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TV Tracking #: 336

November 26, 2021

1. ☐ RECEIVED IN ENFORCEMENT: 11/29/2021

Director of Compliance and Enforcement
Bay Area Air Quality Management District
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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
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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 May 1, 2021 to October 31, 2021, 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 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

May 1, 2021 to October 31, 2021

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

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

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

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

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1 INTRODUCTION

1.1 Purpose

This document is a Title V Combined Semi-Annual Report and Partial 8-34 Annual Report for Redwood Landfill, Inc. (RLI) pursuant to Title V Permit Standard Condition I.F and Condition Number 19867, Part 32. This Combined Report satisfies the requirements of Bay Area Air Quality Management District's (BAAQMD) Regulation 8, Rule 34, Section 411 and Title 40 Code of Federal Regulations (CFR) Part 60 Subpart WWW (40 CFR §60.757[f]), New Source Performance Standards (NSPS) for municipal solid waste (MSW) landfills, and the RLI Title V Standard Condition I.F. This report covers compliance activities conducted from May 1, 2021 to October 31, 2021. This Combined Report also includes the Semi-Annual Start-up, Shutdown, and Malfunction (SSM) Plan Report activities pursuant to National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63, Subpart AAAA for Landfills.

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

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

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

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

1.2 Record Keeping and Reporting

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

2 SEMI-ANNUAL MONITORING REPORT

In accordance with RLI Title V Permit Standard Conditions I.F and 19867, Part 32; BAAQMD Regulation 8-34-411; and 40 CFR §60.757(f) of the NSPS for landfills, this report is a Title V Combined Semi-Annual Report and Partial 8-34 Annual Report that is required to be submitted by RLI. This Report contains monitoring data for the operation of the gas collection and control system (GCCS). The operational records have been reviewed and summarized. The timeframe included in this Report is May 1, 2021 to October 31, 2021. The following table lists the rules and regulations that are required to be included in this Combined Report:

Table 2-1 Semi-Annual Report Requirements

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

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

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

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

2.1.1 FLARE SYSTEM DOWNTIME

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

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

Month	A-51 Downtime (Hours)	A-60 Downtime (Hours)
May 2021	744.00	15.67
June 2021	720.00	19.70
July 2021	744.00	9.50
August 2021	744.00	5.97
September 2021	720.00	14.43
October 2021	744.00	0.00
Total Hours:	**4,416.00**	**65.27**

During the period covered in this report, the GCCS was not shut down for more than five days on any one occasion. Appendix B contains the A-51 and A-60 Flare SSM

logs, and GCCS Downtime Summary which lists dates, times, and lengths of shutdowns for the reporting period and year-to-date. A-51 is the backup flare to the A-60 flare.

2.1.2 LANDFILL GAS ENGINE SYSTEM DOWNTIME

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

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

Month	S-64 Downtime (Hours)	S-65 Downtime (Hours)
May 2021	84.08	270.17
June 2021	132.33	493.92
July 2021	129.25	470.50
August 2021	13.67	74.57
September 2021	321.83	154.25
October 2021	400.58	238.50
Total Hours:	**1,081.75**	**1,701.90**

During the period covered in this report, the S-71 treatment system treated all landfill gasses going to the engines. Appendix B contains the S-64 and S-65 Engine SSM logs, and S-71 Downtime Log 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, 5 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 2-3.

Table 2-3 GCCS Downtime Summary

January 1, 2021 through April 30, 2021 Total Downtime:	1.63
May 1, 2021 through October 31, 2021 Total Downtime:	90.97
Total 2021 Downtime:	92.60

BAAQMD Breakdown Report (RCA # 08B03) was submitted on 8/2/21 due to the shutdown of the RLI gas collection and control system (GCCS) from 8/2/21 ~12:40

through 8/2/21 ~15:35. The shutdown was caused by a PG&E power outage. The Request for Breakdown Relief letter was submitted on August 3, 2021. Pursuant to Title V section I.F, the 10-day/30-day Deviation Report and 30-day Breakdown Report were submitted on August 11, 2021 (see Appendix C).

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 2-4 Applicable Temperature Limits

Device	Test Date	Report Submitted	Average Temperature During Test (°F)	3-hr Minimum Temperature (°F)
A-51	1/14/2021	3/10/2021	1,538	1,488
A-60 Zone A	7/22/2020	9/15/2020	1,601	1,551
A-60 Zone A	7/13/2021	9/10/2021	1,575	1,525
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 May 1, 2021 to October 31, 2021.

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 2021. 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:

- May 25, 2021
- June 18, 2021
- July 30, 2021
- August 15, 2021
- September 28, 2021
- October 13, 2021

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

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

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

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

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

The Second Quarter 2021 SEM event was conducted by Roberts Environmental Services (RES) personnel on May 5, 6, 18, 19, and 20, 2021. Thirty-three exceedances were identified. Corrective action and re-monitoring are described below:

- Corrective actions were completed within 5-days for all locations.

- 1st 10-day re-monitoring was completed on May 20, 2021 with all locations cleared except for flag numbers 78 and 84.

- 2nd 10-day re-monitoring was completed on May 27, 2021 for flag numbers 78 and 84 with all locations cleared.

- 1-month remonitoring was completed on June 2 and 3, 2021. All locations cleared.

The Third Quarter 2021 SEM was conducted by RES on July 13 and 14, 2021. Eighteen exceedances were identified. Corrective action and re-monitoring are described below:

- Corrective actions were completed within five days and the 1st 10-day re-monitoring was completed on July 15, 2021. All locations were cleared except for flag numbers 3 and 16.
- 2nd 10-day re-monitoring was completed on July 22, 2021 for flag numbers 3 and 16 with all locations cleared.
- 1-month remonitoring was completed August 5, 2021. All locations were cleared.

SEM Reports are included in Appendix H.

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

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

Second Quarter 2021 – May 5, 19, and 20, 2021
Third Quarter 2021 – July 14, 2021

Two leaks greater than 500 ppmv were detected in the 2nd quarter monitoring event. One at the Engine Plant's compressor pressure relief valve vent (May 19, 2021) and the other at the Engine Plant's hatch to the Willexa treatment tank (May 20, 2021). Corrective actions were performed, and all leaks had less than 500 ppmv upon the first remonitoring on May 25 and 26, 2021. BAAQMD issued a Notice of Violation (NOV) Number A-59864 for the component leak at the Willexa hatch door. Pursuant to Title V section I.F, the 10-day and 30-day deviation letters/reports were submitted and are included in Appendix C.

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

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

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

The solid waste placement total was calculated for the period of May 1, 2021 to October 31, 2021. The current waste in-place figure includes solid waste placed in the landfill through the end of the reporting period. Table 2-5 summarizes the RLI solid waste placement records for the reporting period.

Table 2-5 Solid Waste Placement

Waste Placement (May 1, 2021 to October 31, 2021)	110,244 tons
Current Waste In-Place as of November 1, 2021	14.76 million tons

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

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

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

Wellhead monitoring was performed monthly pursuant to BAAQMD Regulation 8-34-505. The well data for May 1, 2021 to October 31, 2021 are included in Appendix I. Each well was monitored in accordance with the following requirements:

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

The wellhead monitoring was performed on the following dates:

- May 3, 4, 5, 6, 10, 18, and 27, 2021
- June 2, 3, 8, 9, 10, and 17, 2021
- July 6, 7, 8, 13, 27, 28, and 29, 2021
- August 2, 3, 4, 5, 6, 9, 11, and 12, 2021
- September 2, 3, 8, 9, 10, 13, 14, 15, and 16, 2021
- October 6, 8, 11, 12, 13, 14, 15, 18, 22, 25, 26, 27, 28, and 29, 2021

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

A total of 27 deviations from the wellhead standards in 8-34-305 occurred during the reporting period. All exceedances were corrected prior to issuance of this report.

The Wellfield Deviation Log is included in Appendix J.

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

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

Appendix K contains a summary of the daily and monthly LFG flow rates and heat input for the flares and engine plant. The A-51 flare is utilized as a backup for the A-60 flares. These flow rates are summarized in Table 2-6:

Table 2-6 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	0	0		0	285,068	0
A-60	4,351	1,125	49.5	293,706,236	534,084,550	3,134,121
S-64	3,334	654	52.1	130,823,380	319,099,692	1,271,820
S-65	2,714	606	50.7	98,612,006	265,077,474	1,030,045
Total	4,325	2,016	50.4	523,141,622	1,118,546,782	--

[1]Methane content was determined from the 7/17/18, 1/22/20, 7/21/20, 7/22/20, 1/14/21, 7/13/21, 7/14/21, and 7/15/21 Source Tests.
Heating value of methane used in heat input calculations is 1,013 BTU/scf
scfm = standard cubic feet per minute
scf= standard cubic feet
MMBTU = million British thermal units

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

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

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

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.

18 wells were added to and 1 well was removed from the collection system during the reporting period (May 1, 2021 to October 31, 2021).

As of the end of this reporting period, 130 total collectors (123 vertical wells and 7 horizontal collectors) were in service at RLI. A map of the LFG collection system showing the positioning of all vertical wells, horizontal collectors, and other LFG extraction devices is included in Appendix A.

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

The S-34 Compost Facility Operations and S-39 Screening Operations were utilized during the reporting period. The total amount of material processed did not exceed 160,368 tons during any consecutive 12-month period during the reporting period of May 1, 2021 to October 31, 2021. Monthly and 12-month rolling throughputs are summarized in Table 2-7.

Table 2-7 Composting and Screening Operations Throughput

Month	Total Throughput (tons)	Rolling 12-Month Throughput (tons)
May 2021	11,198	139,058
June 2021	10,652	137,486
July 2021	10,281	135,680
August 2021	9,591	134,177
September 2021	9,948	132,520
October 2021	10,004	130,225

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 May 1, 2021 to October 31, 2021.

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 2-8:

Table 2-8 Unleaded Gasoline Throughput

Month	Total Throughput (gallons)	Rolling 12-Month Fuel Usage (gallons)
May 2021	234	2,645
June 2021	255	2,751
July 2021	70	2,663
August 2021	467	2,912
September 2021	124	2,878
October 2021	492	3,110

Pursuant to Title V Permit Condition Number 16516, the Static Pressure Performance Test (Leak Test) for S-55 was performed on April 22, 2021. S-55 passed the Leak Test. The Static Pressure Performance Test results are included in Appendix O.

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

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

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

Pursuant to Title V Permit Condition 19865, the total of waste processed at the S-41 Yard and Green Waste Shredding Operation did not exceed 820 tons per day or 200,000 tons per year. Table 2-9 summarizes the amount of waste processed at S-41 during the reporting period:

Table 2-9 Waste Processed at S-41

Month	Total Throughput (tons)	Rolling 12-Month Throughput (tons)
May 2021	11,198	139,058
June 2021	10,652	137,486
July 2021	10,281	135,680
August 2021	9,591	134,177
September 2021	9,948	132,520
October 2021	10,004	130,225

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 14.02 tons, which is below the permit limit of 15.31 tons.
- Mean vehicle fleet weight for all off-site vehicles traveling on gravel or dirt roads was 15.10 tons, which is below the permit limit of 16.63 tons
- The mean vehicle fleet weight for all on-site landfilling and construction related vehicles was 12.3 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. 2021 partial calendar year VMT on gravel roads was 22,332 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. 2021 partial calendar year VMT on dirt roads was 105,090 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. 2021 partial calendar year VMT on paved roads was 65,681 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. 2021 partial calendar year VMT on dirt roads is 13,217 VMT, below the limit of 19,080 VMT.

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

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

No contaminated soil containing volatile organic compound (VOC) concentrations greater than 50 parts per million (ppm) was received during this reporting period. The total VOC emission rate for the reporting period (May 1, 2021 to October 31, 2021) is 0.00 lbs. The VOC soil log is included in Appendix L.

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

WEEKLY H_2S MONITORING

Pursuant to Title V Permit Condition Number 19867, Part 31b, weekly hydrogen sulfide (H_2S) readings were taken using Draeger tubes. This sampling frequency was increased to twice weekly starting November 22, 2016 per the Compliance Agreement between RLI and BAAQMD. This agreement is in effect and 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 2-10 (LFG), 2-11 (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. This agreement is in effect and all terms of the agreement have been complied with.

Table 2-10 LFG Characterization Results

Compound	First Quarter 2021 A60 Result (ppm_v)	Second Quarter 2021 A60 Result (ppm_v)	Third Quarter 2021 A60 Result (ppm_v)
Hydrogen Sulfide	1,400	1,100	230
Carbonyl Sulfide	1.20	0.81	0.77
Methyl Mercaptan	2.20	1.40	1.00
Ethyl Mercaptan	0.47	ND	0.16
Dimethyl Sulfide	0.42	0.32	0.69
Carbon Disulfide	ND	ND	0.10
Total Reduced Sulfur	1,417	1,115	236

ND = not detected
N/A = not applicable

Table 2-11 Engine Inlet (pre-treatment) Characterization Results

Compound	First Quarter 2021 Result (ppm_v)	Second Quarter 2021 Result (ppm_v)	Third Quarter 2021 Result (ppm_v)
Hydrogen Sulfide	790	610	340
Carbonyl Sulfide	0.62	0.58	1.10
Methyl Mercaptan	1.20	1.10	1.10
Ethyl Mercaptan	0.21	0.27	0.28
Dimethyl Sulfide	0.64	0.43	0.53
Carbon Disulfide	0.12	ND	0.10
Total Reduced Sulfur	798	619	355

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 2-12. 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 2-12 Rolling 4-Quarter TRS Concentration

Quarter	Calculated TRS (ppmv)	Rolling Quarterly Average Annual TRS (ppmv)
2020 Q4	1,103	821.6
2021 Q1	1,158	922.9
2021 Q2	868	972.8
2021 Q3	520	912.1

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 14, 2021. 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 10, 2021.

Results for Toxic Air Contaminants (TACs) are presented in Table 2-13 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 2-13 Annual LFG Characterization: Toxic Air Contaminants

Compound	Result (ppb_v)	Concentration Limit* (ppb_v)
Acrylonitrile	<365	300
Benzene	542	1,500
Benzyl Chloride	<91.2	500
Carbon Tetrachloride	<91.2	200
Chlorobenzene	<91.2	200
Chloroethane	174	500
Chloroform	<91.2	200
1,4-Dichlorobenzene	144.3	1,000
Ethylbenzene	2,153	4,000
Ethylene Dibromide	<91.2	200
Ethylene Dichloride	145	200
Ethylidene Dichloride	<91.2	500
Hexane	496	2,000
Isopropyl Alcohol	2,583	10,000
Methyl Alcohol	3,457	300,000
Methyl Ethyl Ketone	4,837	15,000
Methylene Chloride	<182	1,000
Methyl tert-Butyl Ether	<91.2	500

Compound	Result (ppb_v)	Concentration Limit* (ppb_v)
Perchloroethylene	<92.3	1,000
Styrene	150	500
1,1,2,2-Tetrachloroethane	<91.2	200
Toluene	4,640	20,000
1,1,1-Trichloroethane	<91.2	200
Trichloroethylene	<91.2	500
Vinyl Chloride	<91.2	2,000
Vinylidene Chloride	<91.2	500
Xylenes	4,507	20,000

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

Per the Compliance Agreement, quarterly samples were collected and analyzed for Ethylbenzene and 1,4-Dichlorobenzene. A sample was collected on February 24, 2021 (1st Quarter), May 5, 2021 (2nd Quarter), and August 18, 2021 (3rd Quarter) at the Flare and the Engine Inlet (pre-treatment). Results are presented below.

Table 2-14 Toxic Air Contaminants Sampling

Species	1st Quarter 2021		2nd Quarter 2021		3rd Quarter 2021		Limit (ppb_v)
	A60 Flare (ppb_v)	Engine (ppb_v)	A60 Flare (ppb_v)	Engine (ppb_v)	A60 Flare (ppb_v)	Engine (ppb_v)	
Ethylbenzene	1,700	480	1,700	630	1,300	1,900	4,000
1,4-Dichlorobenzene	160	46	120	57	100	160	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:

- May 21, 2021
- June 25, 2021
- July 23, 2021
- August 3, 2021
- September 30, 2021
- October 15, 2021

There were no H_2S concentrations observed above 30 ppb averaged over 60 minutes or 60 ppb averaged over 3 minutes.

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 2-15 displays the leachate flow information for S-58.

Table 2-15 Leachate Flow Information for S-58

Month	Total Leachate Influent Rate to S-58 (gallons)	Total Rolling 12-Month Flow Rate to S-58 (millions of gallons)
May 2021	1,071,520	11,580,380
June 2021	818,120	11,149,600
July 2021	937,580	11,026,520
August 2021	814,500	10,838,280
September 2021	760,200	10,747,780
October 2021	1,143,920	11,080,820

As shown in Table 2-16, 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 2-16 POC Concentrations for S-58

Sample Date	Benzene (ppb)	1,4-Dichlorobenzene (ppb)	Vinyl Chloride (ppb)	Total POC Concentration (ppb)
June 9, 2021	6.0	5.1	ND<0.50	57.05
Limit	19	48	7	500

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

The S-61 Portable Diesel Engine for Waste Tipper and S-62 Portable Diesel Engine for Power Screens operated less than 4,992 hours combined during any 12-month period

ending in the May 1, 2021 to October 31, 2021 reporting period. Table 2-17 displays runtime hours for S-61 and S-62 during the reporting period.

Table 2-17 S-61 and S-62 Portable Diesel Engines

Month	S-61 Total Runtime (Hours)	S-62 Total Runtime (Hours)	Combined Rolling 12-Month Total (Hours)
May 2021	0	0	37
June 2021	0	0	22
July 2021	0	0	5
August 2021	0	0	0
September 2021	0	0	0
October 2021	0	0	0

2.25 COMPLIANCE WITH TITLE V PERMIT CONDITION 25634

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

Table 2-18 Rolling 4-Quarter LFG Input and CO and SO_2 Emissions

Year	Quarter	Rolling 4-Quarter Totals		
		LFG Input (MMscf)	CO Emissions (tons)	SO_2 Emissions (tons)
2020	4	1,271	30.0	49
2021	1	1,184	28.2	48
2021	2	1,127	27.2	47
2021	3	1,086	25.7	41
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 2021 Annual Compliance Demonstration Test (Source Test) was conducted on January 14, 2021. The Test Report was submitted to BAAQMD on March 10, 2021. 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)	12.7	15	---	In Compliance
CO (ppm_v @ 15% O_2)	27.6	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	<11.3	---	30	In Compliance
NMOC Inlet (ppm_v)	243	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 2021 Source Test was performed on the A-60 flare operating in Zone A by Blue Sky Environmental, LLC on July 13, 2021. The Test Report was submitted to BAAQMD on September 10, 2021. A summary of the report is presented in Appendix N.

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

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

Condition	Flare (A-60 Zone A) Average Results	Permit Limit	8-34-301.3 limit	Compliance Status
NO_x (ppm_v @ 15% O_2)	11.7	15	---	In Compliance
CO (ppm_v @ 15% O_2)	38.5	82	---	In Compliance
NMOC Outlet (ppm_v @ 3% O_2)	3.6	---	30	In Compliance
NMOC Inlet (ppm_v)	120	360	---	In Compliance

The 2018 Source Test was performed by Blue Sky Environmental, LLC on July 17, 2018 with the A-60 flare operating in Zone B. The Test Report was submitted to BAAQMD on September 14, 2018 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, averaged from three test runs.

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

Condition	Flare (A-60 Zone B) Average Results	Permit Limit	8-34-301.3 limit	Compliance Status
NO_x (ppm_v @ 15% O_2)	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

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

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

The 2021 Source Test was performed on the S-64 and S-65 LFG Engines by Blue Sky Environmental, LLC on July 14 and 15, 2021. The Test Report was submitted to BAAQMD on September 13, 2021. A summary of the report is presented in Appendix N.

The results for S-64 Engine indicates that the engine is in compliance with PTO Permit Condition 25635, Part 13. Table 3-5 below shows the results of the source test, averaged from three test runs.

Table 3-5 S-64 Engine Source Test Results

Condition	S-64 Engine Average Results	Permit Limit	Compliance Status
NO_x (gm/BHp-hr)	0.07	0.15	In Compliance
CO (gm/BHp-hr)	0.06	1.8	In Compliance
NMOC (gm/BHp-hr as CH_4)	0.02	0.16	In Compliance

The results for S-65 Engine indicates that the engine is in compliance with PTO Permit Condition 25635, Part 13. Table 3-6 below shows the results of the source test, averaged from three test runs (particulate and formaldehyde have a testing frequency of one engine per year).

Table 3-6 S-65 Engine Source Test Results

Condition	S-64 Engine Average Results	Permit Limit	Compliance Status
NO_x (gm/BHp-hr)	0.05	0.15	In Compliance
CO (gm/BHp-hr)	0.06	1.8	In Compliance
NMOC (gm/BHp-hr as CH_4)	0.04	0.16	In Compliance
Total Particulate (g/BHp)	0.01	0.10	In Compliance
Formaldehyde (lb/hr)	0.002	0.51	In Compliance

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarter 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarter test result on Engine No. 2 (S-65) was above the permit limit of 10 ppmv NO_X, corrected to 15% oxygen, averaged over a 24-hour period. Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 remained offline until the cause of the NO_X exceedance was investigated, and corrective actions have been implemented. RLI submitted a Reportable Compliance Activity (RCA) notification to the BAAQMD on July 2, 2021 and was assigned RCA number 08A33.

Pursuant to Title V section I.F, RLI submitted the 10-Day Report on July 9, 2021 and the 30-Day Report on July 30, 2021 to BAAQMD. The 24-hour emissions test was repeated on July 30, 2021 with a portable analyzer. A Supplemental report to the 30-Day report was submitted on August 3, 2021 to report Engine No. 2's NO_X emissions are back in compliance to the 10 ppmv NO_X limit and that Engine No. 2 can resume full operation.

BAAQMD issued a Notice of Violation (NOV) Number A-59867 for S-65's NO_X exceedance on August 10, 2021. The 10-day NOV response letter was submitted on August 13, 2021 (see Appendix C).

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.

18 wells were added to and 1 well was removed from the collection system during the reporting period (May 1, 2021 to October 31, 2021).

As of the end of this reporting period, 130 total collectors (123 vertical wells and 7 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 agreement includes enhanced monitoring and reporting activities for RLI:

- The frequency for H_2S monitoring using Draeger tubes was increased from weekly to twice per week.
- Monthly fenceline monitoring for ground-level H_2S is now required.
- The frequency for TO-15 sampling for 1,4-dichlorobenzene and ethylbenzene was increased to quarterly.
- The frequency for instantaneous SEM was increased from quarterly to bi-monthly.

Reports summarizing this monitoring 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:

- June 4, 2021
- July 9, 2021
- August 4, 2021
- September 3, 2021
- October 15, 2021
- November 4, 2021

4 START-UP, SHUTDOWN, MALFUNCTION REPORT

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

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

NESHAP 40 CFR Part 63, AAAA became effective on January 16, 2004. SSM events that occurred during the semi-annual reporting period (May 1, 2021 to October 31, 2021) are noted in this section and included in Appendix B. The following information is included as required:

- During the reporting period, 1 A-51 Flare SSM events, 128 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, 69 S-64 Engine (#1) SSM events, 100 S-65 Engine (#2) SSM events occurred. The time, duration, and cause of each event are included in Appendix B, Flare and Engine SSM Logs.

- During the reporting period, 35 wellfield SSM events occurred. The time and duration of these events are included in Appendix D, Wellfield SSM Log.

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

- In all 334 flare, engine, and wellfield SSM events, automatic systems and operator actions were consistent with the standard operating procedures contained in the SSM Plan.

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

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

I certify the following:

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

Signature of Responsible Official — **Date**: **November 26, 2021**

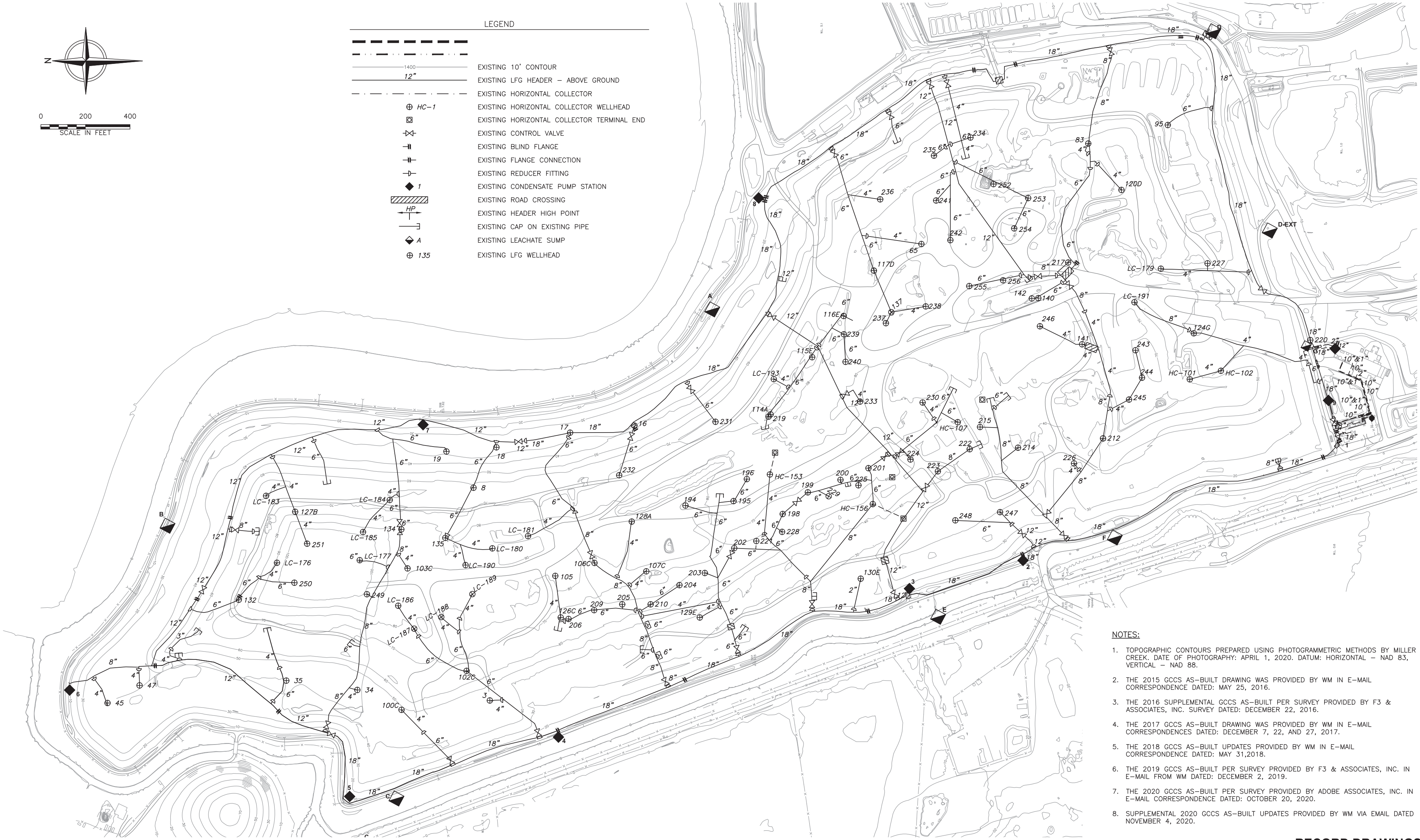
Ramin Khany
Name of Responsible Official

APPENDIX A

SITE MAP

LEGEND

Symbol	Description
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: APRIL 1, 2020. 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.

RECORD DRAWINGS

WASTE MANAGEMENT

This drawing represents intellectual property of Cornerstone Environmental Group, LLC. Any modification to the original by other than Cornerstone Environmental Group, LLC personnel violates its original purpose and as such is rendered void. Cornerstone Environmental Group, LLC will not be held liable for any changes made to this document without express written consent of the originator.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 11/20/20 — DRAWN BY GVP — DESIGNED BY DHK — CHECKED BY AMN — APPROVED BY HLV

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. 200129

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	x Shutdown Startup Malfunction	A-51 Flare	1/14/21 12:08	1/14/21 12:10	0.03	6971.87	A51 Source Testing on January 14, 2021. After test, operate system with A60 only.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
			A-51 shut down as of November 1, 2021												

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	x Shutdown x Startup Malfunction	A-60 Zone A	5/9/21 16:50 5/9/21 17:26	5/9/21 16:52 5/9/21 17:28	0.03 0.03	0.60	Low temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/9/2021
2	x Shutdown x Startup Malfunction	A-60 Zone A	5/9/21 17:50 5/9/21 19:18	5/9/21 17:52 5/9/21 19:20	0.03 0.03	1.47	Low temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/9/2021
3	x Shutdown x Startup Malfunction	A-60 Zone A	5/9/21 19:36 5/9/21 20:00	5/9/21 19:38 5/9/21 20:02	0.03 0.03	0.40	Low temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/9/2021
4	x Shutdown x Startup Malfunction	A-60 Zone A	5/9/21 20:18 5/9/21 20:44	5/9/21 20:20 5/9/21 20:46	0.03 0.03	0.43	Low temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/9/2021
5	x Shutdown x Startup Malfunction	A-60 Zone A	5/10/21 16:06 5/10/21 20:46	5/10/21 16:08 5/10/21 20:48	0.03 0.03	4.67	Low temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/10/2021
6	x Shutdown x Startup Malfunction	A-60 Zone A	5/11/21 21:56 5/11/21 22:00	5/11/21 21:58 5/11/21 22:02	0.03 0.03	0.07	Low temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/11/2021
7	x Shutdown x Startup Malfunction	A-60 Zone A	5/18/21 17:10 5/18/21 17:24	5/18/21 17:12 5/18/21 17:26	0.03 0.03	0.23	Low flow alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/18/2021
8	x Shutdown x Startup Malfunction	A-60 Zone A	5/18/21 17:40 5/18/21 17:50	5/18/21 17:42 5/18/21 17:52	0.03 0.03	0.17	Low flow alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/18/2021
9	x Shutdown x Startup Malfunction	A-60 Zone A	5/18/21 18:02 5/18/21 18:08	5/18/21 18:04 5/18/21 18:10	0.03 0.03	0.10	Low flow alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/18/2021
10	x Shutdown x Startup Malfunction	A-60 Zone A	5/19/21 14:00 5/19/21 14:04	5/19/21 14:02 5/19/21 14:06	0.03 0.03	0.07	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/19/2021
11	x Shutdown x Startup Malfunction	A-60 Zone A	5/19/21 14:58 5/19/21 16:30	5/19/21 15:00 5/19/21 16:32	0.03 0.03	1.53	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/19/2021
12	x Shutdown x Startup Malfunction	A-60 Zone A	5/19/21 19:42 5/19/21 22:02	5/19/21 19:44 5/19/21 22:04	0.03 0.03	2.33	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/19/2021
13	x Shutdown x Startup Malfunction	A-60 Zone A	5/19/21 22:34 5/20/21 1:58	5/19/21 22:36 5/20/21 2:00	0.03 0.03	3.40	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/20/2021

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
14	x Shutdown x Startup Malfunction	A-60 Zone A	5/20/21 2:38 5/20/21 3:54	5/20/21 2:40 5/20/21 3:56	0.03 0.03	1.27	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/20/2021
15	x Shutdown x Startup Malfunction	A-60 Zone A	5/20/21 4:26 5/20/21 8:02	5/20/21 4:28 5/20/21 8:04	0.03 0.03	3.60	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/20/2021
16	x Shutdown x Startup Malfunction	A-60 Zone A	5/20/21 19:02 5/20/21 19:08	5/20/21 19:04 5/20/21 19:10	0.03 0.03	0.10	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/20/2021
17	x Shutdown x Startup Malfunction	A-60 Zone A	5/20/21 20:58 5/20/21 21:02	5/20/21 21:00 5/20/21 21:04	0.03 0.03	0.07	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/20/2021
18	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 7:48 5/21/21 7:54	5/21/21 7:50 5/21/21 7:56	0.03 0.03	0.10	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
19	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 8:16 5/21/21 9:02	5/21/21 8:18 5/21/21 9:04	0.03 0.03	0.77	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
20	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 10:08 5/21/21 10:12	5/21/21 10:10 5/21/21 10:14	0.03 0.03	0.07	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
21	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 11:32 5/21/21 11:38	5/21/21 11:34 5/21/21 11:40	0.03 0.03	0.10	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
22	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 15:22 5/21/21 15:40	5/21/21 15:24 5/21/21 15:42	0.03 0.03	0.30	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
23	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 17:52 5/21/21 17:58	5/21/21 17:54 5/21/21 18:00	0.03 0.03	0.10	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
24	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 19:28 5/21/21 19:32	5/21/21 19:30 5/21/21 19:34	0.03 0.03	0.07	Varying flow/temperature alarm shutdown. System inspected after restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
25	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 20:00 5/21/21 22:06	5/21/21 20:02 5/21/21 22:08	0.03 0.03	2.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021

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
26	x Shutdown x Startup Malfunction	A-60 Zone A	5/21/21 22:30 5/21/21 22:52	5/21/21 22:32 5/21/21 22:54	0.03 0.03	0.37	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/21/2021
27	x Shutdown x Startup Malfunction	A-60 Zone A	5/22/21 3:52 5/22/21 4:04	5/22/21 3:54 5/22/21 4:06	0.03 0.03	0.20	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/22/2021
28	x Shutdown x Startup Malfunction	A-60 Zone A	5/22/21 6:04 5/22/21 6:14	5/22/21 6:06 5/22/21 6:16	0.03 0.03	0.17	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/22/2021
29	x Shutdown x Startup Malfunction	A-60 Zone A	5/22/21 18:44 5/22/21 18:48	5/22/21 18:46 5/22/21 18:50	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/22/2021
30	x Shutdown x Startup Malfunction	A-60 Zone A	5/23/21 5:44 5/23/21 5:54	5/23/21 5:46 5/23/21 5:56	0.03 0.03	0.17	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/23/2021
31	x Shutdown x Startup Malfunction	A-60 Zone A	5/24/21 6:00 5/24/21 6:14	5/24/21 6:02 5/24/21 6:16	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/24/2021
32	x Shutdown x Startup Malfunction	A-60 Zone A	5/26/21 15:06 5/26/21 15:16	5/26/21 15:08 5/26/21 15:18	0.03 0.03	0.17	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/26/2021
33	x Shutdown x Startup Malfunction	A-60 Zone A	5/26/21 21:04 5/26/21 21:36	5/26/21 21:06 5/26/21 21:38	0.03 0.03	0.53	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/26/2021
34	x Shutdown x Startup Malfunction	A-60 Zone A	5/26/21 22:00 5/26/21 22:06	5/26/21 22:02 5/26/21 22:08	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/26/2021
35	x Shutdown x Startup Malfunction	A-60 Zone A	5/26/21 22:54 5/26/21 23:24	5/26/21 22:56 5/26/21 23:26	0.03 0.03	0.50	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/26/2021
36	x Shutdown x Startup Malfunction	A-60 Zone A	5/27/21 0:00 5/27/21 0:52	5/27/21 0:02 5/27/21 0:54	0.03 0.03	0.87	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/27/2021
37	x Shutdown x Startup Malfunction	A-60 Zone A	5/27/21 1:38 5/27/21 3:44	5/27/21 1:40 5/27/21 3:46	0.03 0.03	2.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/27/2021

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	x Shutdown x Startup Malfunction	A-60 Zone A	5/27/21 4:04 5/27/21 4:58	5/27/21 4:06 5/27/21 5:00	0.03 0.03	0.90	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	5/27/2021
39	x Shutdown x Startup Malfunction	A-60 Zone A	5/27/21 9:02 5/27/21 9:24	5/27/21 9:04 5/27/21 9:26	0.03 0.03	0.37	Varying flow/temperature alarm shutdown. System inspected and restarted.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	5/27/2021
40	x Shutdown x Startup Malfunction	A-60 Zone A	6/9/21 12:22 6/9/21 13:36	6/9/21 12:24 6/9/21 13:38	0.03 0.03	1.23	Manual Shutdown for flare maintenance.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/9/2021
41	x Shutdown x Startup Malfunction	A-60 Zone A	6/13/21 0:04 6/13/21 0:12	6/13/21 0:06 6/13/21 0:14	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/13/2021
42	x Shutdown x Startup Malfunction	A-60 Zone A	6/13/21 1:18 6/13/21 1:42	6/13/21 1:20 6/13/21 1:44	0.03 0.03	0.40	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/13/2021
43	x Shutdown x Startup Malfunction	A-60 Zone A	6/13/21 2:04 6/13/21 2:24	6/13/21 2:06 6/13/21 2:26	0.03 0.03	0.33	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/13/2021
44	x Shutdown x Startup Malfunction	A-60 Zone A	6/13/21 2:40 6/13/21 3:02	6/13/21 2:42 6/13/21 3:04	0.03 0.03	0.37	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/13/2021
45	x Shutdown x Startup Malfunction	A-60 Zone A	6/13/21 12:14 6/13/21 15:56	6/13/21 12:16 6/13/21 15:58	0.03 0.03	3.70	Varying temperature shutdown. Manual Restart.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	6/13/2021
46	x Shutdown x Startup Malfunction	A-60 Zone A	6/17/21 8:58 6/17/21 10:00	6/17/21 9:00 6/17/21 10:02	0.03 0.03	1.03	Manual Shutdown for flare maintenance.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/17/2021
47	x Shutdown x Startup Malfunction	A-60 Zone A	6/21/21 13:58 6/21/21 14:46	6/21/21 14:00 6/21/21 14:48	0.03 0.03	0.80	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/21/2021
48	x Shutdown x Startup Malfunction	A-60 Zone A	6/21/21 19:24 6/21/21 20:48	6/21/21 19:26 6/21/21 20:50	0.03 0.03	1.40	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/21/2021
49	x Shutdown x Startup Malfunction	A-60 Zone A	6/22/21 8:56 6/22/21 9:04	6/22/21 8:58 6/22/21 9:06	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/22/2021

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
50	x Shutdown x Startup Malfunction	A-60 Zone A	6/22/21 14:10 6/22/21 14:16	6/22/21 14:12 6/22/21 14:18	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/22/2021
51	x Shutdown x Startup Malfunction	A-60 Zone A	6/22/21 14:42 6/22/21 14:46	6/22/21 14:44 6/22/21 14:48	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/22/2021
52	x Shutdown x Startup Malfunction	A-60 Zone A	6/22/21 16:08 6/22/21 16:34	6/22/21 16:10 6/22/21 16:36	0.03 0.03	0.43	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/22/2021
53	x Shutdown x Startup Malfunction	A-60 Zone A	6/22/21 17:24 6/22/21 18:26	6/22/21 17:26 6/22/21 18:28	0.03 0.03	1.03	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/22/2021
54	x Shutdown x Startup Malfunction	A-60 Zone A	6/22/21 21:44 6/23/21 2:22	6/22/21 21:46 6/23/21 2:24	0.03 0.03	4.63	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/23/2021
55	x Shutdown x Startup Malfunction	A-60 Zone A	6/23/21 15:16 6/23/21 15:54	6/23/21 15:18 6/23/21 15:56	0.03 0.03	0.63	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/23/2021
56	x Shutdown x Startup Malfunction	A-60 Zone A	6/23/21 19:50 6/23/21 21:08	6/23/21 19:52 6/23/21 21:10	0.03 0.03	1.30	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/23/2021
57	x Shutdown x Startup Malfunction	A-60 Zone A	6/24/21 8:54 6/24/21 9:32	6/24/21 8:56 6/24/21 9:34	0.03 0.03	0.63	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/24/2021
58	x Shutdown x Startup Malfunction	A-60 Zone A	6/24/21 12:04 6/24/21 12:44	6/24/21 12:06 6/24/21 12:46	0.03 0.03	0.67	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/24/2021
59	x Shutdown x Startup Malfunction	A-60 Zone A	6/24/21 13:08 6/24/21 14:12	6/24/21 13:10 6/24/21 14:14	0.03 0.03	1.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/24/2021
60	x Shutdown x Startup Malfunction	A-60 Zone A	6/25/21 1:18 6/25/21 1:32	6/25/21 1:20 6/25/21 1:34	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/25/2021
61	x Shutdown x Startup Malfunction	A-60 Zone A	6/26/21 2:46 6/26/21 3:56	6/26/21 2:48 6/26/21 3:58	0.03 0.03	1.17	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/26/2021

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
62	x Shutdown x Startup Malfunction	A-60 Zone A	6/26/21 5:10 6/26/21 5:14	6/26/21 5:12 6/26/21 5:16	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/26/2021
63	x Shutdown x Startup Malfunction	A-60 Zone A	6/26/21 7:08 6/26/21 7:16	6/26/21 7:10 6/26/21 7:18	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/26/2021
64	x Shutdown x Startup Malfunction	A-60 Zone A	6/26/21 19:32 6/26/21 19:36	6/26/21 19:34 6/26/21 19:38	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/26/2021
65	x Shutdown x Startup Malfunction	A-60 Zone A	6/26/21 20:02 6/26/21 20:14	6/26/21 20:04 6/26/21 20:16	0.03 0.03	0.20	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/26/2021
66	x Shutdown x Startup Malfunction	A-60 Zone A	6/27/21 11:48 6/27/21 12:00	6/27/21 11:50 6/27/21 12:02	0.03 0.03	0.20	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/27/2021
67	x Shutdown x Startup Malfunction	A-60 Zone A	6/27/21 12:30 6/27/21 12:38	6/27/21 12:32 6/27/21 12:40	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/27/2021
68	x Shutdown x Startup Malfunction	A-60 Zone A	6/27/21 13:58 6/27/21 14:06	6/27/21 14:00 6/27/21 14:08	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/27/2021
69	x Shutdown x Startup Malfunction	A-60 Zone A	6/28/21 3:48 6/28/21 4:08	6/28/21 3:50 6/28/21 4:10	0.03 0.03	0.33	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/28/2021
70	x Shutdown x Startup Malfunction	A-60 Zone A	6/28/21 8:02 6/28/21 8:08	6/28/21 8:04 6/28/21 8:10	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/28/2021
71	x Shutdown x Startup Malfunction	A-60 Zone A	6/29/21 0:00 6/29/21 0:04	6/29/21 0:02 6/29/21 0:06	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/29/2021
72	x Shutdown x Startup Malfunction	A-60 Zone A	6/29/21 9:22 6/29/21 9:36	6/29/21 9:24 6/29/21 9:38	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/29/2021
73	x Shutdown x Startup Malfunction	A-60 Zone A	6/29/21 10:44 6/29/21 11:12	6/29/21 10:46 6/29/21 11:14	0.03 0.03	0.47	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/29/2021

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
74	x Shutdown x Startup Malfunction	A-60 Zone A	6/29/21 12:00 6/29/21 12:16	6/29/21 12:02 6/29/21 12:18	0.03 0.03	0.27	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/29/2021
75	x Shutdown x Startup Malfunction	A-60 Zone A	6/29/21 14:34 6/29/21 15:22	6/29/21 14:36 6/29/21 15:24	0.03 0.03	0.80	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/29/2021
76	x Shutdown x Startup Malfunction	A-60 Zone A	6/29/21 16:36 6/29/21 16:40	6/29/21 16:38 6/29/21 16:42	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	6/29/2021
77	x Shutdown x Startup Malfunction	A-60 Zone A	7/1/21 6:56 7/1/21 7:02	7/1/21 6:58 7/1/21 7:04	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/1/2021
78	x Shutdown x Startup Malfunction	A-60 Zone A	7/8/21 7:50 7/8/21 12:52	7/8/21 7:52 7/8/21 12:54	0.03 0.03	5.03	Manual Shutdown for flare maintenance.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	7/8/2021
79	x Shutdown x Startup Malfunction	A-60 Zone A	7/10/21 22:54 7/10/21 23:00	7/10/21 22:56 7/10/21 23:02	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/10/2021
80	x Shutdown x Startup Malfunction	A-60 Zone A	7/13/21 17:16 7/13/21 17:22	7/13/21 17:18 7/13/21 17:24	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/13/2021
81	x Shutdown x Startup Malfunction	A-60 Zone A	7/14/21 15:36 7/14/21 15:40	7/14/21 15:38 7/14/21 15:42	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/14/2021
82	x Shutdown x Startup Malfunction	A-60 Zone A	7/14/21 22:02 7/14/21 22:06	7/14/21 22:04 7/14/21 22:08	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/14/2021
83	x Shutdown x Startup Malfunction	A-60 Zone A	7/15/21 5:52 7/15/21 5:56	7/15/21 5:54 7/15/21 5:58	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/15/2021
84	x Shutdown x Startup Malfunction	A-60 Zone A	7/15/21 6:36 7/15/21 6:40	7/15/21 6:38 7/15/21 6:42	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/15/2021
85	x Shutdown x Startup Malfunction	A-60 Zone A	7/15/21 7:12 7/15/21 7:20	7/15/21 7:14 7/15/21 7:22	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/15/2021

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
86	x Shutdown x Startup Malfunction	A-60 Zone A	7/17/21 0:34 7/17/21 0:42	7/17/21 0:36 7/17/21 0:44	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/17/2021
87	x Shutdown x Startup Malfunction	A-60 Zone A	7/26/21 3:46 7/26/21 3:52	7/26/21 3:48 7/26/21 3:54	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/26/2021
88	x Shutdown x Startup Malfunction	A-60 Zone A	7/26/21 18:26 7/26/21 20:34	7/26/21 18:28 7/26/21 20:36	0.03 0.03	2.13	Manual shutdown due to fire on landfill.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	7/26/2021
89	x Shutdown x Startup Malfunction	A-60 Zone A	7/27/21 8:30 7/27/21 9:46	7/27/21 8:32 7/27/21 9:48	0.03 0.03	1.27	Manual shutdown for maintenance.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	7/27/2021
90	x Shutdown x Startup Malfunction	A-60 Zone A	7/29/21 10:12 7/29/21 10:20	7/29/21 10:14 7/29/21 10:22	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	7/29/2021
91	x Shutdown x Startup Malfunction	A-60 Zone A	8/2/21 12:36 8/2/21 15:32	8/2/21 12:38 8/2/21 15:34	0.03 0.03	2.93	All control devices were shutdown due to a site-wide power outage. Inspected upon restart of the control devices. Visual inspections and PLC checks. RCA #08B03	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	8/2/2021
92	x Shutdown x Startup Malfunction	A-60 Zone A	8/2/21 15:50 8/2/21 15:54	8/2/21 15:52 8/2/21 15:56	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/2/2021
93	x Shutdown x Startup Malfunction	A-60 Zone A	8/4/21 20:08 8/4/21 20:14	8/4/21 20:10 8/4/21 20:16	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/4/2021
94	x Shutdown x Startup Malfunction	A-60 Zone A	8/4/21 21:58 8/4/21 22:02	8/4/21 22:00 8/4/21 22:04	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/4/2021
95	x Shutdown x Startup Malfunction	A-60 Zone A	8/4/21 23:02 8/4/21 23:08	8/4/21 23:04 8/4/21 23:10	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/4/2021
96	x Shutdown x Startup Malfunction	A-60 Zone A	8/5/21 2:04 8/5/21 2:08	8/5/21 2:06 8/5/21 2:10	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/5/2021

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
97	x Shutdown x Startup Malfunction	A-60 Zone A	8/5/21 4:54 8/5/21 4:58	8/5/21 4:56 8/5/21 5:00	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/5/2021
98	x Shutdown x Startup Malfunction	A-60 Zone A	8/5/21 6:30 8/5/21 6:34	8/5/21 6:32 8/5/21 6:36	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/5/2021
99	x Shutdown x Startup Malfunction	A-60 Zone A	8/5/21 8:28 8/5/21 8:32	8/5/21 8:30 8/5/21 8:34	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/5/2021
100	x Shutdown x Startup Malfunction	A-60 Zone A	8/7/21 9:46 8/7/21 10:00	8/7/21 9:48 8/7/21 10:02	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/7/2021
101	x Shutdown x Startup Malfunction	A-60 Zone A	8/8/21 2:32 8/8/21 2:36	8/8/21 2:34 8/8/21 2:38	0.03 0.03	0.07	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/8/2021
102	x Shutdown x Startup Malfunction	A-60 Zone A	8/8/21 4:08 8/8/21 4:16	8/8/21 4:10 8/8/21 4:18	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/8/2021
103	x Shutdown x Startup Malfunction	A-60 Zone A	8/17/21 1:42 8/17/21 1:48	8/17/21 1:44 8/17/21 1:50	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/17/2021
104	x Shutdown x Startup Malfunction	A-60 Zone A	8/17/21 5:06 8/17/21 5:22	8/17/21 5:08 8/17/21 5:24	0.03 0.03	0.27	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/17/2021
105	x Shutdown x Startup Malfunction	A-60 Zone A	8/18/21 4:10 8/18/21 4:18	8/18/21 4:12 8/18/21 4:20	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/18/2021
106	x Shutdown x Startup Malfunction	A-60 Zone A	8/18/21 9:52 8/18/21 10:00	8/18/21 9:54 8/18/21 10:02	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/18/2021
107	x Shutdown x Startup Malfunction	A-60 Zone A	8/18/21 10:34 8/18/21 10:42	8/18/21 10:36 8/18/21 10:44	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/18/2021
108	x Shutdown x Startup Malfunction	A-60 Zone A	8/18/21 11:10 8/18/21 11:30	8/18/21 11:12 8/18/21 11:32	0.03 0.03	0.33	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	8/18/2021

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
109	x Shutdown x Startup Malfunction	A-60 Zone A	8/23/21 23:32 8/23/21 23:46	8/23/21 23:34 8/23/21 23:48	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/23/2021
110	x Shutdown x Startup Malfunction	A-60 Zone A	8/26/21 22:00 8/26/21 22:08	8/26/21 22:02 8/26/21 22:10	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/26/2021
111	x Shutdown x Startup Malfunction	A-60 Zone A	8/30/21 10:22 8/30/21 10:30	8/30/21 10:24 8/30/21 10:32	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/30/2021
112	x Shutdown x Startup Malfunction	A-60 Zone A	8/30/21 23:04 8/30/21 23:14	8/30/21 23:06 8/30/21 23:16	0.03 0.03	0.17	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/30/2021
113	x Shutdown x Startup Malfunction	A-60 Zone A	8/30/21 23:34 8/30/21 23:48	8/30/21 23:36 8/30/21 23:50	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	8/30/2021
114	x Shutdown x Startup Malfunction	A-60 Zone A	9/1/21 23:10 9/1/21 23:24	9/1/21 23:12 9/1/21 23:26	0.03 0.03	0.23	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/1/2021
115	x Shutdown x Startup Malfunction	A-60 Zone A	9/9/21 4:02 9/9/21 4:10	9/9/21 4:04 9/9/21 4:12	0.03 0.03	0.13	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/9/2021
116	x Shutdown x Startup Malfunction	A-60 Zone A	9/9/21 4:20 9/9/21 4:26	9/9/21 4:22 9/9/21 4:28	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/9/2021
117	x Shutdown x Startup Malfunction	A-60 Zone A	9/9/21 5:56 9/9/21 6:02	9/9/21 5:58 9/9/21 6:04	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/9/2021
118	x Shutdown x Startup Malfunction	A-60 Zone A	9/9/21 7:02 9/9/21 7:08	9/9/21 7:04 9/9/21 7:10	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/9/2021
119	x Shutdown x Startup Malfunction	A-60 Zone A	9/9/21 8:08 9/9/21 8:24	9/9/21 8:10 9/9/21 8:26	0.03 0.03	0.27	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/9/2021
120	x Shutdown x Startup Malfunction	A-60 Zone A	9/10/21 0:42 9/10/21 1:40	9/10/21 0:44 9/10/21 1:42	0.03 0.03	0.97	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/10/2021

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
121	x Shutdown x Startup Malfunction	A-60 Zone A	9/10/21 5:32 9/10/21 5:44	9/10/21 5:34 9/10/21 5:46	0.03 0.03	0.20	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/10/2021
122	x Shutdown x Startup Malfunction	A-60 Zone A	9/10/21 6:56 9/10/21 7:02	9/10/21 6:58 9/10/21 7:04	0.03 0.03	0.10	Varying flow/temperature alarm shutdown.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/10/2021
123	x Shutdown x Startup Malfunction	A-60 Zone A	9/10/21 13:32 9/10/21 14:32	9/10/21 13:34 9/10/21 14:34	0.03 0.03	1.00	Varying flow/temperature alarm shutdowns.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/10/2021
124	x Shutdown x Startup Malfunction	A-60 Zone A	9/10/21 17:28 9/10/21 18:34	9/10/21 17:30 9/10/21 18:36	0.03 0.03	1.10	Varying flow/temperature alarm shutdowns.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/10/2021
125	x Shutdown x Startup Malfunction	A-60 Zone A	9/10/21 19:04 9/11/21 10:10	9/10/21 19:06 9/11/21 10:12	0.03 0.03	15.10	Varying flow/temperature alarm shutdowns. Manual startup after inspection/maintenance	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		Mike Chan	9/11/2021
126	x Shutdown x Startup Malfunction	A-60 Zone A	9/11/21 10:40 9/11/21 10:52	9/11/21 10:42 9/11/21 10:54	0.03 0.03	0.20	Manual Shutdown for flare inspection/maintenance	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	9/11/2021
127	x Shutdown x Startup Malfunction	A-60 Zone A	9/29/21 9:26 9/29/21 9:34	9/29/21 9:28 9/29/21 9:36	0.03 0.03	0.13	Varying flow/temperature alarm shutdowns.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/29/2021
128	x Shutdown x Startup Malfunction	A-60 Zone A	9/29/21 16:36 9/29/21 16:46	9/29/21 16:38 9/29/21 16:48	0.03 0.03	0.17	Varying flow/temperature alarm shutdowns.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) Manual (Go to 7) x Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) x No		Mike Chan	9/29/2021

No A-60 Zone A SSM events in October 2021

REDWOOD LANDFILL, INC.

A-60 ZONE B CONTROL DEVICE DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
1	x Shutdown Startup Malfunction	A-60 Zone B	12/18/19 13:28	12/18/19 13:30	0.03	16402.53	Manual shutdown. Running on A60A only.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
			Zone B shut down as of November 1, 2021												

(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/deterioratior -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 necessar 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 equipmen 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 equipmen	31. Check/repair temperature monitoring equipmen 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	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/8/21 15:25 5/8/21 16:40	5/8/21 15:27 5/8/21 16:42	0.03 0.03	1.25	High oil temp	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/8/2021
2	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/12/21 15:15 5/13/21 11:20	5/12/21 15:17 5/13/21 11:22	0.03 0.03	20.08	Willexa treatment system failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/13/2021
3	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/13/21 11:45 5/14/21 6:20	5/13/21 11:47 5/14/21 6:22	0.03 0.03	18.58	Willexa Treatment system failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/14/2021
4	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/16/21 21:05 5/16/21 22:55	5/16/21 21:07 5/16/21 22:57	0.03 0.03	1.83	Cyl. 13 detonation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/16/2021
5	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/19/21 2:25 5/19/21 4:35	5/19/21 2:27 5/19/21 4:37	0.03 0.03	2.17	Detonation Cyl.3 & 20	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/19/2021
6	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/22/21 6:05 5/22/21 7:35	5/22/21 6:07 5/22/21 7:37	0.03 0.03	1.50	Flare shutdown engine	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/22/2021
7	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/24/21 7:50 5/24/21 12:25	5/24/21 7:52 5/24/21 12:27	0.03 0.03	4.58	Valve Adjustment	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/24/2021
8	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/25/21 16:25 5/26/21 14:25	5/25/21 16:27 5/26/21 14:27	0.03 0.03	22.00	Cool down engine for Johnson Matthey tech inspection	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/26/2021
9	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/27/21 5:30 5/27/21 9:30	5/27/21 5:32 5/27/21 9:32	0.03 0.03	4.00	Johnson Matthey tech inspection & replace pressure relief valve.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/27/2021
10	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/28/21 6:15 5/28/21 11:45	5/28/21 6:17 5/28/21 11:47	0.03 0.03	5.50	Detonation cyl. 3 & 19	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/28/2021
11	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/29/21 8:50 5/29/21 10:10	5/29/21 8:52 5/29/21 10:12	0.03 0.03	1.33	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/29/2021
12	x Shutdown x Startup Malfunction	Engine #1 (S-64)	5/31/21 0:30 5/31/21 1:45	5/31/21 0:32 5/31/21 1:47	0.03 0.03	1.25	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/31/2021

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	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/4/21 13:05 6/4/21 14:10	6/4/21 13:07 6/4/21 14:12	0.03 0.03	1.08	Detonation Cylinder 3	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/4/2021
14	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/5/21 8:25 6/5/21 14:40	6/5/21 8:27 6/5/21 14:42	0.03 0.03	6.25	Detonation cyl. 3	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/5/2021
15	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/7/21 7:45 6/11/21 11:15	6/7/21 7:47 6/11/21 11:17	0.03 0.03	99.50	Fuel treatment Vessell media change out	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/11/2021
16	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/11/21 11:45 6/11/21 12:25	6/11/21 11:47 6/11/21 12:27	0.03 0.03	0.67	Johnson Matthey High Pressure fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/11/2021
17	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/11/21 21:55 6/11/21 23:10	6/11/21 21:57 6/11/21 23:12	0.03 0.03	1.25	Engine Auxiliary Shutdown Switch	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/11/2021
18	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/12/21 17:10 6/12/21 18:25	6/12/21 17:12 6/12/21 18:27	0.03 0.03	1.25	Engine Auxiliary Shutdown Switch	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/12/2021
19	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/12/21 19:35 6/12/21 19:50	6/12/21 19:37 6/12/21 19:52	0.03 0.03	0.25	Engine Auxiliary Shutdown Switch	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/12/2021
20	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/15/21 8:00 6/15/21 8:25	6/15/21 8:02 6/15/21 8:27	0.03 0.03	0.42	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/15/2021
21	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/15/21 23:55 6/16/21 0:50	6/15/21 23:57 6/16/21 0:52	0.03 0.03	0.92	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/16/2021
22	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/18/21 0:40 6/18/21 1:30	6/18/21 0:42 6/18/21 1:32	0.03 0.03	0.83	Engine Overspeed	x 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		P Madison	6/18/2021
23	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/18/21 15:35 6/18/21 17:00	6/18/21 15:37 6/18/21 17:02	0.03 0.03	1.42	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/18/2021
24	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/19/21 21:00 6/19/21 22:30	6/19/21 21:02 6/19/21 22:32	0.03 0.03	1.50	High condensate in 903	x 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		P Madison	6/19/2021

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	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/22/21 18:20 6/22/21 21:20	6/22/21 18:22 6/22/21 21:22	0.03 0.03	3.00	High Condensate level	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/22/2021
26	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/29/21 15:30 6/29/21 16:00	6/29/21 15:32 6/29/21 16:02	0.03 0.03	0.50	Surge from Wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/29/2021
27	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/29/21 19:20 6/29/21 19:30	6/29/21 19:22 6/29/21 19:32	0.03 0.03	0.17	Surge from Wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/29/2021
28	x Shutdown x Startup Malfunction	Engine #1 (S-64)	6/30/21 10:40 7/1/21 0:00	6/30/21 10:42 7/1/21 0:02	0.03 0.03	13.33	Engine shut down to test emissions on Engine 2	x 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		P Madison	7/1/2021
29	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/1/21 0:00 7/1/21 6:30	7/1/21 0:02 7/1/21 6:32	0.03 0.03	6.50	Shutdown to emissions test Engine 2	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/1/2021
30	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/3/21 1:00 7/3/21 3:15	7/3/21 1:02 7/3/21 3:17	0.03 0.03	2.25	Generator Low Load Fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/3/2021
31	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/3/21 19:30 7/3/21 21:15	7/3/21 19:32 7/3/21 21:17	0.03 0.03	1.75	Generator Low Load Fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/3/2021
32	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/5/21 2:45 7/5/21 6:45	7/5/21 2:47 7/5/21 6:47	0.03 0.03	4.00	Intake Pressure sensor fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/5/2021
33	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/5/21 8:00 7/5/21 8:45	7/5/21 8:02 7/5/21 8:47	0.03 0.03	0.75	Replaced front JW coolant expansion pipe	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/5/2021
34	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/6/21 13:30 7/6/21 15:45	7/6/21 13:32 7/6/21 15:47	0.03 0.03	2.25	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/6/2021
35	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/7/21 5:30 7/7/21 8:45	7/7/21 5:32 7/7/21 8:47	0.03 0.03	3.25	Engine Overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/7/2021
36	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/7/21 16:00 7/8/21 13:45	7/7/21 16:02 7/8/21 13:47	0.03 0.03	21.75	Engine off to Replace SCR catalyst bricks	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/8/2021

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
37	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/8/21 16:00 7/8/21 19:30	7/8/21 16:02 7/8/21 19:32	0.03 0.03	3.50	Engine off to Replace SCR catalyst bricks	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/8/2021
38	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/10/21 10:00 7/10/21 11:45	7/10/21 10:02 7/10/21 11:47	0.03 0.03	1.75	Interim personnel maintenance/repairs	x 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		P Madison	7/10/2021
39	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/11/21 8:15 7/11/21 9:00	7/11/21 8:17 7/11/21 9:02	0.03 0.03	0.75	Interim personnel maintenance/repairs	x 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		P Madison	7/11/2021
40	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/12/21 13:30 7/12/21 14:00	7/12/21 13:32 7/12/21 14:02	0.03 0.03	0.50	Interim personnel maintenance/repairs	x 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		P Madison	7/12/2021
41	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/13/21 13:00 7/13/21 17:00	7/13/21 13:02 7/13/21 17:02	0.03 0.03	4.00	Interim personnel maintenance/repairs	x 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		P Madison	7/13/2021
42	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/13/21 19:15 7/14/21 7:15	7/13/21 19:17 7/14/21 7:17	0.03 0.03	12.00	Interim personnel maintenance/repairs	x 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		P Madison	7/14/2021
43	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/17/21 16:15 7/17/21 19:00	7/17/21 16:17 7/17/21 19:02	0.03 0.03	2.75	Interim personnel maintenance/repairs	x 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		P Madison	7/17/2021
44	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/17/21 19:45 7/17/21 21:30	7/17/21 19:47 7/17/21 21:32	0.03 0.03	1.75	Interim personnel maintenance/repairs	x 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		P Madison	7/17/2021
45	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/21/21 1:00 7/21/21 9:00	7/21/21 1:02 7/21/21 9:02	0.03 0.03	8.00	Interim personnel maintenance/repairs	x 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		P Madison	7/21/2021
46	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/21/21 23:45 7/22/21 9:30	7/21/21 23:47 7/22/21 9:32	0.03 0.03	9.75	Interim personnel maintenance/repairs	x 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		P Madison	7/22/2021
47	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/26/21 19:30 7/27/21 9:45	7/26/21 19:32 7/27/21 9:47	0.03 0.03	14.25	Interim personnel maintenance/repairs	x 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		M Chan	7/27/2021
48	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/27/21 10:15 7/28/21 11:45	7/27/21 10:17 7/28/21 11:47	0.03 0.03	25.50	Interim personnel maintenance/repairs	x 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		M Chan	7/28/2021

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
49	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/30/21 3:00 7/30/21 5:00	7/30/21 3:02 7/30/21 5:02	0.03 0.03	2.00	Interim personnel maintenance/repairs	x 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		M Chan	7/30/2021
50	x Shutdown x Startup Malfunction	Engine #1 (S-64)	7/30/21 13:15 7/30/21 13:30	7/30/21 13:17 7/30/21 13:32	0.03 0.03	0.25	Interim personnel maintenance/repairs	x 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		M Chan	7/30/2021
51	x Shutdown x Startup Malfunction	Engine #1 (S-64)	8/2/21 13:00 8/2/21 15:40	8/2/21 13:02 8/2/21 15:42	0.03 0.03	2.67	Power Outage	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/2/2021
52	x Shutdown x Startup Malfunction	Engine #1 (S-64)	8/17/21 8:40 8/17/21 9:30	8/17/21 8:42 8/17/21 9:32	0.03 0.03	0.83	oil change	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/17/2021
53	x Shutdown x Startup Malfunction	Engine #1 (S-64)	8/20/21 9:35 8/20/21 10:35	8/20/21 9:37 8/20/21 10:37	0.03 0.03	1.00	Shutdown to inspect Gas Compressor coupling	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/20/2021
54	x Shutdown x Startup Malfunction	Engine #1 (S-64)	8/24/21 7:00 8/24/21 16:10	8/24/21 7:02 8/24/21 16:12	0.03 0.03	9.17	Relaced FGC	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/24/2021
55	x Shutdown x Startup Malfunction	Engine #1 (S-64)	9/9/21 8:25 9/9/21 10:15	9/9/21 8:27 9/9/21 10:17	0.03 0.03	1.83	Engine shutdown for Flare Testing	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/9/2021
56	x Shutdown x Startup Malfunction	Engine #1 (S-64)	9/14/21 9:35 9/14/21 11:15	9/14/21 9:37 9/14/21 11:17	0.03 0.03	1.67	Valve lash & Recession	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/14/2021
57	x Shutdown x Startup Malfunction	Engine #1 (S-64)	9/14/21 13:15 9/22/21 8:25	9/14/21 13:17 9/22/21 8:27	0.03 0.03	187.17	Lack of flow from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/22/2021
58	x Shutdown x Startup Malfunction	Engine #1 (S-64)	9/24/21 11:20 9/28/21 7:35	9/24/21 11:22 9/28/21 7:37	0.03 0.03	92.25	Lack of flow from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/28/2021
59	x Shutdown x Startup Malfunction	Engine #1 (S-64)	9/28/21 8:15 9/28/21 8:35	9/28/21 8:17 9/28/21 8:37	0.03 0.03	0.33	High Oil Temp	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	9/28/2021
60	x Shutdown x Startup Malfunction	Engine #1 (S-64)	9/29/21 9:25 10/1/21 0:00	9/29/21 9:27 10/1/21 0:02	0.03 0.03	38.58	Lack of flow from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/1/2021

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
61	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/1/21 0:01 10/11/21 12:30	10/1/21 0:03 10/11/21 12:32	0.03 0.03	252.48	Lack of flow from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/11/2021
62	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/11/21 14:35 10/13/21 9:15	10/11/21 14:37 10/13/21 9:17	0.03 0.03	42.67	Lack of flow from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/13/2021
63	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/13/21 9:55 10/15/21 12:55	10/13/21 9:57 10/15/21 12:57	0.03 0.03	51.00	Lack of flow from wellfield	x 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		P Madison	10/15/2021
64	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/18/21 11:50 10/18/21 12:55	10/18/21 11:52 10/18/21 12:57	0.03 0.03	1.08	High oil temp	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	10/18/2021
65	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/18/21 13:05 10/20/21 9:40	10/18/21 13:07 10/20/21 9:42	0.03 0.03	44.58	Lack of flow from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/20/2021
66	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/24/21 4:50 10/24/21 11:55	10/24/21 4:52 10/24/21 11:57	0.03 0.03	7.08	Surge from utility faulted battery back up stopping engine	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	10/24/2021
67	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/24/21 12:25 10/24/21 12:45	10/24/21 12:27 10/24/21 12:47	0.03 0.03	0.33	Not able to lock in load due to damage from utility surge	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/24/2021
68	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/24/21 12:55 10/24/21 13:50	10/24/21 12:57 10/24/21 13:52	0.03 0.03	0.92	Not able to lock in load due to damage from utility surge	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/24/2021
69	x Shutdown x Startup Malfunction	Engine #1 (S-64)	10/28/21 12:25 10/28/21 12:50	10/28/21 12:27 10/28/21 12:52	0.03 0.03	0.42	Oil Change	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/28/2021

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	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/12/21 15:15 5/14/21 7:30	5/12/21 15:17 5/14/21 7:32	0.03 0.03	40.25	Willexa treatment system failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/14/2021
2	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 8:10 5/14/21 8:50	5/14/21 8:12 5/14/21 8:52	0.03 0.03	0.67	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
3	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 9:25 5/14/21 9:35	5/14/21 9:27 5/14/21 9:37	0.03 0.03	0.17	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
4	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 9:50 5/14/21 10:00	5/14/21 9:52 5/14/21 10:02	0.03 0.03	0.17	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
5	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 10:15 5/14/21 10:30	5/14/21 10:17 5/14/21 10:32	0.03 0.03	0.25	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
6	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 10:55 5/14/21 11:10	5/14/21 10:57 5/14/21 11:12	0.03 0.03	0.25	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
7	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 11:25 5/14/21 11:50	5/14/21 11:27 5/14/21 11:52	0.03 0.03	0.42	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
8	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 12:05 5/14/21 13:55	5/14/21 12:07 5/14/21 13:57	0.03 0.03	1.83	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
9	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 14:20 5/14/21 14:30	5/14/21 14:22 5/14/21 14:32	0.03 0.03	0.17	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/14/2021
10	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/14/21 14:45 5/17/21 14:35	5/14/21 14:47 5/17/21 14:37	0.03 0.03	71.83	Johnson Matthey system failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/17/2021
11	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/17/21 15:15 5/18/21 8:15	5/17/21 15:17 5/18/21 8:17	0.03 0.03	17.00	Johnson Matthey system failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/18/2021
12	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/18/21 8:55 5/18/21 15:10	5/18/21 8:57 5/18/21 15:12	0.03 0.03	6.25	Valve lash adjustment	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/18/2021

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	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/18/21 15:45 5/18/21 16:15	5/18/21 15:47 5/18/21 16:17	0.03 0.03	0.50	Johnson Matthey system failure diagnosis	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/18/2021
14	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/19/21 2:30 5/19/21 3:45	5/19/21 2:32 5/19/21 3:47	0.03 0.03	1.25	Low load fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/19/2021
15	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/22/21 6:10 5/22/21 7:15	5/22/21 6:12 5/22/21 7:17	0.03 0.03	1.08	Flare shutdown	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/22/2021
16	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/22/21 7:30 5/22/21 7:40	5/22/21 7:32 5/22/21 7:42	0.03 0.03	0.17	Johnson Matthey high pressure fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/22/2021
17	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/23/21 5:45 5/23/21 7:10	5/23/21 5:47 5/23/21 7:12	0.03 0.03	1.42	Flare shutdown	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/23/2021
18	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/24/21 9:00 5/24/21 9:40	5/24/21 9:02 5/24/21 9:42	0.03 0.03	0.67	Low load shutdown	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/24/2021
19	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/24/21 10:10 5/24/21 10:30	5/24/21 10:12 5/24/21 10:32	0.03 0.03	0.33	Johnson Matthey high pressure fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/24/2021
20	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/24/21 15:50 5/25/21 16:35	5/24/21 15:52 5/25/21 16:37	0.03 0.03	24.75	Cooldown for Johnson Matthey Tech inspection	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/25/2021
21	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/26/21 7:05 5/26/21 9:00	5/26/21 7:07 5/26/21 9:02	0.03 0.03	1.92	Johnson Matthey system diagnosis/inspection/afjustments	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/26/2021
22	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/27/21 5:35 5/27/21 8:00	5/27/21 5:37 5/27/21 8:02	0.03 0.03	2.42	Johnson Matthey system diagnosis/inspection/afjustments	x 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		P Madison	5/27/2021
23	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/27/21 8:55 5/27/21 9:50	5/27/21 8:57 5/27/21 9:52	0.03 0.03	0.92	Flare shutdown	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/27/2021
24	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/27/21 17:25 5/27/21 19:00	5/27/21 17:27 5/27/21 19:02	0.03 0.03	1.58	Johnson Matthey system diagnosis/inspection/afjustments	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/27/2021

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

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
25	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/27/21 19:45 5/27/21 19:55	5/27/21 19:47 5/27/21 19:57	0.03 0.03	0.17	Johnson Matthey system diagnosis/inspection/afjustments	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	5/27/2021
26	x Shutdown x Startup Malfunction	Engine #2 (S-65)	5/28/21 2:15 6/1/21 0:01	5/28/21 2:17 6/1/21 0:03	0.03 0.03	93.77	Turbo exhaust bellows leaking/failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/1/2021
27	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/1/21 0:01 6/11/21 11:25	6/1/21 0:03 6/11/21 11:27	0.03 0.03	251.40	Checking for exhaust leaks	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/11/2021
28	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/11/21 11:55 6/11/21 12:10	6/11/21 11:57 6/11/21 12:12	0.03 0.03	0.25	Repair exhaust leaks	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/11/2021
29	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/11/21 13:15 6/11/21 14:00	6/11/21 13:17 6/11/21 14:02	0.03 0.03	0.75	High exhaust port temp	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/11/2021
30	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/11/21 14:50 6/12/21 9:50	6/11/21 14:52 6/12/21 9:52	0.03 0.03	19.00	Exhaust leak at Bellows	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/12/2021
31	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/12/21 10:35 6/12/21 20:10	6/12/21 10:37 6/12/21 20:12	0.03 0.03	9.58	Exhaust leak at Bellows	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/12/2021
32	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 0:45 6/13/21 1:05	6/13/21 0:47 6/13/21 1:07	0.03 0.03	0.33	Johnson-Matthey Low Flow fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/13/2021
33	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 1:35 6/13/21 1:45	6/13/21 1:37 6/13/21 1:47	0.03 0.03	0.17	Johnson-Matthey Low Flow fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/13/2021
34	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 2:15 6/13/21 2:25	6/13/21 2:17 6/13/21 2:27	0.03 0.03	0.17	Johnson-Matthey Low Flow fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/13/2021
35	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 5:50 6/13/21 10:35	6/13/21 5:52 6/13/21 10:37	0.03 0.03	4.75	Engine Overspeed	x 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		P Madison	6/13/2021
36	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 20:40 6/13/21 22:20	6/13/21 20:42 6/13/21 22:22	0.03 0.03	1.67	Engine overspeed	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/13/2021

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
37	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 22:45 6/13/21 22:55	6/13/21 22:47 6/13/21 22:57	0.03 0.03	0.17	Johnson-Matthey Low Flow fau	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/13/2021
38	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 23:05 6/13/21 23:20	6/13/21 23:07 6/13/21 23:22	0.03 0.03	0.25	Engine won't build load/fuel pressure fluctuation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/13/2021
39	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/13/21 23:40 6/14/21 7:55	6/13/21 23:42 6/14/21 7:57	0.03 0.03	8.25	Engine won't build load/fuel pressure fluctuation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/14/2021
40	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/14/21 20:20 6/14/21 22:40	6/14/21 20:22 6/14/21 22:42	0.03 0.03	2.33	Engine won't build load/fuel pressure fluctuation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/14/2021
41	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/15/21 3:15 6/18/21 12:25	6/15/21 3:17 6/18/21 12:27	0.03 0.03	81.17	Engine won't build load/fuel pressure fluctuation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/18/2021
42	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/18/21 13:50 6/21/21 11:30	6/18/21 13:52 6/21/21 11:32	0.03 0.03	69.67	Engine won't build load/fuel pressure fluctuation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/21/2021
43	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/21/21 20:55 6/22/21 8:05	6/21/21 20:57 6/22/21 8:07	0.03 0.03	11.17	Johnson Matthey Low flow fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/22/2021
44	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/27/21 14:00 6/27/21 16:15	6/27/21 14:02 6/27/21 16:17	0.03 0.03	2.25	Air intake temp sensor defective	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/27/2021
45	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/27/21 16:35 6/27/21 16:45	6/27/21 16:37 6/27/21 16:47	0.03 0.03	0.17	Engine won't build load/fuel pressure fluctuation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/27/2021
46	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/28/21 14:55 6/28/21 15:05	6/28/21 14:57 6/28/21 15:07	0.03 0.03	0.17	Surge from Wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/28/2021
47	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/29/21 15:30 6/29/21 15:50	6/29/21 15:32 6/29/21 15:52	0.03 0.03	0.33	Surge from Wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/29/2021
48	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/29/21 17:00 6/30/21 6:10	6/29/21 17:02 6/30/21 6:12	0.03 0.03	13.17	Failure to build load/fuel problem	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	6/30/2021

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
49	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/30/21 7:00 6/30/21 7:10	6/30/21 7:02 6/30/21 7:12	0.03 0.03	0.17	Failure to build load/fuel problem	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	6/30/2021
50	x Shutdown x Startup Malfunction	Engine #2 (S-65)	6/30/21 7:25 7/1/21 0:01	6/30/21 7:27 7/1/21 0:03	0.03 0.03	16.60	Failure to build load/fuel problem	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/1/2021
51	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/1/21 7:15 7/8/21 15:30	7/1/21 7:17 7/8/21 15:32	0.03 0.03	176.25	Engine off for Emissions failure and replacing of SCR Catalyst bricks	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/8/2021
52	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/8/21 19:45 7/8/21 20:00	7/8/21 19:47 7/8/21 20:02	0.03 0.03	0.25	Engine off for Emissions failure and replacing of SCR Catalyst bricks	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	7/8/2021
53	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/8/21 21:15 7/10/21 11:45	7/8/21 21:17 7/10/21 11:47	0.03 0.03	38.50	Johnson Matthey low pressure fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/10/2021
54	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/11/21 1:30 7/11/21 6:45	7/11/21 1:32 7/11/21 6:47	0.03 0.03	5.25	KW load unstable	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/11/2021
55	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/11/21 8:00 7/11/21 8:15	7/11/21 8:02 7/11/21 8:17	0.03 0.03	0.25	KW load unstable	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/11/2021
56	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/11/21 9:30 7/11/21 15:30	7/11/21 9:32 7/11/21 15:32	0.03 0.03	6.00	KW load unstable	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/11/2021
57	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/11/21 16:00 7/12/21 8:00	7/11/21 16:02 7/12/21 8:02	0.03 0.03	16.00	KW load unstable	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	7/12/2021
58	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/12/21 9:30 7/12/21 11:00	7/12/21 9:32 7/12/21 11:02	0.03 0.03	1.50	Interim personnel maintenance/repairs	x 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		P Madison	7/12/2021
59	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/12/21 13:30 7/12/21 14:30	7/12/21 13:32 7/12/21 14:32	0.03 0.03	1.00	Interim personnel maintenance/repairs	x 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		P Madison	7/12/2021
60	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/13/21 19:30 7/14/21 15:30	7/13/21 19:32 7/14/21 15:32	0.03 0.03	20.00	Interim personnel maintenance/repairs	x 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		P Madison	7/14/2021

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
61	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/15/21 14:45 7/16/21 17:00	7/15/21 14:47 7/16/21 17:02	0.03 0.03	26.25	Interim personnel maintenance/repairs	x 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		P Madison	7/16/2021
62	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/16/21 17:45 7/16/21 18:00	7/16/21 17:47 7/16/21 18:02	0.03 0.03	0.25	Interim personnel maintenance/repairs	x 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		P Madison	7/16/2021
63	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/17/21 1:00 7/17/21 9:00	7/17/21 1:02 7/17/21 9:02	0.03 0.03	8.00	Interim personnel maintenance/repairs	x 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		P Madison	7/17/2021
64	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/17/21 11:15 7/18/21 14:45	7/17/21 11:17 7/18/21 14:47	0.03 0.03	27.50	Interim personnel maintenance/repairs	x 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		P Madison	7/18/2021
65	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/18/21 16:15 7/20/21 12:30	7/18/21 16:17 7/20/21 12:32	0.03 0.03	44.25	Interim personnel maintenance/repairs	x 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		P Madison	7/20/2021
66	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/20/21 13:45 7/22/21 9:30	7/20/21 13:47 7/22/21 9:32	0.03 0.03	43.75	Interim personnel maintenance/repairs	x 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		P Madison	7/22/2021
67	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/26/21 19:00 7/28/21 12:30	7/26/21 19:02 7/28/21 12:32	0.03 0.03	41.50	Manual shutdown due to fire on landfill.	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		M Chan	7/28/2021
68	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/28/21 14:15 7/28/21 17:00	7/28/21 14:17 7/28/21 17:02	0.03 0.03	2.75	Interim personnel maintenance/repairs	x 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		M Chan	7/28/2021
69	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/29/21 9:15 7/29/21 10:00	7/29/21 9:17 7/29/21 10:02	0.03 0.03	0.75	Interim personnel maintenance/repairs	x 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		M Chan	7/29/2021
70	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/29/21 12:15 7/29/21 12:45	7/29/21 12:17 7/29/21 12:47	0.03 0.03	0.50	Interim personnel maintenance/repairs	x 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		M Chan	7/29/2021
71	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/30/21 3:00 7/30/21 5:30	7/30/21 3:02 7/30/21 5:32	0.03 0.03	2.50	Interim personnel maintenance/repairs	x 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		M Chan	7/30/2021
72	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/31/21 13:30 7/31/21 16:30	7/31/21 13:32 7/31/21 16:32	0.03 0.03	3.00	Interim personnel maintenance/repairs	x 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		M Chan	7/31/2021

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
73	x Shutdown x Startup Malfunction	Engine #2 (S-65)	7/31/21 19:30 8/1/21 0:00	7/31/21 19:32 8/1/21 0:02	0.03 0.03	4.50	Interim personnel maintenance/repairs	x 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		M Chan	8/1/2021
74	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/1/21 0:01 8/1/21 13:20	8/1/21 0:03 8/1/21 13:22	0.03 0.03	13.32	Interim personnel maintenance/repairs	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/1/2021
75	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/2/21 12:10 8/2/21 16:00	8/2/21 12:12 8/2/21 16:02	0.03 0.03	3.83	Power outage	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/2/2021
76	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/2/21 21:50 8/4/21 10:00	8/2/21 21:52 8/4/21 10:02	0.03 0.03	36.17	JM fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/4/2021
77	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/20/21 9:35 8/20/21 10:40	8/20/21 9:37 8/20/21 10:42	0.03 0.03	1.08	Shutdown to inspect FGC coupler	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/20/2021
78	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/20/21 11:05 8/20/21 11:20	8/20/21 11:07 8/20/21 11:22	0.03 0.03	0.25	JMN fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/20/2021
79	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/20/21 11:55 8/20/21 16:35	8/20/21 11:57 8/20/21 16:37	0.03 0.03	4.67	Leak at Johnson Matthey supply hose	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/20/2021
80	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/23/21 4:25 8/23/21 8:45	8/23/21 4:27 8/23/21 8:47	0.03 0.03	4.33	Johnson-Matthey Low Flow fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/23/2021
81	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/24/21 7:00 8/24/21 16:05	8/24/21 7:02 8/24/21 16:07	0.03 0.03	9.08	Replace FGC	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/24/2021
82	x Shutdown x Startup Malfunction	Engine #2 (S-65)	8/26/21 8:30 8/26/21 10:20	8/26/21 8:32 8/26/21 10:22	0.03 0.03	1.83	Failed exhaust temp sensor cylinder #9 Replaced	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/26/2021
83	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/1/21 11:15 9/1/21 11:45	9/1/21 11:17 9/1/21 11:47	0.03 0.03	0.50	Oil Change	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/1/2021
84	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/9/21 8:25 9/9/21 10:05	9/9/21 8:27 9/9/21 10:07	0.03 0.03	1.67	Shutdown for Flare testing	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/9/2021

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
85	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/11/21 13:15 9/14/21 8:45	9/11/21 13:17 9/14/21 8:47	0.03 0.03	67.50	Lack of fuel to run both engines	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/14/2021
86	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/22/21 9:10 9/24/21 10:45	9/22/21 9:12 9/24/21 10:47	0.03 0.03	49.58	Lack of fuel to run both engines	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/24/2021
87	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/24/21 16:50 9/24/21 20:25	9/24/21 16:52 9/24/21 20:27	0.03 0.03	3.58	Johnson Matthey Blower Dampener fault	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	9/24/2021
88	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/28/21 1:20 9/28/21 9:00	9/28/21 1:22 9/28/21 9:02	0.03 0.03	7.67	Cyl. 15 exhaust temp deviating low	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	9/28/2021
89	x Shutdown x Startup Malfunction	Engine #2 (S-65)	9/28/21 9:10 9/29/21 8:55	9/28/21 9:12 9/29/21 8:57	0.03 0.03	23.75	Lack of fuel to run both engines	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/29/2021
90	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/5/21 7:15 10/5/21 8:35	10/5/21 7:17 10/5/21 8:37	0.03 0.03	1.33	Compressor Discharge sensor voltage high	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	10/5/2021
91	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/5/21 23:55 10/6/21 2:00	10/5/21 23:57 10/6/21 2:02	0.03 0.03	2.08	Compressor discharge sensor voltage low	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	10/6/2021
92	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/7/21 9:45 10/7/21 12:55	10/7/21 9:47 10/7/21 12:57	0.03 0.03	3.17	Not enough gas flow to run both engines	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/7/2021
93	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/8/21 20:45 10/8/21 22:35	10/8/21 20:47 10/8/21 22:37	0.03 0.03	1.83	Surge from wellfield	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	10/8/2021
94	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/12/21 2:30 10/13/21 10:50	10/12/21 2:32 10/13/21 10:52	0.03 0.03	32.33	Utility needed engines off to repair substation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/13/2021
95	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/15/21 13:05 10/18/21 12:05	10/15/21 13:07 10/18/21 12:07	0.03 0.03	71.00	Not enough gas flow to run both engines	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/18/2021
96	x Shutdown x Startup Malfunction	Engine #2 (S-65)	10/19/21 4:45 10/19/21 8:40	10/19/21 4:47 10/19/21 8:42	0.03 0.03	3.92	Not enough gas flow to run both engines	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/19/2021

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
97	[ ] Shutdown [x] Startup [ ] Malfunction	Engine #2 (S-65)	10/20/21 10:25 10/24/21 13:05	10/20/21 10:27 10/24/21 13:07	0.03 0.03	98.67	Not enough gas flow to run both engines	[x] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [ ] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9) [x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	[ ] Yes (Go to 9) [x] No [ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No [ ] Yes (Go to 10) [ ] No		P Madison	10/24/2021
98	[x] Shutdown [x] Startup [ ] Malfunction	Engine #2 (S-65)	10/24/21 13:30 10/24/21 15:10	10/24/21 13:32 10/24/21 15:12	0.03 0.03	1.67	Checking damage from utility	[x] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [ ] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9) [x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	[ ] Yes (Go to 9) [x] No [ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No [ ] Yes (Go to 10) [ ] No		P Madison	10/24/2021
99	[x] Shutdown [x] Startup [ ] Malfunction	Engine #2 (S-65)	10/24/21 16:10 10/25/21 12:45	10/24/21 16:12 10/25/21 12:47	0.03 0.03	20.58	Not enough gas flow to run both engines	[x] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [ ] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9) [x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	[ ] Yes (Go to 9) [x] No [ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No [ ] Yes (Go to 10) [ ] No		P Madison	10/25/2021
100	[x] Shutdown [x] Startup [ ] Malfunction	Engine #2 (S-65)	10/25/21 14:30 10/25/21 16:25	10/25/21 14:32 10/25/21 16:27	0.03 0.03	1.92	Coolant leak	[x] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [ ] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9) [x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	[ ] Yes (Go to 9) [x] No [ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No [ ] Yes (Go to 10) [ ] No		P Madison	10/25/2021

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
1	x Shutdown x Startup Malfunction	Treatment System (S-71)	5/12/21 15:15 5/14/21 7:30	5/12/21 15:17 5/14/21 7:32	0.03 0.03	40.25	Heater system failure	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	5/14/2021
2	x Shutdown x Startup Malfunction	Treatment System (S-71)	6/7/21 7:45 6/10/21 15:45	6/7/21 7:47 6/10/21 15:47	0.03 0.03	80.00	Vessel Media Change	x 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		P Madison	6/10/2021
No S-71 SSM events in July 2021															
3	x Shutdown x Startup Malfunction	Treatment System (S-71)	8/2/21 12:10 8/2/21 15:30	8/2/21 12:12 8/2/21 15:32	0.03 0.03	3.33	Power outage	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	Manual (Go to 7) x Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) No Yes (Go to 9) x No	Yes (Go to 10) x No Yes (Go to 10) No		P Madison	8/2/2021
4	x Shutdown x Startup Malfunction	Treatment System (S-71)	8/20/21 8:50 8/20/21 9:10	8/20/21 8:52 8/20/21 9:12	0.03 0.03	0.33	Shutdown to inspect Gas Compressor coupling	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/20/2021
5	x Shutdown x Startup Malfunction	Treatment System (S-71)	8/24/21 6:45 8/24/21 15:30	8/24/21 6:47 8/24/21 15:32	0.03 0.03	8.75	Replace Gas Compressor	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	8/24/2021
6	x Shutdown x Startup Malfunction	Treatment System (S-71)	9/9/21 8:25 9/9/21 10:05	9/9/21 8:27 9/9/21 10:07	0.03 0.03	1.67	Flare testing	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	9/9/2021
7	x Shutdown x Startup Malfunction	Treatment System (S-71)	10/12/21 6:00 10/13/21 8:00	10/12/21 6:02 10/13/21 8:02	0.03 0.03	26.00	Utility needed engines off to repair substation	x 113: Inspection/Maintenance 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		P Madison	10/13/2021

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

Redwood Landfill, Novato, CA GCCS DOWNTIME REPORT Period:		May 1, 2021 to October 31, 2021	
SHUTDOWN DATE/TIME	**START-UP DATE/TIME**	**TOTAL DOWNTIME (hours)**	**COMMENTS/ACTION TAKEN**
01/13/21 09:08	01/13/21 09:24	0.27	Manual Shutdown for maintenance.
01/13/21 09:48	01/13/21 09:54	0.10	Manual Shutdown for maintenance.
01/13/21 10:10	01/13/21 10:14	0.07	Manual Shutdown for maintenance.
01/13/21 11:10	01/13/21 11:14	0.07	Manual Shutdown for maintenance.
01/14/21 01:34	01/14/21 01:42	0.13	High temperature alarm shutdown. System inspected after restart.
01/14/21 04:16	01/14/21 04:28	0.20	High temperature alarm shutdown. System inspected after restart.
01/14/21 07:48	01/14/21 07:56	0.13	Shutdown for A51 Source Testing.
01/14/21 12:08	01/14/21 12:12	0.07	Shutdown for A51 Source Testing.
02/10/21 18:02	02/10/21 18:08	0.10	Flame alarm shutdown. WMRE engine starting up.
02/10/21 18:56	02/10/21 19:00	0.07	Flame alarm shutdown. WMRE engine starting up.
03/09/21 09:20	03/09/21 09:28	0.13	Manual Shutdown for maintenance.
03/11/21 13:38	03/11/21 13:44	0.10	Low temperature alarm shutdown. System inspected after restarted.
03/27/21 18:32	03/27/21 18:44	0.20	Flame alarm shutdown. WMRE engine starting up.
		0.00	No GCCS Downtime in April 2021
05/09/21 16:50	05/09/21 17:26	0.60	Low temperature shutdown. System inspected after restart
05/09/21 17:50	05/09/21 19:18	1.47	Low temperature shutdown. System inspected after restart
05/09/21 19:36	05/09/21 20:00	0.40	Low temperature shutdown. System inspected after restart
05/09/21 20:18	05/09/21 20:44	0.43	Low temperature shutdown. System inspected after restart
05/10/21 16:06	05/10/21 20:46	4.67	Low temperature shutdown. System inspected after restart
05/11/21 21:56	05/11/21 22:00	0.07	Low temperature shutdown. System inspected after restart
05/18/21 17:10	05/18/21 17:24	0.23	Low flow alarm shutdown. System inspected after restarted.
05/18/21 17:40	05/18/21 17:50	0.17	Low flow alarm shutdown. System inspected after restarted.
05/18/21 18:02	05/18/21 18:08	0.10	Low flow alarm shutdown. System inspected after restarted.
05/19/21 14:00	05/19/21 14:04	0.07	Varying flow/temp shutdown. System inspected after restart
05/19/21 14:58	05/19/21 16:30	1.53	Varying flow/temp shutdown. System inspected after restart
05/19/21 19:42	05/19/21 22:02	2.33	Varying flow/temp shutdown. System inspected after restart
05/19/21 22:34	05/20/21 01:58	3.40	Varying flow/temp shutdown. System inspected after restart
05/20/21 02:38	05/20/21 03:54	1.27	Varying flow/temp shutdown. System inspected after restart
05/20/21 04:26	05/20/21 08:02	3.60	Varying flow/temp shutdown. System inspected after restart
05/20/21 19:02	05/20/21 19:08	0.10	Varying flow/temp shutdown. System inspected after restart
05/20/21 20:58	05/20/21 21:02	0.07	Varying flow/temp shutdown. System inspected after restart
05/21/21 07:48	05/21/21 07:54	0.10	Varying flow/temp shutdown. System inspected after restart
05/21/21 08:16	05/21/21 09:02	0.77	Varying flow/temp shutdown. System inspected after restart
05/21/21 10:08	05/21/21 10:12	0.07	Varying flow/temp shutdown. System inspected after restart
05/21/21 11:32	05/21/21 11:38	0.10	Varying flow/temp shutdown. System inspected after restart
05/21/21 15:22	05/21/21 15:40	0.30	Varying flow/temp shutdown. System inspected after restart
05/21/21 17:52	05/21/21 17:58	0.10	Varying flow/temp shutdown. System inspected after restart
05/21/21 19:28	05/21/21 19:32	0.07	Varying flow/temp shutdown. System inspected after restart
05/21/21 20:00	05/21/21 22:06	2.10	Varying flow/temp shutdown. System inspected after restart

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

Redwood Landfill, Novato, CA GCCS DOWNTIME REPORT Period:		May 1, 2021 to October 31, 2021	
SHUTDOWN DATE/TIME	**START-UP DATE/TIME**	**TOTAL DOWNTIME (hours)**	**COMMENTS/ACTION TAKEN**
05/21/21 22:30	05/21/21 22:52	0.37	Varying flow/temp shutdown. System inspected after restart
05/22/21 03:52	05/22/21 04:04	0.20	Varying flow/temp shutdown. System inspected after restart
05/22/21 06:04	05/22/21 06:14	0.17	Varying flow/temp shutdown. System inspected after restart
05/22/21 18:44	05/22/21 18:48	0.07	Varying flow/temp shutdown. System inspected after restart
05/23/21 05:44	05/23/21 05:54	0.17	Varying flow/temp shutdown. System inspected after restart
05/24/21 06:00	05/24/21 06:14	0.23	Varying flow/temp shutdown. System inspected after restart
05/26/21 15:06	05/26/21 15:16	0.17	Varying flow/temp shutdown. System inspected after restart
05/26/21 21:04	05/26/21 21:36	0.53	Varying flow/temp shutdown. System inspected after restart
05/26/21 22:00	05/26/21 22:06	0.10	Varying flow/temp shutdown. System inspected after restart
05/26/21 22:54	05/26/21 23:24	0.50	Varying flow/temp shutdown. System inspected after restart
05/27/21 00:00	05/27/21 00:52	0.87	Varying flow/temp shutdown. System inspected after restart
05/27/21 01:38	05/27/21 03:44	2.10	Varying flow/temp shutdown. System inspected after restart
05/27/21 04:04	05/27/21 04:58	0.90	Varying flow/temp shutdown. System inspected after restart
05/27/21 09:02	05/27/21 09:24	0.37	Varying flow/temp shutdown. System inspected and restarted
06/09/21 12:22	06/09/21 13:36	1.23	Manual Shutdown for flare maintenance.
06/13/21 00:04	06/13/21 00:12	0.13	Varying flow/temperature alarm shutdown.
06/13/21 01:18	06/13/21 01:42	0.40	Varying flow/temperature alarm shutdown.
06/13/21 02:04	06/13/21 02:24	0.33	Varying flow/temperature alarm shutdown.
06/13/21 02:40	06/13/21 03:02	0.37	Varying flow/temperature alarm shutdown.
06/13/21 12:14	06/13/21 15:56	3.70	Varying temperature shutdown. Manual Restart.
06/17/21 08:58	06/17/21 10:00	1.03	Manual Shutdown for flare maintenance.
06/21/21 13:58	06/21/21 14:46	0.80	Varying flow/temperature alarm shutdown.
06/21/21 19:24	06/21/21 20:48	1.40	Varying flow/temperature alarm shutdown.
06/22/21 08:56	06/22/21 09:04	0.13	Varying flow/temperature alarm shutdown.
06/22/21 14:10	06/22/21 14:16	0.10	Varying flow/temperature alarm shutdown.
06/22/21 14:42	06/22/21 14:46	0.07	Varying flow/temperature alarm shutdown.
06/22/21 16:08	06/22/21 16:34	0.43	Varying flow/temperature alarm shutdown.
06/22/21 17:24	06/22/21 18:26	1.03	Varying flow/temperature alarm shutdown.
06/22/21 21:44	06/23/21 02:22	4.63	Varying flow/temperature alarm shutdown.
06/23/21 15:16	06/23/21 15:54	0.63	Varying flow/temperature alarm shutdown.
06/23/21 19:50	06/23/21 21:08	1.30	Varying flow/temperature alarm shutdown.
06/24/21 08:54	06/24/21 09:32	0.63	Varying flow/temperature alarm shutdown.
06/24/21 12:04	06/24/21 12:44	0.67	Varying flow/temperature alarm shutdown.
06/24/21 13:08	06/24/21 14:12	1.07	Varying flow/temperature alarm shutdown.
06/25/21 01:18	06/25/21 01:32	0.23	Varying flow/temperature alarm shutdown.
06/26/21 02:46	06/26/21 03:56	1.17	Varying flow/temperature alarm shutdown.
06/26/21 05:10	06/26/21 05:14	0.07	Varying flow/temperature alarm shutdown.
06/26/21 07:08	06/26/21 07:16	0.13	Varying flow/temperature alarm shutdown.
06/26/21 19:32	06/26/21 19:36	0.07	Varying flow/temperature alarm shutdown.
06/26/21 20:02	06/26/21 20:14	0.20	Varying flow/temperature alarm shutdown.
06/27/21 11:48	06/27/21 12:00	0.20	Varying flow/temperature alarm shutdown.
06/27/21 12:30	06/27/21 12:38	0.13	Varying flow/temperature alarm shutdown.
06/27/21 13:58	06/27/21 14:06	0.13	Varying flow/temperature alarm shutdown.
06/28/21 03:48	06/28/21 04:08	0.33	Varying flow/temperature alarm shutdown.
06/28/21 08:02	06/28/21 08:08	0.10	Varying flow/temperature alarm shutdown.
06/29/21 00:00	06/29/21 00:04	0.07	Varying flow/temperature alarm shutdown.
06/29/21 09:22	06/29/21 09:36	0.23	Varying flow/temperature alarm shutdown.
06/29/21 10:44	06/29/21 11:12	0.47	Varying flow/temperature alarm shutdown.
06/29/21 12:00	06/29/21 12:16	0.27	Varying flow/temperature alarm shutdown.
06/29/21 14:34	06/29/21 15:22	0.80	Varying flow/temperature alarm shutdown.
06/29/21 16:36	06/29/21 16:40	0.07	Varying flow/temperature alarm shutdown.
07/01/21 06:56	07/01/21 07:02	0.10	Varying flow/temperature alarm shutdown.

