	616,736	306,518	1,013	311	621,005
1/23/2023	24.00	49.7	431	620,324	308,301	1,013	312	624,618
1/24/2023	24.00	49.7	430	618,597	307,443	1,013	311	622,879
1/25/2023	24.00	49.7	475	683,683	339,790	1,013	344	688,415
1/26/2023	24.00	49.7	525	755,861	375,663	1,013	381	761,093
1/27/2023	24.00	49.7	527	758,934	377,190	1,013	382	764,187
1/28/2023	24.00	49.7	514	740,406	367,982	1,013	373	745,532
1/29/2023	24.00	49.7	511	736,536	366,058	1,013	371	741,634
1/30/2023	24.00	49.7	513	738,151	366,861	1,013	372	743,261
1/31/2023	24.00	49.7	514	739,841	367,701	1,013	372	744,962
Totals/ Average:	**707.25**	**49.7**	**447**	**18,982,822.6**	**9,434,463**	**1,013**	**9,557**	**19,114,222**
						Maximum:	**382**	**764,187**

Notes:

The S-65 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-65 Engine (#2) Heat Input Rate

MONTH: Feb-23

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
2/01/2023	24.00	49.7	507	729,432	362,527	1,013	367	734,481
2/02/2023	24.00	49.7	511	735,461	365,524	1,013	370	740,552
2/03/2023	24.00	49.7	510	734,168	364,881	1,013	370	739,250
2/04/2023	24.00	49.7	508	731,656	363,633	1,013	368	736,721
2/05/2023	24.00	49.7	507	729,402	362,513	1,013	367	734,451
2/06/2023	24.00	49.7	507	729,513	362,568	1,013	367	734,563
2/07/2023	24.00	49.7	507	730,107	362,863	1,013	368	735,161
2/08/2023	24.00	49.7	539	776,732	386,036	1,013	391	782,109
2/09/2023	24.00	49.7	586	844,154	419,544	1,013	425	849,997
2/10/2023	24.00	49.7	592	851,833	423,361	1,013	429	857,730
2/11/2023	24.00	49.7	591	850,578	422,737	1,013	428	856,465
2/12/2023	24.00	49.7	598	861,811	428,320	1,013	434	867,777
2/13/2023	24.00	49.7	605	871,300	433,036	1,013	439	877,331
2/14/2023	24.00	49.7	618	889,546	442,104	1,013	448	895,703
2/15/2023	22.00	49.7	571	822,542	408,803	1,013	414	828,235
2/16/2023	24.00	49.7	629	906,239	450,401	1,013	456	912,512
2/17/2023	24.00	49.7	635	914,623	454,568	1,013	460	920,954
2/18/2023	24.00	49.7	629	905,167	449,868	1,013	456	911,433
2/19/2023	22.83	49.7	598	861,368	428,100	1,013	434	867,330
2/20/2023	23.50	49.7	608	875,112	434,931	1,013	441	881,170
2/21/2023	24.00	49.7	627	903,025	448,804	1,013	455	909,276
2/22/2023	24.00	49.7	627	902,464	448,525	1,013	454	908,711
2/23/2023	24.00	49.7	629	905,087	449,828	1,013	456	911,352
2/24/2023	24.00	49.7	619	891,723	443,186	1,013	449	897,895
2/25/2023	24.00	49.7	620	892,661	443,653	1,013	449	898,840
2/26/2023	24.00	49.7	621	894,381	444,507	1,013	450	900,572
2/27/2023	23.83	49.7	608	875,072	434,911	1,013	441	881,129
2/28/2023	24.00	49.7	614	883,960	439,328	1,013	445	890,079
Totals/ Average:	**668.17**	**49.7**	**586**	**23,499,117.4**	**11,679,061**	**1,013**	**11,831**	**23,661,778**
						Maximum:	**460**	**920,954**

Notes:

The S-65 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-65 Engine (#2) Heat Input Rate

MONTH: Mar-23

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
3/01/2023	24.00	49.7	623	897,156	445,887	1,013	452	903,367
3/02/2023	24.00	49.7	649	934,881	464,636	1,013	471	941,352
3/03/2023	21.92	49.7	574	825,877	410,461	1,013	416	831,593
3/04/2023	24.00	49.7	643	926,515	460,478	1,013	466	932,928
3/05/2023	24.00	49.7	642	925,136	459,793	1,013	466	931,540
3/06/2023	24.00	49.7	644	927,369	460,902	1,013	467	933,788
3/07/2023	24.00	49.7	643	926,023	460,234	1,013	466	932,433
3/08/2023	24.00	49.7	643	925,212	459,831	1,013	466	931,617
3/09/2023	24.00	49.7	596	858,907	426,877	1,013	432	864,853
3/10/2023	24.00	49.7	628	904,212	449,393	1,013	455	910,471
3/11/2023	24.00	49.7	631	909,037	451,791	1,013	458	915,329
3/12/2023	23.00	49.7	631	871,423	433,097	1,013	439	877,455
3/13/2023	24.00	49.7	631	908,204	451,377	1,013	457	914,490
3/14/2023	6.50	49.7	169	242,815	120,679	1,013	122	244,496
3/15/2023	0.75	49.7	18	25,822	12,833	1,013	13	26,001
3/16/2023	19.00	49.7	423	608,822	302,584	1,013	307	613,036
3/17/2023	21.75	49.7	526	757,144	376,301	1,013	381	762,385
3/18/2023	24.00	49.7	632	909,806	452,173	1,013	458	916,103
3/19/2023	24.00	49.7	630	906,778	450,669	1,013	457	913,055
3/20/2023	24.00	49.7	626	901,760	448,174	1,013	454	908,002
3/21/2023	11.75	49.7	391	427,895	212,664	1,013	215	430,856
3/22/2023	0.00							
3/23/2023	0.00							
3/24/2023	0.00							
3/25/2023	0.00							
3/26/2023	0.00							
3/27/2023	0.00							
3/28/2023	11.25	49.7	45	64,635	32,124	1,013	33	65,082
3/29/2023	24.00	49.7	94	135,687	67,436	1,013	68	136,626
3/30/2023	8.25	49.7	32	45,643	22,684	1,013	23	45,959
3/31/2023	0.00							
Totals/ Average:	**484.17**	**49.7**	**577**	**16,766,759.2**	**8,333,079**	**1,013**	**8,441**	**16,882,819**
						Maximum:	**471**	**941,352**

Notes:

The S-65 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-65 Engine (#2) Heat Input Rate

MONTH: Apr-23

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
4/01/2023	0.00							
4/02/2023	0.00							
4/03/2023	0.00							
4/04/2023	0.00							
4/05/2023	0.00							
4/06/2023	0.00							
4/07/2023	0.00							
4/08/2023	0.00							
4/09/2023	0.00							
4/10/2023	0.00							
4/11/2023	0.00							
4/12/2023	0.00							
4/13/2023	0.00							
4/14/2023	0.00							
4/15/2023	0.00							
4/16/2023	0.00							
4/17/2023	0.00							
4/18/2023	9.00	49.7	206	297,062	147,640	1,013	150	299,119
4/19/2023	24.00	49.7	572	823,497	409,278	1,013	415	829,198
4/20/2023	24.00	49.7	620	892,251	443,449	1,013	449	898,427
4/21/2023	24.00	49.7	644	926,815	460,627	1,013	467	933,230
4/22/2023	24.00	49.7	647	931,845	463,127	1,013	469	938,295
4/23/2023	24.00	49.7	650	935,898	465,141	1,013	471	942,376
4/24/2023	24.00	49.7	651	937,329	465,853	1,013	472	943,817
4/25/2023	24.00	49.7	661	952,169	473,228	1,013	479	958,760
4/26/2023	24.00	49.7	666	958,589	476,419	1,013	483	965,224
4/27/2023	24.00	49.7	667	960,935	477,585	1,013	484	967,587
4/28/2023	24.00	49.7	669	963,773	478,995	1,013	485	970,445
4/29/2023	24.00	49.7	672	967,508	480,851	1,013	487	974,205
4/30/2023	24.00	49.7	672	887,070	440,874	1,013	447	893,211
Totals/ Average:	**297.00**	**49.7**	**642**	**11,434,742.2**	**5,683,067**	**1,013**	**5,757**	**11,513,894**
						Maximum:	**487**	**974,205**

Notes:

The S-65 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.

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)
May-22	0.00	0.00
June-22	0.00	0.00
July-22	0.00	0.00
August-22	0.00	0.00
September-22	0.00	0.00
October-22	0.00	0.00
November-22	0.00	0.00
December-22	0.00	0.00
January-23	0.00	0.00
February-23	0.00	0.00
March-23	0.00	0.00
April-23	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 4 - 2022

Date	H_2S Reading (ppm_v)	Calculated TRS (ppm_v)
10/6/22 11:45	642	652
10/7/22 7:25	700	711
10/12/22 10:30	700	711
10/14/22 6:55	700	711
10/18/22 10:05	643	652
10/19/22 8:20	744	755
10/25/22 10:54	542	551
10/27/22 8:28	600	609
11/2/22 10:55	624	633
11/4/22 12:00	676	686
11/8/22 6:35	675	685
11/10/22 10:35	700	711
11/16/22 13:05	650	659
11/17/22 7:30	700	711
11/21/22 13:45	623	633
11/23/22 13:45	673	683
11/29/22 8:55	648	657
11/30/22 9:40	504	512
12/6/22 8:45	600	609
12/7/22 9:35	653	663
12/7/22*	382	386
12/15/22 14:15	675	685
12/16/22 14:15	650	659
12/20/22 13:30	663	673
12/22/22 15:40	613	622
12/28/22 11:50	700	711
12/30/22 10:15	690	700
Quarterly Average:	643	653