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

Redwood Landfill, Novato, CA GCCS DOWNTIME REPORT Period:		May 1, 2021 to October 31, 2021	
SHUTDOWN DATE/TIME	**START-UP DATE/TIME**	**TOTAL DOWNTIME (hours)**	**COMMENTS/ACTION TAKEN**
07/08/21 07:50	07/08/21 12:52	5.03	Manual Shutdown for flare maintenance.
07/10/21 22:54	07/10/21 23:00	0.10	Varying flow/temperature alarm shutdown.
07/13/21 17:16	07/13/21 17:22	0.10	Varying flow/temperature alarm shutdown.
07/14/21 15:36	07/14/21 15:40	0.07	Varying flow/temperature alarm shutdown.
07/14/21 22:02	07/14/21 22:06	0.07	Varying flow/temperature alarm shutdown.
07/15/21 05:52	07/15/21 05:56	0.07	Varying flow/temperature alarm shutdown.
07/15/21 06:36	07/15/21 06:40	0.07	Varying flow/temperature alarm shutdown.
07/15/21 07:12	07/15/21 07:20	0.13	Varying flow/temperature alarm shutdown.
07/17/21 00:34	07/17/21 00:42	0.13	Varying flow/temperature alarm shutdown.
07/26/21 03:46	07/26/21 03:52	0.10	Varying flow/temperature alarm shutdown.
07/26/21 18:26	07/26/21 20:34	2.13	Manual shutdown due to fire on landfill.
07/27/21 08:30	07/27/21 09:46	1.27	Manual shutdown for maintenance.
07/29/21 10:12	07/29/21 10:20	0.13	Varying flow/temperature alarm shutdown.
08/02/21 12:36	08/02/21 15:32	2.93	All control devices were shutdown due to a site-wide power outage. Inspected upon restart of the control devices. Visual inspections and PLC checks. RCA #08B03
08/02/21 15:50	08/02/21 15:54	0.07	Varying flow/temperature alarm shutdown.
08/04/21 20:08	08/04/21 20:14	0.10	Varying flow/temperature alarm shutdown.
08/04/21 21:58	08/04/21 22:02	0.07	Varying flow/temperature alarm shutdown.
08/04/21 23:02	08/04/21 23:08	0.10	Varying flow/temperature alarm shutdown.
08/05/21 02:04	08/05/21 02:08	0.07	Varying flow/temperature alarm shutdown.
08/05/21 04:54	08/05/21 04:58	0.07	Varying flow/temperature alarm shutdown.
08/05/21 06:30	08/05/21 06:34	0.07	Varying flow/temperature alarm shutdown.
08/05/21 08:28	08/05/21 08:32	0.07	Varying flow/temperature alarm shutdown.
08/07/21 09:46	08/07/21 10:00	0.23	Varying flow/temperature alarm shutdown.
08/08/21 02:32	08/08/21 02:36	0.07	Varying flow/temperature alarm shutdown.
08/08/21 04:08	08/08/21 04:16	0.13	Varying flow/temperature alarm shutdown.
08/17/21 01:42	08/17/21 01:48	0.10	Varying flow/temperature alarm shutdown.
08/17/21 05:06	08/17/21 05:22	0.27	Varying flow/temperature alarm shutdown.
08/18/21 04:10	08/18/21 04:18	0.13	Varying flow/temperature alarm shutdown.
08/18/21 09:52	08/18/21 10:00	0.13	Varying flow/temperature alarm shutdown.
08/18/21 10:34	08/18/21 10:42	0.13	Varying flow/temperature alarm shutdown.
08/18/21 11:10	08/18/21 11:30	0.33	Varying flow/temperature alarm shutdown.
08/23/21 23:32	08/23/21 23:46	0.23	Varying flow/temperature alarm shutdown.
08/26/21 22:00	08/26/21 22:08	0.13	Varying flow/temperature alarm shutdown.
08/30/21 10:22	08/30/21 10:30	0.13	Varying flow/temperature alarm shutdown.
08/30/21 23:04	08/30/21 23:14	0.17	Varying flow/temperature alarm shutdown.
08/30/21 23:34	08/30/21 23:48	0.23	Varying flow/temperature alarm shutdown.
09/01/21 23:10	09/01/21 23:24	0.23	Varying flow/temperature alarm shutdown.
09/09/21 04:02	09/09/21 04:10	0.13	Varying flow/temperature alarm shutdown.
09/09/21 04:20	09/09/21 04:26	0.10	Varying flow/temperature alarm shutdown.
09/09/21 05:56	09/09/21 06:02	0.10	Varying flow/temperature alarm shutdown.
09/09/21 07:02	09/09/21 07:08	0.10	Varying flow/temperature alarm shutdown.
09/09/21 08:08	09/09/21 08:24	0.27	Varying flow/temperature alarm shutdown.
09/10/21 00:42	09/10/21 01:40	0.97	Varying flow/temperature alarm shutdown.
09/10/21 05:32	09/10/21 05:44	0.20	Varying flow/temperature alarm shutdown.
09/10/21 06:56	09/10/21 07:02	0.10	Varying flow/temperature alarm shutdown.
09/10/21 13:32	09/10/21 14:32	1.00	Varying flow/temperature alarm shutdowns.
09/10/21 17:28	09/10/21 18:34	1.10	Varying flow/temperature alarm shutdowns.
09/10/21 19:04	09/11/21 10:10	15.10	Varying flow/temperature alarm shutdowns. Manual startup after inspection/maintenance
09/11/21 10:40	09/11/21 10:52	0.20	Manual Shutdown for flare inspection/maintenance
09/29/21 09:26	09/29/21 09:34	0.13	Varying flow/temperature alarm shutdowns.
09/29/21 16:36	09/29/21 16:46	0.17	Varying flow/temperature alarm shutdowns.
		0.00	No GCCS Downtime in October 2021
Combined Emission Control Devices			
January 1, 2021 through April 30, 2021 Total Downtime:			**1.63**
May 1, 2021 through October 31, 2021 Total Downtime:			**90.97**
Total 2021 Downtime:			**92.60**

GCCS Downtime is when emission control devices (flares only) are not operating.

APPENDIX C

BAAQMD CORRESPONDENCE

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

May 21, 2021

Ms. Simrun Dhoot
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
sdhoot@baaqmd.gov

Re: Redwood Landfill, Inc.
Facility Number A1179
Request for Limited Exemption (for construction activities) from Regulation 8, Rule 34 (Solid Waste Disposal Sites), Section 303 (Landfill Surface Requirements)

Dear Ms. Dhoot:

This letter requests a limited exemption from the requirements of Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 303 (Landfill Surface Requirements) during wellfield and gas collection and control system (GCCS) construction activities to be conducted from June 14, 2021 through October 1, 2021, at the Redwood Landfill, Inc. (RLI). This notification is submitted pursuant to the BAAQMD Regulation 8, Rule 34, Section 118, "Limited Exemptions for Construction Activities." The work consists of installation of new landfill gas (LFG) wells to maintain compliance with the BAAQMD Regulation 8, Rule 34.

The construction work is for the installation of new vertical and horizontal LFG collectors, repair of existing horizontal collectors and additional piping that will connect to the existing GCCS. This letter also transmits the BAAQMD-required construction plan (work plan) for the proposed work. The work plan contains information required pursuant to Regulation 8, Rule 34, Section 118.1 and AB-32 §95470(a)(1)(I) and (J) and includes:

- Description of actions being taken;
- Description of landfill areas affected;
- Description of LFG components affected;
- Map showing the above areas and components;
- Reason requiring the action;
- Construction schedule;
- Description of air quality mitigation measures planned; and
- Recordkeeping requirements.

No significant interruption of the current site LFG extraction and control operations is anticipated due to the work. The construction will begin on or after June 14, 2021. Construction activities will conclude by October 1, 2021.

Unless notified otherwise, RLI will proceed in accordance with the attached work plan. We deem submittal of this plan as approval by the BAAQMD to take necessary action to ensure compliance with regulations, which may include taking additional wells offline for an extended period of time pursuant to Regulation 8, Rule 34, Section 118.

If you have any questions, contact me at (510) 613-2852. Thank you for your consideration.

Sincerely,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Air Specialist

Attachment: BAAQMD Regulation 8, Rule 34 Construction Plan

cc: Ramin Khany, RLI
Glen Roycroft, RLI
Alisha McCutcheon, RLI
Bill Louis, WM

BAAQMD REGULATION 8, RULE 34 CONSTRUCTION PLAN

REDWOOD LANDFILL, INC.

2021 GCCS EXPANSION PROJECT

INTRODUCTION

This Construction Work Plan is submitted pursuant to Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 34, Section 118: Limited Exemptions for Construction Activities. To obtain an exemption from BAAQMD Regulation 8, Rule 34, Section 303: Landfill Surface Requirements, the operator shall submit a construction plan in writing to the Air Pollution Control Officer (APCO) prior to beginning any construction activities. In addition, this plan also includes information required by the AB-32 Sections §95470(a)(1)(I) and (J).

BAAQMD Section 303 requires maintaining the concentration of organic compounds and methane below 500 parts per million by volume (ppm_v) at all points on the landfill surface. Section 118 provides an exemption from the surface emission standard for *"….areas of the landfill surface where the landfill cover material has been removed and refuse has been exposed for the express purpose of installing, expanding, replacing, or repairing components of the landfill gas, leachate, or gas condensate collection and removal systems."*

Pursuant to Regulation 8, Rule 34, Section 118 and AB-32 Sections §95470(a)(1)(I) and (J), this work plan includes:

- Description of actions being taken;
- Description of landfill areas affected;
- Description of landfill gas (LFG) components affected;
- Map showing the affected areas and components;
- Reason requiring the action;
- Construction schedule;
- Description of air quality mitigation measures planned; and
- Recordkeeping requirements.

ACTIONS BEING TAKEN

The work consists of the following:

- Installation of up to twenty (20) vertical wells;
- Header and lateral piping installation/upgrading.

AFFECTED LANDFILL AREAS

The construction activities will occur in the areas shown in the attached figure.

AFFECTED LFG COMPONENTS

It is anticipated that construction will have no significant impact on the routine operation of the existing GCCS. Installation of new wells is independent of the ongoing operations of the GCCS. When connecting the collector, isolation valves installed within the existing GCCS piping network will be used to minimize the number of existing wells offline at any given time while the newly installed wells are connected to the GCCS. Regulation 8-34-117 will be used to manage offline wells.

REASONS FOR ACTIONS

The proposed construction work is intended to:

- Install new LFG collectors;
- Install new header and later system piping; and
- Increase LFG collection efficiency to further reduce the potential for surface emissions.

CONSTRUCTION SCHEDULE

Construction activities will commence on or after June 14, 2021 and will be completed no later than October 1, 2021.

AIR QUALITY MITIGATION MEASURES

Emission of raw LFG will be minimized during construction. We anticipate minimal interruption of the overall site LFG extraction and control operations during the work. Installation of new wells is independent of ongoing operations of the existing GCCS. Air quality mitigation will be provided during the installation and connection of collectors to existing GCCS piping network. These mitigation measures are presented below and are designed to meet both the requirements of 8-34 Section 118 and §95470(a)(1)(I).

Due to the minimal amount of excavation planned for this work, air quality impacts are also anticipated to be minimal. Air quality mitigation will be provided during the following work tasks:

- Drilling of wells
- Excavation and backfill of pipe trenches;
- Installation of new header and lateral piping and
- Connection of the new collectors to new and existing piping

During excavation through waste and soil cover, air emission will be controlled by implementing the following measures:

- Minimizing the installation time for each component;

- Minimizing the quantity of open borings or trench excavations at any one time;

- Relocating excavated refuse to the designated waste disposal area immediately and covering the relocated waste daily by no later than the end of each day; and

- Well borings and/or trenches will not be left open overnight or for periods greater than 8 hours

During connection of the collector the existing LFG piping, and installation of header pipe, air emissions will be controlled by implementing the following measures:

- Capping or blind flanging of all pipes and collector openings, which will remain sealed until time of connection to a vacuum source;

- Using isolation valves;

- Minimizing installation time for making each connection; and

- Minimizing the amount of open pipe during each installation, by using flange joints and flexible couplings.

RECORDKEEPING

The following records will be retained during the project:

- Construction start and end dates, projected and actual equipment installation dates, and projected shut down times for individual gas collection system components.

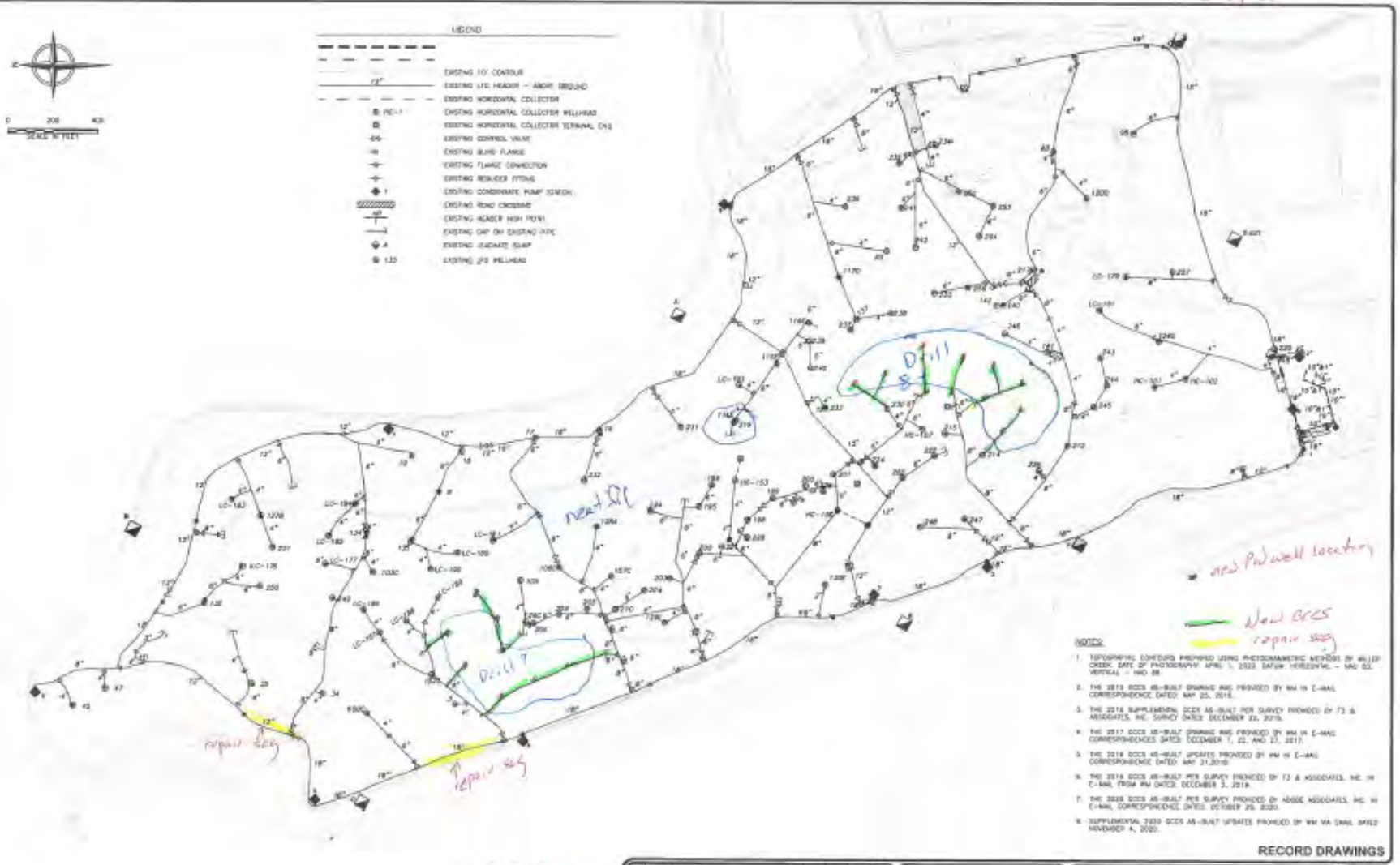
- GCCS downtime and individual well shutdown times will be documented in accordance with the RLI's Startup, Shutdown, and Malfunction (SSM) Plan.

- Mitigation measures taken to minimize methane emissions and other potential air quality impacts will be documented.

- The construction and initial operating dates and times for each LFG extraction well shall be recorded, pursuant to requirements for documenting individual LFG well shutdown times in Regulation 8, Rule 34, Section 501. A start-up letter shall be provided to the BAAQMD to provide notification once vacuum is applied to the new LFG extraction wells.

Attachment: Figure 1 - Gas Collection and Control System Layout

5-17-21



NOTES:

1. TOPOGRAPHIC CONTOURS PREPARED USING PHOTOGRAMMETRIC METHODS BY AERIAL CREEK. DATE OF PHOTOGRAPHY: APRIL 1, 2020. DATUM: HORIZONTAL – NAD 83, VERTICAL – NAD 88.
2. THE 2013 GCCS AS-BUILT DRAWING WAS PROVIDED BY WM IN E-MAIL CORRESPONDENCE DATED: MAY 25, 2018.
3. THE 2018 SUPPLEMENTAL GCCS AS-BUILT PER SURVEY PROVIDED BY TJ & ASSOCIATES, INC. SURVEY DATED: DECEMBER XX, 2018.
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 21,2018.
6. THE 2019 GCCS AS-BUILT PER SURVEY PROVIDED BY TJ & ASSOCIATES, INC. IN E-MAIL FROM WM DATED: DECEMBER 3, 2019.
7. THE 2020 GCCS AS-BUILT PER SURVEY PROVIDED BY ADAMS 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.

RECORD DRAWINGS

WM
WASTE MANAGEMENT

TETRA TECH

REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA
GCCS RECORD LAYOUT
AS-BUILT SITE PLAN

SHEET NO.
1
PROJECT NO.
200128

Chan, Michael

From: Chan, Michael
Sent: Friday, May 21, 2021 10:21 AM
To: Simrun Dhoot sdhoot@baaqmd.gov
Subject: Redwood Landfill (#A1179) 118 letter for new well installations
Attachments: 2021.05.21 - RLI 118 Letter GCCS Expansion.pdf

Ms. Dhoot,

Attached is the Regulation 8, Rule 34, Section 118 letter for Limited Exemptions for Construction Activities. Redwood Landfill, Inc., is proposing to install up to 20 new wells to increase landfill gas collection efficiency to further reduce the potential for surface emissions.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: Simrun Dhoot sdhoot@baaqmd.gov
Sent: Friday, May 21, 2021 10:21 AM
Subject: Relayed: Redwood Landfill (#A1179) 118 letter for new well installations

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

Simrun Dhoot sdhoot@baaqmd.gov (sdhoot@baaqmd.gov)

Subject: Redwood Landfill (#A1179) 118 letter for new well installations

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

May 28, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
10-Day NOV Response to BAAQMD Notice of Violation A- 59864 (5/20/21)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this 10-day response letter to Notice of Violation (NOV) Number A-59864, dated May 20, 2021 (see attachment). The NOV was issued for violation of Regulation 8, Rule 34 Section 301.2 (component leak that exceeds 1,000 ppm methane).

BAAQMD issued the NOV for a component leak in excess of 1,000 ppm on the hatch door for the treatment vessel at the Renewable Energy Facility. RLI performed repairs on May 21, 2021 which included tightening the cleats on the door of the treatment vessel and applying sealant. Remonitoring was completed within 7 days on May 25, 2021. The re-monitoring results were 4 ppm returning the component to compliance. RLI will make all efforts to ensure it remains in compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.

Ramin A. Khany

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

NOTICE OF VIOLATION

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
375 Beale Street, Suite 600, San Francisco, CA 94105
(415) 749-5000

NOTICE OF VIOLATION

No. A 59864

ISSUED TO: REDWOOD LANDFILL ☒ P ☐ G ☐ N# A1179
ADDRESS: 8950 REDWOOD HIGHWAY
CITY: NOVATO STATE: CA ZIP: 94945
PHONE: (415) 332 8033
☐ N# Mailing Address on F61

OCCURRENCE
NAME:
ADDRESS: ☒ Same As Above
CITY: ZIP
SOURCE: S# 21 NAME: LANDFILL GAS TREATMENT SYSTEM
EMISSION PT: P# NAME:
DATE: 5/20/21 TIME: 11:20 HRS

☐ REG 2 RULE 1 SEC 301 No Authority to Construct
☐ REG 2 RULE 1 SEC 302 No Permit to Operate
☐ REG 1 SEC 301 H & S CODE - 41700 Public Nuisance
☐ REG 2 RULE SEC 307 Failure to Meet Permit Condition
☐ REG 5 SEC 301 Prohibited Open Burning
☐ REG 6 RULE 1 SEC 301 Excessive Visible Emissions
☐ REG 8 RULE 34 SEC 301.2 CODE
☐ REG RULE SEC CODE

Details: COMPONENT LEAK > 1,000 PPM

RECIPIENT NAME: ALISHA MCCUTCHEON
TITLE: TECHNICAL MANAGER
SIGNING THIS NOTICE IS NOT AN ADMISSION OF GUILT X Alisha L. McCutcheon

→ WITHIN 10 DAYS, RETURN A COPY OF THIS NOTICE WITH A WRITTEN DESCRIPTION OF THE IMMEDIATE CORRECTIVE ACTION YOU HAVE TAKEN TO PREVENT CONTINUED OR RECURRENT VIOLATION. THIS VIOLATION IS SUBJECT TO SUBSTANTIAL PENALTY. YOUR RESPONSE DOES NOT PRECLUDE FURTHER LEGAL ACTION.

ISSUED BY: RICHARD MORAN INSP # 33L
DATE: 5/20/21 TIME: 14:44 HRS ☐ MAILED

PLEASE PRESS HARD

Continued On Reverse

Chan, Michael

From: Chan, Michael
Sent: Friday, May 28, 2021 3:06 PM
To: 'compliance@baaqmd.gov'; Richard Murray
Subject: Redwood (A1179) NOV A-59864 Response Letter and Title V 10-day Report
Attachments: RLI 10day NOV 59864 Response Letter 2021-05-28.pdf; RLI 10day Title V Report 2021-05-28.pdf

Redwood Landfill (A1179) is submitting the attached 10-day Response Letter to NOV A-59864 (dated 5/20/21) and the Title V 10-day written report to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Friday, May 28, 2021 3:06 PM
Subject: Relayed: Redwood (A1179) NOV A-59864 Response Letter and Title V 10-day Report

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood (A1179) NOV A-59864 Response Letter and Title V 10-day Report

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

May 28, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
Title V Section I.F, 10-Day written report (NOV A- 59864) (5/20/21)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this 10-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement states that "*All instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident*".

On May 20, 2021, the BAAQMD issued a Notice of Violation (NOV) Number A-59864, dated May 20, 2021 (see attachment) for violation of Regulation 8, Rule 34 Section 301.2 (component leak that exceeds 1,000 ppm methane). BAAQMD issued the NOV for a component leak in excess of 1,000 ppm on the hatch door for the treatment vessel at the Renewable Energy Facility. RLI performed repairs on May 21, 2021 which included tightening the cleats on the door of the treatment vessel and applying sealant. Re-monitoring was completed within 7 days on May 25, 2021. The re-monitoring results were 4 ppm returning the component to compliance.

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

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

Thank you,
Redwood Landfill, Inc.

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

NOTICE OF VIOLATION

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
375 Beale Street, Suite 600, San Francisco, CA 94105
(415) 749-5000

NOTICE OF VIOLATION

No. A 59864

ISSUED TO: REDWOOD LANDFILL ☒ P ☐ G ☐ N# A1179
ADDRESS: 8950 REDWOOD HIGHWAY
CITY: NOVATO STATE: CA ZIP: 94945
PHONE: (415) 332 8033
☐ N# Mailing Address on F61

OCCURRENCE
NAME:
ADDRESS: ☒ Same As Above
CITY: ZIP
SOURCE: S# 21 NAME: LANDFILL GAS TREATMENT SYSTEM
EMISSION PT: P# NAME:
DATE: 5/20/21 TIME: 11:20 HRS

☐ REG 2 RULE 1 SEC 301 No Authority to Construct
☐ REG 2 RULE 1 SEC 302 No Permit to Operate
☐ REG 1 SEC 301 H & S CODE - 41700 Public Nuisance
☐ REG 2 RULE SEC 307 Failure to Meet Permit Condition
☐ REG 5 SEC 301 Prohibited Open Burning
☐ REG 6 RULE 1 SEC 301 Excessive Visible Emissions
☐ REG 8 RULE 34 SEC 301.2 CODE
☐ REG RULE SEC CODE

Details: COMPONENT LEAK > 1,000 PPM

RECIPIENT NAME: ALISHA MCCUTCHEON
TITLE: TECHNICAL MANAGER
SIGNING THIS NOTICE IS NOT AN ADMISSION OF GUILT X Alisha L. McCutcheon

→ WITHIN 10 DAYS, RETURN A COPY OF THIS NOTICE WITH A WRITTEN DESCRIPTION OF THE IMMEDIATE CORRECTIVE ACTION YOU HAVE TAKEN TO PREVENT CONTINUED OR RECURRENT VIOLATION. THIS VIOLATION IS SUBJECT TO SUBSTANTIAL PENALTY. YOUR RESPONSE DOES NOT PRECLUDE FURTHER LEGAL ACTION.

ISSUED BY: RICHARD MORAN INSP # 33L
DATE: 5/20/21 TIME: 14:44 HRS ☐ MAILED

PLEASE PRESS HARD

Continued On Reverse

Chan, Michael

From: Chan, Michael
Sent: Friday, May 28, 2021 3:06 PM
To: 'compliance@baaqmd.gov'; Richard Murray
Subject: Redwood (A1179) NOV A-59864 Response Letter and Title V 10-day Report
Attachments: RLI 10day NOV 59864 Response Letter 2021-05-28.pdf; RLI 10day Title V Report 2021-05-28.pdf

Redwood Landfill (A1179) is submitting the attached 10-day Response Letter to NOV A-59864 (dated 5/20/21) and the Title V 10-day written report to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Friday, May 28, 2021 3:06 PM
Subject: Relayed: Redwood (A1179) NOV A-59864 Response Letter and Title V 10-day Report

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood (A1179) NOV A-59864 Response Letter and Title V 10-day Report

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

June 18, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
Title V Section I.F, 30-Day written report (NOV A- 59864) (5/20/21)

Dear Sir or Madam:

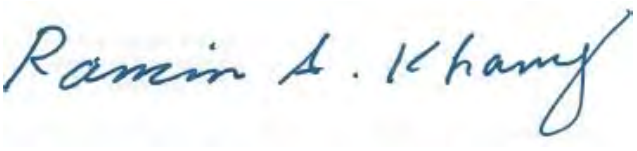
The Redwood Landfill, Inc. (RLI) is submitting this 30-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement states that "*All instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions*".

On May 20, 2021, the BAAQMD issued a Notice of Violation (NOV) Number A-59864, dated May 20, 2021 (see attachment) for violation of Regulation 8, Rule 34 Section 301.2 (component leak that exceeds 1,000 ppm methane). BAAQMD issued the NOV for a component leak in excess of 1,000 ppm on the hatch door to the treatment vessel at the Renewable Energy Facility. RLI performed repairs on May 21, 2021 which included tightening the cleats on the door of the treatment vessel and applying sealant. Remonitoring was completed within 7 days on May 25, 2021. The re-monitoring result was 4 ppm returning the component to compliance.

On May 28, 2021, RLI submitted the 10-Day NOV Response letter and the Title V Section I.F 10-Day Report to BAAQMD. RLI will make all efforts to ensure it remains in compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.



Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

NOTICE OF VIOLATION

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
375 Beale Street, Suite 600, San Francisco, CA 94105
(415) 749-5000

NOTICE OF VIOLATION

No. A 59864

ISSUED TO: REDWOOD LANDFILL ☒ P ☐ G ☐ N# A1179
ADDRESS: 8950 REDWOOD HIGHWAY
CITY: NOVATO STATE: CA ZIP: 94945
PHONE: (415) 332 8033
☐ N# Mailing Address on F61

OCCURRENCE
NAME:
ADDRESS: ☒ Same As Above
CITY: ZIP
SOURCE: S# 21 NAME: LANDFILL GAS TREATMENT SYSTEM
EMISSION PT: P# NAME:
DATE: 5/20/21 TIME: 11:20 HRS

☐ REG 2 RULE 1 SEC 301 No Authority to Construct
☐ REG 2 RULE 1 SEC 302 No Permit to Operate
☐ REG 1 SEC 301 H & S CODE - 41700 Public Nuisance
☐ REG 2 RULE SEC 307 Failure to Meet Permit Condition
☐ REG 5 SEC 301 Prohibited Open Burning
☐ REG 6 RULE 1 SEC 301 Excessive Visible Emissions
☐ REG 8 RULE 34 SEC 301.2 CODE
☐ REG RULE SEC CODE

Details: COMPONENT LEAK > 1,000 PPM

RECIPIENT NAME: ALISHA MCCUTCHEON
TITLE: TECHNICAL MANAGER
SIGNING THIS NOTICE IS NOT AN ADMISSION OF GUILT X Alisha L. McCutcheon

→ WITHIN 10 DAYS, RETURN A COPY OF THIS NOTICE WITH A WRITTEN DESCRIPTION OF THE IMMEDIATE CORRECTIVE ACTION YOU HAVE TAKEN TO PREVENT CONTINUED OR RECURRENT VIOLATION. THIS VIOLATION IS SUBJECT TO SUBSTANTIAL PENALTY. YOUR RESPONSE DOES NOT PRECLUDE FURTHER LEGAL ACTION.

ISSUED BY: RICHARD MORAN INSP # 33L
DATE: 5/20/21 TIME: 14:44 HRS ☐ MAILED

PLEASE PRESS HARD

Continued On Reverse

Chan, Michael

From: Chan, Michael
Sent: Friday, June 18, 2021 1:54 PM
To: 'compliance@baaqmd.gov'; Richard Murray
Subject: Redwood (A1179) NOV A-59864 Title V 30-Day Report
Attachments: RLI 30day Title V Report 2021-06-18.pdf

Redwood Landfill (A1179) is submitting the attached Title V (NOV A-59864 dated 5/20/21) 30-day written report to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

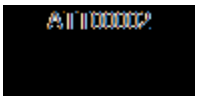
From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Friday, June 18, 2021 1:55 PM
Subject: Relayed: Redwood (A1179) NOV A-59864 Title V 30-Day Report

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood (A1179) NOV A-59864 Title V 30-Day Report



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

July 2, 2021

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

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

Dear Sir or Madam:

Redwood Landfill, Inc. (RLI) is submitting this Reportable Compliance Activity (RCA) notification to the Bay Area Air Quality Management District (BAAQMD) (see attachment).

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarterly 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarterly test results on Engine No. 2 (S-65) exceeded the permit limit of 10 ppmv of NOx, corrected to 15% oxygen, averaged over a 24-hour period. The Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 (S-65) will continue to remain offline until we investigate the cause and implement corrective actions.

RLI will make all efforts to ensure compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.

Ramin A. Khany

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

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

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-65
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	NOx	Fax #	-
Allowable Limit	10 ppm @ 15% O2	Averaging Time	24 hours
Start Time/Date	6/30/21 1:30 pm	Clear Time	7/1/21 7:05 am
Monitor/device type(s)	☐ ▶CEM ☐ ▶GLM ☐ ▶Parametric ☐ ▶PRD ☐ ▶Non-monitor		
Monitor description(s)	Portable Emissions Monitor (NOx, CO, and O2)		

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

During the second quarterly emission testing with a portable analyzer on June 30, 2021, it was determined that the average NOx concentration on Engine NO.2 (S-65) was 22.5 ppm. This was above the PTO Condition #25635 Part 4, NOx limit of 10 ppm. Upon completion of the emissions test, Engine No. 2 was shutdown on July 1, 2021 at 7:05 AM.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: RCA Notification <rca@baaqmd.gov>
Sent: Friday, July 2, 2021 3:41 PM
To: Chan, Michael
Subject: [EXTERNAL] RE: Redwood Landfill RCA Notification Facility A1179

08A33

From: Chan, Michael <mchan2@wm.com>
Sent: Friday, July 2, 2021 3:30 PM
To: RCA Notification <rca@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Landfill RCA Notification Facility A1179

CAUTION: This email originated from outside of the BAAQMD network. Do not click links or open attachments unless you recognize the sender and know the content is safe.

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for elevated NOx reading for Engine No. 2 (S-65) from the 2nd Quarter portable analyzer emission test.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

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

July 9, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
Title V Section I.F, 10-Day written report (RCA 08A33)

Dear Sir or Madam:

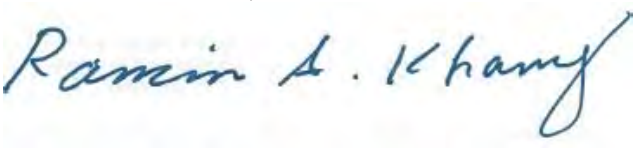
The Redwood Landfill, Inc. (RLI) is submitting this 10-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement states that "*All instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident*".

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarter 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarter test results on Engine No. 2 (S-65) exceeded the permit limit of 10 ppmv of NOx, corrected to 15% oxygen, averaged over a 24-hour period. Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 will remain offline until the cause of the NOx exceedance is investigated, and corrective actions have been implemented. RLI submitted a Reportable Compliance Activity (RCA) notification to the BAAQMD on July 2, 2021 and was assigned RCA number 08A33 (see Attachment A).

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

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

Thank you,
Redwood Landfill, Inc.



Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY (RCA) 08A33 (JULY 2, 2021)

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

July 2, 2021

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

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

Dear Sir or Madam:

Redwood Landfill, Inc. (RLI) is submitting this Reportable Compliance Activity (RCA) notification to the Bay Area Air Quality Management District (BAAQMD) (see attachment).

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarterly 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarterly test results on Engine No. 2 (S-65) exceeded the permit limit of 10 ppmv of NOx, corrected to 15% oxygen, averaged over a 24-hour period. The Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 (S-65) will continue to remain offline until we investigate the cause and implement corrective actions.

RLI will make all efforts to ensure compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.

Ramin A. Khany

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

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

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-65
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	NOx	Fax #	-
Allowable Limit	10 ppm @ 15% O2	Averaging Time	24 hours
Start Time/Date	6/30/21 1:30 pm	Clear Time	7/1/21 7:05 am
Monitor/device type(s)	☐ ▶CEM ☐ ▶GLM ☐ ▶Parametric ☐ ▶PRD ☐ ▶Non-monitor		
Monitor description(s)	Portable Emissions Monitor (NOx, CO, and O2)		

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

During the second quarterly emission testing with a portable analyzer on June 30, 2021, it was determined that the average NOx concentration on Engine NO.2 (S-65) was 22.5 ppm. This was above the PTO Condition #25635 Part 4, NOx limit of 10 ppm. Upon completion of the emissions test, Engine No. 2 was shutdown on July 1, 2021 at 7:05 AM.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: RCA Notification <rca@baaqmd.gov>
Sent: Friday, July 2, 2021 3:41 PM
To: Chan, Michael
Subject: [EXTERNAL] RE: Redwood Landfill RCA Notification Facility A1179

08A33

From: Chan, Michael <mchan2@wm.com>
Sent: Friday, July 2, 2021 3:30 PM
To: RCA Notification <rca@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Landfill RCA Notification Facility A1179

CAUTION: This email originated from outside of the BAAQMD network. Do not click links or open attachments unless you recognize the sender and know the content is safe.

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for elevated NOx reading for Engine No. 2 (S-65) from the 2nd Quarter portable analyzer emission test.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Chan, Michael
Sent: Friday, July 9, 2021 10:00 AM
To: 'compliance@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Title V 10day Report (RCA 08A33)
Attachments: RLI Title V 10day Report RCA 08A33_2021-07-09.pdf

Redwood Landfill (A1179) is submitting the attached Title V 10-day written report to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

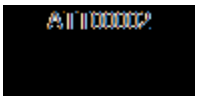
From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Friday, July 9, 2021 10:01 AM
Subject: Relayed: Redwood Title V 10day Report (RCA 08A33)

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Title V 10day Report (RCA 08A33)



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

July 30, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
Title V Section I.F, 30-Day written report (RCA 08A33)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this 30-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement states that "*All instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions*".

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarter 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarter test results on Engine No. 2 (S-65) was above the permit limit of 10 ppmv NO_X, corrected to 15% oxygen, averaged over a 24-hour period. Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 remained offline until the cause of the NO_X exceedance is investigated, and corrective actions have been implemented. RLI submitted a Reportable Compliance Activity (RCA) notification to the BAAQMD on July 2, 2021 and was assigned RCA number 08A33 (see Attachment A).

Engine No. 2 commenced operation on April 27, 2017. Below are the quarterly NOx emissions beginning with the first Source Test of Engine No. 2 that was conducted in the third quarter of 2017 on July 25, 2017.

Quarter	S-65 (Engine No. 2) NO_X, ppm @15% O_2
2017 Q3	3.2
2017 Q4	4.7
2018 Q1	5.8
2018 Q2	8.1
2018 Q3	6.2
2018 Q4	5.9
2019 Q1	7.0
2019 Q2	7.2
2019 Q3	8.1
2019 Q4	6.6
2020 Q1	6.0
2020 Q2	6.0
2020 Q3	5.7
2020 Q4	7.6
2021 Q1	7.8
2021 Q2	22.5

From April 27, 2017 through June 30, 2021, Engine No. 2 has operated for approximately 36,600 hours. The service life of the SCR's catalyst material (which aids in the reduction of NOx emissions to nitrogen) is 40,000 hours. The catalyst material had been in operation for about 92% of its service life.

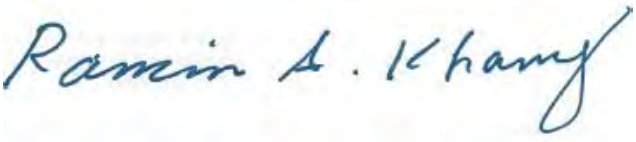
Engine No. 2 SCR service (cleaning and inspection) was conducted by Johnson Matthey in the second quarter 2021 on May 25, 2021. After the SCR service, new catalyst material was placed on order but couldn't be delivered until the third quarter 2021. It is suspected that the old catalyst material used during the second quarter 2021 24-hour emissions test on June 30, 2021 was at the end of its service life and resulted in the NO_X exceedance.

After deliver and installation of the new catalyst material, there have been short periods of Engine No. 2 operation as well as periods for supplemental engine maintenance and tuning activities. After conditioning/breaking-in of the new catalyst material, the 24-hour emissions test will be repeated and a supplemental report to this 30-day report will be submitted to BAAQMD.

As required, on July 9, 2021, RLI submitted the Title V Section I.F 10-Day Report to BAAQMD. RLI is committed to operating its landfill in compliance with all applicable regulations.

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

Thank you,
Redwood Landfill, Inc.



Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY (RCA) 08A33 (JULY 2, 2021)

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

July 2, 2021

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

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

Dear Sir or Madam:

Redwood Landfill, Inc. (RLI) is submitting this Reportable Compliance Activity (RCA) notification to the Bay Area Air Quality Management District (BAAQMD) (see attachment).

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarterly 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarterly test results on Engine No. 2 (S-65) exceeded the permit limit of 10 ppmv of NOx, corrected to 15% oxygen, averaged over a 24-hour period. The Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 (S-65) will continue to remain offline until we investigate the cause and implement corrective actions.

RLI will make all efforts to ensure compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.

Ramin A. Khany

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

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

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-65
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	NOx	Fax #	-
Allowable Limit	10 ppm @ 15% O2	Averaging Time	24 hours
Start Time/Date	6/30/21 1:30 pm	Clear Time	7/1/21 7:05 am
Monitor/device type(s)	☐ ▶CEM ☐ ▶GLM ☐ ▶Parametric ☐ ▶PRD ☐ ▶Non-monitor		
Monitor description(s)	Portable Emissions Monitor (NOx, CO, and O2)		

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

During the second quarterly emission testing with a portable analyzer on June 30, 2021, it was determined that the average NOx concentration on Engine NO.2 (S-65) was 22.5 ppm. This was above the PTO Condition #25635 Part 4, NOx limit of 10 ppm. Upon completion of the emissions test, Engine No. 2 was shutdown on July 1, 2021 at 7:05 AM.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: RCA Notification <rca@baaqmd.gov>
Sent: Friday, July 2, 2021 3:41 PM
To: Chan, Michael
Subject: [EXTERNAL] RE: Redwood Landfill RCA Notification Facility A1179

08A33

From: Chan, Michael <mchan2@wm.com>
Sent: Friday, July 2, 2021 3:30 PM
To: RCA Notification <rca@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Landfill RCA Notification Facility A1179

CAUTION: This email originated from outside of the BAAQMD network. Do not click links or open attachments unless you recognize the sender and know the content is safe.

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for elevated NOx reading for Engine No. 2 (S-65) from the 2nd Quarter portable analyzer emission test.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Chan, Michael
Sent: Friday, July 30, 2021 3:14 PM
To: 'compliance@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Title V 30day Report (RCA 08A33)
Attachments: RLI Title V 30day Report RCA 08A33_2021-07-30.pdf

Redwood Landfill (A1179) is submitting the attached Title V 30-day written report (RCA 08A33) to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Friday, July 30, 2021 3:14 PM
Subject: Relayed: Redwood Title V 30day Report (RCA 08A33)

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Title V 30day Report (RCA 08A33)

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

August 3, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
Title V Section I.F, 30-Day Supplemental written report (RCA 08A33)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this supplemental report to the 30-day written report (submitted on July 30, 2021) to include subsequent compliant portable analyzer reading. This report and the previous reports were supplied to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement states that "*All instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions*".

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarter 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarter test results on Engine No. 2 (S-65) was above the permit limit of 10 ppmv NO_X, corrected to 15% oxygen, averaged over a 24-hour period. Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 remained offline until the cause of the NO_X exceedance is investigated, and corrective actions have been implemented. RLI submitted a Reportable Compliance Activity (RCA) notification to the BAAQMD on July 2, 2021 and was assigned RCA number 08A33 (see Attachment A).

Engine No. 2 commenced operation on April 27, 2017. Below are the quarterly NOx emissions beginning with the first Source Test of Engine No. 2 that was conducted in the third quarter of 2017 on July 25, 2017.

Quarter	S-65 (Engine No. 2) NO_X, ppm @15% O_2
2017 Q3	3.2
2017 Q4	4.7
2018 Q1	5.8
2018 Q2	8.1
2018 Q3	6.2
2018 Q4	5.9
2019 Q1	7.0
2019 Q2	7.2
2019 Q3	8.1
2019 Q4	6.6
2020 Q1	6.0
2020 Q2	6.0
2020 Q3	5.7
2020 Q4	7.6
2021 Q1	7.8
2021 Q2	22.5

From April 27, 2017 through June 30, 2021, Engine No. 2 has operated for approximately 36,600 hours. The service life of the SCR's catalyst material (which aids in the reduction of NOx emissions to nitrogen) is 40,000 hours. The catalyst material had been in operation for about 92% of its service life.

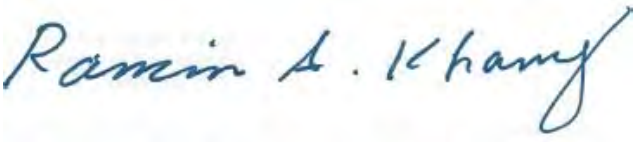
Engine No. 2 SCR service (cleaning and inspection) was conducted by Johnson Matthey in the second quarter 2021 on May 25, 2021. After the SCR service, new catalyst material was placed on order but couldn't be delivered until the third quarter 2021. It is suspected that the old catalyst material used during the second quarter 2021 24-hour emissions test on June 30, 2021 was at the end of its service life and resulted in the NO_X exceedance.

The 24-hour emissions test was repeated on July 30, 2021 with a portable analyzer. Averaged over a 24-hour period, Engine No. 2 emissions was 7.3 ppmv NO_X, corrected to 15% oxygen, which is below the 10 ppmv NO_X limit.

As required, RLI submitted the Title V Section I.F 10-Day Report on July 9, 2021 and the Title V I.F 30-Day Report on July 30, 2021 to BAAQMD. This Supplemental report to the 30-Day report is to report Engine No. 2's NO_X emissions are back in compliance to the 10 ppmv NO_X limit and that Engine No. 2 is back to full operation. RLI is committed to operating its landfill in compliance with all applicable regulations.

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

Thank you,
Redwood Landfill, Inc.



Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY (RCA) 08A33 (JULY 2, 2021)

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

July 2, 2021

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

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

Dear Sir or Madam:

Redwood Landfill, Inc. (RLI) is submitting this Reportable Compliance Activity (RCA) notification to the Bay Area Air Quality Management District (BAAQMD) (see attachment).

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarterly 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarterly test results on Engine No. 2 (S-65) exceeded the permit limit of 10 ppmv of NOx, corrected to 15% oxygen, averaged over a 24-hour period. The Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 (S-65) will continue to remain offline until we investigate the cause and implement corrective actions.

RLI will make all efforts to ensure compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.

Ramin A. Khany

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

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

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-65
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	NOx	Fax #	-
Allowable Limit	10 ppm @ 15% O2	Averaging Time	24 hours
Start Time/Date	6/30/21 1:30 pm	Clear Time	7/1/21 7:05 am
Monitor/device type(s)	☐ ▶CEM ☐ ▶GLM ☐ ▶Parametric ☐ ▶PRD ☐ ▶Non-monitor		
Monitor description(s)	Portable Emissions Monitor (NOx, CO, and O2)		

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

During the second quarterly emission testing with a portable analyzer on June 30, 2021, it was determined that the average NOx concentration on Engine NO.2 (S-65) was 22.5 ppm. This was above the PTO Condition #25635 Part 4, NOx limit of 10 ppm. Upon completion of the emissions test, Engine No. 2 was shutdown on July 1, 2021 at 7:05 AM.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: RCA Notification <rca@baaqmd.gov>
Sent: Friday, July 2, 2021 3:41 PM
To: Chan, Michael
Subject: [EXTERNAL] RE: Redwood Landfill RCA Notification Facility A1179

08A33

From: Chan, Michael <mchan2@wm.com>
Sent: Friday, July 2, 2021 3:30 PM
To: RCA Notification <rca@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Landfill RCA Notification Facility A1179

CAUTION: This email originated from outside of the BAAQMD network. Do not click links or open attachments unless you recognize the sender and know the content is safe.

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for elevated NOx reading for Engine No. 2 (S-65) from the 2nd Quarter portable analyzer emission test.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Chan, Michael
Sent: Tuesday, August 3, 2021 4:17 PM
To: 'compliance@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Supplemental Title V 30day Report (RCA 08A33)
Attachments: RLI Title V 30day Supplemental Report RCA 08A33_2021-08-03.pdf

Redwood Landfill (A1179) is submitting the attached Supplemental Title V 30-day written report (RCA 08A33) to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

From: Chan, Michael
Sent: Friday, July 30, 2021 3:14 PM
To: 'compliance@baaqmd.gov' <compliance@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Title V 30day Report (RCA 08A33)

Redwood Landfill (A1179) is submitting the attached Title V 30-day written report (RCA 08A33) to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Tuesday, August 3, 2021 4:17 PM
Subject: Relayed: Redwood Supplemental Title V 30day Report (RCA 08A33)

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Supplemental Title V 30day Report (RCA 08A33)

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

August 3, 2021

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

Re: Reportable Compliance Activity (RCA) Notification (RCA #08B03)
Redwood Landfill, Inc., Novato, California
Facility Number A1179

Dear Sir or Madam:

On behalf of Redwood Landfill, Inc. (RLI), although RLI disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from Bay Area Air Quality Management District (BAAQMD) staff, this letter is to request Breakdown Relief from BAAQMD for a PG&E power outage. On Monday, August 2, 2021 at ~12:40 PM, PG&E's power outage caused the GCCS to go offline. BAAQMD's Reportable Compliance Activity (RCA) notification form, as modified, is enclosed. It is not anticipated at this time that RLI violated applicable emission standard(s).

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

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

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

3. The breakdown does not create a public nuisance;

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

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

On August 2, 2021 at ~3:35 PM the GCCS was back online after the PG&E power was restored. A breakdown report was submitted to BAAQMD on August 2, 2021 at ~4:30 PM via the phone 415-749-4979 about the GCCS going offline due to PG&E's power outage and of the GCCS coming back online. BAAQMD assigned RCA #08B03 to this breakdown report.

RLI has been and continues to actively seek a permitted generator to power the flare for future power outage events.

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

Sincerely,

Michael Chan
WM Environmental Protection Specialist
mchan2@wm.com

cc: Ramin Khany, RLI
Alisha McCutcheon, RLI
Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

1. [X] **BREAKDOWN RELIEF:** ***District Use Only*** **BREAKDOWN REFERENCE #:**

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-5
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	-NA	Fax #	-
Allowable Limit	-NA	Averaging Time	-
Start Time/Date	8/2/21 12:40 pm	Clear Time	8/2/21 3:35 pm
Monitor/device type(s)	[ ] ▶CEM [ ] ▶GLM [ ] ▶Parametric [ ] ▶PRD [ ] ▶Non-monitor		
Monitor description(s)			

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

A breakdown report was submitted on 8/2/21 at ~4:30 PM via phone 415-749-4979 by RLI because the GCCS cannot continuously operate due to the PG&E power outage (assigned RCA #08B03). During the PG&E power outage, the GCCS was potentially out of compliance with BAAQMD regulation 8-34-301.1. Please also see our objections and discussion in the attached cover letter dated 8/3/21.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: Chan, Michael
Sent: Tuesday, August 3, 2021 3:49 PM
To: 'rca@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Landfill Facility A1179 RCA 08B03 Notification
Attachments: RLI RCA Notification RCA 08B03 210803.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for the PG&E Power Outage 8/2/21.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'rca@baaqmd.gov'; Richard Murray
Sent: Tuesday, August 3, 2021 3:50 PM
Subject: Relayed: Redwood Landfill Facility A1179 RCA 08B03 Notification

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill Facility A1179 RCA 08B03 Notification

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

August 11, 2021

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

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
Title V Section I.F, 10-Day/30-Day written report (RCA 08B03)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this combined 10-day and 30-day written report to the Bay Area Air Quality Management District (BAAQMD) as required under Title V Permit Condition Section I.F for Monitoring Reports. The RLI Title V Permit Requirement states that "*All instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions*".

On Monday, August 2, 2021 at ~12:40 PM, PG&E had an area wide power outage that caused the gas collection and control system (GCCS) to go offline. The GCCS remained offline until August 2, 2021, at ~3:35 PM. A breakdown report was submitted to BAAQMD on August 2, 2021 at ~4:30 PM via the phone 415-749-4979 about the GCCS going offline due to PG&E's power outage and of the GCCS coming back online. BAAQMD assigned RCA #08B03 to this breakdown report. Although RLI disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from BAAQMD staff, RLI requested Breakdown Relief from BAAQMD for the August 2, 2021 PG&E power outage via BAAQMD's Reportable Compliance Activity (RCA) notification form submitted on August 3, 2021 (see Attachment A).

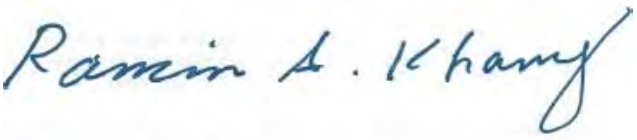
The unplanned power outage shutdown did not result in emissions and do not qualify as non-compliance. The downtime was less than 24 hours. RLI believes that it complied with the Title V permit conditions and safety protocols. RLI followed all measures to ensure gas movers and valves were closed during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

and did not benefit RLI economically nor result in a nuisance. The frequency and duration of weather or utility-related electrical interruptions are outside of RLI's control.

RLI is committed to operating its landfill in compliance with applicable regulations and will ensure that compliance is achieved. However, RLI disagrees with the BAAQMD that temporary shutdowns resulting from unplanned power outages are violations of any BAAQMD regulation. RLI has been and continues to actively seek a permitted generator to power the flare for future power outage events.

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

Thank you,
Redwood Landfill, Inc.



Ramin Khany
District Manager

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY (RCA) 08B03 (AUGUST 2, 2021)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

1. [X] **BREAKDOWN RELIEF:** ***District Use Only*** **BREAKDOWN REFERENCE #:**

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-5
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	-NA	Fax #	-
Allowable Limit	-NA	Averaging Time	-
Start Time/Date	8/2/21 12:40 pm	Clear Time	8/2/21 3:35 pm
Monitor/device type(s)	[ ] ▶CEM [ ] ▶GLM [ ] ▶Parametric [ ] ▶PRD [ ] ▶Non-monitor		
Monitor description(s)			

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

A breakdown report was submitted on 8/2/21 at ~4:30 PM via phone 415-749-4979 by RLI because the GCCS cannot continuously operate due to the PG&E power outage (assigned RCA #08B03). During the PG&E power outage, the GCCS was potentially out of compliance with BAAQMD regulation 8-34-301.1. Please also see our objections and discussion in the attached cover letter dated 8/3/21.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: Chan, Michael
Sent: Tuesday, August 3, 2021 3:49 PM
To: 'rca@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Landfill Facility A1179 RCA 08B03 Notification
Attachments: RLI RCA Notification RCA 08B03 210803.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for the PG&E Power Outage 8/2/21.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'rca@baaqmd.gov'; Richard Murray
Sent: Tuesday, August 3, 2021 3:50 PM
Subject: Relayed: Redwood Landfill Facility A1179 RCA 08B03 Notification

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill Facility A1179 RCA 08B03 Notification

Chan, Michael

From: Chan, Michael
Sent: Wednesday, August 11, 2021 1:20 PM
To: 'compliance@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Title V combined 10day/30day Report (RCA 08B03)
Attachments: RLI Title V 10day 30day Report RCA 08B03_2021-08-11.pdf

Redwood Landfill (A1179) is submitting the attached combined Title V 10-day/30-day written report (RCA 08B03) to BAAQMD for the August 2, 2021 PG&E power outage.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Wednesday, August 11, 2021 1:22 PM
Subject: Relayed: Redwood Title V combined 10day/30day Report (RCA 08B03)

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Title V combined 10day/30day Report (RCA 08B03)

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

August 11, 2021

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

Re: Reportable Compliance Activity (RCA 08B03) 30-Day Breakdown Report
Redwood Landfill, Inc., Novato, California
Facility Number A1179

Dear Sir or Madam:

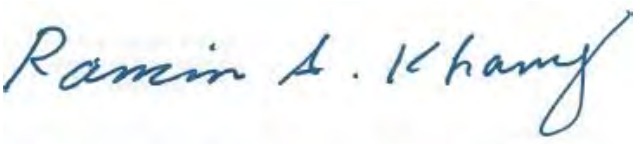
Although Redwood Landfill, Inc. (RLI) disagrees that Breakdown Relief is the appropriate methodology for compliance with Rule 8-34 during an unplanned power outage, due to direction from Bay Area Air Quality Management District (BAAQMD) staff, this letter is the 30-Day Breakdown Relief Report to BAAQMD for a PG&E power outage. This report includes the required elements in Regulation 1, Section 1-432. On Monday, August 2, 2021 at ~12:40 PM, PG&E had an area wide power outage that caused the RLI gas collection and control system (GCCS) to go offline. The GCCS remained offline until August 2, 2021, at ~3:35 PM. A breakdown report was submitted to BAAQMD on August 2, 2021 at ~4:30 PM via the phone 415-749-4979 about the GCCS going offline due to PG&E's power outage and of the GCCS coming back online. BAAQMD assigned RCA #08B03 to this breakdown report. RLI requested Breakdown Relief from BAAQMD for the August 2, 2021 PG&E power outage via BAAQMD's Reportable Compliance Activity (RCA) notification form submitted on August 3, 2021 (see Attachment A).

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

RLI is committed to operating its landfill in compliance with applicable regulations and will ensure that compliance is achieved. However, RLI disagrees with the BAAQMD that temporary shutdowns resulting from unplanned power outages are violations of any BAAQMD regulation. RLI has been and continues to actively seek a permitted generator to power the flare for future power outage events.

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

Sincerely,
Redwood Landfill, Inc.



Ramin Khany
District Manager

cc: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

1. [X] **BREAKDOWN RELIEF:** ***District Use Only*** **BREAKDOWN REFERENCE #:**

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-5
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	-NA	Fax #	-
Allowable Limit	-NA	Averaging Time	-
Start Time/Date	8/2/21 12:40 pm	Clear Time	8/2/21 3:35 pm
Monitor/device type(s)	[ ] ▶CEM [ ] ▶GLM [ ] ▶Parametric [ ] ▶PRD [ ] ▶Non-monitor		
Monitor description(s)			

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

A breakdown report was submitted on 8/2/21 at ~4:30 PM via phone 415-749-4979 by RLI because the GCCS cannot continuously operate due to the PG&E power outage (assigned RCA #08B03). During the PG&E power outage, the GCCS was potentially out of compliance with BAAQMD regulation 8-34-301.1. Please also see our objections and discussion in the attached cover letter dated 8/3/21.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: Chan, Michael
Sent: Tuesday, August 3, 2021 3:49 PM
To: 'rca@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Landfill Facility A1179 RCA 08B03 Notification
Attachments: RLI RCA Notification RCA 08B03 210803.pdf

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for the PG&E Power Outage 8/2/21.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'rca@baaqmd.gov'; Richard Murray
Sent: Tuesday, August 3, 2021 3:50 PM
Subject: Relayed: Redwood Landfill Facility A1179 RCA 08B03 Notification

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill Facility A1179 RCA 08B03 Notification

Chan, Michael

From: Chan, Michael
Sent: Wednesday, August 11, 2021 1:35 PM
To: 'rca@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Landfill RCA 08B03 30day Report Facility A1179
Attachments: RLI_RCA 30day Breakdown RCA 08B03 210811.pdf

Redwood Landfill (A1179) is submitting the attached RCA 30-day Breakdown report (RCA 08B03) to BAAQMD for the August 2, 2021 PG&E power outage.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'rca@baaqmd.gov'; Richard Murray
Sent: Wednesday, August 11, 2021 1:39 PM
Subject: Relayed: Redwood Landfill RCA 08B03 30day Report Facility A1179

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Landfill RCA 08B03 30day Report Facility A1179

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

August 13, 2021

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

Re: Redwood Landfill, Inc., Novato, California
Facility Number A1179,
10-Day NOV Response to BAAQMD Notice of Violation A-59867 (8/10/21)

Dear Sir or Madam:

The Redwood Landfill, Inc. (RLI) is submitting this 10-day response letter to Notice of Violation (NOV) Number A-59867, dated August 10, 2021 (see Attachment A). The NOV was issued for violation of Permit Condition #25635, Part 4 which states (for each quarter) that "*Nitrogen oxide (NOx) emissions from each engine shall not exceed an emission rate of 0.15 grams of NOx (calculated as N02) per brake-horsepower-hour, averaged over the test period. When using a portable analyzer to demonstrate compliance with this limit, the owner/operator shall ensure that NOx emissions from each engine do not exceed the equivalent outlet concentration limit of 10 ppmv of NOx, corrected to 15% oxygen, dry basis, averaged over a 24-hour period. These limits do not apply during periods of startup or shutdown, provided the startup period does not exceed 2 hours and the shutdown period does not exceed 1 hour.*"

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarter 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarter test results on Engine No. 2 (S-65) was above the permit limit of 10 ppmv NO_X, corrected to 15% oxygen, averaged over a 24-hour period. Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 remained offline until the cause of the NO_X exceedance is investigated, and corrective actions have been implemented. RLI submitted a Reportable Compliance Activity (RCA) notification to the BAAQMD on July 2, 2021 and was assigned RCA number 08A33 (see Attachment B).

Engine No. 2 commenced operation on April 27, 2017. Below are the quarterly NOx emissions beginning with the first Source Test of Engine No. 2 that was conducted in the third quarter of 2017 on July 25, 2017.

Quarter	S-65 (Engine No. 2) NO_X, ppm @15% O_2
2017 Q3	3.2
2017 Q4	4.7
2018 Q1	5.8
2018 Q2	8.1
2018 Q3	6.2
2018 Q4	5.9
2019 Q1	7.0
2019 Q2	7.2
2019 Q3	8.1
2019 Q4	6.6
2020 Q1	6.0
2020 Q2	6.0
2020 Q3	5.7
2020 Q4	7.6
2021 Q1	7.8
2021 Q2	22.5

From April 27, 2017 through June 30, 2021, Engine No. 2 has operated for approximately 36,600 hours. The service life of the SCR's catalyst material (which aids in the reduction of NOx emissions to nitrogen) is 40,000 hours. The catalyst material had been in operation for about 92% of its service life.

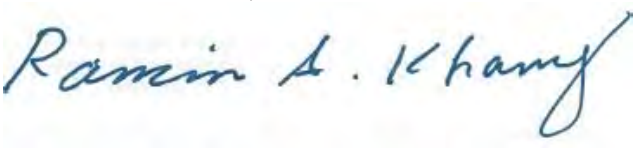
Engine No. 2 SCR service (cleaning and inspection) was conducted by Johnson Matthey in the second quarter 2021 on May 25, 2021. After the SCR service, new catalyst material was placed on order but couldn't be delivered until the third quarter 2021. It is suspected that the old catalyst material used during the second quarter 2021 24-hour emissions test on June 30, 2021 was at the end of its service life and resulted in the NO_X exceedance.

The 24-hour emissions test was repeated on July 30, 2021 with a portable analyzer. Averaged over a 24-hour period, Engine No. 2 results were 7.3 ppmv NO_X, corrected to 15% oxygen, which is below the 10 ppmv NO_X limit.

As required, RLI submitted the Title V Section I.F 10-Day Report on July 9, 2021 and the Title V I.F 30-Day Report on July 30, 2021 to BAAQMD. A Supplemental report to the 30-Day Title V report was submitted on August 3, 2021 to report Engine No. 2's NO_X emissions are back in compliance to the 10 ppmv NO_X limit and that Engine No. 2 can return to full operation. RLI is committed to operating its landfill in compliance with all applicable regulations.

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

Thank you,
Redwood Landfill, Inc.



Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

NOTICE OF VIOLATION

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
375 Beale Street, Suite 600, San Francisco, CA 94105
(415) 749-5000

NOTICE OF VIOLATION

No. A 59867

ISSUED TO: REDWOOD LANDFILL INC. ☒ P ☐ G ☐ N# A1179
ADDRESS: 8950 REDWOOD HWY
CITY: NOVATO STATE: CA ZIP: 94945
PHONE: (415) 373 8333
☐ N# Mailing Address on F61

OCCURRENCE
NAME:
ADDRESS: ☒ Same As Above
CITY: ZIP
SOURCE: S# 65 NAME: INTERNAL COMBUSTION ENGINE #2
EMISSION PT. P# NAME:
DATE: 6/30/21 TIME: 13:30 HRS

☐ REG 2 RULE 1 SEC 301 No Authority to Construct
☐ REG 2 RULE 1 SEC 302 No Permit to Operate
☐ REG 1 SEC 301 H & S CODE - 41700 Public Nuisance
☒ REG 2 RULE 1 SEC 307 Failure to Meet Permit Condition
☐ REG 5 SEC 301 Prohibited Open Burning
☐ REG 6 RULE 1 SEC 301 Excessive Visible Emissions
☐ REG ____ RULE ____ SECTION ____ CODE
☐ REG ____ RULE ____ SECTION ____ CODE

Details: PERMIT CONDITION # 25635.4

RECIPIENT NAME: ALICA MCCUTCHEON
TITLE: TECHNICAL MANAGER

SIGNING THIS NOTICE IS NOT AN ADMISSION OF GUILT
X Alicia L. McCutcheon

→ WITHIN 10 DAYS, RETURN A COPY OF THIS NOTICE WITH A WRITTEN DESCRIPTION OF THE IMMEDIATE CORRECTIVE ACTION YOU HAVE TAKEN TO PREVENT CONTINUED OR RECURRENT VIOLATION. **THIS VIOLATION IS SUBJECT TO SUBSTANTIAL PENALTY.** YOUR RESPONSE DOES NOT PRECLUDE FURTHER LEGAL ACTION.

ISSUED BY: RICARDO MULLOY INSP # 832
DATE: 8/10/21 TIME: 10:53 HRS ☐ MAILED

PLEASE PRESS HARD

Continued On Reverse

ATTACHMENT B

REPORTABLE COMPLIANCE ACTIVITY (RCA) 08A33 (JULY 2, 2021)

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

July 2, 2021

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

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

Dear Sir or Madam:

Redwood Landfill, Inc. (RLI) is submitting this Reportable Compliance Activity (RCA) notification to the Bay Area Air Quality Management District (BAAQMD) (see attachment).

On June 30, 2021, as required by the Permit to Operate Condition #25635, Part 4, RLI initiated the second quarterly 2021 emissions test on Engine No. 2 (S-65) at the Renewable Energy Facility with a portable analyzer. The second quarterly test results on Engine No. 2 (S-65) exceeded the permit limit of 10 ppmv of NOx, corrected to 15% oxygen, averaged over a 24-hour period. The Engine No. 2 was immediately shutdown on July 1, 2021 at ~7:05 AM, and corrective action plans were initiated. RLI Engine No. 2 (S-65) will continue to remain offline until we investigate the cause and implement corrective actions.

RLI will make all efforts to ensure compliance with BAAQMD regulations.

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

Thank you,
Redwood Landfill, Inc.

Ramin A. Khany

Ramin Khany
District Manager

CC: Richard Murray, BAAQMD

ATTACHMENT A

REPORTABLE COMPLIANCE ACTIVITY NOTIFICATION FORM

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

COMPLIANCE & ENFORCEMENT DIVISION

Notification Form

Reportable Compliance Activity (RCA)

See back of form for instructions →

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

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

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

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

SITE INFORMATION AND DESCRIPTION INFORMATION (REQUIRED)			
Company	Redwood Landfill, Inc. (RLI)	Site #	A1179
Address	8950 Redwood Highway, Novato	Source #	S-65
Reported by	Michael Chan	Phone #	510-613-2852
Indicated Excess	NOx	Fax #	-
Allowable Limit	10 ppm @ 15% O2	Averaging Time	24 hours
Start Time/Date	6/30/21 1:30 pm	Clear Time	7/1/21 7:05 am
Monitor/device type(s)	☐ ▶CEM ☐ ▶GLM ☐ ▶Parametric ☐ ▶PRD ☐ ▶Non-monitor		
Monitor description(s)	Portable Emissions Monitor (NOx, CO, and O2)		

Parameter(s) exceeded or not functioning due to inoperation

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

Unit(s) of Measurement

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

Event Description:

During the second quarterly emission testing with a portable analyzer on June 30, 2021, it was determined that the average NOx concentration on Engine NO.2 (S-65) was 22.5 ppm. This was above the PTO Condition #25635 Part 4, NOx limit of 10 ppm. Upon completion of the emissions test, Engine No. 2 was shutdown on July 1, 2021 at 7:05 AM.

District Use Only		
Received by	Date	Time

General Instructions

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

Detailed Instructions

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

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

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

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

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

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

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

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

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

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

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

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

Chan, Michael

From: RCA Notification <rca@baaqmd.gov>
Sent: Friday, July 2, 2021 3:41 PM
To: Chan, Michael
Subject: [EXTERNAL] RE: Redwood Landfill RCA Notification Facility A1179

08A33

From: Chan, Michael <mchan2@wm.com>
Sent: Friday, July 2, 2021 3:30 PM
To: RCA Notification <rca@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Landfill RCA Notification Facility A1179

CAUTION: This email originated from outside of the BAAQMD network. Do not click links or open attachments unless you recognize the sender and know the content is safe.

On behalf of Redwood Landfill, Inc. (RLI), attached is the RCA form for elevated NOx reading for Engine No. 2 (S-65) from the 2nd Quarter portable analyzer emission test.

Regards,

Mike Chan

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Chan, Michael
Sent: Tuesday, August 3, 2021 4:17 PM
To: 'compliance@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood Supplemental Title V 30day Report (RCA 08A33)
Attachments: RLI Title V 30day Supplemental Report RCA 08A33_2021-08-03.pdf

Redwood Landfill (A1179) is submitting the attached Supplemental Title V 30-day written report (RCA 08A33) to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

From: Chan, Michael
Sent: Friday, July 30, 2021 3:14 PM
To: 'compliance@baaqmd.gov' <compliance@baaqmd.gov>
Cc: Richard Murray <rmurray@baaqmd.gov>
Subject: Redwood Title V 30day Report (RCA 08A33)

Redwood Landfill (A1179) is submitting the attached Title V 30-day written report (RCA 08A33) to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Tuesday, August 3, 2021 4:17 PM
Subject: Relayed: Redwood Supplemental Title V 30day Report (RCA 08A33)

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood Supplemental Title V 30day Report (RCA 08A33)

Chan, Michael

From: Chan, Michael
Sent: Friday, August 13, 2021 3:08 PM
To: 'compliance@baaqmd.gov'
Cc: Richard Murray
Subject: Redwood NOV A-59867 10-day Response Report
Attachments: RLI_10day NOV A59867 Response Letter 2021-08-13.pdf

Redwood Landfill (A1179) is submitting the attached NOV A-59867 10-day Response Report (RCA 08A33) to BAAQMD.

Regards,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

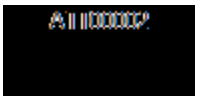
From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'compliance@baaqmd.gov'; Richard Murray
Sent: Friday, August 13, 2021 3:09 PM
Subject: Relayed: Redwood NOV A-59867 10-day Response Report

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

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

Richard Murray (rmurray@baaqmd.gov)

Subject: Redwood NOV A-59867 10-day Response Report



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

October 15, 2021

Ms. Simrun Dhoot
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
sdhoot@baaqmd.gov

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

Dear Ms. Dhoot:

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

- Vertical well RLLC0274 was added to the collection system on 10/8/2021.
- Vertical well RLLC0265 was added to the collection system on 10/12/2021.
- Vertical well RLLC0266 was added to the collection system on 10/12/2021.
- Vertical well RLLC0267 was added to the collection system on 10/12/2021.
- Vertical well RLLC0268 was added to the collection system on 10/12/2021.
- Vertical well RLLC0269 was added to the collection system on 10/12/2021.
- Vertical well RLLC0271 was added to the collection system on 10/12/2021.
- Vertical well RLLC0272 was added to the collection system on 10/12/2021.
- Vertical well RLLC0273 was added to the collection system on 10/12/2021.

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 February 24, 2021 Well Actions Letter, prior to the completion of these well actions, RLI had 112 total collectors (105 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	32	19	0	2	-
Actions Remaining Under AN 30065	68	31	50	13	Unlimited
Active Collector Count after Actions in this Letter	121 Total Collectors: 114 Vertical LFG Wells and 7 Horizontal Collectors				

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

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

Thank you,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Friday, October 15, 2021 1:58 PM
To: 'Simrun Dhoot'
Cc: McCutcheon, Alisha
Subject: Redwood Landfill Well Actions Notification October 2021
Attachments: 2021.10.15 - RLI Well Actions Letter New Wells 265 266 267 268 269 271 272 273 274.pdf

Tracking:

Recipient	Delivery
'Simrun Dhoot'	
McCutcheon, Alisha	Delivered: 10/15/2021 1:58 PM

Hi Simrun,

Attached is the Well Actions Notification letter that Redwood Landfill has added 9 new wells to the collection system.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

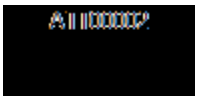
Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Simrun Dhoot'
Sent: Friday, October 15, 2021 1:58 PM
Subject: Relayed: Redwood Landfill Well Actions Notification October 2021

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

'Simrun Dhoot' (sdhoot@baaqmd.gov)

Subject: Redwood Landfill Well Actions Notification October 2021



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

October 22, 2021

Ms. Simrun Dhoot
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
sdhoot@baaqmd.gov

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

Dear Ms. Dhoot:

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

- Vertical well RLLC0257 was added to the collection system on 10/13/2021.
- Vertical well RLLC0258 was added to the collection system on 10/13/2021.
- Vertical well RLLC0259 was added to the collection system on 10/13/2021.
- Vertical well RLLC0260 was added to the collection system on 10/13/2021.
- Vertical well RLLC0261 was added to the collection system on 10/13/2021.
- Vertical well RLLC0262 was added to the collection system on 10/13/2021.
- Vertical well RLLC0263 was added to the collection system on 10/13/2021.
- Vertical well RLLC0264 was added to the collection system on 10/13/2021.

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 October 15, 2021 Well Actions Letter, prior to the completion of these well actions, RLI had 121 total collectors (114 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	40	19	0	2	-
Actions Remaining Under AN 30065	60	31	50	13	Unlimited
Active Collector Count after Actions in this Letter	129 Total Collectors: 122 Vertical LFG Wells and 7 Horizontal Collectors				

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

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

Thank you,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Friday, October 22, 2021 11:09 AM
To: 'Simrun Dhoot'
Cc: McCutcheon, Alisha
Subject: Redwood Landfill Well Actions Notification October 22 2021
Attachments: 2021.10.22 - RLI Well Actions Letter New Wells 257 258 259 260 261 262 263 264.pdf

Tracking:

Recipient	Delivery
'Simrun Dhoot'	
McCutcheon, Alisha	Delivered: 10/22/2021 11:09 AM

Hi Simrun,

Attached is the Well Actions Notification letter that Redwood Landfill has added 8 new wells to the collection system.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Simrun Dhoot'
Sent: Friday, October 22, 2021 11:10 AM
Subject: Relayed: Redwood Landfill Well Actions Notification October 22 2021

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

'Simrun Dhoot' (sdhoot@baaqmd.gov)

Subject: Redwood Landfill Well Actions Notification October 22 2021

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

October 29, 2021

Ms. Simrun Dhoot
Senior Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, California 94105
sdhoot@baaqmd.gov

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

Dear Ms. Dhoot:

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 is summarized below:

- Vertical well RLLC0270 was added to the collection system on 10/29/2021.

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 October 22, 2021 Well Actions Letter, prior to the completion of this well action, RLI had 129 total collectors (122 vertical wells and 7 horizontal collectors) connected to the GCCS. With the completion of this 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	41	19	0	2	-
Actions Remaining Under AN 30065	59	31	50	13	Unlimited
Active Collector Count after Actions in this Letter	130 Total Collectors: 123 Vertical LFG Wells and 7 Horizontal Collectors				

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

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

Thank you,
Redwood Landfill, Inc.

Michael Chan
Environmental Protection Specialist

Chan, Michael

From: Chan, Michael
Sent: Friday, October 29, 2021 2:11 PM
To: 'Simrun Dhoot'
Cc: McCutcheon, Alisha
Subject: Redwood Landfill Well Actions Notification October 29 2021
Attachments: 2021.10.29 - RLI Well Actions Letter New Well RLLC0270.pdf

Tracking:

Recipient	Delivery
'Simrun Dhoot'	
McCutcheon, Alisha	Delivered: 10/29/2021 2:11 PM

Hi Simrun,

Attached is the Well Actions Notification letter that Redwood Landfill has added 1 new well to the collection system.

Thanks,

Mike

Michael Chan
EP Air Quality Specialist
mchan2@wm.com

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

Chan, Michael

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@wm.com>
To: 'Simrun Dhoot'
Sent: Friday, October 29, 2021 2:12 PM
Subject: Relayed: Redwood Landfill Well Actions Notification October 29 2021

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

'Simrun Dhoot' (sdhoot@baaqmd.gov)

Subject: Redwood Landfill Well Actions Notification October 29 2021

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	x Shutdown x Startup Malfunction	RLIHC102	11/23/20 13:45 7/1/21 15:00	11/23/20 13:47 7/1/21 15:02	0.03 0.03	5,281.25	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	7/1/2021
2	x Shutdown x Startup Malfunction	RLIHC101	11/23/20 14:00 7/1/21 15:00	11/23/20 14:02 7/1/21 15:02	0.03 0.03	5,281.00	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	7/1/2021
3	x Shutdown x Startup Malfunction	RLLC0246	1/19/21 8:45 3/1/21 9:45	1/19/21 8:47 3/1/21 9:47	0.03 0.03	985.00	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	3/1/2021
4	x Shutdown Startup Malfunction	RLI0120D	2/24/21 8:05 N/A	2/24/21 8:07	0.03	N/A	Well decommissioned pursuant to AN #30065 on 2/24/21	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No		Mike Chan	N/A
5	x Shutdown x Startup Malfunction	RLLC0215	3/9/21 8:00 6/2/21 15:30	3/9/21 8:02 6/2/21 15:32	0.03 0.03	2,047.50	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/2/2021
6	x Shutdown x Startup Malfunction	RLLC0214	3/24/21 14:00 5/4/21 10:44	3/24/21 14:02 5/4/21 10:46	0.03 0.03	980.73	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	5/4/2021
7	x Shutdown x Startup Malfunction	RLLC0222	5/7/21 7:01 6/2/21 15:30	5/7/21 7:03 6/2/21 15:32	0.03 0.03	632.48	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/2/2021
8	x Shutdown x Startup Malfunction	RLIHC107	5/26/21 9:00 6/14/21 10:00	5/26/21 9:02 6/14/21 10:02	0.03 0.03	457.00	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	6/14/2021
9	x Shutdown x Startup Malfunction	RLLC0230	6/2/21 16:00 7/1/21 9:30	6/2/21 16:02 7/1/21 9:32	0.03 0.03	689.50	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	7/1/2021
10	x Shutdown Startup Malfunction	RLI0128A	6/10/21 11:00 Well offline as of November 1, 2021	6/10/21 11:02	0.03	3,445.00	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
11	x Shutdown Startup Malfunction	RLLC0181	6/14/21 11:00 Well offline as of November 1, 2021	6/14/21 11:02	0.03	3,349.00	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
12	x Shutdown x Startup Malfunction	RLI0106C	7/8/21 14:00 9/2/21 10:15	7/8/21 14:02 9/2/21 10:17	0.03 0.03	1,340.25	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	9/2/2021

REDWOOD LANDFILL, INC.

COLLECTION SYSTEM DOWNTIME LOG

Event No.	Check Applicable Event	Device	(1) Event Start Date/Time	(2) Event End Date/Time	(3) Duration (Hrs)	Downtime (Hrs)	(4) Cause or Reason	(5) Applicable Regulation	(6) Type of Event	(7) Procedures Used (a),(b)	(8) Did Steps Taken Vary From (7)	(9) Did Event Cause Any Emission Limit Exceedance?	(10) Describe Emission Standard(s) Exceeded (b)	Completed By	(11) Date Entry Completed
13	x Shutdown x Startup Malfunction	RLI0107C	7/8/21 14:45 10/6/21 11:50	7/8/21 14:47 10/6/21 11:52	0.03 0.03	2,157.08	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	10/6/2021
14	x Shutdown x Startup Malfunction	RLLC0204	8/27/21 9:50 10/1/21 13:30	8/27/21 9:52 10/1/21 13:32	0.03 0.03	843.67	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) x Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) x No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	10/1/2021
15	x Shutdown Startup Malfunction	RLLC0194	9/29/21 16:50 Well offline as of November 1, 2021	9/29/21 16:52	0.03	775.17	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
16	x Shutdown Startup Malfunction	RLLC0195	10/6/21 16:30 Well offline as of November 1, 2021	10/6/21 16:32	0.03	607.50	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
17	x Shutdown Startup Malfunction	RLLC0196	10/6/21 16:30 Well offline as of November 1, 2021	10/6/21 16:32	0.03	607.50	Well raising, well located in active fill area	113: Inspection/Maintenance x 116: Well Raising 117: Gas Collection 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) Manual (Go to 7) Automatic (Go to 9)	Procedures 1 to 3 Procedures 1 to 4	Yes (Go to 9) x No Yes (Go to 9) No	Yes (Go to 10) No Yes (Go to 10) No		Mike Chan	11/1/2021
18	Shutdown x Startup Malfunction	RLLC0274	10/8/21 14:30 N/A	10/8/21 14:32	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/8/2021
19	Shutdown x Startup Malfunction	RLLC0265	10/12/21 14:10 N/A	10/12/21 14:12	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/12/2021
20	Shutdown x Startup Malfunction	RLLC0266	10/12/21 13:55 N/A	10/12/21 13:57	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/12/2021
21	Shutdown x Startup Malfunction	RLLC0267	10/12/21 13:25 N/A	10/12/21 13:27	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/12/2021
22	Shutdown x Startup Malfunction	RLLC0268	10/12/21 13:40 N/A	10/12/21 13:42	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/12/2021
23	Shutdown x Startup Malfunction	RLLC0269	10/12/21 13:05 N/A	10/12/21 13:07	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/12/2021
24	Shutdown x Startup Malfunction	RLLC0271	10/12/21 12:20 N/A	10/12/21 12:22	0.03	N/A	Well startup pursuant to AN #30065	113: Inspection/Maintenance 116: Well Raising 117: Gas Collection x 118: Construction Activities	x Manual (Go to 7) Automatic (Go to 9) N/A	Procedures 1 to 3	Yes (Go to 9) x No N/A	Yes (Go to 10) No N/A		Mike Chan	10/12/2021

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
25	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0272	10/12/21 12:45	10/12/21 12:47	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/12/2021
			N/A					N/A							
26	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0273	10/12/21 14:30	10/12/21 14:32	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/12/2021
			N/A					N/A							
27	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0257	10/13/21 14:55	10/13/21 14:57	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
28	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0258	10/13/21 14:35	10/13/21 14:37	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
29	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0259	10/13/21 14:15	10/13/21 14:17	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
30	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0260	10/13/21 15:15	10/13/21 15:17	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
31	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0261	10/13/21 15:30	10/13/21 15:32	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
32	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0262	10/13/21 15:45	10/13/21 15:47	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
33	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0263	10/13/21 16:05	10/13/21 16:07	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
34	[ ] Shutdown [x] Startup [ ] Malfunction	RLLC0264	10/13/21 16:20	10/13/21 16:22	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/13/2021
			N/A					N/A							
35	[x] Shutdown [ ] Startup [ ] Malfunction	RLLC0270	10/29/21 12:30	10/29/21 12:32	0.03	N/A	Well startup pursuant to AN #30065	[ ] 113: Inspection/Maintenance [ ] 116: Well Raising [ ] 117: Gas Collection [x] 118: Construction Activities	[x] Manual (Go to 7) [ ] Automatic (Go to 9)	Procedures 1 to 3	[ ] Yes (Go to 9) [x] No	[ ] Yes (Go to 10) [ ] No		Mike Chan	10/29/2021
			N/A					N/A							

(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/deterioratior -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 necessar 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 equipmen 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 equipmen	31. Check/repair temperature monitoring equipmen 32. Check/repair thermocouple 33. Follow procedures for loss of flow/blower malfunction 34. Check/adjust air/fuel controls 35. Check/adjust/repair flame sensor 36. Check/adjust LFG collectors
Flow Monitoring/ Recording Device	Measures and records gas flow from collection system to control	Malfunctions of Flow Monitoring/Recording Device	-Problems with orifice plate, pitot tube, or other in-line flow measuring device -Problems with device controls and/or wiring -Problems with chart recorder	37. Check/adjust/repair flow measuring device and/or wiring 38. Check/repair chart recorder 39. Replace paper in chart recorder
Temperature Monitoring/ Recording Device	Monitors and records combustion temperature of enclosed combustion device	Malfunctions of Temperature Monitoring/Recording Device	-Problems with thermocouple -Problems with device controls and/or wiring -Problems with chart recorder	40. Check/adjust/repair thermocouple 41. Check/adjust/repair controller and/or wiring 42. Check/adjust/repair electrical panel components 43. Check/repair chart recorder 44. Replace paper in chart recorder
Control Device	Combusts LFG	Other Control Device Malfunctions	-Control device smoking (i.e. visible emissions) -Problems with flare insulation -Problems with pilot light system -Problems with air louvers -Problems with air/fuel controllers -Problems with thermocouple -Problems with burners -Problems with flame arrester -Alarmed malfunction conditions not covered above -Unalarmed conditions discovered during inspection not covered above	45. Site-specific diagnosis procedures 46. Site-specific responses actions based on diagnosis 47. Open manual louvers 48. Clean pitot orifice 49. Clean/drain flame arrestor 50. Refill propane supply 51. Check/repair pilot sparking system

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

APPENDIX E

A-51 AND A-60 FLARE TEMPERATURE REPORTS

Redwood Landfill, Novato, CA

A-51 Flare TEMPERATURE DEVIATION/ INOPERATIVE MONITOR REPORT **May 1, 2021 to October 31, 2021**

REPORT PREPARED BY:	Michael Chan	**DATE:**	November 24, 2021
TEMPERATURE SENSING DEVICE:	Thermocouple	**MODEL:**	Thermo-Electric

START DATE & TIME	END DATE & TIME	TEMP (^{o}F) / FLOW	CAUSE	EXPLANATION	ACTION TAKEN
No deviations or inoperative monitors during the month of May 2021					
No deviations or inoperative monitors during the month of June 2021					
No deviations or inoperative monitors during the month of July 2021					
No deviations or inoperative monitors during the month of August 2021					
No deviations or inoperative monitors during the month of September 2021					
No deviations or inoperative monitors during the month of October 2021					

COMMENTS:

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

2 The A-51 Flare combustion zone 3-hour average temperature did not drop below the 1,400°F (3/16/20 to 3/9/21) or 1,488°F (3/10/2021 to current) limits established during the January 22, 2020 and January 14, 2021 Annual Source Tests, while the flare was in operation, pursuant to Title V Permit Condition Number 19867, Part 22, and 40 CFR 60.752 b(2)(iii)(B)(2) in Subpart WWW of the NSPS.

Redwood Landfill, Novato, CA

A-60 Flare TEMPERATURE DEVIATION/ INOPERATIVE MONITOR REPORT **May 1, 2021 to October 31, 2021**

REPORT PREPARED BY:	Michael Chan	**DATE:**	November 24, 2021
TEMPERATURE SENSING DEVICE:	Thermocouple	**MODEL:**	Thermo-Electric

START DATE & TIME	END DATE & TIME	TEMP (^{o}F) / FLOW	CAUSE	EXPLANATION	ACTION TAKEN
No deviations or inoperative monitors during the month of May 2021					
No deviations or inoperative monitors during the month of June 2021					
No deviations or inoperative monitors during the month of July 2021					
No deviations or inoperative monitors during the month of August 2021					
No deviations or inoperative monitors during the month of September 2021					
No deviations or inoperative monitors during the month of October 2021					

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 1,551°F (9/15/20 - 9/9/21) or 1,525°F (9/10/21 - current) limits established during the July 22 & 23, 2020 and July 13, 2021 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 May 1, 2021 to October 31, 2021

Date & Time	Date & Time	Total Missing Data Hours	Total Missing Data Days	Comments
There was no missing data for May 2021				
There was no missing data for June 2021				
There was no missing data for July 2021				
There was no missing data for August 2021				
There was no missing data for September 2021				
There was no missing data for October 2021				

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

Emission Control Devices

A-60 Flare Missing Data Summary

Redwood Landfill, Novato, CA

FLARE MISSING DATA REPORT May 1, 2021 to October 31, 2021

Date & Time	Date & Time	Total Missing Data Hours	Total Missing Data Days	Comments
There was no missing data for May 2021				
There was no missing data for June 2021				
There was no missing data for July 2021				
There was no missing data for August 2021				
There was no missing data for September 2021				
There was no missing data for October 2021				

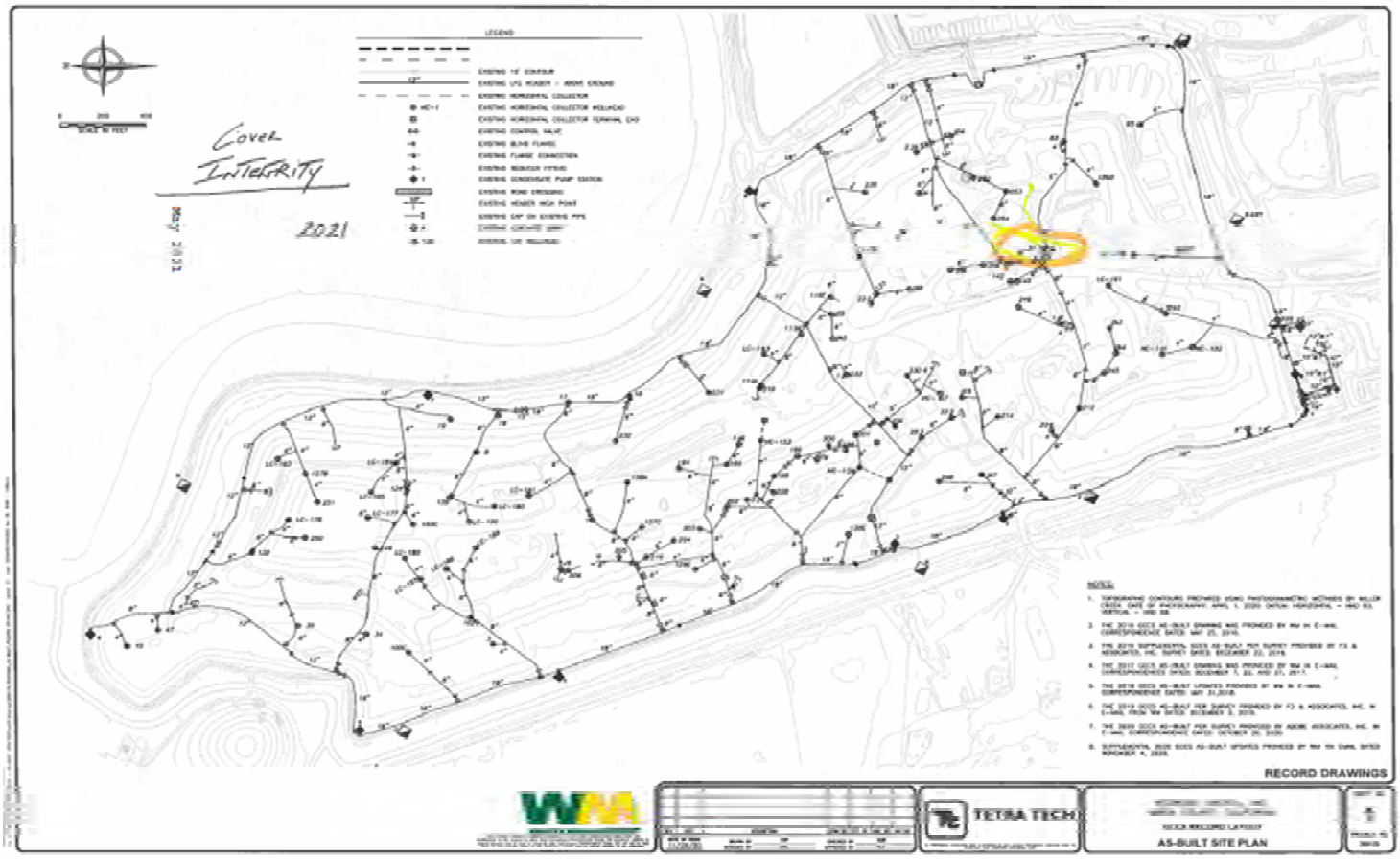
Flare A-60	Hours	Days
Total Missing Data:	0.00	0.00
Total Complete Data:	4,416.00	184.00
Missing Data Percentage:	0.00%	0.00%

APPENDIX G

COVER INTEGRITY MONITORING REPORTS

Monthly Cover Integrity Inspection Form

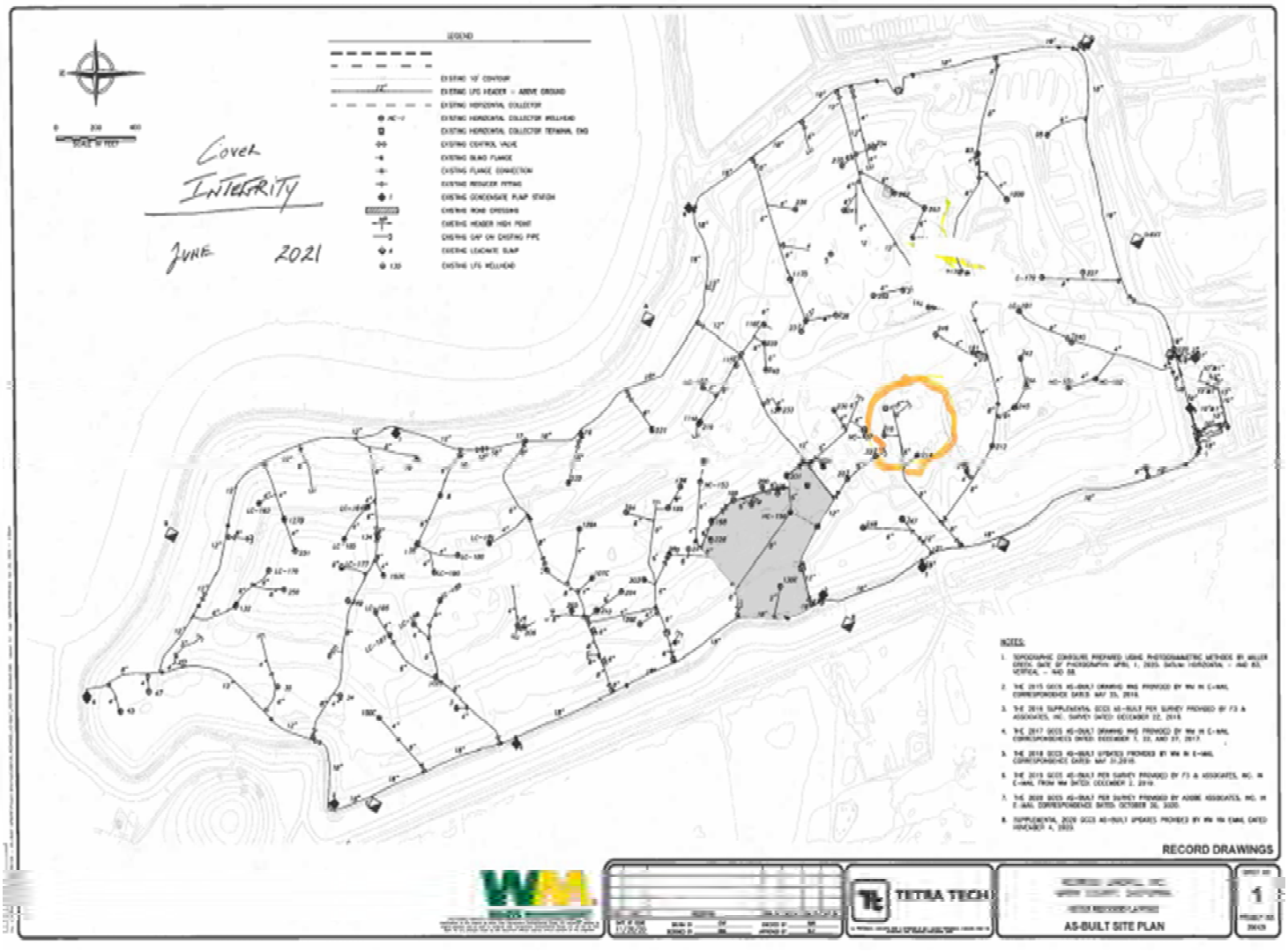
Facility	Waste Management- Redwood Landfill						
Date	5/25/2021	**Received**		**Manager**	Ramin Khany	**Date**	5/25/2021
Technician	S. King	**Repairs Complete**		**Manager**	Ramin A. Khany	**Date**	11/24/2021
Cell/Pad	**Area B**			Cell/Pad			
Description of finding and corrective action: In Area D, Additional cover is needed south of C & D Area. Near well 217. See attached map for details Corrective Action: Soil added to cover				Description of finding and corrective action:			
Date Identified	5/25/2021	**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:			



Monthly Cover Integrity Inspection Form

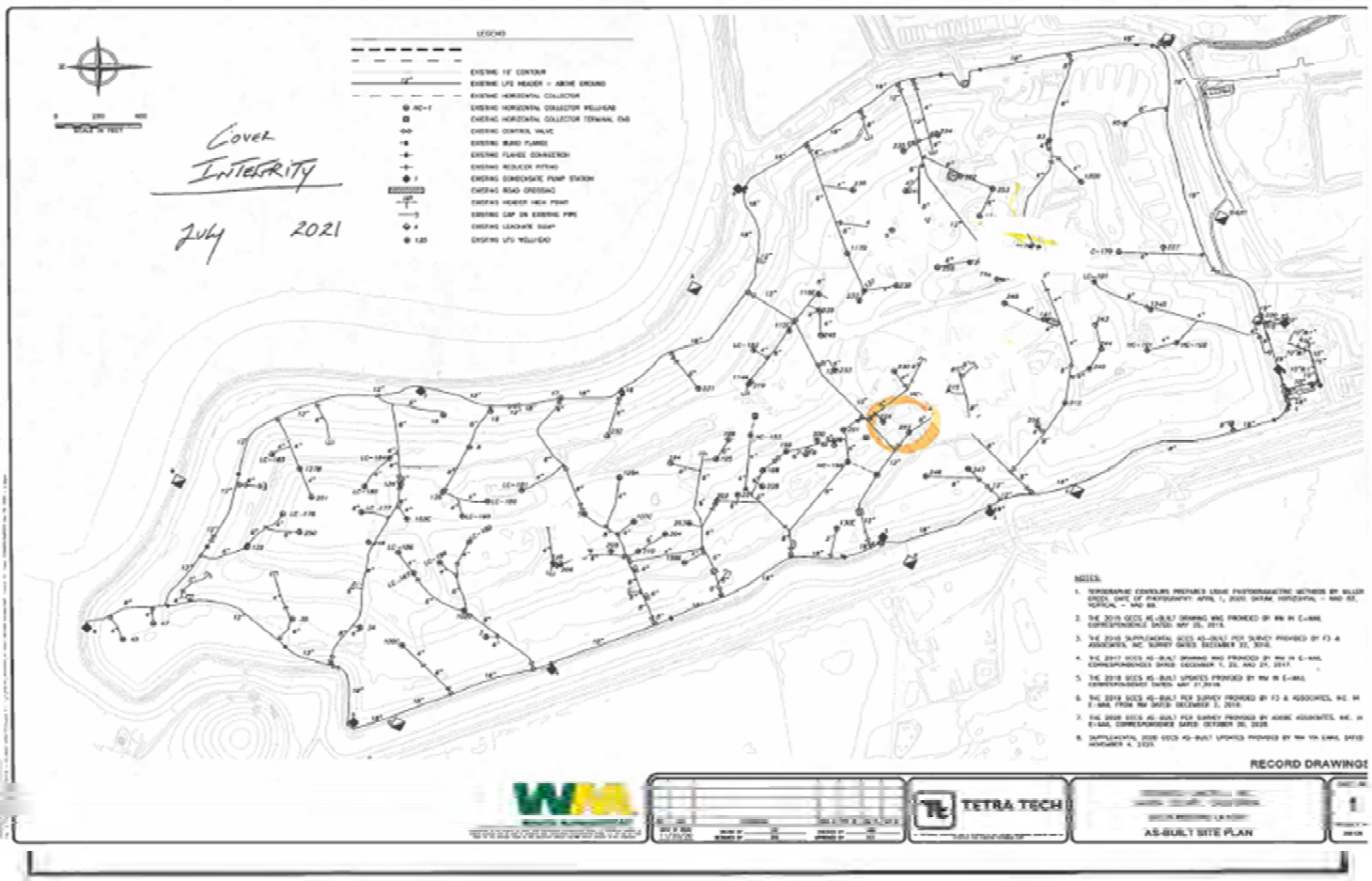
Facility	Waste Management- Redwood Landfill						
Date	6/18/2021	Received		Manager	Ramin Khany	Date	6/18/2021
Technician	S. King	Repairs Complete		Manager		Date	8-03-21
Cell/Pad	Area D (North End) Area E(Sout End)			Cell/Pad			

Description of finding and corrective action: In Area F. Additional cover is needed.Near well Z17/215/HC107. See attached map for details. 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:



Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill						
Date	7/30/2021	Received		Manager	Ramin Khany	Date	7/30/2021
Technician	M. Sotoudeh	Repairs Complete		Manager	Fred J Gibbons	Date	8-03-21
Cell/Pad	Area D (North End) Area E(Sout End)			Cell/Pad			
Description of finding and corrective action: In Area F, Additional cover is needed Near well 217/215/HC107. See attached map for details. Corrective Action: Added extra soil for cover				Description of finding and corrective action:			
Date Identified	6/18/2021	Repaired	7/12/21	Date Identified		Repaired	
Cell/Pad	Area E south border			Cell/Pad			
Description of finding and corrective action: In area E, south border, near wlls 224 and 223; needs additional cover.				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:			



WM

Monthly Cover Integrity Inspection Form

Facility	Waste Management - Redwood Landfill						
Date	8/15/2021	Received		Manager	Ramin Khany	Date	8/15/2021
Technician	M. Sotoudeh	Repairs Complete		Manager	[signature]	Date	8-16-21 (RK)

Cell/Pad	Area D (North End) Area E(Sout End)	Cell/Pad	
Description of finding and corrective action: In Area F,. Additional cover is needed.Near well 217/215/HC107. See attached map for details. Corrective Action: Added extra soil for cover		Description of finding and corrective action:	
Date Identified: 6/18/2021	Repaired: 7/12/21	Date Identified:	Repaired:
Cell/Pad	Area E south border	Cell/Pad	
Description of finding and corrective action: In area E, south border, near wlls 224 and 223; needs additional cover. Corrective Action: Added extra soil for cover		Description of finding and corrective action:	
Date Identified:	Repaired: 8/15/2021	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:

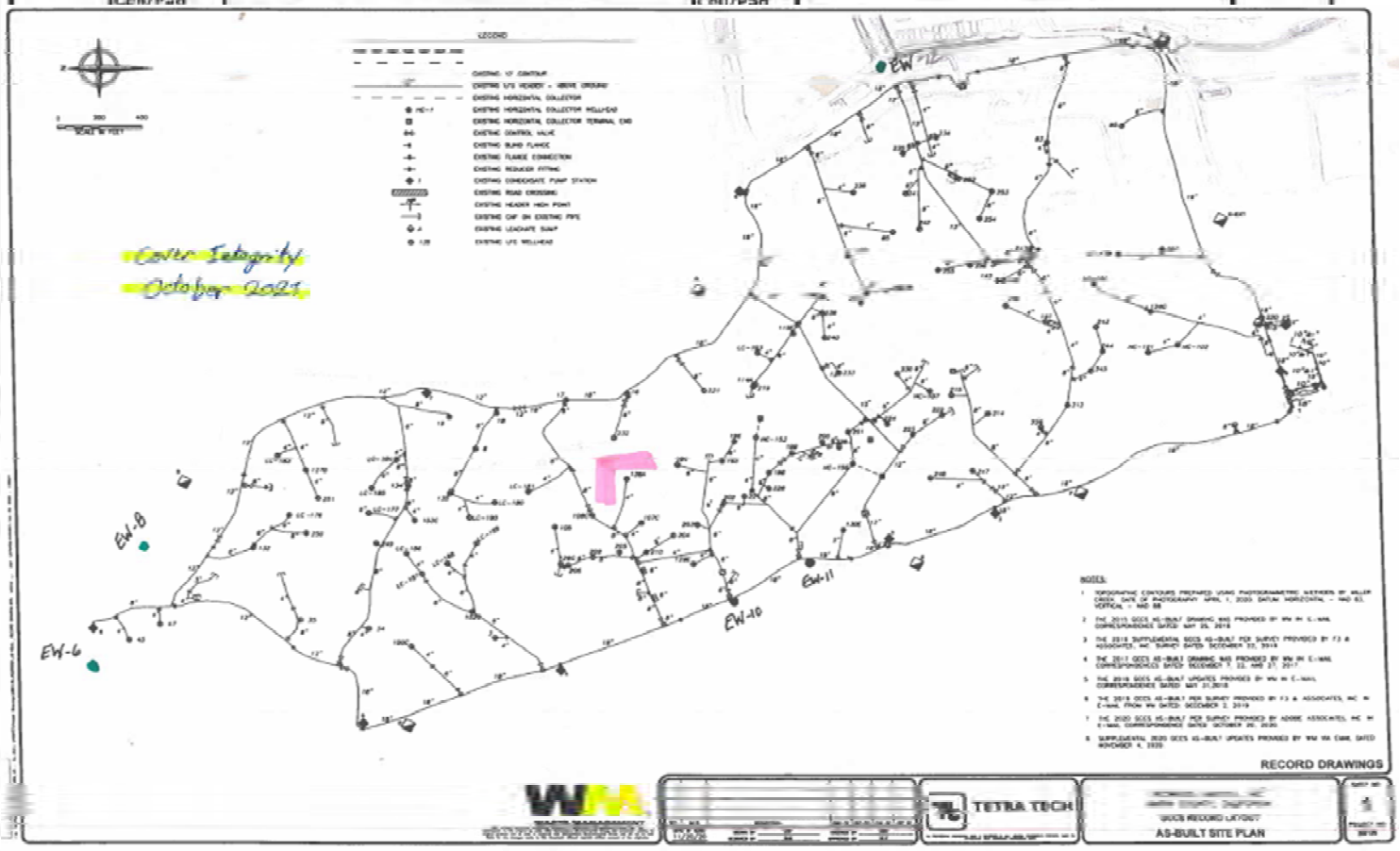
Monthly Cover Integrity Inspection Form

Facility	Waste Management- Redwood Landfill				
Date	9/28/2021	Received	Manager	[signature]	Date 9-29/21
Technician	Mo Sotoudeh	Repairs Complete	Manager		Date

Cell/Pad	None	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
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	10/13/2021	Received		Manager	Ramin Khany	Date	
Technician	M. Sotoudeh	Repairs Complete		Manager	[signature]	Date	10/29/21
Cell/Pad	Area D (North End) Area E(Sout End)			Cell/Pad			
Description of finding and corrective action: In Area A, Additional cover is needed Near well 128A. See attached map for details. Corrective Action: Added extra soil for cover ✓				Description of finding and corrective action:			
Date Identified		Repaired		Date Identified		Repaired	
Cell/Pad	Area E south border			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			



APPENDIX H

SURFACE EMISSIONS MONITORING / COMPONENT LEAK

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

June 15, 2021

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

Re: Second Quarter 2021 Surface Emissions and Component Leak Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)"** contains the results of the Second Quarter 2021 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).

- 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.

SECOND QUARTER 2021 SEM AND COMPONENT LEAK RESULTS

The following is a summary of the SEM and component leak monitoring results completed for the Second Quarter 2021.

Instantaneous Surface Emissions Monitoring Results

The Instantaneous surface monitoring was performed on May 5 and 6, 2021 in accordance with the NSPS, BAAQMD 8-34, and CCR Title 17 §95469 and ACO. Results and data from the monitoring are presented in Attachment A. Additional monitoring was performed on May 18, 19, and 20, 2021.

Initial Monitoring Event Exceedances of 500 ppm_v

There were thirty-three (33) exceedances of 500 ppm_v as methane detected on May 5, 2021. There were fourteen (14) additional exceedances of 500 ppm_v as methane detected during additional monitoring on May 18, 19, and 20, 2021. Corrective actions to initiate repairs of the exceedances were completed within five days for all locations.

First Ten-Day Re-Monitoring Results

The first 10-day re-monitoring was completed on May 6, 11, 12, 19, and 20, 2021. All locations were observed at less than 500 ppm_v as methane except for exceedance flag numbers 78 and 84.

Second Ten-Day Re-Monitoring Results

Corrective actions were implemented and flag numbers 78 and 84 were below 500 ppm_v as methane upon the 2nd 10-day remonitoring on May 27, 2021.

One-Month Re-Monitoring Results

The 1-month re-monitoring event was completed on June 2 and 3, 2021. All locations were observed at less than 500 ppm_v.

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

There were no readings between 200 ppm_v and 499 ppm_v as methane detected during the initial monitoring event on May 5 and 6, 2021. Pursuant to CCR Title 17 §95471(c), instantaneous surface emissions exceeding 200 ppm_v but below 500 ppm_v are required to be recorded.

Integrated Surface Emissions Monitoring Results

The Integrated surface sampling (ISS) was performed on May 3, 4, and 6, 2021 in accordance with the ACO and requirements outlined in CCR Title 17 §95469.

Initial Monitoring Event Exceedances of 25 ppm_v

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

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

Component Leak Monitoring Results

Component leak monitoring was conducted per the applicable requirements on May 5, 19, and 20, 2021. Two leaks greater than 500 ppm_v were detected. One at the Engine Plant's compressor pressure relief valve vent (May 19, 2021) and the other at the Engine Plant's hatch to the Willexa treatment tank (May 20, 2021). Corrective actions were performed and all leaks had less than 500 ppm_v upon the first remonitoring on May 25 and 26, 2021. Please see Attachment C, for details.

WEATHER CONDITIONS

Wind Speed Conductions during the Surface Emission Monitoring Events

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

Precipitation Requirements

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

EQUIPMENT CALIBRATION

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

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

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

Thank you,
Waste Management

Michael Chan
Environmental Protection Specialist

Attachment A – Instantaneous Surface Emission Monitoring Event Records

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

Attachment B – Integrated Surface Emission Monitoring Event Records

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

Attachment C – Component Leak Monitoring Event Records

- Component Leak Exceedances and Monitoring Logs

Attachment D – Weather Station Data

- Strip Chart Data

Attachment E – Calibration Records

- Instrument and Gas Calibration Records

Attachment A

Instantaneous Surface Emission Monitoring Event Records

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

2021 QUARTER: 2
PERFORMED BY: RES
LANDFILL NAME: Redwood Landfill, Inc.

Grid Number	Flag Number	Date of Monitoring	Concentration of Emission (ppm_v)	Comments
53	1	5/5/2021	600	white cap 27
48	2	5/5/2021	3,300	surface
43	3	5/5/2021	600	cap well 16
43	4	5/5/2021	10,000	cap well 17
15	5	5/5/2021	40,000	white cap well
7	6	5/5/2021	1,000	capped pipe
3	7	5/5/2021	500	black cap well
10	8	5/5/2021	4,200	black pipe
82	9	5/5/2021	800	well 52-220
82	10	5/5/2021	900	well N-1
175	11	5/5/2021	5,000	Well ew11
197	12	5/5/2021	18,000	white cap 76
161	13	5/5/2021	2,500	black capped pipe
136	14	5/5/2021	35,000	surface road
136	15	5/5/2021	16,000	black pipe
127	16	5/5/2021	3,200	black pipe 52
50	17	5/5/2021	5,500	well 142
46	18	5/5/2021	1,200	well 217
26	21	5/5/2021	500	well 120
4	41	5/5/2021	2,000	surface
4	42	5/5/2021	6,000	surface
92	43	5/5/2021	1,500	well 245
25	44	5/5/2021	1,900	well 253
43	61	5/5/2021	1,000	surface
68	62	5/5/2021	1,200	Well 243
166	63	5/5/2021	507	well 203
166	64	5/5/2021	510	surface
157	65	5/5/2021	1,100	well 107
174	66	5/5/2021	502	well 205
173	67	5/5/2021	900	well 206
173	68	5/5/2021	18,000	well 126
187	69	5/5/2021	900	well 102
128	70	5/5/2021	1,000	well 127
89	71	5/18/2021	1,400	well 231
162	72	5/18/2021	595	Well 132
148	73	5/18/2021	1,595	well 180
164	74	5/18/2021	860	well 186
163	75	5/18/2021	850	well 249
122	76	5/18/2021	1,000	well 225
88	77	5/18/2021	1,005	well 16
Perimeter	78	5/18/2021	3,600	Drum and electrical panel
134	79	5/18/2021	3,900	well 247
156	80	5/19/2021	1,942	Well 105
60	81	5/19/2021	4,329	well 246
102	82	5/19/2021	1,963	well 214
91	83	5/19/2021	934	well 215
Perimeter	84	5/20/2021	1,339	Exposed vault - A5 on perimeter
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)

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: Ben Tarver and Rick Reed

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
1	5/5/2021	600	5/6/2021	Tightened cap	5/6/2021	18					6/2/2021	40		white cap 27
2	5/5/2021	3,300	5/6/2021	Compacted Soil	5/6/2021	112					6/2/2021	43		surface
3	5/5/2021	600	5/6/2021	Compacted Soil	5/12/2021	12					6/2/2021	39		cap well 16
4	5/5/2021	10,000	5/6/2021	Compacted Soil	5/11/2021	246					6/2/2021	18		cap well 17
5	5/5/2021	40,000	5/6/2021	Compacted Soil	5/11/2021	4					6/2/2021	5		white cap well
6	5/5/2021	1,000	5/6/2021	Compacted Soil	5/11/2021	2					6/2/2021	4		capped pipe
7	5/5/2021	500	5/6/2021	Compacted Soil	5/6/2021	2					6/2/2021	12		black cap well
8	5/5/2021	4,200	5/6/2021	Compacted Soil	5/11/2021	9					6/2/2021	32		black pipe
9	5/5/2021	800	5/6/2021	Compacted Soil	5/6/2021	6					6/2/2021	315		well 52-220
10	5/5/2021	900	5/6/2021	Compacted Soil	5/6/2021	70					6/2/2021	147		well N-1
11	5/5/2021	5,000	5/6/2021	Compacted Soil	5/11/2021	146					6/3/2021	5		Well ew11
12	5/5/2021	18,000	5/6/2021	Compacted Soil	5/12/2021	442					6/2/2021	53		white cap 76
13	5/5/2021	2,500	5/6/2021	Compacted Soil	5/12/2021	89					6/2/2021	261		black capped pipe
14	5/5/2021	35,000	5/6/2021	Compacted Soil	5/12/2021	23					6/2/2021	14		surface road
15	5/5/2021	16,000	5/6/2021	Compacted Soil	5/12/2021	57					6/2/2021	80		black pipe
16	5/5/2021	3,200	5/6/2021	Compacted Soil	5/12/2021	26					6/2/2021	58		black pipe 52
17	5/5/2021	5,500	5/6/2021	Increased Vacuum	5/6/2021	2					6/2/2021	1		well 142
18	5/5/2021	1,200	5/6/2021	Increased Vacuum	5/6/2021	3					6/2/2021	2		well 217
21	5/5/2021	500	5/6/2021	Watered and compacted soil	5/12/2021	491					6/2/2021	6		well 120
41	5/5/2021	2,000	5/6/2021	Compacted Soil	5/6/2021	12					6/2/2021	12		surface
42	5/5/2021	6,000	5/6/2021	Compacted Soil	5/6/2021	110					6/2/2021	8		surface
43	5/5/2021	1,500	5/6/2021	Increased Vacuum	5/6/2021	180					6/2/2021	15		well 245
44	5/5/2021	1,900	5/6/2021	Increased Vacuum	5/6/2021	0					6/2/2021	0		well 253
61	5/5/2021	1,000	5/6/2021	Compacted Soil	5/6/2021	22					6/2/2021	10		surface
62	5/5/2021	1,200	5/6/2021	Increased Vacuum	5/6/2021	4					6/2/2021	118		Well 243
63	5/5/2021	507	5/6/2021	Increased vacuum and compacted soils	5/6/2021	20					6/2/2021	4		well 203
64	5/5/2021	510	5/6/2021	Compacted Soil	5/6/2021	280					6/3/2021	9		surface
65	5/5/2021	1,100	5/6/2021	Increased Vacuum	5/6/2021	22					6/2/2021	185		well 107
66	5/5/2021	502	5/6/2021	Increased Vacuum	5/6/2021	0					6/2/2021	5		well 205
67	5/5/2021	900	5/6/2021	Increased vacuum and compacted soils	5/6/2021	0					6/2/2021	74		well 206
68	5/5/2021	18,000	5/6/2021	Increased vacuum and compacted soils	5/6/2021	5					6/2/2021	175		well 126
69	5/5/2021	900	5/6/2021	Increased Vacuum	5/6/2021	0					6/3/2021	5		well 102
70	5/5/2021	1,000	5/6/2021	Increased vacuum and compacted soils	5/6/2021	253					6/3/2021	12		well 127
71	5/18/2021	1,400	5/19/2021	Increased Vacuum	5/20/2021	3					6/2/2021	3		well 231
72	5/18/2021	595	5/19/2021	Increased Vacuum	5/20/2021	48					6/2/2021	4		Well 132
73	5/18/2021	1,595	5/19/2021	Increased Vacuum	5/20/2021	83					6/2/2021	53		well 180

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

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: Ben Tarver and Rick Reed

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
74	5/18/2021	860	5/19/2021	Increased Vacuum	5/20/2021	67					6/2/2021	43		well 186
75	5/18/2021	850	5/19/2021	Increased Vacuum	5/20/2021	65					6/2/2021	3		well 249
76	5/18/2021	1,000	5/19/2021	Increased Vacuum	5/19/2021	180					6/2/2021	4		well 225
77	5/18/2021	1,005	5/19/2021	Increased Vacuum	5/19/2021	22					6/3/2021	6		well 16
78	5/18/2021	3,600	5/19/2021	Added Soil and Compacted Soil	5/20/2021		651	5/27/2021	318		6/2/2021	12		Drum and electrical panel
79	5/18/2021	3,900	5/20/2021	Added bentonite and water	5/20/2021	3					6/2/2021	43		well 247
80	5/19/2021	1,942	5/19/2021	Compacted Soil	5/19/2021	43					6/2/2021	114		Well 105
81	5/19/2021	4,329	5/19/2021	Compacted Soil	5/20/2021	41					6/2/2021	220		well 246
82	5/19/2021	1,963	5/19/2021	Compacted Soil	5/20/2021	78					6/2/2021	127		well 214
83	5/19/2021	934	5/19/2021	Compacted Soil	5/20/2021	316					6/3/2021	6		well 215
84	5/20/2021	1,339	5/20/2021	Added Soil and Compacted Soil	5/20/2021		1339	5/27/2021	211		6/3/2021	12		Exposed vault - A5 on perimeter

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

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: Ben Tarver and Rick Reed

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**
1	5/5/2021	600	5/6/2021	18					white cap 27
2	5/5/2021	3,300	5/6/2021	112					surface
3	5/5/2021	600	5/12/2021	12					cap well 16
4	5/5/2021	10,000	5/11/2021	246					cap well 17
5	5/5/2021	40,000	5/11/2021	4					white cap well
6	5/5/2021	1,000	5/11/2021	2					capped pipe
7	5/5/2021	500	5/6/2021	2					black cap well
8	5/5/2021	4,200	5/11/2021	9					black pipe
9	5/5/2021	800	5/6/2021	6					well 52-220
10	5/5/2021	900	5/6/2021	70					well N-1
11	5/5/2021	5,000	5/11/2021	146					Well ew11
12	5/5/2021	18,000	5/12/2021	442					white cap 76
13	5/5/2021	2,500	5/12/2021	89					black capped pipe
14	5/5/2021	35,000	5/12/2021	23					surface road
15	5/5/2021	16,000	5/12/2021	57					black pipe
16	5/5/2021	3,200	5/12/2021	26					black pipe 52
17	5/5/2021	5,500	5/6/2021	2					well 142
18	5/5/2021	1,200	5/6/2021	3					well 217
21	5/5/2021	500	5/12/2021	491					well 120
41	5/5/2021	2,000	5/6/2021	12					surface
42	5/5/2021	6,000	5/6/2021	110					surface
43	5/5/2021	1,500	5/6/2021	180					well 245
44	5/5/2021	1,900	5/6/2021	0					well 253
61	5/5/2021	1,000	5/6/2021	22					surface
62	5/5/2021	1,200	5/6/2021	4					Well 243
63	5/5/2021	507	5/6/2021	20					well 203
64	5/5/2021	510	5/6/2021	280					surface
65	5/5/2021	1,100	5/6/2021	22					well 107
66	5/5/2021	502	5/6/2021	0					well 205
67	5/5/2021	900	5/6/2021	0					well 206
68	5/5/2021	18,000	5/6/2021	5					well 126
69	5/5/2021	900	5/6/2021	0					well 102
70	5/5/2021	1,000	5/6/2021	253					well 127
71	5/18/2021	1,400	5/20/2021	3					well 231
72	5/18/2021	595	5/20/2021	48					Well 132
73	5/18/2021	1,595	5/20/2021	83					well 180
74	5/18/2021	860	5/20/2021	67					well 186
75	5/18/2021	850	5/20/2021	65					well 249
76	5/18/2021	1,000	5/19/2021	180					well 225
77	5/18/2021	1,005	5/19/2021	22					well 16
78	5/18/2021	3,600	5/20/2021		651	5/27/2021	318		Drum and electrical panel
79	5/18/2021	3,900	5/20/2021	3					well 247
80	5/19/2021	1,942	5/19/2021	43					Well 105
81	5/19/2021	4,329	5/20/2021	41					well 246
82	5/19/2021	1,963	5/20/2021	78					well 214

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

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: Ben Tarver and Rick Reed

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**
83	5/19/2021	934	5/20/2021	316					well 215
84	5/20/2021	1,339	5/20/2021		1339	5/27/2021	211		Exposed vault - A5 on perimeter

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

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY:

LANDFILL NAME: Redwood Landfill, Inc.

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

N

0 200 400
SCALE IN FEET

LEGEND

PROPERTY BOUNDARY
APPROXIMATE WASTE FOOTPRINT
EXISTING LFG EXTRACTION WELL
EXISTING 10' CONTOUR
105 SEM GRID BLOCK

PROPERTY LINE

APPROXIMATE WASTE FOOTPRINT

EXISTING FLARE STATION

INSTANTANEOUS 5-9-21
5-6-21

5-18-21
5-19-21
5-20-21

GRIDS MONITORED
ACTIVE HEADS
>500 ppm

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

WASTE MANAGEMENT

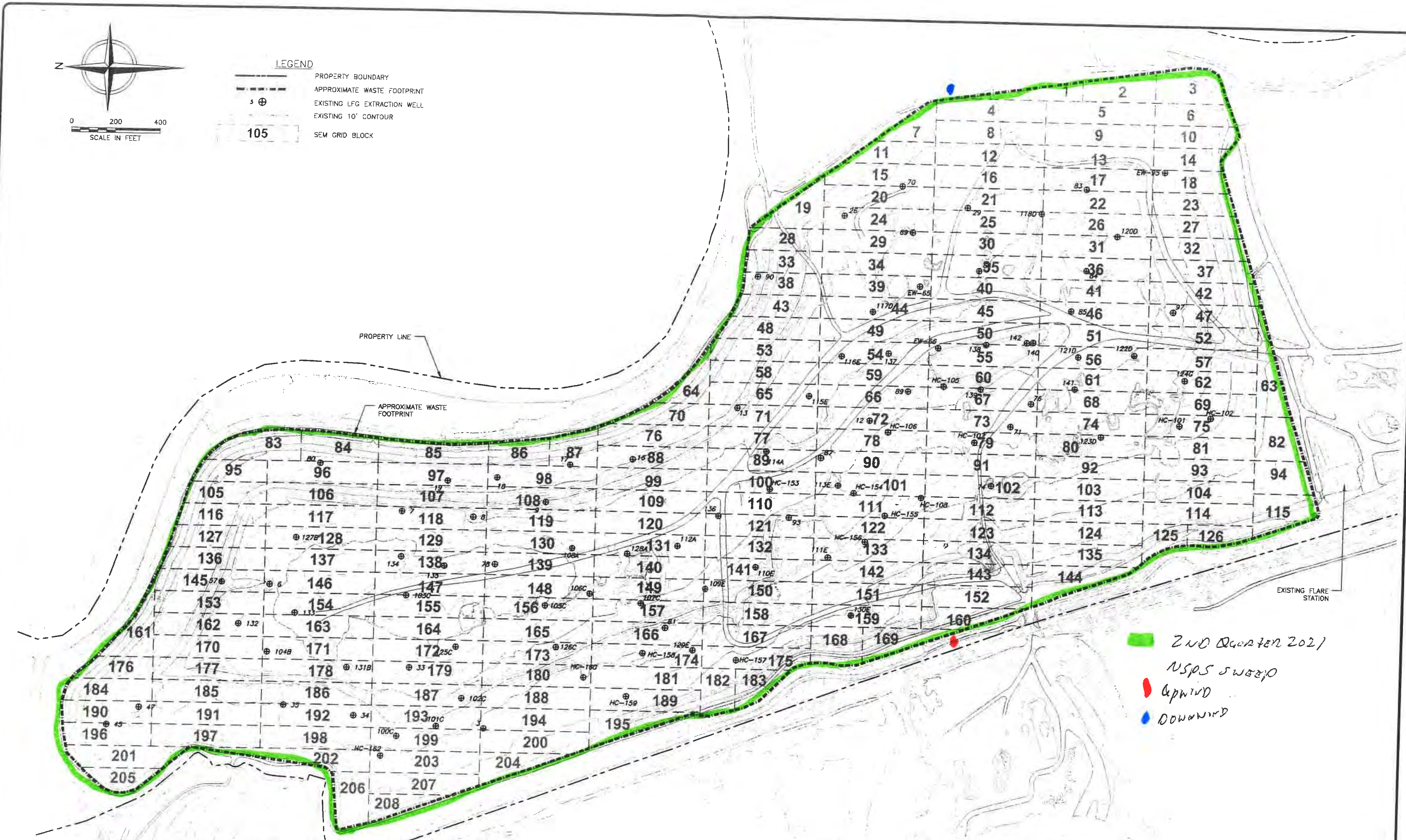
REV	DATE	DESCRIPTION	CHK BY	DES BY	CHK BY	APP BY
DATE OF ISSUE 6/24/2014		DRAWN BY RL DESIGNED BY MEH		CHECKED BY MEC APPROVED BY PJS		

cornerstone environmental
PREPARED BY:
CORNERSTONE ENVIRONMENTAL GROUP, LLC

REDWOOD LANDFILL, INC
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

SHEET NO 1
PROJECT NO



NOTES:

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

WM WASTE MANAGEMENT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
DATE OF ISSUE 6/24/2014		DRAWN BY RL / DESIGNED BY MLH		CHECKED BY MED / APPROVED BY PJS		

cornerstone environmental

PREPARED BY: CORNERSTONE ENVIRONMENTAL GROUP LLC

REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING GRID MAP

SHEET NO 1

PROJECT NO

Orange Flag Landfill Surface Emissions Monitoring
Exceedances and Monitoring Log

Site: REDWOOD

Quarter / Year:	2ND 2021
Technician:	LEIGH WADE
Instrument:	TVA1000
Calibration Standard:	500ppm

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	
61	43	1000	5-5-21										SURFACE
62	68	1200											WELL 243
63	166	507											WELL 203
64	166	510											SURFACE
65	157	1100											WELL 107
66	174	502											WELL 205
67	173	900											WELL 206
68	173	18,000											WELL 126
69	187	900											WELL 102
70	128	1,000											WELL 127
21	26	500											WELL 120
41	4	2,000											SURFACE
42	4	6,000											SURFACE
43	92	1500											WELL 245
44	25	1900											WELL 253
1	53	600											WHITE CAP 27
2	48	3300											SURFACE
3	43	600											CAP WELL 16
4	43	10,000											CAP WELL 17
5	15	40,000											WHITE CAP WELL
6	7	1,000											CAP/PIPE
7	3	500											BLACK CAP WELL
8	10	4260											BLACK PIPE
9	82	800											WELL 52-220
10	82	900											WELL N-1

Orange Flag Landfill Surface Emissions Monitoring
Exceedances and Monitoring Log

Site: REDWOOD

												Page 2 of 2 Pages
Quarter / Year:	2ND 2021											
Technician:	LEIGHWADE											
Instrument:	TVA 1000											
Calibration Standard:	500 ppm											
Initial Monitoring Event				First Re-Monitoring Event - 10 Days			Second Re-Monitoring Event - 10 Days			30-Day Follow-up Monitoring			Comments
Flag Number	Grid Number	Field Reading (ppm)	Date Monitored	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	
~~0-~~ 11	175	5000	5-5-21										WELL EW 11
~~0-~~ 12	197	18,000	↓										WHITE CAP 76
~~0-~~ 13	161	2500											BLACK CAPPED PIPE
~~0-~~ 14	136	35,000											SURFACE - ROAD
~~0-~~ 15	136	16,600											BLACK PIPE
~~0-~~ 16	127	3200											BLACK PIPE 52
~~0-~~ 17	50	5500											WELL 142
~~0-~~ 18	46	1200	↓										WELL 217
0-													
0-													
0-													
0-													
0-													
0-													
0-													
0-													
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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LESLIE WYATT, JESSE MANNING, ORAN PINKARD II, NICK DAVIS

Date: 5-5-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 52 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
1	LW	0530	0545	11	4	5	4	
2	OP	0530	0545	14	4	5	4	
3	NB	0530	0545	500	4	5	4	BLACK CAP WELL
4	JM	0530	0545	6000	4	5	4	SURFACE
5	LW	0545	0600	13	3	5	4	
6	OP	0545	0600	9	3	5	4	
7	NB	0545	0600	1000	3	5	4	CAPPED PIPE
8	JM	0545	0600	14	3	5	4	
9	LW	0600	0615	21	2	4	12	
10	OP	0600	0615	4200	2	4	12	BLACK PIPE
11	NB	0600	0615	16	2	4	12	
12	JM	0600	0615	24	2	4	12	
13	LW	0615	0630	19	2	3	12	
14	OP	0615	0630	28	2	3	12	
15	NB	0615	0630	40,000	2	3	12	WHITE CAP WELL
16	JM	0615	0630	25	2	3	12	
17	LW	0630	0645	21	2	3	12	
18	OP	0630	0645	31	2	3	12	
19	NB	0630	0645	11	2	3	12	
20	JM	0630	0645	71	2	3	12	
21	LW	0645	0700	106	2	3	5	
22	OP	0645	0700	47	2	3	15	
23	NB	0645	0700	29	2	3	15	
24	JM	0645	0700	65	2	3	5	
25	LW	0700	0715	1900	3	4	7	WELL 253
26	OP	0700	0715	500	3	4	7	WELL 120
27	NB	0700	0715	19	3	4	7	
28	JM	0700	0715	31	3	4	7	
29	LW	0715	0730	19	3	4	7	
30	OP	0715	0730	54	3	4	7	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leis Iwaor | Jesse Mennig
Omar Pereira
Nick Benks

Date: 5-9-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 56 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
31	NB	0715	0730	27	3	4	7	
32	JM	0715	0730	21	3	4	7	
33	LW	0730	0745	46	3	5	7	
34	OP	0730	0745	97	3	5	7	
35	NB	0730	0745	29	3	5	7	
36	JM	0730	0745	25	3	5	7	
37	LW	0745	0800	31	3	4	7	
38	OP	0745	0800	57	3	4	7	
39	NB	0745	0800	27	3	4	7	
40	JM	0745	0800	46	3	4	7	
41	LW	0800	0815	39	3	5	7	
42	OP	0800	0815	20	3	5	7	
43	NB	0800	0815	10,000	3	5	7	Capped well 17
44	JM	0800	0815	36	3	5	7	
45	LW	0815	0830	77	4	6	4	
46	OP	0815	0830	1200	4	6	4	Well 217
47	NB	0815	0830	30	4	6	4	
48	JM	0815	0830	3300	4	6	4	Surface
49	LW	0830	0845	65	4	6	4	
50	OP	0830	0845	5500	4	6	4	Well 142
51	NB	0830	0845	29	4	6	4	
52	JM	0830	0845	20	4	6	4	
53	LW	0845	0900	600	3	5	4	White cap 27
54	OP	0845	0900	69	3	5	4	
55	NB	0845	0900	71	3	5	4	
56	JM	0845	0900	21	3	5	4	
57	LW	0900	0915	14	4	5	4	
61	OP	0900	0915	45	4	5	4	
62	NB	0900	0915	27	4	5	4	
63	JM	0900	0915	39	4	5	4	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 6

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Woo, Jesse Manning, Owen Powell, Nicle Bemis

Date: 5-5-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 61 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
68	LW	0915	0930	1200	4	5	N	WELL 243
69	OP	0915	0930	39	4	5	N	
74	NB	0915	0930	29	4	5	N	
75	JM	0915	0930	36	4	5	N	
80	LW	0930	0945	29	4	5	N	
81	OP	0930	0945	37	4	5	N	
82	NB	0930	0945	900	4	5	N	WELL N-1
92	JM	0930	0945	1500	4	5	N	WELL 245
93	LW	0945	1000	31	4	6	8	
94	OP	0945	1000	18	4	6	8	
103	NB	0945	1000	17	4	6	8	
104	JM	0945	1000	24	4	6	8	
113	LW	1000	1015	34	3	4	8	
114	OP	1000	1015	28	3	4	8	
115	NB	1000	1015	31	3	4	8	
124	JM	1000	1015	17	3	4	8	
125	LW	1015	1030	28	3	4	8	
126	OP	1015	1030	21	3	4	8	
135	NB	1015	1030	82	3	4	8	
144	JM	1015	1030	27	3	4	8	
143	LW	1030	1045	110	4	6	8	
134	OP	1030	1045	57	4	6	8	
152	NB	1030	1045	49	4	6	8	
160	JM	1030	1045	24	4	6	8	
150	LW	1045	1100	39	4	6	8	
151	OP	1045	1100	72	4	6	8	
158	NB	1045	1100	37	4	6	8	
159	JM	1045	1100	58	4	6	8	
168	LW	1130	1145	32	4	6	8	
169	OP	1130	1145	21	4	6	8	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Woods, Jesse Manning, Omar Portillo, Nick Benito

Date: 5-5-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 74 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
167	ND	1130	1145	24	4	6	8	
175	JM	1130	1145	5,000	4	6	8	WELL EW 11
182	LW	1145	1200	27	4	6	8	
183	OP	1145	1200	41	4	6	8	
148	ND	1145	1200	37	4	6	8	
149	JM	1145	1200	51	4	6	8	
156	LW	1200	1215	43	3	5	8	
157	OP	1200	1215	1100	3	5	8	WELL 107
165	ND	1200	1215	39	3	5	8	
166	JM	1200	1215	510	3	5	8	SURFACE
173	LW	1215	1230	18,000	3	5	8	WELL 126
174	OP	1215	1230	502	3	5	8	WELL 205
180	ND	1215	1230	54	3	5	8	
181	JM	1215	1230	39	3	5	8	
188	LW	1230	1245	45	4	4	5	
189	OP	1230	1245	65	4	6	8	
194	ND	1230	1245	41	4	6	8	
195	JM	1230	1245	26	4	6	8	
200	LW	1245	1300	35	4	6	8	
204	OP	1245	1300	27	4	6	8	
208	ND	1245	1300	39	4	6	8	
207	JM	1245	1300	18	4	6	8	
206	LW	1300	1315	24	4	8	8	
202	OP	1300	1315	26	4	8	8	
203	ND	1300	1315	31	4	8	8	
198	JM	1300	1315	47	4	8	8	
199	LW	1315	1330	61	4	10	9	
192	OP	1315	1330	45	4	10	9	
193	ND	1315	1330	51	4	10	9	
186	JM	1315	1330	71	4	10	9	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Chris Lundy, Jesse Manning, Orlando Perez, Nick Banks

Date: 5-5-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 81 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
187	CW	1330	1345	900	4	9	9	Well 102
178	op	1330	1345	45	4	9	9	
179	ND	1330	1345	61	4	9	9	
171	JM	1330	1345	39	4	9	9	
172	CW	1345	1400	106	4	10	9	
163	op	1345	1400	94	4	10	9	
164	ND	1345	1400	54	4	10	9	
154	JM	1345	1400	39	4	10	9	
155	CW	1400	1415	71	4	10	9	
205	op	1400	1415	45	4	10	9	
201	ND	1400	1415	61	4	10	9	
196	JM	1400	1415	32	4	10	9	
197	CW	1415	1430	18,000	4	9	8	whitecap 76
190	op	1415	1430	38	4	9	8	
191	ND	1415	1430	26	4	9	8	
184	JM	1415	1430	51	4	9	8	
185	CW	1430	1445	46	4	11	8	
176	op	1430	1445	25	4	11	8	
177	ND	1430	1445	31	4	11	8	
170	JM	1430	1445	39	4	11	8	
161	CW	1445	1500	2500	4	11	8	Biogic pipe
162	op	1445	1500	38	4	11	8	
153	ND	1445	1500	54	4	11	8	
145	JM	1445	1500	58	4	11	8	
146	CW	1500	1515	43	4	11	8	
143	op	1500	1515	75	4	11	8	
136	ND	1500	1515	35,000	4	11	8	SURFACE - ROAD
137	JM	1500	1515	51	4	11	8	
138	CW	1515	1530	79	4	11	8	
127	op	1515	1530	3200	4	11	8	Biogic pipe 52

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leish Wade; Jesse Manning; Omar Pereira; Nick Benks

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

Temperature: 82 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
128	NB	1515	1530	1,000	4	11	8	well 127
129	JM	1515	1530	45	4	11	8	
116	LW	1530	1545	39	4	9	8	
117	OP	1530	1545	82	4	9	8	
118	NB	1530	1545	40	4	9	8	
105	JM	1530	1545	71	4	9	8	
106	LW	1545	1600	54	4	10	8	
107	OP	1545	1600	32	4	10	8	
95	NB	1545	1600	64	4	10	8	
96	JM	1545	1600	31	4	10	8	
97	LW	1600	1615	21	4	11	8	
83	OP	1600	1615	89	4	11	8	
84	NB	1600	1615	157	4	11	8	
85	JM	1600	1615	118	4	11	8	
86	LW	1615	1630	54	4	11	9	
87	OP	1615	1630	37	4	11	9	
98	NB	1615	1630	39	4	11	9	
108	JM	1615	1630	59	4	11	9	
119	LW	1630	1645	72	4	11	8	
130	OP	1630	1645	95	4	11	8	
139	NB	1630	1645	51	4	11	8	
140	JM	1630	1645	36	4	11	8	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEIGHWADE _____ _____ _____
_____ _____ _____
_____ _____ _____

Date: 5-5-21 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	
60								ACTIVE-HR984
67								
73								
79								
91								
102								
112								
123								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Jesse Bernal, Omar Peralta, Nick Banks

Date: 5-6-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 47 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
141	LW	0530	0545	57	4	8	8	
142	OP	0530	0545	71	4	8	8	
131	ND	0530	0545	41	4	8	8	
132	JB	0530	0545	54	4	8	8	
133	LW	0545	0600	97	4	10	8	
120	OP	0545	0600	25	4	10	8	
121	ND	0545	0600	64	4	10	8	
122	JB	0545	0600	71	4	10	8	
109	LW	0600	0615	39	4	10	8	
110	OP	0600	0615	66	4	10	8	
111	ND	0600	0615	117	4	10	8	
99	JB	0600	0615	54	4	10	8	
100	LW	0615	0630	78	4	10	8	
101	OP	0615	0630	126	4	10	8	
88	ND	0615	0630	71	4	10	8	
89	JB	0615	0630	62	4	10	8	
90	LW	0630	0645	57	4	11	9	
76	OP	0630	0645	79	4	11	9	
77	ND	0630	0645	54	4	11	9	
78	JB	0630	0645	66	4	11	9	
70	LW	0645	0700	94	4	10	9	
71	OP	0645	0700	58	4	10	9	
72	ND	0645	0700	75	4	10	9	
64	JB	0645	0700	58	4	10	9	
65	LW	0700	0715	60	4	10	8	
66	OP	0700	0715	47	4	10	8	
58	ND	0700	0715	72	4	10	8	
59	JB	0700	0715	59	4	10	8	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

SITE: REDWOOD LANDFILL DATE: 2ND QUARTOR

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
BLACK PIPE	1	3.07		
LW 1312	1	2.83		
METAL PIPE	1	2.47		
BLUE PIPE	2	2.21		
RUSTED PIPE	2	2.66		
BLACK CAP PIPE	2	2.72		
WHITE CAP PIPE	3	3.15		
BLACK CAP PIPE	3	500.		
BLACK CAP PIPE	3	2.80		
White Cap Pipe	3	3.0		
CAPPED WELL	4	3.61		
CAPPED PIPE	4	3.54		
CAPPED WELL	4	4.75		
CAPPED WELL 5	4	4.20		
CAPPED WELL 6	4	4.66		

SITE: RENSWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	5			
NONE	6			
PIPE 5	7	1000.		
EW12	7	3.0		
PIPE 6	7	2.70		
PIPE 7	7	3.21		
Blackcap	7	3.8		
		.		
NONE 8				
NONE 9				

SITE: RENWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
CAPPED BLACK PIPE	10	4/200.		
NONE	11			
WELL 234	12			
NONE	13			
NONE	14			
WELL 235	15	59		
WHITECAP WELL		40,000		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	16			
234		12		
WELL 83	17	6		
WELL 95	18	7		
BLACK PIPE	19	3.27		
NONE	20			
NONE	21			

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
None	22			
None	23			
Well 236	24	14		
Well 232	25	130		
None	26			
Well No	26	500 ppm		
None	27			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
PIPE 8	28	3.47		
WELL 241	29	6.45		
WELL 253	30	19		
CAPPED WELL 10	31	19		
WELL 120	32	500		
NONE	32			
NONE	33			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 65	34	.15		
WELL 254	35	1.99		
NONE	36			
NONE	37			
NONE	38			
NONE	39			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 242	40	9.32		
NONE	41			
NONE	42			
NONE	43			
Cap Pipe 16	43	600.		
Cap Pipe 17	43	10.000.		
WELL 117	44	15		
NONE	45			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 217	46	1200.		
WELL 227	47	2.13		
WELL 179	47	10		
METAL CAP PIPE	47	12		
PIPE 16	47	2.84		
PIPE 18	47	2.76		
NONE	48			
Black Pipe 47	48	130.		
Surface	48	3300.		
NONE	49			
WELL 255	50	2.40		
WELL 256	50	3.12		
WELL 142	50	5500.		
WELL 140	50	184.		
Blackpipe	50	5.60		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	S1			
NONE	S2			
NONE	S3			
White Cap Pipe 27	S3	600.		
WELL 238	S4	4.7		
WELL 137	S4	8.61		
WELL 237	S4	26		
NONE	S5			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 191	56	14		
NONE	57			
NONE	58			
NONE	59			
NONE	60			ACTIVE
NONE	61			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 124	62	14		
NODE	63			
HLA3	64	5.9		
CAPPED PIPE 21	64	7.8		
CAPPED PIPE 22	64	10.2		
CAPPED PIPE 23	64	4.9		
TD 1243	64	6.8		
BLACK CAP PIPE	64	3.91		
WELL 115	65			
NODE	66			
WELL 240	66	6.75		

SITE: REDWOOD LANDFILL **DATE:** _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NOAE	67			ACTIVE
WELL 141	68	20		
WELL 243	68	1200		
NOAE	69			
WELL 27	70			
WELL 193	71	5.9		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	72			
NONE	73			ACTIVE
NONE	74			
NONE	75			
CAPPED PIPE 28	76	5.3		
CAPPED PIPE 29	76	7.9		
NONE	77			

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	78			
well 233	78	1.89		
NONE	79			ACTIVE
well 244	80	28		
BLACK PIPE	81	16		
HC102		17		
LN-1	82	900.		
LS 220	82	800.		
BLACK CAP PIPE	82	7.5		
HLA15	83	9.7		
18VE	83	116		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
UNCAPPED PIPE	83	12		
WHITE CAP PIPE	83	17		
UNCAPPED PIPE	83	9		
BLACK PIPE 48	83	16		
Black Pipe 19	83	2.81		
BLACK PIPE 64	84	3		
UNCAPPED PIPE	84	9		
RUSTED PIPE	84	6		
ELBOW PIPE	84	10		
BLACK PIPE 42	84	27		
BLACK PIPE 43	84	157		
BLACK PIPE 36	85	59		
WHITE CAP 40	85	7		
WHITE CAP 39	85			
WHITE CAP 38	85	9		
BLACK PIPE	85			
BLACK PIPE	85	13		
WHITE CAP 33	85	21		
WHITE CAP 41	85	16		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WHITE CAP HC1	86	7		
WHITE CAP 34	86	21		
WHITE CAP 35	86	14		
BLACK CAP PIPE	86	6		
WHITE CAP 32	87			
HCA7	87	9		
WHITE CAP 17	87	2.86		
WHITE CAP 30	87	11		
Rusted Metal Pipe	87	2.90		
WELL 16	88	6		
WELL 231	89	9		
WELL 219	89	7		
WELL 114	89	12		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 230	90	9.4		
HC107	91	9.4		ACTIVE
WELL 245	92	1500		
GREASE PIPE	93			
SUMP 9	94	4.5		
Gray Cap Pipe	95	7.0		
CAPPED BLACK PIPE	95	77		
BLACK PIPE 49	95	11		
UNCAPPED PIPE	95	31		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NOAE	96			
WELL 19	97	4		
WELL 18	98	8		
NOAE	99			
NOAE	100			

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	101			
WELL 215	102	9		Active
WELL 214	103	7		
NONE	104			
BLACK PIPE S1	105	4.0		
NONE	106			

SITE: REDWOODS LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 8	107	9		
NONE	108			
WELL 232	109	7		
CAPPED WELL	110	4		
WELL 133	110	15		
WELL 224	111	7		
WELL 222	112			ACTIVE

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 212	113	8		
NONE	114			
SUMP	115	5.0		
SUMP	115	11		
BLUE CAP	115	9.0		
LW 6	116	22.		
WHITE PIPE 65	116	21		
WELL 183	117	11		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 184	118	14		
NONE	119			
NONE	120			
WELL 196	121	3.55		
WELL 200	122	9		
WELL 225	122	12		
WELL 201	122	9		
WELL 223	123			ACTIVE

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 226	124	8		
NONE	125			
Horiz Black pipe	125	2.45		
well 126		6.0		
NONE	126			
BLACK PIPE S2	127	3200.		
BLACK DRAIN	127	5		
WELL 127	128	1000		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 134	129	11		
WELL 135	130			
WELL 194	131	6.63		
WELL 195	132	3.85		
WELL 199	132	14		
WELL 198	132	5		
HC 156	133	6		
WELL 229	133	15		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	134			
NONE	135			
EW7	136	35,000		
WHITE PIPE 66	136	14		
Black Pipe 53	136	16.000		
WELL 251	137	3.88		
WELL 185	137	9		
WELL 135	138	7		
NONE	139			

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 128	140	2.20		
WELL 228	141	18		
CAPPED WELL	142	14		
WELL 156	142	6		
WELL 248	143	8		
WELL 247	143	110		
NONE	144			

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WHITE PIPE 67	145	4		
WHITE PIPE 68	145	4		
WHITE PIPE 54	145	12		
BLACK PIPE 55	145	3.80		
BLACK PIPE 56	145	58.0		
CO-5				
WELL 176	146	15		
WELL 177	146	2.81		
WELL 190	147	12		
WELL 180	148	4.00		
NONE	149			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 202	150	17		
WELL 221	150	26		
NONE	151			
NONE	152			
BLACK DIDE 58	153	12		
WELL 230	154	17		
WELL 103	155	2.67		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 105	156	3.13		
WELL 107	157	9		
WELL 106	157	2.31		
WELL 203	157	507		
WELL 204	157	12		
NONE	158			
NONE	159			
NONE	160			
Yellow Cap	160	2.38		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
UNCAPPED PIPE	161	29		
BLACK PIPE 59	161	2.80		
Black cap pipe	161	2500.		
BLACK PIPE 60	162	85		
WHITE CAP	162			
WELL 132	162	21		
WELL 249	163	7		
WELL 186	164	10		
WELL 709	165	11		

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
Well 203	166	507		
Well 210	166	41		
None	167			
Well 130	168	12		
	168			
None	169			
Sump 3	169	2.51		
None	170			
None	171			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 188	172	12		
WELL 206	173	900		
WELL 209	173	3,91		
WELL 126	173	18,000		
WELL 129	174	8		
WHITE PIPE	174	12		
NONE	175			
ENV		5,000		
WHITE PIPE 69	176	7		
WHITE PIPE 61	176	12		
WHITECAP	176	18		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	177			
NONE	178			
NONE	179			
NONE	180			
NONE	181			
FW 10	182	6.0		
METAL PIPE	182	4		
WHITE CAP	182	9		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	183			
WHITE PIPE 70	184	12		
WHITE PIPE 71	184	9		
WELL 47	184	7		
WHITE PIPE 73	184	14		
YELLOW PIPE	184	6		
SLAB PIPE	184	2.10		
BLACK PIPE	184	9		
ELBOW PIPE	184	>		
EW-7	184	1.43		
NONE	185			
NONE	186			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	187			
NONE	188			
NONE	189			
LW 8	189	2.31		
LW 9	189	2.0		
WELL 45	190	>		
WHITE CAP 74	190	12		
NONE	191			
WELL 35	192	>		
WELL 34	192	5		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
	193			
NONE	194			
WHITE PIPE	195	6		
LW 8	195	9		
LW 9	195	11		
P-32	195	2.0		
LW 11	196	12		
Yellow Cap Pipe	196	2.14		
UA CAPPED PIPE	197	4		
WHITE CAP 76	197	18,000		
UA CAPPED PIPE	197	12		
WHITE PIPE 77	197	9.0		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
BLACK PIPE 72	198	4		
WELL 100C	199	6		
WELL 3	200	4		
Sump 4	200	2.80		
Gray Cap	200	2.70		
10R	201	1.80		
12R	201	2.80		
Rusted tube	201	1.80		
BLACK PIPE 78	202	5.25		
P21	202	3.35		
CAPPED PIPE	202	17		
BLACK PIPE 79	202	3.0		
EW-3	202	11.0		
NONE	203			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	204			
EW-5	205	2.37		
P 22	205	1.50		
UNCAPPED PIPE	205	17		
UNCAPPED PIPE	205	3.80		
White Cap Pipe 24	205	10.82		
UNCAPPED PIPE	206	12		
EW 2	206	5.22		
Sump 5	206	2.06		
NONE	207			
NONE	208			
LW 2	208	3.55		
LW 3	208	3.66		

Attachment B

Integrated Surface Emission Monitoring Event Records

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

2021 QUARTER: 2
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			
Exceedance	Monitoring	Reading	Monitoring	No Exced.	No Exced.	Monitoring	No Exced.	No Exced.	
Grid ID No.	Date	ppm	Date	<25 ppm	>25 ppm	Date	<25 ppm	>25 ppm	**Comments**
No Exceedances									

N

0 200 400
SCALE IN FEET

LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE WASTE FOOTPRINT
- 5 ⊕ EXISTING LFG EXTRACTION WELL
- EXISTING 10' CONTOUR
- 105 SEM GRID BLOCK

PROPERTY LINE

APPROXIMATE WASTE FOOTPRINT

EXISTING FLARE STATION

INTEGRATED 5-3-21
5-4-21
5-6-21

GRIDS MONITORED

ACTIVE AREAS

No Exceedances

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

WASTE MANAGEMENT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
	DATE OF ISSUE 6/24/2014	DRAWN BY RL; DESIGNED BY MLH			CHECKED BY MED; APPROVED BY PJS	

cornerstone environmental

PREPARED BY: CORNERSTONE ENVIRONMENTAL GROUP, LLC

REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

SHEET NO. 1

PROJECT NO.

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Jesse Manning, Omar Pineda, Nick Banks

Cal. Gas Exp. Date: 9-21-21

Date: 5-3-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 86 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
1	LW	1230	1255	4.72	1	3	7	
2	OP	1230	1255	3.97	1	3	7	
3	ND	1230	1255	3.65	1	3	7	
4	JM	1230	1255	4.21	1	3	7	
5	LW	1255	1320	3.39	1	3	7	
6	OP	1255	1320	3.52	1	3	7	
7	ND	1255	1320	4.75	1	3	7	
8	JM	1255	1320	3.98	1	3	7	
9	LW	1320	1345	5.26	1	3	7	
10	OP	1320	1345	5.01	1	3	7	
11	ND	1320	1345	4.97	1	3	7	
12	JM	1320	1345	4.15	1	3	7	
13	LW	1345	1410	7.68	1	3	5	
14	OP	1345	1410	7.81	1	3	5	
15	ND	1345	1410	7.40	1	3	5	
16	JM	1345	1410	8.16	1	3	5	
17	LW	1410	1435	6.45	1	3	5	
18	OP	1410	1435	5.38	1	3	5	
19	ND	1410	1435	6.25	1	3	5	
20	JM	1410	1435	9.31	1	3	5	
21	LW	1435	1500	7.72	1	3	5	
22	OP	1435	1500	4.65	1	3	5	
23	ND	1435	1500	5.12	1	3	5	
24	JM	1435	1500	7.91	1	3	5	
25	LW	1500	1525	6.54	2	3	7	
26	OP	1500	1525	4.70	2	3	7	
27	ND	1500	1525	3.81	2	3	7	
28	JM	1500	1525	5.60	2	3	7	
29	LW	1525	1550	6.07	2	3	7	
30	OP	1525	1550	6.45	2	3	7	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGHWOOD, JESSE MANNING, ONANPEREIRA, NICK BENITO

Cal. Gas Exp. Date: 9-21-21

Date: 5-3-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 88 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
31	NB	1525	1550	3.81	2	3	7	
32	JM	1525	1550	3.36	2	3	7	
33	LW	1550	1615	5.61	2	3	7	
34	OP	1550	1615	7.24	2	3	7	
35	NB	1550	1615	6.18	2	3	7	
36	JM	1550	1615	4.25	2	3	7	
37	LW	1615	1640	4.17	2	3	7	
38	OP	1615	1640	6.77	2	3	7	
39	NB	1615	1640	7.98	2	3	7	
40	JM	1615	1640	6.22	2	3	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: 5-3-21 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	
60								ALL WS-TRGS
67								
73								
79								
91								
102								
112								
123								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE, JESSE MCNNING, OMER PERCIFA, NICK BANKS

Cal. Gas Exp. Date: 9-21-21

Date: 5-4-21 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 51 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
41	LW	0530	0555	4.71	3	5	6	
42	OP	0530	0555	3.60	3	5	6	
43	ND	0530	0555	4.12	3	5	6	
44	JT	0530	0555	5.66	3	5	6	
45	LW	0555	0620	6.18	3	5	6	
46	OP	0555	0620	5.92	3	5	6	
47	ND	0555	0620	3.12	3	5	6	
48	JT	0555	0620	6.37	3	5	6	
49	LW	0620	0645	6.29	3	5	6	
50	OP	0620	0645	5.32	3	5	6	
51	ND	0620	0645	4.77	3	5	6	
52	JT	0620	0645	3.24	3	5	6	
53	LW	0645	0710	4.79	2	3	7	
54	OP	0645	0710	5.60	2	3	7	
55	ND	0645	0710	6.99	2	3	7	
56	JT	0645	0710	5.01	2	3	7	
57	LW	0710	0735	3.20	4	8	7	
58	OP	0710	0735	5.43	4	8	7	
59	ND	0710	0735	5.18	4	8	7	
61	JT	0710	0735	3.21	4	8	7	
62	LW	0735	0800	4.70	4	8	7	
63	OP	0735	0800	3.33	4	8	7	
64	ND	0735	0800	4.21	4	8	7	
65	JT	0735	0800	3.18	4	8	7	
66	LW	0800	0825	6.40	4	6	7	
68	OP	0800	0825	5.49	4	6	7	
69	ND	0800	0825	4.77	4	6	7	
70	JT	0800	0825	5.29	4	6	7	
71	LW	0825	0850	6.11	4	6	7	
72	OP	0825	0850	5.74	4	6	7	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGHWOOD, JESSE MANNING, OMANPUREET, NICK DAVIES

Cal. Gas Exp. Date: 9-21-21

Date: 5-4-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 57 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
74	NB	0825	0850	3.21	4	6	7	
75	JM	0825	0850	4.81	4	6	7	
76	LW	0850	0915	4.66	3	4	6	
77	OP	0850	0915	5.50	3	4	6	
78	NB	0850	0915	6.07	3	4	6	
86	JM	0850	0915	5.90	3	4	6	
81	LW	0915	0940	4.55	3	4	7	
82	OP	0915	0940	4.18	3	4	7	
88	NB	0915	0940	5.70	3	4	7	
89	JM	0915	0940	4.61	3	4	7	
90	LW	0940	1005	5.95	4	5	8	
92	OP	0940	1005	6.57	4	5	8	
93	NB	0940	1005	4.11	4	5	8	
94	JM	0940	1005	4.75	4	5	8	
99	LW	1005	1030	5.21	4	5	7	
100	OP	1005	1030	6.55	4	5	7	
101	NB	1005	1030	5.52	4	5	7	
103	JM	1005	1030	5.70	4	5	7	
104	LW	1030	1055	4.65	3	4	7	
109	OP	1030	1055	5.37	3	4	7	
110	NB	1030	1055	5.58	3	4	7	
111	JM	1030	1055	6.24	3	4	7	
113	LW	1055	1120	4.50	3	4	8	
114	OP	1055	1120	4.97	3	4	8	
115	NB	1055	1120	3.60	3	4	8	
120	JM	1055	1120	4.57	3	4	8	
121	LW	1120	1145	5.95	2	3	8	
122	OP	1120	1145	5.77	2	3	8	
124	NB	1120	1145	4.15	2	3	8	
125	JM	1120	1145	3.66	2	3	8	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leighwood, Jesse Manning, _____
Omar Penaloza, _____, _____
Nick Banks, _____, Cal. Gas Exp. Date: 9-21-21

Date: 5-4-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 76 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
126	LW	1215	1240	4.03	4	6	N	
131	OP	1215	1240	5.16	4	6	N	
132	ND	1215	1240	4.98	4	6	N	
133	JM	1215	1240	6.21	4	6	N	
134	LW	1240	1305	7.18	4	5	N	
135	OP	1240	1305	5.42	4	5	N	
140	ND	1240	1305	6.38	4	5	N	
141	JM	1240	1305	5.97	4	5	N	
142	LW	1305	1330	6.92	3	6	N	
143	OP	1305	1330	5.08	3	6	N	
144	ND	1305	1330	4.25	3	6	N	
149	JM	1305	1330	8.21	3	6	N	
150	LW	1330	1355	10.65	4	5	N	
151	OP	1330	1355	8.77	4	5	N	
152	ND	1330	1355	6.14	4	5	N	
166	JM	1330	1355	5.94	4	5	N	
167	LW	1355	1420	6.21	4	6	N	
168	OP	1355	1420	4.28	4	6	N	
169	ND	1355	1420	5.05	4	6	N	
157	JM	1355	1420	7.24	4	6	N	
158	LW	1420	1445	6.98	4	6	N	
159	OP	1420	1445	5.14	4	6	N	
160	ND	1420	1445	5.39	4	6	N	
174	JM	1420	1445	4.60	4	6	N	
175	LW	1445	1510	5.17	4	6	N	
181	OP	1445	1510	4.50	4	6	N	
182	ND	1445	1510	3.77	4	6	N	
183	JM	1445	1510	5.84	4	6	N	
189	LW	1510	1535	5.47	3	4	N	
195	OP	1510	1535	5.10	3	4	N	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGHWOOD, JESSE MANNING, OPENPEIGHTA, NICK BENES

Cal. Gas Exp. Date: 9-21-21

Date: 5-4-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 78 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
83	ND	1510	1535	4.60	3	4	N	
84	JM	1510	1535	5.12	3	4	N	
85	LW	1535	1600	4.97	4	6	N	
86	OP	1535	1600	5.73	4	6	N	
87	ND	1535	1600	5.92	4	6	N	
95	JM	1535	1600	5.41	4	6	N	
96	LW	1600	1625	4.96	4	6	N	
97	OP	1600	1625	5.11	4	6	N	
98	ND	1600	1625	6.22	4	6	N	
105	JM	1600	1625	4.50	4	6	N	
106	LW	1625	1650	3.97	4	6	N	
107	OP	1625	1650	5.48	4	6	N	
108	ND	1625	1650	4.55	4	6	N	
116	JM	1625	1655	6.16	4	6	N	

Attach Calibration Sheet
Attach site map showing grid ID

Page 4 of 4

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Louis Wade · Nick Banks
Dan Lapinella
Jesus Lamarez · Cal. Gas Exp. Date: 9-21-21

Date: 5-6-21 Instrument Used: TVA 1000 Grid Spacing: 25

Temperature: 52 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
117	LW	0725	0750	5.31	4	8	8	
118	DP	0725	0750	4.60	4	8	8	
119	NB	0725	0750	5.28	4	8	8	
127	JR	0725	0750	5.97	4	8	8	
128	LW	0750	0815	6.34	4	8	8	
129	DP	0750	0815	5.50	4	8	8	
130	NB	0750	0815	6.17	4	8	8	
136	JR	0750	0815	5.92	4	8	8	
137	LW	0815	0840	5.50	4	8	8	
138	DP	0815	0840	4.77	4	8	8	
139	NB	0815	0840	5.68	4	8	8	
145	JR	0815	0840	5.49	4	8	8	
146	LW	0840	0905	6.24	4	6	8	
147	DP	0840	0905	5.92	4	6	8	
148	NB	0840	0905	4.60	4	6	8	
153	JR	0840	0905	5.11	4	6	8	
154	LW	0905	0930	5.92	4	6	8	
155	DP	0905	0930	4.77	4	6	8	
156	NB	0905	0930	5.98	4	6	8	
161	JR	0905	0930	4.75	4	6	8	
162	LW	0930	0955	5.60	4	7	8	
163	DP	0930	0955	6.13	4	8	7	
164	NB	0930	0955	5.95	4	8	7	
165	JR	0930	0955	6.13	4	8	7	
170	LW	0955	1020	5.77	4	6	8	
171	DP	0955	1020	6.34	4	6	8	
172	NB	0955	1020	3.01	4	6	8	
173	JR	0955	1020	2.77	4	6	8	
176	LW	1020	1045	4.50	4	6	8	
177	DP	1020	1045	4.79	4	6	8	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGH WADE, JESSE MONKS, OMAR PINEDA, NICK BANKS

Cal. Gas Exp. Date: 9-21-21

Date: 5-6-21 Instrument Used: TVA 1000 Grid Spacing: 25

Temperature: 61 Precip: 0 Upwind BG: 2.0 Downwind BG: 2.8

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
178	NB	1020	1045	4.56	4	6	8	
179	JM	1020	1045	5.21	4	6	8	
180	LW	1045	1110	5.94	4	6	7	
184	OP	1045	1110	4.60	4	6	7	
185	ND	1045	1110	4.77	4	6	7	
186	JM	1045	1110	5.95	4	6	7	
187	LW	1110	1135	7.21	4	8	7	
188	OP	1110	1135	6.14	4	8	7	
190	ND	1110	1135	6.07	4	8	7	
191	JM	1110	1135	5.50	4	8	7	
192	LW	1135	1200	4.61	4	11	7	
193	OP	1135	1200	5.13	4	11	7	
194	ND	1135	1200	4.32	4	11	7	
196	JM	1135	1200	5.80	4	11	7	
197	LW	1200	1225	4.25	4	9	7	
198	OP	1200	1225	5.02	4	9	7	
199	ND	1200	1225	5.70	4	9	7	
200	JM	1200	1225	5.12	4	9	7	
201	LW	1225	1250	4.72	4	8	8	
205	OP	1225	1250	4.67	4	8	8	
202	ND	1225	1250	4.80	4	8	8	
203	JM	1225	1250	5.49	4	8	8	
204	LW	1250	1315	5.10	4	8	8	
206	OP	1250	1315	5.60	4	8	8	
207	ND	1250	1315	4.74	4	8	8	
208	JM	1250	1315	4.55	4	8	8	

Attach Calibration Sheet
Attach site map showing grid ID

Attachment C

Component Leak Monitoring Event Records

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

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES, WM, and BAAQMD

FOLLOW-UP MONITORING PERFORMED BY: WM

LANDFILL NAME: Redwood Landfill, Inc.

Location	Initial Monitoring			Corrective Action		10-Day Remonitoring		
	Date	TOC (ppmv)	Tech	Date	Description	Date	TOC (ppmv)	Tech
Engine Plant compressor pressure relief valve vent	5/19/21	5,000	R. Reed	5/26/21	Replace Pressure Relief Valve	5/26/21	3	R. Reed
Hatch: Willexa tank	5/20/21	>1000	R. Murray BAAQMD	5/21/21	Tighten cleats on door and add sealant	5/25/21	4	R. Reed

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

2021 QUARTER: 2

INITIAL MONITORING PERFORMED BY: RES, WM, and BAAQMD

FOLLOW-UP MONITORING PERFORMED BY: WM

LANDFILL NAME: Redwood Landfill, Inc.

Location	Initial Monitoring			Corrective Action		7-Day Remonitoring		
	Date	TOC (ppmv)	Tech	Date	Description	Date	TOC (ppmv)	Tech
Engine Plant compressor pressure relief valve vent	5/19/21	5,000	R. Reed	5/26/21	Replace Pressure Relief Valve	5/26/21	3	R. Reed
Hatch: Willexa tank	5/20/21	>1000	R. Murray BAAQMD	5/21/21	Tighten cleats on door and add sealant	5/25/21	4	R. Reed

LANDFILL NAME: REDWOOD
QUARTERLY LFG COMPONENT LEAK MONITORING

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

DATE OF SAMPLING: 5-5-21
TECHNICIAN: LEIGH 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.

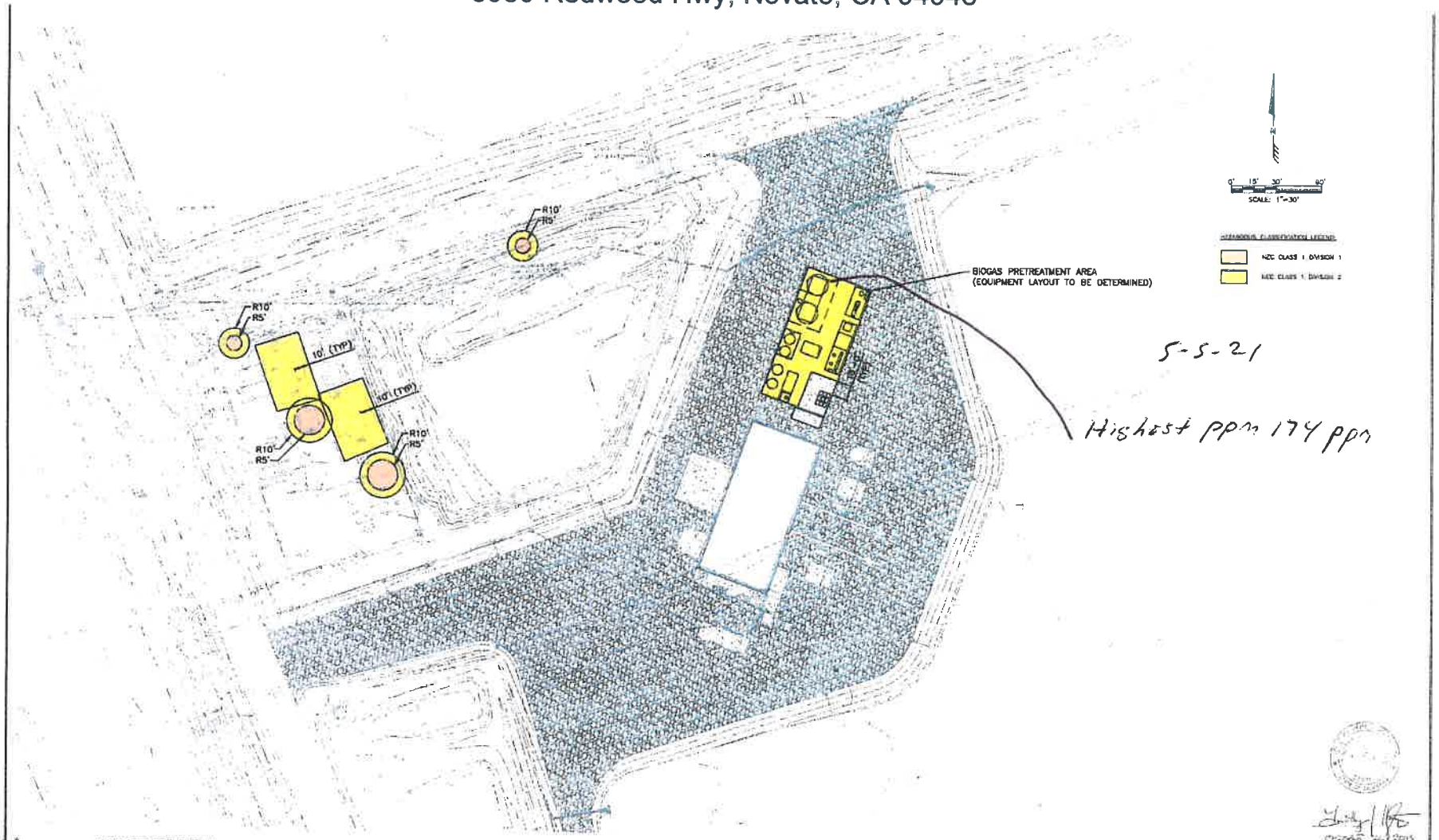
NOTE: Leaks over 500 ppmv methane are exceedances at any component containing landfill gas, pursuant to CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B).