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 410 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 - Quarter 1 - 2023

Date	H_2S Reading (ppm_v)	Calculated TRS (ppm_v)
1/4/23 13:45	776	788
1/6/23 13:45	759	770
1/11/23 9:30	916	930
1/12/23 9:55	1,100	1,117
1/17/23 13:20	1,393	1,414
1/18/23 13:30	1,261	1,280
1/25/23 15:20	1,395	1,416
1/27/23 11:50	1,480	1,502
2/1/23 14:50	1,711	1,736
2/2/23 11:15	1,663	1,688
2/7/23 15:15	1,731	1,757
2/8/23 17:00	1,558	1,582
2/15/23 11:10	1,444	1,466
2/17/23 14:25	1,563	1,586
2/21/23 8:25	1,676	1,702
2/23/23 11:30	1,627	1,652
3/1/23 8:40	1,272	1,291
3/3/23 9:00	1,670	1,695
3/8/23 7:55	1,428	1,450
3/9/23 7:55	1,679	1,704
3/13/23 14:45	1,629	1,653
3/14/23 15:25	1,500	1,523
3/21/23 14:50	1,800	1,827
3/22/23 15:50	1,700	1,726
3/28/23 14:15	2,084	2,115
3/29/23*	1,884	1,897
3/30/23 15:15	2,090	2,121
Quarterly Average:	1,511	1,533

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 - Quarter 2 - 2023

Date	H_2S Reading (ppm_v)	Calculated TRS (ppm_v)
4/4/23 15:35	1,682	1,707
4/6/23 15:55	2,118	2,150
4/11/23 10:15	1,922	1,951
4/14/23 13:45	2,018	2,048
4/18/23 10:45	2,044	2,075
4/20/23 9:25	2,108	2,140
4/26/23 13:00	2,062	2,093
4/28/23 11:25	1,539	1,562
Quarterly Average:	TBD	TBD

H_2S= hydrogen sulfide

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

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)
2022	2	540	600	91.2
2022	3	581	615	98.2
2022	4	663	607	112.0
2023	1	1,674	865	282.8
2023	2*	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 H_2S 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/H_2S for this site according to the following equation: TRS=1.015*H_2S 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 H_2S 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 ppm$_v$.

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 # 1179

Annual Compliance Emissions Test Report #23010

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 12, 2023

Final Report Submitted on:
March 9, 2023

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

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 12, 2023
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 Finnegan Schall (913) 530-4713 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	6.6	15	In Compliance
NO_X, lb/MMBtu	0.026	0.06	In Compliance
CO, ppmvd @ 15% O_2	29.4	82	In Compliance
CO, lb/MMBtu	0.0714	0.20	In Compliance
NMOC, ppmvd @ 3% O_2 as hexane (C_6H_{14})	<0.39	360	In Compliance
NMOC, ppmvd @ 3% O_2 as CH_4	<2.3	30*	In Compliance
NMOC Destruction Efficiency, %	>98.84%	>98%*	In Compliance
CH_4 Destruction Efficiency, %	>99.97%	>99%	In Compliance
Total Reduced Sulfurs in Fuel, ppmv	790	370	Exceeds Limit[1]
SO_2, ppmvd	59.3	300	In Compliance
SO_2, lb/MMBtu	0.256	1.69	In Compliance

**>98% NMOC Destruction Efficiency or 30 ppmvd NMOC as CH_4 @ 3% O_2*

[1] *On October 6, 2016, Redwood Landfill proposed a permit modification to increase the peak limit. 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.*