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

REDWOOD 3520+ ENGINE PLANT, CA

Site Map

8950 Redwood Hwy, Novato, CA 94948



REV	DATE	BY	DESCRIPTION
6	3-1-16	RAA	ISSUED FOR CONSTRUCTION
5	10-26-15	RAA	BUILDING PERMIT APPLICATION SET
4	10-2-15	RAA	95% DESIGN RESUBMITTAL
3	8-7-15	RAA	ISSUED FOR GAS TREATMENT SKID BID
2	8-12-15	RAA	95% DESIGN SUBMITTAL
1	5-6-15	RAA	50% DESIGN SUBMITTAL

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

ACEng
www.ac-engineering.com

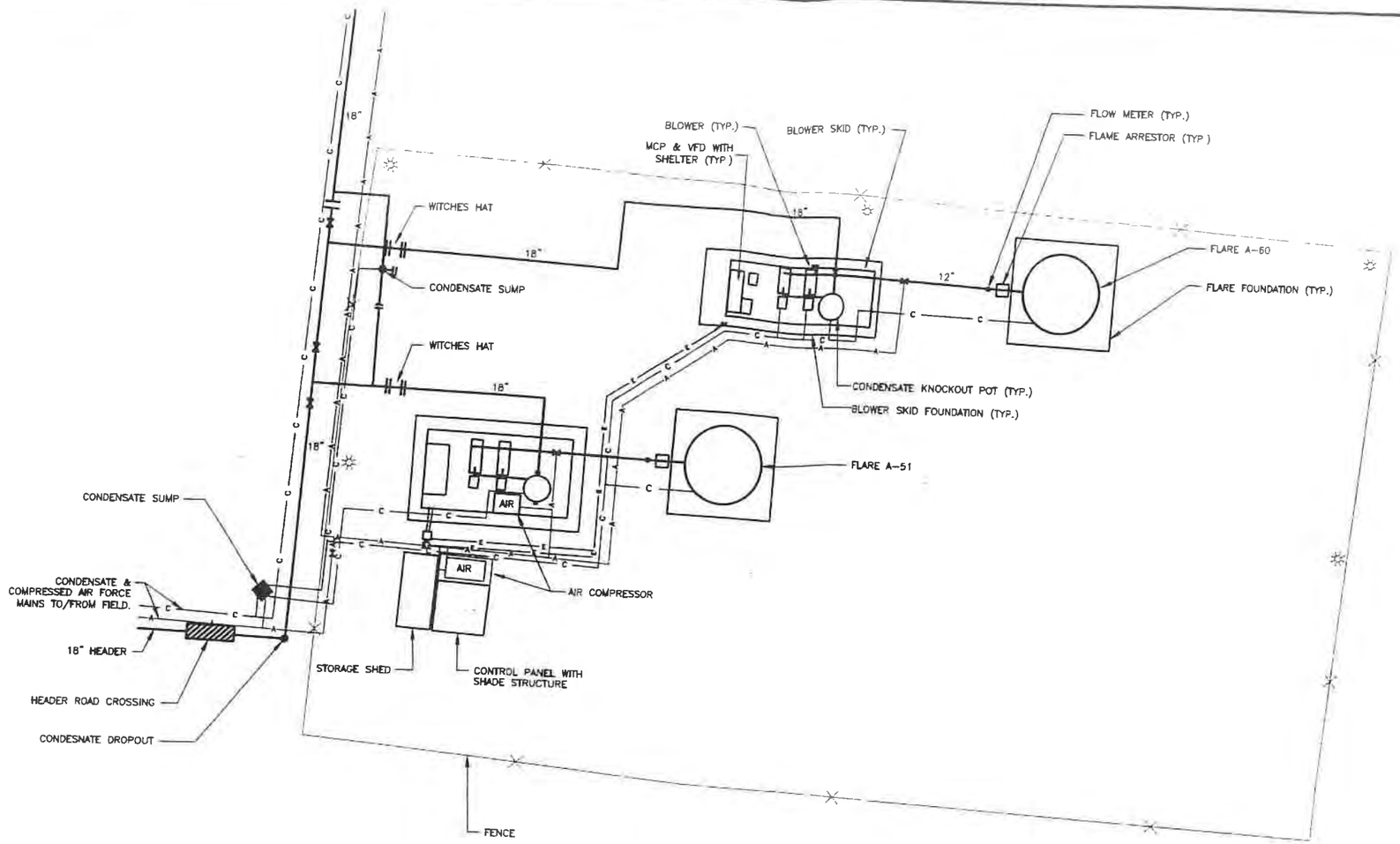
CLIENT: WASTE MANAGEMENT RENEWABLE ENERGY
LANDFILL TO GAS ENERGY PROJECT
REDWOOD LANDFILL, NOVATO, CA

DESCRIPTION: PROPOSED CONDITIONS AND HAZARDOUS AREA CLASSIFICATIONS

PROJECT NO: 1003.005.001

SHEET: G-3

7/25/2017



N

0 10 20
SCALE IN FEET

5-5-21

No Exceedances

LEGEND

- EXISTING PIPING
- EXISTING FLANGE
- LIGHT SYMBOL
- EXISTING PIPING
- EXISTING BLIND FLANGE
- EXISTING VALVE
- C — 2" HDPE SDR-7 CONDENSATE FORCE MAIN
- A — 2" HDPE SDR-9 COMPRESSED AIR FORCE MAIN
- ROAD CROSSING
- CONDENSATE SUMP

DRAFT

WASTE MANAGEMENT

PAUL J STOUT, P.E

P.E Lic No C52627 Date

REV	DATE	DESCRIPTION	DRN BY	DES BY	CHK BY	APP BY
DATE OF ISSUE						

DRAWN BY
DESIGNED BY
CHECKED BY
APPROVED BY

CORNERSTONE Environmental Group, LLC

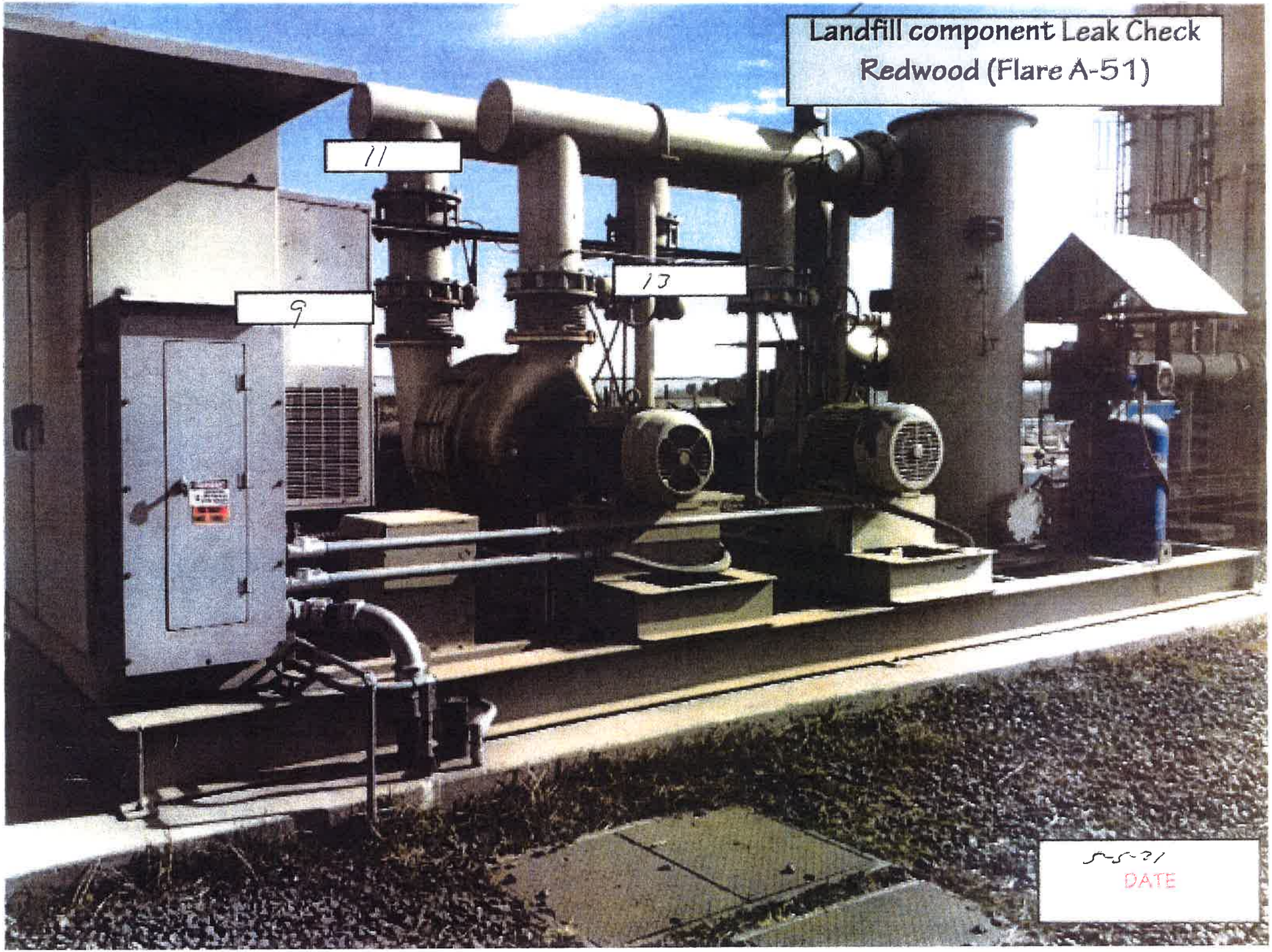
WASTE MANAGEMENT OF CALIFORNIA, INC
REDWOOD LANDFILL, INC
NOVATO, MARIN COUNTY, CALIFORNIA

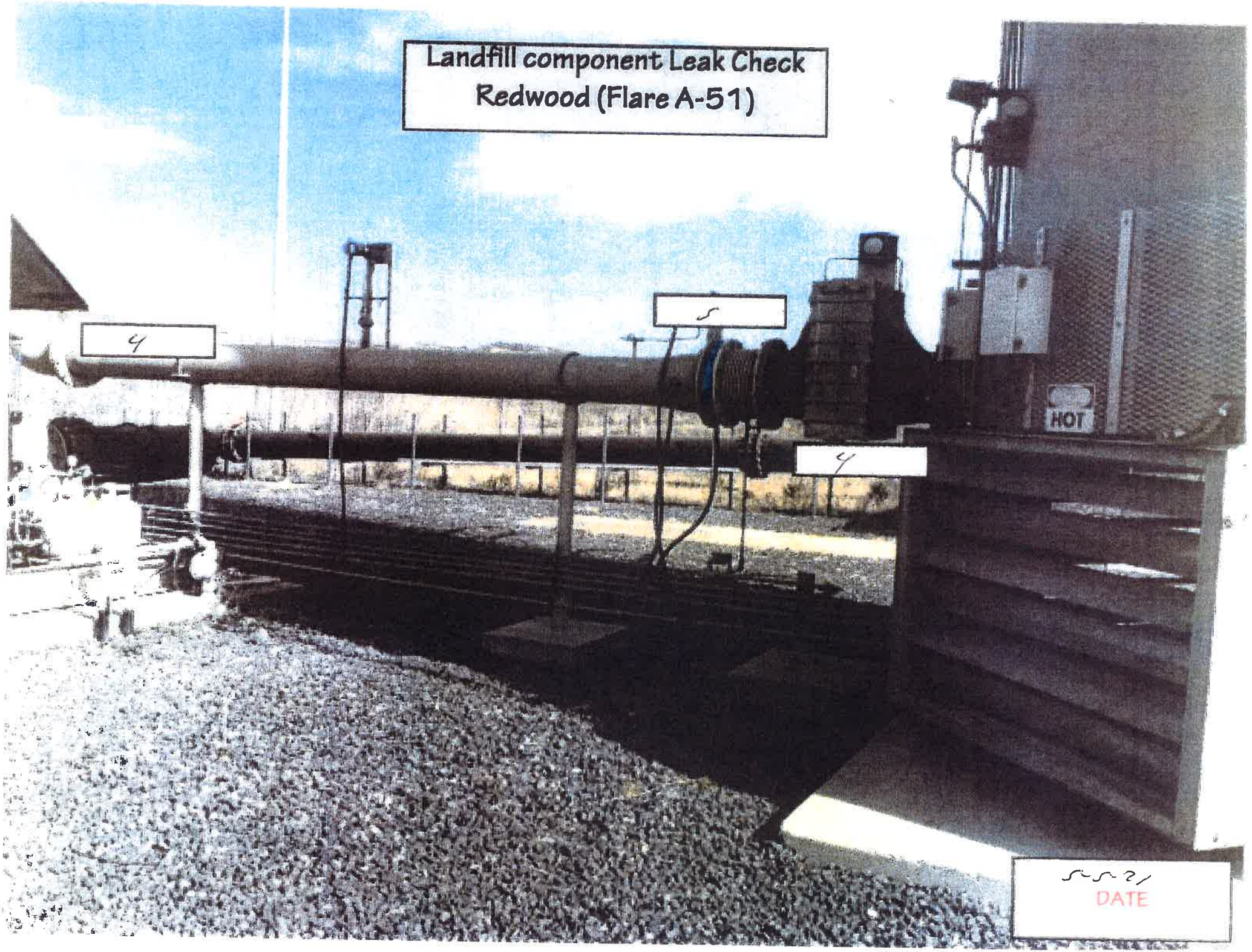
LFG FLARE AND GCCS AS-BUILT FACILITY SITE PLAN

SHEET NO 1

PROJECT NO 70314

H:\Projects\GCCS\REDW\2013\70314 - 2013 GCCS Improvements_PROJECT DRAWINGS\Facilities Layout\1SHT-03-FACILITY_002608.dwg Layout: FACILITY SITE - 11X17 User: smeder Saved: Aug 17, 2013 - 10:48am


Landfill component Leak Check
Redwood (Flare A-51)
11
13
9
5-5-21
DATE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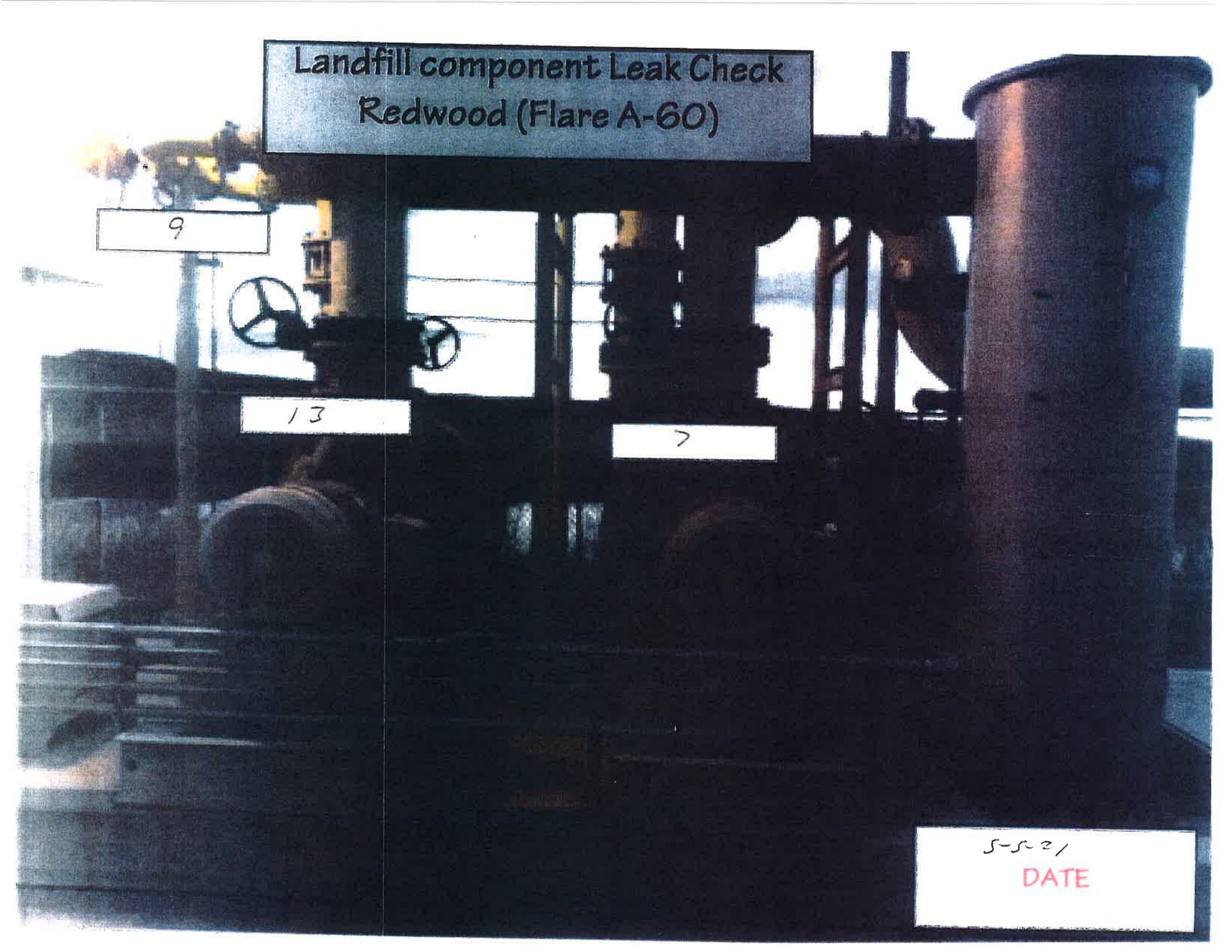
Redwood (Flare A-51)
4
5
4
HOT
5-5-21
DATE


Landfill component Leak Check
Redwood (Flare A-60)
9
13
7
5-5-21
DATE


Landfill component Leak Check
Redwood (Flare A-60)
8
7
7
6
5
5
5-5-21
DATE

Attachment D

Weather Station Data

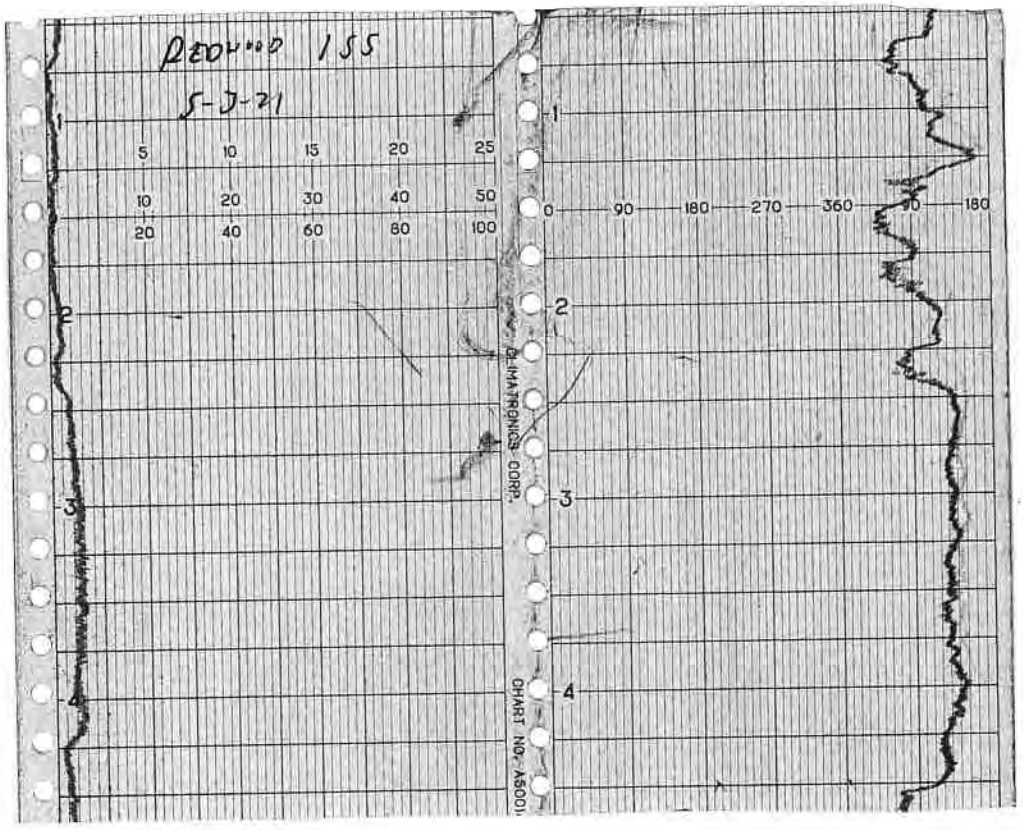
RES Environmental Inc.

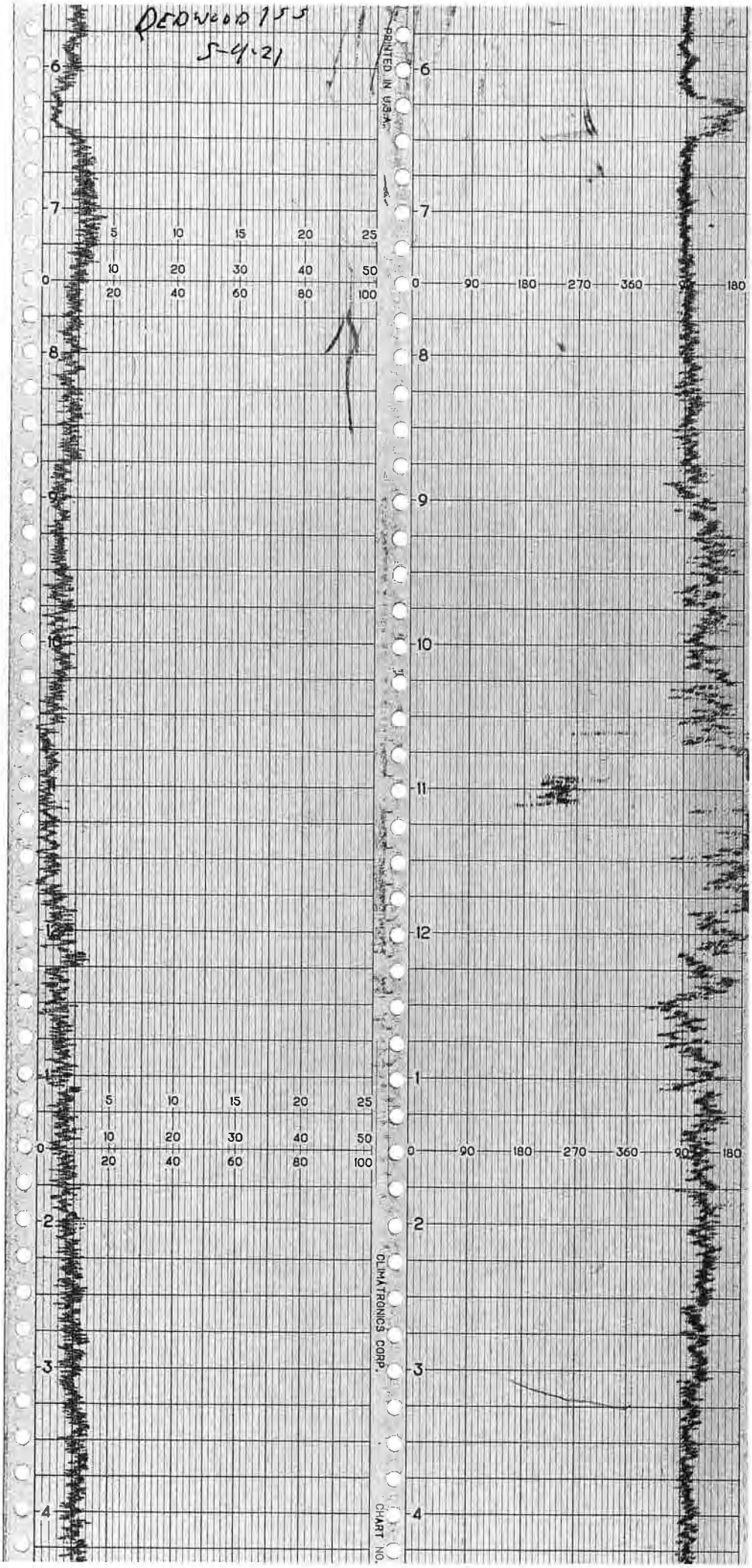
16-POINT WIND DIRECTION INDEX

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

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

WIND SPEED & DIRECTION CHART ROLL

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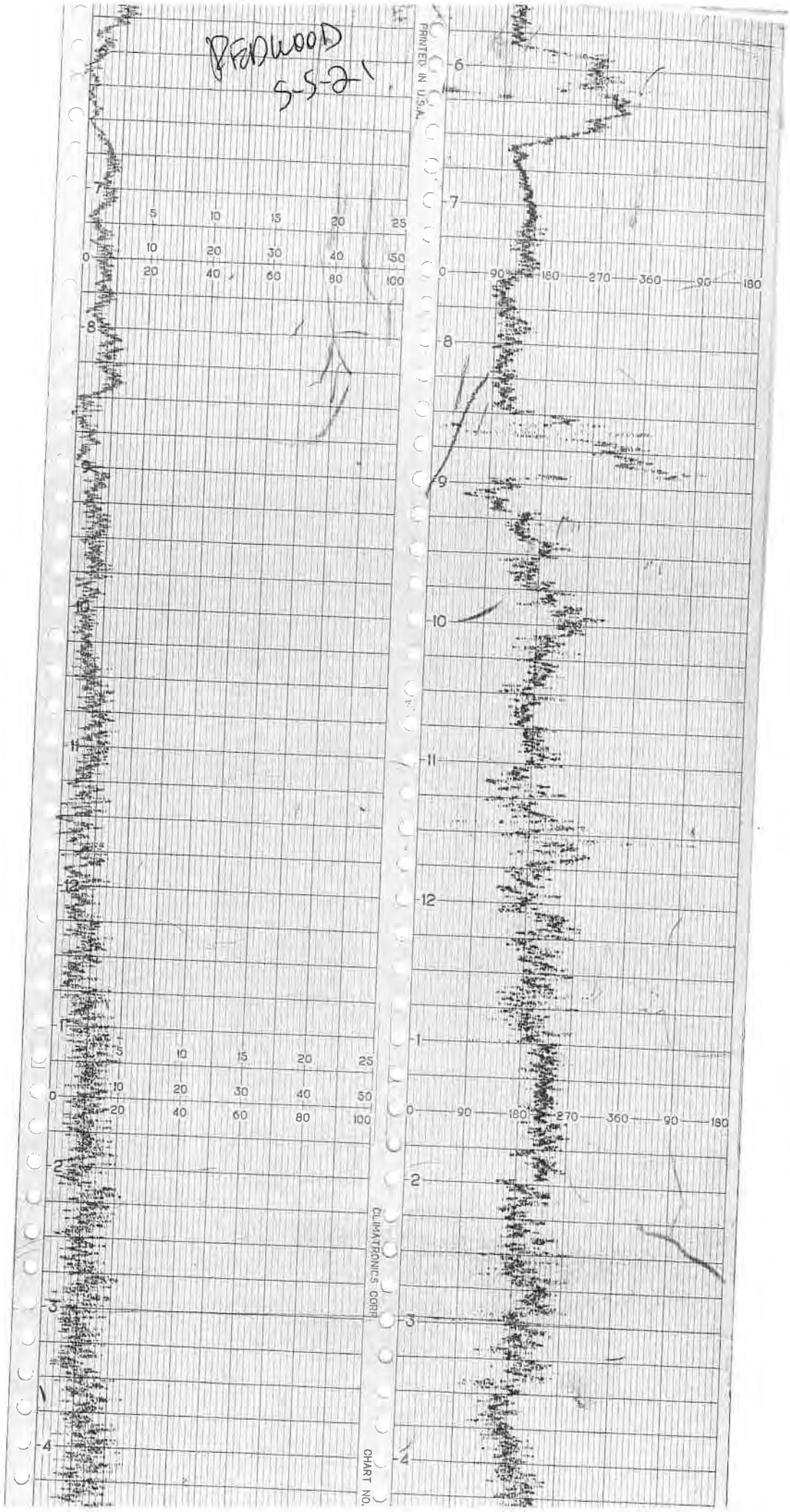
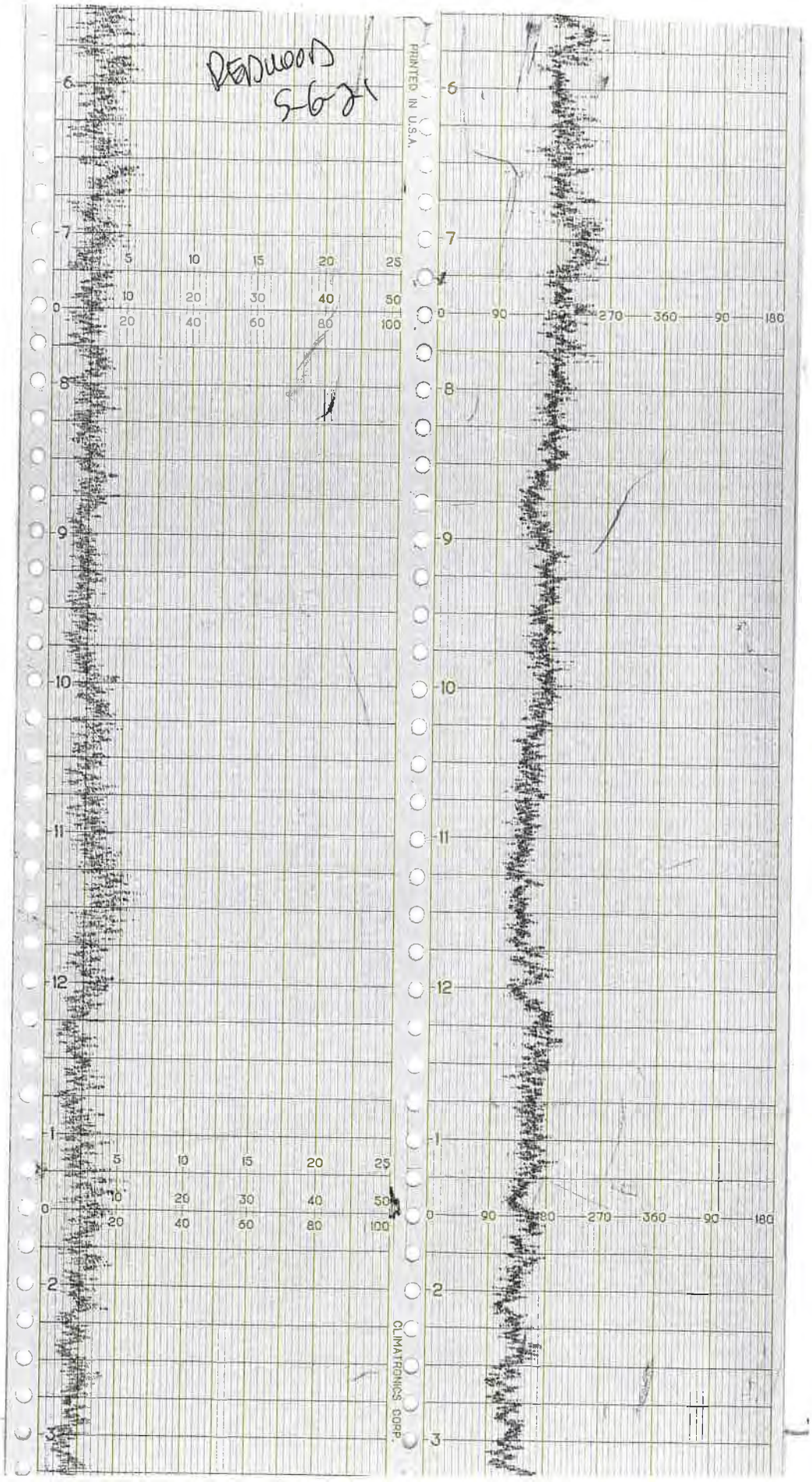
5-4-21
PRINTED IN U.S.A.
CLIMATRONICS CORP.
CHART NO.


REDWOOD
5-5-21
PRINTED IN U.S.A.
CLIMATRONICS CORP.
CHART NO.

WIND SPEED & DIRECTION CHART ROLL



Attachment E

Calibration Records

RESPONSE TIME TEST RECORD

Date: 5-6-21

Expiration Date (3 months): 8-6-21

Time: 900 AM _____ PM

Instrument Make: Photovac Model: MicroFid S/N: C2MF340

Measurement #1:

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 (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: 3 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 500 ppm
90% of the Stabilized Reading: 450 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 3 seconds (c)

Calculate Response Time:

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

Performed By: Brian

RESPONSE TIME TEST RECORD

Date: 5/7/2021 Location: Lockwood

Expiration Date (3 months): 8/7/2021

Time: 6:28 AM _____ PM

Instrument Make: Thermo Scientific Model: TVA 2020 S/N: 202014120381

Measurement #1:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449.1 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (a)

Measurement #2:

Stabilized Reading Using Calibration Gas: 500 ppm
90% of the Stabilized Reading: 450.0 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 499 ppm
90% of the Stabilized Reading: 449.1 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (c)

Calculate Response Time:

$$\frac{(a) + (b) + (c)}{3} =$$ 6 seconds (must be less than 30 seconds)

Performed By: B. Stillman

CALIBRATION PRECISION TEST RECORD

Date: 5-6-21

Expiration Date (3 months): 8-6-21

Time: 900 AM _____ PM

Instrument Make: Photovac Model: MicroFid S/N: CZMF340

Measurement #1:

Meter Reading for Zero Air: 0 ppm (a)

Meter Reading for Calibration Gas: 497 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: 500 ppm (f)

Calculate Precision:

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

0.3 % (must be < than 10%)

Performed By: [signature]

CALIBRATION PRECISION TEST RECORD

Landfill Name: Lockwood Date: 5/7/2021

Expiration Date (3 months): 8/7/2021

Time: 6:28 AM _____ PM

Instrument Make: Thermo Scientific Model: TVA 2020 S/N: 202014120381

Measurement #1:

Meter Reading for Zero Air: 0.1 ppm (a)

Meter Reading for Calibration Gas: 499 ppm (b)

Measurement #2:

Meter Reading for Zero Air: 0.1 ppm (c)

Meter Reading for Calibration Gas: 500 ppm (d)

Measurement #3:

Meter Reading for Zero Air: 0.1 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: B. Stillman

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5-6-21

Time: 9:00 AM _____ PM

Instrument Make: Photovac Model: MicroFID 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 = 497 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 9 ppm (a)
2. Downwind Reading (highest in 30 seconds): 1 ppm (b)

Calculate Background Value:

$\frac{(a) + (b)}{2}$ Background = 05 ppm

Performed By: [signature]

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5-18-21

Time: 08:05 AM _____ PM

Instrument Make: PhotoVac 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 = 494 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: BReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5-18-21

Time: 07:30 AM ~~PM~~ PM

Instrument Make: TVA 2020 Model: 2020 S/N: 14120381

Calibration Procedure

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

   Stable Reading = 499 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 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: Rob Stillman

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5-19-21

Time: 08:31 AM _____ PM

Instrument Make: PhotoVac Model: MicroFID S/N: C2MF340

Calibration Procedure

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

   Stable Reading = 500 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 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: R Breed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5.19.21

Time: 0736 AM X PM

Instrument Make: TVA Model: 2020 S/N: 14120381

Calibration Procedure

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

   Stable Reading = 500 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 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: [signature]

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5/20/2021

Time: 11:22 AM _____ PM

Instrument Make: Photovac 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 = 502 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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5/21/2021

Time: _____ AM 13:52 PM

Instrument Make: Photovac 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

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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5/25/2021

Time: _____ AM 16:40 PM

Instrument Make: Photovac 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 = 502 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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5/26/2021

Time: 09:15 AM _____ PM

Instrument Make: Photovac 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 = 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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 5/27/2021

Time: 08:05 AM _____ PM

Instrument Make: Photovac 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 = 499 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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 6-2-21

Time: 11:15 AM _____ PM

Instrument Make: Photovac Model: MicroFID 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 = 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: [signature]

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 6-03-21

Time: 620 AM _____ PM

Instrument Make: Photovac Model: MicroFID 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 = 502 ppm

Background Determination Procedure

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

Calculate Background Value:

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

Performed By: _____

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE TURNO

MODEL: TVA 1000 EQUIPMENT #: 10 SERIAL #: 1636346773

MONITORING DATE: 5-5-21 TIME: 0525

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	510 ppm	460 ppm	7
#2	498 ppm	448 ppm	7
#3	560 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	0.25 ppm	510 ppm	10
#2	0.18 ppm	498 ppm	2
#3	0.14 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.80 #DIV/0! Must be less than 10%

Performed By: LEIGH WADE Date/Time: 5-5-21 - 0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346734

MONITORING DATE: 5-5-21 TIME: 0525

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
2.8 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	489 ppm	439 ppm	6
#2	501 ppm	451 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	0.32 ppm	489 ppm	11
#2	0.21 ppm	501 ppm	1
#3	0.11 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.80 #DIV/0! Must be less than 10%

Performed By: Omar Perez Date/Time: 5-5-21 - 0525

RJES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Honeywell

MODEL: UA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 5-5-21 TIME: 0525

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 510 ppm
3. Adjust meter settings to read 500 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	496 ppm	446 ppm	5
#2	500 ppm	450 ppm	5
#3	500 ppm	450 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.21 ppm	496 ppm	4
#2	0.13 ppm	500 ppm	0
#3	0.08 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: Nick Banks Date/Time: 5-5-21 – 0525

RDS Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 5-5-21 TIME: 0525

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	492 ppm	442 ppm	7
#2	504 ppm	454 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	0.41 ppm	492 ppm	8
#2	0.26 ppm	504 ppm	4
#3	0.21 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.80 #DIV/0! Must be less than 10%

Performed By: Jesse Manning Date/Time: 5-5-21 ~ 0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1636346773

MONITORING DATE: 5-6-21 TIME: 0525

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	491 ppm	441 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	0.41 ppm	491 ppm	9
#2	0.23 ppm	502 ppm	0
#3	0.09 ppm	500 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.60 #DIV/0! Must be less than 10%

Performed By: Leighwood Date/Time: 5-6-21 0525

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: THERMO

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

MONITORING DATE: 5-6-21 TIME: 0525

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	487 ppm	437 ppm	6
#2	502 ppm	452 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3) / 3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.22 ppm	487 ppm	13
#2	0.16 ppm	502 ppm	2
#3	0.11 ppm	500 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			1.0 #DIV/0! Must be less than 10%

Performed By: Omar Perez Date/Time: 5-6-21 0525

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1037624741

MONITORING DATE: 5-6-21 TIME: 0525

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 560 ppm
3. Adjust meter settings to read 500 ppm.

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	492 ppm	442 ppm	5
#2	501 ppm	451 ppm	5
#3	506 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	0.34 ppm	492 ppm	8
#2	0.18 ppm	561 ppm	1
#3	0.10 ppm	506 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.60 #DIV/0! Must be less than 10%

Performed By: Nick Banks Date/Time: 5-6-21 0525

RES Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: THERMO

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1162741775

MONITORING DATE: 5-6-21 TIME: 0525

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	506 ppm	456 ppm	5
#2	495 ppm	445 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	0.41 ppm	516 ppm	6
#2	0.27 ppm	495 ppm	5
#3	0.16 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: Jesse Manning Date/Time: 5-6-21 - 0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 5-3-21 TIME: 1225

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

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

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.35 ppm	24 ppm	1
#2	0.21 ppm	23 ppm	2
#3	0.16 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: Joshua Doe Date/Time: 5-3-21 - 1225

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 5-3-21 TIME: 1225

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	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	0.25 ppm	23 ppm	2
#2	0.14 ppm	25 ppm	0
#3	0.10 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: Omar Perez Jr Date/Time: 5-3-21 - 1225

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Honeywell

MODEL: TVA 1000 EQUIPMENT #: 12 SERIAL #: 163246741

MONITORING DATE: 5-3-21 TIME: 1225

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

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

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.23 ppm	24 ppm	1
#2	0.16 ppm	24 ppm	1
#3	0.08 ppm	25 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1			2.6 #DIV/0! Must be less than 10%

Performed By: Nick Berks Date/Time: 5-3-21-1225

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA 1000 EQUIPMENT #: 13 SERIAL #: 1162746775

MONITORING DATE 5-3-21 TIME: 1225

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	>
#2	24 ppm	21.6 ppm	>
#3	25 ppm	22.5 ppm	>
Calculate Response Time (1+2+3) / 3			> #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	0.25 ppm	23 ppm	2
#2	0.25 ppm	24 ppm	1
#3	0.16 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 Jesse Manning Date/Time: 5-3-21 - 1225

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE Honda

MODEL: HNA 1000 EQUIPMENT #: 10 SERIAL #: 10J6342773

MONITORING DATE 5-4-21 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
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	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	0.26 ppm	23 ppm	2
#2	0.15 ppm	24 ppm	1
#3	0.11 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 LEIGH WARD Date/Time: 5-4-21 0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Horiba

MODEL: VA 1000 EQUIPMENT #: 11 SERIAL # 10536962724

MONITORING DATE: 5-4-21 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
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	>
#2	25 ppm	22.5 ppm	>
#3	25 ppm	22.5 ppm	>
Calculate Response Time (1+2+3) / 3			> #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	0.36 ppm	23 ppm	2
#2	0.18 ppm	25 ppm	0
#3	0.14 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: Omar Pons ZFA Date/Time: 5-4-21 – 0525

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Heath

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 5-4-21 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
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

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

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.21 ppm	24 ppm	1
#2	0.13 ppm	24 ppm	1
#3	0.08 ppm	25 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1		2.6 #DIV/0! Must be less than 10%

Performed By: Nick Banks Date/Time: 5-4-21 0525

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Honda

MODEL: HVA1000 EQUIPMENT #: 13 SERIAL #: 1102746725

MONITORING DATE: 5-4-21 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
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	6
#2	25 ppm	22.5 ppm	6
#3	25 ppm	22.5 ppm	6
Calculate Response Time (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	0.45 ppm	24 ppm	1
#2	0.21 ppm	25 ppm	0
#3	0.18 ppm	25 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1			.13 #DIV/0! Must be less than 10%

Performed By Jesse Manning Date/Time: 5-4-21 - 0525

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Heath

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 103634773

MONITORING DATE: 5-6-21 TIME: 0720

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

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

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.33 ppm	24 ppm	1
#2	0.26 ppm	25 ppm	0
#3	0.10 ppm	25 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1			.13 #DIV/0! Must be less than 10%

Performed By: Leighwood Date/Time: 5-6-21 0720

RES
Environmental Inc

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Ultra

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

MONITORING DATE: 5-6-21 TIME 0720

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	7
#2	25 ppm	22.5 ppm	7
#3	25 ppm	22.5 ppm	7
Calculate Response Time (1+2+3) / 3			7 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.45 ppm	23 ppm	2
#2	0.21 ppm	25 ppm	0
#3	0.11 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 Onenptachi Date/Time: 5-6-21 - 0720

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1026246741

MONITORING DATE 5-6-21 TIME 0720

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
2.8 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	6
#2	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	0.32 ppm	24 ppm	1
#2	0.19 ppm	24 ppm	1
#3	0.0 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 Noel Bones Date/Time: 5-6-21 - 0720

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 13 SERIAL #: 1162747775

MONITORING DATE: 5-6-21 TIME: 0720

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.0 ppm	2.8 ppm	2.4 ppm

Background Value = 2.4 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	24 ppm	21.6 ppm	5
#2	25 ppm	22.5 ppm	5
#3	25 ppm	225 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	0.21 ppm	24 ppm	1
#2	0.13 ppm	25 ppm	0
#3	0.14 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: Jesse Manning Date/Time: 5-6-21 - 0720

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: _____

Date: 5-8-21 **Time:** 0830

Model # TVA 1000B

Serial # #10 1036346793

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.0 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	4-3-21	Time required to attain 90% of Cal Gas ppm: 1. 7 / 2. 6 / 3. 6
Factory calibration record w/instrument within 3 months	(Pass) / Fail	Average: 6.3
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to CH4 gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: JM JM

Date: 5-8-21 **Time:** 0945

Model # TVA1000B

Serial # #11 1036346774

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.1 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	4-3-21	Time required to attain 90% of Cal Gas ppm: 1. 7 / 2. 7 / 3. 6
Factory calibration record w/instrument within 3 months	(Pass) Fail	Average: 6.6
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to Methane gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: JM JM

Date: 5-8-21 **Time:** 0900

Model # JVA 1000 B

Serial # #12 103624 6741

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.6 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	4-3-21	Time required to attain 90% of Cal Gas ppm: 1. 5 / 2. 5 / 3. 6
Factory calibration record w/instrument within 3 months	(Pass) Fail	Average: 5.3
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to CH4 gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: JM

Date: 5-8-21 **Time:** 0915

Model # TVA1000B

Serial # #13 1102246275

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	19 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	4-3-21	Time required to attain 90% of Cal Gas ppm
Factory calibration record w/instrument within 3 months	(Pass) Fail	1. 6 2. 6 3. 6 Average 6.0
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to CH4 gas.

Comments: _____

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #10

SERIAL NUMBER: 1036346773

TECHNICIAN: N. Morgans DATE: 4-3-21

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	493	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.68	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50	/	+/- 12.5
100	100	/	+/- 25
500	500	/	+/- 125
< 1	ZERO GAS	/	< 3

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #11

SERIAL NUMBER: 1036346774

TECHNICIAN: [illegible] DATE: 4-3-21

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	0.71	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #12

SERIAL NUMBER: 1036246741

TECHNICIAN: [illegible] DATE: 4-3-21

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	10,102	+/- 2500
< 1	ZERO GAS	0.79	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 1102746775

TECHNICIAN: M Roberts DATE: 4-3-21

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	0.83	< 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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800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Air - Zero		
THC	< 2 PPM	
Oxygen	20.9%	± 2%
Nitrogen	Balance	

Lot # 19-6779

Mfg. Date: 4/3/2019

Parent Cylinder ID Number: 001739, 02268

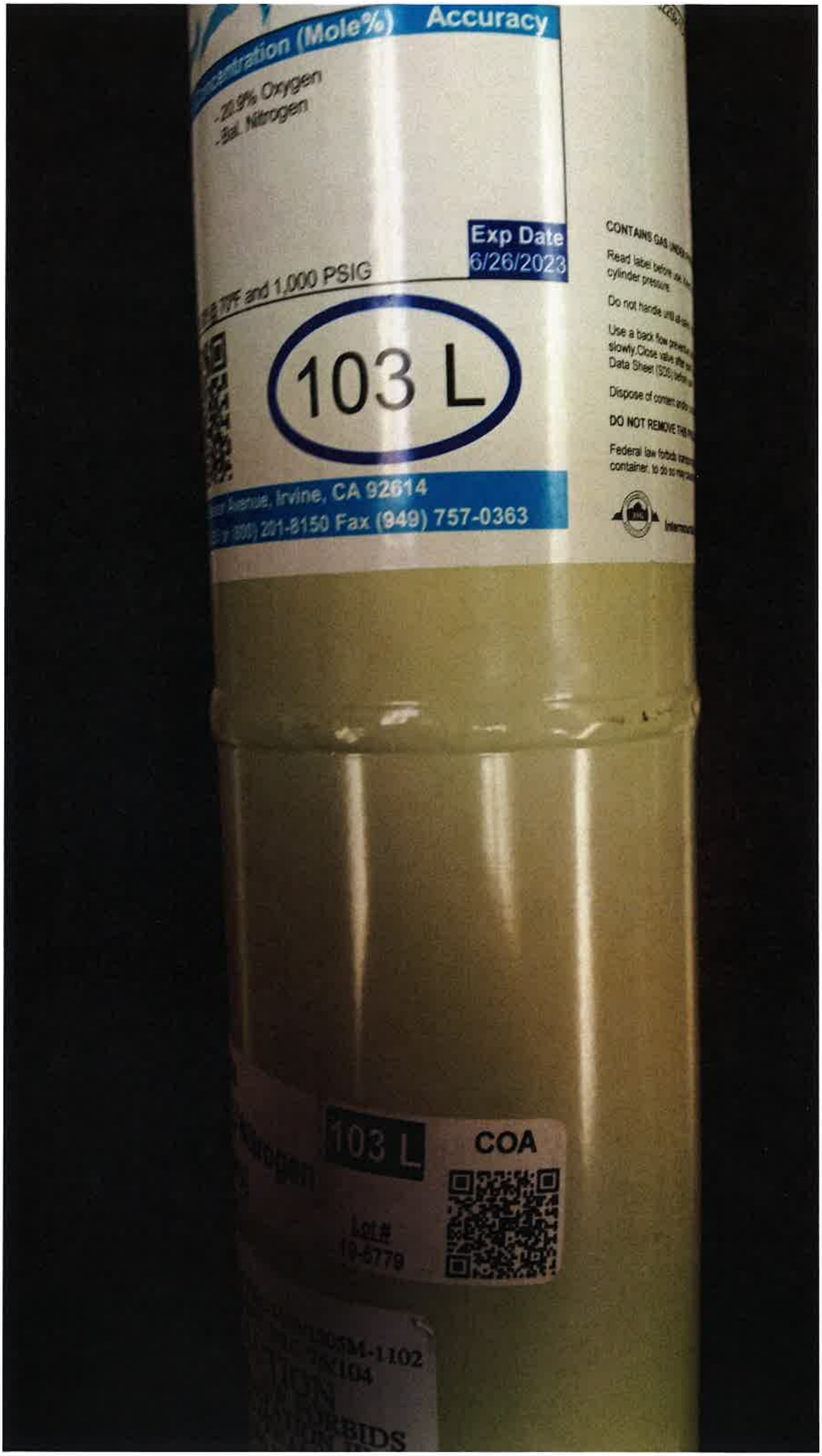
Method of Preparation:

Gravimetric/Pressure Transfilled

Method of Analysis:

This 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: 4/3/2019


Accuracy
-20.9% Oxygen
-Bal. Nitrogen
Exp Date
6/26/2023
and 1,000 PSIG
103 L
Irvine, CA 92614
(949) 757-0363
CONTAINS GAS
Read label before
cylinder pressure.
Do not handle
Use a back flow
slowly.Close valve
Data Sheet (SDS)
Dispose of content
DO NOT REMOVE
Federal law
container.
103 L
COA
Lot#
19-6779
1102
104

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CERTIFICATE OF ANALYSIS

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

Lot # 17-6074

Mfg. Date: 10/16/2017

Parent Cylinder ID Number: 17161

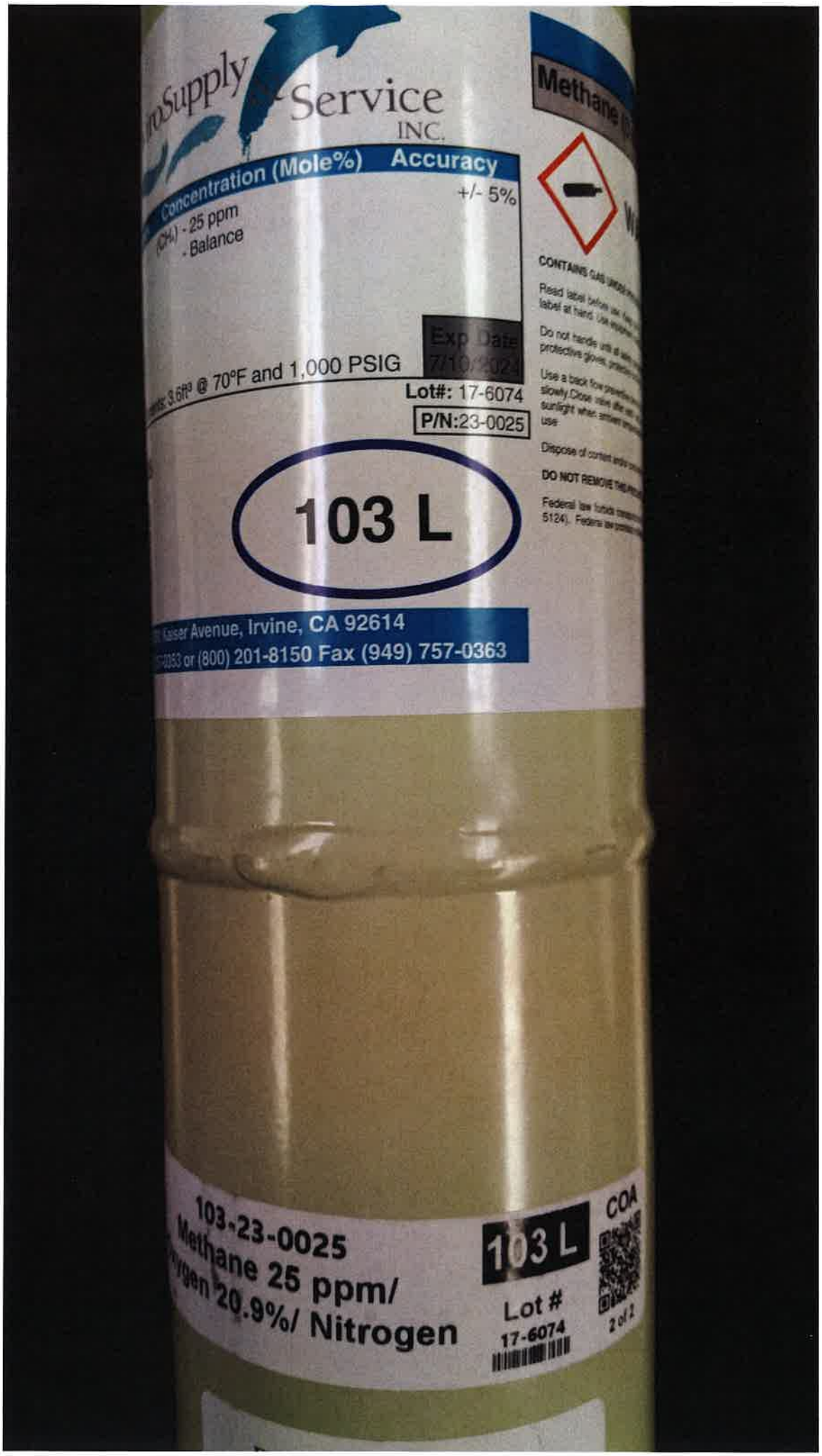
Method of Preparation:

Gravimetric/Pressure Transfilled

Method of Analysis:

The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 10/16/2017


Service
INC.
Concentration (Mole%)
Accuracy
+/- 5%
(CH4) - 25 ppm
- Balance
Exp Date
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
103-23-0025
Methane 25 ppm/
20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
2 of 2

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CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy (+/-)
Methane	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

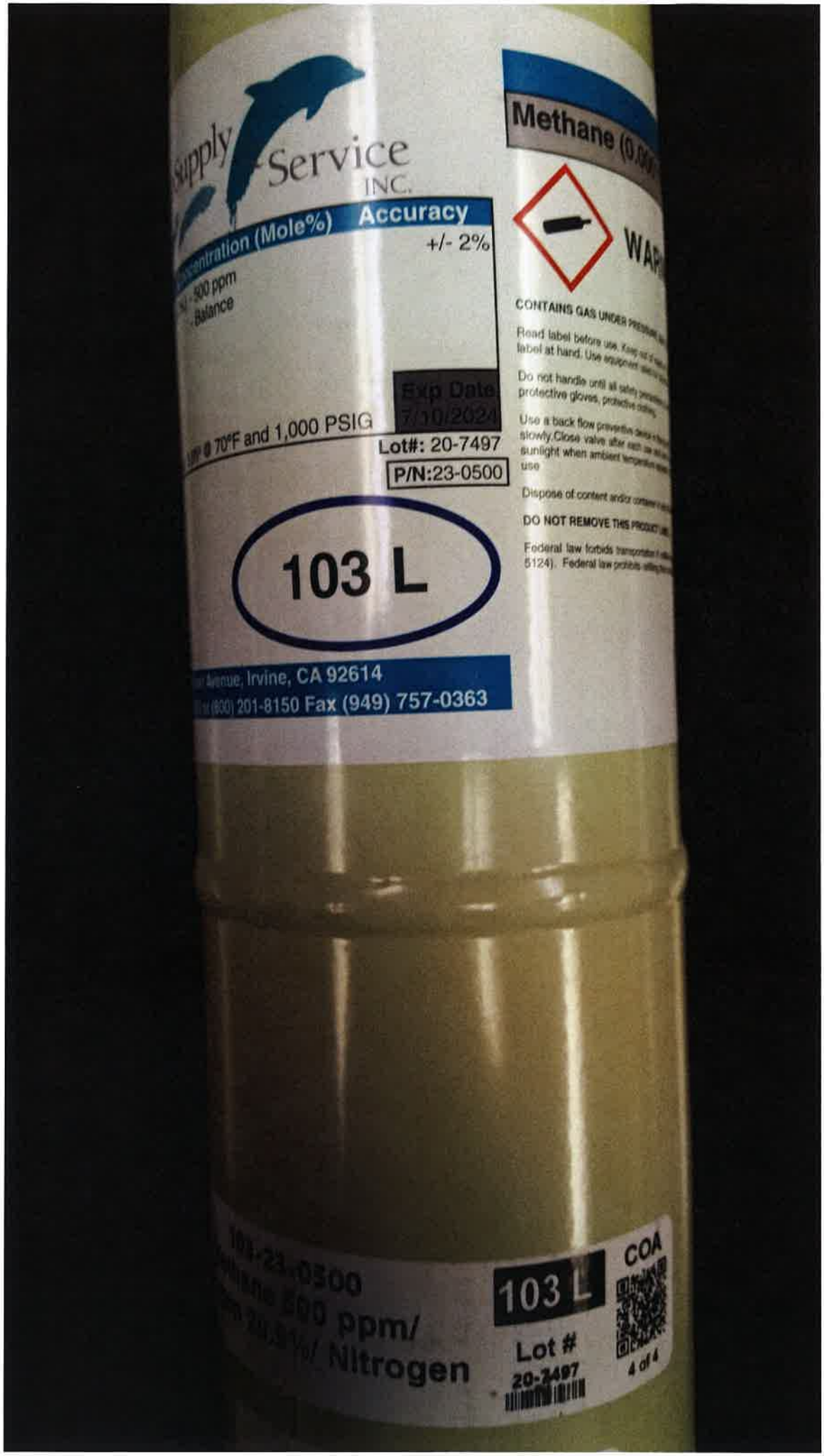
Method of Preparation:

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.
Accuracy
+/- 2%
Exp Date
Lot#: 20-7497
P/N:23-0500
103 L
Methane
CONTAINS GAS UNDER PRESSURE
DO NOT REMOVE THIS PRODUCT
Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
103 L
COA
Lot #
20-7497
4 of 4
Nitrogen

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 (+/-)
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

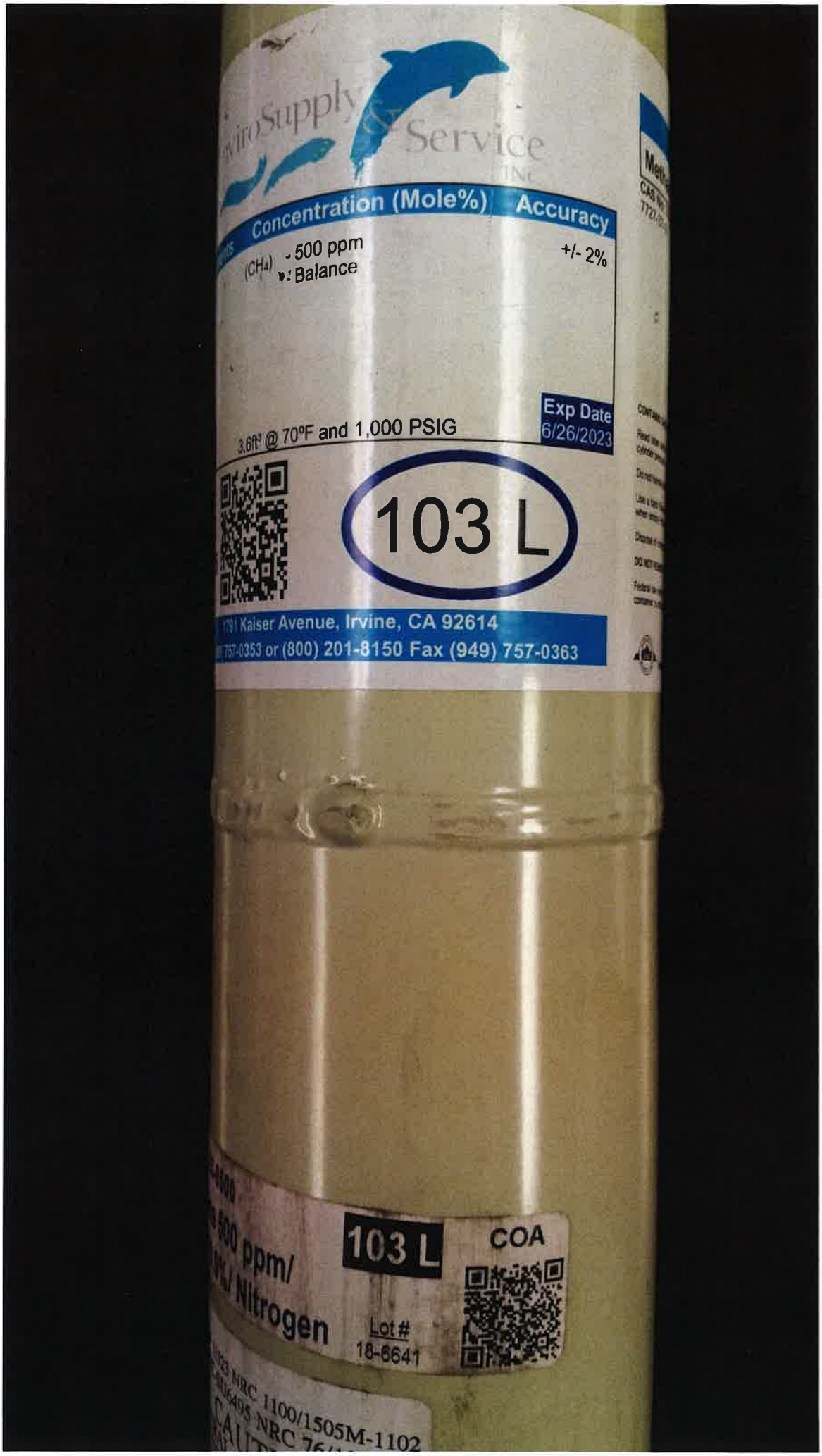
Method of Preparation:

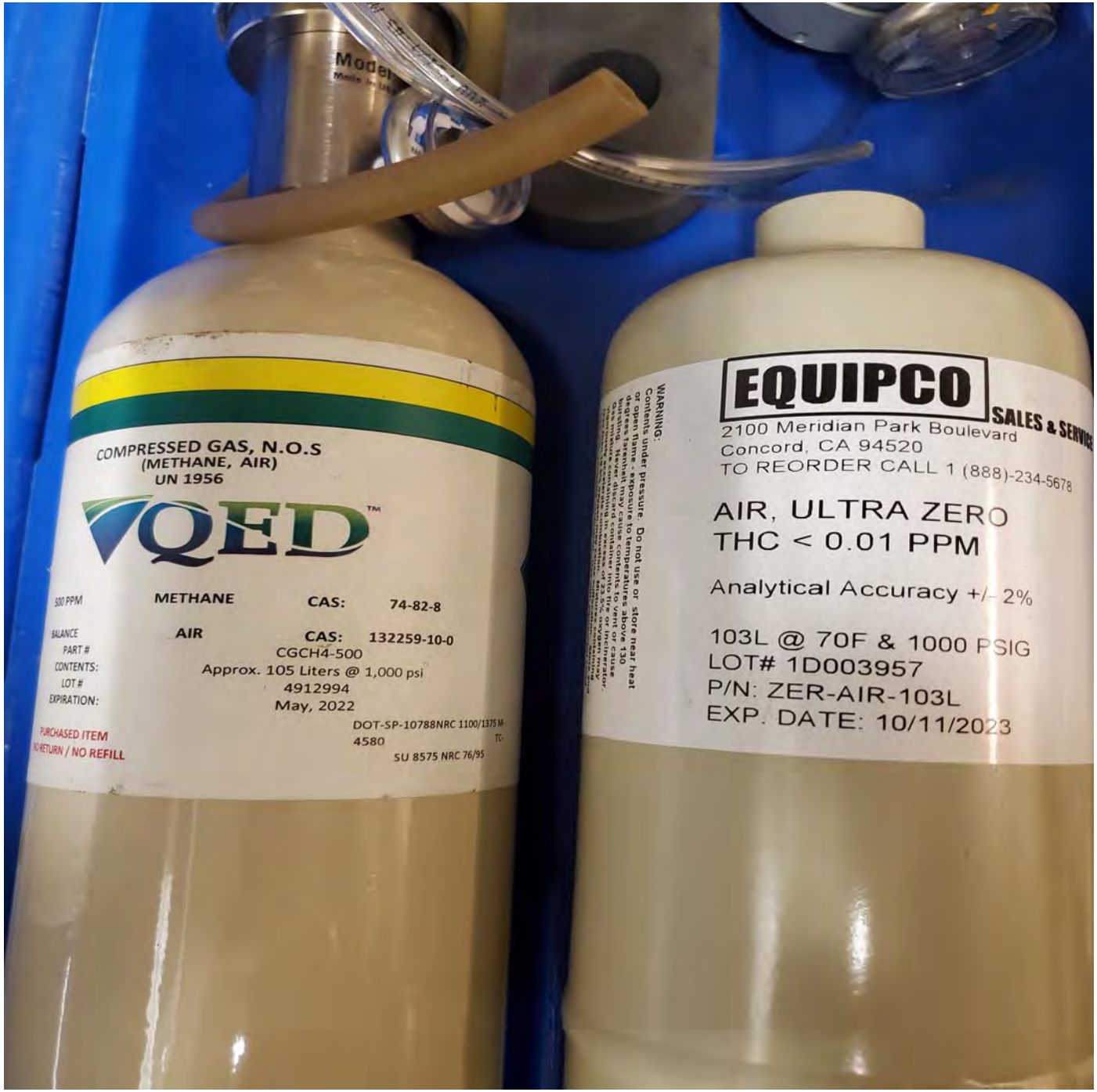
Gravimetric/Pressure Transfilled

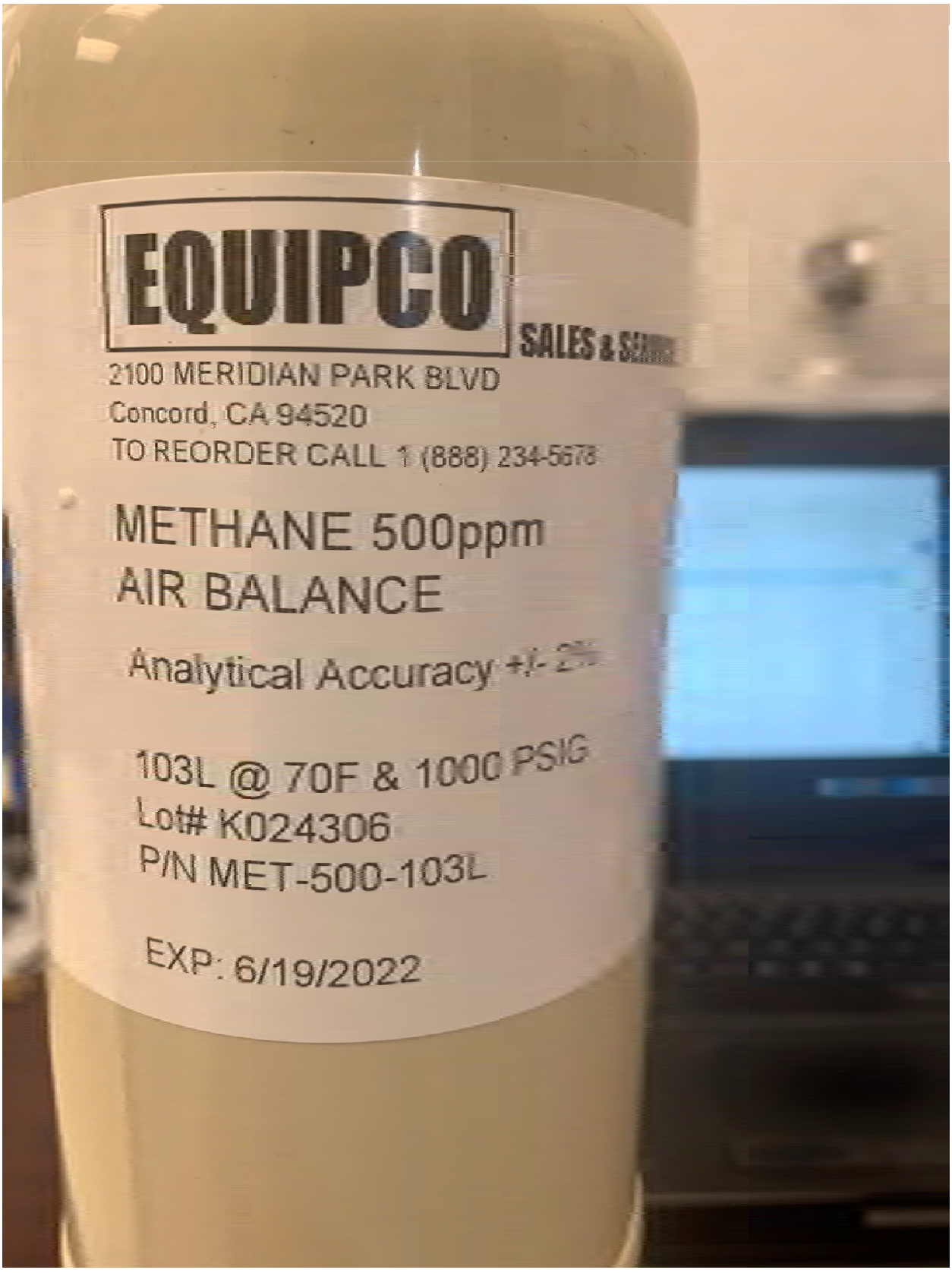
Method of Analysis:

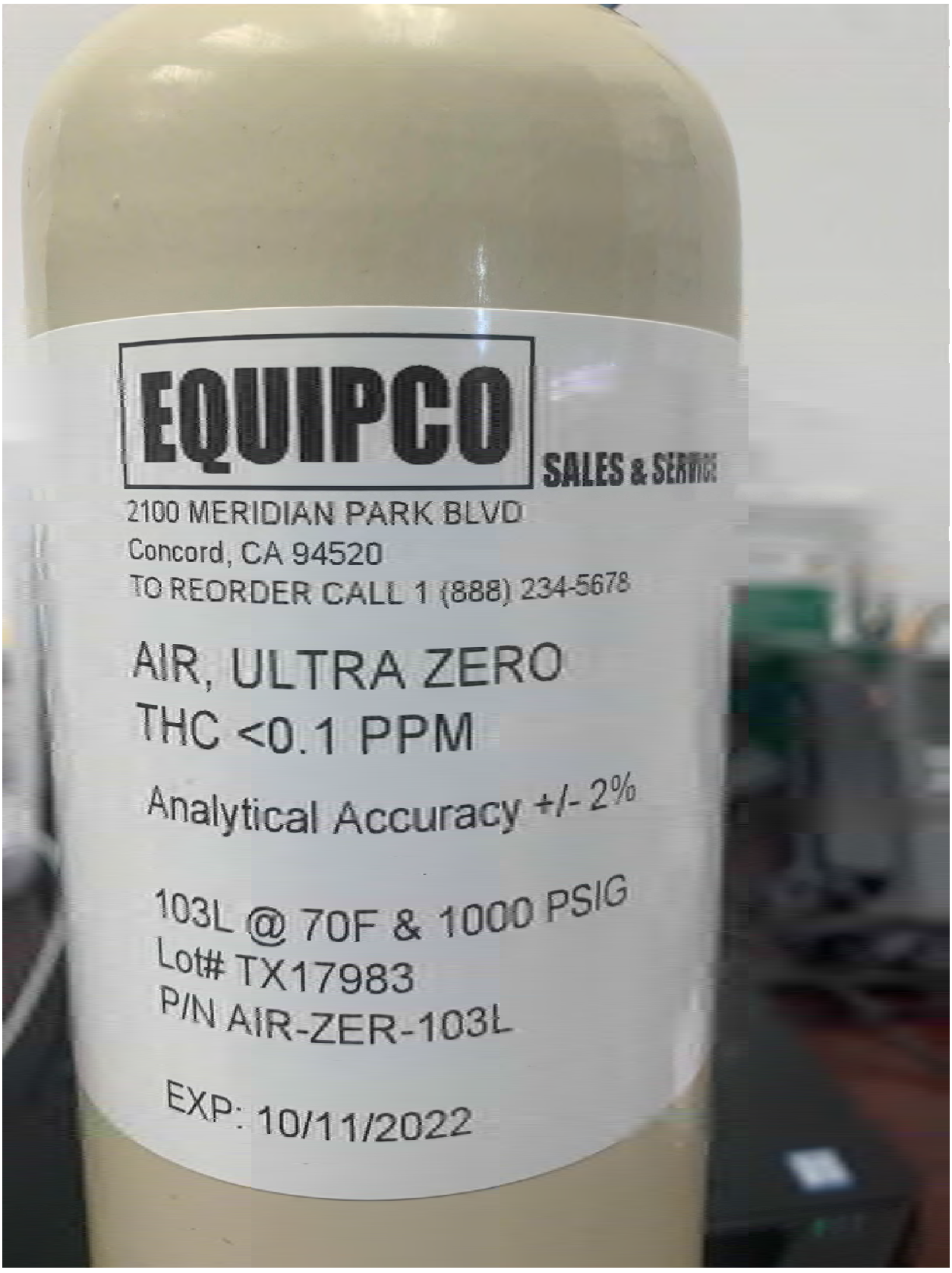
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By:	Tony Janquart
Title:	Quality Assurance Manager
Certificate Date:	12/18/2018


Concentration (Mole%)
Accuracy
(CH4) - 500 ppm
: Balance
+/- 2%
3.6ft³ @ 70°F and 1,000 PSIG
Exp Date
6/26/2023
103 L
1191 Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
103 L
COA
Lot #
18-6641
Nitrogen


COMPRESSED GAS, N.O.S
(METHANE, AIR)
UN 1956
QED
500 PPM
METHANE
CAS: 74-82-8
BALANCE
AIR
CAS: 132259-10-0
PART #
CGCH4-500
CONTENTS:
Approx. 105 Liters @ 1,000 psi
LOT #
4912994
EXPIRATION:
May, 2022
DOT-SP-10788NRC 1100/1375 M-
4580
SU 8575 NRC 76/95
PURCHASED ITEM
NO RETURN / NO REFILL
EQUIPCO
SALES & SERVICE
2100 Meridian Park Boulevard
Concord, CA 94520
TO REORDER CALL 1 (888)-234-5678
AIR, ULTRA ZERO
THC < 0.01 PPM
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
LOT# 1D003957
P/N: ZER-AIR-103L
EXP. DATE: 10/11/2023


EQUIPCO
SALES &
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# K024306
P/N MET-500-103L
EXP: 6/19/2022


EQUIPCO
SALES & SERVICE
2100 MERIDIAN PARK BLVD
Concord, CA 94520
TO REORDER CALL 1 (888) 234-5678
AIR, ULTRA ZERO
THC <0.1 PPM
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
Lot# TX17983
P/N AIR-ZER-103L
EXP: 10/11/2022

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

October 1, 2021

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

Re: Third Quarter 2021 Surface Emissions and Component Leak Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)"** contains the results of the Third Quarter 2021 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).

- 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.

THIRD QUARTER 2021 SEM AND COMPONENT LEAK RESULTS

The following is a summary of the SEM and component leak monitoring results completed for the Third Quarter 2021.

Instantaneous Surface Emissions Monitoring Results

The Instantaneous surface monitoring was performed on July 13 and 14, 2021 in accordance with the NSPS, BAAQMD 8-34, and CCR Title 17 §95469 and ACO. Results and data from the monitoring are presented in Attachment A.

Initial Monitoring Event Exceedances of 500 ppm_v

There were eighteen (18) exceedances of 500 ppm_v as methane detected on July 13 and 14, 2021. 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 July 14 and 15, 2021. All locations were observed at less than 500 ppm_v as methane except for exceedance flag numbers 3 and 16.

Second Ten-Day Re-Monitoring Results

Corrective actions were implemented and flag numbers 3 and 16 were below 500 ppm_v as methane upon the 2nd 10-day remonitoring on July 22, 2021.

One-Month Re-Monitoring Results

The 1-month re-monitoring event was completed on August 5, 2021. All locations were observed at less than 500 ppm_v.

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

There were no readings between 200 ppm_v and 499 ppm_v as methane detected during the initial monitoring event on July 13 and 14, 2021. Pursuant to CCR Title 17 §95471(c), instantaneous surface emissions exceeding 200 ppm_v but below 500 ppm_v are required to be recorded.

Integrated Surface Emissions Monitoring Results

The Integrated surface sampling (ISS) was performed on July 12, 14, and 15, 2021 in accordance with the ACO and requirements outlined in CCR Title 17 §95469.

Initial Monitoring Event Exceedances of 25 ppm_v

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

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

Component Leak Monitoring Results

Component leak monitoring was conducted per the applicable requirements on July 14, 2021. No leaks greater than 500 ppm_v were identified. Please see Attachment C, for details.

WEATHER CONDITIONS

Wind Speed Conductions during the Surface Emission Monitoring Events

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

Precipitation Requirements

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

EQUIPMENT CALIBRATION

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

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

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

Thank you,
Waste Management

Michael Chan
Environmental Protection Specialist

Attachment A – Instantaneous Surface Emission Monitoring Event Records

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

Attachment B – Integrated Surface Emission Monitoring Event Records

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

Attachment C – Component Leak Monitoring Event Records

- Component Leak Exceedances and Monitoring Logs

Attachment D – Weather Station Data

- Strip Chart Data

Attachment E – Calibration Records

- Instrument and Gas Calibration Records

Attachment A

Instantaneous Surface Emission Monitoring Event Records

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

2021 QUARTER: 3
PERFORMED BY: RES
LANDFILL NAME: Redwood Landfill, Inc.

Flag Number	Grid Number	Date of Monitoring	Concentration of Emission (ppm_v)	Comments
41	17	7/13/2021	1,000	Well 83
1	168	7/13/2021	1,000	EW11 - P8
2	202	7/13/2021	8,000	EW3 (flush with road)
3	197	7/13/2021	10,000	EW4 (vaulted)
4	197	7/13/2021	40,000	White riser pipe, 76
5	161	7/13/2021	15,000	Black pipe, 56
6	161	7/13/2021	20,000	White riser pipe
7	136	7/13/2021	40,000	EW7
8	136	7/13/2021	14,000	Black pipe, 53
9	127	7/13/2021	20,000	Black pipe, 52
10	95	7/13/2021	1,500	Black pipe, 50
11	83	7/13/2021	20,000	White pipe, 48
12	84	7/13/2021	7,400	Black pipe, 43
13	84	7/13/2021	16,000	White cap pipe
14	85	7/13/2021	500	Capped pipe P38
15	85	7/13/2021	10,000	Capped pipe P36
16	87	7/13/2021	40,000	White cap pipe 32
17	82	7/13/2021	500	Riser LN-1
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)

2021 QUARTER: 3

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: Ben Tarver and Rick Reed

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
41	7/13/2021	1,000	7/14/2021	Compact soil.	7/14/2021	92					8/5/2021	0		Well 83
1	7/13/2021	1,000	7/14/2021	Compact soil.	7/14/2021	366					8/5/2021	41		EW11 - P8
2	7/13/2021	8,000	7/15/2021	Seal well.	7/15/2021	24					8/5/2021	2		EW3 (flush with road)
3	7/13/2021	10,000	7/14/2021	Compact soil.	7/14/2021		1,053	7/22/2021	12		8/5/2021	339		EW4 (vaulted)
4	7/13/2021	40,000	7/15/2021	Compact, add soil.	7/15/2021	340					8/5/2021	31		White riser pipe, 76
5	7/13/2021	15,000	7/15/2021	Compact, add soil.	7/15/2021	84					8/5/2021	73		Black pipe, 56
6	7/13/2021	20,000	7/15/2021	Compact, add soil.	7/15/2021	85					8/5/2021	62		White riser pipe
7	7/13/2021	40,000	7/15/2021	Compact, add soil.	7/15/2021	94					8/5/2021	136		EW7
8	7/13/2021	14,000	7/15/2021	Compact, add soil.	7/15/2021	199					8/5/2021	67		Black pipe, 53
9	7/13/2021	20,000	7/15/2021	Compact, add soil.	7/15/2021	94					8/5/2021	71		Black pipe, 52
10	7/13/2021	1,500	7/15/2021	Compact, add soil.	7/15/2021	4					8/5/2021	150		Black pipe, 50
11	7/13/2021	20,000	7/14/2021	Compact, add soil.	7/14/2021	46					8/5/2021	82		White pipe, 48
12	7/13/2021	7,400	7/14/2021	Compact, add soil.	7/14/2021	18					8/5/2021	128		Black pipe, 43
13	7/13/2021	16,000	7/14/2021	Compact, add soil.	7/14/2021	17					8/5/2021	7		White cap pipe
14	7/13/2021	500	7/14/2021	Compact, add soil.	7/14/2021	105					8/5/2021	32		Capped pipe P38
15	7/13/2021	10,000	7/14/2021	Compact, add soil.	7/14/2021	64					8/5/2021	111		Capped pipe P36
16	7/13/2021	40,000	7/14/2021	Compact, add soil.	7/14/2021		2,488	7/22/2021	216		8/5/2021	322		White cap pipe 32
17	7/13/2021	500	7/14/2021	Compact soil.	7/14/2021	31					8/5/2021	29		Riser LN-1

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

2021 QUARTER: 3

INITIAL MONITORING PERFORMED BY: RES

FOLLOW-UP MONITORING PERFORMED BY: Ben Tarver and Rick Reed

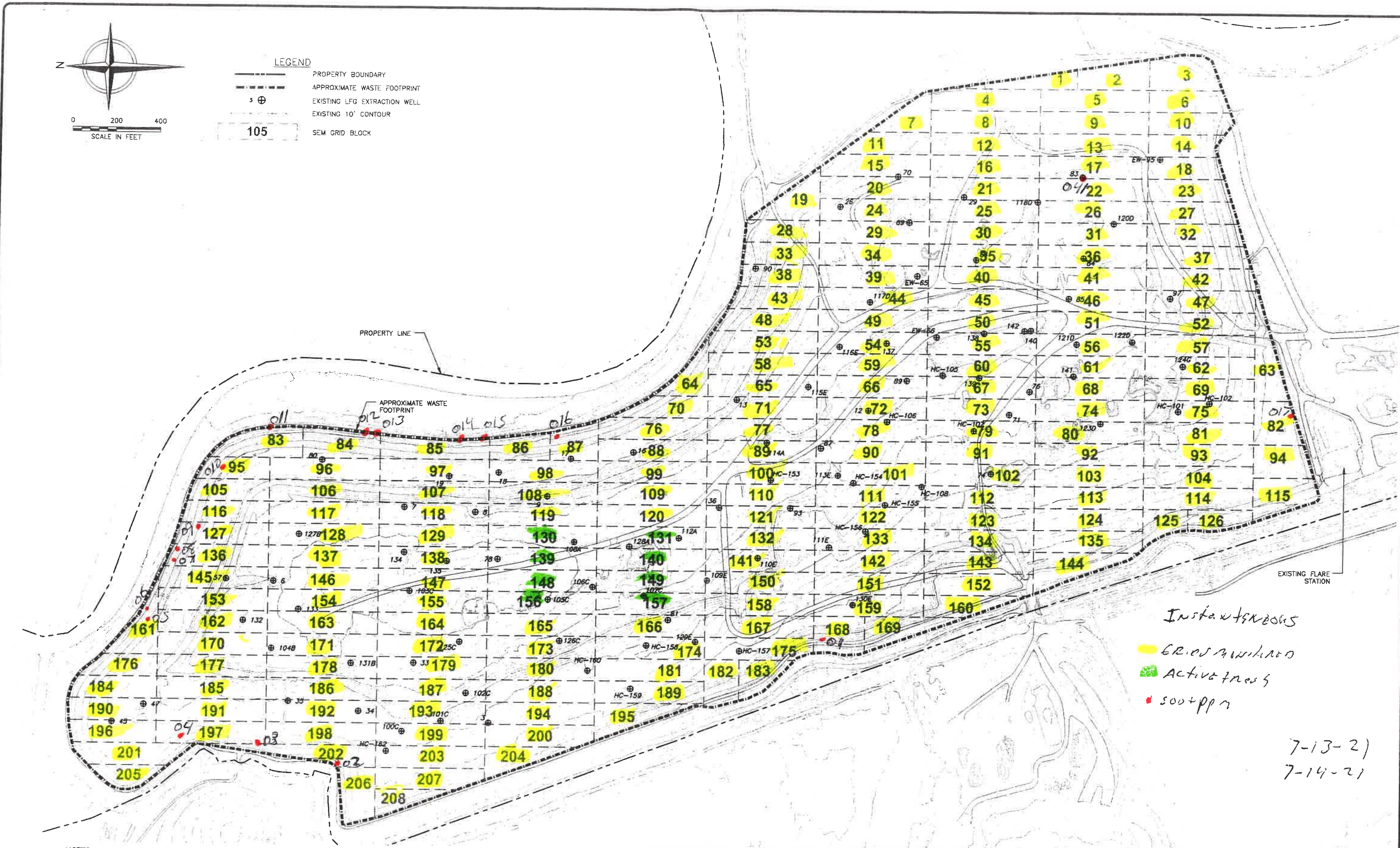
LANDFILL NAME: Redwood Landfill, Inc.

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**
41	7/13/2021	1,000	7/14/2021	92					Well 83
1	7/13/2021	1,000	7/14/2021	366					EW11 - P8
2	7/13/2021	8,000	7/15/2021	24					EW3 (flush with road)
3	7/13/2021	10,000	7/14/2021		1,053	7/22/2021	12		EW4 (vaulted)
4	7/13/2021	40,000	7/15/2021	340					White riser pipe, 76
5	7/13/2021	15,000	7/15/2021	84					Black pipe, 56
6	7/13/2021	20,000	7/15/2021	85					White riser pipe
7	7/13/2021	40,000	7/15/2021	94					EW7
8	7/13/2021	14,000	7/15/2021	199					Black pipe, 53
9	7/13/2021	20,000	7/15/2021	94					Black pipe, 52
10	7/13/2021	1,500	7/15/2021	4					Black pipe, 50
11	7/13/2021	20,000	7/14/2021	46					White pipe, 48
12	7/13/2021	7,400	7/14/2021	18					Black pipe, 43
13	7/13/2021	16,000	7/14/2021	17					White cap pipe
14	7/13/2021	500	7/14/2021	105					Capped pipe P38
15	7/13/2021	10,000	7/14/2021	64					Capped pipe P36
16	7/13/2021	40,000	7/14/2021		2,488	7/22/2021	216		White cap pipe 32
17	7/13/2021	500	7/14/2021	31					Riser LN-1

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

2021 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

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



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

WM WASTE MANAGEMENT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

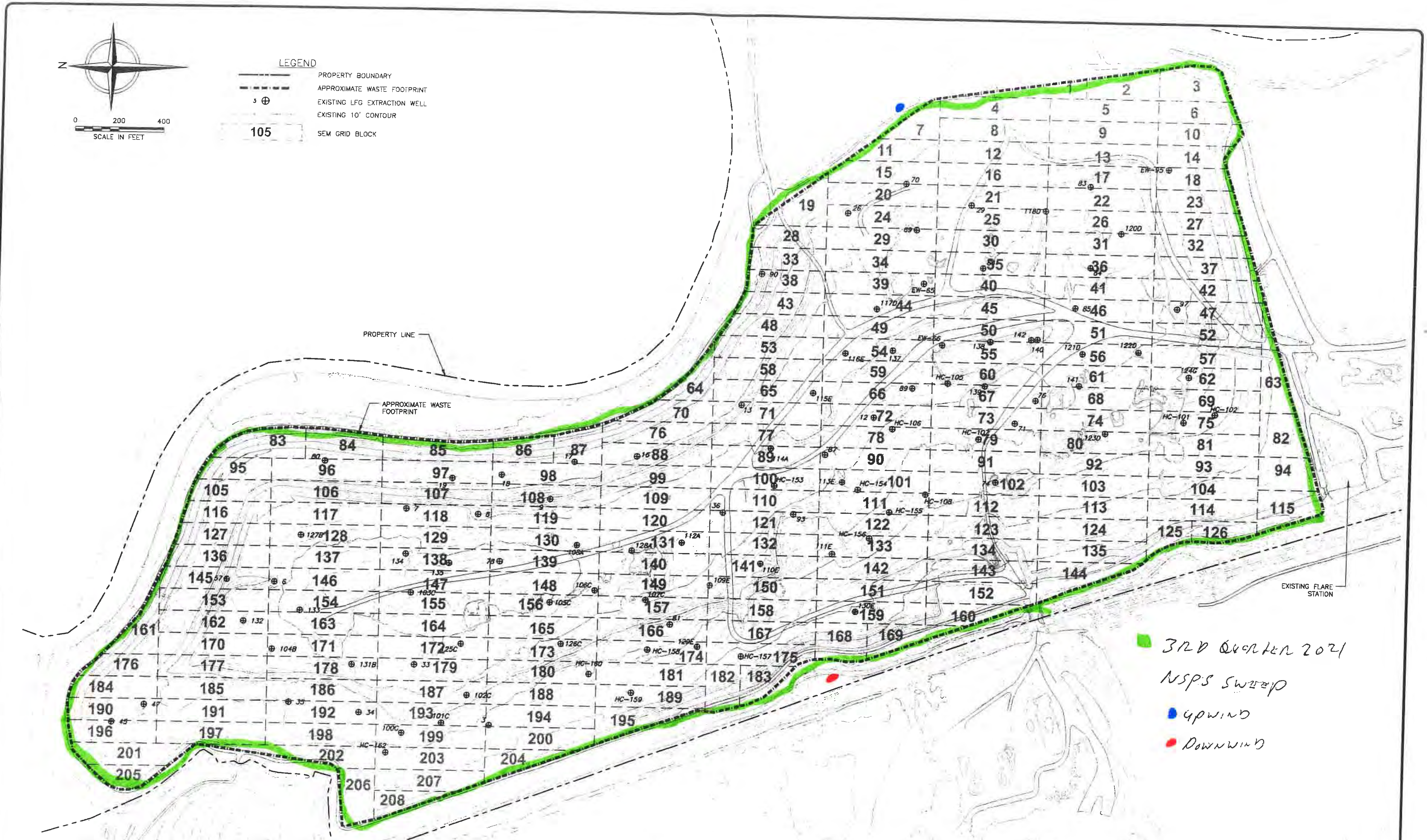
DATE OF ISSUE: 6/24/2014
DRAWN BY: RL
DESIGNED BY: MLH
CHECKED BY: MED
APPROVED BY: FJS

cornerstone environmental
PREPARED BY
CORNERSTONE ENVIRONMENTAL GROUP, LLC

REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

SHEET NO. 1
PROJECT NO. 140521



NOTES:

1. TOPOGRAPHIC CONTOURS PREPARED USING PHOTOGRAMMETRIC METHODS BY MILLER CREEK AERIAL MAPPING. DATE OF PHOTOGRAPHY: FEBRUARY 14, 2014.
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WASTE MANAGEMENT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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

cornerstone environmental

PREPARED BY:
CORNERSTONE ENVIRONMENTAL GROUP, LLC

REDWOOD LANDFILL, INC.
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

SHEET NO. 1

PROJECT NO. 140521

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LEIGH WHITE, DWIGHT ANDERSON, OMONPERALTA, JESSE MENNING

Date: 7-13-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 51 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
1	LW	0525	0540	9	4	6	12	
2	OP	0525	0540	7	4	6	12	
3	JM	0525	0540	14	4	6	12	
4	DA	0525	0540	12	4	6	12	
5	LW	0540	0555	18	4	6	12	
6	OP	0540	0555	16	4	6	12	
7	JM	0540	0555	11	4	6	12	
8	DA	0540	0555	14	4	6	12	
9	LW	0555	0610	17	4	8	12	
10	OP	0555	0610	12	4	8	12	
11	JM	0555	0610	41	4	8	12	
12	DA	0555	0610	70	4	8	12	
13	LW	0610	0625	24	4	7	12	
14	OP	0610	0625	31	4	7	12	
15	JM	0610	0625	79	4	7	12	
16	DA	0610	0625	91	4	7	12	
17	LW	0625	0640	1,000	4	7	12	WELL 83
18	OP	0625	0640	15	4	7	12	
19	JM	0625	0640	39	4	7	12	
20	DA	0625	0640	53	4	7	12	
21	LW	0640	0655	22	4	7	12	
22	OP	0640	0655	45	4	7	12	
23	JM	0640	0655	29	4	7	12	
24	DA	0640	0655	55	4	7	12	
25	LW	0655	0710	30	4	8	12	
26	OP	0655	0710	26	4	8	12	
27	JM	0655	0710	19	4	8	12	
28	DA	0655	0710	81	4	8	12	
29	LW	0710	0725	60	4	8	12	
30	OP	0710	0725	45	4	8	12	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leishwood / Jesse Renning / Omarperalta / Dwight Anderson

Date: 7-13-21 Instrument Used: TVA 1000 Grid Spacing: 2.51

Temperature: 57 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
31	DA	0710	0725	20	4	8	12	
32	JR	0710	0725	16	4	8	12	
33	LW	0725	0740	45	4	8	12	
34	OP	0725	0740	117	4	8	12	
35	JR	0725	0740	39	4	8	12	
36	DA	0725	0740	21	4	8	12	
37	LW	0740	0755	17	4	8	12	
38	OP	0740	0755	41	4	8	12	
39	JR	0740	0755	25	4	8	12	
40	DA	0740	0755	74	4	8	12	
41	LW	0755	0810	57	4	8	12	
42	OP	0755	0810	30	4	8	12	
43	JR	0755	0810	68	4	8	12	
44	DA	0755	0810	127	4	8	12	
45	LW	0810	0825	84	4	7	12	
46	OP	0810	0825	21	4	7	12	
47	JR	0810	0825	37	4	7	12	
48	DA	0810	0825	150	4	7	12	
49	LW	0825	0840	65	4	6	12	
50	OP	0825	0840	41	4	6	12	
51	JR	0825	0840	84	4	6	12	
52	DA	0825	0840	32	4	6	12	
53	LW	0840	0855	65	4	6	12	
54	OP	0840	0855	31	4	6	12	
55	JR	0840	0855	60	4	6	12	
56	DA	0840	0855	29	4	6	12	
57	LW	0855	0910	21	4	6	12	
58	OP	0855	0910	51	4	6	12	
59	JR	0855	0910	74	4	6	12	
60	DA	0855	0910	60	4	6	12	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wade, Dwight Anderson, Omar Pineda, Jesse Manning

Date: 7-13-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 65 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
61	LW	0910	0925	31	4	6	12	
62	OP	0910	0925	20	4	6	12	
63	JM	0910	0925	41	4	6	12	
64	DA	0910	0925	110	4	6	12	
65	LW	0925	0940	55	4	6	12	
66	OP	0925	0940	31	4	6	12	
67	JM	0925	0940	28	4	6	12	
68	DA	0925	0940	41	4	6	12	
69	LW	0940	0955	70	4	6	12	
70	OP	0940	0955	94	4	6	12	
71	JM	0940	0955	51	4	6	12	
72	DA	0940	0955	32	4	6	12	
73	LW	0955	1010	74	3	4	12	
74	OP	0955	1010	60	3	4	12	
75	JM	0955	1010	29	3	4	12	
76	DA	0955	1010	81	3	4	12	
77	LW	1010	1025	49	3	4	12	
78	OP	1010	1025	60	3	4	12	
79	JM	1010	1025	27	3	4	12	
80	DA	1010	1025	32	3	4	12	
81	LW	1025	1040	21	3	4	12	
82	OP	1025	1040	500	3	4	12	well LN-1
83	JM	1025	1040	20,000	3	4	12	white pipe 48
84	DA	1025	1040	16,000	3	4	12	white cap pipe
85	LW	1040	1055	10,000	3	4	12	cap well 36
86	OP	1040	1055	91	3	4	12	
87	JM	1040	1055	40,000	3	4	12	white cap 32
88	DA	1040	1055	59	3	4	12	
89	LW	1055	1110	44	2	4	12	
90	OP	1055	1110	72	2	4	12	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: CHRISTIAN LOPEZ, DAVID ANDERSON
OMAR PERALTA
JESSE MANNING

Date: 7-13-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 90 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
91	JM	1055	1110	33	2	4	12	
92	DA	1055	1110	20	2	3	12	
93	LW	1140	1155	45	2	3	12	
94	OP	1140	1155	20	2	3	12	
95	JM	1140	1155	1,500	2	3	12	Blackpipe 50
96	DA	1140	1155	34	2	3	12	
97	LW	1155	1210	28	2	3	12	
98	OP	1155	1210	17	2	3	12	
99	JM	1155	1210	29	2	3	12	
105	DA	1155	1210	77	2	3	12	
106	LW	1210	1225	84	1	2	11	
107	OP	1210	1225	28	1	2	11	
108	JM	1210	1225	61	1	2	11	
109	DA	1210	1225	24	1	2	11	
116	LW	1225	1240	57	1	2	9	
117	OP	1225	1240	21	1	2	9	
118	JM	1225	1240	18	1	2	9	
119	DA	1225	1240	23	1	2	9	
120	LW	1240	1255	98	1	2	4	
127	OP	1240	1255	20,000	1	2	4	Blackpipe 52
128	JM	1240	1255	714	1	2	4	
129	DA	1240	1255	71	1	2	4	
136	LW	1255	1310	40,000	1	2	4	EW-7
137	OP	1255	1310	55	1	2	4	
138	JM	1255	1310	92	1	2	4	
145	DA	1255	1310	70	1	2	4	
146	LW	1310	1325	38	1	2	8	
147	OP	1310	1325	51	1	2	8	
153	JM	1310	1325	76	1	2	8	
154	DA	1310	1325	41	1	2	8	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: LOUIS WADE, DWIGHT ANDERSON, OMAR PANCHTA, JESSE MCNINNY

Date: 7-13-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: >75 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
155	LW	1325	1340	70	1	2	8	
161	OP	1325	1340	20,000	1	2	8	white pipe
162	JM	1325	1340	45	1	2	8	
163	DA	1325	1340	30	1	2	8	
164	LW	1340	1355	79	1	2	8	
170	OP	1340	1355	41	1	2	8	
171	JM	1340	1355	32	1	2	8	
172	DA	1340	1355	65	1	2	8	
176	LW	1355	1410	39	1	2	9	
177	OP	1355	1410	21	1	2	9	
178	JM	1355	1410	26	1	2	9	
179	DA	1355	1410	18	1	2	9	
184	LW	1410	1425	25	1	2	11	
185	OP	1410	1425	31	1	2	11	
186	JM	1410	1425	20	1	2	11	
187	DA	1410	1425	21	1	2	11	
190	LW	1425	1440	15	1	2	12	
191	OP	1425	1440	31	1	2	12	
192	JM	1425	1440	52	1	2	12	
193	DA	1425	1440	37	1	2	12	
196	LW	1440	1455	18	1	2	11	
197	OP	1440	1455	40,000	1	2	11	white pipe 7B
198	JM	1440	1455	31	1	2	11	
199	DA	1440	1455	24	1	2	11	
201	LW	1455	1510	17	1	2	12	
205	OP	1455	1510	24	1	2	12	
202	JM	1455	1510	8,000	1	2	12	MW-3 capped
206	DA	1455	1510	21	1	2	12	
203	LW	1510	1525	19	1	2	12	
207	OP	1510	1525	24	1	2	12	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leigh Wood, Dwight Anderson
Operator
Jesse Manning

Date: 7-13-21 Instrument Used: TVA1060 Grid Spacing: 25'

Temperature: 77 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
208	JM	1510	1525	21	1	2	12	
204	DA	1510	1525	18	1	2	12	
200	LW	1525	1540	27	1	2	12	
184	OP	1525	1540	19	1	2	12	
195	JM	1525	1540	26	1	2	12	
188	DA	1525	1540	24	1	2	12	
189	LW	1540	1555	31	1	2	12	
180	OP	1540	1555	72	1	2	12	
181	JM	1540	1555	39	1	2	12	
182	DA	1548	1555	18	1	2	12	
183	LW	1555	1610	16	1	2	12	
173	OP	1555	1610	108	1	2	12	
174	JM	1555	1610	45	1	2	12	
175	DA	1555	1610	29	1	2	12	
165	LW	1610	1625	52	1	2	12	
166	OP	1610	1625	74	1	2	12	
167	JM	1610	1625	40	1	2	12	
168	DA	1610	1625	1,000	1	2	12	EW11-P8
169	LW	1625	1640	27	1	2	12	
158	OP	1625	1640	42	1	2	12	
159	JM	1625	1640	37	1	2	12	
160	DA	1625	1640	94	1	2	12	
150	LW	1640	1655	114	2	3	12	
151	OP	1640	1655	72	2	3	12	
152	JM	1640	1655	30	2	3	12	
141	DA	1640	1655	24	2	3	12	
142	LW	1655	1710	31	2	3	12	
143	OP	1655	1710	17	2	3	12	
132	JM	1655	1710	45	2	3	12	
133	DA	1655	1710	30	2	3	12	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Leishman

Date: 7-13-21 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	
130								Active Area
131								
139								
140								
148								
145								
156								
157								

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INSTANTANEOUS LANDFILL SURFACE MONITORING

Personnel: Louis Lunde, Doug Jr Anderson
Omar Portilla
Jesse Fanning

Date: 7-14-21 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 57 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
100	LW	0525	0540	27	3	4	13	
101	OP	0525	0540	19	3	4	11	
102	JF	0525	0540	31	3	4	11	
103	JF	0525	0540	24	3	4	13	
104	LW	0540	0555	51	3	4	12	
110	OP	0540	0555	77	3	4	12	
111	JF	0540	0555	92	3	4	12	
112	DB	0540	0555	45	3	4	12	
113	LW	0555	0610	27	3	5	12	
114	OP	0555	0610	24	3	5	12	
115	JF	0555	0610	65	3	5	12	
121	DB	0555	0610	41	3	5	12	
122	LW	0610	0625	38	4	6	12	
123	OP	0610	0625	22	4	6	12	
124	JF	0610	0625	19	4	6	12	
125	DB	0610	0625	27	4	6	12	
126	LW	0625	0640	32	4	6	12	
134	OP	0625	0640	26	4	6	12	
135	JF	0625	0640	31	4	6	12	
144	DB	0625	0640	28	4	6	12	

Attach Calibration Sheet
Attach site map showing grid ID

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wpt			redwood 3rd 2021		
ID	lat	lon	time	name	cmt
1	38.16713104	-122.568302	2021-07-13T14:31:19Z	O1	1000Ppmwellew11-p81
2	38.17501497	-122.566107	2021-07-13T15:56:14Z	O10	1500Ppmblackcap50
3	38.17418198	-122.565169	2021-07-13T16:04:29Z	O11	20000Ppmwhitecapp48
4	38.17309401	-122.56524	2021-07-13T16:10:32Z	O12	7400Ppmblackpipep43
5	38.17287298	-122.565226	2021-07-13T16:13:48Z	O13	16000Ppmwhitecap
6	38.17189104	-122.565309	2021-07-13T16:23:32Z	O14	500Ppmcapwellp38
7	38.17152299	-122.565269	2021-07-13T16:29:50Z	O15	10000Ppmcapwellp36
8	38.17062696	-122.565286	2021-07-13T16:35:01Z	O16	40000Ppmwhitecapp32
9	38.16131802	-122.564252	2021-07-13T17:01:35Z	O17	500Ppmwellln-1
10	38.17356901	-122.570318	2021-07-13T14:54:39Z	O2	8000Ppmmetalcapew3
11	38.17449102	-122.570211	2021-07-13T14:59:55Z	O3	10000Ppmwellew4
12	38.17518697	-122.570057	2021-07-13T15:05:46Z	O4	40000Ppmwhitecappipe76
13	38.16402202	-122.560993	2021-07-13T15:19:06Z	O41	1000Ppmwell83
14	38.17587596	-122.568257	2021-07-13T15:29:18Z	O5	15000Ppmblackcapp56
15	38.17578997	-122.568328	2021-07-13T15:31:49Z	O6	20000Ppmwhitecap
16	38.17551596	-122.567381	2021-07-13T15:42:13Z	O7	40000Ppmmetalcapew7
17	38.17544103	-122.567247	2021-07-13T15:48:03Z	O8	14000Ppmblackpipep53
18	38.17534296	-122.566921	2021-07-13T15:51:01Z	O9	20000Ppmblackpipep52

SITE: REDWOOD LANDFILL DATE: 3RD QUARTER 2021

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
BLACK PIPE	1	5		
LW 1312	1	7		
METAL PIPE	1	9		
BLUE PIPE	2	6		
RUSTED PIPE	2	7		
BLACK CAP PIPE	2	6		
WHITE CAP PIPE	3	9		
BLACK CAP PIPE	3	7		
BLACK CAP PIPE	3	14		
CAPPED WELL	4	4		
CAPPED PIPE	4	7		
CAPPED WELL	4	5		
CAPPED WELL 5	4	4		
CAPPED WELL 6	4	12		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	5			
NONE	6			
PIPE 5	7	4		
EW12	7	9		
PIPE 6	7	11		
PIPE 7	7	6		
NONE 8				
NONE 9				

SITE: RENWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
CAPPED BLACK APE	10	12		
NONE	11			
WELL 234	12	>0		
NONE	13	24		
NONE	14	-		
WELL 235	15	79		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	16			
WELL 83	17	1000		WELL
WELL 95	18	15		
BLACK PIPE	19	39		
NONE	20			
NONE	21			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	22			
NONE	23			
WELL 236	24	55		
WELL 232	25	30		
NONE	26			
NONE	27			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
PIPE 8	28	81		
WELL 241	29	60		
WELL 253	30	45		
CAPPED WELL 10	31	20		
WELL 120	31	18		
NONE	32			
NONE	33			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 65	34	117		
WELL 254	35	39		
NONE	36			
NONE	37			
NONE	38			
NONE	39			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 242	40	74		
NONE	41			
NONE	42			
NONE	43			
WELL 117	44	127		
NONE	45			

SITE: REDWOODS LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 217	46	21		
WELL 227	47	19		
WELL 179	47	37		
METAL CAP PIPE	47	16		
PIPE 16	47	13		
PIPE 18	47	21		
NONE	48			
NONE	49			
		20		
WELL 255	50	16		
WELL 256	50	34		
WELL 142	50	41		
WELL 140	50	10		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	S1			
NONE	S2			
NONE	S3			
WELL 238	S4	16		
WELL 137	S4	20		
WELL 237	S4	31		
NONE	S5			

SITE: Penwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 191	56	29		
NONE	57			
NONE	58			
NONE	59			
NONE	60			
NONE	61			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 124	62			
NODE	63			
HLA3	64	34		
CAPPED DIPE 21	64	15		
CAPPED PIPE 22	64	41		
CAPPED PIPE 23	64	27		
TD 1243	64	110		
BLACK CAP PIPE	64	18		
WELL 115	65	55		
NODE	66			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NOAE	67			
WELL 141	68	41		
WELL 243	68	24		
NOAE	69			
WELL 27	70	94		
WELL 193	71	51		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	72			
NONE	73			
NONE	74			
NONE	75			
CAPPED PIPE 28	76	81		
CAPPED PIPE 29	76	29		
NONE	77			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	78			
NONE	79			
WELL 244	80	32		
BLACK PIPE	81	21		
LS 220	82			
BLACK CAP PIPE	82			
LN-1	82	500		
HLA 15	83	24		
18VE	83	17		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
UNCAPPED PIPE	83	35		
WHITE CAP PIPE	83	20,000		
UNCAPPED PIPE	83	41		
BLACK PIPE 48	83	20		
BLACK PIPE 64	84			
UNCAPPED PIPE	84	16,000		
RUSTED PIPE	84	75		
ELBOW PIPE	84	94		
BLACK PIPE 42	84	110		
BLACK PIPE 43	84	>400		
BLACK PIPE 36	85	10,000		
WHITE CAP 40	85	20		
WHITE CAP 39	85	75		
WHITE CAP 38	85	500		
BLACK PIPE	85	98		
BLACK PIPE	85	37		
WHITE CAP 33	85	45		
WHITE CAP 41	85	68		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WHITE CAP HC1	86	45		
WHITECAP 34	86	91		
WHITECAP 35	86	110		
BLACK CAP PIPE	86	37		
WHITE CAP 32	87	40,000		
HCA7	87	45		
WHITECAP 17	87	118		
WHITE CAP 30	87	77		
WELL 16	88	55		
WELL 231	89	16		
WELL 219	89	44		
WELL 114	89	21		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 230	90	72		
HC107	91	37		
WELL 245	92	20		
GIANT PIPE	93	45		
SUMP 9	94	20		
CAPPED BLACK PIPE	95	~~[illegible]~~ 19		
BLACK PIPE 49	95	1500		
UNCAPPED PIPE	95	25		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NOAE	96			
WELL 19	97	28		
WELL 18	98	17		
NOAE	99			
NOAE	100			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	101			
WELL 215	102	31		
WELL 214	103	24		
NONE	104			
BLACK PIPE S1	105	77		
NONE	106			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 8	107	28		
NONE	108			
WELL 232	109	24		
CAPPED WELL	110	41		
WELL 133	110	77		
WELL 224	111	92		
WELL 222	112	45		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 212	113	27		
NONE	114			
SUMP	115	31		
SUMP	115	65		
BLUE CAP	115	28		
LW 6	116	53		
WHITE PIPE 65	116	30		
WELL 183	117	21		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 184	118	18		
NONE	119			
NONE	120			
WELL 196	121	41		
WELL 200	122	16		
WELL 225	122	38		
WELL 201	122	24		
WELL 223	123	22		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 226	124	19		
NONE	125	27		
NONE	126			
BLACK PIPE S2	127	20,000		
BLACK DRAIN	127	150		
WELL 127	128	114		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 134	129	71		
WELL 135	130			
WELL 194	131			ALKALIE
WELL 195	132	17		
WELL 199	132	45		
WELL 198	132	21		
HC 156	133	30		
WELL 229	133	18		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	134			
NONE	135			
EW7	136	40,000		
WHITE PIPE 66	136	58		
BLACK PIPE 53		14,000		
WELL 251	137	55		
WELL 185	137	38		
WELL 135	138	92		
NONE	139			

SITE: Redwood Landfill DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 128	140	ACTIVE		
WELL 228	141	24		
CAPPED WELL	142	31		
WELL 156	142	17		
WELL 248	143	10		
WELL 247	143	17		
NONE	144			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WHITE PIPE 67	145	24		
WHITE PIPE 68	145	70		
WHITE PIPE 54	145	36		
BLACK PIPE 55	145	51		
BLACK PIPE 56	145	55		
WELL 176	146	21		
WELL 177	146	38		
WELL 190	147	51		
WELL 180	148	ACTIVE		
ROAD	149			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 202	150	144		
WELL 221	150	71		
NOAH	151			
NOAH	152			
BLACK DIDE 58	153	> 6		
WELL 230	154	41		
WELL 103	155	>0		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 105	156		ACTIVE	
WELL 107	157		ACTIVE	
WELL 106	157			
WELL 203	157			
WELL 204	157			
NONE	158			
NONE	159			
NONE	160			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
UNCAPPED PIPE	161	210,000		
BLACK PIPE 59	161	142		
BLACK PIPE 56		15,000		
BLACK PIPE 60	162	27		
WHITE CAP	162	45		
WELL 132	162	39		
WELL 249	163	30		
WELL 186	164	39		
WELL 709	165	52		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 203	166	74		
WELL 210	166	51		
NONE	167			
WELL 130	168	45		
SW 11-P8		1,000		
NONE	169			
NONE	170			
NONE	171			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 188	172	65		
WELL 206	173	45		
WELL 209	173	108		
WELL 126	173	61		
WELL 129	174	45		
WHITE PIPE	174	12		
MOLE	175			
WHITE PIPE 69	176	18		
WHITE PIPE 61	176	35		
WHITE CAP	176	21		

SITE: REDWOODS LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	177			
NONE	178			
NONE	179			
NONE	180			
NONE	181			
FW 10	182	12		
METAL PIPE	182	18		
WHITE CAP	182	18		

SITE: DISMWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	183			
WHITE PIPE 70	184			
WHITE PIPE 71	184	10		
WELL 47	184	17		
WHITE PIPE 73	184	25		
YELLOW PIPE	184	16		
SUMP PIPE	184	11		
BLACK PIPE	184	14		
ELBOW PIPE	184	21		
NONE	185			
NONE	186			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	187			
NONE	188			
NONE	189			
WELL 45	190	11		
WHITE CAP 74	190	15		
NONE	191			
WELL 35	192	33		
WELL 34	192	52		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
WELL 102	193	37		
NONE	194			
WHITE PIPE	195	16		
LW 8	195	26		
LW 9	195	34		
LW 11	196	18		
VA CAPPED PIPE	197	100		
WHITE CAP 76	197	40,000		
VA CAPPED PIPE	197	45		
WHITE PIPE 77	197	71		
EW 4		10,000		

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
BLACK PIPE 72	198	31		
WELL 100C	199	24		
WELL 3	200	27		
10R	201	17		
BLACK PIPE 78	202	45		
P21	202	60		
CAPPED PIPE	202	117		
BLACK PIPE 79	202	40		
EW-3		8,000		
ABOVE	203			

SITE: REDWOOD LANDFILL DATE: _____

PENETRATION ID	GRID NUMBER	INITIAL (PPM)		
NONE	204			
P22	205	17		
UNCAPPED PIPE	205	24		
UNCAPPED PIPE	205	11		
UNCAPPED PIPE	206	21		
EW 2	206	14		
NONE	207			
NONE	208			

Attachment B

Integrated Surface Emission Monitoring Event Records

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

2021 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			1st Re-mon Event - 10 Days			2nd Re-mon Event - 10 Days			
Exceedance	Monitoring	Reading	Monitoring	No Exced.	No Exced.	Monitoring	No Exced.	No Exced.	
Grid ID No.	Date	ppm	Date	<25 ppm	>25 ppm	Date	<25 ppm	>25 ppm	**Comments**
No Exceedances									

N

0 200 400
SCALE IN FEET

LEGEND

PROPERTY BOUNDARY
APPROXIMATE WASTE FOOTPRINT
3 ⊕ EXISTING LFG EXTRACTION WELL
EXISTING 10' CONTOUR
105 SEM GRID BLOCK

PROPERTY LINE

APPROXIMATE WASTE FOOTPRINT

EXISTING FLARE STATION

INTEGRATED

GRIDS MONITORED

ACTIVE TRASH

No Exceedances

7-12-21
7-14-21
7-15-21

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

WASTE MANAGEMENT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
	DATE OF ISSUE 8/24/2014	DRAWN BY RL	CHECKED BY MED			

cornerstone environmental

PREPARED BY
CORNERSTONE ENVIRONMENTAL GROUP, LLC

REDWOOD LANDFILL, INC
MARIN COUNTY, CALIFORNIA

SURFACE EMISSIONS MONITORING

SHEET NO. 1

PROJECT NO.

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh Ware, Dwight Anderson, Omar Penaloza, Jesse Manning

Cal. Gas Exp. Date: 9-21-21

Date: 7-12-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 74 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
1	LW	1235	1300	3.51	2	3	6	
2	OP	1235	1300	4.17	2	3	6	
3	DA	1235	1300	3.89	2	3	6	
4	JM	1235	1300	4.22	2	3	6	
5	LW	1300	1325	3.71	2	3	5	
6	OP	1300	1325	5.18	2	3	5	
7	DA	1300	1325	6.77	2	3	5	
8	JM	1300	1325	5.41	2	3	5	
9	LW	1325	1350	5.58	2	3	5	
10	OP	1325	1350	4.65	2	3	5	
11	DA	1325	1350	6.13	2	3	5	
12	JM	1325	1350	5.40	2	3	5	
13	LW	1350	1415	5.06	3	4	4	
14	OP	1350	1415	4.90	3	4	4	
15	DA	1350	1415	8.70	3	4	4	
16	JM	1350	1415	4.77	3	4	4	
17	LW	1415	1440	4.31	3	5	4	
18	OP	1415	1440	5.14	3	5	4	
19	DA	1415	1440	5.77	3	5	4	
20	JM	1415	1440	9.21	3	5	4	
21	LW	1440	1505	4.68	4	6	4	
22	OP	1440	1505	4.50	4	6	4	
23	DA	1440	1505	3.78	4	6	4	
24	JM	1440	1505	10.66	4	6	4	
25	LW	1505	1530	8.21	4	7	5	
26	OP	1505	1530	6.55	4	7	5	
27	DA	1505	1530	5.77	4	7	5	
28	JM	1505	1530	4.87	4	7	5	
29	LW	1530	1555	8.60	4	6	6	
30	OP	1530	1555	9.24	4	6	6	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leishward; Dwight Anderson; Oscar Perello; Jeff Manning

Cal. Gas Exp. Date: 9-21-21

Date: 7-12-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 81 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
31	OA	1530	1555	5.17	4	6	6	
32	JM	1530	1555	4.60	4	6	6	
33	LW	1555	1620	7.94	4	8	14	
34	OP	1555	1620	9.21	4	8	14	
35	DA	1555	1620	8.60	4	8	14	
36	JM	1555	1620	6.59	4	8	14	
37	LW	1620	1645	7.21	3	5	13	
38	OP	1620	1645	5.40	3	5	13	
39	DA	1620	1645	5.71	3	5	13	
40	JM	1620	1645	6.51	3	5	13	

Attach Calibration Sheet
Attach site map showing grid ID

Page 2 of 2

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: LEIGHANNE _____ _____ _____

_____ _____ _____

_____ _____ Cal. Gas Exp. Date: _____

Date: 7-12-21 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	
130								Active trash
131								
139								
140								
148								
149								
156								
157								

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 1

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel Loy Lawlor, Dwight Albanese, Omar Poncella, Jose Moreno

Cal. Gas Exp. Date: 9-21-21

Date: 7-14-21 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 60 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
41	LW	0650	0715	3.49	4	5	12	
42	OP	0650	0715	3.71	4	5	12	
43	DA	0650	0715	6.71	4	5	12	
44	JM	0650	0715	8.12	4	5	12	
45	LW	0715	0740	6.21	2	3	13	
46	OP	0715	0740	4.18	2	3	13	
47	JM	0715	0740	4.21	2	3	13	
48	DA	0715	0740	6.54	2	3	13	
49	LW	0740	0805	5.57	3	5	13	
50	OP	0740	0805	4.21	3	5	13	
51	JM	0740	0805	5.50	3	5	13	
52	DA	0740	0805	5.87	3	5	13	
53	LW	0805	0830	6.57	4	5	13	
54	OP	0805	0830	5.98	4	5	13	
55	DA	0805	0830	7.24	4	5	13	
56	JM	0805	0830	5.60	4	5	13	
57	LW	0830	0855	5.10	3	4	13	
58	OP	0830	0855	6.81	3	4	13	
59	DA	0830	0855	5.24	3	4	13	
60	JM	0830	0855	7.11	3	4	13	
61	LW	0855	0920	5.92	3	4	13	
62	OP	0855	0920	4.18	3	4	13	
63	DA	0855	0920	4.12	3	4	13	
64	JM	0855	0920	5.70	3	4	13	
65	LW	0920	0945	4.51	3	4	13	
66	OP	0920	0945	8.12	3	4	13	
67	DA	0920	0945	6.77	3	4	13	
68	JM	0920	0945	5.40	3	4	13	
69	LW	0945	1010	3.71	3	4	13	
70	OP	0945	1010	4.50	3	4	13	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel Louis Lawson, Dwight Atkinson, Omar Portilla, Jose Monroy

Cal. Gas Exp. Date: 9-21-21

Date: 7-14-21 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 65 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
71	JM	0945	1010	6.45	3	4	N	
72	DA	0945	1010	5.19	3	4	N	
73	LW	1010	1035	5.47	2	3	N	
74	OP	1010	1035	4.89	2	3	N	
75	DA	1010	1035	5.92	2	3	N	
76	JM	1010	1035	6.18	2	3	N	
77	LW	1035	1100	5.41	2	3	N	
78	OP	1035	1100	4.98	2	3	N	
79	DA	1035	1100	7.12	2	3	N	
80	JM	1035	1100	5.55	2	3	N	
81	LW	1130	1155	5.07	2	3	N	
82	OP	1130	1155	4.92	2	3	N	
88	DA	1130	1155	6.12	2	3	N	
89	JM	1130	1155	5.47	2	3	N	
90	LW	1155	1220	5.52	2	3	N	
91	OP	1155	1220	8.14	2	3	N	
92	DA	1155	1220	7.26	2	3	N	
93	JM	1155	1220	5.18	2	3	N	
94	LW	1220	1245	5.41	2	3	NE	
99	OP	1220	1245	4.68	2	3	NE	
100	DA	1220	1245	5.57	2	3	NE	
101	JM	1220	1245	6.71	2	3	NE	
102	LW	1245	1310	5.92	2	3	NE	
103	OP	1245	1310	5.08	2	3	NE	
104	DA	1245	1310	4.17	2	3	NE	
109	JM	1245	1310	6.51	2	3	NE	
110	LW	1310	1335	4.97	2	3	N	
111	OP	1310	1335	7.12	2	3	N	
112	DA	1310	1335	4.88	2	3	N	
113	JM	1310	1335	5.39	2	3	N	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Louis Ward; Oren Ponella; Jessie Reading; Dwight Anderson

Cal. Gas Exp. Date: 9-21-21

Date: 7-14-21 Instrument Used: 4V71000 Grid Spacing: 25'

Temperature: 77 Precip: 0 Upwind BG: 2.8 Downwind BG: 2.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
114	LW	1335	1400	3.91	2	3	4	
115	OP	1335	1400	4.17	2	3	4	
120	DA	1335	1400	6.47	2	3	4	
121	JR	1335	1400	7.90	2	3	4	
122	LW	1400	1425	8.13	2	3	16	
123	OP	1400	1425	5.60	2	3	16	
124	DA	1400	1425	5.24	2	3	16	
125	JR	1400	1425	4.98	2	3	16	
126	LW	1425	1450	5.11	2	3	16	
132	OP	1425	1450	4.17	2	3	16	
133	DA	1425	1450	4.19	2	3	16	
134	JR	1425	1450	3.89	2	3	16	
135	LW	1450	1515	5.21	2	3	6	
141	OP	1450	1515	4.70	2	3	6	
142	DA	1450	1515	4.58	2	3	6	
143	JR	1450	1515	6.25	2	3	6	
144	LW	1515	1540	4.51	2	3	2	
150	OP	1515	1540	8.97	2	3	2	
151	DA	1515	1540	7.22	2	3	2	
152	JR	1515	1540	5.48	2	3	2	
158	LW	1540	1605	8.46	2	3	14	
159	OP	1540	1605	7.39	2	3	14	
160	DA	1540	1605	4.20	2	3	14	
166	JR	1540	1605	6.88	2	3	14	
167	LW	1605	1630	7.24	2	3	14	
168	OP	1605	1630	5.75	2	3	14	
169	DA	1605	1630	5.92	2	3	14	
175	JR	1605	1630	4.80	2	3	14	

Attach Calibration Sheet
Attach site map showing grid ID

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REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Lois Lwase; Dwight Anderson; Oscar Peralta; Jesus Manning

Cal. Gas Exp. Date: 9-21-21

Date: 7-15-21 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 59 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
174	LW	0525	0550	6.47	2	3	14	
181	OP	0525	0550	5.19	2	3	14	
182	JM	0525	0550	5.54	2	3	14	
183	DA	0525	0550	5.10	2	3	14	
189	LW	0550	0615	6.21	2	4	16	
195	OP	0550	0615	5.94	2	4	16	
83	JM	0550	0615	4.10	2	4	16	
84	DA	0550	0615	3.97	2	4	16	
85	LW	0615	0640	4.57	2	3	14	
86	OP	0615	0640	5.66	2	3	14	
87	JM	0615	0640	5.81	2	3	14	
95	DA	0615	0640	5.84	2	3	14	
96	LW	0640	0705	4.71	2	3	14	
97	OP	0640	0705	4.25	2	3	14	
98	JM	0640	0705	5.84	2	3	14	
105	DA	0640	0705	5.61	2	3	14	
106	LW	0705	0730	4.98	2	3	14	
107	OP	0705	0730	5.50	2	3	14	
108	JM	0705	0730	6.37	2	3	14	
116	DA	0705	0730	5.25	2	3	14	
117	LW	0730	0755	5.81	2	3	14	
118	OP	0730	0755	5.72	2	3	14	
119	JM	0730	0755	6.95	2	3	14	
127	DA	0730	0755	7.25	2	3	14	
128	LW	0755	0820	6.45	2	4	14	
129	OP	0755	0820	5.03	2	4	14	
136	JM	0755	0820	5.51	2	4	14	
137	DA	0755	0820	3.70	2	4	14	
138	LW	0820	0845	4.50	2	3	12	
145	OP	0820	0845	4.94	2	3	12	

Attach Calibration Sheet
Attach site map showing grid ID

Page 1 of 3

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leigh WADE, Dwight ANDERSON, Omar PINEDA, Jesse MANNING

Cal. Gas Exp. Date: 9-21-21

Date: 7-15-21 Instrument Used: TVA1000 Grid Spacing: 25'

Temperature: 68 Precip: 0 Upwind BG: 2.8 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION			REMARKS
					AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	
146	JM	0820	0845	4.25	2	3	12	
147	DA	0820	0845	5.11	2	3	12	
153	LW	0845	0910	4.67	2	3	12	
154	OP	0845	0910	4.40	2	3	12	
155	JM	0845	0910	6.25	2	3	12	
161	DA	0845	0910	4.30	2	3	12	
162	LW	0910	0935	4.58	2	3	11	
163	OP	0910	0935	5.71	2	3	11	
164	JM	0910	0935	6.89	2	3	11	
165	DA	0910	0935	5.91	2	3	13	
170	LW	0935	1000	6.10	3	6	15	
171	OP	0935	1000	5.49	3	6	15	
172	JM	0935	1000	5.02	3	6	15	
173	DA	0935	1000	5.77	3	6	15	
176	LW	1000	1025	4.04	3	4	15	
177	OP	1000	1025	4.32	3	4	15	
178	JM	1000	1025	5.13	3	4	15	
179	DA	1000	1025	6.45	3	4	15	
180	LW	1025	1050	5.50	3	5	16	
184	OP	1025	1050	4.39	3	5	16	
185	JM	1025	1050	5.66	3	5	16	
186	DA	1025	1050	6.35	3	5	16	
187	LW	1050	1115	5.39	3	6	16	
188	OP	1050	1115	5.12	3	6	16	
190	JM	1050	1115	4.51	3	6	16	
191	DA	1050	1145	4.70	3	6	16	
192	LW	1145	1210	4.25	4	6	2	
193	OP	1145	1210	5.66	4	6	2	
194	JM	1145	1210	4.38	4	6	2	
196	DA	1145	1210	5.21	4	6	2	

Attach Calibration Sheet
Attach site map showing grid ID

REDWOOD LANDFILL
INTEGRATED LANDFILL SURFACE MONITORING

Personnel: Leis Wade, Omar Peralta, Jesse Mcvicty, Doug Hardenton

Cal. Gas Exp. Date: 9-21-21

Date: 7-15-21 Instrument Used: TVA 1000 Grid Spacing: 25'

Temperature: 71 Precip: 0 Upwind BG: 2.9 Downwind BG: 3.2

GRID ID	STAFF INITIALS	START TIME	STOP TIME	TOC PPM	WIND INFORMATION AVG SPEED	MAX. SPEED	DIRECTION 16 POINT	REMARKS
197	LW	1210	1235	3.16	4	5	12	
198	OP	1210	1235	4.40	4	5	12	
199	JM	1210	1235	4.18	4	5	12	
200	DA	1210	1235	3.21	4	5	12	
201	LW	1235	1300	3.77	4	6	13	
205	OP	1235	1300	4.10	4	6	13	
202	JM	1235	1300	3.64	4	6	13	
206	DA	1235	1300	3.21	4	6	13	
203	LW	1300	1325	3.77	4	6	13	
204	OP	1300	1325	5.50	4	6	13	
207	JM	1300	1325	5.89	4	6	13	
208	DA	1300	1325	4.76	4	6	13	

Attach Calibration Sheet
Attach site map showing grid ID

Page 3 of 3

Attachment C

Component Leak Monitoring Event Records

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

2021 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

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

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

2021 QUARTER: 3
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

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

LANDFILL NAME: Redwood
QUARTERLY LFG COMPONENT LEAK MONITORING

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

DATE OF SAMPLING: 7-14-21
TECHNICIAN: Leigh 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.

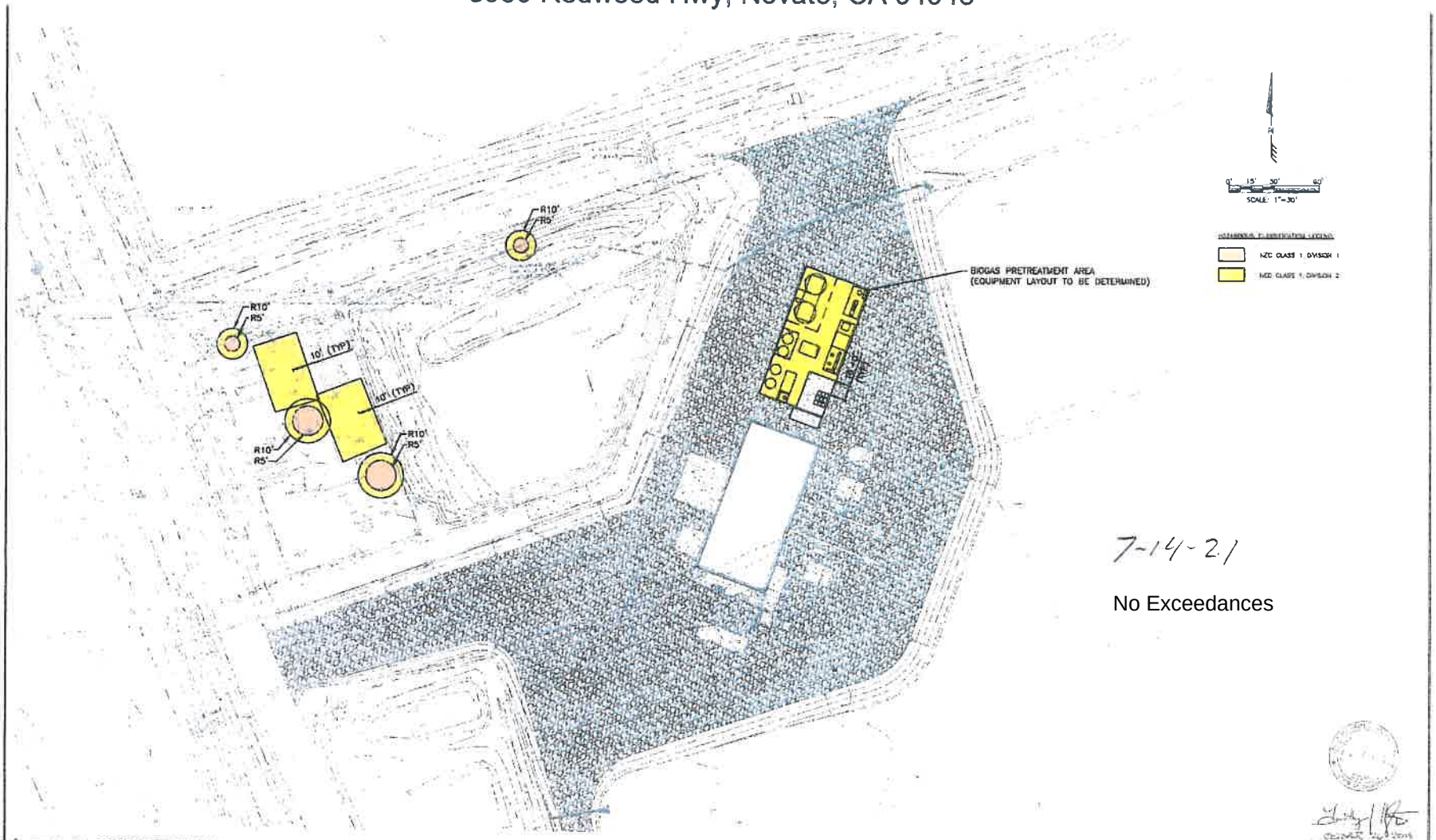
NOTE: Leaks over 500 ppmv methane are exceedances at any component containing landfill gas, pursuant to CARB Title 17 of California Code of Regulations Subchapter 10, Article 4, Subarticle 6, Section 95464(b)(1)(B).

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

REDWOOD 3520+ ENGINE PLANT, CA

Site Map

8950 Redwood Hwy, Novato, CA 94948



7-14-21

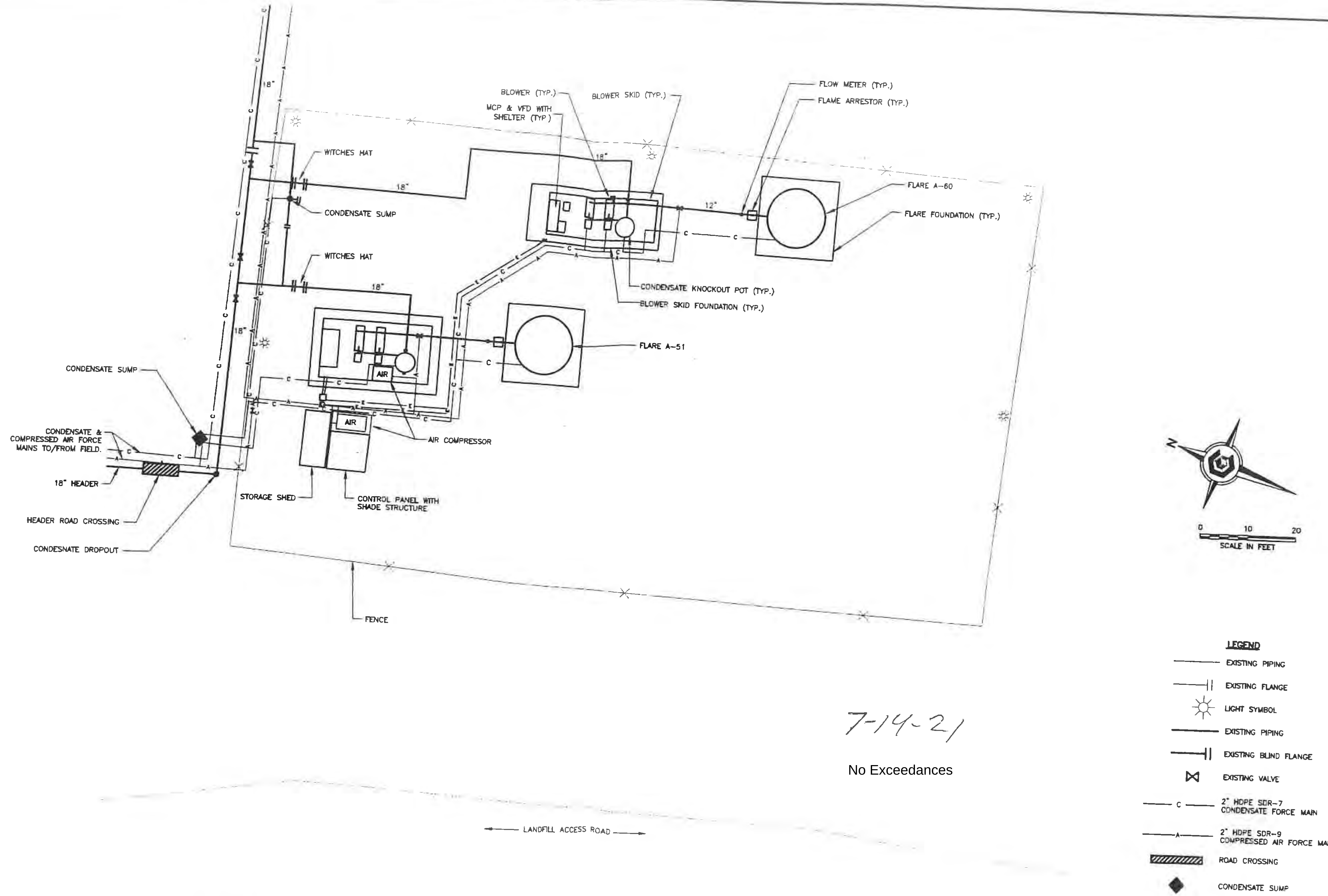
No Exceedances

REV	DATE	BY	DESCRIPTION
6	3-1-16	RAA	ISSUED FOR CONSTRUCTION
5	10-26-15	RAA	BUILDING PERMIT APPLICATION SET
4	10-2-15	RAA	95% DESIGN RESUBMITTAL
3	8-7-15	RAA	ISSUED FOR GAS TREATMENT SKID BID
2	8-12-15	RAA	95% DESIGN SUBMITTAL
1	5-6-15	RAA	50% DESIGN SUBMITTAL

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

ACEng
www.ac-engineering.com

CLIENT	DESCRIPTION	PROJECT NO.
WASTE MANAGEMENT RENEWABLE ENERGY LANDFILL TO GAS ENERGY PROJECT REDWOOD LANDFILL, NOVATO, CA	PROPOSED CONDITIONS AND HAZARDOUS AREA CLASSIFICATIONS	1003.005.001 SHEET: G-5


BLOWER (TYP.)
MCP & VFD WITH SHELTER (TYP.)
BLOWER SKID (TYP.)
FLOW METER (TYP.)
FLAME ARRESTOR (TYP.)
FLARE A-60
FLARE FOUNDATION (TYP.)
WITCHES HAT
CONDENSATE SUMP
WITCHES HAT
18"
12"
CONDENSATE KNOCKOUT POT (TYP.)
BLOWER SKID FOUNDATION (TYP.)
FLARE A-51
AIR
AIR COMPRESSOR
CONDENSATE SUMP
CONDENSATE & COMPRESSED AIR FORCE MAINS TO/FROM FIELD.
18" HEADER
HEADER ROAD CROSSING
CONDESNATE DROPOUT
STORAGE SHED
CONTROL PANEL WITH SHADE STRUCTURE
FENCE
LANDFILL ACCESS ROAD
N
0 10 20
SCALE IN FEET
LEGEND
EXISTING PIPING
EXISTING FLANGE
LIGHT SYMBOL
EXISTING PIPING
EXISTING BLIND FLANGE
EXISTING VALVE
2" HDPE SDR-7 CONDENSATE FORCE MAIN
2" HDPE SDR-9 COMPRESSED AIR FORCE MAIN
ROAD CROSSING
CONDENSATE SUMP

7-14-21

No Exceedances

DRAFT

WASTE MANAGEMENT

PAUL J STOUT, P.E

P.E Lic No C52827 Date

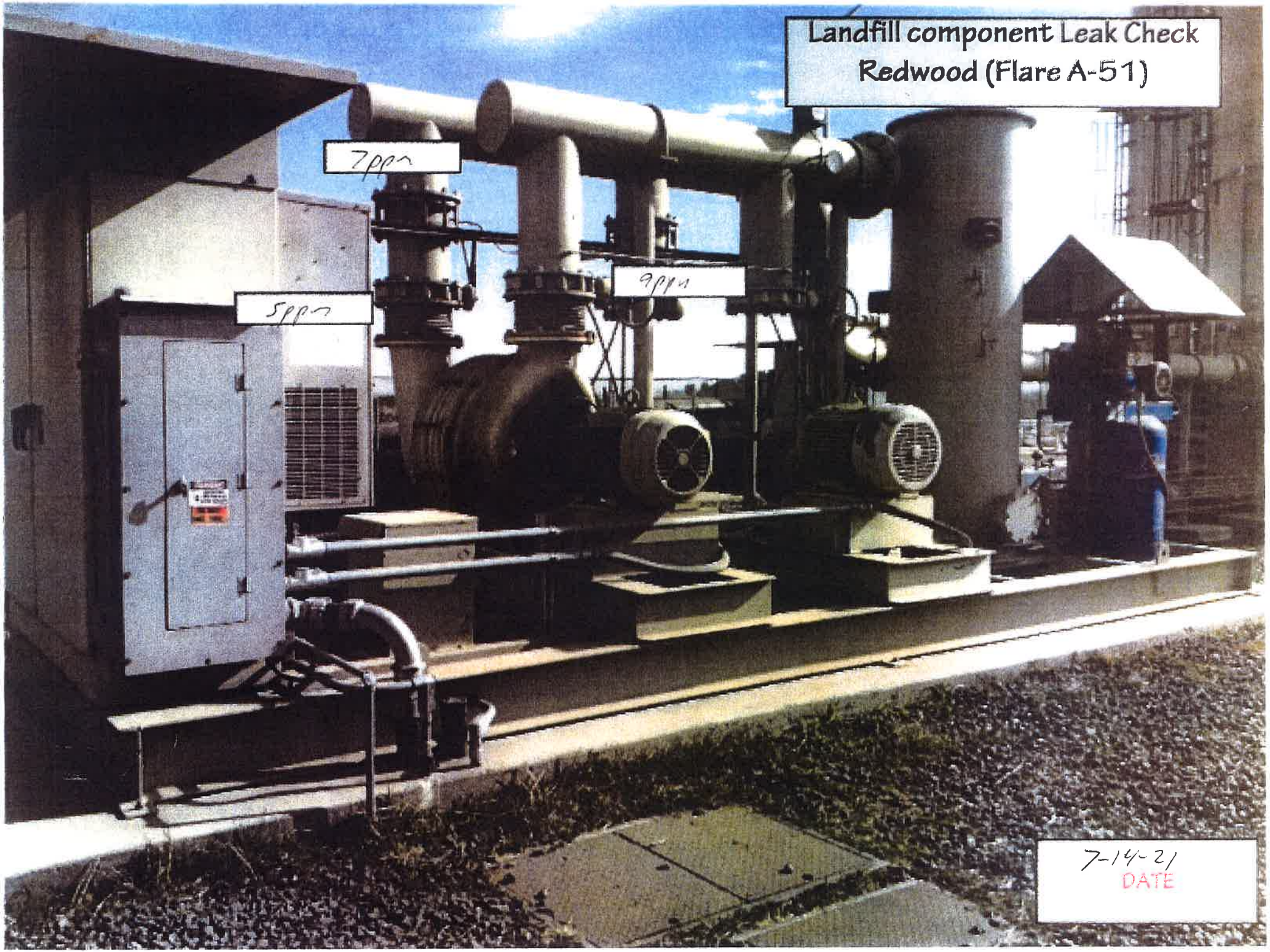
CORNERSTONE Environmental Group, LLC

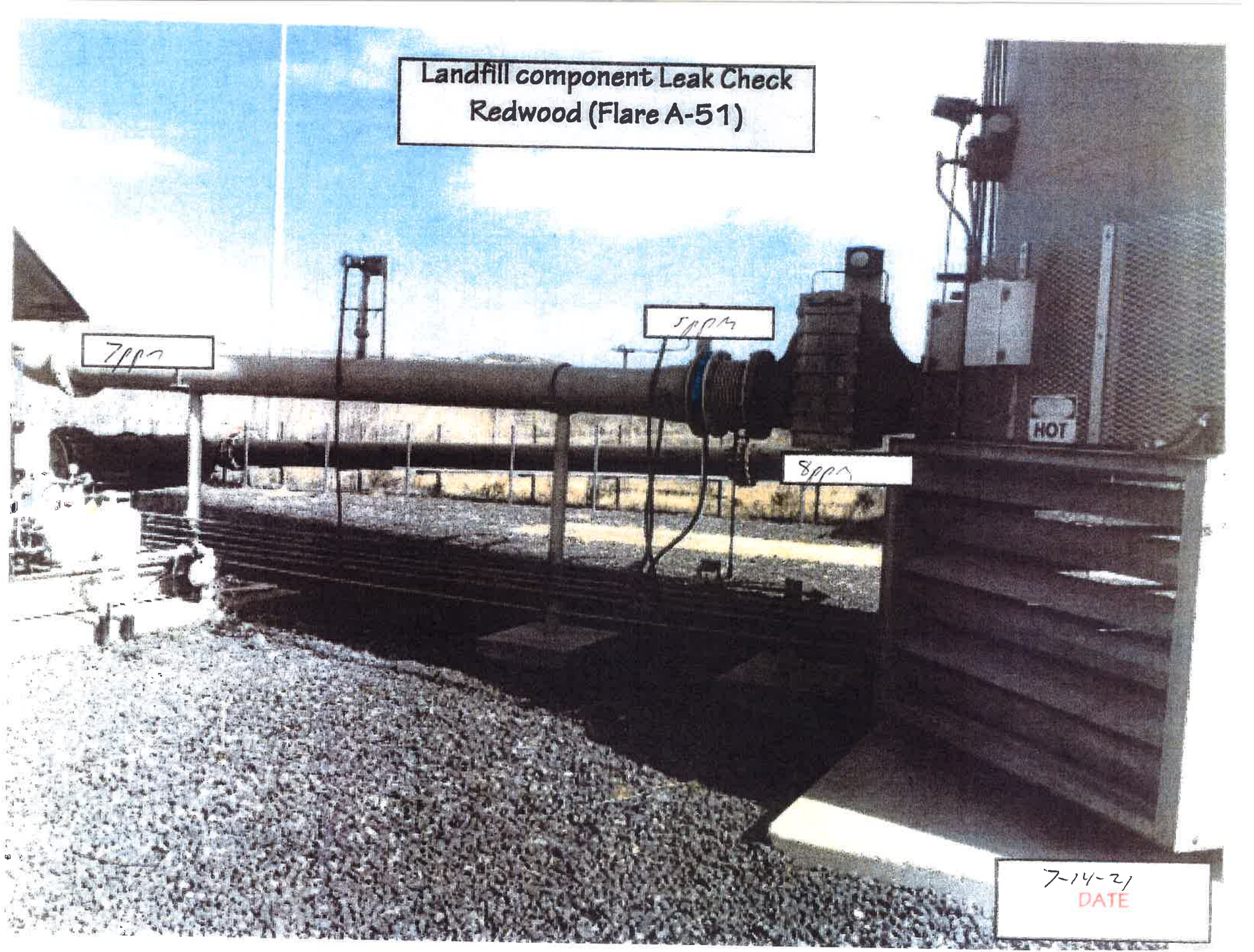
WASTE MANAGEMENT OF CALIFORNIA, INC
REDWOOD LANDFILL, INC.
NOVATO, MARIN COUNTY, CALIFORNIA

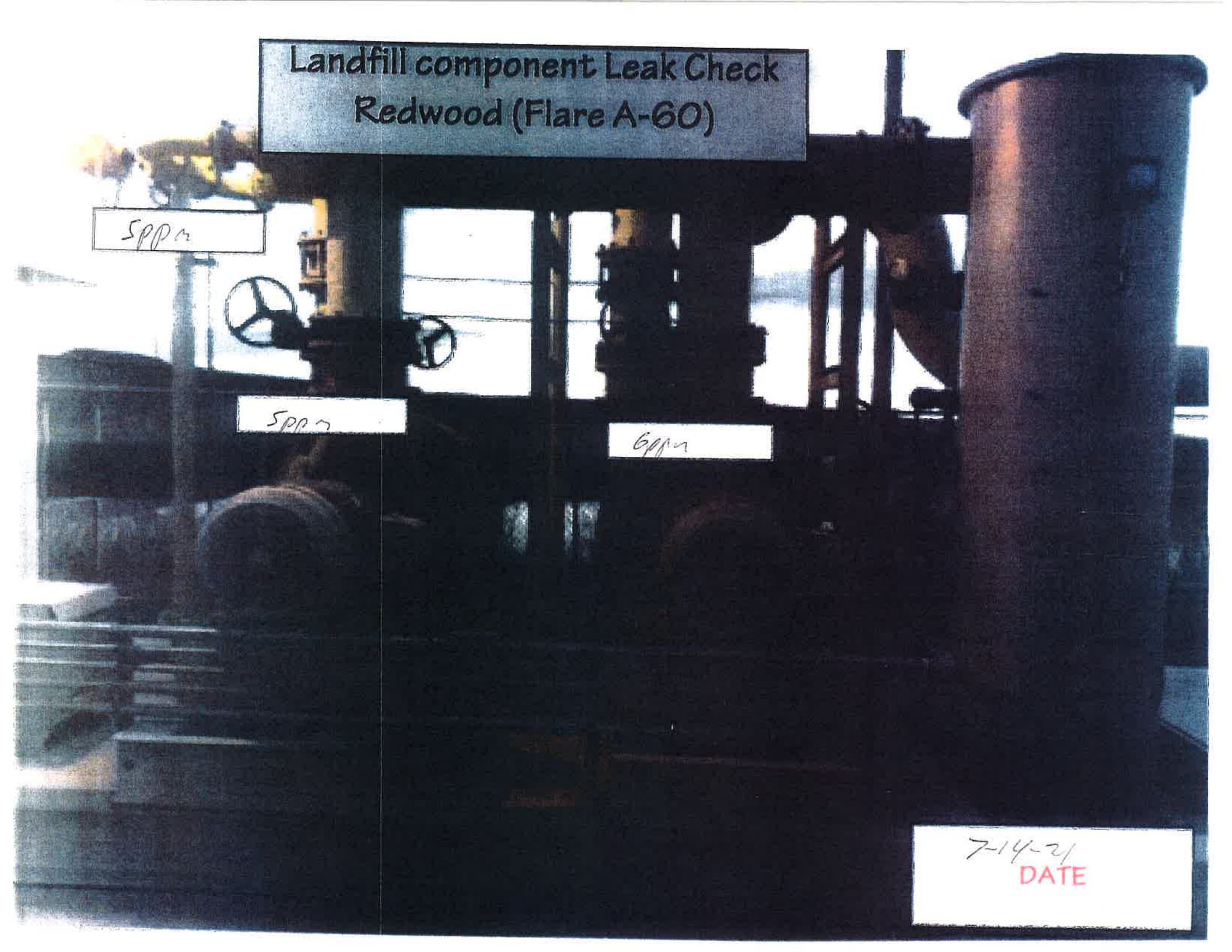
LFG FLARE AND GCCS AS-BUILT FACILITY SITE PLAN

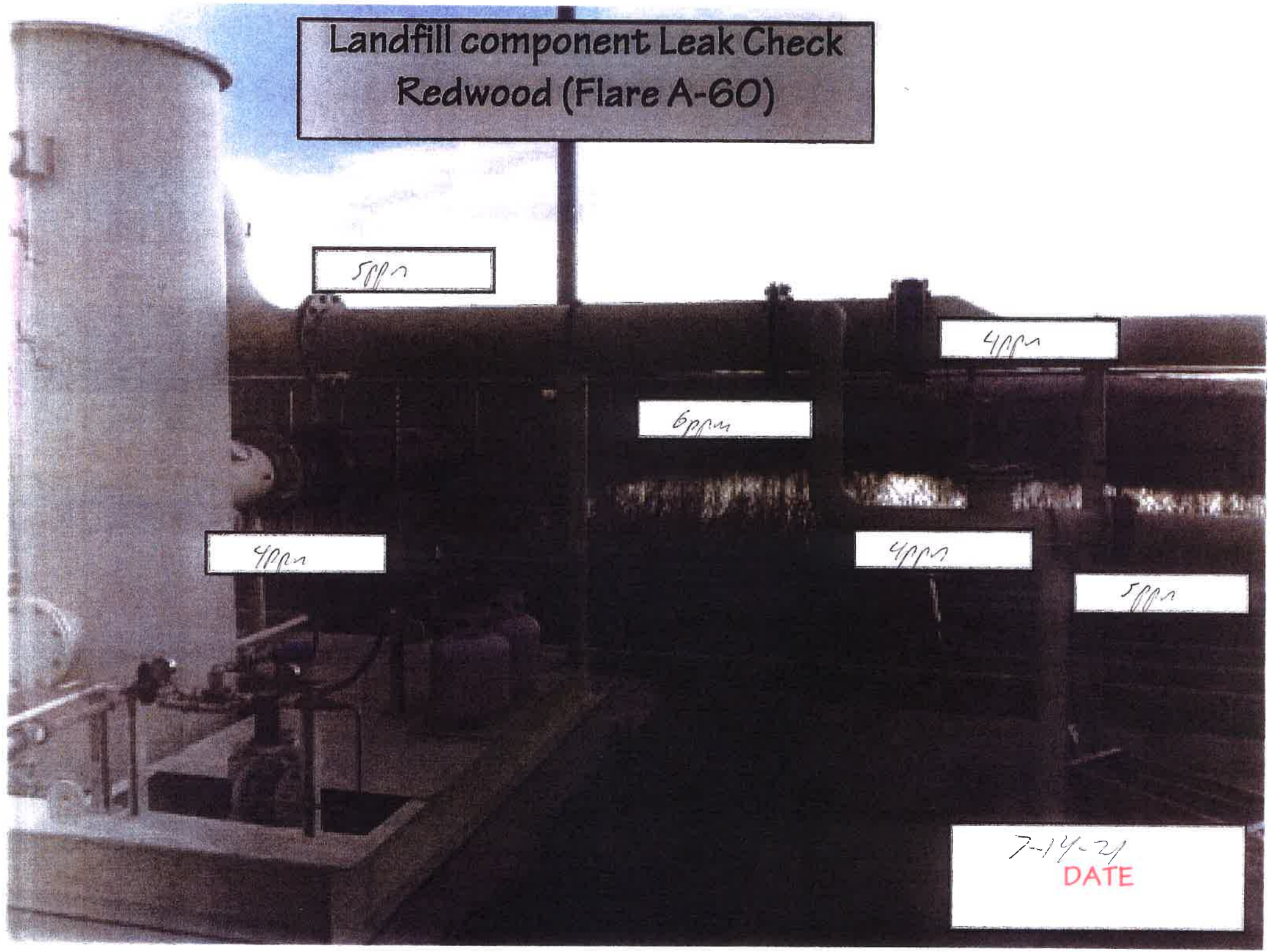
SHEET NO 1

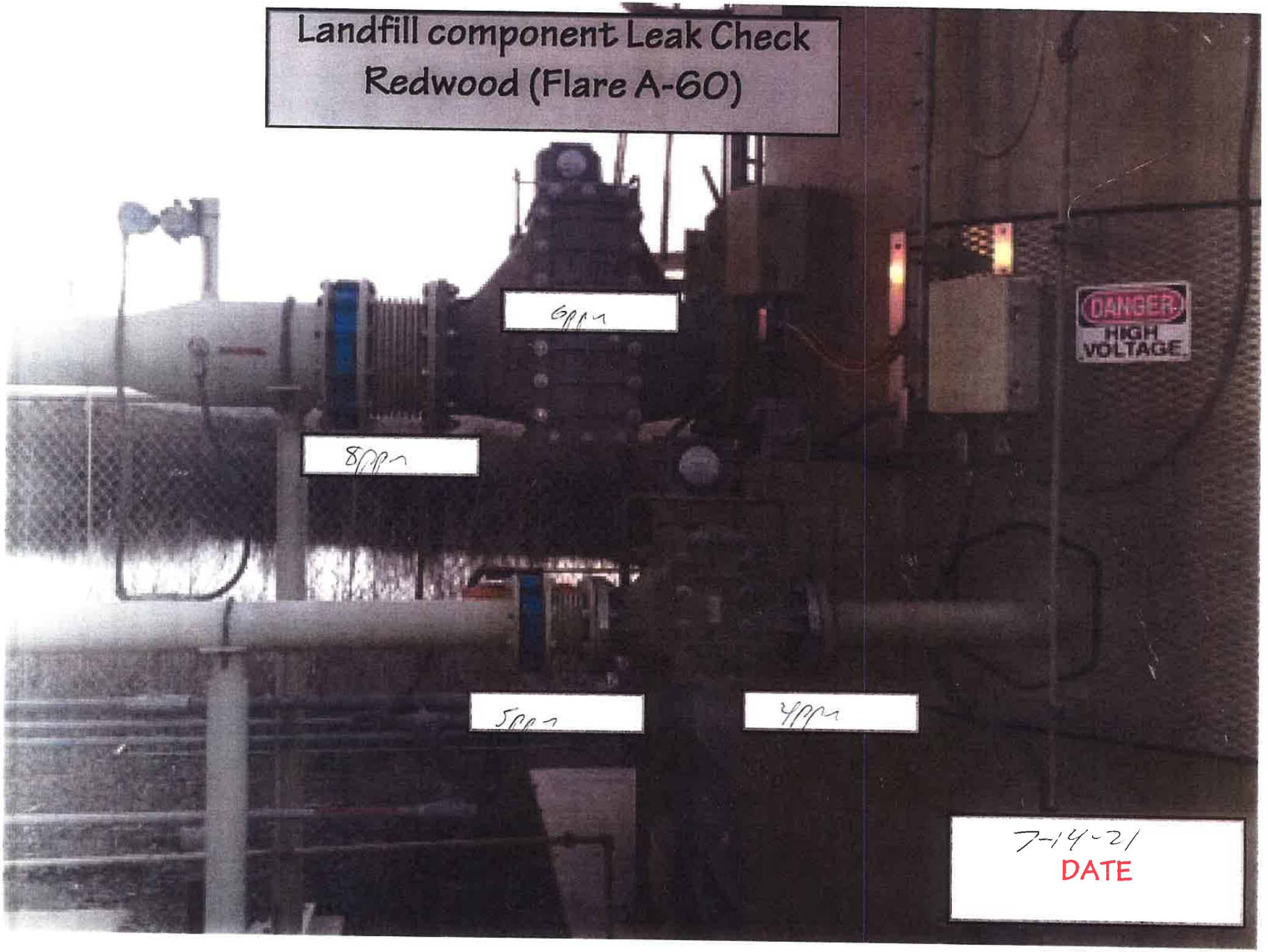
PROJECT NO 70314


Landfill component Leak Check
Redwood (Flare A-51)
7ppm
9ppm
5ppm
7-14-21
DATE


Landfill component Leak Check
Redwood (Flare A-51)
7ppm
5ppm
8ppm
HOT
7-14-21
DATE


Landfill component Leak Check
Redwood (Flare A-60)
5PPM
5PPM
6PPM
7-14-21
DATE


Landfill component Leak Check
Redwood (Flare A-60)
5ppm
4ppm
6ppm
4ppm
4ppm
5ppm
7-14-21
DATE


Landfill component Leak Check
Redwood (Flare A-60)
6ppm
8ppm
5ppm
4ppm
DANGER
HIGH VOLTAGE
7-14-21
DATE

Attachment D

Weather Station Data

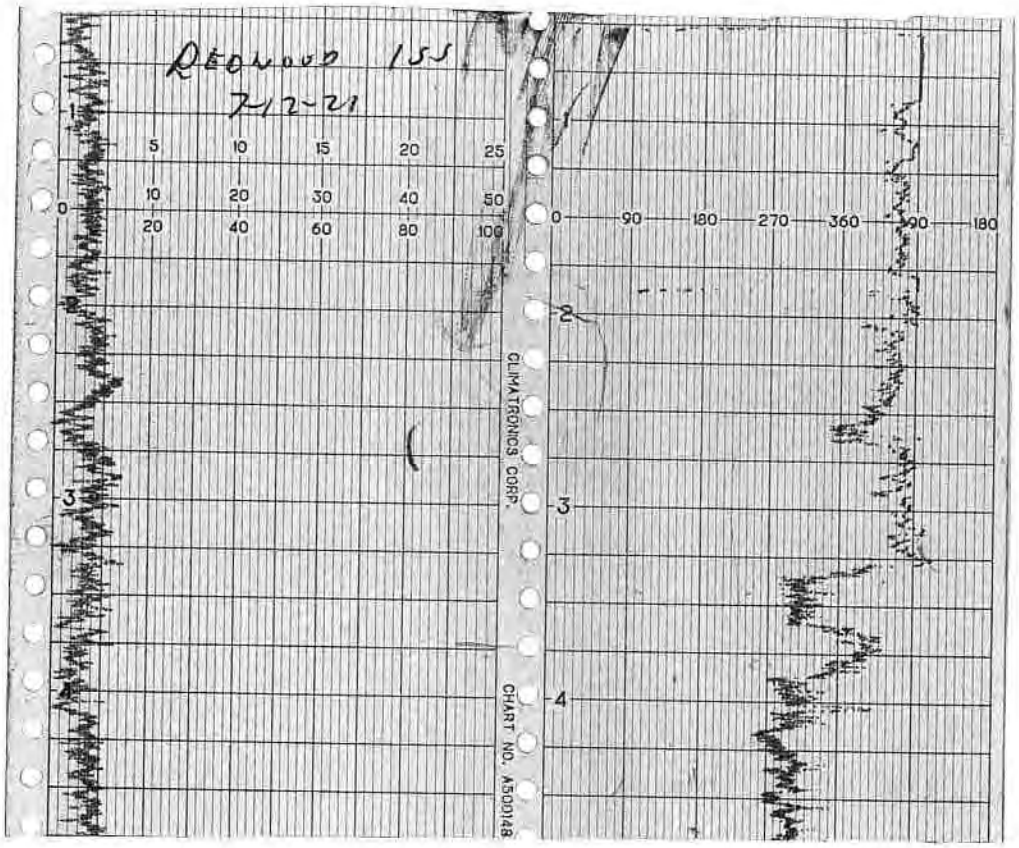
RES Environmental Inc.

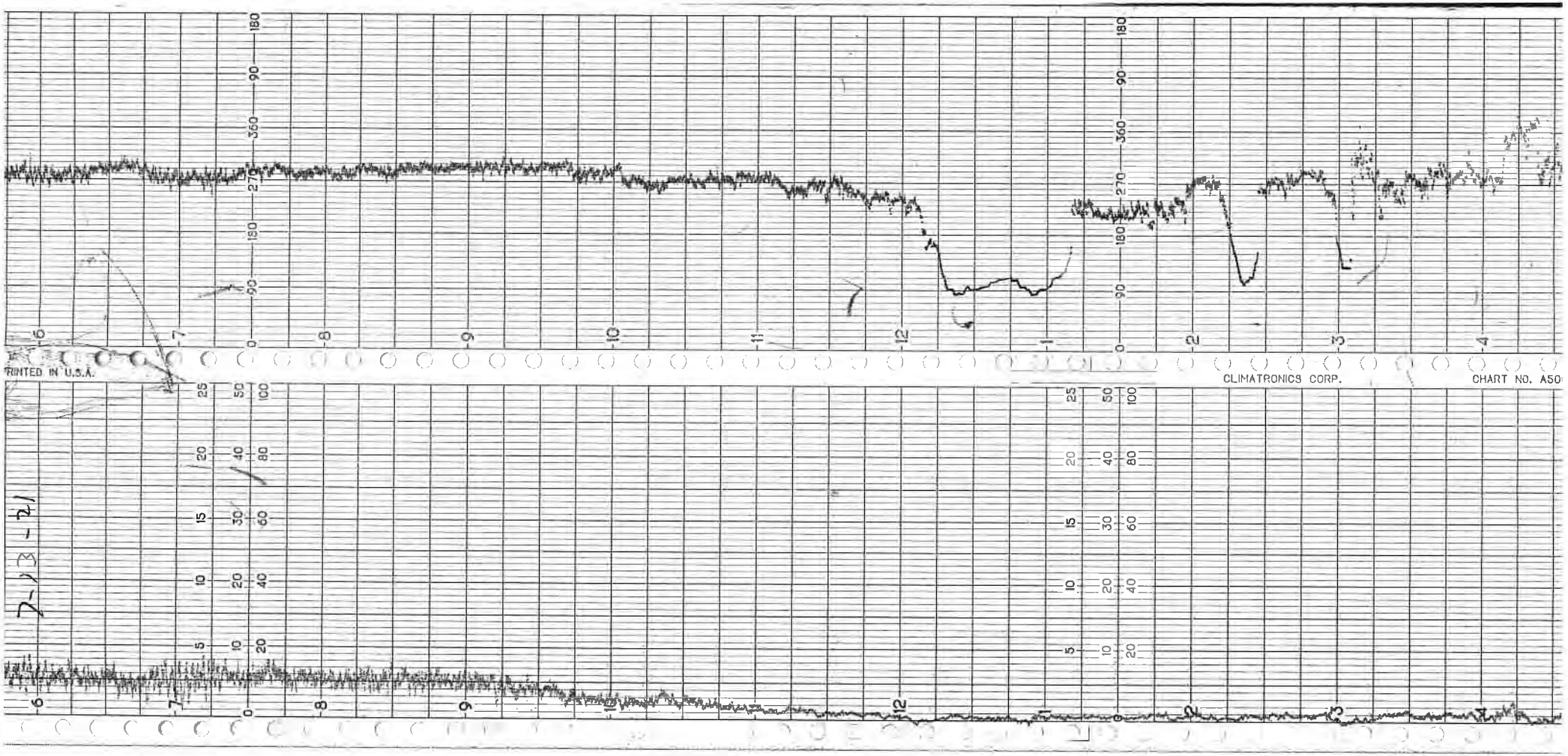
16-POINT WIND DIRECTION INDEX

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

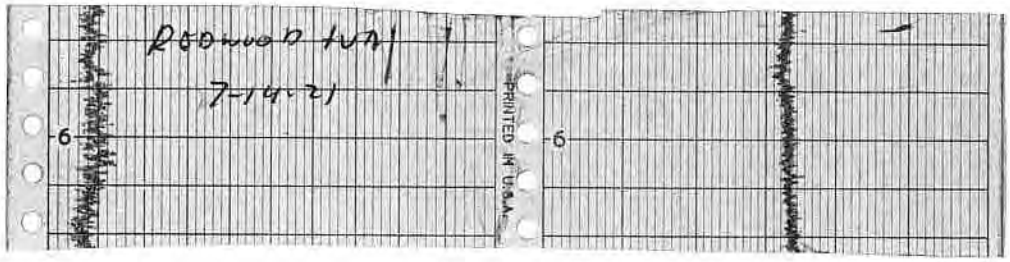
865 Via Lata ▪ Colton, California 92324 ▪ (909) 422-1001 Fax (909) 422-0707

WIND SPEED & DIRECTION CHART ROLL




PRINTED IN U.S.A.
CLIMATRONICS CORP.
CHART NO. A50
7-13-71

WIND SPEED & DIRECTION CHART ROLL



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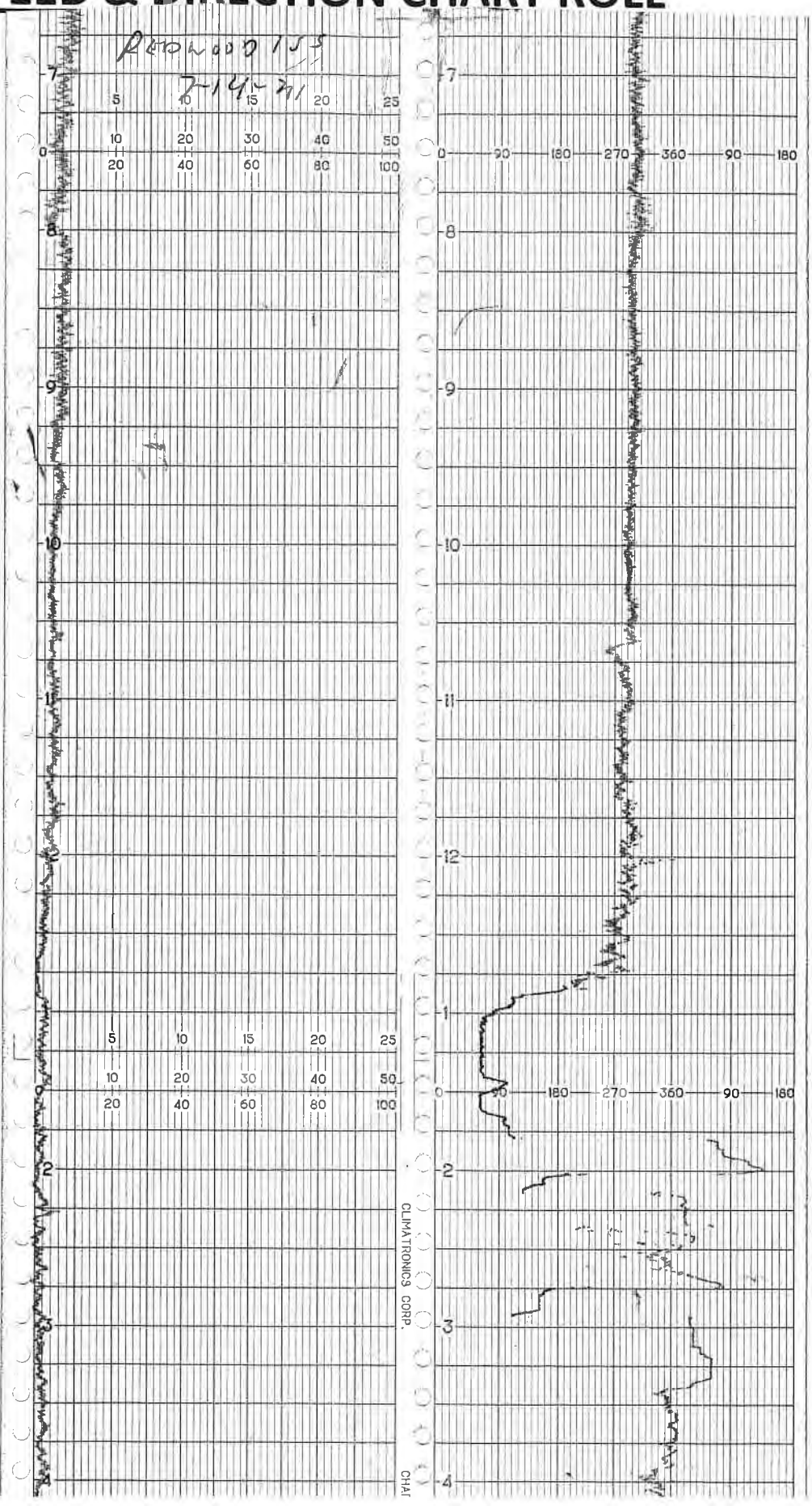
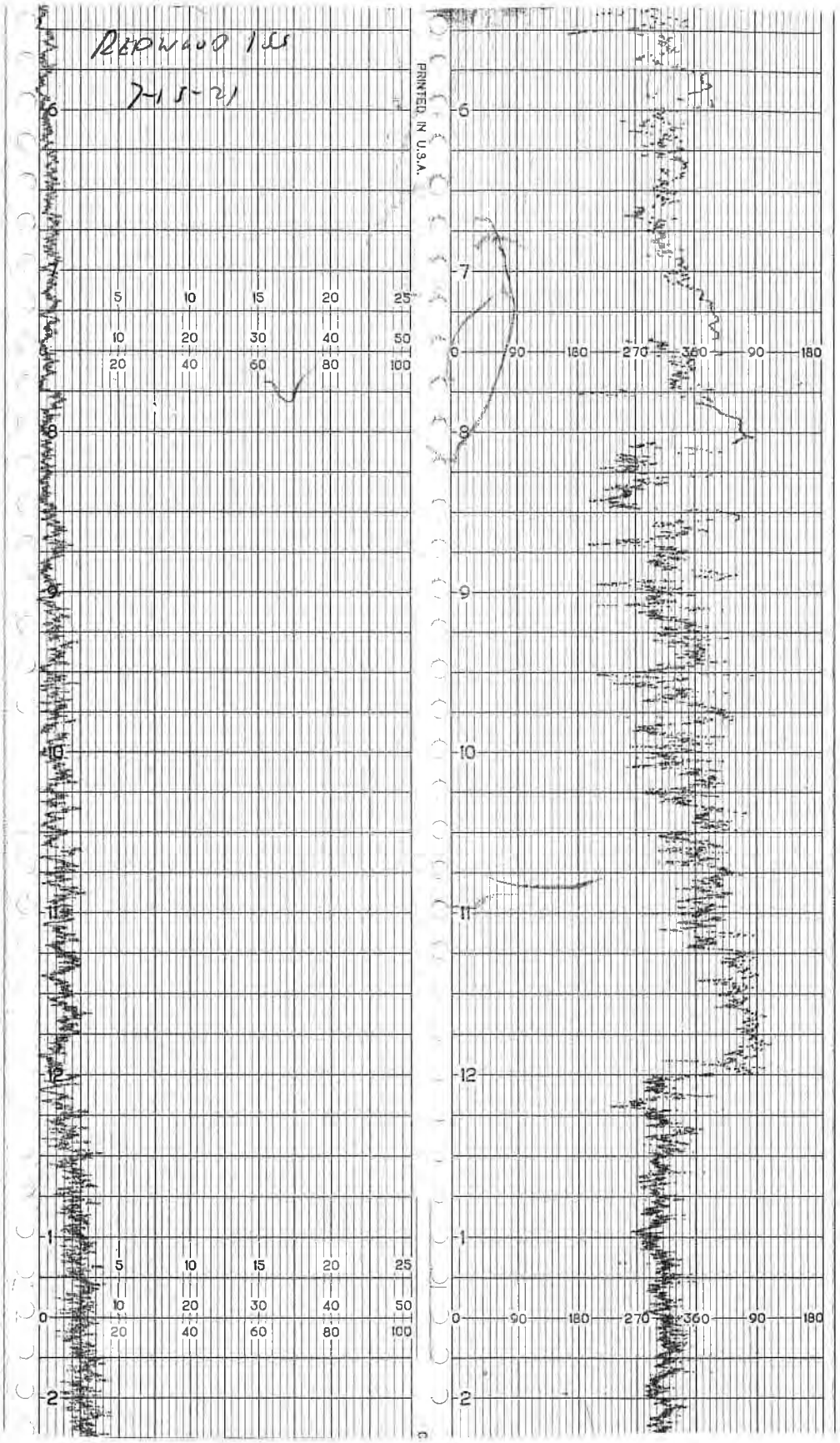


WIND SPEED & DIRECTION CHART ROLL



Attachment E

Calibration Records

RESPONSE TIME TEST RECORD

Date: 7/14/2021

Expiration Date (3 months): 10/14/2021

Time: 10:50 AM _____ PM

Instrument Make: Photovac Model: MicroFD S/N: CZMF340

Measurement #1:

Stabilized Reading Using Calibration Gas: 500 ppm
90% of the Stabilized Reading: 450 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (a)

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: 6 seconds (b)

Measurement #3:

Stabilized Reading Using Calibration Gas: 500 ppm
90% of the Stabilized Reading: 450 ppm
Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas: 6 seconds (c)

Calculate Response Time:

$$\frac{(a)+(b)+(c)}{3} = \quad 6 \text{ seconds (must be less than 30 seconds)}$$

Performed By: RReed

CALIBRATION PRECISION TEST RECORD

Date: 7/14/2021

Expiration Date (3 months): 10/14/2021

Time: 10:50 AM _____ PM

Instrument Make: Photovac Model: MicroFD S/N: CZMF340

Measurement #1:

Meter Reading for Zero Air: 1.6 ppm (a)

Meter Reading for Calibration Gas: 500 ppm (b)

Measurement #2:

Meter Reading for Zero Air: 1.6 ppm (c)

Meter Reading for Calibration Gas: 501 ppm (d)

Measurement #3:

Meter Reading for Zero Air: 1.7 ppm (e)

Meter Reading for Calibration Gas: 500 ppm (f)

Calculate Precision:

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

0.1 % (must be < than 10%)

Performed By: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 7/14/2021

Time: 10:50 AM _____ PM

Instrument Make: Photovac 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 = 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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 7/15/2021

Time: 09:05 AM _____ PM

Instrument Make: Photovac 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

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: RReed

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 7-22-21

Time: _____ AM 1:20 PM

Instrument Make: Photo Vac Model: Ntng 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 = 499 ppm

Background Determination Procedure

1. Upwind Reading (highest in 30 seconds): 0 ppm (a)
2. Downwind Reading (highest in 30 seconds): 4 ppm (b)

Calculate Background Value:

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

Performed By: [signature]

CALIBRATION PROCEDURE AND BACKGROUND DETERMINATION REPORT

Landfill Name: Redwood Landfill Date: 8-05-21

Time: 8:30 AM _____ PM

Instrument Make: PHOTOVAC Model: MICROFID S/N: C2MF340

Calibration Procedure

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

   Stable Reading = 502 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: [signature]

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Honda

MODEL: HVA1000 EQUIPMENT #: 10 SERIAL #: 1036396723

MONITORING DATE: 7-13-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	510 ppm	460 ppm	>
#2	499 ppm	449 ppm	>
#3	500 ppm	450 ppm	>
Calculate Response Time (1+2+3) / 3			> #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	0.19 ppm	510 ppm	10
#2	0.11 ppm	499 ppm	1
#3	0.09 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: Chris Wren Date/Time: 7-13-21 - 0520

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Roswell INSTRUMENT MAKE: Honeywell

MODEL: TVA1000 EQUIPMENT #: 11 SERIAL #: 1036346774

MONITORING DATE: 7-13-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	5
#2	500 ppm	450 ppm	5
#3	500 ppm	450 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.24 ppm	490 ppm	10
#2	0.16 ppm	500 ppm	0
#3	0.08 ppm	500 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 Jesse Manning Date/Time: 7-13-21 - 0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE Thermo

MODEL TVA-1000 EQUIPMENT #: 12 SERIAL #: 1038246741

MONITORING DATE: 7-13-21 TIME: 0520

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 5.0 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	489 ppm	439 ppm	7
#2	502 ppm	452 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	0.34 ppm	489 ppm	11
#2	0.21 ppm	502 ppm	2
#3	0.17 ppm	500 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.86 #DIV/0! Must be less than 10%

Performed By: Dwight Anderson Date/Time: 7-13-21 ~ 0520

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Dodwood INSTRUMENT MAKE: Henno

MODEL: NA1000 EQUIPMENT #: 13 SERIAL #: 11027467775

MONITORING DATE: 7-13-21 TIME: 0820

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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	492 ppm	442 ppm	6
#2	500 ppm	450 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3)/3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.25 ppm	492 ppm	8
#2	0.13 ppm	500 ppm	0
#3	0.10 ppm	500 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.53 #DIV/0! Must be less than 10%

Performed By: Omar Penalba Date/Time: 7-13-21 - 0520

RJES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Hopkinton INSTRUMENT MAKE: Honeywell

MODEL: 4WA1005 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 7-14-21 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
2.8 ppm	3.2 ppm	2.0 ppm

Background Value = 2.0 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	492 ppm	442 ppm	7
#2	500 ppm	450 ppm	7
#3	505 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	0.31 ppm	492 ppm	8
#2	0.27 ppm	500 ppm	0
#3	0.15 ppm	500 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.53 #DIV/0! Must be less than 10%

Performed By: Christopher Lee Date/Time: 7-14-21 – 0520

RJES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

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

MONITORING DATE: 7-14-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	502 ppm	452 ppm	6
#2	495 ppm	445 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	0.44 ppm	502 ppm	2
#2	0.28 ppm	495 ppm	5
#3	0.17 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: Dwight Anderson Date/Time: 7-14-21 0520

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Runnels INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 7-14-21 TIME: 0520

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 510 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	7
#2	501 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	0.79 ppm	490 ppm	10
#2	0.15 ppm	501 ppm	1
#3	0.17 ppm	515 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: Jesse Manning Date/Time: 7-14-21 0520

RJES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Honda

MODEL: GX A 100 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 7-14-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	495 ppm	449 ppm	5
#3	560 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	0.39 ppm	507 ppm	7
#2	0.21 ppm	495 ppm	5
#3	0.17 ppm	5.0 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1		0.53 #DIV/0! Must be less than 10%

Performed By: Omar Penalta Date/Time 7-14-21-0520

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1036346773

MONITORING DATE: 7-12-21 TIME: 1230

Calibration Procedure:

1. Allow instrument to zero itself while introducing air.
2. Introduce calibration gas into the probe. Stabilized reading = 2.5 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 **ppm**

INSTRUMENT RESPONSE TIME RECORD

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

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 **ppm**

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.39 ppm	24 ppm	1
#2	0.17 ppm	24 ppm	1
#3	0.11 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: Lois Wade Date/Time: 7-12-21 ~1230

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Horiba

MODEL: Hua 1000 EQUIPMENT #: 11 SERIAL #: 103634734

MONITORING DATE: 7-12-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	0.24 ppm	23 ppm	2
#2	0.17 ppm	25 ppm	0
#3	0.11 ppm	25 ppm	0
Calculate Precision	[STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1		2.8 #DIV/0! Must be less than 10%

Performed By: Dwight Anderson Date/Time: 7-12-21-1230

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1830246741

MONITORING DATE: 7-12-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	0.41 ppm	24 ppm	1
#2	0.26 ppm	25 ppm	0
#3	0.17 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: Jessie Manning Date/Time: 7-12-21 – 1230

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Thermo

MODEL: TVA 1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 7-12-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	0.19 ppm	24 ppm	1
#2	0.14 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: Omar Perez Date/Time: 7-12-21-1230

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: THorno

MODEL: TVA 1000 EQUIPMENT #: 10 SERIAL #: 1636346773

MONITORING DATE: 7-14-21 TIME: 0645

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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 **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	0.25 ppm	24 ppm	1
#2	0.14 ppm	25 ppm	0
#3	0.09 ppm	25 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/25 X 100/1			1.3 #DIV/0! Must be less than 10%

Performed By: Logswood Date/Time: 7-14-21 – 0645

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: THermo

MODEL: TVA1000 EQUIPMENT #: 18 SERIAL #: 1026346724

MONITORING DATE: 7-14-21 TIME: 0645

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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	0.44 ppm	23 ppm	2
#2	0.16 ppm	25 ppm	0
#3	0.12 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: Josie Manning Date/Time: 7-14-21 0645

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: THermo

MODEL: TVA 1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 7-14-21 TIME: 0645

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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	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	0.34 ppm	24 ppm	1
#2	0.18 ppm	24 ppm	1
#3	0.11 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: Dwight Anderson Date/Time: 7-14-21 - 0645

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: THERMO

MODEL: TVA 1000 EQUIPMENT #: 13 SERIAL #: 1107746775

MONITORING DATE: 7-14-21 TIME: 0645

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
2.8 ppm	3.2 ppm	2.0 ppm

Background Value = 2.0 **ppm**

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	7
#2	24 ppm	21.6 ppm	7
#3	25 ppm	22.5 ppm	7
Calculate Response Time (1+2+3) / 3			7 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 **ppm**

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.35 ppm	23 ppm	2
#2	0.21 ppm	24 ppm	1
#3	0.17 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: Omer Penalta Date/Time: 7-14-21 - 0645

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Ridgeview INSTRUMENT MAKE: Heath

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

MONITORING DATE: 7-15-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 **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	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	0.31 ppm	24 ppm	1
#2	0.20 ppm	25 ppm	0
#3	0.17 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: Leishman Date/Time: 7-15-21 - 0520

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: HONDO

MODEL: HVA1000 EQUIPMENT #: 11 SERIAL #: 1636341774

MONITORING DATE: 7-15-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	0.15 ppm	23 ppm	2
#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			2.6 #DIV/0! Must be less than 10%

Performed By: JESSE MANNING Date/Time: 7-15-21 - 0520

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwire INSTRUMENT MAKE: Thermo

MODEL: FVA 1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 7-15-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 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	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	0.37 ppm	24 ppm	1
#2	0.20 ppm	24 ppm	1
#3	0.15 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: Dwight Addington Date/Time: 7-15-21 - 0520.