A

Tabulated Results

TABLE #1

Redwood Landfill

Flare A-51

1,498°F

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	1/12/23	1/12/23	1/12/23		
Test Time	0925-1004	1041-1115	1126-1203		
Standard Temperature, °F	70	70	70		
Process Parameters:					
Flare Temperature, °F	1,498	1,497	1,498	1,498	>1,400
Fuel:					
Fuel Flow Rate, SCFM	796	791	797	795	
Fuel Heat Input, MMBtu/hr	24.3	24.8	24.5	24.5	
Total Reduced Sulfurs as H_2S, ppmv in Fuel	1,128	206	1,037	790	370[1]
Stack Gas:					
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	10,367	10,728	10,684	10,593	
Oxygen (O_2), % volume dry	13.19	13.32	13.27	13.26	
Carbon Dioxide (CO_2), % volume dry	5.91	5.74	5.81	5.82	
Water Vapor (H_2O), % volume *(EPA Method 4)*	8.06	4.80	7.37	6.74	
$NO/NO_2/NO_X$ Emissions:					
NO, ppmvd	7.9	8.9	10.0	9.0	
NO_2, ppmvd	0.4	-0.1	-1.5	-0.4	
NO_2/NO Ratio	0.06	-0.01	-0.15	-0.03	
NOx, ppmvd	8.4	8.8	8.5	8.6	
NOx, ppmvd @ 15% O_2	6.4	6.9	6.6	6.6	15
NOx, lb/hr	0.62	0.68	0.65	0.65	
NOx, lb/MMBtu	0.026	0.027	0.027	0.026	0.06
CO Emissions:					
CO, ppmvd	35.2	38.9	39.9	38.0	
CO, ppmvd @ 15% O_2	26.9	30.3	30.9	29.4	82
CO, lb/hr	1.59	1.81	1.85	1.75	
CO, lb/MMBtu	0.0653	0.0731	0.0757	0.0714	0.20
SO_2 Emissions:					
SO_2, ppmvd *(calculated)*	86.6	15.2	77.4	59.3	300
SO_2, ppmvd @ 15% O_2	66.3	11.8	59.8	46.0	
SO_2, ppmvd @ 3% O_2	201.0	35.9	181.4	139.4	
SO_2, lb/hr	8.93	1.62	8.22	6.26	
SO_2, lb/MMBtu	0.368	0.065	0.336	0.256	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	<10.9	<10.5	<10.8	<10.7	
THC, lb/hr	<0.28	<0.28	<0.29	<0.28	
Methane (CH_4) Emissions:					
CH_4, ppmvd *(EPA Method ALT-097)*	<10.0	<10.0	<10.0	<10.0	
CH_4, lb/hr	<0.257	<0.266	<0.265	<0.263	
NMOC Emissions (reported as CH_4):					
NMOC, ppmvd *(EPA Method ALT-097)*	<1.0	<1.0	<1.0	<1.0	
NMOC, lb/hr	<0.026	<0.027	<0.027	<0.026	
NMOC, ppmvd @ 3% O_2 as hexane (C_6H_{14})	<0.39	<0.39	<0.39	<0.39	360
NMOC, ppmvd @ 3% O_2 as CH_4	<2.3	<2.4	<2.3	<2.3	30*
Inlet Hydrocarbons (reported as CH_4):					
Inlet NMOC, ppmvd *(EPA Method 25C)*	1,105	1,103	1,262	1,157	
Inlet NMOC, lb/hr	2.18	2.17	2.50	2.28	
NMOC Destruction Efficiency, %	>98.82%	>98.77%	>98.94%	>98.84%	>98%*
Inlet CH_4, % *(ASTM D-1945)*	514,000	528,000	515,311**	519,104	
Inlet CH_4, lb/hr	1,016	1,037	1,020	1,024	
CH_4 Destruction Efficiency, %	>99.97%	>99.97%	>99.97%	>99.97%	>99%
Inlet THC (TOC), %	515,105	529,103	516,573	520,260	
Inlet THC (TOC), lb/hr	1,017.8	1,038.9	1,022.0	1,026.3	
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%

**calculated from corrected CH_4% value, see section 3.7 of the report text for further explanation

[1] *On October 6, 2016, Redwood Landfill proposed a permit modification to increase the peak limit. 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.*