RES Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INTEGRATED

LANDFILL NAME: Redwood INSTRUMENT MAKE: Ultra

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 7-15-21 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
2.8 ppm	3.2 ppm	3.0 ppm

Background Value = 3.0 ppm

INSTRUMENT RESPONSE TIME RECORD

Measurement #	Stabilized Reading Using Calibration Gas	90% of the Stabilized Reading	Time to Reach 90% of Stabilized Reading after switching from Zero Air to Calibration Gas
#1	23 ppm	20.7 ppm	7
#2	24 ppm	21.6 ppm	7
#3	25 ppm	22.5 ppm	7
Calculate Response Time (1+2+3) / 3			7 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 25 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.24 ppm	23 ppm	2
#2	0.16 ppm	24 ppm	1
#3	0.11 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: Omar Ponce Jr Date/Time: 7-15-21 – 0520

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: _____

Date: 7-10-21 **Time:** 0800

Model # TVA 1000 B

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.0 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-21	Time required to attain 90% of Cal Gas ppm
Factory calibration record w/instrument within 3 months	(Pass) / Fail	1. 5 2. 5 3. 6 Average 5.3 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: MY MA

Date: 7-10-24 **Time:** 0815

Model # THA 1000 V3

Serial # #11 10363467?4

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.4 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-24	Time required to attain 90% of Cal Gas ppm: 1. 6 / 2. 6 / 3. 4 / Average 5.3
Factory calibration record w/instrument within 3 months	(Pass) / Fail	Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to CH4 gas.

Comments: _____

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(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: JM / MJ

Date: 7-10-21 **Time:** 0830

Model # TVA 1000B

Serial # #12 / 1036246741

INSTRUMENT INTEGRITY CHECKLIST	
Battery test	(Pass) / Fail
Reading following ignition	2.5 ppm
Leak test	(Pass) / Fail / NA
Clean system check (check valve chatter)	(Pass) / Fail / NA
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA
Date of last factory calibration	7-10-21
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 CH4 gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: JM JM

Date: 7-10-21 **Time:** 0845

Model # TVA 1000 B

Serial # #13 1102746775

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.3 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-21	Time required to attain 90% of Cal Gas ppm: 1. 5 / 2. 5 / 3. 5
Factory calibration record w/instrument within 3 months	(Pass) / Fail	Average: 5.0
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to ch4 gas.

Comments: _____

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES UNIT #10

SERIAL NUMBER: 103634673

TECHNICIAN: M Roberts DATE: 1-10-21

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	10,026	+/- 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

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #11

SERIAL NUMBER: 1036346774

TECHNICIAN: M Roberts DATE: 7-10-24

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,000	+/- 2500
< 1	ZERO GAS	0.64	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #12

SERIAL NUMBER: 103624674 1

TECHNICIAN: R Roberts DATE: 7-10-21

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,001	+/- 2500
< 1	ZERO GAS	0.64	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 1102746775

TECHNICIAN: M Mobbs DATE: 7-10-21

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	500	+/- 125
10000	10000	10,101	+/- 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

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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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 (+/-)
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

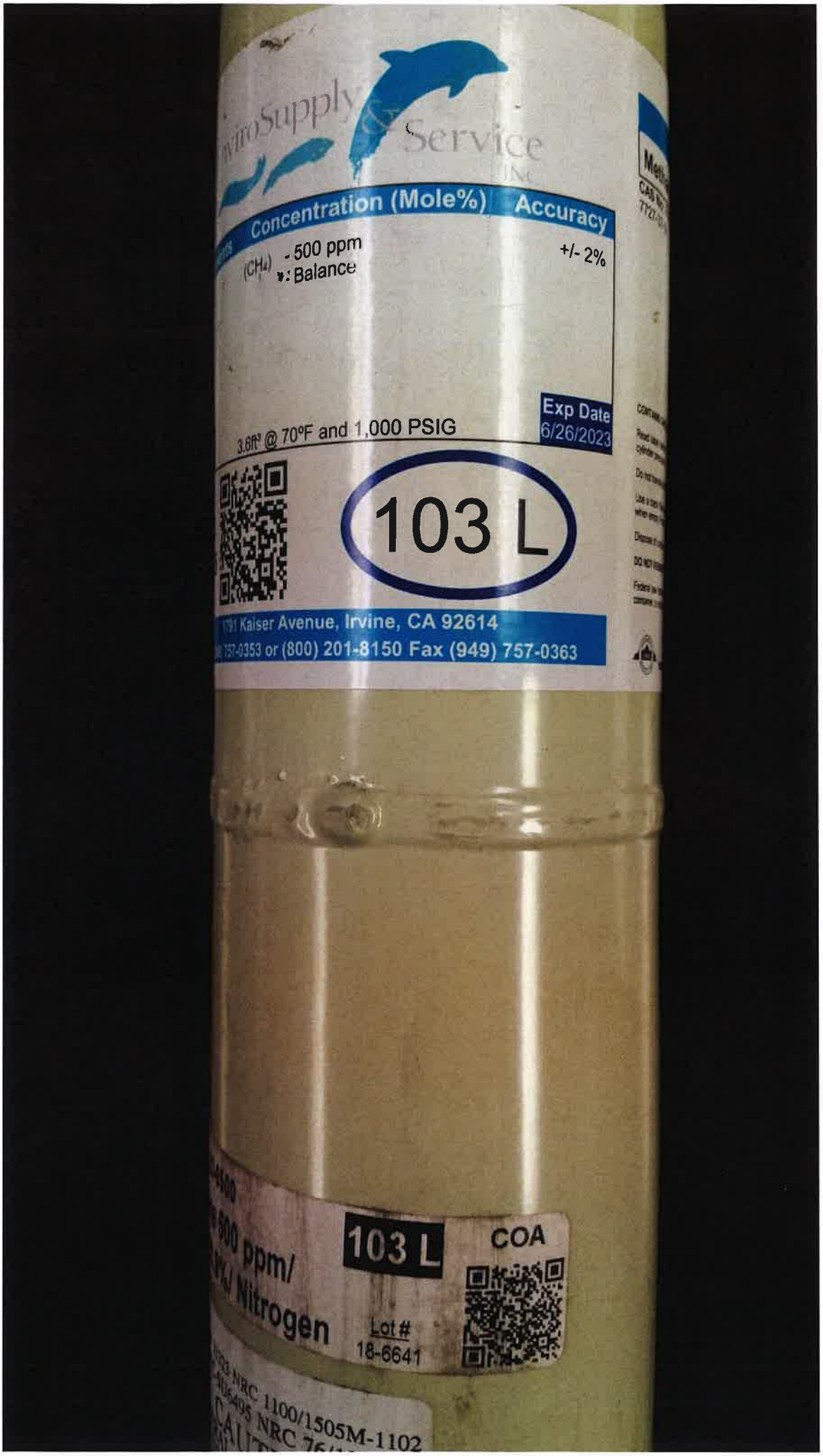
Method of Preparation:

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


Concentration (Mole%)
Accuracy
500 ppm
Balance
+/- 2%
Exp Date
6/26/2023
3.6ft³ @ 70°F and 1,000 PSIG
103 L
1301 Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
103 L
COA
Lot #
18-6641
NRC 1100/1505M-1102

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INTERMOUNTAIN SPECIALTY GASES
"Your calibration gas manufacturer since 1992"

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 (0.00
Accuracy
+/- 2%
Concentration (Mole%)
- 500 ppm
- Balance
WAR
CONTAINS GAS UNDER PRESSURE
Read label before use. Keep
label at hand. Use equipment
Do not handle until all safety
protective gloves, protective clothing
Use a back flow preventive
slowly.Close valve after
sunlight when ambient
use
Dispose of content and/or
DO NOT REMOVE THIS PRODUCT
Federal law forbids
5124). Federal law
Exp Date
7/10/2024
Lot#: 20-7497
P/N:23-0500
@ 70°F and 1,000 PSIG
103 L
Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
103-23-0500
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	25 ppm	± 5%
Air	Balance	

Lot # 17-6074

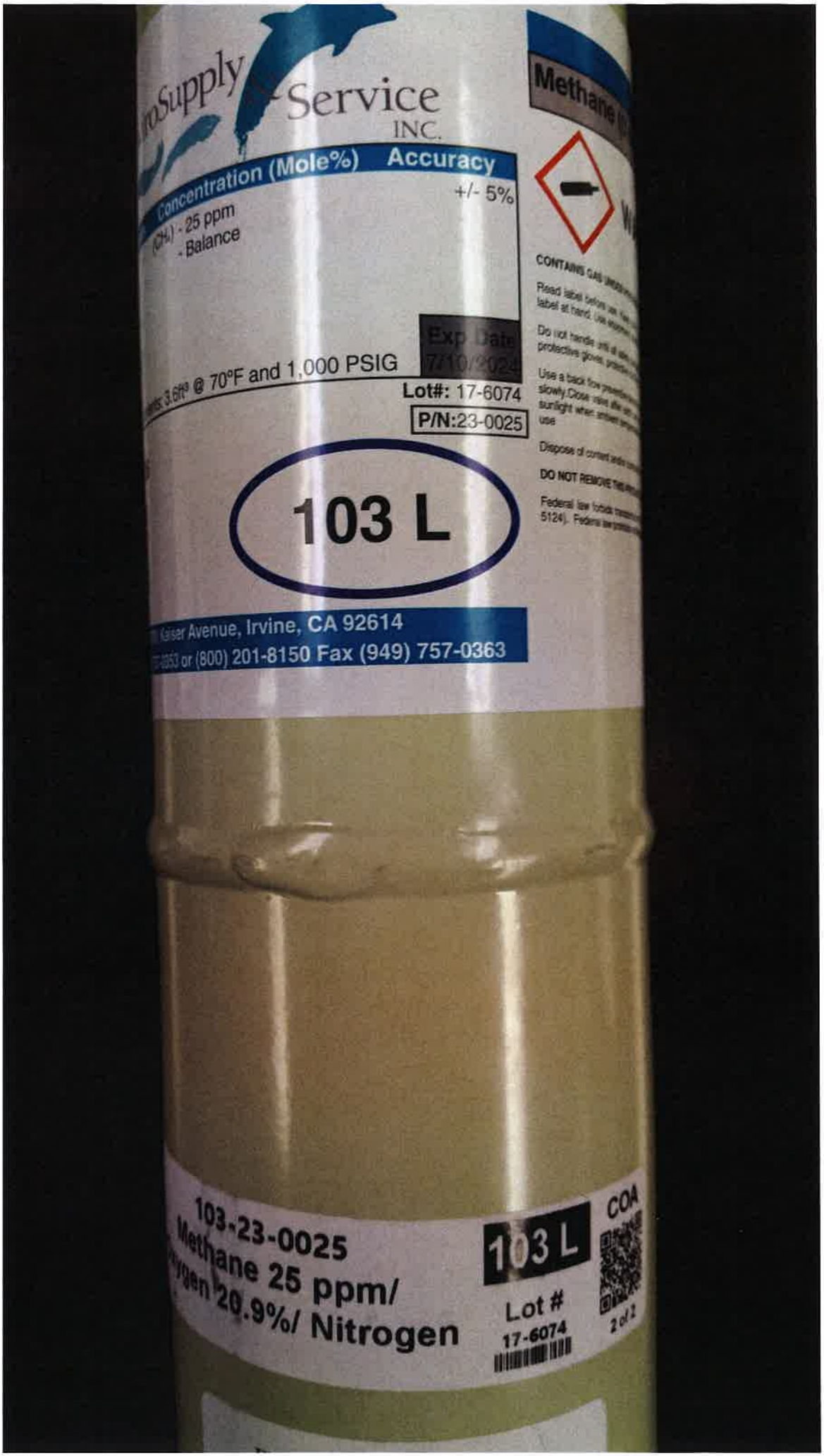
Mfg. Date: 10/16/2017

Parent Cylinder ID Number: 17161

Method of Preparation:
Gravimetric/Pressure Transfilled

Method of Analysis:
The parent mix was prepared gravimetrically and is traceable to the NIST by certified weights (ID #CA10814) used to calibrate the scale.

Analysis By: Tony Janquart
Quality Assurance Manager
800-552-5003
Certificate Date: 10/16/2017


Service
INC.
Concentration (Mole%)
Accuracy
+/- 5%
(CH4) - 25 ppm
- Balance
Exp Date
7/10/2024
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
103-23-0025
Methane 25 ppm/
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
Air - Zero		
THC	< 2 PPM	
Oxygen	20.9%	± 2%
Nitrogen	Balance	

Lot # 19-6779

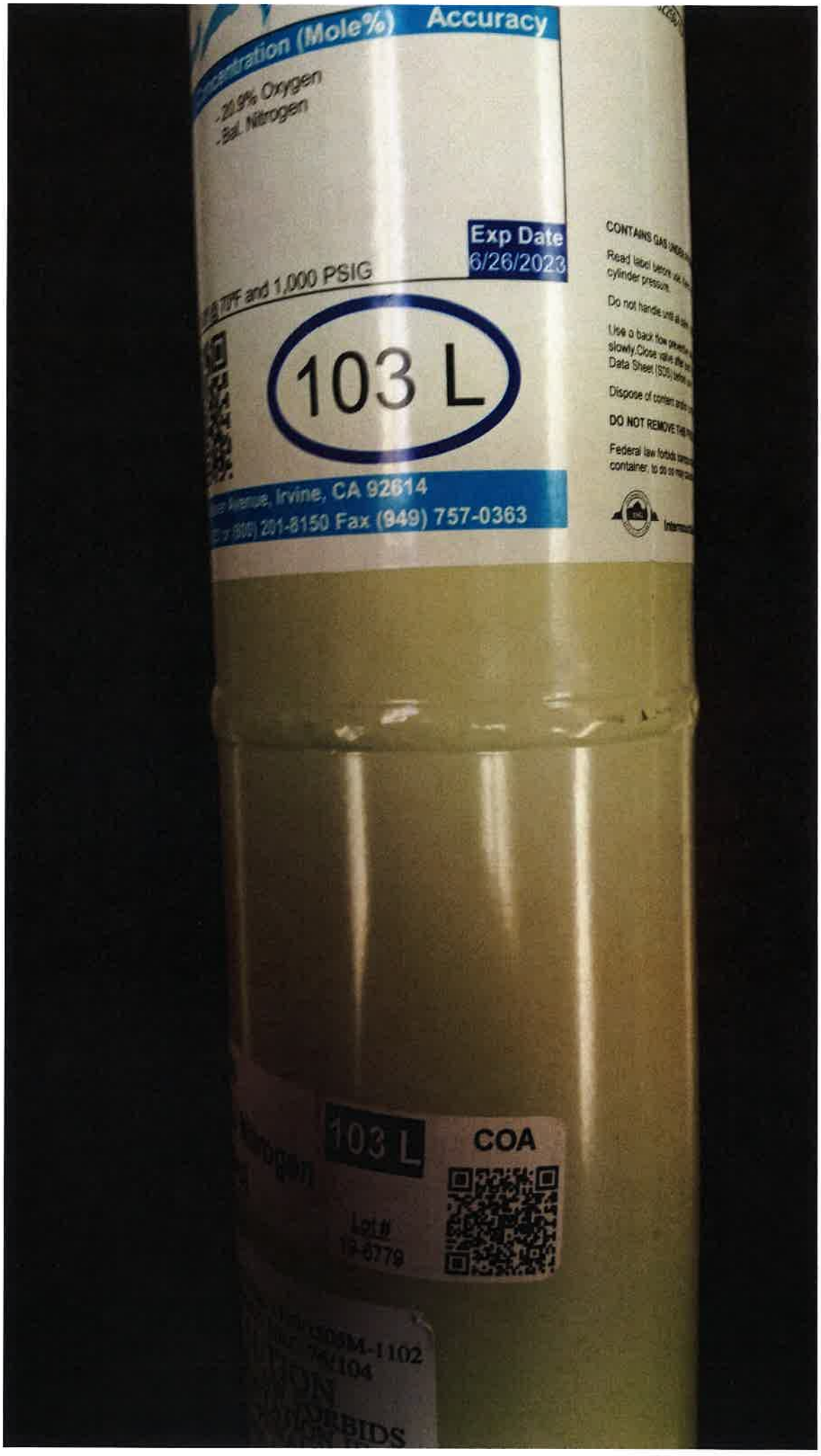
Mfg. Date: 4/3/2019

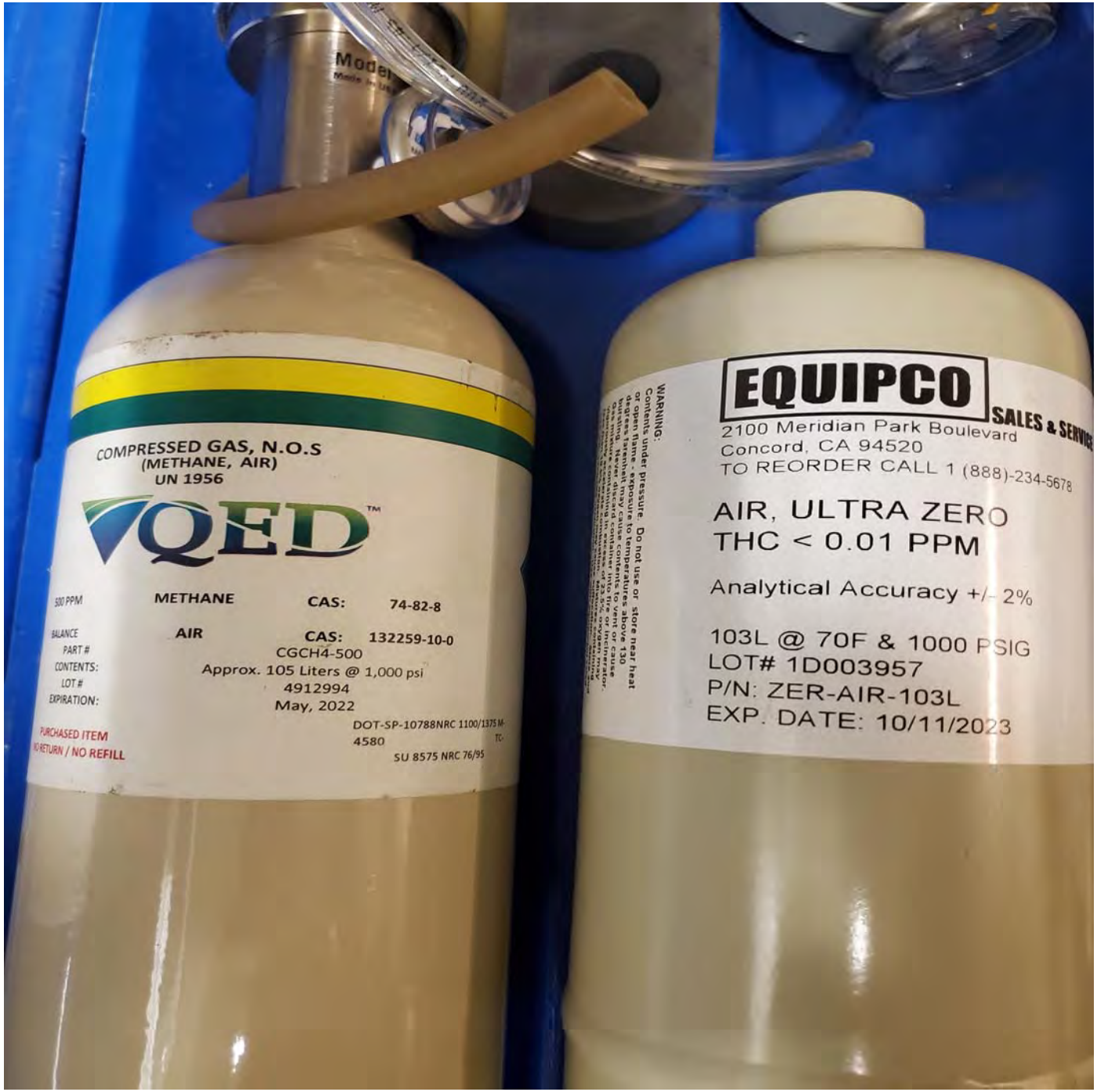
Parent Cylinder ID Number: 001739, 02268

Method of Preparation:
Gravimetric/Pressure Transfilled

Method of Analysis:
This 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: 4/3/2019


Concentration (Mole%) Accuracy
- 20.9% Oxygen
- Bal. Nitrogen
Exp Date
6/26/2023
and 1,000 PSIG
103 L
Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
CONTAINS GAS UNDER
Read label before use
cylinder pressure.
Do not handle until all
Use a back flow preventive
slowly.Close valve after
Data Sheet (SDS) before
Dispose of content and
DO NOT REMOVE THIS
Federal law forbids
container; to do so
103 L
COA
Lot#
19-6779
1102
104
BIDS


COMPRESSED GAS, N.O.S
(METHANE, AIR)
UN 1956
QED
500 PPM
METHANE
CAS: 74-82-8
BALANCE
AIR
CAS: 132259-10-0
PART #
CGCH4-500
CONTENTS:
Approx. 105 Liters @ 1,000 psi
LOT #
4912994
EXPIRATION:
May, 2022
DOT-SP-10788NRC 1100/1375 M-
4580
SU 8575 NRC 76/95
PURCHASED ITEM
NO RETURN / NO REFILL
EQUIPCO
SALES & SERVICE
2100 Meridian Park Boulevard
Concord, CA 94520
TO REORDER CALL 1 (888)-234-5678
AIR, ULTRA ZERO
THC < 0.01 PPM
Analytical Accuracy +/- 2%
103L @ 70F & 1000 PSIG
LOT# 1D003957
P/N: ZER-AIR-103L
EXP. DATE: 10/11/2023

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

October 7, 2021

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

Re: September 2021 Surface Emissions Monitoring Report for Redwood Landfill, Inc.

Dear Ms. McCutcheon:

This monitoring report for "**Redwood Landfill, Inc. (RLI)"** contains the results of the September 2021 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' spacing. Active portions of the Landfill, slope areas, and as requested in the approved ACO, areas containing only asbestos-containing waste, inert waste and/or non-decomposable waste which are excluded for safety as allowed by the NSPS and 8-34.

Field personnel walked the surface of the landfill using the gridlines normally used for monitoring required by AB32 (see Attachment A map). These grids typically have dimensions of 500' x 100'. A consistent 100' spacing was achieved by walking on the 500' long borderline shared by two grids. Additionally, in accordance with the provisions of 40 CFR 60.753(d) and

60.755(c)(1-3), the entire perimeter of the landfill surface was monitored. During the event, special attention was given to monitoring unusual cover conditions (stressed vegetation, cracks, seeps, etc.) and any areas with unusual odors.

Instantaneous Surface Emissions Monitoring

The Instantaneous SEM was conducted using a Toxic Vapor Analyzer (TVA) 1000 flame ionization detector (FID), which was calibrated to 500 parts per million by volume (ppm_v) methane, which meets or exceeds all guidelines set forth in the NSPS and 8-34. The FID was calibrated prior to use in accordance with the United States Environmental Protection Agency (USEPA) Method 21 requirements.

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

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

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

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

SEPTEMBER 2021 SEM RESULTS

The Instantaneous surface monitoring was performed on September 13, 2021 in accordance with the NSPS and BAAQMD 8-34. Results and data from the monitoring are presented in Attachment A.

Initial Monitoring Event Exceedances of 500 ppm_v

There were no exceedances of 500 ppm_v as methane detected on September 13, 2021. No re-monitoring was required.

WEATHER CONDITIONS

Wind Speed Conductions during the Surface Emission Monitoring Events

Wind speeds during initial monitoring were monitored using a portable weather station. The station has a strip chart that records the wind speed and direction. The chart data is scanned and included in Attachment B.

EQUIPMENT CALIBRATION

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

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

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

Thank you,
Waste Management

Michael Chan
Environmental Protection Specialist

Attachment A – Instantaneous Surface Emission Monitoring Event Records

- SEM Map
- Monitoring Logs and Exceedances

Attachment B – Weather Station Data

- Strip Chart Data

Attachment C – Calibration Records

- Instrument and Gas Calibration Records

Attachment A

Surface Emission Monitoring Event Records

LEGEND

- EXISTING 10' CONTOUR
- EXISTING LFG HEADER- ABOVE GROUND
- EXISTING HORIZONTAL COLLECTOR
- EXISTING FORCE MAIN AND AIR LINE
- 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

Down wind

9-13-21 = NGPS SWEEP

= UP WIND B6

= DOWNWIND B6

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 IMPROVEMENTS 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.

GRAPHIC SCALE

200 100 0 200 400 600

SCALE: 1"=200'

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

CALIFORNIA

NOVATO

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)

2021 Month: September
INITIAL MONITORING PERFORMED BY: RES
FOLLOW-UP MONITORING PERFORMED BY:
LANDFILL NAME: Redwood Landfill, Inc.

Initial Monitoring Event			Corrective Action		1st 10-day Follow-Up			1st 30-day Follow-Up			
Flag Number	Monitoring Date	Reading ppm	Repair Date	Action Taken	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	Monitoring Date	No Exced. <500 ppm	Exced. >500 ppm	**Comments**
No Exceedances on September 13, 2021											

Orange Flag Landfill Surface Emissions Monitoring
Exceedances and Monitoring Log

Site: REDWOOD

Quarter / Year:	3RD 2021				Page 1 of 1 Pages
Technician:	LEIGH WADE				
Instrument:	TVA 1000				
Calibration Standard:	500 PPM				

Initial Monitoring Event				First Re-Monitoring Event - 10 Days			Second Re-Monitoring Event - 10 Days			30-Day Follow-up Monitoring			Comments
Flag Number	Grid Number	Field Reading (ppm)	Date Monitored	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	Date Monitored	No Excd. <500 ppm	Excd. >500 ppm	
O-													
O-													NSPS
O-													NO EXCEEDANCES
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
O-													
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O-													
O-													
O-													

Attachment B

Weather Station Data

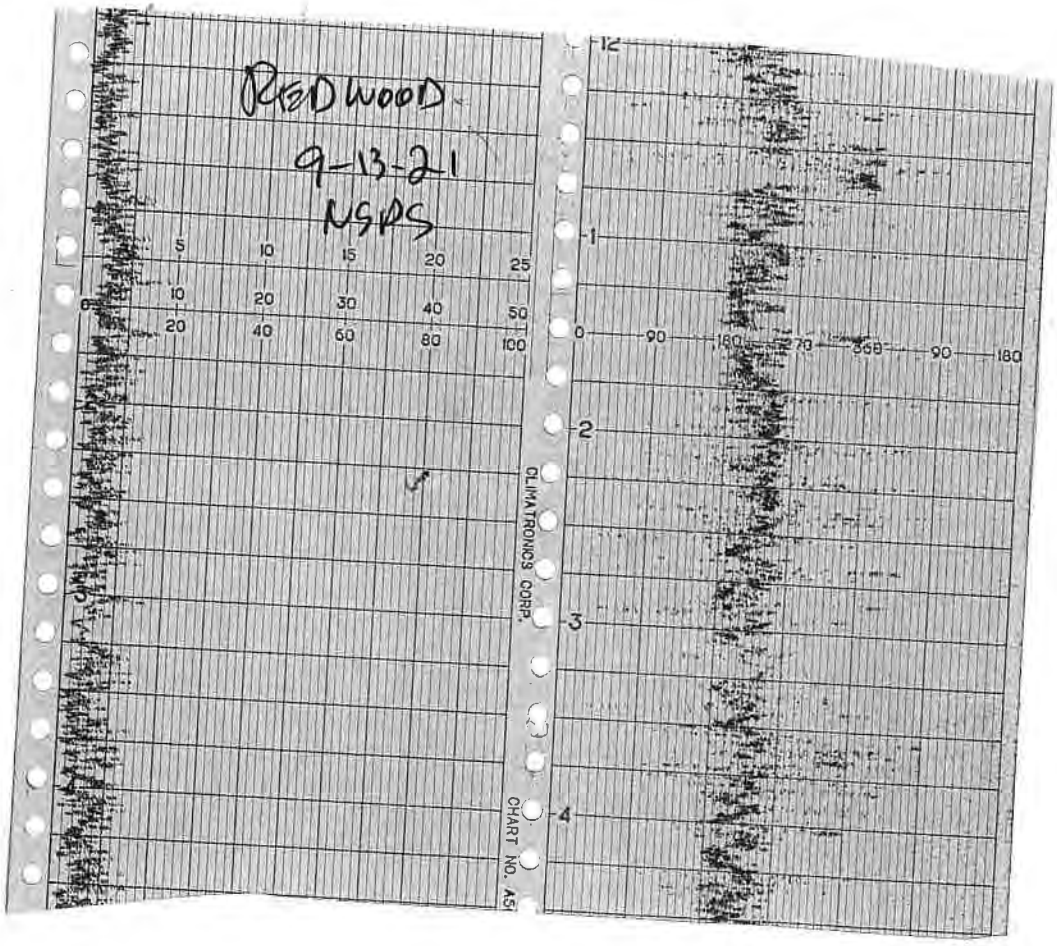
RES Environmental Inc.

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

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

WIND SPEED & DIRECTION CHART ROLL



Attachment C

Calibration Records

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: REDWOOD INSTRUMENT MAKE: HEATH

MODEL: TVA1000 EQUIPMENT #: 10 SERIAL #: 1636346773

MONITORING DATE: 9-13-21 TIME: 1200

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.2 ppm	2.6 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	489 ppm	439 ppm	6
#2	501 ppm	451 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	0.21 ppm	489 ppm	11
#2	0.14 ppm	501 ppm	1
#3	0.08 ppm	500 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.80 #DIV/0! Must be less than 10%

Performed By: LAUGHLIN Date/Time: 9-13-21 1200

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Dixon OU2 INSTRUMENT MAKE: Thermo

MODEL: TVA1000 EQUIPMENT #: 12 SERIAL #: 1036246741

MONITORING DATE: 9-13-21 TIME: 12

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	510 ppm	460 ppm	6
#2	500 ppm	450 ppm	6
#3	500 ppm	450 ppm	6
Calculate Response Time (1+2+3)/3			6 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.35 ppm	510 ppm	10
#2	0.17 ppm	500 ppm	0
#3	0.10 ppm	500 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.66 #DIV/0! Must be less than 10%

Performed By: Dwight Anderson Date/Time: 9-13-21 - 1200

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Renwood INSTRUMENT MAKE: Ultra

MODEL: TVA1000 EQUIPMENT #: 13 SERIAL #: 1102746775

MONITORING DATE: 9-13-21 TIME: 1200

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.2 ppm	2.6 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	452 ppm	442 ppm	5
#2	504 ppm	454 ppm	5
#3	500 ppm	450 ppm	5
Calculate Response Time (1+2+3) / 3			5 #DIV/0! Must be less than 30 seconds

CALIBRATION PRECISION RECORD

Calibration Gas Standard = 500 ppm

Measurement #	Meter Reading for Zero Air (A)	Meter Reading for Calibration Gas (B)	Calculate Precision [STD – (B)]
#1	0.21 ppm	452 ppm	8
#2	0.12 ppm	504 ppm	4
#3	0.09 ppm	510 ppm	0
Calculate Precision [STD-B1] + [STD-B2] + [STD-B3] / 3 X 1/500 X 100/1			0.80 #DIV/0! Must be less than 10%

Performed By Richard Lewis Date/Time 9-13-21 – 1200

RES
Environmental Inc.

CALIBRATION PROCEDURE AND BACKGROUND REPORT – INSTANTANEOUS

LANDFILL NAME: Redwood INSTRUMENT MAKE: Honeywell

MODEL: TVA1000 EQUIPMENT #: 15 SERIAL #: 1636346722

MONITORING DATE: 9-13-21 TIME: 1200

Calibration Procedure:

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

Background Determination Procedure

Upwind Background Reading: (Highest in 30 seconds)	Downwind Background Reading: (Highest in 30 seconds)	Background Value: (Upwind + Downwind) / 2
2.2 ppm	2.6 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	510 ppm	460 ppm	7
#2	495 ppm	445 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	0.24 ppm	510 ppm	10
#2	0.16 ppm	495 ppm	5
#3	0.14 ppm	510 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: CALVIN ORTIZ Date/Time: 9-13-21 - 1200

RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: _____

Date: 9-4-21 **Time:** 0900

Model # TVA 1000B

Serial # #10 1036346773

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.3 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-21	Time required to attain 90% of Cal Gas ppm: 1. 7 / 2. 6 / 3. 7
Factory calibration record w/instrument within 3 months	(Pass) / Fail	Average: 6.6
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to City gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: MM MY

Date: 9-4-21 Time: 0930

Model # TVA 1000 B

Serial # #12 1036246741

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.1 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-21	Time required to attain 90% of Cal Gas ppm: 1. 7 / 2. 6 / 3. 5
Factory calibration record w/instrument within 3 months	(Pass) / Fail	Average: 6.0
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to CH4 gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: MM

Date: 9-4-21 **Time:** 0945

Model # TVA 1000B

Serial # #13 1102746775

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	2.1 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-21	Time required to attain 90% of Cal Gas ppm: 1. 7 / 2. 6 / 3. 5
Factory calibration record w/instrument within 3 months	(Pass) / Fail	Average: 6.0
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to Air gas.

Comments: _____

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RES Environmental Inc.

SURFACE EMISSION MONITORING INSTRUMENT
CALIBRATION LOG

Site: _____

Purpose: _____

Operator: M M

Date: 01-4-21 **Time:** 1015

Model # TVA 1000B

Serial # #15 1036346772

INSTRUMENT INTEGRITY CHECKLIST		INSTRUMENT CALIBRATION
Battery test	(Pass) / Fail	CALIBRATION CHECK
Reading following ignition	18 ppm	Calibration Gas (ppm): 500 / Actual (ppm): 500 / % Accuracy: 100%
Leak test	(Pass) / Fail / NA	RESPONSE TIME
Clean system check (check valve chatter)	(Pass) / Fail / NA	Calibration Gas, ppm: 500
H_2 supply pressure gauge (acceptable range 9.5 - 12)	(Pass) / Fail / NA	90% of Calibration Gas, ppm: 450
Date of last factory calibration	7-10-21	Time required to attain 90% of Cal Gas ppm
Factory calibration record w/instrument within 3 months	(Pass) / Fail	1. 6 2. 6 3. 6 Average 6.0
		Equal to or less than 30 seconds? (Y) N
		Instrument calibrated to Cbty gas.

Comments: _____

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES UNIT #10

SERIAL NUMBER: 103634673

TECHNICIAN: M Roberts DATE: 1-10-21

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	10,026	+/- 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

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #12

SERIAL NUMBER: 103624674 1

TECHNICIAN: R Roberts DATE: 7-10-21

GAS CALIBRATION CHECK (PERFORMED AT ROOM TEMPERATURE)

FID			
METHANE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
100	100	100	+/- 25
500	500	500	+/- 125
10000	10000	10,001	+/- 2500
< 1	ZERO GAS	0.64	< 3
PID			
ISOBUTYLENE GAS NOMINAL (ppm)	CALIBRATION GAS (ppm)	TVA READING (ppm)	TOLERANCE (ppm)
50	50		+/- 12.5
100	100		+/- 25
500	500		+/- 125
< 1	ZERO GAS		< 3

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Unit #13

SERIAL NUMBER: 1102746775

TECHNICIAN: M Mobbs DATE: 7-10-21

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	500	+/- 125
10000	10000	10,101	+/- 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

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

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RES Environmental Inc.

TVA1000B CALIBRATION VERIFICATION

CUSTOMER: RES Van #15

SERIAL NUMBER: 1036346772

TECHNICIAN: [illegible] DATE: 7-10-21

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	0.69	< 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.

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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 (+/-)
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

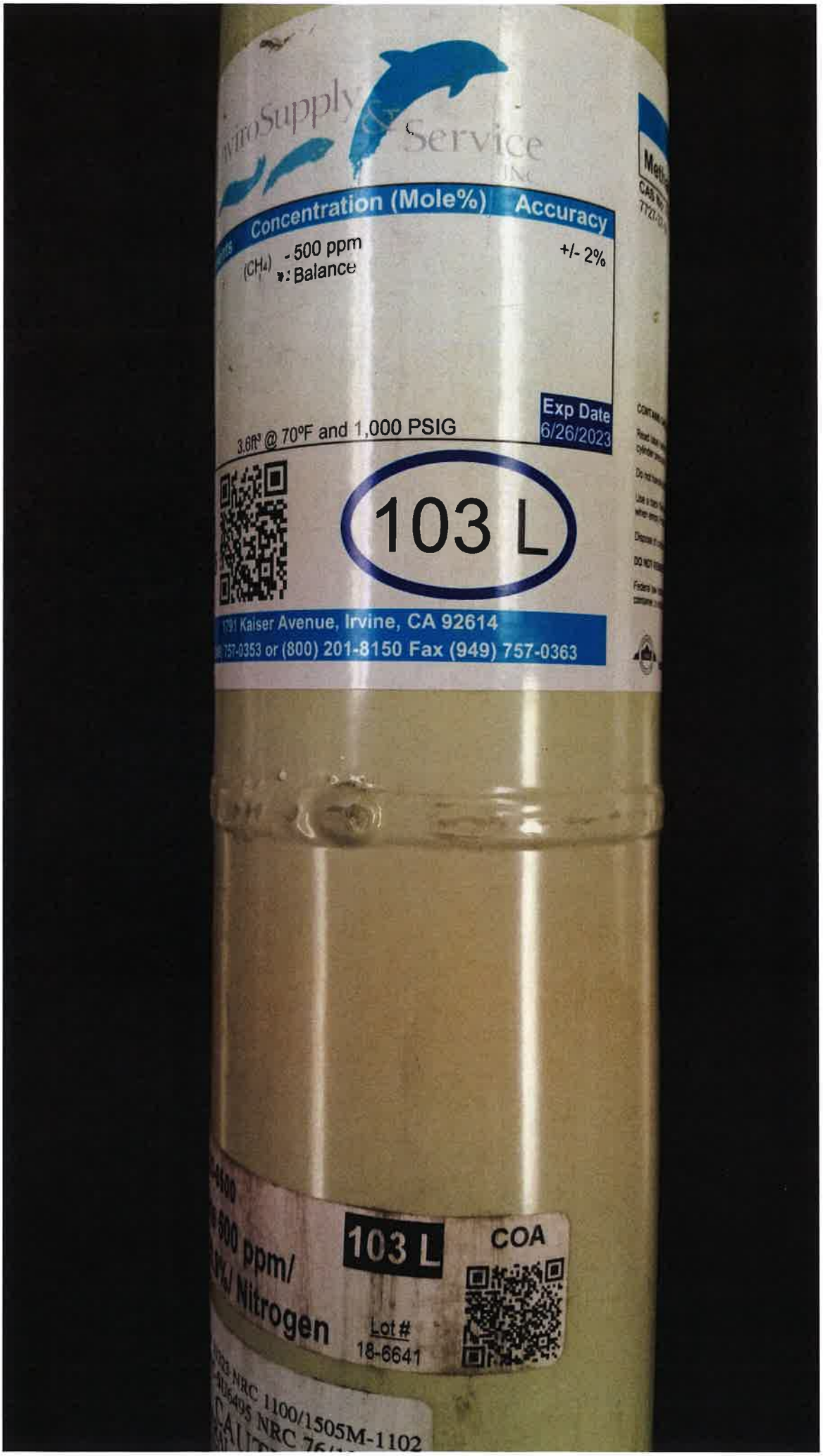
Method of Preparation:

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


Concentration (Mole%)
Accuracy
500 ppm
Balance
+/- 2%
Exp Date
6/26/2023
3.6ft³ @ 70°F and 1,000 PSIG
103 L
1301 Kaiser Avenue, Irvine, CA 92614
757-0353 or (800) 201-8150 Fax (949) 757-0363
103 L
COA
Lot #
18-6641
NRC 1100/1505M-1102

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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 (0.00
Accuracy
+/- 2%
Concentration (Mole%)
- 500 ppm
- Balance
WAR
CONTAINS GAS UNDER PRESSURE
Read label before use. Keep
label at hand. Use equipment
Do not handle until all safety
protective gloves, protective clothing
Use a back flow preventive
slowly.Close valve after
sunlight when ambient
use
Dispose of content and/or
DO NOT REMOVE THIS PRODUCT
Federal law forbids
5124). Federal law
Exp Date
7/10/2024
Lot#: 20-7497
P/N:23-0500
@ 70°F and 1,000 PSIG
103 L
Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
103-23-0500
ppm/
Nitrogen
103 L
Lot #
20-7497
COA
4 of 4

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

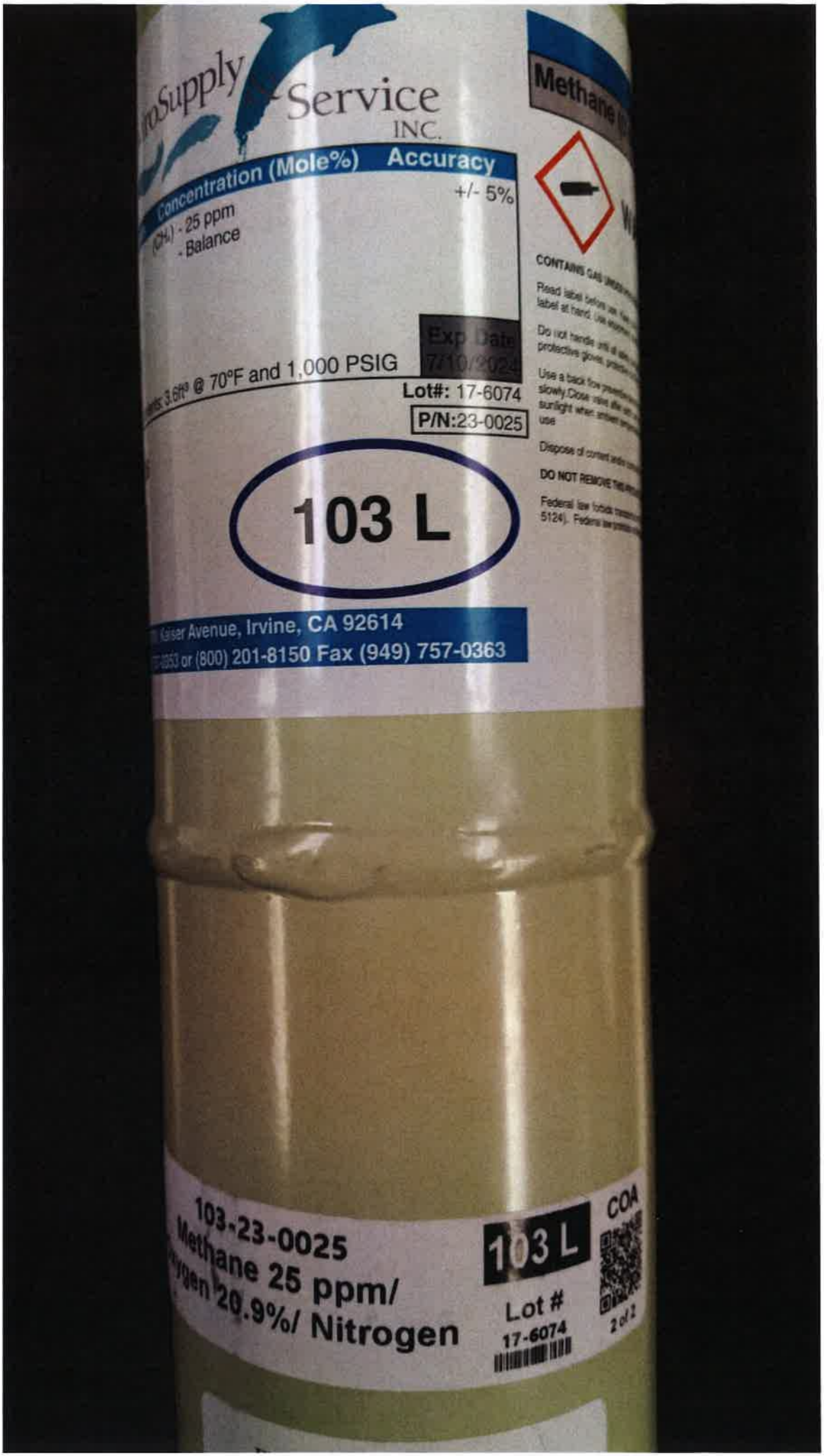
Mfg. Date: 10/16/2017

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


Service
INC.
Concentration (Mole%)
Accuracy
+/- 5%
(CH4) - 25 ppm
- Balance
Exp Date
7/10/2024
Lot#: 17-6074
P/N:23-0025
103 L
Kaiser Avenue, Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
103-23-0025
Methane 25 ppm/
20.9%/ Nitrogen
103 L
Lot #
17-6074
COA
2 of 2

INTERMOUNTAIN SPECIALTY GASES

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800-552-5003 • www.isgases.com

CERTIFICATE OF ANALYSIS

Composition	Certification	Analytical Accuracy
Air - Zero		
THC	< 2 PPM	
Oxygen	20.9%	± 2%
Nitrogen	Balance	

Lot # 19-6779

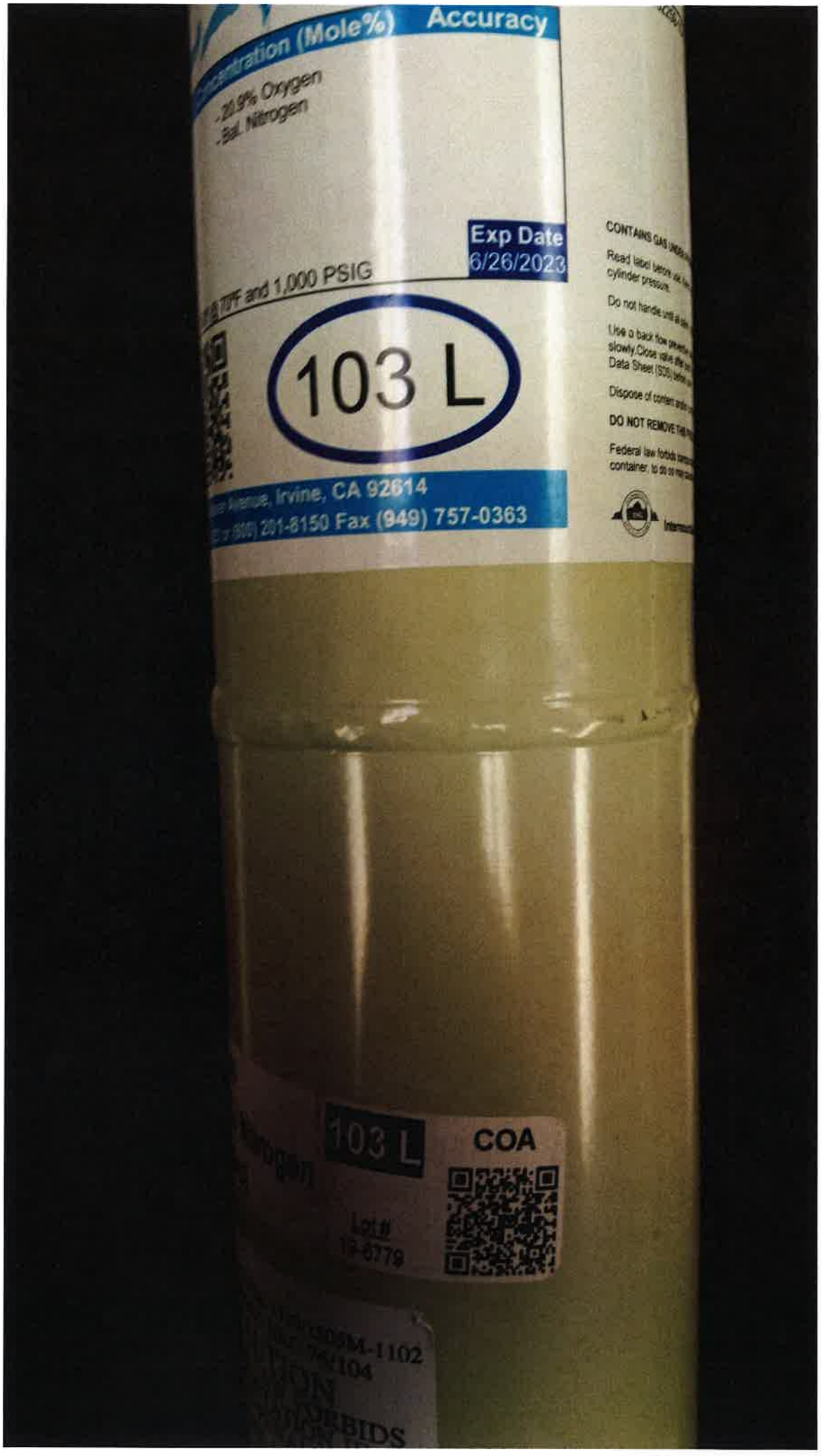
Mfg. Date: 4/3/2019

Parent Cylinder ID Number: 001739, 02268

Method of Preparation:
Gravimetric/Pressure Transfilled

Method of Analysis:
This 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: 4/3/2019


Concentration (Mole%) Accuracy
- 20.9% Oxygen
- Bal. Nitrogen
Exp Date
6/26/2023
and 1,000 PSIG
103 L
Irvine, CA 92614
(800) 201-8150 Fax (949) 757-0363
CONTAINS GAS UNDER
Read label before use
cylinder pressure.
Do not handle until all
Use a back flow preventive
slowly.Close valve after
Data Sheet (SDS) before
Dispose of content and
DO NOT REMOVE THIS
Federal law forbids
container; to do so
103 L
COA
Lot#
19-6779
1102
104
BIDS

APPENDIX I

WELLFIELD MONITORING LOGS

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - May 3, 4, 5, 6, 10, 18, and 27, 2021

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	5/5/21 14:43	43.3	35.6	0.1	21	-0.91	104.2	-0.7	104.1
RLHC0156	5/6/21 7:52	34.2	27.4	1.1	37.3	-0.47	101.9	-0.22	100.7
RLI00003	5/6/21 10:08	33.5	31	3.6	31.9	-20.94	77.5	-20.83	77.3
RLI00008	5/6/21 16:03	41	28.7	2	28.3	-50.4	82.8	-50.4	82.8
RLI00016	5/10/21 14:40	40.6	20.1	6.6	32.7	-0.15	102.2	-0.99	102.1
RLI00016	5/10/21 14:45	56.8	27.5	1.3	14.4	-2.51	100.8	-2.54	100.8
RLI00017	5/10/21 14:50	42	29.9	0.9	27.2	-13.86	88.7	-13.87	88.6
RLI00018	5/10/21 14:56	20.4	23.8	0.7	55.1	-6.52	96.5	-6.48	96.7
RLI00019	5/10/21 15:02	54.5	33.6	0.6	11.3	-44.09	83.2	-44.06	83.2
RLI00034	5/10/21 13:08	51.7	35.5	1.7	11.1	-28.01	84.4	-28.49	84.5
RLI00035	5/10/21 13:13	48.1	35	0.1	16.8	-30.71	82.1	-30.7	82.1
RLI00045	5/10/21 13:22	40.4	29.9	0.1	29.6	-0.99	90.3	-0.93	90.7
RLI00047	5/10/21 14:04	44.6	32.1	0.2	23.1	-1.39	86.7	-1.39	86.7
RLI00065	5/5/21 11:42	48	39.4	0	12.6	-1.97	105.5	-2.03	105.6
RLI00083	5/3/21 14:43	62.3	36.9	0.1	0.7	-32.23	95.6	-32.19	95.6
RLI00095	5/3/21 14:53	49.2	36.2	0.2	14.4	-1.46	98.3	-1.4	98.3
RLI00132	5/10/21 12:48	53.3	36.4	0.1	10.2	-48.35	100.9	-48.63	101.3
RLI00134	5/6/21 13:37	51	39.1	0.2	9.7	-23.78	113.9	-23.84	113.9
RLI00135	5/6/21 13:42	37.7	38.7	0	23.6	-3.04	108.7	-3.01	108.8
RLI00135	5/6/21 13:56	37.5	39.2	0	23.3	-2.71	108.7	-2.31	108.3
RLI00137	5/5/21 11:57	51.8	28.1	2.8	17.3	-47.44	87.3	-47.79	87.3
RLI00140	5/5/21 13:39	67	29.1	0.8	3.1	-39.92	95.3	-39.86	95.3
RLI00141	5/3/21 16:14	52	34.4	0.3	13.3	-19.08	91.3	-19.99	91.4
RLI00142	5/5/21 13:44	64.7	33.2	0.1	2	-37.85	93.2	-37.79	93.1
RLI00220	5/3/21 14:13	50.4	38	0.3	11.3	-0.38	88.1	-0.25	88.4
RLI0100C	5/10/21 14:17	4.1	3.5	18.1	74.3	-30.85	89.4	-30.82	88.6
RLI0100C	5/10/21 14:23	4.5	3.1	18	74.4	-30.93	90.3	-30.86	89.5
RLI0100C	5/27/21 10:23	8.4	6.7	15.6	69.3	-36.9	69.5	-36.85	68.5
RLI0100C	5/27/21 10:31	11.2	8.6	14.2	66	-36.46	71	-36.47	71.2
RLI0100C	5/27/21 10:51	13.7	9.8	13.2	63.3	-36.31	74.3	-36.04	73.8
RLI0102C	5/6/21 9:58	60.8	39.2	0	0	-44.1	90.7	-44.04	90.7
RLI0103C	5/6/21 13:32	57.3	40.6	0.1	2	-29.92	99	-29.55	98.7
RLI0105C	5/6/21 13:12	39.3	48.1	2.3	10.3	-42.8	90.7	-40.51	91.1
RLI0106C	5/6/21 9:16	50.1	37.1	1.1	11.7	-47.51	97.6	-47.45	97.6
RLI0107C	5/6/21 9:46	62.3	37.6	0	0.1	0.03	79.9	-0.05	80.6
RLI0114A	5/6/21 15:40	46.2	26.8	4.5	22.5	-18.29	80	-18.63	80.8
RLI0115E	5/6/21 15:27	58.2	37	0.7	4.1	-47.63	100.2	-45.55	100
RLI0116E	5/5/21 11:51	52	36	1.4	10.6	-38.72	81.4	-38.71	81.6
RLI0117D	5/4/21 13:39	61.6	37.2	0.3	0.9	-48.31	98.1	-46.55	98.2
RLI0124G	5/3/21 15:32	60.6	38.4	0.2	0.8	-35.61	91	-35.95	91.2
RLI0126C	5/6/21 10:32	41.5	24	4.9	29.6	-45.41	65.9	-45.39	66.1
RLI0127B	5/6/21 15:11	44.4	33.4	1.7	20.5	-25.45	106.8	-25.5	106.9
RLI0128A	5/5/21 14:58	32.2	29.6	2.2	36	-4.09	126.9	-2.9	127.2
RLI0129E	5/6/21 10:20	38	28.5	0.3	33.2	-43.66	80	-42.6	80
RLI0130E	5/6/21 7:45	36.8	28	0.1	35.1	-8.74	78.3	-7.34	78
RLIHC107	5/4/21 12:28	36.9	40	0	23.1	-0.47	127.3	-0.1	126.3
RLLC0176	5/6/21 14:57	38	36.5	0	25.5	-0.02	72.5	-0.02	72.5
RLLC0177	5/6/21 14:31	51.3	40.5	0.1	8.1	-38.6	104.8	-38.73	105
RLLC0179	5/3/21 14:35	37.8	29.2	0.2	32.8	-5.04	92.1	-5.05	92.1
RLLC0180	5/6/21 13:18	49.9	45	0	5.1	-17.7	105.3	-17.66	105.3
RLLC0181	5/6/21 13:06	49.6	37.6	0.1	12.7	-18.96	107.3	-18.89	107.4
RLLC0183	5/6/21 16:23	32.9	31	0.1	36	-3.59	75.8	-3.54	75.9
RLLC0184	5/6/21 16:10	49.4	35.7	0.1	14.8	-6.99	100.1	-6.95	100.2
RLLC0185	5/6/21 16:17	16	28.6	0.1	55.3	-0.06	81.7	-0.04	81.7
RLLC0186	5/6/21 14:15	49.4	39.9	0	10.7	-42.89	98.1	-42.88	98.1
RLLC0187	5/6/21 14:11	55.8	38.4	0	5.8	-44.68	102.7	-44.7	102.7

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Wellfield Monitoring Report - May 3, 4, 5, 6, 10, 18, and 27, 2021

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	5/5/21 14:43	43.3	35.6	0.1	21	-0.91	104.2	-0.7	104.1
RLHC0156	5/6/21 7:52	34.2	27.4	1.1	37.3	-0.47	101.9	-0.22	100.7
RLLC0188	5/6/21 14:07	50.5	42.8	0	6.7	-27.7	103.9	-27.68	103.9
RLLC0189	5/6/21 14:02	52.9	43.8	0	3.3	-11.55	111.4	-12.2	111.3
RLLC0190	5/6/21 13:47	21.2	45.5	0.2	33.1	-0.23	80.3	-0.19	79.3
RLLC0191	5/3/21 15:37	45.3	32.9	0.1	21.7	-1.51	95.6	-1.51	95.6
RLLC0193	5/6/21 15:32	50.3	37.3	0	12.4	-5.95	107.4	-5.89	107.4
RLLC0194	5/5/21 15:03	48.9	37.5	0.1	13.5	-9.76	103	-9.74	103
RLLC0195	5/5/21 15:07	39.3	29.7	0.1	30.9	-20.23	89.9	-20.19	89.9
RLLC0196	5/5/21 14:48	51.7	36.3	0.1	11.9	-43.98	103.6	-43.98	103.7
RLLC0198	5/6/21 8:04	46.5	35.6	0	17.9	-4.21	105.7	-4.16	105.9
RLLC0199	5/5/21 14:33	48.8	35.8	0	15.4	-5.4	114.5	-5.35	114.5
RLLC0200	5/5/21 14:23	43.1	31.2	0.1	25.6	-0.59	98.6	-0.54	98.6
RLLC0201	5/5/21 14:12	43.1	33.7	0.1	23.1	-1.88	110	-1.61	109.9
RLLC0202	5/6/21 8:28	58.6	37.7	0.2	3.5	-0.46	83.1	-0.73	86.7
RLLC0203	5/6/21 8:34	36.7	31.9	0	31.4	-24.2	101	-19.54	100.5
RLLC0204	5/6/21 8:41	45	35.1	0	19.9	-1.1	101.6	-0.82	101.3
RLLC0205	5/6/21 8:53	25.3	28.7	0	46	-0.28	93	-0.13	92.7
RLLC0206	5/6/21 10:42	50.3	39.4	0	10.3	-5.37	96.2	-6.06	96.4
RLLC0209	5/6/21 10:47	41.9	36.8	0	21.3	-0.99	97.5	-0.94	97.6
RLLC0210	5/6/21 8:47	28	29	0	43	-0.34	100.3	-0.14	99
RLLC0212	5/3/21 16:07	49	38.3	0.1	12.6	-22.99	96.5	-23.75	96.5
RLLC0214	5/5/21 12:15	48	50.1	0.1	1.8	-9.19	96.1	-9.18	96.1
RLLC0217	5/5/21 13:53	48.6	34.5	0.1	16.8	-6.97	98.3	-6.96	98.3
RLLC0219	5/6/21 15:44	45.8	35.9	0.6	17.7	-1.03	107.9	-1	108
RLLC0221	5/6/21 8:15	46	34.3	0	19.7	-10.12	98.4	-10.03	98.4
RLLC0222	5/4/21 12:37	45.8	46.2	0	8	-7.09	107.1	-6.02	107.2
RLLC0223	5/4/21 12:44	41.3	35	0	23.7	-2.17	107.4	-1.88	107.4
RLLC0224	5/4/21 12:21	45.4	34.8	0	19.8	-3.07	109.1	-2.3	109.2
RLLC0225	5/5/21 14:19	40.7	30.7	0	28.6	-0.89	97.9	-0.75	97.8
RLLC0226	5/3/21 16:21	49.5	44.1	0.1	6.3	-7.24	96.3	-7.84	96.2
RLLC0227	5/5/21 15:19	48.2	33.1	0.2	18.5	-2.09	88.2	-2.07	88.2
RLLC0228	5/6/21 8:09	42	32.1	0.2	25.7	-1.09	81.4	-1.04	81.4
RLLC0229	5/5/21 14:28	40	31.7	0	28.3	-0.12	99.7	-0.13	99.7
RLLC0230	5/6/21 7:32	47.4	39.9	0	12.7	-3.87	112.1	-3.88	112.2
RLLC0231	5/3/21 14:21	48	33.8	0.1	18.1	-2.55	88.4	-2.07	88.5
RLLC0231	5/6/21 15:50	54.2	37.7	0	8.1	-0.86	93.4	-1.57	94
RLLC0232	5/6/21 15:58	44.1	34.6	0	21.3	-2.17	95.8	-1.49	95.4
RLLC0233	5/5/21 14:03	37.4	33.5	0	29.1	-0.39	105.2	-0.36	105.2
RLLC0234	5/5/21 11:30	48.6	38.3	0.2	12.9	-10.1	110	-10.52	110.1
RLLC0235	5/4/21 13:47	51.2	38.4	0.3	10.1	-0.91	103.7	-0.8	103.8
RLLC0236	5/4/21 13:51	50.8	38	0	11.2	-1.27	94.9	-1.18	94.9
RLLC0237	5/4/21 13:25	49.3	37	0	13.7	-10.01	92.2	-9.93	92.1
RLLC0238	5/4/21 13:32	48.3	38.4	0	13.3	-1.9	106.2	-1.71	106.2
RLLC0239	5/4/21 13:15	37.4	32.2	0	30.4	-0.31	97.7	-0.14	97.6
RLLC0240	5/4/21 13:10	44.3	34.1	0	21.6	-0.59	103	-0.41	103.1
RLLC0241	5/5/21 11:20	48.9	38.7	0	12.4	-21.32	106.2	-21.33	106.2
RLLC0242	5/5/21 11:15	46.7	40.2	0.1	13	-9.47	105.4	-8.77	105.4
RLLC0243	5/3/21 15:12	46.7	39.3	0.1	13.9	-0.25	106.2	-0.2	106.2
RLLC0243	5/18/21 9:55	47.8	38.8	0	13.4	-0.19	105.9	-0.36	106.6
RLLC0244	5/3/21 15:15	48.8	39.5	0.1	11.6	-0.42	107.8	-0.4	107.8
RLLC0245	5/3/21 15:21	37.8	37.8	0.1	24.3	-0.14	102.6	-0.12	102.4
RLLC0246	5/5/21 12:11	57.5	40.9	0.1	1.5	-40.28	98.2	-40.39	98.2
RLLC0247	5/4/21 12:57	42.9	35.2	0	21.9	-0.8	100.9	-0.59	100.9
RLLC0248	5/4/21 12:51	45.5	38	0	16.5	-3.33	106.9	-2.93	106.9
RLLC0249	5/6/21 14:22	38.3	36.4	0	25.3	-0.25	103.7	-0.22	103.2

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Wellfield Monitoring Report - May 3, 4, 5, 6, 10, 18, and 27, 2021

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	5/5/21 14:43	43.3	35.6	0.1	21	-0.91	104.2	-0.7	104.1
RLHC0156	5/6/21 7:52	34.2	27.4	1.1	37.3	-0.47	101.9	-0.22	100.7
RLLC0250	5/6/21 14:45	48.3	41.9	0.1	9.7	-0.35	107.6	-0.34	107.6
RLLC0251	5/6/21 15:02	45.3	41.7	0	13	-0.31	105.6	-0.24	105.7
RLLC0252	5/5/21 10:54	48.7	42.2	0.1	9	-1.93	101.4	-1.91	101.4
RLLC0253	5/5/21 10:48	47.1	42.6	0.2	10.1	-2.37	102.8	-2.29	102.8
RLLC0254	5/5/21 11:00	45.9	41.3	0.1	12.7	-1.74	104.2	-1.44	104.2
RLLC0255	5/5/21 11:07	46.7	39	0	14.3	-4.89	107.2	-4.26	107.2
RLLC0256	5/4/21 14:09	48.2	40.2	0.1	11.5	-1.92	102.1	-1.86	102.1

There are 112 total collectors; 105 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 - June 2, 3, 8, 9, 10, and 17, 2021

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	6/9/21 11:29	45.3	36.8	0.2	17.7	-0.85	100.7	-0.71	99.5
RLHC0156	6/9/21 16:05	61.3	33.5	0.1	5.1	-0.07	100.6	-0.21	102.4
RLI00003	6/10/21 12:01	25.2	25.5	4.5	44.8	-21.91	88.6	-14.67	88.8
RLI00008	6/10/21 10:31	58.1	33.9	0.8	7.2	-34.83	99.8	-35.41	100
RLI00016	6/10/21 9:57	25.9	25.8	1	47.3	-11.65	78.7	-11.83	78.3
RLI00017	6/10/21 10:02	42.5	30.9	1.5	25.1	-10.48	77.1	-10.54	77.1
RLI00018	6/10/21 10:13	20.5	24.6	0.7	54.2	-4.8	77.5	-4.24	76.9
RLI00019	6/10/21 10:19	55.2	34.9	0.6	9.3	-35.05	75.5	-35.03	75.5
RLI00034	6/10/21 12:11	52.6	37.7	0.2	9.5	-31.99	82.1	-33.97	82
RLI00035	6/10/21 12:22	51.2	35.8	0.1	12.9	-20.74	80.8	-20.73	80.9
RLI00045	6/10/21 12:38	43.1	30.3	0.1	26.5	-0.74	81.8	-0.73	81.8
RLI00047	6/10/21 12:31	44.5	32.4	0.1	23	-1.16	83.9	-1.03	81.8
RLI00065	6/10/21 8:36	50.3	40	0.1	9.6	-2.7	106.4	-2.73	106.5
RLI00083	6/10/21 7:49	62.4	36.4	0.8	0.4	-28.2	95.3	-28.19	95.3
RLI00095	6/8/21 9:50	49.8	36.7	0.2	13.3	-1.46	97	-1.45	97.1
RLI00132	6/10/21 11:34	53.5	36.6	0	9.9	-36.84	101.5	-36.85	101.5
RLI00134	6/9/21 8:33	52.3	39.4	0.3	8	-16.92	116.6	-18.21	116.5
RLI00135	6/9/21 8:28	39.2	38.1	0.1	22.6	-1.5	109.9	-1.07	109.8
RLI00137	6/8/21 16:50	50.4	26.6	4.3	18.7	-44.75	75.3	-43.22	75.1
RLI00140	6/8/21 11:46	7.3	4.4	17.9	70.4	-23.28	75.8	-22.14	74.8
RLI00140	6/8/21 12:02	60	26.1	2.8	11.1	-45.43	75.8	-45.46	75.7
RLI00141	6/8/21 11:19	50.5	34.4	0.2	14.9	-23.78	91.5	-23.8	91.6
RLI00142	6/8/21 11:56	52.3	27.5	3.6	16.6	-38.59	87.8	-40.44	88.5
RLI00220	6/8/21 9:39	42	34.9	1.9	21.2	-2.09	85.4	-1.64	85.6
RLI0100C	6/3/21 9:28	60.4	39.4	0	0.2	-36.1	81	-36	80
RLI0100C	6/10/21 12:06	59	38.2	0.2	2.6	-32.85	81.1	-33.59	81.6
RLI0102C	6/9/21 9:58	61.5	38.4	0.1	0	-43.02	92.8	-42.87	92.8
RLI0103C	6/9/21 9:11	58.8	40.6	0.1	0.5	-22.42	102.2	-22.07	96.7
RLI0105C	6/9/21 9:40	41.2	47.9	1.9	9	-39.56	91.5	-24.46	88.9
RLI0106C	6/9/21 9:51	50.1	35.8	1.7	12.4	-45.75	99.3	-45.71	99.3
RLI0107C	6/9/21 10:53	64.1	35.9	0.1	-0.1	-0.01	82.7	-0.01	82.7
RLI0114A	6/10/21 9:26	54.2	28.9	3.8	13.1	-5.54	73.3	-6.93	73.1
RLI0115E	6/10/21 9:13	46.9	31.7	3.2	18.2	-41.98	101	-40.61	101.1
RLI0116E	6/10/21 9:06	53.2	36.5	1.3	9	-34.19	73	-35.92	72.9
RLI0117D	6/8/21 16:58	62.3	37.6	0.1	0	-45.72	94.5	-37.02	93.3
RLI0124G	6/8/21 10:29	60.1	38.3	0.2	1.4	-39.01	90.5	-38.29	90.7
RLI0126C	6/9/21 10:08	27.8	14.4	12.2	45.6	-44.08	66.9	-26.97	68.7
RLI0126C	6/9/21 10:21	50.6	27.1	4.4	17.9	-30.62	70	-30.66	70
RLI0127B	6/10/21 10:45	53.2	36.6	0.2	10	-23.38	106.6	-23.73	106.7
RLI0128A	6/9/21 8:12	33.2	30.7	2.5	33.6	-1.2	127.8	-1.21	127.8
RLI0129E	6/10/21 11:53	37.7	28.5	0.4	33.4	-39.87	82.5	-31.75	82.6
RLI0130E	6/10/21 11:44	36.3	28	0	35.7	-5.85	83.4	-4.64	83.5
RLIHC107	6/17/21 11:11	44.3	53.4	0	2.3	-39.2	121	-39.5	122
RLLC0176	6/9/21 8:47	45.3	39.4	0	15.3	-0.02	76.9	-0.02	77.1
RLLC0177	6/9/21 8:59	52.1	40.6	0.2	7.1	-27.72	107.3	-27.68	107.6
RLLC0179	6/8/21 10:23	35.3	28.9	0.2	35.6	-2.66	87.8	-1.73	87.1
RLLC0180	6/9/21 8:21	49.7	43.1	0.1	7.1	-20.11	107.3	-19.68	107.3
RLLC0181	6/9/21 8:17	49.5	37.1	0.1	13.3	-14.47	109.1	-14.03	109.1
RLLC0183	6/10/21 10:49	32.5	30.2	0.1	37.2	-4.52	91	-3.97	90.4
RLLC0184	6/10/21 10:37	54.5	36.5	0.1	8.9	-5.01	101.1	-5.07	101.4
RLLC0185	6/9/21 8:38	16	28.5	0.6	54.9	-0.04	67.8	-0.08	69.5
RLLC0186	6/9/21 9:16	48.1	39.7	0	12.2	-42.03	100.3	-42.39	100.3
RLLC0187	6/9/21 9:21	53.6	38.3	0	8.1	-43.93	93.7	-44.56	99
RLLC0188	6/9/21 9:24	49.8	42.1	0	8.1	-27.9	105.7	-27.92	105.7
RLLC0189	6/9/21 9:28	51.3	43.3	0	5.4	-12.09	112.9	-12.09	112.8
RLLC0190	6/9/21 9:33	15.4	39.7	0.3	44.6	-0.03	64.4	-0.06	64.4

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - June 2, 3, 8, 9, 10, and 17, 2021

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	6/9/21 11:29	45.3	36.8	0.2	17.7	-0.85	100.7	-0.71	99.5
RLHC0156	6/9/21 16:05	61.3	33.5	0.1	5.1	-0.07	100.6	-0.21	102.4
RLLC0191	6/8/21 10:41	44.5	32.5	0.2	22.8	-1.68	94.3	-1.48	93.8
RLLC0193	6/10/21 9:17	50.3	37.2	0.2	12.3	-4.13	107.8	-4.13	107.9
RLLC0194	6/9/21 11:13	47.1	37.8	0.1	15	-10.16	102.4	-10.19	102.4
RLLC0195	6/9/21 11:19	38.6	30.4	0.1	30.9	-13.33	90.5	-11.89	90.5
RLLC0196	6/9/21 11:24	47.1	33.8	2.1	17	-41.66	102.3	-41.57	102.3
RLLC0198	6/9/21 15:00	45.5	34.2	0.4	19.9	-4.31	108.3	-1.94	91.4
RLLC0199	6/9/21 15:04	51.3	37.4	0.1	11.2	-5.17	114.4	-5.18	114.3
RLLC0200	6/9/21 15:15	45.1	31.5	0.2	23.2	-0.43	90.1	-0.45	90.4
RLLC0201	6/9/21 15:24	50.2	36	0.1	13.7	-1.25	106.4	-1.27	106.7
RLLC0202	6/9/21 11:37	50.7	35.7	0.2	13.4	-1.91	97.5	-1.9	97.7
RLLC0203	6/9/21 11:04	38.6	32.6	0.1	28.7	-22.38	103.7	-18.81	103.4
RLLC0204	6/9/21 11:00	47	34.7	0.2	18.1	-0.93	102.3	-0.96	103.5
RLLC0205	6/9/21 10:37	25.8	28.8	0	45.4	-0.13	94.8	-0.06	94.1
RLLC0206	6/9/21 10:14	46.2	38.1	0.1	15.6	-6.26	103	-6.19	103.1
RLLC0209	6/9/21 10:28	37.5	35.6	0	26.9	-0.96	99.1	-0.76	98.4
RLLC0210	6/9/21 10:43	29.9	30.1	0	40	-0.15	101.3	-0.04	98.4
RLLC0212	6/8/21 11:26	47.8	37.9	0.1	14.2	-25.72	97.4	-24.27	97.5
RLLC0214	6/8/21 12:14	51.3	48	0.1	0.6	-13.99	95.5	-14.47	95.5
RLLC0215	6/8/21 12:19	56.3	43.6	0.1	0	-41.73	96.9	-43.7	97
RLLC0217	6/8/21 10:46	49.6	35.1	0.3	15	-7.36	96.8	-7.27	96.9
RLLC0219	6/10/21 9:30	51.6	38.4	0.1	9.9	-0.59	101.8	-0.5	101.8
RLLC0221	6/9/21 11:41	46.8	34.2	0.2	18.8	-8.16	100.1	-8.16	100.1
RLLC0222	6/8/21 12:27	41.1	56.1	0.1	2.7	-34.23	106.7	-25.42	107
RLLC0223	6/9/21 15:48	33.2	47.2	0.2	19.4	-1.15	106	-0.72	106.2
RLLC0224	6/9/21 15:37	54.6	39	0	6.4	-2.76	108.2	-2.89	108.4
RLLC0225	6/9/21 15:19	46.2	32.7	0.1	21	-0.69	90.3	-0.71	90.3
RLLC0226	6/8/21 11:34	51.2	40.4	0.1	8.3	-18	94.6	-17.98	94.6
RLLC0227	6/8/21 9:45	50.4	34.5	0.1	15	-2.05	85.3	-2.03	85.3
RLLC0228	6/9/21 11:45	47.8	33.3	0.2	18.7	-0.8	84	-0.8	84
RLLC0229	6/9/21 15:08	41.1	33	0.1	25.8	-0.22	83.2	-0.19	83.2
RLLC0230	6/2/21 18:19	52	43.9	0	4.1	-3.4	110	-4.2	110
RLLC0231	6/10/21 9:41	29.6	30.9	0.2	39.3	-6.9	97	-4.28	96.9
RLLC0232	6/10/21 9:46	46.7	35.4	0.1	17.8	-1.33	96.5	-1.33	96.5
RLLC0233	6/10/21 8:49	46.7	37.5	0.1	15.7	-0.6	103.7	-0.55	103.8
RLLC0234	6/10/21 8:10	46.2	38.4	0.2	15.2	-10.89	111.5	-10.9	111.8
RLLC0235	6/10/21 8:29	53	40	0.1	6.9	-0.89	102.7	-1.09	103.2
RLLC0236	6/10/21 8:21	50.3	39.2	0	10.5	-1.3	93.8	-1.26	93.8
RLLC0237	6/8/21 16:40	50.5	36.5	0.2	12.8	-9.3	91.1	-9.45	91.1
RLLC0238	6/10/21 8:42	50	39	0.1	10.9	-1.84	105.9	-1.8	105.9
RLLC0239	6/10/21 8:57	36.6	33.2	0.1	30.1	-0.24	94.3	-0.1	93.3
RLLC0240	6/10/21 8:53	47.3	36.1	0.1	16.5	-0.5	102	-0.47	102
RLLC0241	6/8/21 17:12	45.5	38.7	0	15.8	-24.56	106.7	-23.82	106.9
RLLC0242	6/8/21 17:05	45	39.2	0.2	15.6	-10.24	107.8	-8.19	107.9
RLLC0243	6/8/21 10:53	41.3	38	0.1	20.6	-0.45	105.2	-0.28	104.9
RLLC0244	6/8/21 10:57	47.5	40.3	0	12.2	-0.65	107.2	-0.58	107.3
RLLC0245	6/8/21 11:04	26.5	32.8	0	40.7	-1.13	106.9	-0.61	105.9
RLLC0246	6/8/21 12:08	58.6	40.1	0.1	1.2	-45.36	98.4	-45.24	98.4
RLLC0247	6/9/21 15:55	35.7	35.1	0.1	29.1	-2.92	99.5	-1.64	100.4
RLLC0248	6/9/21 16:00	47	37.3	0.1	15.6	-3.01	107	-3.03	107.1
RLLC0249	6/9/21 9:05	39.1	37	0.1	23.8	-0.54	108.4	-0.39	107.8
RLLC0250	6/9/21 8:53	52.9	43.3	0.1	3.7	-0.15	105.5	-0.21	106.5
RLLC0251	6/9/21 8:43	47.2	41.9	0.1	10.8	-0.22	106.4	-0.21	106.4
RLLC0252	6/8/21 14:11	46.4	41.6	0	12	-2.33	101.5	-2.11	101.5
RLLC0253	6/8/21 14:17	45.6	42.1	0	12.3	-2.75	103.7	-2.31	103.6

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - June 2, 3, 8, 9, 10, and 17, 2021

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	6/9/21 11:29	45.3	36.8	0.2	17.7	-0.85	100.7	-0.71	99.5
RLHC0156	6/9/21 16:05	61.3	33.5	0.1	5.1	-0.07	100.6	-0.21	102.4
RLLC0254	6/8/21 14:04	45.2	40.8	0.1	13.9	-1.61	104.5	-1.38	104.5
RLLC0255	6/8/21 13:59	46.2	38.5	0	15.3	-5.1	107.9	-4.52	107.8
RLLC0256	6/8/21 13:53	45.3	39.7	0.1	14.9	-2.17	101.9	-1.62	101.9

There are 112 total collectors; 105 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 - July 6, 7, 8, 13, 27, 28, and 29, 2021

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	7/28/21 11:24	46.3	35.9	0.2	17.6	-0.66	105.4	-0.64	105.4
RLHC0156	7/29/21 8:07	48.4	31	0.2	20.4	-0.17	103.2	-0.15	103.3
RLI00003	7/29/21 8:59	27.2	27.5	4.4	40.9	-12.96	84.5	-12.99	84.5
RLI00008	7/29/21 10:23	60.3	34	0.1	5.6	-48.5	99.4	-48.51	99.4
RLI00016	7/29/21 14:07	22.6	25.3	1.1	51	-28.7	81	-28.7	81
RLI00017	7/29/21 14:15	44.9	32	1.2	21.9	-11.5	81	-11.5	81
RLI00018	7/29/21 14:22	21.9	26.5	0	51.6	-4.7	82	-4.7	82
RLI00019	7/29/21 14:31	55.9	34.4	0.3	9.4	-37.4	75	-37.3	76
RLI00034	7/29/21 9:29	46	30.9	2.8	20.3	-44.85	81.5	-44.39	81.6
RLI00035	7/29/21 9:35	48.1	30.8	1.1	20	-23.94	81.2	-23.93	81.1
RLI00045	7/29/21 9:46	44	30.3	0	25.7	-0.98	81.2	-0.97	81.2
RLI00047	7/29/21 9:40	51.1	32.4	0	16.5	-0.96	83.7	-0.94	83.7
RLI00065	7/27/21 14:29	49.6	38.7	0	11.7	-1.9	104	-1.9	104
RLI00083	7/7/21 10:22	63.2	36.8	0	0	-14.35	95.5	-14.38	95.5
RLI00095	7/6/21 11:49	49.1	38	0	12.9	-1.2	93	-1.2	94
RLI00132	7/29/21 9:55	53.3	35.3	0	11.4	-35.63	102.3	-36.96	102.2
RLI00134	7/28/21 8:47	50.9	37.8	0.3	11	-19.23	116.9	-19.61	116.9
RLI00135	7/28/21 8:42	39.5	37.8	0	22.7	-1.17	112.4	-1.05	112.3
RLI00137	7/7/21 14:42	43.8	24.9	4.6	26.7	-39.7	93	-42.2	94
RLI00140	7/7/21 12:53	51	25.7	2.4	20.9	-45.9	83	-46.2	83
RLI00141	7/7/21 12:12	49.4	35.3	0	15.3	-24.9	89	-24.7	90
RLI00142	7/7/21 12:48	65.1	31.4	0	3.5	-43.8	91	-43.9	92
RLI00220	7/6/21 14:58	45.2	39.3	0	15.5	-0.3	85	-0.2	85
RLI0100C	7/29/21 9:21	53.2	34.3	2.3	10.2	-42.11	80.6	-45.48	81
RLI0102C	7/29/21 9:05	61.9	37.2	0	0.9	-45.79	93.1	-44.33	93.2
RLI0103C	7/28/21 8:53	58.2	39.4	0	2.4	-25.69	107.4	-25.62	107.4
RLI0105C	7/28/21 8:10	55.8	44	0.2	0	-17.98	91.2	-31.22	94.2
RLI0106C	7/8/21 14:00	57.8	37.1	0.4	4.7	-45.3	99	-45.2	100
RLI0107C	7/8/21 14:30	63.9	35	0	1.1	0.4	99	0.4	99
RLI0107C	7/13/21 11:00	58.1	30.6	2.5	8.8	-1.94	88.4	-1.92	88.4
RLI0114A	7/27/21 11:49	39.7	27	2.6	30.7	-4.09	83.2	-4.14	83.9
RLI0115E	7/27/21 11:27	52.7	27.6	2.7	17	-39.46	101.6	-40.43	102.3
RLI0116E	7/7/21 14:57	56.6	36.3	0.9	6.2	-38.23	87.2	-38.29	87.9
RLI0117D	7/7/21 14:56	60.9	38	0	1.1	-41	96	-42.5	96
RLI0124G	7/7/21 10:43	47.9	35.7	0.2	16.2	-30.97	91	-31	91
RLI0126C	7/6/21 17:04	63.6	31.9	0.7	3.8	-44.3	93	-44.3	93
RLI0127B	7/29/21 10:08	51.7	35	0	13.3	-25.21	107.3	-25.31	107.3
RLI0129E	7/29/21 8:33	42	27	2.1	28.9	-31	80.1	-31.05	80.1
RLI0130E	7/29/21 8:18	45.9	30.4	0	23.7	-3.23	77.2	-3.21	77.2
RLIHC101	7/7/21 10:54	58.5	38.6	0.1	2.8	-26.75	100.8	-28.95	100.6
RLIHC102	7/7/21 10:59	52.5	37.8	0	9.7	-12.17	97.9	-12.19	97.9
RLIHC107	7/7/21 13:51	37.6	59	0	3.4	-41.2	121	-34.9	121
RLLC0176	7/28/21 9:33	50	39.1	0	10.9	-0.05	90.2	-0.05	91.4
RLLC0177	7/28/21 9:11	54.1	39.9	0	6	-27.9	108	-31.32	107.9
RLLC0179	7/7/21 10:30	35	29	0.1	35.9	-2.82	89.4	-2.79	89.5
RLLC0180	7/28/21 8:24	55.9	41.5	0	2.6	-24.41	108	-25.94	108
RLLC0183	7/29/21 10:01	32.6	30	0	37.4	-3.91	87.4	-3.88	87.4
RLLC0184	7/29/21 10:16	52.5	35.3	0	12.2	-4.74	101.4	-4.75	101.4
RLLC0185	7/28/21 9:22	10.6	24.1	1.4	63.9	-0.25	82.6	-0.17	86.4
RLLC0186	7/28/21 9:56	46.7	38.6	0	14.7	-41.21	103.7	-40.67	103.7
RLLC0187	7/28/21 10:10	51.7	36.6	0	11.7	-45.12	100.4	-45.13	103.4
RLLC0188	7/28/21 10:15	48.1	40	0	11.9	-27.44	106.9	-27.45	106.9
RLLC0189	7/28/21 10:20	52.2	41.6	0	6.2	-11.35	113.9	-11.45	114
RLLC0190	7/28/21 8:18	16.9	38.4	0.4	44.3	-0.22	67.6	-0.19	67.6
RLLC0191	7/7/21 10:36	44.5	32.4	0.1	23	-1.05	93.3	-0.99	92.9
RLLC0193	7/27/21 11:32	54.3	36.3	0.2	9.2	-4.29	108.8	-4.27	108.8

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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	7/28/21 11:24	46.3	35.9	0.2	17.6	-0.66	105.4	-0.64	105.4
RLHC0156	7/29/21 8:07	48.4	31	0.2	20.4	-0.17	103.2	-0.15	103.3
RLLC0194	7/29/21 16:52	51.5	39	0	9.5	-10	101	-9.9	101
RLLC0195	7/28/21 11:36	52.5	32.8	0.1	14.6	-4.08	96.3	-4.52	96.3
RLLC0196	7/28/21 11:30	50.5	34.1	1.3	14.1	-39.8	103.2	-40.05	103.2
RLLC0198	7/6/21 15:49	59.9	40	0	0.1	-1.1	101	-1.1	101
RLLC0199	7/6/21 15:43	51.5	38.7	0	9.8	-4.4	111	-4.3	111
RLLC0200	7/6/21 15:27	48	34.4	0	17.6	-0.2	93	-0.2	93
RLLC0201	7/6/21 15:11	46.8	36.5	0	16.7	-1.4	105	-1.4	105
RLLC0202	7/6/21 16:06	51.7	37.2	0	11.1	-1.8	97	-1.7	97
RLLC0203	7/6/21 16:11	42	34.3	0	23.7	-19.6	101	-19.5	102
RLLC0204	7/29/21 8:38	48.2	34.1	0	17.7	-1.26	103.6	-1.23	103.6
RLLC0205	7/6/21 16:39	34.2	32	0	33.8	0	92	-0.1	94
RLLC0206	7/6/21 16:56	52.1	39.5	0	8.4	-3.6	67	-3.6	67
RLLC0209	7/6/21 16:49	49.3	37.2	0	13.5	-0.5	96	-0.6	96
RLLC0210	7/6/21 16:17	32.7	31.6	0	35.7	-0.1	99	-0.1	99
RLLC0210	7/6/21 16:23	32.7	31.5	0	35.8	-0.1	99	-0.1	99
RLLC0212	7/7/21 12:21	47.7	38.4	0	13.9	-23.5	95	-23.5	95
RLLC0214	7/7/21 13:14	51.1	48.2	0	0.7	-13.1	94	-13.1	94
RLLC0215	7/7/21 13:37	52.6	47	0	0.4	-41.9	94	-42.5	94
RLLC0217	7/7/21 12:38	45.9	34.9	0	19.2	-7.4	95	-7.4	95
RLLC0217	7/27/21 13:19	45.7	32.5	0.5	21.3	-6.9	92	-6.9	93
RLLC0219	7/27/21 11:43	58.3	37.5	0.1	4.1	-0.1	91.7	-0.08	91.6
RLLC0221	7/6/21 16:01	47.2	34.9	0	17.9	-7.9	99	-7.9	99
RLLC0222	7/7/21 13:32	39.3	54.1	0	6.6	-21.4	105	-21.4	106
RLLC0223	7/28/21 10:41	37.1	37	0	25.9	-1.44	109	-1.47	109
RLLC0224	7/28/21 10:36	44	37.5	0.2	18.3	-3.58	109.9	-3.55	109.9
RLLC0225	7/6/21 15:22	45.2	33.4	0	21.4	-0.4	91	-0.4	91
RLLC0226	7/7/21 12:31	53.9	39.9	0	6.2	-26	92	-26.3	92
RLLC0227	7/6/21 11:33	47.9	35	0	17.1	-1.8	86	-1.8	86
RLLC0228	7/6/21 15:55	56.2	35.8	0	8	-0.4	85	-0.2	86
RLLC0229	7/28/21 11:06	41.1	31.4	0.3	27.2	-0.18	94.4	-0.15	94.4
RLLC0229	7/28/21 11:10	40.3	31.3	0.2	28.2	-0.21	94.4	-0.18	94.4
RLLC0230	7/7/21 13:58	49.3	48.4	0	2.3	-4.2	111	-4.2	111
RLLC0231	7/29/21 10:40	37.9	31.3	0.1	30.7	-4.14	98.1	-2.88	98
RLLC0232	7/29/21 10:33	52.8	36.7	0	10.5	-1.57	97.6	-1.82	97.9
RLLC0233	7/7/21 14:48	49	37.5	0.1	13.4	-0.12	103.9	-0.22	104.5
RLLC0234	7/27/21 14:56	44.1	35.5	0	20.4	-9.9	109	-9.8	109
RLLC0235	7/27/21 14:46	46.2	36.1	0.2	17.5	-0.6	103	-0.6	103
RLLC0236	7/27/21 14:39	50.6	38.5	0	10.9	-0.5	94	-0.5	94
RLLC0237	7/7/21 14:47	50.1	38	0	11.9	-8.4	90	-8.5	90
RLLC0238	7/28/21 11:44	48.3	36.2	0.1	15.4	-1.84	107.9	-1.76	107.9
RLLC0239	7/7/21 14:39	42.2	33.7	0.1	24	-0.19	95.8	-0.14	95.9
RLLC0240	7/7/21 14:43	49.6	35.5	0.1	14.8	-0.33	102.8	-0.33	102.7
RLLC0241	7/27/21 14:21	45.1	36.6	0	18.3	-23.6	91	-23.6	91
RLLC0242	7/27/21 14:17	46.7	38.6	0.1	14.6	-8.6	106	-8.6	106
RLLC0243	7/7/21 11:16	44.2	38.1	0.1	17.6	-0.27	105.7	-0.22	105.8
RLLC0244	7/7/21 11:06	47.3	38.9	0.1	13.7	-0.32	107.3	-0.31	107.3
RLLC0245	7/7/21 11:11	30.3	32.8	0	36.9	-0.55	106	-0.34	105.5
RLLC0246	7/7/21 13:06	57.5	39.8	0	2.7	-45.8	96	-46	96
RLLC0247	7/28/21 10:50	39	35	0	26	-1.45	101.6	-1.05	101.9
RLLC0248	7/28/21 10:58	46	37.1	0.1	16.8	-3.27	108.1	-3.27	108.1
RLLC0249	7/28/21 9:49	38.5	35.6	0	25.9	-0.5	110.4	-0.32	109.9
RLLC0250	7/28/21 9:41	56.5	42.4	0	1.1	-0.09	109.2	-0.3	110.8
RLLC0251	7/28/21 9:28	49.1	41	0	9.9	-0.31	108.7	-0.28	108.7
RLLC0252	7/27/21 13:37	47	41	0	12	-1.9	100	-1.9	100