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

Flare A-51

Parameter		Run 1	Run 2	Run 3	Average Results	Permit Limits
Sample ID		RLI LFG 1	RLI LFG 2	RLI LFG 3		
Sample Date		1/12/23	1/12/23	1/12/23		
Acrylonitrile	ppb	<35.2	<34.9	<43.1	<38	300
Benzene	ppb	589	562	501	551	1,500
Benzyl Chloride (Chloromethylbenzene)	ppb	42.9	<34.9	<43.1	<40.3	500
Carbon Tetrachloride (Tetrachloromethane)	ppb	<35.2	<34.9	<43.1	<37.7	200
Chlorobenzene	ppb	<35.2	<34.9	<43.1	<37.7	200
Chloroethane	ppb	149	155	135	146	500
Chloroform	ppb	<35.2	<34.9	<43.1	<37.7	200
1,1 Dichloroethane (Ethylidene Dichloride)	ppb	<35.2	<34.9	<43.1	<37.7	500
1,1 Dichloroethene (Vinylidene Chloride)	ppb	<35.2	<34.9	<43.1	<37.7	500
1,2 Dichloroethane (Ethylene Dichloride)	ppb	208	190	172	190	200
1,4 Dichlorobenzene	ppb	180	183	160	174.3	1,000
Ethylbenzene	ppb	2,070	2,010	1,840	1,973	4,000
Ethlyene Dibromide (1,2 Dibromoethane)	ppb	<35.2	<34.9	<43.1	<37.7	200
Hexane	ppb	588	534	482	535	2,000
Isopropyl Alcohol (IPA)*	ppb	3,900	3,350	3,420	3,557	10,000
Methyl Alcohol (Methanol)	ppb	6,090	5,490	5,050	5,543	300,000
2-Butanone (Methyl Ethyl Ketone) (MEK)	ppb	7,070	6,890	6,260	6,740	15,000
Methylene Chloride	ppb	<70.4	<69.8	<86.3	<75.5	1,000
Methyl tert Butyl Ether (MTBE)	ppb	<35.2	<34.9	<43.1	<37.7	500
Perchloroethylene (Tetrachloroethene)	ppb	101	97.0	85.4	94.5	1,000
Styrene	ppb	156	151	135	147	500
Toluene	ppb	3,980	3,810	3,680	3,823	20,000
1,1,1 Trichlororethane	ppb	<35.2	<34.9	<43.1	<37.7	200
1,1,2,2 Tetrachloroethane	ppb	<35.2	<34.9	<43.1	<37.7	200
Trichloroethylene (Trichloroethene)	ppb	77.4	74.0	65.6	72.3	500
Vinyl Chloride	ppb	57.0	55.8	50.9	54.6	2,000
Xylenes	ppb	4,790	4,610	4,190	4,530	20,000
Carbon Disulfide	ppm	0.172	0.209	0.280	0.220	
Carbonyl Sulfide (COS/SO_2)	ppm	<0.070	<0.070	<0.086	<0.075	
Dimethyl Sulfide	ppm	0.772	0.760	0.920	0.817	
Ethyl Mercaptan	ppm	0.144	0.148	0.302	0.198	
Methyl Mercaptan	ppm	1.90	1.60	1.57	1.69	
Hydrogen Sulfide	ppm	1,120	199	1,029	783	
Total Reduced Sulfurs as H_2S	ppm	1,128	206	1,037	790	410

Redwood Landfill, Inc

BAAQMD Facility # A1179

Annual Compliance Emissions Test Report #22192
Landfill Gas Flare A-60(A) and Gas Treatment System S-71

Located at:
Redwood Landfill
8950 Redwood Highway
Novato, California 94948

Prepared for:
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Testing Performed on:
July 13, 2022

Final Report Submitted on:
September 11, 2022

Performed and Reported by:
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Office (510) 525 1261/Cell (810) 923 3181
bluesky@blueskyenvironmental.com

Table 1.2
Enclosed Landfill Gas Flare A-60 (A) Compliance Summary

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
NOx, lb/MMBtu	0.0484	0.06	In Compliance
NOx, ppmvd @ 15% O_2	12.2	15	In Compliance
CO, lb/MMBtu	0.0842	0.20	In Compliance
CO, ppmvd @ 15% O_2	34.7	82	In Compliance
SO_2, ppmvd	0.86	300	In Compliance
SO_2, lb/MMBtu	0.0042	1.69	In Compliance
NMOC, ppmvd @ 3% O_2 as CH_4	<2.9	30 or	In Compliance
NMOC Destruction Efficiency, %	>98.7%	>98%	
CH_4 Destruction Efficiency %	>99.97%	>99%	In Compliance

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	7/13/22	7/13/22	7/13/22		
Test Time	0917-1004	1033-1120	1145-1231		
Standard Temperature, °F	70	70	70		
Process Parameters:					
Flare Temperature, °F	1,582	1,583	1,582	1,582	
Fuel Gas:					
LFG Fuel Flow Rate, SCFM	947	950	955	951	
Total Fuel Heat Input, MMBtu/hr	25.3	27.6	27.5	26.8	
Total Reduced Sulfur Compounds as H_2S, ppmv	399	469	384	417	410
Inlet CH_4, ppmv	448,000	488,000	483,000	473,000	
Inlet CH_4, lb/hr	1,053	1,150	1,145	1,116	
Inlet NMOC, ppmv as CH_4 *(EPA Method 25C)*	1,138	1,156	1,220	1,171	
Inlet NMOC, lb/hr as CH_4	2.68	2.73	2.89	2.76	
Inlet THC, ppmv as CH4	1,056	1,153	1,148	1,119	
Stack Gas:					
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	12,230	13,450	13,181	12,954	
Oxygen (O_2), % volume dry	14.1	14.1	14.0	14.1	
Carbon Dioxide (CO_2), % volume dry	6.18	6.09	6.14	6.14	
Moisture (H_2O), % volume dry	8.04	7.42	8.21	7.89	
NO_X Emissions (reported as NO_2):					
NOx, ppmvd	14.7	13.4	14.1	14.0	
NOx, ppmvd @ 15% O_2	12.7	11.7	12.1	12.2	15
NOx, lb/hr	1.28	1.28	1.33	1.30	
NOx, lb/MMBtu	0.0506	0.0465	0.0482	0.0484	0.06
NO, ppmvd	12.6	10.0	11.3	11.3	
NO_2, ppmvd	2.09	3.41	2.80	2.77	
CO Emissions:					
CO, ppmvd	28.3	51.5	40.4	40.1	
CO, ppmvd @ 15% O_2	24.5	44.9	34.7	34.7	82
CO, lb/hr	1.51	3.01	2.31	2.28	
CO, lb/MMBtu	0.0595	0.109	0.0841	0.0842	0.20
Sulfur Dioxide (SO_2) Emissions:					
SO_2, ppmvd (calculated)	0.83	0.96	0.80	0.86	300
SO_2, lb/hr	0.10	0.13	0.11	0.11	
SO_2, lb/MMBtu	0.0040	0.0047	0.0038	0.0042	1.69
THC Emissions (reported as CH_4):					
THC, ppmvd *(EPA Method ALT 097)*	<12.0	<11.9	<12.0	<11.9	
THC, lb/hr	<0.363	<0.397	<0.392	<0.384	
THC Destruction Efficiency, %	>99.97%	>99.97%	>99.97%	>99.97%	
Methane (CH_4) Emissions:					
CH_4, ppmv wet *(EPA Method ALT 097)*	<10.0	<10.0	<10.0	<10.0	
CH_4, ppmvd	<10.9	<10.8	<10.9	<10.9	
CH_4, lb/hr	<0.330	<0.361	<0.356	<0.349	
CH_4 Destruction Efficiency, %	>99.97%	>99.97%	>99.97%	>99.97%	> 99%
NMOC Emissions (reported as CH_4):					
NMOC, ppmv wet *(EPA Method ALT 097)*	<1.0	<1.0	<1.0	<1.0	
NMOC, ppmvd	<1.1	<1.1	<1.1	<1.1	
NMOC, ppmvd @ 3% O_2	<2.9	<2.9	<2.8	<2.9	30
NMOC, lb/hr	<0.033	<0.036	<0.036	<0.035	
NMOC Destruction Efficiency, %	>98.8%	>98.7%	>98.8%	>98.7%	>98%

Results meet the requirements of the "Compliance Agreement" between the BAAQMD and RLI, which was renewed through January 15, 2023 on June 10, 2022.

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)
ppm dry = ppm wet · 100 / (100 - %H_20)
SO_2 emission ppm = H_2S in fuel · fuel flow rate / stack gas flow rate
Destruction Efficiency, % = (inlet lb/hr- outlet lb/hr) / inlet lb/hr

<Value = 2% of Analyzer Range

TABLE #2

Redwood Landfill, Inc

Landfill Gas Characterization

Parameter		Units	R1 LFG	R2 LFG	R3 LFG	Permit Limits
Test Date			7/13/22	7/13/22	7/13/22	
Average NMOC as Hexane		ppm	190	193	203	
EPA TO-15 Results:						
Acrylonitrile		ppb	<85.0	<86.7	<104	300
Benzene		ppb	609	609	456	1,500
Benzyl Chloride	Chloromethylbenzene	ppb	<42.5	<43.4	<52.1	500
Carbon Tetrachloride		ppb	<42.5	<43.4	<52.1	200
Chlorobenzene		ppb	<42.5	<43.4	<52.1	200
Chloroethane		ppb	127	150.0	110	500
Chloroform		ppb	<42.5	<43.4	<52.1	200
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<42.5	<43.4	<52.1	500
1,1 Dichloroethene	Vinylidene Chloride	ppb	<42.5	<43.4	<52.1	500
1,2 Dichloroethane	Ethylene Dichloride	ppb	168	171	173	200
1,4 Dichlorobenzene		ppb	178	199	203	1,000
Ethylbenzene		ppb	1,980	2,080	2,200	4,000
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<42.5	<43.4	<52.1	200
Hexane		ppb	521	535	531	2,000
Isopropyl Alcohol	IPA	ppb	2,530	3,040	3,590	10,000
Methyl Alcohol	Methanol	ppb	5,380	6,200	7,110	300,000
Methyl Ethyl Ketone	MEK	ppb	4,960	5,660	6,350	15,000
Methylene Chloride		ppb	<85.0	<86.7	55.22	1,000
Methyl tert Butyl Ether	MTBE	ppb	<42.5	<43.4	<52.1	500
Perchloroethylene	Tetrachloroethylene	ppb	99.4	104	104	1,000
Styrene		ppb	135	145	148	500
Toluene		ppb	3,640	3,820	3,880	20,000
1,1,1 Trichlororethane		ppb	<42.5	<43.4	<52.1	200
1,1,2,2 Tetrachloroethane		ppb	<42.50	<43.4	<52.1	200
Trichloroethylene	Trichloroethene	ppb	80.7	79.8	85.4	500
Vinyl Chloride		ppb	61.2	62.4	64.6	2,000
Xylenes		ppb	4,520	4,740	4,890	20,000
ASTM D-5504 Results:						
Carbon Disulfide		ppm	0.144	0.023	0.171	
Carbonyl Sulfide	COS	ppm	<0.017	<0.017	<0.021	
Dimethyl Sulfide		ppm	0.303	0.439	0.348	
Ethyl Mercaptan		ppm	<0.112	0.147	0.133	
Methyl Mercaptan		ppm	0.643	0.872	0.758	
Hydrogen Sulfide		ppm	395	463	377	
Total Reduced Sulfur Compounds as H_2S		ppm	399	469	384	410