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - July 6, 7, 8, 13, 27, 28, and 29, 2021

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	7/28/21 11:24	46.3	35.9	0.2	17.6	-0.66	105.4	-0.64	105.4
RLHC0156	7/29/21 8:07	48.4	31	0.2	20.4	-0.17	103.2	-0.15	103.3
RLLC0253	7/27/21 13:46	47.2	41.8	0	11	-1.9	102	-1.8	102
RLLC0254	7/27/21 13:53	48.1	41.2	0	10.7	-1.1	103	-1.1	103
RLLC0255	7/27/21 14:00	47.9	38.3	0	13.8	-4	105	-4	105
RLLC0256	7/29/21 7:57	46.5	38.5	0	15	-2.48	103.3	-2.44	103.3

There are 112 total collectors; 105 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 - August 2, 3, 4, 5, 6, 9, 11, and 12, 2021

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	8/12/21 10:08	47.6	37.3	0	15.1	-0.6	100	-0.6	101
RLHC0156	8/12/21 10:32	52.3	31.3	0.5	15.9	0	101	-0.2	102
RLI00003	8/9/21 12:52	29.7	30.1	2.9	37.3	-11.6	92	-11.7	92
RLI00008	8/12/21 11:49	62.8	35.4	0	1.8	-51.6	91	-50.8	92
RLI00016	8/4/21 13:19	22.6	25.1	1.5	50.8	-35.9	77	-35.9	77
RLI00017	8/4/21 13:26	45	31	1.5	22.5	-11.8	77	-11.7	78
RLI00018	8/4/21 13:34	22.2	26.8	0	51	-4.1	79	-4.1	79
RLI00019	8/4/21 13:42	55.9	35	0.2	8.9	-35.6	68	-36	68
RLI00034	8/6/21 12:17	47.3	33.9	1.9	16.9	-40.5	84	-36.8	84
RLI00035	8/6/21 12:26	50	35.4	0	14.6	-24.7	82	-23.7	82
RLI00045	8/6/21 12:42	44.7	31.6	0	23.7	-0.9	88	-0.9	88
RLI00047	8/6/21 12:35	50.2	34.1	0	15.7	-0.8	86	-0.7	87
RLI00065	8/3/21 15:36	50.5	39.5	0	10	-2.6	105	-2.6	105
RLI00083	8/11/21 9:09	55.9	33.3	1.8	9	-9.1	93	-9	93
RLI00095	8/11/21 8:48	50.6	36.5	0	12.9	-1.3	96	-1.3	96
RLI00132	8/6/21 11:49	54.3	36.5	0	9.2	-34.9	101	-35.9	89
RLI00134	8/5/21 12:15	51.7	38.5	0	9.8	-17.9	116	-17.7	116
RLI00134	8/12/21 11:33	51.3	37.8	0	10.9	-17.5	116	-17.3	116
RLI00135	8/9/21 10:49	40.3	38.7	0	21	-0.7	112	-0.7	112
RLI00137	8/3/21 14:53	55.1	29.9	2.5	12.5	-47.7	96	-47.7	96
RLI00140	8/11/21 10:35	61.3	27.4	0.8	10.5	-50	81	-50.2	81
RLI00141	8/11/21 11:55	47.8	32.9	0	19.3	-26.8	91	-26.8	91
RLI00142	8/11/21 10:26	65	32.8	0	2.2	-48.3	93	-48.3	93
RLI00220	8/11/21 8:26	47.5	37.2	0.2	15.1	2.2	63	-0.2	62
RLI0100C	8/6/21 12:07	59.2	38.7	0.5	1.6	-48.6	86	-47.8	87
RLI0102C	8/12/21 11:12	62.1	37.7	0	0.2	-45.4	93	-45.5	93
RLI0103C	8/9/21 9:42	58.2	41.2	0	0.6	-23	106	-23.1	107
RLI0105C	8/9/21 13:23	55.2	44.3	0	0.5	-39	100	-39	100
RLI0114A	8/4/21 12:54	50.5	25.6	3.8	20.1	-4.4	77	-3.9	76
RLI0115E	8/4/21 12:27	49.7	31.8	2.8	15.7	-42.8	98	-45.1	99
RLI0116E	8/3/21 14:39	51.5	35.8	1.5	11.2	-46.9	86	-47	86
RLI0117D	8/3/21 15:43	62.3	37.6	0	0.1	-47.7	96	-47.8	96
RLI0124G	8/11/21 9:20	34.6	31.3	0.2	33.9	-35.4	90	-35.4	90
RLI0126C	8/9/21 13:15	62.7	29.9	1.3	6.1	-45.1	93	-45.8	93
RLI0127B	8/6/21 11:14	52.9	36.7	0	10.4	-23.3	106	-23.6	106
RLI0129E	8/11/21 10:54	44.7	30.1	0.2	25	-34.4	82	-34.4	83
RLI0130E	8/11/21 11:03	45.3	30	0	24.7	-3.9	83	-3.9	84
RLIHC101	8/11/21 9:56	51.1	36.8	0	12.1	-36.9	100	-37.3	101
RLIHC102	8/9/21 9:31	61.3	38.6	0	0.1	-45.1	93	-45.5	94
RLIHC102	8/11/21 9:48	48.3	35.6	0	16.1	-14	98	-14	99
RLIHC107	8/3/21 14:10	41.1	51.3	0	7.6	-20.6	124	-20.5	124
RLLC0176	8/12/21 11:23	42.7	37.1	0	20.2	0	96	-0.2	110
RLLC0177	8/9/21 9:52	32.7	32.7	1.5	33.1	-27.9	107	-26.9	107
RLLC0179	8/11/21 9:00	32.8	29	0	38.2	-3.2	87	-3.2	87
RLLC0180	8/9/21 10:41	54.8	42.4	0	2.8	-27	106	-27.2	106
RLLC0183	8/6/21 11:22	33.4	31.3	0	35.3	-3.7	91	-3.7	91
RLLC0184	8/5/21 11:17	54.1	36.8	0	9.1	-5.2	100	-5.2	100
RLLC0185	8/5/21 12:05	13.3	26.1	0.7	59.9	-0.2	115	-0.2	123
RLLC0186	8/9/21 10:07	47.5	39.4	0	13.1	-42.6	102	-43.8	102
RLLC0187	8/9/21 10:12	51.7	37.5	0	10.8	-46.4	105	-46.7	105
RLLC0188	8/9/21 10:18	47.2	41.1	0	11.7	-28.8	105	-28.7	105
RLLC0189	8/9/21 10:26	52	42.3	0	5.7	-12.4	112	-12.3	112
RLLC0190	8/9/21 10:34	15.4	38.8	0	45.8	-0.4	99	-0.4	101
RLLC0191	8/11/21 9:33	39.8	31.4	0	28.8	-1.1	90	-1	90
RLLC0193	8/4/21 12:43	55.2	38.2	0	6.6	-4.1	107	-4.2	107
RLLC0194	8/3/21 12:55	52.3	38.5	0	9.2	-10.1	101	-10	101

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - August 2, 3, 4, 5, 6, 9, 11, and 12, 2021

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	8/12/21 10:08	47.6	37.3	0	15.1	-0.6	100	-0.6	101
RLHC0156	8/12/21 10:32	52.3	31.3	0.5	15.9	0	101	-0.2	102
RLLC0195	8/12/21 10:16	51.4	33.9	0	14.7	-4	91	-4	91
RLLC0196	8/2/21 15:28	49.2	34	1.8	15	-41.5	100	-41.4	101
RLLC0198	8/2/21 14:45	55.4	37.8	0	6.8	-5.7	107	-2.1	107
RLLC0199	8/2/21 14:48	51.1	37.8	0	11.1	-5.3	113	-5.3	113
RLLC0200	8/12/21 11:00	46.8	33	0	20.2	-0.4	94	-0.4	94
RLLC0201	8/2/21 15:04	44	34.2	0	21.8	-1.6	107	-1.6	108
RLLC0202	8/2/21 14:14	52.1	36.1	0.1	11.7	-2	98	-1.8	98
RLLC0203	8/2/21 14:08	40	33	0	27	-20.5	103	-20.8	103
RLLC0204	8/2/21 14:03	47.7	35.5	0	16.8	-1.1	103	-1.1	103
RLLC0205	8/2/21 13:58	26.1	28.7	0	45.2	-0.2	96	-0.2	96
RLLC0206	8/9/21 13:08	50.6	38.1	0	11.3	-5.1	89	-5.1	89
RLLC0209	8/9/21 13:03	46.5	37.5	0	16	-0.4	99	-0.4	99
RLLC0210	8/2/21 13:53	31.7	30.6	0	37.7	-0.2	101	-0.1	101
RLLC0212	8/11/21 11:46	48.2	36.1	0	15.7	-27.2	97	-27.1	97
RLLC0214	8/3/21 14:18	53.3	46.6	0	0.1	-12.6	96	-12.4	96
RLLC0215	8/3/21 13:58	56.4	43.5	0	0.1	-47.8	95	-46	95
RLLC0217	8/11/21 10:37	47.6	33.8	0	18.6	-7.9	97	-7.9	97
RLLC0219	8/12/21 9:58	59.2	39.2	0	1.6	0	88	-0.2	94
RLLC0221	8/2/21 14:24	47.8	34.4	0.4	17.4	-9.1	100	-8	100
RLLC0222	8/3/21 13:52	41.5	47.2	0	11.3	-28.4	107	-25.4	107
RLLC0223	8/3/21 13:38	37.6	37.5	0	24.9	-1.4	106	-1.4	106
RLLC0224	8/3/21 13:34	44.8	38.3	0	16.9	-3.4	107	-3.4	107
RLLC0225	8/3/21 13:04	48.4	33.1	0.1	18.4	-0.4	89	-0.5	90
RLLC0226	8/11/21 11:40	55	36.8	0	8.2	-15.7	98	-15.5	98
RLLC0227	8/11/21 8:41	48.6	33.7	0	17.7	-2	88	-2	88
RLLC0228	8/12/21 10:48	63.8	36.1	0	0.1	0	76	-0.2	74
RLLC0229	8/12/21 10:56	41.7	32.4	0	25.9	-0.1	85	-0.1	89
RLLC0230	8/3/21 14:04	49.3	45.8	0	4.9	-4.4	112	-4.4	113
RLLC0231	8/4/21 13:08	41.1	33.9	0	25	-2.7	96	-2.7	96
RLLC0232	8/6/21 10:58	53.1	37.9	0	9	-1.9	98	-1.9	98
RLLC0233	8/3/21 13:45	45	37.5	0	17.5	-2.6	104	-0.3	104
RLLC0234	8/12/21 14:32	44.5	36.1	0.2	19.2	-12.2	112	-12.2	112
RLLC0235	8/3/21 19:52	47	36.4	0.1	16.5	-1.1	105	-1.1	105
RLLC0236	8/3/21 20:00	51.7	38.7	0	9.6	-1	95	-1	95
RLLC0237	8/3/21 15:03	46.9	35	0.9	17.2	-9.6	94	-9.3	95
RLLC0238	8/3/21 15:07	48.9	38.3	0	12.8	-1.7	105	-1.7	105
RLLC0239	8/12/21 9:43	40.2	33.9	0	25.9	-0.2	93	-0.2	94
RLLC0240	8/3/21 14:28	47	36.3	0	16.7	-3.3	100	-0.3	101
RLLC0241	8/3/21 15:30	45.1	37	0	17.9	-24.7	105	-24.7	105
RLLC0242	8/3/21 15:19	48.1	39.5	0	12.4	-9.5	107	-9.5	107
RLLC0243	8/11/21 10:12	43.3	38.7	0	18	-0.2	105	-0.2	106
RLLC0244	8/11/21 10:08	45	39.3	0	15.7	-0.4	106	-0.4	106
RLLC0245	8/11/21 10:04	30.6	34.8	0	34.6	-0.3	103	-0.3	103
RLLC0246	8/11/21 10:44	58.1	38.1	0	3.8	-49.4	98	-49.1	98
RLLC0247	8/3/21 13:10	40.6	36.4	0	23	-1	99	-1	99
RLLC0248	8/3/21 13:15	47.2	38.4	0	14.4	-3.1	106	-3	106
RLLC0249	8/9/21 9:59	42.6	38.1	0	19.3	-0.1	109	-0.1	109
RLLC0250	8/11/21 11:28	48.6	39.3	1.2	10.9	-0.3	110	-0.3	110
RLLC0251	8/11/21 11:15	49.1	41.7	0	9.2	-0.1	107	-0.1	107
RLLC0252	8/3/21 19:30	47.1	41.2	0	11.7	-2.1	102	-2.1	102
RLLC0253	8/3/21 18:58	48.1	41.9	0	10	-2.2	104	-2.2	104
RLLC0254	8/3/21 18:42	48.8	41.7	0	9.5	-1.4	104	-1.4	105
RLLC0255	8/3/21 15:13	48	38.8	0	13.2	-4.5	106	-4.4	107
RLLC0256	8/3/21 18:35	46.7	39.6	0	13.7	-2.5	103	-2.5	103

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - August 2, 3, 4, 5, 6, 9, 11, and 12, 2021

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	8/12/21 10:08	47.6	37.3	0	15.1	-0.6	100	-0.6	101
RLHC0156	8/12/21 10:32	52.3	31.3	0.5	15.9	0	101	-0.2	102

There are 112 total collectors; 105 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 - September 2, 3, 8, 9, 10, 13, 14, 15, and 16, 2021

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	9/15/21 16:32	48.7	37.4	0	13.9	-0.5	101	-0.5	101
RLHC0156	9/14/21 16:23	63.1	33.1	0	3.8	-0.1	104	-0.4	104
RLI00003	9/14/21 17:08	36.1	35.7	0	28.2	-14.9	89	-9	88
RLI00008	9/15/21 12:04	62.5	34.5	0.5	2.5	-51.7	88	-51.7	88
RLI00016	9/13/21 11:21	26.7	24.9	1.5	46.9	-32	83	-20	84
RLI00017	9/13/21 11:32	48	32.8	0.1	19.1	-11.8	82	-7.9	83
RLI00018	9/13/21 11:47	19.8	25.6	0	54.6	-3.4	85	-2	82
RLI00019	9/13/21 11:55	53.2	32.8	0.6	13.4	-22.4	79	-22.2	80
RLI00034	9/14/21 17:32	57	37.8	0	5.2	-19.3	83	-20	83
RLI00035	9/14/21 17:43	59	37.6	0	3.4	-11.7	79	-15.2	79
RLI00045	9/15/21 11:40	49.1	32.9	0	18	-0.5	79	-0.3	79
RLI00047	9/15/21 11:26	56.4	34.8	0	8.8	-0.4	82	-0.5	82
RLI00065	9/9/21 10:36	51.6	39.1	0	9.3	-6	106	-5.9	107
RLI00083	9/10/21 13:07	63.3	36.6	0	0.1	-9.6	95	-8.9	95
RLI00095	9/10/21 9:44	49.8	36.4	0	13.8	-1.5	96	-1.1	96
RLI00132	9/13/21 13:16	58.1	36.4	0	5.5	-18.3	102	-18.4	102
RLI00134	9/2/21 13:53	51.7	37.9	0	10.4	-14.5	116	-14.6	116
RLI00134	9/13/21 12:21	51.7	37.8	0	10.5	-10.5	116	-10.4	117
RLI00135	9/3/21 14:09	41.3	36.9	0	21.8	-0.8	113	-0.8	114
RLI00137	9/8/21 11:30	50.7	26.9	3.3	19.1	-46.1	96	-48.4	97
RLI00140	9/16/21 11:49	57.7	26.6	1.6	14.1	-50.8	73	-49.9	73
RLI00141	9/8/21 16:34	40.4	27.4	2.3	29.9	-22.4	92	-22.3	92
RLI00142	9/16/21 11:54	66.3	33.1	0	0.6	-49.4	93	-49.4	94
RLI00220	9/16/21 11:37	50.1	38.2	0	11.7	-1.3	66	-1.2	67
RLI0100C	9/14/21 17:21	61.4	38.4	0	0.2	-48.4	85	-48	85
RLI0102C	9/13/21 14:04	61.3	36.9	0	1.8	-44.9	94	-45.1	94
RLI0103C	9/2/21 14:13	58.2	40.4	0	1.4	-20	106	-20.2	106
RLI0105C	9/3/21 14:30	56	43.9	0	0.1	-37.8	102	-38.1	103
RLI0106C	9/3/21 13:10	38.1	50.1	1	10.8	-43.8	106	-43.5	107
RLI0106C	9/3/21 13:15	38.7	50.4	0.9	10	-43.9	106	-42.4	107
RLI0114A	9/10/21 17:07	51.7	28.5	3	16.8	-13	86	-9.7	87
RLI0115E	9/10/21 16:43	63.2	36.5	0.1	0.2	-47	100	-46.7	100
RLI0116E	9/8/21 12:18	58.9	39.9	0	1.2	-51.5	85	-51.3	85
RLI0117D	9/15/21 16:58	48.1	38.7	1.3	11.9	-49.3	86	-49.3	86
RLI0124G	9/10/21 13:29	36	30.9	0	33.1	-31.3	90	-20.2	91
RLI0126C	9/13/21 13:43	63.2	29.3	1.1	6.4	-44.5	97	-44.8	97
RLI0127B	9/13/21 12:45	54.7	35.9	0	9.4	-14.5	106	-14.8	106
RLI0129E	9/14/21 16:36	45	30.1	0.2	24.7	-33.5	84	-25.7	84
RLI0130E	9/14/21 16:12	43.9	30.4	0	25.7	-3.7	88	-2.6	88
RLIHC101	9/8/21 17:01	50.1	35.6	0	14.3	-37.3	103	-37.2	103
RLIHC102	9/8/21 16:52	46.6	33.8	0	19.6	-12.8	102	-12.7	102
RLIHC107	9/8/21 13:11	47.6	46.4	0	6	-48.4	107	-48.5	108
RLLC0176	9/13/21 13:03	35.7	35.4	0	28.9	0	122	-0.1	122
RLLC0177	9/2/21 13:43	53	39.6	0	7.4	-23.2	107	-23.2	107
RLLC0179	9/10/21 12:27	34.6	28.8	0	36.6	-3	91	-0.8	89
RLLC0180	9/3/21 14:23	53.9	40.5	0	5.6	-30.4	106	-30.4	106
RLLC0183	9/13/21 12:54	39.6	31.5	0	28.9	-2	92	-1.7	92
RLLC0184	9/13/21 12:15	61	36.9	0	2.1	-0.9	101	-2.5	101
RLLC0185	9/13/21 12:29	26.3	32.1	0	41.6	-0.1	111	-0.1	111
RLLC0186	9/3/21 13:38	48.5	37.6	0	13.9	-42.3	102	-42.7	102
RLLC0187	9/3/21 13:33	53.5	36.5	0	10	-45.4	105	-46	106
RLLC0188	9/3/21 13:50	47.3	39.9	0	12.8	-28.6	105	-28.6	106
RLLC0189	9/3/21 13:59	51.1	41.1	0	7.8	-12.1	111	-12.1	112
RLLC0190	9/3/21 14:18	12.7	34.1	0	53.2	-0.2	101	-0.2	102
RLLC0191	9/10/21 13:37	43.5	31.2	0	25.3	-0.9	93	-0.8	93
RLLC0193	9/10/21 16:54	53.6	37.5	0	8.9	-4.8	107	-4.7	108

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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	9/15/21 16:32	48.7	37.4	0	13.9	-0.5	101	-0.5	101
RLHC0156	9/14/21 16:23	63.1	33.1	0	3.8	-0.1	104	-0.4	104
RLLC0194	9/15/21 16:04	44.1	36.5	0	19.4	-11.2	101	-7.1	101
RLLC0195	9/15/21 16:13	58.5	34.4	0	7.1	-2.9	92	-5	93
RLLC0196	9/15/21 16:21	57.3	37.2	0	5.5	-42	102	-43.7	102
RLLC0198	9/8/21 9:10	60.7	39.2	0	0.1	-1.1	102	-1.1	102
RLLC0199	9/8/21 9:15	50.6	36.9	0	12.5	-5.5	113	-5.4	114
RLLC0200	9/16/21 12:13	47.3	33	0	19.7	-0.6	95	-0.2	92
RLLC0201	9/8/21 9:43	47.6	33.8	0	18.6	-1.3	108	-0.9	107
RLLC0202	9/8/21 8:41	61.9	37.5	0	0.6	-1	96	-1	96
RLLC0203	9/8/21 8:33	50	40.8	0	9.2	-20.3	103	-20	103
RLLC0205	9/14/21 16:53	29.7	34.3	0	36	-0.2	97	-0.1	97
RLLC0206	9/13/21 13:37	52.9	37.1	0	10	-3	101	-3.1	101
RLLC0209	9/13/21 13:31	47.5	37	0	15.5	-0.5	100	-0.3	100
RLLC0210	9/14/21 16:46	42	38	0	20	-0.1	103	-0.1	103
RLLC0212	9/8/21 16:15	48.4	36	0	15.6	-19.8	98	-19.9	98
RLLC0214	9/8/21 13:45	54.9	44.5	0	0.6	-11.9	101	-11.8	101
RLLC0215	9/8/21 12:59	59.2	40.5	0	0.3	-48.1	97	-47.3	97
RLLC0217	9/13/21 11:05	47.1	33.4	0	19.5	-8.2	97	-4.2	96
RLLC0219	9/10/21 17:12	55.6	39.6	0	4.8	-0.2	105	-0.2	105
RLLC0221	9/8/21 8:48	50.1	34.5	0.3	15.1	-7.8	101	-7.9	101
RLLC0222	9/8/21 12:52	45.2	44.2	0	10.6	-27.9	107	-28	107
RLLC0223	9/8/21 9:52	38.8	34.6	0	26.6	-1.6	108	-1.1	109
RLLC0224	9/8/21 10:00	45	36.5	0	18.5	-3.5	108	-1.9	108
RLLC0225	9/8/21 9:33	50.5	33	0	16.5	-0.4	93	-0.4	93
RLLC0226	9/8/21 15:52	54.6	36.4	0	9	-25.5	98	-25.4	98
RLLC0227	9/10/21 9:30	48.2	33.7	0	18.1	-2.1	89	-1.5	89
RLLC0228	9/8/21 8:55	40.9	31.7	0	27.4	-1.6	102	-1.6	102
RLLC0229	9/8/21 9:25	36.8	30.7	0	32.5	-0.2	98	-0.2	98
RLLC0230	9/8/21 13:20	51.5	43.3	0	5.2	-5.8	112	-5.8	112
RLLC0231	9/10/21 17:21	45.1	34.4	0	20.5	-1.9	96	-1	96
RLLC0232	9/10/21 17:28	52.1	37.1	0	10.8	-1.9	97	-1.8	98
RLLC0233	9/8/21 12:42	44.5	36	0	19.5	-0.2	106	-0.2	106
RLLC0234	9/10/21 10:01	44.2	36.1	0	19.7	-10.7	113	-6.4	113
RLLC0235	9/10/21 10:48	44.9	36	0	19.1	-1.3	106	-0.6	80
RLLC0236	9/10/21 10:58	50.7	38.3	0	11	-1.1	96	-1.1	97
RLLC0237	9/8/21 11:14	49	36.5	0	14.5	-10.1	100	-8.5	100
RLLC0238	9/10/21 11:08	47.4	37.3	0	15.3	-1.8	106	-1.5	106
RLLC0239	9/8/21 12:05	40.3	33	0	26.7	0	96	-0.1	97
RLLC0239	9/8/21 12:14	40.2	33.3	0	26.5	-0.2	97	-0.2	97
RLLC0240	9/8/21 12:31	47.6	35.1	0	17.3	-0.2	102	-0.2	102
RLLC0241	9/9/21 10:44	43.3	36.1	0	20.6	-24.6	105	-17.5	106
RLLC0242	9/9/21 10:52	46.7	38.7	0	14.6	-9.9	109	-9.9	109
RLLC0243	9/8/21 17:39	42.6	38.7	0	18.7	-0.1	106	-0.1	107
RLLC0244	9/8/21 17:28	45.3	39.3	0	15.4	-0.2	106	-0.3	107
RLLC0245	9/8/21 17:17	30.9	34.4	0	34.7	-0.2	105	-0.2	105
RLLC0246	9/8/21 13:27	57.6	37	0	5.4	-49.3	98	-49.1	99
RLLC0247	9/8/21 10:24	42.1	36.1	0	21.8	-0.7	100	-0.6	100
RLLC0248	9/8/21 10:33	46.9	37.8	0	15.3	-2.9	106	-2	106
RLLC0249	9/15/21 15:26	50.4	39.1	0	10.5	-0.1	108	-0.1	108
RLLC0250	9/2/21 13:10	54.3	42.8	0	2.9	-0.2	111	-0.2	111
RLLC0251	9/2/21 12:57	48.7	42.3	0	9	-0.1	107	-0.2	107
RLLC0252	9/9/21 11:04	46	40.6	0	13.4	-2	102	-2	103
RLLC0253	9/10/21 10:26	47.5	41.7	0	10.8	-2.3	104	-2.4	104
RLLC0254	9/10/21 10:15	47.2	41	0	11.8	-1.4	105	-1.4	105
RLLC0255	9/10/21 11:25	46.6	37.7	0	15.7	-4.8	107	-3.3	107

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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	9/15/21 16:32	48.7	37.4	0	13.9	-0.5	101	-0.5	101
RLHC0156	9/14/21 16:23	63.1	33.1	0	3.8	-0.1	104	-0.4	104
RLLC0256	9/10/21 11:31	43.5	37.9	0	18.6	-2.4	103	-1.3	103

There are 112 total collectors; 105 vertical wells and 7 horizontal collectors at RLI.

%= percent

°F= degrees Fahrenheit

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

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Wellfield Monitoring Report - October 6, 8, 11, 12, 13, 14, 15, 18, 22, 25, 26, 27, 28, and 29, 2021

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	10/27/21 9:43	62.6	37.3	0	0.1	0.6	95	-1	103
RLHC0156	10/15/21 15:33	60	32.8	0	7.2	-0.4	103	-1.3	103
RLI00003	10/27/21 9:59	29.7	35.4	0.1	34.8	-2.8	69	-2.8	69
RLI00008	10/11/21 17:41	63.6	33.2	0.6	2.6	-42.2	81	-46.3	81
RLI00016	10/18/21 15:35	55.3	27.6	1.9	15.2	-0.6	80	-0.6	80
RLI00017	10/18/21 15:24	63.5	36.4	0	0.1	-2	79	-7.8	79
RLI00018	10/18/21 15:16	61.2	38.7	0	0.1	1.7	78	-6.9	80
RLI00019	10/18/21 15:06	40.8	29.8	0.8	28.6	-40.9	67	-38	65
RLI00034	10/27/21 10:15	56.2	37.8	0.2	5.8	-33.4	81	-36.1	81
RLI00035	10/27/21 10:21	53.9	36.4	0	9.7	-36.5	76	-36.5	76
RLI00045	10/27/21 10:34	48.1	32.8	0	19.1	-0.9	75	-0.9	74
RLI00047	10/27/21 10:39	51	34.6	0	14.4	-2	82	-2	82
RLI00065	10/18/21 16:04	56.1	40.5	0	3.4	-0.6	107	-4.2	107
RLI00083	10/25/21 12:08	62.7	37.2	0	0.1	-5.6	90	-5.5	90
RLI00095	10/22/21 16:04	54.6	36.7	0.2	8.5	-0.2	97	-0.3	97
RLI00132	10/11/21 17:01	53.8	36.7	0	9.5	-42	99	-41.8	100
RLI00134	10/11/21 13:01	48.6	37.7	0.1	13.6	-21.6	117	-17.9	119
RLI00135	10/11/21 13:47	36.9	36.2	0	26.9	-0.2	109	-0.2	109
RLI00137	10/22/21 17:10	50.8	27.6	3.9	17.7	-39.5	82	-28.7	81
RLI00140	10/25/21 16:40	69.4	26.7	1.5	2.4	-48.4	64	-49.3	64
RLI00141	10/26/21 11:30	52.4	32.8	0.8	14	-19.7	90	-16.8	90
RLI00142	10/25/21 16:47	66.7	32.7	0.1	0.5	-48.5	78	-48.7	78
RLI00220	10/27/21 17:59	49.7	37.5	0	12.8	0.1	55	-0.2	55
RLI0100C	10/28/21 14:38	55.3	35.5	1.5	7.7	-47.4	84	-47.1	83
RLI0102C	10/11/21 16:51	61.7	38.2	0	0.1	-48.7	93	-47.5	93
RLI0103C	10/11/21 12:54	55.8	39.5	0.1	4.6	-27.2	105	-37.7	107
RLI0105C	10/8/21 14:25	54.9	45	0	0.1	-38.8	97	-48	96
RLI0105C	10/8/21 14:25	54.9	45	0	0.1	-38.8	97	-49.1	96
RLI0106C	10/8/21 14:10	41.7	44.2	1.2	12.9	-21	110	-21.1	110
RLI0107C	10/8/21 14:03	42.7	47.9	0.4	9	-48.8	107	-48.1	108
RLI0107C	10/11/21 15:59	40.3	47.2	0.3	12.2	-48.8	109	-48.6	109
RLI0114A	10/27/21 16:08	55.6	26.7	2.9	14.8	-13.4	81	-14.4	81
RLI0115E	10/27/21 15:52	58.7	35.7	0.3	5.3	-42.7	100	-42.5	101
RLI0116E	10/28/21 14:15	7.3	7.9	4.1	80.7	-31.9	85	-3.9	84
RLI0116E	10/28/21 14:18	8.1	9	2	80.9	-4.1	84	-4.1	84
RLI0117D	10/28/21 13:56	0.5	0.7	20	78.8	-44.4	89	-43	91
RLI0117D	10/28/21 13:59	0.6	0.7	19.7	79	-42.1	89	-42.7	89
RLI0124G	10/25/21 12:33	46.3	33.7	0	20	-9.8	88	-8.2	88
RLI0126C	10/11/21 16:35	63.8	29.6	1.5	5.1	-47.6	85	-47.9	85
RLI0127B	10/11/21 17:13	51.2	36.3	0	12.5	-25.8	105	-25.8	106
RLI0129E	10/15/21 14:14	48.5	31.2	0	20.3	-21.1	83	-10.5	83
RLI0130E	10/15/21 14:24	51.7	31.3	0	17	-0.7	85	-0.6	86
RLIHC101	10/25/21 13:09	54.3	36.9	0	8.8	-40	101	-41.2	101
RLIHC102	10/25/21 12:57	53.8	36.7	0	9.5	-22.5	99	-22.4	99
RLIHC107	10/26/21 12:08	23.2	36.4	2.2	38.2	-46.3	74	-2	70
RLLC0176	10/11/21 12:32	33	34.6	0.2	32.2	-0.2	120	-0.1	120
RLLC0177	10/11/21 13:16	51.4	39.3	0	9.3	-32.4	107	-32.6	108
RLLC0179	10/25/21 11:56	63.1	32.5	0.2	4.2	-11.4	71	-47.4	70
RLLC0180	10/11/21 13:29	54.1	40.7	0	5.2	-25.1	107	-35.6	107
RLLC0183	10/11/21 17:23	38.6	33	0	28.4	-3	67	-2.9	67
RLLC0184	10/11/21 17:31	44.9	35.1	0	20	-12.1	99	-10.4	100
RLLC0185	10/11/21 13:08	13.5	26	0.1	60.4	-0.2	81	-0.2	85
RLLC0186	10/8/21 15:07	44.8	37.7	0.1	17.4	-44.7	101	-34.3	101
RLLC0187	10/8/21 15:02	51.7	37.5	0	10.8	-48	104	-47.2	104
RLLC0188	10/8/21 14:55	45	39.7	0	15.3	-29.9	105	-25.6	106
RLLC0189	10/27/21 16:33	40.8	38	0	21.2	-8.8	113	-7.5	113

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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	10/27/21 9:43	62.6	37.3	0	0.1	0.6	95	-1	103
RLHC0156	10/15/21 15:33	60	32.8	0	7.2	-0.4	103	-1.3	103
RLLC0190	10/11/21 13:39	8.2	30.2	0.6	61	-0.3	81	-0.3	82
RLLC0191	10/25/21 12:47	55	33.9	0	11.1	0	84	-0.3	87
RLLC0193	10/27/21 15:41	59	37.4	0	3.6	-0.4	103	-1.1	105
RLLC0195	10/6/21 14:56	58.7	35.3	0	6	-5.3	93	-12.5	95
RLLC0196	10/6/21 14:46	57.5	38	0	4.5	-45.3	102	-44.2	102
RLLC0198	10/15/21 14:57	59.7	39	0	1.3	-0.1	108	-2	109
RLLC0199	10/15/21 15:11	53.5	37.5	0	9	-3.7	114	-4.2	114
RLLC0200	10/15/21 15:06	63	36.9	0	0.1	-1.5	99	-2.5	100
RLLC0201	10/15/21 15:45	52.6	35.4	0	12	-1	107	-1.3	108
RLLC0202	10/27/21 17:16	61.3	38.6	0	0.1	-1	93	-4.9	96
RLLC0203	10/11/21 15:50	42.9	36.2	0	20.9	-20.6	102	-10.1	101
RLLC0204	10/11/21 15:41	25.3	30.3	0	44.4	-11	103	-2.4	103
RLLC0205	10/11/21 16:11	30.1	31.9	0	38	-0.1	96	-0.1	96
RLLC0206	10/11/21 16:29	50.9	37.6	0	11.5	-3.6	81	-4.1	79
RLLC0209	10/11/21 16:17	48.7	36.4	0	14.9	-0.5	97	-0.4	96
RLLC0210	10/11/21 16:04	26.3	31.5	0	42.2	-0.2	102	-0.2	102
RLLC0210	10/11/21 16:05	26.3	31.5	0	42.2	-0.2	102	-51.3	101
RLLC0212	10/25/21 17:16	53.8	37.1	0	9.1	-18.7	98	-18.7	98
RLLC0214	10/26/21 12:29	41	35.2	0	23.8	-9.6	99	-6.8	99
RLLC0215	10/26/21 12:23	55.1	41.1	0	3.8	-44.8	95	-45.9	95
RLLC0217	10/25/21 16:53	58.7	36	0	5.3	-2.5	91	-5	93
RLLC0219	10/27/21 16:17	63.9	35.9	0.1	0.1	0.7	91	-1	98
RLLC0221	10/15/21 14:42	53	35.9	0	11.1	-5.9	101	-5.9	101
RLLC0222	10/26/21 11:54	43.9	42	0	14.1	-32.4	105	-22.5	105
RLLC0223	10/15/21 16:08	49.2	37.2	0	13.6	-0.7	110	-0.6	110
RLLC0224	10/15/21 16:13	56	38.2	0	5.8	-0.1	109	-1.3	109
RLLC0225	10/27/21 17:46	41.7	31.6	0.2	26.5	-1.9	82	-2.3	83
RLLC0226	10/26/21 11:17	58.6	37.1	0	4.3	-22.1	96	-24.5	96
RLLC0227	10/22/21 15:57	55.2	34.3	0.1	10.4	-0.1	89	-0.1	89
RLLC0228	10/15/21 14:48	34	29	0	37	-0.3	104	-0.2	104
RLLC0229	10/15/21 15:19	39.1	31.2	0	29.7	-0.1	103	-0.1	104
RLLC0230	10/26/21 12:15	52.1	42.8	0	5.1	-3.5	112	-3.6	112
RLLC0231	10/18/21 14:54	61.4	38	0	0.6	-0.7	95	-7	96
RLLC0232	10/18/21 14:47	56.9	38.4	0	4.7	-0.4	97	-1.2	98
RLLC0233	10/26/21 13:46	42.5	36.3	0	21.2	0.8	103	-0.2	104
RLLC0234	10/22/21 16:20	50.1	37.3	0.2	12.4	-4	114	-2.5	114
RLLC0235	10/18/21 15:54	50.5	37.5	0	12	-0.3	108	-0.3	108
RLLC0236	10/18/21 15:47	52.6	37.8	0	9.6	-0.2	98	-0.3	98
RLLC0237	10/22/21 17:15	51.5	36.9	0.2	11.4	-6.2	104	-6.2	104
RLLC0238	10/27/21 16:49	48.6	38.2	0	13.2	-0.3	107	-0.2	107
RLLC0239	10/26/21 13:39	33.6	31.9	0	34.5	0.8	94	-0.1	96
RLLC0240	10/26/21 13:54	44.8	35.5	0	19.7	0.7	100	-0.1	102
RLLC0241	10/18/21 16:12	49.5	37.4	0	13.1	-13.3	107	-9.7	107
RLLC0242	10/27/21 16:57	50.2	39.8	0	10	-8.5	109	-8.5	110
RLLC0243	10/25/21 13:37	40.5	38.8	0	20.7	0.9	106	-0.2	109
RLLC0244	10/25/21 13:30	43	38.6	0	18.4	0.7	106	-0.1	107
RLLC0245	10/25/21 13:22	31.3	35.4	0	33.3	0.7	100	-0.1	105
RLLC0246	10/26/21 11:43	53	36.7	0	10.3	-48	94	-48.1	94
RLLC0247	10/15/21 15:53	43.9	36.8	0	19.3	-0.7	100	-0.2	99
RLLC0248	10/15/21 15:58	50.1	39.1	0	10.8	-0.4	106	-0.3	106
RLLC0249	10/8/21 15:20	40	37.3	0	22.7	-0.2	108	-0.2	107
RLLC0250	10/11/21 12:24	53.4	42	0	4.6	-0.2	107	-1	111
RLLC0251	10/11/21 12:43	42.6	40.1	0	17.3	-0.4	107	-0.3	106
RLLC0252	10/22/21 16:28	49	40.2	0.1	10.7	-0.6	102	-0.5	103

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - October 6, 8, 11, 12, 13, 14, 15, 18, 22, 25, 26, 27, 28, and 29, 2021

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	10/27/21 9:43	62.6	37.3	0	0.1	0.6	95	-1	103
RLHC0156	10/15/21 15:33	60	32.8	0	7.2	-0.4	103	-1.3	103
RLLC0253	10/22/21 16:36	49.2	41.2	0.1	9.5	-0.9	104	-0.9	104
RLLC0254	10/22/21 16:44	49.6	41.2	0.1	9.1	-0.1	105	-0.2	105
RLLC0255	10/22/21 16:51	54.6	39.6	0	5.8	-1.7	107	-2.4	107
RLLC0256	10/22/21 16:59	53.2	40.9	0	5.9	-0.2	103	-0.6	104
RLLC0257	10/13/21 15:06	43.9	34.9	0.1	21.1	-1	76	-1	76
RLLC0257	10/14/21 15:13	43.8	33.7	0.3	22.2	-0.8	82	-0.8	78
RLLC0257	10/15/21 13:55	41.8	35.1	0.2	22.9	-0.2	81	-0.2	82
RLLC0257	10/18/21 13:51	41.2	34.2	0.4	24.2	-0.1	76	-0.1	76
RLLC0258	10/13/21 14:39	75.6	24.3	0	0.1	-1	75	-1	75
RLLC0258	10/14/21 15:08	75.6	24.2	0	0.2	-3	86	-5	85
RLLC0258	10/15/21 14:00	45	34.4	0	20.6	-6	84	-2.3	84
RLLC0258	10/18/21 13:46	46.8	33.7	0	19.5	-2.8	79	-1.8	80
RLLC0259	10/13/21 14:20	65.4	34.5	0	0.1	-1	82	-1	82
RLLC0259	10/14/21 14:58	63.2	34.4	0	2.4	-0.9	84	-1.8	84
RLLC0259	10/15/21 14:05	56.6	36.8	0	6.6	-2	84	-4	84
RLLC0259	10/18/21 13:40	49.4	38	0	12.6	-4	83	-3.8	83
RLLC0260	10/13/21 15:20	63.8	36.1	0	0.1	-1	96	-1	96
RLLC0260	10/14/21 15:20	61.8	38.1	0	0.1	-1	101	-1.4	101
RLLC0260	10/15/21 13:40	60.6	39.3	0	0.1	-1.4	102	-2.8	102
RLLC0260	10/18/21 14:02	56.7	39.1	0	4.2	-1.1	102	-2.2	102
RLLC0261	10/13/21 15:34	64.8	35.1	0	0.1	-1	93	-1	96
RLLC0261	10/14/21 15:30	63.8	36.1	0	0.1	-0.8	35	-1.3	104
RLLC0261	10/15/21 13:45	61	37.6	0	1.4	-1.3	104	-2.6	105
RLLC0261	10/18/21 13:57	50.9	37.4	0	11.7	-2.7	105	-2.6	105
RLLC0262	10/13/21 15:51	62.5	37.4	0	0.1	-1	87	-1	87
RLLC0262	10/14/21 15:36	55.8	36.1	0	8.1	-1.8	90	-1.8	90
RLLC0262	10/15/21 13:34	52	36.7	0	11.3	-1.8	90	-1.8	91
RLLC0262	10/18/21 14:08	46.4	35.7	0	17.9	-1.5	90	-0.9	90
RLLC0263	10/8/21 14:49	25.8	37.6	0	36.6	-0.9	109	-0.7	108
RLLC0263	10/13/21 16:08	37.3	40.2	0	22.5	-1	110	-1	110
RLLC0263	10/14/21 15:51	33.9	39.2	0	26.9	-1.1	109	-0.3	110
RLLC0263	10/15/21 13:21	33.5	39.6	0	26.9	-0.1	109	-0.1	110
RLLC0263	10/18/21 14:21	33.7	39	0	27.3	-5.2	109	-2.1	109
RLLC0264	10/13/21 16:21	56.8	43.1	0	0.1	-1	108	-1	108
RLLC0264	10/14/21 15:57	54.2	45.7	0	0.1	-0.8	108	-1.8	108
RLLC0264	10/15/21 13:27	52.4	46	0	1.6	-1.8	108	-2.9	108
RLLC0264	10/18/21 14:26	45.7	44.3	0	10	-2.7	108	-2.7	108
RLLC0265	10/12/21 14:13	64.5	35.4	0	0.1	-1	89	-1	95
RLLC0265	10/14/21 11:19	57.5	42.4	0	0.1	-0.2	96	-0.7	96
RLLC0265	10/15/21 12:55	56.5	43.4	0	0.1	-0.8	96	-1.4	95
RLLC0265	10/18/21 13:30	42.7	40.4	0	16.9	-1.2	95	-0.8	96
RLLC0266	10/12/21 13:58	56.2	43.7	0	0.1	-1	90	-1	90
RLLC0266	10/14/21 16:20	54.2	45.7	0	0.1	-1.7	100	-2	100
RLLC0266	10/15/21 12:49	53.2	46.7	0	0.1	-2.1	100	-4.6	100
RLLC0266	10/18/21 13:26	51.8	47.1	0	1.1	-4.5	100	-9.2	100
RLLC0267	10/12/21 13:27	62.3	37.6	0	0.1	-1	85	-1	95
RLLC0267	10/14/21 11:00	50.9	49	0	0.1	-0.2	95	-1	96
RLLC0267	10/15/21 12:44	47.5	50.5	0	2	-1.2	95	-1.4	96
RLLC0267	10/18/21 13:21	36.1	46.2	0	17.7	-1.4	95	-0.6	96
RLLC0268	10/12/21 13:44	59.2	40.7	0	0.1	-1	89	-1	93
RLLC0268	10/14/21 11:30	54.6	45.3	0	0.1	-0.2	98	-1	97
RLLC0268	10/15/21 12:39	53.3	46.6	0	0.1	-1.1	98	-1.7	98
RLLC0268	10/18/21 13:17	49.8	47.2	0	3	-1.6	97	-3.8	96
RLLC0269	10/12/21 13:12	57.3	42.6	0	0.1	-1	104	-1	104

REDWOOD LANDFILL, Novato, CA

Wellfield Monitoring Report - October 6, 8, 11, 12, 13, 14, 15, 18, 22, 25, 26, 27, 28, and 29, 2021

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	10/27/21 9:43	62.6	37.3	0	0.1	0.6	95	-1	103
RLHC0156	10/15/21 15:33	60	32.8	0	7.2	-0.4	103	-1.3	103
RLLC0269	10/14/21 11:37	49.8	48.3	0	1.9	-0.1	103	-0.4	103
RLLC0269	10/15/21 12:31	48.3	48.7	0	3	-0.4	102	-0.7	102
RLLC0269	10/18/21 13:09	44	47.8	0	8.2	-0.4	103	-0.5	102
RLLC0270	10/29/21 12:34	51.9	40.3	0	7.8	-1.3	105	-1.3	105
RLLC0271	10/12/21 12:23	61.2	38.7	0	0.1	-1	99	-1	99
RLLC0271	10/14/21 10:02	60	39.9	0	0.1	-0.7	103	-2.5	104
RLLC0271	10/15/21 12:12	60.3	39.6	0	0.1	-2.9	104	-4.2	105
RLLC0271	10/18/21 12:54	60.4	39.5	0	0.1	-4.6	104	-6.8	104
RLLC0272	10/12/21 12:57	66.5	33.1	0.3	0.1	-1	77	-1	77
RLLC0272	10/14/21 10:31	66.1	33.4	0.4	0.1	-2.5	74	-11.4	83
RLLC0272	10/15/21 12:23	55.3	33.7	1.3	9.7	-31.9	85	-40.6	86
RLLC0272	10/18/21 13:02	47	31.2	1.9	19.9	-38.2	81	-35.3	78
RLLC0273	10/12/21 14:25	62.2	37.7	0	0.1	-1	107	-1	110
RLLC0273	10/14/21 11:45	60.8	39.1	0	0.1	-2.2	113	-2.7	113
RLLC0273	10/15/21 13:04	59.8	40.1	0	0.1	-3.1	113	-5	113
RLLC0274	10/12/21 14:37	44.6	43.4	0	12	-1	116	-1	117
RLLC0274	10/14/21 16:03	41.4	41.8	0	16.8	-1.1	116	-0.4	117
RLLC0274	10/15/21 13:13	40.9	42.1	0	17	-0.3	117	-0.1	117
RLLC0274	10/18/21 14:38	40.2	40.9	0	18.9	0.1	117	-0.1	117

There are 130 total collectors; 123 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: Mark McKeever, Sean Johnson, and Rick Reed
UPDATED DATE: 11/24/21
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)
RLI00016	5/10/21 14:40	40.6	20.1	6.6	32.7	-0.15	102.2	-0.99	102.1	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00016	5/10/21 14:45	56.8	27.5	1.3	14.4	-2.51	100.8	-2.54	100.8	No Adj. Made	
RLI00016 was monitored on 5/10/2021 and was found to be in exceedance for oxygen. Corrective actions were initiated. The well was re-monitored on 5/10/2021. The exceedance was cleared on 5/10/2021.											
RLI0100C	5/10/21 14:17	4.1	3.5	18.1	74.3	-30.85	89.4	-30.82	88.6	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0100C	5/10/21 14:23	4.5	3.1	18	74.4	-30.93	90.3	-30.86	89.5	NSPS/EG CAI;Fully Open;Inc. Flow/Vac.	
RLI0100C	5/27/21 10:23	8.4	6.7	15.6	69.3	-36.9	69.5	-36.85	68.5	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0100C	5/27/21 10:31	11.2	8.6	14.2	66	-36.46	71	-36.47	71.2	NSPS/EG CAI;Dec. Flow/Vac.;Surging	
RLI0100C	5/27/21 10:51	13.7	9.8	13.2	63.3	-36.31	74.3	-36.04	73.8	NSPS/EG CAI;Dec. Flow/Vac.;Surging	
RLI0100C	6/3/21 9:28	60.4	39.4	0	0.2	-36.1	81	-36	80	Fully Open;Surging;No Adj. Made	44350
RLI0100C was monitored on 5/10/2021 and was found to be in exceedance for oxygen. Corrective actions were initiated. The well was re-monitored on 5/10/21, 5/27/21, and 6/3/21. The exceedance was cleared on 6/3/2021.											
RLI0107C	5/6/21 9:46	62.3	37.6	0	0.1	0.03	79.9	-0.05	80.6	NSPS/EG CAI;Inc. Flow/Vac.	
RLI0107C was monitored on 5/6/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored on 5/6/2021. The exceedance was cleared on 5/6/2021.											
RLI00140	6/8/21 11:46	7.3	4.4	17.9	70.4	-23.28	75.8	-22.14	74.8	NSPS/EG CAI;Dec. Flow/Vac.	
RLI00140	6/8/21 12:02	60	26.1	2.8	11.1	-45.43	75.8	-45.46	75.7	No Adj. Made	
RLI00140 was monitored on 6/8/2021 and was found to be in exceedance for oxygen. Corrective actions were initiated. The well was re-monitored on 6/8/2021. The exceedance was cleared on 6/8/2021.											
RLI0126C	6/9/21 10:08	27.8	14.4	12.2	45.6	-44.08	66.9	-26.97	68.7	NSPS/EG CAI;Barely Open;Dec. Flow/Vac.	
RLI0126C	6/9/21 10:21	50.6	27.1	4.4	17.9	-30.62	70	-30.66	70	No Adj. Made	
RLI0126C was monitored on 6/9/2021 and was found to be in exceedance for oxygen. Corrective actions were initiated. The well was re-monitored on 6/9/2021. The exceedance was cleared on 6/9/2021.											
RLI0107C	7/8/21 14:30	63.9	35	0	1.1	0.4	99	0.4	99	No Adj. Made	
RLI0107C	7/13/21 11:00	58.1	30.6	2.5	8.8	-1.94	88.4	-1.92	88.4	No Adj. Made	44390
RLI0107C was monitored on 7/8/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored on 7/13/2021. The exceedance was cleared on 7/13/2021.											
RLLC0205	7/6/21 16:39	34.2	32	0	33.8	0	92	-0.1	94	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0205 was monitored on 7/6/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored on 7/6/2021. The exceedance was cleared on 7/6/2021.											
RLHC0156	8/12/21 10:32	52.3	31.3	0.5	15.9	0	101	-0.2	102	NSPS/EG CAI;Inc. Flow/Vac.	
RLHC0156 was monitored on 8/12/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 8/12/2021											
RLI00220	8/11/21 8:26	47.5	37.2	0.2	15.1	2.2	63	-0.2	62	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00220 was monitored on 8/11/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 8/11/2021											
RLLC0176	8/12/21 11:23	42.7	37.1	0	20.2	0	96	-0.2	110	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0176 was monitored on 8/12/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 8/12/2021											
RLLC0219	8/12/21 9:58	59.2	39.2	0	1.6	0	88	-0.2	94	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0219 was monitored on 8/12/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 8/12/2021											
RLLC0228	8/12/21 10:48	63.8	36.1	0	0.1	0	76	-0.2	74	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0228 was monitored on 8/12/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 8/12/2021											
RLLC0176	9/13/21 13:03	35.7	35.4	0	28.9	0	122	-0.1	122	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0176 was monitored on 9/13/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 9/13/2021											
RLLC0239	9/8/21 12:05	40.3	33	0	26.7	0	96	-0.1	97	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0239 was monitored on 9/8/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 9/8/2021											
RLHC0153	10/27/21 9:43	62.6	37.3	0	0.1	0.6	95	-1	103	NSPS/EG CAI;Inc. Flow/Vac.	
RLHC0153 was monitored on 10/27/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/27/2021											
RLI00018	10/18/21 15:16	61.2	38.7	0	0.1	1.7	78	-6.9	80	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00018 was monitored on 10/18/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/18/2021											
RLI00220	10/27/21 17:59	49.7	37.5	0	12.8	0.1	55	-0.2	55	NSPS/EG CAI;Inc. Flow/Vac.	
RLI00220 was monitored on 10/27/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/27/2021											
RLI0117D	10/28/21 13:56	0.5	0.7	20	78.8	-44.4	89	-43	91	NSPS/EG CAI;Dec. Flow/Vac.	
RLI0117D	10/28/21 13:59	0.6	0.7	19.7	79	-42.1	89	-42.7	89	NSPS/EG CAI;Barely Open;No Adj. Made	
RLI0117D was monitored on 10/28/2021 and was found to be in exceedance for oxygen. Corrective actions were initiated. As of 11/1/21, repairs are in progress.											
RLLC0191	10/25/21 12:47	55	33.9	0	11.1	0	84	-0.3	87	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0191 was monitored on 10/25/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/25/2021											
RLLC0219	10/27/21 16:17	63.9	35.9	0.1	0.1	0.7	91	-1	98	NSPS/EG CAI;Inc. Flow/Vac.;Surging	
RLLC0219 was monitored on 10/27/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/27/2021											
RLLC0233	10/26/21 13:46	42.5	36.3	0	21.2	0.8	103	-0.2	104	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0233 was monitored on 10/26/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/26/2021											
RLLC0239	10/26/21 13:39	33.6	31.9	0	34.5	0.8	94	-0.1	96	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0239 was monitored on 10/26/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/26/2021											
RLLC0240	10/26/21 13:54	44.8	35.5	0	19.7	0.7	100	-0.1	102	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0240 was monitored on 10/26/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/26/2021											
RLLC0243	10/25/21 13:37	40.5	38.8	0	20.7	0.9	106	-0.2	109	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0243 was monitored on 10/25/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/25/2021											
RLLC0244	10/25/21 13:30	43	38.6	0	18.4	0.7	106	-0.1	107	NSPS/EG CAI;Inc. Flow/Vac.	

RLLC0244 was monitored on 10/25/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/25/2021											
RLLC0245	10/25/21 13:22	31.3	35.4	0	33.3	0.7	100	-0.1	105	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0245 was monitored on 10/25/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/25/2021											
RLLC0274	10/18/21 14:38	40.2	40.9	0	18.9	0.1	117	-0.1	117	NSPS/EG CAI;Inc. Flow/Vac.	
RLLC0274 was monitored on 10/18/2021 and was found to be in exceedance for static pressure. Corrective actions were initiated. The well was re-monitored and cleared on 10/18/2021											

APPENDIX K

MONTHLY LANDFILL GAS FLOW RATES

REDWOOD LANDFILL, INC.
Novato, CA

Yearly LFG for A-51 & A-60 Flares and S64 & S65 Engines (Engines #1 & #2)

Month	A-51 Flare Total Flow Corrected to HHV of 500 BTU/scf (scf)	A-60 Flare Total Flow Corrected to HHV of 500 BTU/scf (scf)	S-64 Engine Total Flow Corrected to HHV of 500 BTU/scf (scf)	S-65 Engine Total Flow Corrected to HHV of 500 BTU/scf (scf)	Combined A-51, A-60, S64, and S65 Corrected to HHV of 500 BTU/scf (scf)	Consecutive 12-Month Corrected Total for A-51 Flare (scf)	Consecutive 12-Month Corrected Total for A-60 Flare (scf)	Consecutive 12-Month Corrected Total for S-64 Engine (#1) (scf)	Consecutive 12-Month Corrected Total for S-65 Engine (#2) (scf)	Combined A-51, A-60, S 64, and S-65 Corrected 12-Month Throughput[1]
Nov-20	0	40,253,518	30,334,808	27,793,423	98,381,749	12,170,619	732,946,411	260,731,447	256,576,493	1,262,424,970
Dec-20	37,809	38,507,832	31,328,559	29,509,671	99,383,871	2,657,334	702,426,272	275,678,766	272,941,308	1,253,703,679
Jan-21	247,258	39,046,114	31,330,254	29,175,172	99,798,798	1,479,374	673,519,620	281,398,548	276,865,130	1,233,262,672
Feb-21	0	38,277,166	27,255,234	24,243,905	89,776,305	1,479,374	645,590,535	284,429,674	276,579,583	1,208,079,167
Mar-21	0	45,026,992	29,328,446	27,886,872	102,242,311	1,479,374	629,327,613	287,338,053	277,761,165	1,195,906,205
Apr-21	0	38,767,621	30,530,764	26,192,994	95,491,378	1,269,313	606,378,159	297,632,730	278,573,266	1,183,853,467
May-21	0	47,999,481	29,309,296	19,385,842	96,694,619	1,269,313	593,580,528	306,614,994	272,786,602	1,174,251,437
Jun-21	0	57,919,925	25,700,587	8,214,252	91,834,765	1,269,313	582,747,357	321,496,661	260,769,984	1,166,283,314
Jul-21	0	58,325,851	25,674,340	9,739,904	93,740,095	613,086	583,244,958	332,202,720	249,308,649	1,165,369,412
Aug-21	0	37,334,739	29,855,010	25,400,709	92,590,458	613,086	570,852,280	341,165,197	250,560,480	1,163,191,043
Sep-21	0	39,702,650	15,697,846	20,235,411	75,635,908	613,086	539,364,508	337,118,307	262,624,126	1,139,720,027
Oct-21	0	52,922,660	12,754,548	17,299,316	82,976,524	285,068	534,084,550	319,099,692	265,077,474	1,118,546,782

Notes:

[1]Pursuant to Title V Permit Condition Number 19867 Part 20, as modified in renewal application dated September 22, 2016 to match BAAQMD Permit To Operate, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 and A-60 Landfill Gas Flares shall each not exceed 4,320,000 scf during any one day, and the combined throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 and A-60 Flares shall not exceed 2,625 million scf during any consecutive 12-month period.

HHV= higher heating value

BTU = British Thermal Units

scf= standard cubic feet

MONTHLY LFG Input to Flare (A-51)

WM - REDWOOD LANDFILL, Novato, CA

A-51 (Flare)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMscf)[2]	SO2 Emissions (tons)[2]
May-21	744.00	744.00	0.00	0		0	0	0	0	0.068	0.00	146.58	0.00
June-21	720.00	720.00	0.00	0		0	0	0	0	0.068	0.00	146.58	0.00
July-21	744.00	744.00	0.00	0		0	0	0	0	0.068	0.00	87.79	0.00
August-21	744.00	744.00	0.00	0		0	0	0	0	0.068	0.00	87.79	0.00
September-21	720.00	720.00	0.00	0		0	0	0	0	0.068	0.00	87.79	0.00
October-21	744.00	744.00	0.00	0		0	0	0	0	0.068	0.00	TBD	TBD
TOTAL/ AVG:	**4,416.00**	**4,416.00**	**0.00**	**0**		**0**	**0**	**0**	**0.00**	**--**	**--**	**--**	**--**

NOTES:

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

[1]CH_4 content and CO emission factor was determined from the January 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - 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: May-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
5/1/2021	0.00	50.0	0	0	0	1,013	0	0
5/2/2021	0.00	50.0	0	0	0	1,013	0	0
5/3/2021	0.00	50.0	0	0	0	1,013	0	0
5/4/2021	0.00	50.0	0	0	0	1,013	0	0
5/5/2021	0.00	50.0	0	0	0	1,013	0	0
5/6/2021	0.00	50.0	0	0	0	1,013	0	0
5/7/2021	0.00	50.0	0	0	0	1,013	0	0
5/8/2021	0.00	50.0	0	0	0	1,013	0	0
5/9/2021	0.00	50.0	0	0	0	1,013	0	0
5/10/2021	0.00	50.0	0	0	0	1,013	0	0
5/11/2021	0.00	50.0	0	0	0	1,013	0	0
5/12/2021	0.00	50.0	0	0	0	1,013	0	0
5/13/2021	0.00	50.0	0	0	0	1,013	0	0
5/14/2021	0.00	50.0	0	0	0	1,013	0	0
5/15/2021	0.00	50.0	0	0	0	1,013	0	0
5/16/2021	0.00	50.0	0	0	0	1,013	0	0
5/17/2021	0.00	50.0	0	0	0	1,013	0	0
5/18/2021	0.00	50.0	0	0	0	1,013	0	0
5/19/2021	0.00	50.0	0	0	0	1,013	0	0
5/20/2021	0.00	50.0	0	0	0	1,013	0	0
5/21/2021	0.00	50.0	0	0	0	1,013	0	0
5/22/2021	0.00	50.0	0	0	0	1,013	0	0
5/23/2021	0.00	50.0	0	0	0	1,013	0	0
5/24/2021	0.00	50.0	0	0	0	1,013	0	0
5/25/2021	0.00	50.0	0	0	0	1,013	0	0
5/26/2021	0.00	50.0	0	0	0	1,013	0	0
5/27/2021	0.00	50.0	0	0	0	1,013	0	0
5/28/2021	0.00	50.0	0	0	0	1,013	0	0
5/29/2021	0.00	50.0	0	0	0	1,013	0	0
5/30/2021	0.00	50.0	0	0	0	1,013	0	0
5/31/2021	0.00	50.0	0	0	0	1,013	0	0
Totals/ Average:	**0.00**			**0.0**	**0**	**1,013**	**0**	**0**
Notes:						**Maximum:**	**0**	**0**

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

*CH_4 content was determined from the January 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - present) source tests.
Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Jun-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
6/1/2021	0.00	50.0	0	0	0	1,013	0	0
6/2/2021	0.00	50.0	0	0	0	1,013	0	0
6/3/2021	0.00	50.0	0	0	0	1,013	0	0
6/4/2021	0.00	50.0	0	0	0	1,013	0	0
6/5/2021	0.00	50.0	0	0	0	1,013	0	0
6/6/2021	0.00	50.0	0	0	0	1,013	0	0
6/7/2021	0.00	50.0	0	0	0	1,013	0	0
6/8/2021	0.00	50.0	0	0	0	1,013	0	0
6/9/2021	0.00	50.0	0	0	0	1,013	0	0
6/10/2021	0.00	50.0	0	0	0	1,013	0	0
6/11/2021	0.00	50.0	0	0	0	1,013	0	0
6/12/2021	0.00	50.0	0	0	0	1,013	0	0
6/13/2021	0.00	50.0	0	0	0	1,013	0	0
6/14/2021	0.00	50.0	0	0	0	1,013	0	0
6/15/2021	0.00	50.0	0	0	0	1,013	0	0
6/16/2021	0.00	50.0	0	0	0	1,013	0	0
6/17/2021	0.00	50.0	0	0	0	1,013	0	0
6/18/2021	0.00	50.0	0	0	0	1,013	0	0
6/19/2021	0.00	50.0	0	0	0	1,013	0	0
6/20/2021	0.00	50.0	0	0	0	1,013	0	0
6/21/2021	0.00	50.0	0	0	0	1,013	0	0
6/22/2021	0.00	50.0	0	0	0	1,013	0	0
6/23/2021	0.00	50.0	0	0	0	1,013	0	0
6/24/2021	0.00	50.0	0	0	0	1,013	0	0
6/25/2021	0.00	50.0	0	0	0	1,013	0	0
6/26/2021	0.00	50.0	0	0	0	1,013	0	0
6/27/2021	0.00	50.0	0	0	0	1,013	0	0
6/28/2021	0.00	50.0	0	0	0	1,013	0	0
6/29/2021	0.00	50.0	0	0	0	1,013	0	0
6/30/2021	0.00	50.0	0	0	0	1,013	0	0
Totals/ Average:	**0.00**	**#DIV/0!**	**#DIV/0!**	**0.0**	**0**	**1,013**	**0**	**0**
Notes:						**Maximum:**	**0**	**0**

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

*CH_4 content was determined from the January 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - present) source tests. Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Jul-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
7/1/2021	0.00	50.0	0	0	0	1,013	0	0
7/2/2021	0.00	50.0	0	0	0	1,013	0	0
7/3/2021	0.00	50.0	0	0	0	1,013	0	0
7/4/2021	0.00	50.0	0	0	0	1,013	0	0
7/5/2021	0.00	50.0	0	0	0	1,013	0	0
7/6/2021	0.00	50.0	0	0	0	1,013	0	0
7/7/2021	0.00	50.0	0	0	0	1,013	0	0
7/8/2021	0.00	50.0	0	0	0	1,013	0	0
7/9/2021	0.00	50.0	0	0	0	1,013	0	0
7/10/2021	0.00	50.0	0	0	0	1,013	0	0
7/11/2021	0.00	50.0	0	0	0	1,013	0	0
7/12/2021	0.00	50.0	0	0	0	1,013	0	0
7/13/2021	0.00	50.0	0	0	0	1,013	0	0
7/14/2021	0.00	50.0	0	0	0	1,013	0	0
7/15/2021	0.00	50.0	0	0	0	1,013	0	0
7/16/2021	0.00	50.0	0	0	0	1,013	0	0
7/17/2021	0.00	50.0	0	0	0	1,013	0	0
7/18/2021	0.00	50.0	0	0	0	1,013	0	0
7/19/2021	0.00	50.0	0	0	0	1,013	0	0
7/20/2021	0.00	50.0	0	0	0	1,013	0	0
7/21/2021	0.00	50.0	0	0	0	1,013	0	0
7/22/2021	0.00	50.0	0	0	0	1,013	0	0
7/23/2021	0.00	50.0	0	0	0	1,013	0	0
7/24/2021	0.00	50.0	0	0	0	1,013	0	0
7/25/2021	0.00	50.0	0	0	0	1,013	0	0
7/26/2021	0.00	50.0	0	0	0	1,013	0	0
7/27/2021	0.00	50.0	0	0	0	1,013	0	0
7/28/2021	0.00	50.0	0	0	0	1,013	0	0
7/29/2021	0.00	50.0	0	0	0	1,013	0	0
7/30/2021	0.00	50.0	0	0	0	1,013	0	0
7/31/2021	0.00	50.0	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 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - present) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Aug-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
8/1/2021	0.00	50.0	0	0	0	1,013	0	0
8/2/2021	0.00	50.0	0	0	0	1,013	0	0
8/3/2021	0.00	50.0	0	0	0	1,013	0	0
8/4/2021	0.00	50.0	0	0	0	1,013	0	0
8/5/2021	0.00	50.0	0	0	0	1,013	0	0
8/6/2021	0.00	50.0	0	0	0	1,013	0	0
8/7/2021	0.00	50.0	0	0	0	1,013	0	0
8/8/2021	0.00	50.0	0	0	0	1,013	0	0
8/9/2021	0.00	50.0	0	0	0	1,013	0	0
8/10/2021	0.00	50.0	0	0	0	1,013	0	0
8/11/2021	0.00	50.0	0	0	0	1,013	0	0
8/12/2021	0.00	50.0	0	0	0	1,013	0	0
8/13/2021	0.00	50.0	0	0	0	1,013	0	0
8/14/2021	0.00	50.0	0	0	0	1,013	0	0
8/15/2021	0.00	50.0	0	0	0	1,013	0	0
8/16/2021	0.00	50.0	0	0	0	1,013	0	0
8/17/2021	0.00	50.0	0	0	0	1,013	0	0
8/18/2021	0.00	50.0	0	0	0	1,013	0	0
8/19/2021	0.00	50.0	0	0	0	1,013	0	0
8/20/2021	0.00	50.0	0	0	0	1,013	0	0
8/21/2021	0.00	50.0	0	0	0	1,013	0	0
8/22/2021	0.00	50.0	0	0	0	1,013	0	0
8/23/2021	0.00	50.0	0	0	0	1,013	0	0
8/24/2021	0.00	50.0	0	0	0	1,013	0	0
8/25/2021	0.00	50.0	0	0	0	1,013	0	0
8/26/2021	0.00	50.0	0	0	0	1,013	0	0
8/27/2021	0.00	50.0	0	0	0	1,013	0	0
8/28/2021	0.00	50.0	0	0	0	1,013	0	0
8/29/2021	0.00	50.0	0	0	0	1,013	0	0
8/30/2021	0.00	50.0	0	0	0	1,013	0	0
8/31/2021	0.00	50.0	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 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - present) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Sep-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
9/1/2021	0.00	50.0	0	0	0	1,013	0	0
9/2/2021	0.00	50.0	0	0	0	1,013	0	0
9/3/2021	0.00	50.0	0	0	0	1,013	0	0
9/4/2021	0.00	50.0	0	0	0	1,013	0	0
9/5/2021	0.00	50.0	0	0	0	1,013	0	0
9/6/2021	0.00	50.0	0	0	0	1,013	0	0
9/7/2021	0.00	50.0	0	0	0	1,013	0	0
9/8/2021	0.00	50.0	0	0	0	1,013	0	0
9/9/2021	0.00	50.0	0	0	0	1,013	0	0
9/10/2021	0.00	50.0	0	0	0	1,013	0	0
9/11/2021	0.00	50.0	0	0	0	1,013	0	0
9/12/2021	0.00	50.0	0	0	0	1,013	0	0
9/13/2021	0.00	50.0	0	0	0	1,013	0	0
9/14/2021	0.00	50.0	0	0	0	1,013	0	0
9/15/2021	0.00	50.0	0	0	0	1,013	0	0
9/16/2021	0.00	50.0	0	0	0	1,013	0	0
9/17/2021	0.00	50.0	0	0	0	1,013	0	0
9/18/2021	0.00	50.0	0	0	0	1,013	0	0
9/19/2021	0.00	50.0	0	0	0	1,013	0	0
9/20/2021	0.00	50.0	0	0	0	1,013	0	0
9/21/2021	0.00	50.0	0	0	0	1,013	0	0
9/22/2021	0.00	50.0	0	0	0	1,013	0	0
9/23/2021	0.00	50.0	0	0	0	1,013	0	0
9/24/2021	0.00	50.0	0	0	0	1,013	0	0
9/25/2021	0.00	50.0	0	0	0	1,013	0	0
9/26/2021	0.00	50.0	0	0	0	1,013	0	0
9/27/2021	0.00	50.0	0	0	0	1,013	0	0
9/28/2021	0.00	50.0	0	0	0	1,013	0	0
9/29/2021	0.00	50.0	0	0	0	1,013	0	0
9/30/2021	0.00	50.0	0	0	0	1,013	0	0
Totals/ Average:	**0.00**			**0.0**	**0**	**1,013**	**0**	**0**
Notes:						**Maximum:**	**0**	**0**

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

*CH_4 content was determined from the January 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - present) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-51 Flare Heat Input Rate

MONTH: Oct-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total Flow LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf
10/1/2021	0.00	50.0	0	0	0	1,013	0	0
10/2/2021	0.00	50.0	0	0	0	1,013	0	0
10/3/2021	0.00	50.0	0	0	0	1,013	0	0
10/4/2021	0.00	50.0	0	0	0	1,013	0	0
10/5/2021	0.00	50.0	0	0	0	1,013	0	0
10/6/2021	0.00	50.0	0	0	0	1,013	0	0
10/7/2021	0.00	50.0	0	0	0	1,013	0	0
10/8/2021	0.00	50.0	0	0	0	1,013	0	0
10/9/2021	0.00	50.0	0	0	0	1,013	0	0
10/10/2021	0.00	50.0	0	0	0	1,013	0	0
10/11/2021	0.00	50.0	0	0	0	1,013	0	0
10/12/2021	0.00	50.0	0	0	0	1,013	0	0
10/13/2021	0.00	50.0	0	0	0	1,013	0	0
10/14/2021	0.00	50.0	0	0	0	1,013	0	0
10/15/2021	0.00	50.0	0	0	0	1,013	0	0
10/16/2021	0.00	50.0	0	0	0	1,013	0	0
10/17/2021	0.00	50.0	0	0	0	1,013	0	0
10/18/2021	0.00	50.0	0	0	0	1,013	0	0
10/19/2021	0.00	50.0	0	0	0	1,013	0	0
10/20/2021	0.00	50.0	0	0	0	1,013	0	0
10/21/2021	0.00	50.0	0	0	0	1,013	0	0
10/22/2021	0.00	50.0	0	0	0	1,013	0	0
10/23/2021	0.00	50.0	0	0	0	1,013	0	0
10/24/2021	0.00	50.0	0	0	0	1,013	0	0
10/25/2021	0.00	50.0	0	0	0	1,013	0	0
10/26/2021	0.00	50.0	0	0	0	1,013	0	0
10/27/2021	0.00	50.0	0	0	0	1,013	0	0
10/28/2021	0.00	50.0	0	0	0	1,013	0	0
10/29/2021	0.00	50.0	0	0	0	1,013	0	0
10/30/2021	0.00	50.0	0	0	0	1,013	0	0
10/31/2021	0.00	50.0	0	0	0	1,013	0	0
Totals/ Average:	**0.00**			**0.0**	**0**	**1,013**	**0**	**0**
Notes:						**Maximum:**	**0**	**0**

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

*CH_4 content was determined from the January 22, 2020 (March 16, 2020 - March 9, 2021) and January 14, 2021 (March 10, 2021 - present) source tests.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-51 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-60 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

MONTHLY LFG Input to Flare (A-60)

WM - REDWOOD LANDFILL, Novato, CA

A-60 (Flare)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMBtu)[2]	SO2 Emissions (tons)[2]
May-21	744.00	15.67	728.33	1,062	51.1	46,393,732	47,999,481	23,691,748	24,000	0.100	1.20	146.58	3.40
June-21	720.00	19.70	700.30	1,332	51.1	55,982,303	57,919,925	28,588,315	28,960	0.100	1.45	146.58	4.10
July-21	744.00	9.50	734.50	1,279	51.1	56,374,649	58,325,851	28,788,673	29,163	0.100	1.46	87.79	2.47
August-21	744.00	5.97	738.03	815	51.1	36,085,762	37,334,739	18,427,808	18,667	0.100	0.93	87.79	1.58
September-21	720.00	14.43	705.57	986	46.9	41,752,226	39,702,650	19,596,570	19,851	0.096	0.95	87.79	1.83
October-21	744.00	0.00	744.00	1,280	45.7	57,117,565	52,922,660	26,121,747	26,461	0.096	1.27	TBD	TBD
TOTAL/ AVG:	**4,416.00**	**65.27**	**4,350.73**	**1,125**	**49.5**	**293,706,236**	**294,205,307**	**145,214,860**	**147,102.65**	**--**	**--**	**--**	**--**

NOTES:

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

[1]CH_4 content and CO emission factor was determined from the July 22 & 23, 2020 (9/15/20 - 9/9/21) and July 13, 2021 (9/10/21 - 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: May-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
5/1/2021	24.00	51.1	720	1,036,263	529,185	1,013	536	1,072,129
5/2/2021	24.00	51.1	719	1,034,693	528,384	1,013	535	1,070,505
5/3/2021	24.00	51.1	726	1,045,716	534,013	1,013	541	1,081,910
5/4/2021	24.00	51.1	715	1,029,893	525,932	1,013	533	1,065,539
5/5/2021	24.00	51.1	691	995,465	508,351	1,013	515	1,029,919
5/6/2021	24.00	51.1	682	981,649	501,296	1,013	508	1,015,625
5/7/2021	24.00	51.1	674	970,395	495,549	1,013	502	1,003,982
5/8/2021	24.00	51.1	720	1,037,468	529,801	1,013	537	1,073,376
5/9/2021	22.27	51.1	684	914,409	466,959	1,013	473	946,058
5/10/2021	21.27	51.1	693	883,731	451,292	1,013	457	914,318
5/11/2021	23.93	51.1	669	960,517	490,504	1,013	497	993,762
5/12/2021	24.00	51.1	1,141	1,642,787	838,917	1,013	850	1,699,646
5/13/2021	24.00	51.1	1,954	2,813,214	1,436,616	1,013	1,455	2,910,583
5/14/2021	24.00	51.1	1,487	2,141,607	1,093,648	1,013	1,108	2,215,731
5/15/2021	24.00	51.1	1,317	1,895,965	968,207	1,013	981	1,961,587
5/16/2021	24.00	51.1	1,366	1,967,563	1,004,769	1,013	1,018	2,035,663
5/17/2021	24.00	51.1	1,306	1,881,181	960,657	1,013	973	1,946,291
5/18/2021	23.50	51.1	1,131	1,595,189	814,610	1,013	825	1,650,401
5/19/2021	22.17	51.1	869	1,156,098	590,381	1,013	598	1,196,112
5/20/2021	21.33	51.1	851	1,088,804	556,016	1,013	563	1,126,489
5/21/2021	22.10	51.1	783	1,038,869	530,516	1,013	537	1,074,826
5/22/2021	23.57	51.1	914	1,291,935	659,749	1,013	668	1,336,651
5/23/2021	23.83	51.1	861	1,230,901	628,581	1,013	637	1,273,504
5/24/2021	23.77	51.1	1,204	1,716,776	876,701	1,013	888	1,776,196
5/25/2021	24.00	51.1	1,432	2,062,076	1,053,034	1,013	1,067	2,133,447
5/26/2021	23.07	51.1	1,282	1,774,839	906,352	1,013	918	1,836,269
5/27/2021	21.53	51.1	1,163	1,503,206	767,638	1,013	778	1,555,234
5/28/2021	24.00	51.1	1,552	2,235,460	1,141,576	1,013	1,156	2,312,832
5/29/2021	24.00	51.1	1,536	2,212,013	1,129,602	1,013	1,144	2,288,574
5/30/2021	24.00	51.1	1,475	2,123,730	1,084,519	1,013	1,099	2,197,235
5/31/2021	24.00	51.1	1,480	2,131,320	1,088,395	1,013	1,103	2,205,088
Totals/ Average:	**728.33**	**51.1**	**1,062**	**46,393,732.0**	**23,691,748**	**1,013**	**24,000**	**47,999,481**
Notes:						**Maximum:**	**1,455**	**2,910,583**

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

*CH_4 content was determined from the July 22 & 23, 2020 (9/15/20 to current) source test.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Jun-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
6/1/2021	24.00	51.1	1,432	2,062,734	1,053,370	1,013	1,067	2,134,128
6/2/2021	24.00	51.1	1,440	2,073,175	1,058,702	1,013	1,072	2,144,930
6/3/2021	24.00	51.1	1,497	2,156,224	1,101,112	1,013	1,115	2,230,854
6/4/2021	24.00	51.1	1,508	2,171,568	1,108,948	1,013	1,123	2,246,729
6/5/2021	24.00	51.1	1,681	2,420,536	1,236,088	1,013	1,252	2,504,314
6/6/2021	24.00	51.1	1,483	2,135,647	1,090,604	1,013	1,105	2,209,565
6/7/2021	24.00	51.1	1,928	2,776,129	1,417,677	1,013	1,436	2,872,215
6/8/2021	24.00	51.1	2,104	3,029,274	1,546,950	1,013	1,567	3,134,121
6/9/2021	22.77	51.1	2,064	2,820,070	1,440,117	1,013	1,459	2,917,676
6/10/2021	24.00	51.1	2,024	2,914,302	1,488,238	1,013	1,508	3,015,170
6/11/2021	24.00	51.1	1,693	2,437,667	1,244,836	1,013	1,261	2,522,038
6/12/2021	24.00	51.1	1,348	1,940,881	991,144	1,013	1,004	2,008,057
6/13/2021	19.57	51.1	1,090	1,279,821	653,562	1,013	662	1,324,117
6/14/2021	24.00	51.1	1,084	1,560,717	797,007	1,013	807	1,614,735
6/15/2021	24.00	51.1	1,305	1,879,756	959,929	1,013	972	1,944,817
6/16/2021	24.00	51.1	1,372	1,976,238	1,009,200	1,013	1,022	2,044,638
6/17/2021	22.97	51.1	1,357	1,869,473	954,678	1,013	967	1,934,178
6/18/2021	24.00	51.1	1,392	2,004,930	1,023,852	1,013	1,037	2,074,323
6/19/2021	24.00	51.1	1,358	1,955,773	998,749	1,013	1,012	2,023,465
6/20/2021	24.00	51.1	1,296	1,866,460	953,140	1,013	966	1,931,061
6/21/2021	22.33	51.1	1,115	1,494,656	763,271	1,013	773	1,546,388
6/22/2021	20.83	51.1	1,202	1,502,646	767,352	1,013	777	1,554,655
6/23/2021	20.87	51.1	965	1,208,132	616,953	1,013	625	1,249,947
6/24/2021	22.00	51.1	903	1,192,186	608,810	1,013	617	1,233,449
6/25/2021	23.83	51.1	695	993,781	507,491	1,013	514	1,028,177
6/26/2021	22.87	51.1	702	963,119	491,833	1,013	498	996,454
6/27/2021	23.57	51.1	767	1,084,617	553,878	1,013	561	1,122,157
6/28/2021	23.67	51.1	713	1,012,520	517,061	1,013	524	1,047,565
6/29/2021	23.03	51.1	937	1,294,387	661,001	1,013	670	1,339,187
6/30/2021	24.00	51.1	1,323	1,904,884	972,761	1,013	985	1,970,815
Totals/ Average:	**700.30**	**51.1**	**1,332**	**55,982,302.7**	**28,588,315**	**1,013**	**28,960**	**57,919,925**
						Maximum:	**1,567**	**3,134,121**

Notes:

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

*CH_4 content was determined from the July 22 & 23, 2020 (9/15/20 to current) source test.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Jul-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
7/1/2021	23.90	51.1	1,280	1,834,900	937,023	1,013	949	1,898,408
7/2/2021	24.00	51.1	1,331	1,916,161	978,520	1,013	991	1,982,482
7/3/2021	24.00	51.1	1,443	2,077,747	1,061,037	1,013	1,075	2,149,661
7/4/2021	24.00	51.1	1,336	1,923,235	982,133	1,013	995	1,989,801
7/5/2021	24.00	51.1	1,444	2,078,741	1,061,544	1,013	1,075	2,150,689
7/6/2021	24.00	51.1	1,387	1,996,859	1,019,730	1,013	1,033	2,065,973
7/7/2021	24.00	51.1	1,588	2,286,427	1,167,603	1,013	1,183	2,365,563
7/8/2021	18.97	51.1	1,806	2,055,004	1,049,423	1,013	1,063	2,126,130
7/9/2021	24.00	51.1	1,425	2,051,550	1,047,659	1,013	1,061	2,122,557
7/10/2021	23.90	51.1	1,179	1,690,307	863,184	1,013	874	1,748,811
7/11/2021	24.00	51.1	1,365	1,966,225	1,004,086	1,013	1,017	2,034,279
7/12/2021	24.00	51.1	1,096	1,578,225	805,947	1,013	816	1,632,849
7/13/2021	23.90	51.1	1,078	1,546,335	789,662	1,013	800	1,599,856
7/14/2021	23.87	51.1	1,370	1,962,319	1,002,092	1,013	1,015	2,030,237
7/15/2021	23.73	51.1	1,009	1,436,216	733,428	1,013	743	1,485,925
7/16/2021	24.00	51.1	1,260	1,813,968	926,334	1,013	938	1,876,752
7/17/2021	23.87	51.1	1,473	2,108,885	1,076,938	1,013	1,091	2,181,876
7/18/2021	24.00	51.1	1,325	1,908,067	974,387	1,013	987	1,974,108
7/19/2021	24.00	51.1	1,336	1,923,157	982,093	1,013	995	1,989,720
7/20/2021	24.00	51.1	1,330	1,915,896	978,385	1,013	991	1,982,208
7/21/2021	24.00	51.1	1,598	2,301,518	1,175,309	1,013	1,191	2,381,177
7/22/2021	24.00	51.1	1,297	1,867,888	953,869	1,013	966	1,932,538
7/23/2021	24.00	51.1	818	1,177,688	601,406	1,013	609	1,218,449
7/24/2021	24.00	51.1	814	1,172,179	598,593	1,013	606	1,212,750
7/25/2021	24.00	51.1	810	1,165,904	595,389	1,013	603	1,206,258
7/26/2021	21.77	51.1	1,006	1,314,481	671,262	1,013	680	1,359,977
7/27/2021	22.73	51.1	2,062	2,812,412	1,436,206	1,013	1,455	2,909,753
7/28/2021	24.00	51.1	1,580	2,274,750	1,161,640	1,013	1,177	2,353,482
7/29/2021	23.87	51.1	928	1,329,214	678,786	1,013	688	1,375,220
7/30/2021	24.00	51.1	985	1,419,066	724,670	1,013	734	1,468,182
7/31/2021	24.00	51.1	1,020	1,469,325	750,336	1,013	760	1,520,180
Totals/ Average:	**734.50**	**51.1**	**1,279**	**56,374,648.5**	**28,788,673**	**1,013**	**29,163**	**58,325,851**
						Maximum:	**1,455**	**2,909,753**

Notes:

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

*CH_4 content was determined from the July 22 & 23, 2020 (9/15/20 to current) source test.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Aug-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
8/1/2021	24.00	51.1	1,106	1,592,454	813,214	1,013	824	1,647,571
8/2/2021	21.00	51.1	883	1,112,877	568,310	1,013	576	1,151,395
8/3/2021	24.00	51.1	1,397	2,011,969	1,027,446	1,013	1,041	2,081,606
8/4/2021	23.73	51.1	1,026	1,460,696	745,929	1,013	756	1,511,253
8/5/2021	23.73	51.1	739	1,052,405	537,428	1,013	544	1,088,830
8/6/2021	24.00	51.1	751	1,081,032	552,047	1,013	559	1,118,448
8/7/2021	23.77	51.1	735	1,048,753	535,564	1,013	543	1,085,052
8/8/2021	23.80	51.1	723	1,032,865	527,450	1,013	534	1,068,614
8/9/2021	24.00	51.1	725	1,043,828	533,049	1,013	540	1,079,956
8/10/2021	24.00	51.1	720	1,036,295	529,202	1,013	536	1,072,163
8/11/2021	24.00	51.1	729	1,050,215	536,310	1,013	543	1,086,564
8/12/2021	24.00	51.1	739	1,063,555	543,122	1,013	550	1,100,366
8/13/2021	24.00	51.1	736	1,059,241	540,919	1,013	548	1,095,903
8/14/2021	24.00	51.1	740	1,065,059	543,890	1,013	551	1,101,922
8/15/2021	24.00	51.1	733	1,056,055	539,292	1,013	546	1,092,606
8/16/2021	24.00	51.1	736	1,059,943	541,278	1,013	548	1,096,629
8/17/2021	23.63	51.1	762	1,080,915	551,988	1,013	559	1,118,327
8/18/2021	23.27	51.1	807	1,125,914	574,967	1,013	582	1,164,883
8/19/2021	24.00	51.1	820	1,181,046	603,121	1,013	611	1,221,924
8/20/2021	24.00	51.1	962	1,384,906	707,226	1,013	716	1,432,839
8/21/2021	24.00	51.1	749	1,078,035	550,517	1,013	558	1,115,347
8/22/2021	24.00	51.1	747	1,075,357	549,149	1,013	556	1,112,577
8/23/2021	23.77	51.1	860	1,226,117	626,137	1,013	634	1,268,555
8/24/2021	24.00	51.1	1,242	1,787,914	913,029	1,013	925	1,849,796
8/25/2021	24.00	51.1	746	1,073,863	548,387	1,013	556	1,111,031
8/26/2021	23.87	51.1	801	1,146,649	585,556	1,013	593	1,186,336
8/27/2021	24.00	51.1	741	1,067,501	545,138	1,013	552	1,104,449
8/28/2021	24.00	51.1	720	1,036,312	529,210	1,013	536	1,072,180
8/29/2021	24.00	51.1	700	1,008,280	514,895	1,013	522	1,043,178
8/30/2021	23.47	51.1	698	982,911	501,940	1,013	508	1,016,931
8/31/2021	24.00	51.1	696	1,002,801	512,097	1,013	519	1,037,509
Totals/ Average:	**738.03**	**51.1**	**815**	**36,085,762.5**	**18,427,808**	**1,013**	**18,667**	**37,334,739**
						Maximum:	**1,041**	**2,081,606**

Notes:

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

*CH_4 content was determined from the July 22 & 23, 2020 (9/15/20 to current) source test.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Sep-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
9/1/2021	23.77	51.1	709	1,011,159	516,365	1,013	523	1,046,156
9/2/2021	24.00	51.1	718	1,034,051	528,056	1,013	535	1,069,841
9/3/2021	24.00	51.1	742	1,068,817	545,810	1,013	553	1,105,810
9/4/2021	24.00	51.1	740	1,065,196	543,960	1,013	551	1,102,064
9/5/2021	24.00	51.1	732	1,054,509	538,503	1,013	546	1,091,007
9/6/2021	24.00	51.1	731	1,052,773	537,616	1,013	545	1,089,211
9/7/2021	24.00	51.1	724	1,042,919	532,584	1,013	540	1,079,016
9/8/2021	24.00	51.1	696	1,002,612	512,001	1,013	519	1,037,314
9/9/2021	23.43	51.1	767	1,078,455	550,731	1,013	558	1,115,782
9/10/2021	19.33	45.7	625	724,991	331,562	1,013	336	671,745
9/11/2021	15.30	45.7	1,008	925,377	423,205	1,013	429	857,414
9/12/2021	24.00	45.7	1,136	1,635,159	747,812	1,013	758	1,515,067
9/13/2021	24.00	45.7	1,131	1,627,927	744,505	1,013	754	1,508,367
9/14/2021	24.00	45.7	1,107	1,594,330	729,140	1,013	739	1,477,237
9/15/2021	24.00	45.7	1,080	1,555,650	711,450	1,013	721	1,441,398
9/16/2021	24.00	45.7	1,067	1,535,773	702,360	1,013	711	1,422,981
9/17/2021	24.00	45.7	1,054	1,518,045	694,252	1,013	703	1,406,555
9/18/2021	24.00	45.7	1,047	1,507,837	689,584	1,013	699	1,397,096
9/19/2021	24.00	45.7	1,047	1,507,475	689,418	1,013	698	1,396,761
9/20/2021	24.00	45.7	1,055	1,518,516	694,467	1,013	703	1,406,991
9/21/2021	24.00	45.7	1,087	1,564,884	715,673	1,013	725	1,449,954
9/22/2021	24.00	45.7	1,161	1,672,347	764,819	1,013	775	1,549,524
9/23/2021	24.00	45.7	1,150	1,656,124	757,400	1,013	767	1,534,493
9/24/2021	24.00	45.7	1,245	1,792,254	819,657	1,013	830	1,660,625
9/25/2021	24.00	45.7	1,147	1,651,863	755,451	1,013	765	1,530,545
9/26/2021	24.00	45.7	1,147	1,651,164	755,132	1,013	765	1,529,897
9/27/2021	24.00	45.7	1,149	1,654,908	756,844	1,013	767	1,533,366
9/28/2021	24.00	45.7	1,333	1,919,994	878,077	1,013	889	1,778,983
9/29/2021	23.73	45.7	1,123	1,599,288	731,407	1,013	741	1,481,831
9/30/2021	24.00	45.7	1,061	1,527,829	698,727	1,013	708	1,415,620
Totals/ Average:	**705.57**	**46.9**	**986**	**41,752,225.6**	**19,596,570**	**1,013**	**19,851**	**39,702,650**
						Maximum:	**889**	**1,778,983**

Notes:

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

*CH_4 content was determined from the July 22 & 23, 2020 (9/15/20 - 9/9/21) and July 13, 2021 (9/10/21 - current) source test.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute
BTU/scf= British thermal unit per square cubic feet
scf= standard cubic feet
MMBTU= million British thermal units
LFG= landfill gas
CH_4= methane
HHV= higher heating value

REDWOOD LANDFILL
Novato, CA

A-60 Flare Heat Input Rate

MONTH: Oct-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU) / Day	Total Flow Corrected to HHV of 500 BTU/scf
10/1/2021	24.00	45.7	1,086	1,563,259	714,930	1,013	724	1,448,448
10/2/2021	24.00	45.7	1,123	1,617,194	739,596	1,013	749	1,498,422
10/3/2021	24.00	45.7	1,120	1,613,443	737,881	1,013	747	1,494,946
10/4/2021	24.00	45.7	1,113	1,603,225	733,208	1,013	743	1,485,479
10/5/2021	24.00	45.7	1,136	1,635,683	748,052	1,013	758	1,515,553
10/6/2021	24.00	45.7	1,155	1,663,248	760,658	1,013	771	1,541,094
10/7/2021	24.00	45.7	1,168	1,682,506	769,466	1,013	779	1,558,937
10/8/2021	24.00	45.7	1,152	1,659,540	758,962	1,013	769	1,537,658
10/9/2021	24.00	45.7	1,134	1,632,297	746,503	1,013	756	1,512,416
10/10/2021	24.00	45.7	1,137	1,637,936	749,082	1,013	759	1,517,641
10/11/2021	24.00	45.7	1,106	1,592,347	728,233	1,013	738	1,475,400
10/12/2021	24.00	45.7	1,622	2,335,463	1,068,084	1,013	1,082	2,163,939
10/13/2021	24.00	45.7	1,448	2,085,759	953,886	1,013	966	1,932,574
10/14/2021	24.00	45.7	1,265	1,821,372	832,974	1,013	844	1,687,604
10/15/2021	24.00	45.7	1,347	1,939,771	887,121	1,013	899	1,797,308
10/16/2021	24.00	45.7	1,534	2,209,240	1,010,358	1,013	1,023	2,046,986
10/17/2021	24.00	45.7	1,538	2,214,481	1,012,755	1,013	1,026	2,051,842
10/18/2021	24.00	45.7	1,447	2,083,003	952,626	1,013	965	1,930,020
10/19/2021	24.00	45.7	1,561	2,247,455	1,027,835	1,013	1,041	2,082,394
10/20/2021	24.00	45.7	1,444	2,079,644	951,090	1,013	963	1,926,908
10/21/2021	24.00	45.7	1,453	2,091,622	956,568	1,013	969	1,938,006
10/22/2021	24.00	45.7	1,449	2,086,906	954,411	1,013	967	1,933,637
10/23/2021	24.00	45.7	1,459	2,101,463	961,068	1,013	974	1,947,125
10/24/2021	24.00	45.7	1,774	2,554,997	1,168,484	1,013	1,184	2,367,349
10/25/2021	24.00	45.7	1,366	1,966,538	899,363	1,013	911	1,822,109
10/26/2021	24.00	45.7	1,103	1,588,298	726,381	1,013	736	1,471,648
10/27/2021	24.00	45.7	1,095	1,576,793	721,119	1,013	730	1,460,988
10/28/2021	24.00	45.7	1,105	1,591,911	728,033	1,013	737	1,474,996
10/29/2021	24.00	45.7	1,084	1,560,760	713,787	1,013	723	1,446,133
10/30/2021	24.00	45.7	1,076	1,548,831	708,332	1,013	718	1,435,080
10/31/2021	24.00	45.7	1,064	1,532,580	700,899	1,013	710	1,420,022
Totals/ Average:	**744.00**	**45.7**	**1,280**	**57,117,565.0**	**26,121,747**	**1,013**	**26,461**	**52,922,660**
						Maximum:	**1,184**	**2,367,349**

Notes:

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

*CH_4 content was determined from the July 22 & 23, 2020 (9/15/20 - 9/9/21) and July 13, 2021 (9/10/21 - current) source test.