Results meet the requirements of the "Compliance Agreement" between the BAAQMD and RLI, which was renewed through January 15, 2023 on June 10, 2022.

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Willexa Purge Gas Characterization Results

TABLE # 3

REDWOOD LANDFILL

7/13/22

S-71 Willexa Waste Gas Characterization (Permit Condition 30)

RUN			**1"**	**12-1**	**12-2**
SOURCE			**1"**	**12"**	**12"**
PROCESS STEP			**1**	**6/7/8**	**9**
Test Date			7/13/22	7/13/22	7/13/22
Test Time			1315-1330	1345-1545	1545-1745
GAS FLOW VELOCITY, SFPM			2,403	2,046	2,400
GAS MOISTURE, % (WB/DB)			5.2	5.1	5.3
GAS FLOW RATE, SCFM			13	1,607	1,885
GAS FLOW RATE, DSCFM			12	1,525	1,785
O_2		%	0.9	21.8	22.0
N_2		%	11.1	77.5	78.0
CO_2		%	38.9	0.5	<0.2
CH_4		%	49.2%	0.2%	0.005%
TRS as H2S		ppm	0.399	1.46	0.959
NMOC (as Carbon)		ppm	1,154	1,693	1,455
NMOC (as Hexane)		ppm	192	282	243
Acrylonitrile		ppb	<81.2	<92.7	<81.9
Benzene		ppb	498	<46.4	<41.0
Benzyl Chloride	Chloromethylbenzene	ppb	<40.6	<46.4	<41.0
Carbon Tetrachloride		ppb	<40.6	<46.4	<41.0
Chlorobenzene		ppb	44.7	<46.4	<41.0
Chloroethane		ppb	124	<46.4	<41.0
Chloroform		ppb	<40.6	<46.4	<41.0
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<40.6	<46.4	<41.0
1,1 Dichloroethene	Vinylidene Chloride	ppb	<40.6	<46.4	<41.0
1,2 Dichloroethane	Ethylene Dichloride	ppb	127	<46.4	<41.0
1,4 Dichlorobenzene		ppb	49.6	92.7	<41.0
Ethylbenzene		ppb	2,090	1,960	208
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<40.6	<46.4	<41.0
Hexane		ppb	522	<46.4	<41.0
Isopropyl Alcohol	2-propanol(IPA)	ppb	2,500	7,270	6,980
Methyl Alcohol	Methanol	ppb	5,520	12,100	7,130
Methyl Ethyl Ketone	MEK	ppb	3,950	8,780	5,220
Methylene Chloride		ppb	<81.2	<92.7	<81.9
Methyl tert Butyl Ether	MTBE	ppb	<40.6	<46.4	<41.0
Perchloroethylene (PCE)	Tetrachloroethylene	ppb	78.8	<46.4	<41.0
Styrene		ppb	<40.6	<46.4	<41.0
Toluene		ppb	3,500	1,130	53.3
1,1,1 Trichlororethane		ppb	<40.6	<46.4	<41.0
1,1,2,2 Tetrachloroethane		ppb	<40.6	<46.4	<41.0
Trichloroethylene (TCE)	Trichloroethene	ppb	59.3	<46.4	<41.0
Vinyl Chloride		ppb	53.6	<46.4	<41.0
Xylenes		ppb	4,710	5,380	634
Carbon Disulfide		ppm	0.656	0.046	0.016
Carbonyl Sulfide		ppm	0.585	0.026	<0.016
Dimethyl Sulfide		ppm	<0.437	0.028	<0.016
Ethyl Mercaptan		ppm	<0.016	<0.019	<0.016
Methyl Mercaptan		ppm	0.179	0.035	<0.016
Hydrogen Sulfide		ppm	0.093	1.16	0.369
TRS as H2S		ppm	2.29	3.06	1.43

TNMOC= (Ethane (C2) *2) + Propane (C3)*3) + (Isobutane (C4)*4) + Isopentane (C5)*5) + (Hexanes (C6)*6) + (C6*8)

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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For Submittal to:
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Attn: Gloria Espena and Marco Hernandez
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sourcetest@baaqmd.gov

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
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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

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$_2$S, ppm *(ASTM D5504)*	0.450	0.222	0.237	0.303	
TRS as H$_2$S, 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$_2$O), % 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_20)

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
03/21/2022

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	08/03/2022
Date of Test: 3/21/2022			

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)			01/15/2022
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	87				
Actual tank capacity (gallons)	1,000				1,000
Gasoline volume (gallons)	736				736
Ullage (gallons)[1]	264				264
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.	2.06				
Pressure at two minutes, in. w.c.	2.14				
Pressure at three minutes, in. w.c.	2.25				
Pressure at four minutes, in. w.c.	2.34				
Pressure at five minutes, in. w.c.	2.50				
Allowable minimum pressure, in. w.c.	**88**				
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: 03/21/2022

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.

MB SERVICES

P.O. Box 1299 Suisun City, CA 94585

707-290-7716 Mbservices1@yahoo.com

Letter of Transmittal

Date
03/16/2023

To:
REDWOOD LANDFILL
8950 REDWOOD HIGHWAY
NOVATO, CA 94945

RE:
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	08/03/2023
Date of Test: 3/16/2023		

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			
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)			01/10/2023
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	87				
Actual tank capacity (gallons)	1,000				1,000
Gasoline volume (gallons)	733				733
Ullage (gallons)[1]	267				267
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	2:45 pm				
Initial Pressure, inches of water column (in. w.c.)	2.00				
Pressure at one minute, in. w.c.	2.03				
Pressure at two minutes, in. w.c.	2.06				
Pressure at three minutes, in. w.c.	2.11				
Pressure at four minutes, in. w.c.	2.16				
Pressure at five minutes, in. w.c.	2.19				
Allowable minimum pressure, in. w.c.	**88**				
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: 03/16/2023

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.

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			
2022 Q2	April	0.00	41.68	27.54	23.81	93.03	254.15	1,112
	May	0.03	45.57	18.41	17.81	81.81		
	June	0.00	48.92	17.62	12.76	79.31		
2022 Q3	July	0.00	54.15	6.99	19.50	80.64	240.71	1,057
	August	0.00	54.32	20.26	4.57	79.14		
	September	0.00	46.03	17.41	17.49	80.93		
2022 Q4	October	3.21	49.19	19.28	16.79	88.47	257.99	1,029
	November	0.00	42.09	22.20	20.28	84.58		
	December	0.06	43.23	21.68	19.97	84.94		
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	109.98	911
	May	0.00	0.00	0.00	0.00	0.00		
	June	0.00	0.00	0.00	0.00	0.00		

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			
2022 Q2	April	0.00	0.93	0.11	0.10	1.14	3.52	24.1
	May	0.00	1.01	0.08	0.07	1.16		
	June	0.00	1.09	0.07	0.05	1.21		
2022 Q3	July	0.00	1.20	0.03	0.08	1.31	4.23	21.4
	August	0.00	1.21	0.08	0.02	1.31		
	September	0.00	0.92	0.48	0.21	1.61		
2022 Q4	October	0.06	0.99	0.54	0.21	1.80	5.24	19.7
	November	0.00	0.85	0.62	0.25	1.72		
	December	0.00	0.87	0.60	0.25	1.72		
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	2.07	17.5
	May	0.00	0.00	0.00	0.00	0.00		
	June	0.00	0.00	0.00	0.00	0.00		

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			
2022 Q2	April	0.00	1.90	0.00	0.00	1.90	6.21	28.2
	May	0.00	2.08	0.00	0.00	2.08		
	June	0.00	2.23	0.00	0.00	2.23		
2022 Q3	July	0.00	2.66	0.00	0.00	2.66	7.60	29.8
	August	0.00	2.67	0.00	0.00	2.67		
	September	0.00	2.26	0.0043	0.0044	2.27		
2022 Q4	October	0.18	2.75	0.0048	0.0042	2.94	7.74	28.9
	November	0.00	2.36	0.0055	0.0051	2.37		
	December	0.00	2.42	0.0054	0.0050	2.43		
2023 Q1	January	0.23	6.06	0.0051	0.0047	6.31	27.93	49.5
	February	0.00	8.45	0.0060	0.0059	8.46		
	March	2.64	10.53	0.0002	0.0042	13.17		
2023 Q2	April	TBD	TBD	0.0002	0.0002	0.00	TBD	TBD
	May					0.00		
	June					0.00		

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.