Pursuant to Title V Permit Condition Number 19867 Part 30(g), the Annual Source Test at A-60 may be conducted while it is operating in either zone, providing that each operating zone is tested at least once every five years.

Pursuant to Title V Permit Condition Number 19867 Part 20, as modified by Authority To Construct (ATC) 19098, the throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-60 Landfill Gas Flare shall not exceed 4,320,000 scf during any one day, and shall not exceed 2,625 million scf combined with the A-51 Landfill Gas Flare during any consecutive 12-month period.

scfm= standard cubic feet per minute

BTU/scf= British thermal unit per square cubic feet

scf= standard cubic feet

MMBTU= million British thermal units

LFG= landfill gas

CH_4= methane

HHV= higher heating value

MONTHLY LFG Input to Landfill Gas Engine (S-64)

WM - REDWOOD LANDFILL, Novato, CA

S-64 (Engine #1)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMBtu)[2]	SO2 Emissions (tons)[2]
May-21	744.00	84.08	659.92	689	53.0	27,278,299	29,309,296	14,466,582	14,655	0.083	0.61	1.54	2.10E-02
June-21	720.00	132.33	587.67	678	53.0	23,919,657	25,700,587	12,685,383	12,850	0.083	0.53	1.54	1.84E-02
July-21	744.00	129.25	614.75	648	53.0	23,895,229	25,674,340	12,672,429	12,837	0.083	0.53	1.54	1.84E-02
August-21	744.00	13.67	730.33	634	53.0	27,786,198	29,855,010	14,735,938	14,928	0.083	0.62	1.54	2.14E-02
September-21	720.00	321.83	398.17	626	51.8	14,963,722	15,697,846	7,748,197	7,849	0.017	0.07	0.02	1.36E-04
October-21	744.00	400.58	343.42	630	48.5	12,980,275	12,754,548	6,295,433	6,377	0.017	0.05	0.02	1.18E-04
TOTAL/ AVG:	**4,416.00**	**1,081.75**	**3,334.25**	**654**	**52.1**	**130,823,380**	**138,991,627**	**68,603,962**	**69,496**	**--**	**--**	**--**	**--**

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 21 & 22, 2020 (9/18/20 - 9/12/21) and July 14 & 15, 2021 (9/13/21 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: May-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
5/01/2021	24.00	53.0	698	1,005,452	533,224	1,013	540	1,080,312
5/02/2021	24.00	53.0	697	1,003,062	531,957	1,013	539	1,077,745
5/03/2021	24.00	53.0	699	1,006,020	533,525	1,013	540	1,080,923
5/04/2021	24.00	53.0	702	1,011,320	536,336	1,013	543	1,086,617
5/05/2021	24.00	53.0	701	1,009,493	535,367	1,013	542	1,084,655
5/06/2021	24.00	53.0	702	1,010,666	535,990	1,013	543	1,085,915
5/07/2021	24.00	53.0	701	1,009,313	535,272	1,013	542	1,084,461
5/08/2021	22.75	53.0	657	946,632	502,030	1,013	509	1,017,113
5/09/2021	24.00	53.0	700	1,008,162	534,662	1,013	542	1,083,225
5/10/2021	24.00	53.0	699	1,006,960	534,024	1,013	541	1,081,932
5/11/2021	24.00	53.0	699	1,007,118	534,108	1,013	541	1,082,102
5/12/2021	15.25	53.0	438	630,285	334,261	1,013	339	677,213
5/13/2021	0.42	53.0	108	155,383	82,405	1,013	83	166,952
5/14/2021	17.67	53.0	525	755,507	400,670	1,013	406	811,758
5/15/2021	24.00	53.0	668	962,248	510,312	1,013	517	1,033,892
5/16/2021	22.17	53.0	613	882,080	467,796	1,013	474	947,755
5/17/2021	24.00	53.0	671	965,566	512,072	1,013	519	1,037,457
5/18/2021	24.00	53.0	677	975,206	517,184	1,013	524	1,047,815
5/19/2021	21.83	53.0	633	911,773	483,543	1,013	490	979,659
5/20/2021	24.00	53.0	661	951,671	504,702	1,013	511	1,022,527
5/21/2021	24.00	53.0	690	993,009	526,626	1,013	533	1,066,943
5/22/2021	22.50	53.0	617	888,845	471,384	1,013	478	955,024
5/23/2021	24.00	53.0	661	951,306	504,509	1,013	511	1,022,135
5/24/2021	19.42	53.0	543	781,521	414,466	1,013	420	839,709
5/25/2021	16.42	53.0	481	693,013	367,527	1,013	372	744,611
5/26/2021	9.58	53.0	317	457,135	242,434	1,013	246	491,171
5/27/2021	20.00	53.0	556	800,157	424,349	1,013	430	859,732
5/28/2021	18.50	53.0	491	707,603	375,265	1,013	380	760,287
5/29/2021	22.67	53.0	604	870,182	461,486	1,013	467	934,971
5/30/2021	24.00	53.0	671	966,386	512,506	1,013	519	1,038,338
5/31/2021	22.75	53.0	663	955,227	506,588	1,013	513	1,026,348
Totals/ Average:	**659.92**	**53.0**	**689**	**27,278,299.3**	**14,466,582**	**1,013**	**14,655**	**29,309,296**
Notes:						**Maximum:**	**543**	**1,086,617**

The A-60 Flare commenced operation on April 1, 2009.
*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Jun-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
6/01/2021	24.00	53.0	710	1,023,036	542,549	1,013	550	1,099,205
6/02/2021	24.00	53.0	705	1,015,517	538,562	1,013	546	1,091,127
6/03/2021	24.00	53.0	705	1,014,816	538,191	1,013	545	1,090,374
6/04/2021	22.92	53.0	671	966,366	512,496	1,013	519	1,038,316
6/05/2021	17.75	53.0	506	729,058	386,644	1,013	392	783,340
6/06/2021	24.00	53.0	704	1,013,458	537,470	1,013	544	1,088,915
6/07/2021	7.75	53.0	225	324,481	172,083	1,013	174	348,640
6/08/2021	0.00							
6/09/2021	0.00							
6/10/2021	0.00							
6/11/2021	10.83	53.0	352	507,500	269,144	1,013	273	545,286
6/12/2021	22.50	53.0	729	1,049,085	556,364	1,013	564	1,127,194
6/13/2021	24.00	53.0	660	951,030	504,362	1,013	511	1,021,838
6/14/2021	24.00	53.0	646	930,686	493,573	1,013	500	999,980
6/15/2021	23.50	53.0	640	920,950	488,410	1,013	495	989,519
6/16/2021	23.17	53.0	634	913,594	484,509	1,013	491	981,615
6/17/2021	24.00	53.0	654	941,556	499,338	1,013	506	1,011,659
6/18/2021	21.75	53.0	602	866,312	459,434	1,013	465	930,813
6/19/2021	22.50	53.0	630	906,523	480,759	1,013	487	974,017
6/20/2021	24.00	53.0	677	975,431	517,303	1,013	524	1,048,056
6/21/2021	24.00	53.0	684	985,378	522,579	1,013	529	1,058,744
6/22/2021	21.00	53.0	596	857,699	454,866	1,013	461	921,559
6/23/2021	24.00	53.0	688	991,381	525,762	1,013	533	1,065,194
6/24/2021	24.00	53.0	669	963,576	511,016	1,013	518	1,035,319
6/25/2021	24.00	53.0	642	924,843	490,475	1,013	497	993,702
6/26/2021	24.00	53.0	647	931,384	493,944	1,013	500	1,000,730
6/27/2021	24.00	53.0	651	936,759	496,794	1,013	503	1,006,505
6/28/2021	24.00	53.0	651	937,196	497,026	1,013	503	1,006,975
6/29/2021	23.33	53.0	636	915,174	485,347	1,013	492	983,313
6/30/2021	10.67	53.0	296	426,868	226,382	1,013	229	458,650
Totals/ Average:	**587.67**	**53.0**	**678**	**23,919,657.1**	**12,685,383**	**1,013**	**12,850**	**25,700,587**
						Maximum:	**564**	**1,127,194**

Notes:

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Jul-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
7/01/2021	17.50	53.0	481	692,252	367,124	1,013	372	743,794
7/02/2021	24.00	53.0	662	953,677	505,766	1,013	512	1,024,683
7/03/2021	20.00	53.0	539	775,748	411,405	1,013	417	833,506
7/04/2021	24.00	53.0	675	971,474	515,205	1,013	522	1,043,805
7/05/2021	19.25	53.0	514	739,849	392,366	1,013	397	794,934
7/06/2021	21.75	53.0	597	859,576	455,861	1,013	462	923,575
7/07/2021	12.75	53.0	337	485,757	257,613	1,013	261	521,924
7/08/2021	6.75	53.0	139	199,539	105,822	1,013	107	214,395
7/09/2021	24.00	53.0	648	933,048	494,826	1,013	501	1,002,518
7/10/2021	22.25	53.0	584	841,431	446,238	1,013	452	904,079
7/11/2021	23.25	53.0	640	922,124	489,033	1,013	495	990,781
7/12/2021	23.50	53.0	649	934,596	495,647	1,013	502	1,004,181
7/13/2021	15.25	53.0	388	558,871	296,388	1,013	300	600,482
7/14/2021	16.75	53.0	465	669,392	355,001	1,013	360	719,231
7/15/2021	24.00	53.0	664	956,649	507,343	1,013	514	1,027,876
7/16/2021	24.00	53.0	699	1,006,676	533,874	1,013	541	1,081,628
7/17/2021	19.50	53.0	528	759,633	402,858	1,013	408	816,191
7/18/2021	24.00	53.0	704	1,013,330	537,403	1,013	544	1,088,778
7/19/2021	24.00	53.0	715	1,028,932	545,676	1,013	553	1,105,540
7/20/2021	24.00	53.0	715	1,029,478	545,966	1,013	553	1,106,128
7/21/2021	15.75	53.0	441	635,587	337,073	1,013	341	682,910
7/22/2021	14.50	53.0	407	586,627	311,107	1,013	315	630,304
7/23/2021	24.00	53.0	679	977,048	518,161	1,013	525	1,049,794
7/24/2021	24.00	53.0	679	978,395	518,875	1,013	526	1,051,241
7/25/2021	24.00	53.0	679	977,649	518,480	1,013	525	1,050,439
7/26/2021	19.50	53.0	530	763,017	404,653	1,013	410	819,828
7/27/2021	0.50	53.0	1	1,285	681	1,013	1	1,380
7/28/2021	12.25	53.0	294	423,681	224,692	1,013	228	455,226
7/29/2021	24.00	53.0	550	791,764	419,899	1,013	425	850,715
7/30/2021	21.75	53.0	456	656,284	348,049	1,013	353	705,148
7/31/2021	24.00	53.0	536	771,860	409,343	1,013	415	829,329
Totals/ Average:	**614.75**	**53.0**	**648**	**23,895,229.2**	**12,672,429**	**1,013**	**12,837**	**25,674,340**
						Maximum:	**553**	**1,106,128**

Notes:

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Aug-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
8/01/2021	24.00	53.0	609	876,493	464,833	1,013	471	941,752
8/02/2021	21.33	53.0	578	771,976	409,404	1,013	415	829,453
8/03/2021	24.00	53.0	597	859,769	455,964	1,013	462	923,783
8/04/2021	24.00	53.0	612	880,813	467,124	1,013	473	946,393
8/05/2021	24.00	53.0	633	910,900	483,080	1,013	489	978,720
8/06/2021	24.00	53.0	622	895,321	474,818	1,013	481	961,982
8/07/2021	24.00	53.0	622	895,625	474,979	1,013	481	962,308
8/08/2021	24.00	53.0	622	896,275	475,324	1,013	482	963,007
8/09/2021	24.00	53.0	623	897,425	475,934	1,013	482	964,242
8/10/2021	24.00	53.0	625	899,683	477,132	1,013	483	966,669
8/11/2021	24.00	53.0	625	900,259	477,437	1,013	484	967,287
8/12/2021	24.00	53.0	626	901,723	478,213	1,013	484	968,860
8/13/2021	24.00	53.0	629	906,096	480,533	1,013	487	973,559
8/14/2021	24.00	53.0	629	906,097	480,533	1,013	487	973,560
8/15/2021	24.00	53.0	627	902,503	478,627	1,013	485	969,699
8/16/2021	24.00	53.0	623	897,740	476,101	1,013	482	964,581
8/17/2021	23.17	53.0	589	847,589	449,505	1,013	455	910,696
8/18/2021	24.00	53.0	649	934,364	495,524	1,013	502	1,003,932
8/19/2021	24.00	53.0	646	930,282	493,359	1,013	500	999,546
8/20/2021	23.00	53.0	587	844,702	447,973	1,013	454	907,593
8/21/2021	24.00	53.0	624	897,976	476,226	1,013	482	964,834
8/22/2021	24.00	53.0	625	899,562	477,067	1,013	483	966,539
8/23/2021	24.00	53.0	623	897,373	475,907	1,013	482	964,187
8/24/2021	14.83	53.0	450	647,793	343,546	1,013	348	696,024
8/25/2021	24.00	53.0	822	1,183,689	627,749	1,013	636	1,271,820
8/26/2021	24.00	53.0	711	1,024,425	543,286	1,013	550	1,100,698
8/27/2021	24.00	53.0	621	894,280	474,266	1,013	480	960,863
8/28/2021	24.00	53.0	621	894,193	474,220	1,013	480	960,770
8/29/2021	24.00	53.0	624	898,403	476,453	1,013	483	965,293
8/30/2021	24.00	53.0	623	897,716	476,089	1,013	482	964,556
8/31/2021	24.00	53.0	622	895,155	474,730	1,013	481	961,804
Totals/ Average:	**730.33**	**53.0**	**634**	**27,786,197.8**	**14,735,938**	**1,013**	**14,928**	**29,855,010**
						Maximum:	**636**	**1,271,820**

Notes:

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Sep-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
9/01/2021	24.00	53.0	625	900,213	477,413	1,013	484	967,238
9/02/2021	24.00	53.0	628	904,870	479,882	1,013	486	972,242
9/03/2021	24.00	53.0	630	907,364	481,205	1,013	487	974,922
9/04/2021	24.00	53.0	629	906,352	480,668	1,013	487	973,834
9/05/2021	24.00	53.0	632	910,134	482,674	1,013	489	977,898
9/06/2021	24.00	53.0	636	915,598	485,572	1,013	492	983,768
9/07/2021	24.00	53.0	633	910,994	483,130	1,013	489	978,821
9/08/2021	24.00	53.0	629	905,895	480,426	1,013	487	973,343
9/09/2021	22.17	53.0	573	824,687	437,359	1,013	443	886,088
9/10/2021	24.00	53.0	625	899,418	476,991	1,013	483	966,384
9/11/2021	24.00	53.0	631	908,738	481,934	1,013	488	976,397
9/12/2021	24.00	53.0	647	932,099	494,323	1,013	501	1,001,498
9/13/2021	24.00	48.5	641	923,562	447,927	1,013	454	907,501
9/14/2021	11.58	48.5	251	361,261	175,211	1,013	177	354,978
9/15/2021	0.00							
9/16/2021	0.00							
9/17/2021	0.00							
9/18/2021	0.00							
9/19/2021	0.00							
9/20/2021	0.00							
9/21/2021	0.00							
9/22/2021	15.58	48.5	400	576,030	279,374	1,013	283	566,012
9/23/2021	24.00	48.5	633	911,760	442,204	1,013	448	895,904
9/24/2021	11.33	48.5	298	429,656	208,383	1,013	211	422,184
9/25/2021	0.00							
9/26/2021	0.00							
9/27/2021	0.00							
9/28/2021	16.08	48.5	404	581,944	282,243	1,013	286	571,824
9/29/2021	9.42	48.5	245	353,149	171,277	1,013	174	347,008
9/30/2021	0.00							
Totals/ Average:	**398.17**	**51.8**	**626**	**14,963,722.0**	**7,748,197**	**1,013**	**7,849**	**15,697,846**
						Maximum:	**501**	**1,001,498**

Notes:

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - 9/12/21) and July 14 & 15, 2021 (9/13/21 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-64 Engine (#1) Heat Input Rate

MONTH: Oct-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
10/01/2021	0.00							
10/02/2021	0.00							
10/03/2021	0.00							
10/04/2021	0.00							
10/05/2021	0.00							
10/06/2021	0.00							
10/07/2021	0.00							
10/08/2021	0.00							
10/09/2021	0.00							
10/10/2021	0.00							
10/11/2021	2.08	48.5	9	13,658	6,624	1,013	7	13,420
10/12/2021	0.00							
10/13/2021	0.67	48.5	11	15,892	7,708	1,013	8	15,616
10/14/2021	0.00							
10/15/2021	11.08	48.5	298	429,540	208,327	1,013	211	422,070
10/16/2021	24.00	48.5	514	740,044	358,922	1,013	364	727,175
10/17/2021	24.00	48.5	484	697,351	338,215	1,013	343	685,224
10/18/2021	12.00	48.5	328	471,890	228,867	1,013	232	463,684
10/19/2021	0.00							
10/20/2021	14.33	48.5	400	576,505	279,605	1,013	283	566,479
10/21/2021	24.00	48.5	696	1,002,323	486,126	1,013	492	984,892
10/22/2021	24.00	48.5	693	997,733	483,901	1,013	490	980,383
10/23/2021	24.00	48.5	692	996,418	483,263	1,013	490	979,090
10/24/2021	15.67	48.5	392	564,218	273,646	1,013	277	554,406
10/25/2021	24.00	48.5	637	917,591	445,032	1,013	451	901,634
10/26/2021	24.00	48.5	595	856,202	415,258	1,013	421	841,313
10/27/2021	24.00	48.5	630	907,554	440,164	1,013	446	891,771
10/28/2021	23.58	48.5	638	919,343	445,881	1,013	452	903,356
10/29/2021	24.00	48.5	658	947,745	459,656	1,013	466	931,264
10/30/2021	24.00	48.5	666	958,473	464,859	1,013	471	941,805
10/31/2021	24.00	48.5	672	967,794	469,380	1,013	475	950,964
Totals/ Average:	**343.42**	**48.5**	**630**	**12,980,274.9**	**6,295,433**	**1,013**	**6,377**	**12,754,548**
Notes:						**Maximum:**	**492**	**984,892**

The S-64 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - 9/12/21) and July 14 & 15, 2021 (9/13/21 - current) source tests.

MONTHLY LFG Input to Landfill Gas Engine (S-65)

WM - REDWOOD LANDFILL, Novato, CA

S-65 (Engine #2)

Month	Total Available Runtime (hours)	Total Downtime (hours)	Total Runtime (hours)	Average Flow (scfm)	Average CH_4 (%)[1]	Total Flow LFG Volume (scf)	Total Flow LFG Volume Corrected to HHV of 500 BTU/scf	Total CH_4 Volume (scf)	Total Heat Input (MMBTU)	CO Emission Factor (lb/MMBtu)[1]	CO Emissions (tons)	SO2 Emission Factor (lb/MMBtu)[2]	SO2 Emissions (tons)[2]
May-21	744.00	270.17	473.83	635	53.0	18,053,831	19,385,842	9,568,530	9,693	0.090	0.43	1.5267	1.38E-02
June-21	720.00	493.92	226.08	564	53.0	7,649,847	8,214,252	4,054,419	4,107	0.090	0.18	1.5267	5.84E-03
July-21	744.00	470.50	273.50	553	53.0	9,070,670	9,739,904	4,807,455	4,870	0.090	0.22	1.5267	6.92E-03
August-21	744.00	74.57	669.43	589	53.0	23,655,413	25,400,709	12,537,369	12,700	0.090	0.57	1.5267	1.81E-02
September-21	720.00	154.25	565.75	614	47.9	20,834,824	20,235,411	9,987,863	10,118	0.018	0.09	0.0189	1.97E-04
October-21	744.00	238.50	505.50	638	44.1	19,347,421	17,299,316	8,538,656	8,650	0.018	0.08	0.0189	1.83E-04
TOTAL/ AVG:	**4,416.00**	**1,701.90**	**2,714.10**	**606**	**50.7**	**98,612,006**	**100,275,435**	**49,494,292**	**50,138**	**--**	**--**	**--**	**--**

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 21 & 22, 2020 (9/18/20 - 9/12/21) and July 14 & 15, 2021 (9/13/21 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: May-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
5/01/2021	24.00	53.0	662	953,683	505,452	1,013	512	1,024,046
5/02/2021	24.00	53.0	659	949,512	503,241	1,013	510	1,019,567
5/03/2021	24.00	53.0	661	951,729	504,416	1,013	511	1,021,948
5/04/2021	24.00	53.0	665	957,547	507,500	1,013	514	1,028,195
5/05/2021	24.00	53.0	666	958,325	507,912	1,013	515	1,029,030
5/06/2021	24.00	53.0	666	959,270	508,413	1,013	515	1,030,045
5/07/2021	24.00	53.0	663	955,136	506,222	1,013	513	1,025,606
5/08/2021	24.00	53.0	662	953,740	505,482	1,013	512	1,024,107
5/09/2021	24.00	53.0	662	953,136	505,162	1,013	512	1,023,459
5/10/2021	24.00	53.0	655	943,149	499,869	1,013	506	1,012,734
5/11/2021	24.00	53.0	663	954,532	505,902	1,013	512	1,024,958
5/12/2021	15.25	53.0	419	602,676	319,418	1,013	324	647,141
5/13/2021	0.00							
5/14/2021	3.33	53.0	32	46,237	24,506	1,013	25	49,648
5/15/2021	0.00							
5/16/2021	0.00							
5/17/2021	0.67	53.0	9	12,668	6,714	1,013	7	13,603
5/18/2021	9.00	53.0	203	291,709	154,606	1,013	157	313,231
5/19/2021	22.75	53.0	568	817,946	433,511	1,013	439	878,294
5/20/2021	24.00	53.0	613	882,506	467,728	1,013	474	947,617
5/21/2021	24.00	53.0	643	925,976	490,767	1,013	497	994,294
5/22/2021	22.75	53.0	581	836,284	443,231	1,013	449	897,985
5/23/2021	22.58	53.0	584	840,808	445,628	1,013	451	902,843
5/24/2021	14.83	53.0	362	521,096	276,181	1,013	280	559,542
5/25/2021	7.42	53.0	190	273,447	144,927	1,013	147	293,621
5/26/2021	22.08	53.0	575	827,848	438,759	1,013	444	888,926
5/27/2021	18.92	53.0	407	586,461	310,824	1,013	315	629,730
5/28/2021	2.25	53.0	68	98,411	52,158	1,013	53	105,671
5/29/2021	0.00							
5/30/2021	0.00							
5/31/2021	0.00							
Totals/ Average:	**473.83**	**53.0**	**635**	**18,053,830.6**	**9,568,530**	**1,013**	**9,693**	**19,385,842**
						Maximum:	**515**	**1,030,045**

Notes:

The S-65 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Jun-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
6/01/2021	0.00							
6/02/2021	0.00							
6/03/2021	0.00							
6/04/2021	0.00							
6/05/2021	0.00							
6/06/2021	0.00							
6/07/2021	0.00							
6/08/2021	0.00							
6/09/2021	0.00							
6/10/2021	0.00							
6/11/2021	2.43	53.0	49	70,349	37,285	1,013	38	75,539
6/12/2021	4.58	53.0	102	146,787	77,797	1,013	79	157,617
6/13/2021	16.17	53.0	373	537,369	284,805	1,013	289	577,016
6/14/2021	13.75	53.0	306	440,166	233,288	1,013	236	472,642
6/15/2021	3.25	53.0	68	97,942	51,909	1,013	53	105,169
6/16/2021	0.00							
6/17/2021	0.00							
6/18/2021	1.42	53.0	16	22,605	11,980	1,013	12	24,272
6/19/2021	0.00							
6/20/2021	0.00							
6/21/2021	9.42	53.0	214	307,948	163,213	1,013	165	330,669
6/22/2021	15.92	53.0	261	375,604	199,070	1,013	202	403,316
6/23/2021	24.00	53.0	352	506,733	268,568	1,013	272	544,119
6/24/2021	24.00	53.0	411	591,712	313,608	1,013	318	635,369
6/25/2021	24.00	53.0	617	889,037	471,189	1,013	477	954,630
6/26/2021	24.00	53.0	625	900,581	477,308	1,013	484	967,026
6/27/2021	21.58	53.0	561	807,487	427,968	1,013	434	867,063
6/28/2021	23.83	53.0	611	880,358	466,590	1,013	473	945,311
6/29/2021	16.67	53.0	428	616,885	326,949	1,013	331	662,399
6/30/2021	1.07	53.0	318	458,284	242,891	1,013	246	492,096
Totals/ Average:	**226.08**	**53.0**	**564**	**7,649,846.8**	**4,054,419**	**1,013**	**4,107**	**8,214,252**
						Maximum:	**484**	**967,026**

Notes:

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

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Jul-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
7/01/2021	7.25	53.0	204	293,175	155,383	1,013	157	314,806
7/02/2021	0.00							
7/03/2021	0.00							
7/04/2021	0.00							
7/05/2021	0.00							
7/06/2021	0.00							
7/07/2021	0.00							
7/08/2021	5.50	53.0	92	132,592	70,274	1,013	71	142,374
7/09/2021	0.00							
7/10/2021	12.25	53.0	303	436,048	231,105	1,013	234	468,220
7/11/2021	4.50	53.0	53	76,187	40,379	1,013	41	81,808
7/12/2021	13.50	53.0	311	448,306	237,602	1,013	241	481,382
7/13/2021	19.50	53.0	498	717,149	380,089	1,013	385	770,060
7/14/2021	8.50	53.0	225	323,417	171,411	1,013	174	347,279
7/15/2021	14.75	53.0	395	568,169	301,130	1,013	305	610,089
7/16/2021	6.75	53.0	110	158,909	84,222	1,013	85	170,633
7/17/2021	3.25	53.0	42	60,156	31,883	1,013	32	64,595
7/18/2021	1.50	53.0	13	18,102	9,594	1,013	10	19,438
7/19/2021	0.00							
7/20/2021	1.25	53.0	10	14,782	7,834	1,013	8	15,872
7/21/2021	0.00							
7/22/2021	14.50	53.0	319	459,119	243,333	1,013	246	492,993
7/23/2021	24.00	53.0	540	778,001	412,341	1,013	418	835,402
7/24/2021	24.00	53.0	540	777,321	411,980	1,013	417	834,672
7/25/2021	24.00	53.0	539	776,846	411,729	1,013	417	834,162
7/26/2021	19.00	53.0	418	602,110	319,118	1,013	323	646,534
7/27/2021	0.00							
7/28/2021	8.75	53.0	174	249,966	132,482	1,013	134	268,408
7/29/2021	22.75	53.0	553	796,693	422,247	1,013	428	855,473
7/30/2021	21.50	53.0	550	791,762	419,634	1,013	425	850,178
7/31/2021	16.50	53.0	411	591,860	313,686	1,013	318	635,528
Totals/ Average:	**273.50**	**53.0**	**553**	**9,070,669.8**	**4,807,455**	**1,013**	**4,870**	**9,739,904**
						Maximum:	**428**	**855,473**

Notes:

The S-65 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Aug-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
8/01/2021	10.68	53.0	244	351,886	186,499	1,013	189	377,848
8/02/2021	18.00	53.0	462	616,830	326,920	1,013	331	662,340
8/03/2021	0.00							
8/04/2021	14.00	53.0	342	492,356	260,949	1,013	264	528,682
8/05/2021	24.00	53.0	599	862,204	456,968	1,013	463	925,818
8/06/2021	24.00	53.0	588	847,028	448,925	1,013	455	909,522
8/07/2021	24.00	53.0	588	846,051	448,407	1,013	454	908,473
8/08/2021	24.00	53.0	589	847,873	449,372	1,013	455	910,429
8/09/2021	24.00	53.0	589	847,631	449,244	1,013	455	910,169
8/10/2021	24.00	53.0	590	849,833	450,411	1,013	456	912,533
8/11/2021	24.00	53.0	591	850,761	450,903	1,013	457	913,530
8/12/2021	24.00	53.0	593	853,567	452,390	1,013	458	916,543
8/13/2021	24.00	53.0	595	856,691	454,046	1,013	460	919,897
8/14/2021	24.00	53.0	595	856,175	453,773	1,013	460	919,344
8/15/2021	24.00	53.0	592	851,936	451,526	1,013	457	914,791
8/16/2021	24.00	53.0	588	847,338	449,089	1,013	455	909,854
8/17/2021	24.00	53.0	590	849,228	450,091	1,013	456	911,884
8/18/2021	24.00	53.0	613	883,405	468,205	1,013	474	948,583
8/19/2021	24.00	53.0	612	881,083	466,974	1,013	473	946,089
8/20/2021	18.00	53.0	423	609,406	322,985	1,013	327	654,368
8/21/2021	24.00	53.0	591	850,364	450,693	1,013	457	913,104
8/22/2021	24.00	53.0	591	850,728	450,886	1,013	457	913,495
8/23/2021	19.67	53.0	473	681,387	361,135	1,013	366	731,659
8/24/2021	14.92	53.0	359	516,356	273,668	1,013	277	554,452
8/25/2021	24.00	53.0	585	843,050	446,816	1,013	453	905,250
8/26/2021	22.17	53.0	537	773,700	410,061	1,013	415	830,784
8/27/2021	24.00	53.0	588	846,566	448,680	1,013	455	909,026
8/28/2021	24.00	53.0	587	845,895	448,324	1,013	454	908,305
8/29/2021	24.00	53.0	590	849,314	450,136	1,013	456	911,977
8/30/2021	24.00	53.0	590	849,778	450,382	1,013	456	912,474
8/31/2021	24.00	53.0	588	846,995	448,907	1,013	455	909,486
Totals/ Average:	**669.43**	**53.0**	**589**	**23,655,413.0**	**12,537,369**	**1,013**	**12,700**	**25,400,709**
						Maximum:	**474**	**948,583**

Notes:

The S-65 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - current) source test.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Sep-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
9/01/2021	23.50	53.0	569	819,333	434,246	1,013	440	879,783
9/02/2021	24.00	53.0	595	856,266	453,821	1,013	460	919,441
9/03/2021	24.00	53.0	597	859,317	455,438	1,013	461	922,717
9/04/2021	24.00	53.0	595	856,806	454,107	1,013	460	920,021
9/05/2021	24.00	53.0	597	859,351	455,456	1,013	461	922,753
9/06/2021	24.00	53.0	602	866,241	459,108	1,013	465	930,152
9/07/2021	24.00	53.0	598	861,024	456,343	1,013	462	924,550
9/08/2021	24.00	53.0	595	857,196	454,314	1,013	460	920,439
9/09/2021	22.33	53.0	548	788,611	417,964	1,013	423	846,794
9/10/2021	24.00	53.0	591	851,438	451,262	1,013	457	914,257
9/11/2021	13.25	53.0	323	465,376	246,650	1,013	250	499,712
9/12/2021	0.00							
9/13/2021	0.00							
9/14/2021	15.25	44.1	392	564,871	249,296	1,013	253	505,074
9/15/2021	24.00	44.1	637	917,885	405,093	1,013	410	820,718
9/16/2021	24.00	44.1	636	915,863	404,200	1,013	409	818,910
9/17/2021	24.00	44.1	635	913,761	403,273	1,013	409	817,031
9/18/2021	24.00	44.1	636	916,010	404,265	1,013	410	819,041
9/19/2021	24.00	44.1	633	912,219	402,592	1,013	408	815,652
9/20/2021	24.00	44.1	627	903,596	398,787	1,013	404	807,942
9/21/2021	24.00	44.1	624	898,366	396,479	1,013	402	803,266
9/22/2021	9.17	44.1	236	340,442	150,248	1,013	152	304,403
9/23/2021	0.00							
9/24/2021	9.67	44.1	232	333,742	147,291	1,013	149	298,412
9/25/2021	24.00	44.1	623	897,753	396,208	1,013	401	802,718
9/26/2021	24.00	44.1	624	899,109	396,806	1,013	402	803,930
9/27/2021	24.00	44.1	626	902,114	398,133	1,013	403	806,617
9/28/2021	1.50	44.1	40	57,507	25,380	1,013	26	51,419
9/29/2021	15.08	44.1	400	575,806	254,122	1,013	257	514,852
9/30/2021	24.00	44.1	656	944,824	416,982	1,013	422	844,806
Totals/ Average:	**565.75**	**47.9**	**614**	**20,834,824.3**	**9,987,863**	**1,013**	**10,118**	**20,235,411**
						Maximum:	**465**	**930,152**

Notes:

The S-65 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - 9/12/21) and July 14 & 15, 2021 (9/13/21 - current) source tests.

REDWOOD LANDFILL
Novato, CA

S-65 Engine (#2) Heat Input Rate

MONTH: Oct-21

Date	Runtime (hours)	CH4 (%)*	Average Flow (scfm)	Total LFG Volume (scf)	CH4 Volume (scf)	Heating Value of CH4 (BTU/scf)	Heat Input (MMBTU)/Day	Total Flow Corrected to HHV of 500 BTU/scf
10/01/2021	24.00	44.1	658	946,868	417,884	1,013	423	846,633
10/02/2021	24.00	44.1	659	949,110	418,873	1,013	424	848,638
10/03/2021	24.00	44.1	658	947,848	418,317	1,013	424	847,509
10/04/2021	24.00	44.1	658	946,885	417,892	1,013	423	846,649
10/05/2021	22.58	44.1	618	890,416	392,970	1,013	398	796,157
10/06/2021	22.00	44.1	601	865,729	382,075	1,013	387	774,084
10/07/2021	20.83	44.1	559	804,741	355,159	1,013	360	719,552
10/08/2021	22.17	44.1	604	870,253	384,071	1,013	389	778,128
10/09/2021	24.00	44.1	661	951,688	420,011	1,013	425	850,942
10/10/2021	24.00	44.1	658	947,162	418,014	1,013	423	846,896
10/11/2021	24.00	44.1	654	942,473	415,945	1,013	421	842,704
10/12/2021	2.50	44.1	68	97,346	42,962	1,013	44	87,041
10/13/2021	13.17	44.1	351	504,976	222,863	1,013	226	451,520
10/14/2021	24.00	44.1	659	948,353	418,540	1,013	424	847,961
10/15/2021	13.08	44.1	361	519,177	229,130	1,013	232	464,217
10/16/2021	0.00							
10/17/2021	0.00							
10/18/2021	11.92	44.1	312	448,575	197,971	1,013	201	401,089
10/19/2021	20.08	44.1	546	786,743	347,216	1,013	352	703,459
10/20/2021	10.42	44.1	304	437,749	193,193	1,013	196	391,409
10/21/2021	0.00							
10/22/2021	0.00							
10/23/2021	0.00							
10/24/2021	1.42	44.1	13	18,219	8,041	1,013	8	16,290
10/25/2021	9.33	44.1	197	283,656	125,187	1,013	127	253,628
10/26/2021	24.00	44.1	558	804,120	354,885	1,013	359	718,997
10/27/2021	24.00	44.1	592	851,798	375,926	1,013	381	761,627
10/28/2021	24.00	44.1	616	886,610	391,290	1,013	396	792,754
10/29/2021	24.00	44.1	616	887,755	391,796	1,013	397	793,778
10/30/2021	24.00	44.1	624	899,188	396,841	1,013	402	804,000
10/31/2021	24.00	44.1	632	909,984	401,606	1,013	407	813,654
Totals/ Average:	**505.50**	**44.1**	**638**	**19,347,421.5**	**8,538,656**	**1,013**	**8,650**	**17,299,316**
Notes:						**Maximum:**	**425**	**850,942**

The S-65 Engine (#1) commenced operation on April 27, 2017.

*Methane (CH_4) content was determined from the July 21 & 22, 2020 (9/18/20 - 9/12/21) and July 14 & 15, 2021 (9/13/21 - current) source tests.

APPENDIX L

VOC SOILS LOGS

Redwood Landfill

Facility Number A1179

Title V Permit Condition Number 19867, Part 14

VOC Laden Soil

Month	VOC Emission Rate (lbs/month)	12-Month Rolling Total (lbs)
November-19	0.00	0.00
December-19	0.00	0.00
January-20	0.00	0.00
February-20	0.00	0.00
March-20	0.00	0.00
April-20	0.00	0.00
May-20	0.00	0.00
June-20	0.00	0.00
July-20	0.00	0.00
August-20	0.00	0.00
September-20	0.00	0.00
October-20	0.00	0.00
TOTALS:	**0.00**	

VOC Laden Soils is defined as soils containing concentrations of VOC less than 50 parts per million by weight (ppm_w).

APPENDIX M

H_2S TWICE WEEKLY AND QUARTERLY MONITORING

REDWOOD LANDFILL, INC.
Novato, CA

Total Reduced Sulfur Content - Quarter 2 - 2021

Date	H_2S Reading (ppm_v)	Calculated TRS (ppm_v)
4/6/21 8:00	975.0	989.6
4/8/21 8:17	993.5	1,008.4
4/14/21 9:00	721.6	732.4
4/15/21 10:00	847.0	859.7
4/22/21 14:45	813.0	825.2
4/23/21 10:00	794.1	806.0
4/27/21 14:15	844.7	857.4
4/28/21 14:00	756.2	767.5
5/4/21 9:15	843.9	856.5
5/5/21 9:43	735.4	746.4
5/6/21*	777.1	788.0
5/11/21 8:45	799.0	810.9
5/12/21 11:32	733.1	744.1
5/19/21 10:45	672.6	682.7
5/20/21 9:38	703.5	714.0
5/26/21 10:44	723.0	733.8
5/27/21 9:58	791.3	803.2
6/3/21 11:30	660.0	669.9
6/4/21 11:15	717.1	727.8
6/8/21 9:15	800.0	812.0
6/9/21 13:43	800.0	812.0
6/16/21 14:54	701.7	712.2
6/17/21 11:25	733.5	744.5
6/24/21 16:15	770.0	781.5
6/25/21 15:00	743.8	754.9
6/30/21 15:00	688.6	699.0
Quarterly Average:	774.6	786.1

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 3 - 2021

Date	H_2S Reading (ppm_v)	Calculated TRS (ppm_v)
7/2/21 14:00	679.0	689.2
7/6/21 9:46	733.8	744.8
7/9/21 19:02	812.8	825.0
7/12/21 10:36	762.7	774.2
7/13/21 7:45	921.3	935.1
7/19/21 8:30	847.2	859.9
7/22/21 7:50	870.0	883.1
7/26/21 9:40	800.5	812.5
7/28/21 11:55	772.1	783.6
8/2/21 9:45	777.9	789.6
8/5/21 8:15	787.2	799.0
8/9/21 8:20	795.5	807.4
8/12/21 8:55	707.1	717.7
8/16/21 9:00	725.7	736.6
8/18/21 8:25	748.4	759.6
8/18/21*	298.5	310.3
8/23/21 8:35	752.4	763.6
8/25/21 8:45	690.6	700.9
8/30/21 8:55	760.5	772.0
9/1/21 9:00	744.1	755.2
9/7/21 8:50	757.9	769.3
9/10/21 8:30	743.0	754.2
9/13/21 9:00	699.0	709.4
9/15/21 9:25	697.1	707.6
9/21/21 9:40	751.5	762.8
9/24/21 9:00	719.3	730.1
9/27/21 10:15	683.7	693.9
9/29/21 11:45	681.7	691.9
Quarterly Average:	740.0	751.4

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 4 - 2020

Date	H_2S Reading (ppm_v)	Calculated TRS (ppm_v)
10/4/21 9:05	703.5	714.1
10/6/21 12:40	668.8	678.8
10/11/21 10:25	702.5	713.0
10/13/21 10:05	856.0	868.9
10/18/21 10:50	788.2	800.0
10/20/21 17:15	755.9	767.3
10/25/21 9:20	722.3	733.2
10/27/21 8:50	750.7	761.9
Quarterly Average:	TBD	TBD

H_2S= hydrogen sulfide

ppm_v= parts per million by volume

TRS= total reduced sulfur

Title V Permit Condition Number 19867 Part 31b

As of March 31, 2005, the Permit Holder shall analyze the landfill gas for H2S concentration on a weekly basis. The landfill gas sample shall be drawn from the main landfill gas header using a Draeger/RAE tube. The TRS content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS=1.015*H2S measured by the Draeger/RAE Tube. The Permit Holder shall maintain records of all Draeger/RAE tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger/RAE tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. The concentration of TRS in collected landfill gas shall not exceed a peak of 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

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)
2021	1	1,158	922.9	195.68
2021	2	868	972.8	146.58
2021	3	520	912.1	87.79
2021	4*	TBD	TBD	TBD

*Quarterly results will be calculated at the end of the quarter.

H_2S = hydrogen sulfide

ppm_v = parts per million by volume

TRS = total reduced sulfur

TBD = To Be Determined.

Quarterly SO2 Emission Factor based on TRS concentrations to Flares A-51 and A-60 only.

Title V Permit Condition Number 19867 Part 31b

As of March 31, 2005, the Permit Holder shall analyze the landfill gas for H2S concentration on a weekly basis. The landfill gas sample shall be drawn from the main landfill gas header using a Draeger/RAE tube. The TRS content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS=1.015*H2S measured by the Draeger/RAE Tube. The Permit Holder shall maintain records of all Draeger/RAE tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger/RAE tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. On a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit of 350 ppmv.

SO2 EF = Calculated TRS (ppmv) * 0.0283168 m3/scf * 1000 L/m3 * 1 mol/22.4 L * 64.06 g/mol * 1 lb/453.592 g * 273.15 K / 288.7 K

APPENDIX N

PERFORMANCE TEST REPORT

Redwood Landfill, Inc.

BAAQMD Facility # 1179

Annual Compliance Emissions Test Report #21015

Landfill Gas Flare A-51

Located at:
Redwood Landfill, Inc.
8950 Redwood Highway
Novato, CA 94948

Prepared for:
SCS Engineers
3117 Fite Circle Suite 108
Sacramento, CA 95827
Attn: Michael O'Connor
moconnor@scsengineers.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Gloria Espena & Marco Hernandez
gespena@baaqmd.gov & mhernandez@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
January 14th, 2021

Final Report Submitted on:
March 10th, 2021

Performed and Reported by:
Blue Sky Environmental, Inc.
624 San Gabriel Avenue
Albany, CA 94706
bluesky@blueskyenvironmental.com
Office (510) 525-1261 / Cell (510) 508-3469

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for Compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (925) 338-4875.

Chuck Arrivas, QSTI

Project Manager

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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by SCS Engineers to perform the emissions testing for the Redwood Landfill Inc. (RLI), located in Novato, California. Testing was conducted to demonstrate that Landfill Gas Flare A-51 is operating in compliance with 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. Test results derived from the source test are summarized in Table 2.1. Results for individual test runs are included in Appendix A. The flare met all compliance emission criteria.

Table 1. Source Test Information

Test Location:	Redwood Landfill Inc. 8950 Redwood Highway, Novato, CA 94948
Source Contact:	Michael O'Connor, SCS Engineers (707) 236-3791
Source Tested:	Industrial Landfill Gas Flare (A-51) – 90 MMBtu/hr
Source Test Date:	January 14th, 2021
Test Objective:	Determine compliance with Bay Area Air Quality Management District (BAAQMD) Permit to Operate for Plant #1179, Conditions 19867 and 25634
Test Performed By:	Blue Sky Environmental, Inc 624 San Gabriel Avenue Albany, CA 94706 Chuck Arrivas (925) 338-4875 carrivas@blueskyenvironmental.com
Test Parameters:	**Landfill Gas Fuel Analysis** O_2, N_2, CO_2, BTU, THC, CH_4, NMOC, HHV, F-Factor, Sulfur, VOC Species and Volumetric Flow Rate **Turbine Emissions** THC, CH_4, NMOC, NO_X, CO, O_2, SO_2, Volumetric Flow Rate and Temperature

Table 2. Compliance Summary

Emission Parameter	Average Results (Flare A-51)	Permit Limit	Status
NO_X, lbs/MMBtu	0.051	0.06	In Compliance
NO_X, ppm @ 15% O_2	12.7	15	In Compliance
CO, lbs/MMBtu	0.068	0.20	In Compliance
CO, ppm @ 15% O_2	27.6	82	In Compliance
TNMHC, ppm @ 3% O_2 as hexane (C_6H_{14})	<1.88	360	In Compliance
TNMHC, ppm @ 3% O_2 as CH_4	<11.3	30 or >98	In Compliance
NMOC Removal Efficiency	>95.82		
CH4, Removal Efficiency	>99.95	>99	In Compliance
Total Reduced Sulfurs in Fuel, ppm	1,879	410	Exceeds Limit[1]
SO_2, ppm	96.2	300	In Compliance
SO_2, lbs/MMBtu	0.62	1.69	In Compliance

[1]On October 6th, 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.

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This annual source test was performed to demonstrate that landfill gas Flare A-51 is operating in accordance with the Bay Area Air Quality Management District (BAAQMD) Title V Permit to Operate (PTO) for Plant #1179, Conditions 19867 and 25634.

2.2. Pollutants Tested

The following US Environmental Protection Agency (EPA), Bay Area Air Quality Management District (BAAQMD) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Traverse Point Determination
EPA Method 3A	O_2 and CO_2, Stack Gas Molecular Weight
EPA Method 10	CO
EPA Method 7E	NO_X and NO_2 Converter Check
EPA Method 4, part 16.4	Moisture Calculation
EPA Method 19	Flow Rate Calculation, DSCFM
EPA Method 25C	Analysis of landfill gas for TNMHC (NMOC)
EPA Method 25A	VOC Emissions
EPA Method 18	THC/CH_4/NMHC Emissions
ASTM D-1945/3588	Fuel Analysis for BTU, F-Factors & Fixed Gases
ASTM D-5504	Sulfur Species, Hydrogen Sulfide (H_2S) and TRS
EPA Method TO-15	Toxic Organic Compounds

2.3. Test Date(s)

Testing was conducted on January 14th, 2021.

2.4. Sampling and Observing Personnel

Testing was conducted by Chuck Arrivas and Timothy Eandi, representing Blue Sky Environmental, Inc.

John Silva of SCS Engineers and Ben Tarver of Waste Management were present to oversee turbine operations and assist in coordinating testing and the collection of process data to verify the accuracy of digitally recorded data collected during testing.

The BAAQMD was notified of the scheduled testing in a plan submitted by SCS Engineering on behalf of Waste Management, on December 31st, 2020. A Source Test Protocol acknowledgement (NST #6282) was received the same day; however, no agency observers were present during testing. A copy of the source test protocol and email correspondence are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill Inc. is a multi-material landfill with a gas collection system that is abated by two industrial landfill gas enclosed flares. Flare A-51 consists of a 90 MMBtu/hr multiple nozzle burner manufactured by Perennial Energy. The Flare shell is approximately 45 feet high and 136 inches in diameter.

2.6. Source Operating Conditions

The A-51 flare was operated at approximately 1,538 °F for all tests. The average landfill gas fuel flow rate was 742 standard cubic feet per minute (SCFM), with a methane content ranging from 48.8% to 50.7%.

The flare operating temperature and the landfill gas flow rate records are contained in Appendix F. There was no condensate injection.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

Sampling was conducted at the 136-inch diameter (ID) exhaust stack through ports that were accessed with a 40-foot boom lift. The four-inch flange ports on the flare were located approximately 35 feet above grade, approximately four stack diameters downstream from the burners and one stack diameter upstream from the exhaust.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental conducted a sixteen point traverse on the flare to check for the presence of cyclonic flow. O_2 stratification was greater than 10%; therefore, subsequent CEM sampling was conducted using all sixteen traverse points. The traverse points for the 136-inch diameter stack were 4.4, 14.3, 26.4, 43.9, 92.1, 109.6, 121.7 and 131.6 inches.

3.3. Sample Train Description

Sampling system diagrams are included in the Appendix H. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Description

Three consecutive thirty-minute gaseous emissions tests were performed for oxides of nitrogen (NOx), nitric oxide (NO), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), and total hydrocarbons (THC) at the flare exhaust stack. The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. Any drift or bias was corrected using equation 100-3 from CARB Method 100. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Concurrent with the exhaust sampling, Blue Sky collected a total of six integrated samples for off-site analysis. Three landfill gas fuel samples were collected in SUMMA canisters and analyzed for hydrocarbons by EPA Method 25, HHV, F-factor, fixed gases, sulfur species (incl. H_2S and TRS), volatile organic compounds (VOCs) and nonmethane organic compounds (NMOCs). Three exhaust samples were collected in Tedlar bags and analyzed for C_1-C_6^+ hydrocarbons by EPA Method 18 modified. The gas flow was controlled with a rotameter to collect a 32-minute integrated sample.

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

System Performance Criteria

Instrument Linearity	≤2% Full Scale
Instrument Bias	≤5% Full Scale
System Response Time	≤± 2 minutes
NO_X Converter Efficiency (EPA 7E)	≥ 90%
Instrument Zero Drift	≤± 3% Full Scale
Instrument Span Drift	≤± 3% Full Scale

EPA Method 4-16.4 – Determination of Moisture Content in Stack Gas
This is an acceptable alternative to EPA Method 4 for the determination of moisture using F-factors. The mole fraction of moisture in the ambient air is calculated using equations in EPA Method 4-16.4 from 1) the measured ambient relative humidity, ambient temperature, and barometric pressure, 2) the mole fraction of free water in the fuel, calculated from the moisture % in the fuel, which is determined by the analytical lab to be the balance after all the major

gaseous components have been summed, and 3) the mole fraction of hydrogen in the fuel. To determine the moisture in the fuel, the raw fuel analysis before normalization to 100% is referenced.

EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

This method is used to determine emissions of volatile organics by gas chromatograph/mass spectroscopy (GC/MS). Gaseous emissions are drawn through a Teflon sample transfer line to a Tedlar bag held in a rigid leak proof bag container. The sample is drawn into the bag by evacuating the container to stack gas pressure to allow sample flow without using a pump to avoid contamination. Negative pressure is adjusted to maintain an integrated sample flow for the collection time. The bag samples are taken to a laboratory and analyzed within 72 hours.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates

This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.
301.

EPA Method 25C – Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gas

This method is used to sample and measure NMOC in landfill gases. The method is written for evacuated tank sampling but is adaptable to Tedlar bag sampling procedures. The sampling equipment consists of a stainless steel or glass lined probe with a short stainless-steel or Teflon transfer line to a Tedlar bag housed in a sealed chamber. The chamber is evacuated by pump at a prescribed rate for the test duration and the Tedlar bag capacity, so the sample is integrated over the test period. The sample is injected into a GC column where the methane and CO_2 are flushed through and removed then the NMOC (ROC) fraction is oxidized to form CO_2 then reduced to methane and analyzed.

EPA Method 25A – Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

This method is used to measure total hydrocarbons, methane, and non-methane hydrocarbons in stationary source emissions using a gas chromatograph with a flame ionization detector (GC/FID). Heated Teflon sample gas transfer lines are used to provide a continuous sample to the heated GC/FID hydrocarbon analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test.

EPA Compendium Method TO-15 – Determination of Toxic Organic Compounds in Ambient Air

This method is used to measure volatile organic compounds that are included in the hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990 by GC/MS (gas chromatography/mass spectroscopy). Samples are collected in pre-evacuated 6-Liter SUMMA canisters with pre-set flow controllers set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days for the TO-15 Method list of volatile organics. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consisted of capillary orifice tubing designed to sample for a pre-set duration of 0.75hrs.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography

This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed 7 days.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO Model 42C	$NO/NO_2/NO_X$	Chemiluminescence
TECO Model 48C	CO	GFC/IR
Ratfisch Model RS-55	THC	FID
Servomex 1440	CO_2	IR
Servomex 1440	O_2	Paramagnetic

The analyzer data recording system consists of a Honeywell DPR300 strip chart recorder, supported by a Data Acquisition System (DAS). The instrument response is recorded on strip charts and DAS. The averages are corrected for drift using BAAQMD and EPA Method 7E equations. All system performance criteria were met.

3.6. Comments: Limitations and Data Qualifications

This source test was performed in accordance with the protocol submitted to the BAAQMD. No deviations from the protocol or anomalies were observed during testing. The measured emissions from the flare comply with the permit limits, except the TRS as H_2S, ppm in Fuel exceeded the permit limit.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A.	**Tabulated Results**
B.	**Calculations**
C.	**Laboratory Reports**
D.	**Field Data Sheets**
E.	**Strip Chart Records**
F.	**Process Information**
G.	**QC Calibration Certificates and Quality Assurance Records**
H.	**Sample Train Configuration and Stack Diagrams**
I.	**Related Correspondence (Source Test Plan)**
J.	**Permit to Operate**

A
Tabulated Results

TABLE #1

Redwood Landfill
Flare A-51
1,538°F

RUN	1	2	3	AVERAGE	LIMITS
Test Date	1/14/21	1/14/21	1/14/21		
Test Time	0923-1000	1023-1100	1125-1200		
Standard Temperature, °F	70	70	70		
Flare Temperature, °F Average	1,539	1,538	1,537	1,538	
Fuel Flow Rate, SCFM	738	745	744	742	
Fuel Heat Input, MMBtu/hr	21.6	22.5	22.6	22.2	
Exhaust Flow Rate, DSCFM *(EPA M19)*	13,656	15,000	14,837	14,497	
Oxygen, O_2, %	15.61	15.89	15.82	15.77	
Carbon Dioxide, CO_2, %	4.65	4.20	4.27	4.38	
Water Vapor, H_2O, % *(EPA M4.16)*	4.19	4.27	3.93	4.13	
NO, ppm	8.9	7.8	5.4	7.4	
NO_2, ppm	3.1	2.7	5.3	3.7	
NO_2/NO	0.34	0.34	0.98	0.55	
NOx, ppm	12.0	10.5	10.7	11.1	
NOx, ppm @ 15% O_2	**13.4**	**12.4**	**12.4**	**12.7**	**15**
NOx, lbs/hr	1.17	1.12	1.13	1.14	
NOx, lbs/MMBtu	**0.054**	**0.050**	**0.050**	**0.051**	**0.06**
CO, ppm	23.1	25.6	23.1	23.9	
CO, ppm @ 15% O_2	**25.8**	**30.1**	**26.8**	**27.6**	**82**
CO, lbs/hr	1.37	1.67	1.49	1.51	
CO, lbs/MMBtu	**0.064**	**0.074**	**0.066**	**0.068**	**0.20**
TRS as H_2S, ppm in Fuel	**1,867**	**2,021**	**1,748**	**1,879**	**410**
SO_2, ppm (calculated)	**100.9**	**100.4**	**87.7**	**96.2**	**300**
SO_2, ppm @ 15% O_2	112.6	118.1	101.8	110.9	
SO_2, ppm @ 3% O_2	341.7	358.4	308.9	336.4	
SO_2, lbs/hr	13.70	14.97	12.93	13.87	
SO_2, lbs/MMBtu	**0.64**	**0.66**	**0.57**	**0.62**	**1.69**
THC, ppm *(EPA M25A) (wet)*	8.62	1.89	21.25	10.59	
THC, ppm *(dry)*	9.00	1.97	22.12	11.03	
THC, lbs/hr as CH_4	0.305	0.073	0.815	0.398	
CH_4, ppm *(EPA M18)*	8.8	15.2	14.5	12.8	
CH_4, lbs/hr	0.30	0.57	0.53	0.47	
TNMHC, ppm as CH_4	<1.0	<1.0	7.6	3.2	
TNMHC, lbs/hr as CH_4	<0.03	<0.04	0.281	<0.12	
TNMHC, ppm as hexane (C_6H_{14}) @ 3% O_2	**<0.56**	**<0.60**	**4.48**	**<1.88**	**360**
TNMHC, ppm @ 3% O_2 as CH_4	**<3.4**	**<3.6**	**26.9**	**<11.3**	**30**
INLET TNMOC, ppm *(EPA M25C)*	1,431	1,398	1,548	1,459	**or**
INLET NMOC, lbs/hr as CH_4	2.6	2.6	2.9	2.7	
NMOC Removal Efficiency	**98.71%**	**98.56%**	**90.18%**	**95.82%**	**98**
INLET CH_4, ppm	488,000	504,000	507,000	499,667	
INLET CH_4, lbs/hr	894.0	932.1	936.4	921	
CH_4 Removal Efficiency	**>99.967%**	**>99.939%**	**>99.943%**	**>99.950%**	**99**
INLET THC (TOC), ppm as CH_4	489,431	505,398	508,548	501,126	
INLET THC (TOC), lbs/hr as CH_4	897	935	939	924	
THC (TOC) Removal Efficiency	**99.966%**	**99.992%**	**99.913%**	**99.957%**	**98**

< Value = 2% of Analyzer Range

WHERE,

ppm = Parts per Million Concentration
Lbs/hr = Pound per Hour Emission Rate
Tstd. = Standard Temperature (°R = °F+460)
MW = Molecular Weight
DSCFM = Dry Standard Cubic Feet per Minute
NOx = Oxides of Nitrogen as NO_2 (MW = 46)
CO = Carbon Monoxide (MW = 28)
TOC = THC = Total Organic Carbon as Methane including CH_4 (MW = 16)
THC = Total Hydrocarbons as Methane (MW = 16)
NMOC = Total Non-Methane Organic Carbon as Methane (MW = 16)
TNMHC = Total Non-Methane Hydrocarbon
SO_2 = Sulfur Dioxide as SO_2 (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)
Lbs/hr = ppm * 8.223 E-05 * DSCFM * MW / Tstd. °R
Lbs/day = Lbs/hr * 24
Removal Efficiency = (inlet lbs/hr- outlet lbs/hr) / inlet lbs/hr
TNMHC, ppm as CH_4 = Total Non-Methane Hydrocarbons - Methane
TNMHC, ppm as Hexane = Total Non-Methane Hydrocarbons as Methane / 6

TABLE # 2

Redwood Landfill

Flare A-51

Landfill Gas Characterization

RUN		1	2	3	Average	LIMITS
Sample ID		**R1-LFG-A51**	**R2-LFG-A51**	**R3-LFG-A51**		
Sample Date		**1/14/21**	**1/14/21**	**1/14/21**		
Acrylonitrile	ppb	<501	<271	<324	<365	300
Benzene	ppb	578	531	517	542	1,500
Benzyl Chloride (Chloromethylbenzene)	ppb	<125	<67.7	<81.0	<91.2	500
Carbon Tetrachloride	ppb	<125	<67.7	<81.0	<91.2	200
Chlorobenzene	ppb	<125	<67.7	<81.0	<91.2	200
Chloroethane	ppb	260	130	133	174	500
Chloroform	ppb	<125	<67.7	<81.0	<91.2	200
1,1 Dichloroethane (Ethylidene Dichloride)	ppb	<125	<67.7	<81.0	<91.2	500
1,1 Dichloroethene (Vinylidene Chloride)	ppb	<125	<67.7	<81.0	<91.2	500
1,2 Dichloroethane (Ethylene Dichloride)	ppb	145	146	144	145	200
1,4 Dichlorobenzene	ppb	170	182	<81.0	144.3	1,000
Ethylbenzene	ppb	2,240	2,010	2,210	2,153	4,000
Ethlyene Dibromide (1,2 Dibromoethane)	ppb	<125	<67.7	<81.0	<91.23	200
Hexane	ppb	458	511	518	496	2,000
Isopropyl Alcohol (IPA)	ppb	2,320	2,560	2,870	2,583	10,000
Methyl Alcohol (Methanol)	ppb	3,330	3,280	3,760	3,457	300,000
2-Butanone (Methyl Ethyl Ketone) (MEK)	ppb	4,590	4,870	5,050	4,837	15,000
Methylene Chloride	ppb	<250	<135	<162	<182	1,000
Methyl tert Butyl Ether (MTBE)	ppb	<125	<67.7	<81.0	<91.2	500
Perchloroethylene (Tetrachloroethane)	ppb	<125	<67.7	84.2	<92.3	1,000
Styrene	ppb	133	138	178	150	500
Toluene	ppb	5,060	4,400	4,460	4,640	20,000
1,1,1 Trichlororethane	ppb	<125	<67.7	<81.0	<91.2	200
1,1,2,2 Tetrachloroethane	ppb	<125	<67.7	<81.0	<91.2	200
Trichloroethylene (Trichloroethane)	ppb	<125	<67.7	<81.0	<91.2	500
Vinyl Chloride	ppb	<125	<67.7	<81.0	<91.2	2,000
Xylenes	ppb	4,490	4,270	4,760	4,507	20,000
Carbon Disulfide	ppm	<0.125	<0.068	<0.081	<0.091	
Carbonyl Sulfide (COS/SO_2)	ppm	1.86	1.78	1.89	1.84	
Dimethyl Sulfide	ppm	0.523	0.247	0.219	0.330	
Ethyl Mercaptan	ppm	0.222	0.206	0.202	0.210	
Methyl Mercaptan	ppm	1.34	1.31	1.42	1.36	
Hydrogen Sulfide	ppm	1,854	2,006	1,732	1,864	
TRS as H2S	ppm	1,867	2,021	1,748	1,879	410

Redwood Landfill, Inc

BAAQMD Facility # A1179

Annual Compliance Emissions Test Report #21208

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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For Submittal to:
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San Francisco, CA 94105
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Testing Performed on:
July 12th - 13th, 2021

Final Report Submitted on:
September 10th, 2021

Performed and Reported by:
Blue Sky Environmental, Inc.
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Office (510) 525 1261/Cell (510) 508 3469
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REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (810) 923-3181.

Jeramie Richardson

Project Manager

Blue Sky Environmental, Inc.

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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc was contracted by Waste Management to perform compliance emissions testing at Redwood Landfill, Inc. located in Novato, California. Testing was conducted to demonstrate that the facility's Landfill Gas Flare A-60 (A) and Willexa Gas Treatment and Desorption System (S-71) are operating in compliance with their associated Bay Area Air Quality Management District's (BAAQMD) air contaminant discharge permit. The source test information is summarized in Table 1.1. Test results derived from the source test are summarized in Tables 1.2 and 1.3. Results for individual test runs are included in Appendix A.

Table 1.1 Source Test Information

Test Location:	Redwood Landfill, Inc. 8950 Redwood Highway, Novato, California 94948
Source Contact:	Alisha McCutcheon (415) 892-2851
Source Tested:	Enclosed Landfill Gas Flare A-60 (A) and LFG Treatment & Desorption System (S-71)
Source Test Dates:	July 12th – 13th, 2021
Test Objective:	Determine compliance with Bay Area Air Quality Management District (BAAQMD) Title V Permit A1179, condition 19867 and condition 25635, part 13, and BAAQMD Regulation 8, Rule 34
Test Performed by:	Blue Sky Environmental, Inc 624 San Gabriel Avenue, Albany, CA 94706 Jeramie Richardson (810) 923 -3181 jrichardson@blueskyenvironmental.com
Test Parameters:	**Landfill Gas** O_2, N_2, CO_2, BTU, THC, CH_4, NMOC, HHV, F-Factor, Sulfur & VOC Species, Volumetric Flow Rate, Landfill Gas **Flare Emissions** THC, CH_4, NMOC, NOx, CO, O_2, SO_2, Volumetric Flow Rate, Temperature

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

Emission Parameter	Average Test Result	Permit Limit	Compliance Status
NOx, lb/MMBtu	0.048	0.06	In Compliance
NOx, ppm @ 15% O_2	11.7	15	In Compliance
CO, lb/MMBtu	0.096	0.20	In Compliance
CO, ppm @ 15% O_2	38.5	82	In Compliance
SO_2, ppm	1.00	300	In Compliance
SO_2, lb/MMBtu	0.0051	1.69	In Compliance
NMOC, ppm @ 3% O_2 as CH_4	3.6	30 or	In Compliance
NMOC Destruction Efficiency, %	97.460%	>98%	
CH_4 Destruction Efficiency %	99.973%	>99%	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This performance test was conducted to demonstrate compliance of Enclosed Landfill Gas Flare A-60 (A) with the emission limits specified in Bay Area Air Quality Management District (BAAQMD) Title V Permit A1179, Permit Condition 19867, Part 30 and Permit Condition 25636, Part 4. This testing also satisfies the compliance requirements of BAAQMD Regulation 8 Rule 34.

This report also includes results of fuel gas samples collected from the Willexa Waste Gas Treatment System S-71. There are no compliance limits associated with the results of this system.

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Velocity Traverses
EPA Method 3A	O_2, CO_2
EPA Method 10	CO
EPA Method 25A/ALT-097	THC/CH_4/NMOC
EPA Method 7E	NOx
EPA Method 6C	SO_2
EPA Method 4	Moisture
EPA Method 19	Flow Rate Calculation, DSCFM
EPA Method 25C	LFG Gas analysis for NMOC by GC
EPA Method TO-15	VOC Species
ASTM D-1945/3588	LFG Gas analysis for BTU and F-Factor
ASTM D-5504	Sulfur Species, H_2S and TRS in fuel

2.3. Test Date(s)

Testing was conducted on the Willexa Waste Gas Treatment System S-71 on July 12th . Enclosed Landfill Gas Flare A60 (A) was tested on July 13th, 2021.

2.4. Sampling and Observing Personnel

Testing was performed by Jeramie Richardson, Guy Worthington and Wesley Alder representing Blue Sky Environmental, Inc.

Patrick Madison (WMRE Plant Manager) and Ben Traver (Operator) of Waste Management, and Jonathan Silva of SCS Engineers were present to operate and oversee flare operations and assist in coordinating testing and the collection of process data during testing.

BAAQMD was notified of the scheduled testing in a plan submitted by SCS Engineers on June 14th, 2021. A Source Test Protocol acknowledgement was requested and received by SCS Engineers (NST #6559 and #6560); however, no agency observers were on site during the test program. A copy of the source test protocol and agency correspondence are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill and Recycling Center is a multi-material landfill with gas collection system treated by a Willexa landfill gas treatment system-desorption process (S-71) and abated by a landfill gas enclosed flare (A-60). Flare A-60 is divided into two discreet zones, A and B. Zone A is the large zone, with 4 sampling ports that require unique (not perpendicular) traverses of 133-inches in length. The Willexa treatment system is designed to remove non-methane organics, sulfurs, siloxanes and chlorinated compounds from up to 1,875 SCFM of landfill gas prior to its use as a fuel in the facility's engines. The Willexa treatment system has four cycles, Depress Cycle #1, Regen Cycle, Depress Cycle #2 and Stabilization. The treated waste gas is vented at separate times through 1-inch and 12-inch diameter pipes to zone A of Flare A60.

2.6. Source Operating Conditions

The A60 (A) flare was operated on landfill gas fuel at an average of 1,575 °F during the test program. Process data collected by the facility (LFG and waste gas flow rate records) are provided in Appendix F. There was no condensate injection. LFG flow rate averaged 951 SCFM with an average methane content of 45.7%. The Willexa (S-71) was not purging to the flare during this test.

The Willexa treatment system has main four stages (cycles) consisting of multiple steps that are generally described below:

1 Depress Cycle #1 – 1" line, ~100 SCFM initially for a few minutes. This cycle removes the landfill gas from the vessel and sends it to the Flare and introduces O_2 before the regen cycle starts.

2. Regen Cycle – 12" line from Willexa to the Flare.
   a. Starts at 300 SCFM and ramps up to ~2000 SCFM ~25 minutes.
   b. Once at 2000 SCFM system then starts the heating cycle.
   c. Heats media for an extended time ~ 10-12 hours.
   d. Heat Off, while blower continues to cool down media to 170 degrees or for approximately 6 hours.
   e. Blower ramps down from ~2000 SCFM to 0 SCFM in a few minutes.
   f. Shuts down blower.
3. Depress Cycle #2 – O_2 Purge – 1" line, for ~ 30-45 minutes at ~60 SCFM.
4. Stabilization Cycle – Shuts off valve to flare to stabilize methane.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

The two unequal stack segments (A and B) in Flare A-60 flare present a unique sampling configuration, as the cross-section is neither round, square, rectangular, or oval. The A-60 (A) Flare sampling was conducted via adjacent flange ports, both with a 133 inch traverse path length. The 4-inch flange port was located 35 feet above grade, approximately four stack diameters downstream from the burners and one stack diameter upstream from the exhaust exit. The port was accessed by a 40-foot boom-lift.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental conducted sampling at the mid-point of the Flare A60 (A) stack. The stack was traversed during all three runs. Sampling points for the 12-inch diameter stack were 4.3, 14.0, 25.8, 43.0, 90.0, 107.2, 119.0 and 128.7 inches.

The Willexa (S-71) stack was also traversed during all three runs. Sampling points for the 12-inch diameter stack were 0.5, 1.3, 2.3, 3.9, 8.1, 9.7, 10.7 and 11.6 inches.

3.3. Sample Train Description

Sampling system diagrams are provided in Appendix H. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Description

Three 32-minute test runs were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4), and non-methane organic compounds (NMOC) at the flare exhaust.

The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Concurrent with the exhaust sampling, Blue Sky collected a total of ten integrated 6-liter summa canister samples. Three LFG samples were collected from the Flare A60-A exhaust and analyzed for M18. An additional three LFG samples were collected from the A-60-A Flare One sample of the Willexa 1" purge line was collected. Three samples of the Willexa 12-inch purge gas were sampled. The samples were collected using Teflon tubing connections that were filled and purged prior to sampling. All the samples were analyzed for NMOC, HHV, F-Factor, Fixed Gases and Sulfur Species (incl. H_2S and TRS) and VOC Compounds.

Waste gas testing occurred over an approximate 5 hour period on July 12th, 2021. Testing was performed during the period of highest concentrations of emissions from the Willexa treatment system. The first event is the LFG purge of the 1-inch line to the Flare. The second and third events were integrated samples taken a period spanning Steps 6,7,8 and 9. During this period the

flows were recorded using an Shortridge AIRFOIL pitot fixed in the center of the duct approximately every 15 seconds, additional flows were performed using EPA Method 2 using a standard pitot tube.

The sampling and analysis methods are summarized below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 3 – Gas Analysis for the Determination of Dry Molecular Weight
This method is used to determine the dry molecular weight of stack gas. Measurements of gas constituents % O_2 and % CO_2 were made by BAAQMD Methods ST-14 and ST-5.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DPR3000 strip chart recorder supported by a Data Acquisition System (DAS).

System Performance Criteria

Instrument Linearity	≤ 2% Full Scale (checked)
Instrument Bias	≤ 5% Full Scale (checked)
System Response Time	≤± 2 minutes (checked)
NOx Converter Efficiency *(EPA Method 7E)*	≥ 90% (checked)

EPA Method ALT-097 Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

This is an acceptable alternative to EPA Method 25A for the determination of total hydrocarbons, methane, and non-methane organic compounds in stationary source emissions. The test uses TECO 55C GC/FID methane/non-methane analyzer. Heated Teflon sample gas transfer lines are used to provide a continuous sample to the analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. A system linearity check is performed prior to testing and during testing and calibration drift checks are performed after every run. All data is corrected according to EPA Method 25A.

EPA Method 4 – Determination of Moisture Content in Stack Gas

This method is used to determine the moisture content of stack gas. The sample is extracted and condensed in Greenburg-Smith impingers immersed in an ice bath and in a final impinger silica gel trap. The moisture is condensed in a solution of de-ionized water, or solutions of another type of sampling train if the moisture is being determined as part of another sampling method, such as EPA Method 5, SCAQMD Method 201.7 or BAAQMD ST-32. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively. QA/QC procedures require that a minimum of 21 cubic feet of sample is pulled using a leak tight pump. The sample volume is measured with a calibrated dry gas meter. The impingers are immersed in an ice bath to maintain a gas outlet temperature of less than 68°F. Pre-test leak checks are performed for each run using a minimum 15 inches of mercury vacuum. Post-test leak checks are performed at the highest sample vacuum or greater. The leak test is acceptable if the leak rate is less than 0.02 cubic feet per minute or 4% of the average sampling rate, whichever is less. If the final leak check exceeds the criteria, either the volume is corrected based on the leak rate or the run is voided and repeated.

EPA Compendium Method TO-15 – Determination of Toxic Organic Compounds in Ambient Air

This method is used to measure volatile organic compounds that are included in the hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990 by GC/MS (gas chromatography/mass spectroscopy). Samples are collected in pre-evacuated 6-Liter SUMMA canisters with pre-set flow controllers set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days for the TO-15 Method list of volatile organics. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consisted of capillary orifice tubing designed to sample for a pre-set duration of 0.75hrs.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography
This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence
This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates
This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

Willexa Gas Samples			
07/12/21	LFG Gas Sample	Willexa Purge Gas Sample 12”	Willexa Purge Gas Sample 1”
Run 1-Step 1 1333 - 1356	-		1”-2
Run 2 1357 - 1624	-	12” - 1	-
Run 3 1625 - 1805	-	12” - 2	-
LFG Gas Samples			
07/13/21	-	-	-
Run 1 1326 - 1413	R1-LFG-A60	-	-
Run 2 1443 - 1530	R2-LFG-A60	-	-
Run 3 1601 - 1646	R3-LFG-A60	-	-

The inlet volumetric Flow Rate and Flare Temperature was continuously measured and recorded by the facility Yokogawa monitors.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO 43C	SO_2	Pulsed Fluorescence
TECO 42C	NO_x	Chemiluminescence
TECO 48C	CO	GFC/IR
TECO 55C	$THC/CH_4/NMOC$	FID
Servomex 1440	CO_2	IR
Servomex 1440	O_2	Paramagnetic

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of Omega 8 channel strip chart recorders, which can be supported by a Data Acquisition System (DAS).

The instrument response was recorded on strip charts and DAS and some data is manually reduced. The averages were corrected for drift using BAAQMD & EPA Method 7E equations.

3.6. Summary and Comments

This source test was performed in accordance with the protocol submitted to BAAQMD. No deviations from the protocol or anomalies were observed during testing.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk. Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A. Tabulated Results

B. Calculations

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F. Process Information

G. Calibration Gas Certificates & Equipment Calibrations

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I. Related Correspondence (Source Test Plan)

J. Permit to Operate

K. Willexa Purge Gas Characterization Results

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- K-2. Calculations
- K-3. Flow Measurements, Field Data Sheets & Calibrations
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A
Tabulated Results

TABLE #1

Redwood Landfill, Inc
Flare A-60 (A)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	7/13/21	7/13/21	7/13/21		
Test Time	1326 - 1413	1443 - 1530	1601 - 1646		
Standard Temperature, °F	70	70	70		
Process Parameters:					
Flare Temperature, °F	1,575	1,576	1,575	1,575	
Fuel Gas:					
LFG Fuel Flow Rate, SCFM	953	950	950	951	
Total Fuel Heat Input, MMBtu/hr	25.2	25.7	25.9	25.6	
Total Reduced Sulfur Compounds as H_2S, ppm	465	542	529	512	410
Inlet CH_4, ppm	449,000	460,000	463,000	457,333	
Inlet CH_4, lb/hr	1,062	1,084	1,091	1,079	
Inlet NMOC, ppm as CH_4 *(EPA Method 25C)*	748	701	705	718	
Inlet NMOC, lb/hr as CH_4	1.77	1.65	1.66	1.69	
Inlet THC, ppm as CH4	1,064	1,086	1,093	1,081	
Stack Gas:					
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	13,225	12,952	13,183	13,120	
Oxygen (O_2), % volume dry	14.5	14.2	14.3	14.3	
Carbon Dioxide (CO_2), % volume dry	5.8	6.1	6.1	6.0	
Moisture (H_2O), % volume dry	6.5	8.3	7.8	7.5	
NO_X Emissions (reported as NO_2):					
NOx, ppm	11.6	13.0	14.8	13.1	
NOx, ppm @ 15% O_2	10.6	11.4	13.1	11.7	15
NOx, lb/hr	1.10	1.20	1.39	1.23	
NOx, lb/MMBtu	0.044	0.047	0.054	0.048	0.06
NO, ppm	11.5	12.8	14.6	12.9	
NO_2, ppm	0.15	0.20	0.18	0.18	
CO Emissions:					
CO, ppm	48.9	39.8	40.1	42.9	
CO, ppm @ 15% O_2	44.8	35.0	35.6	38.5	82
CO, lb/hr	2.81	2.24	2.30	2.45	
CO, lb/MMBtu	0.112	0.087	0.089	0.096	0.20
Sulfur Dioxide (SO_2) Emissions:					
SO_2, ppm (calculated)	0.88	1.08	1.04	1.00	300
SO_2, lb/hr	0.12	0.14	0.14	0.13	
SO_2, lb/MMBtu	0.0046	0.0054	0.0053	0.0051	1.69
THC Emissions (reported as CH_4):					
THC, ppm *(EPA Method ALT 097)*	13.9	11.1	5.8	10.3	
THC, lb/hr	0.46	0.36	0.19	0.33	
THC Destruction Efficiency, %	99.957%	99.967%	99.983%	99.969%	
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method ALT 097)*	11.7	9.0	4.2	8.3	
CH_4, ppm	12.5	9.8	4.5	8.9	
CH_4, lb/hr	0.41	0.32	0.15	0.29	
CH_4 Destruction Efficiency, %	99.961%	99.971%	99.986%	99.973%	> 99%
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method ALT 097)*	1.3	1.2	1.2	1.2	
NMOC, ppm	1.4	1.3	1.3	1.3	
NMOC, lb/hr as CH_4	0.047	0.041	0.042	0.043	
NMOC, ppm @ 3% O_2	4.0	3.4	3.4	3.6	30 or
NMOC Destruction Efficiency, %	97.356%	97.536%	97.488%	97.460%	>98%

WHERE,

ppm = parts per million concentration by volume expressed on a dry gas basis
lb/hr = pound per hour emission rate
Tstd. = standard temperature (°R = °F+460)
MW = molecular weight
DSCFM = dry standard cubic foot per minute
NO_X = oxides of nitrogen, reported as NO_2 (MW = 46)
CO = carbon monoxide (MW = 28)
THC = total hydrocarbons reported as methane (MW = 16)
NMOC = non-methane organic compounds, reported as methane
SO_2 = sulfur dioxide (MW = 64.1)

CALCULATIONS,

PPM @ 15% O_2 = ppm · 5.9 / (20.9 - %O_2)
PPM @ 3% O_2 = ppm · 17.9 / (20.9 - %O_2)
lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
lb/MMBtu = (lb/hr)/(MMBtu/hr)
lb/day = lb/hr · 24
Destruction Efficiency = (inlet lb/hr- outlet lb/hr) / inlet lb/hr
<Value = <2% of Analyzer Range
ppm dry = ppm wet · 100 / (100 - %$H_2$0)
SO_2 emission ppm = H_2S in fuel * fuel flow rate / stack gas flow rate

TABLE #2

Redwood Landfill, Inc

Landfill Gas Characterization

Parameter		Units	LFG-1	LFG 2	LFG 3	Permit Limits
Test Date			7/13/21	7/13/21	7/13/21	
Average NMOC as Hexane		ppm	125	117	118	
EPA TO-15 Results:						
Acrylonitrile		ppb	<13.8	<26.6	<28.4	300
Benzene		ppb	106	471	456	1,500
Benzyl Chloride	Chloromethylbenzene	ppb	<121	<232	<248	500
Carbon Tetrachloride		ppb	<60.3	<116	<124	200
Chlorobenzene		ppb	<60.3	<116	<124	200
Chloroethane		ppb	146	<116	203	500
Chloroform		ppb	<60.3	<116	<124	200
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<60.3	<116	<124	500
1,1 Dichloroethene	Vinylidene Chloride	ppb	<60.3	<116	<124	500
1,2 Dichloroethane	Ethylene Dichloride	ppb	<60.3	<116	<124	200
1,4 Dichlorobenzene		ppb	<60.3	123	<124	1,000
Ethylbenzene		ppb	467	2,210	2,190	4,000
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<60.3	<116	<124	200
Hexane		ppb	132	583	533	2,000
Isopropyl Alcohol	IPA	ppb	525	2,610	2,450	10,000
Methyl Alcohol	Methanol	ppb	1,130	4,000	3,710	300,000
Methyl Ethyl Ketone	MEK	ppb	804	3,530	3,320	15,000
Methylene Chloride		ppb	<121	<232	<248	1,000
Methyl tert Butyl Ether	MTBE	ppb	<60.3	<116	<124	500
Perchloroethylene	Tetrachloroethylene	ppb	<60.3	<116	<124	1,000
Styrene		ppb	<60.3	<116	<124	500
Toluene		ppb	907	3,890	3,850	20,000
1,1,1 Trichlororethane		ppb	<60.3	<116	<124	200
1,1,2,2 Tetrachloroethane		ppb	<60.3	<116	<124	200
Trichloroethylene	Trichloroethene	ppb	<60.3	<116	<124	500
Vinyl Chloride		ppb	<60.3	<116	<124	2,000
Xylenes		ppb	874	4,060	3,970	20,000
ASTM D-5504 Results:						
Carbon Disulfide		ppm	<0.121	<0.116	<0.124	
Carbonyl Sulfide	COS	ppm	0.291	0.496	0.975	
Dimethyl Sulfide		ppm	0.359	0.301	0.359	
Ethyl Mercaptan		ppm	<0.121	0.177	0.141	
Methyl Mercaptan		ppm	0.780	0.819	0.835	
Hydrogen Sulfide		ppm	460	537	524	
Total Reduced Sulfur Compounds as H_2S		ppm	465	542	529	410

K
Willexa Purge Gas Characterization Results

K-1
Summary Tables

TABLE # 3

REDWOOD LANDFILL

7/12/21

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			7/12/21	7/12/21	7/12/21
Test Time					
GAS FLOW VELOCITY, SFPM			2,385	2,075	2,198
GAS MOISTURE, % (WB/DB)			4.8	4.9	4.0
GAS FLOW RATE, SCFM			13	1,630	1,727
GAS FLOW RATE, DSCFM			12	1,550	1,657
O_2		%	0.7	21.2	21.2
N_2		%	13.6	76.1	78.7
CO_2		%	38.6	<3.2	<0.3
CH_4		%	47.1%	0.4%	0.0%
TRS as H2S		ppm	<0.150	0.210	<0.129
NMOC (as Carbon)		ppm	94	28	<7.7
NMOC (as Hexane)		ppm	16	5	<1.3
Acrylonitrile		ppb	<120.0	<56.6	<51.60
Benzene		ppb	<29.90	66.2	<12.90
Benzyl Chloride	Chloromethylbenzene	ppb	<59.80	<28.30	<25.80
Carbon Tetrachloride		ppb	<29.90	<14.10	<12.90
Chlorobenzene		ppb	<29.90	32.0	<12.90
Chloroethane		ppb	125	<28.30	<25.80
Chloroform		ppb	<29.90	<14.10	<12.90
1,1 Dichloroethane	Ethylidene Dichloride	ppb	<29.90	<14.10	<12.90
1,1 Dichloroethene	Vinylidene Chloride	ppb	<29.90	<14.10	<12.90
1,2 Dichloroethane	Ethylene Dichloride	ppb	<29.90	<14.10	<12.90
1,4 Dichlorobenzene		ppb	<29.90	<14.10	<25.80
Ethylbenzene		ppb	159.0	709.0	<12.90
Ethlyene Dibromide	1,2 Dibromoethane	ppb	<29.90	<14.10	<12.90
Hexane		ppb	<29.90	<14.10	<12.90
Isopropyl Alcohol	2-propanol(IPA)	ppb	<120.00	<56.60	<51.60
Methyl Alcohol	Methanol	ppb	2,810	3,410	1,610
Methyl Ethyl Ketone	MEK	ppb	<59.80	79.5	55.5
Methylene Chloride		ppb	<59.80	37.4	<25.80
Methyl tert Butyl Ether	MTBE	ppb	<29.90	<14.10	<12.90
Perchloroethylene (PCE)	Tetrachloroethylene	ppb	<29.90	14.7	<12.90
Styrene		ppb	<29.90	148.0	23.7
Toluene		ppb	221	1,520	63.7
1,1,1 Trichlororethane		ppb	<29.90	<14.10	<12.90
1,1,2,2 Tetrachloroethane		ppb	<29.90	<14.10	<12.90
Trichloroethylene (TCE)	Trichloroethene	ppb	<29.90	<14.10	<12.90
Vinyl Chloride		ppb	53.9	<14.10	<12.90
Xylenes		ppb	700.0	2463.0	423.0
Carbon Disulfide		ppm	<0.150	<0.141	<0.129
Carbonyl Sulfide		ppm	<0.150	<0.141	<0.129
Dimethyl Sulfide		ppm	<0.150	0.210	<0.129
Ethyl Mercaptan		ppm	<0.150	<0.141	<0.129
Methyl Mercaptan		ppm	<0.150	<0.141	<0.129
Hydrogen Sulfide		ppm	<0.150	<0.141	<0.129
TRS as H2S		ppm	<0.150	0.210	<0.129

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 #21209
Landfill Gas Engines-Source S-64 and S-65

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

Prepared for:
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Testing Performed on:
July 14th - 15th, 2021

Final Report Submitted on:
September 13th, 2021

Performed and Reported by:
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Office (510) 525 1261/Cell (510) 508 3469
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REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (925) 338 - 4875.

Chuck Arrivas, QSTI

Project Manager

Blue Sky Environmental, Inc.

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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by SCS Engineers to perform annual emissions testing for Waste Management at Redwood Landfill, Inc. located in Novato, California. Testing was conducted to demonstrate that the facility's two 2,739 BHP landfill gas-fired lean-burn IC engines are operating in compliance with their associated Bay Area Air Quality Management District's (BAAQMD) air contaminant discharge permit. The source test information is summarized in Table 1.1. Test results derived from the source test are summarized in Tables 1.2 and 1.3. Results for individual test runs are included in Appendix A. The engines met all compliance emission criteria.

Table 1.1 Source Test Information

Test Location:	Redwood Landfill, Inc. 8950 Redwood Highway, Novato, California 94948
Source Contact:	Alisha McCutcheon (415) 892-2851
Source Tested:	Engine #1 (S-64) – 2,739 BHp Caterpillar model G3502C landfill gas-fired IC engine equipped with oxidation catalyst and SCR with urea injection (S/N LGS00188). Engine #2 (S-65) – 2,739 BHp Caterpillar model G3502C landfill gas-fired IC engine equipped with oxidation catalyst and SCR with urea injection (S/N LGS01189).
Source Test Date:	July 14th – 15th, 2021
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 Chuck Arrivas (925) 338 - 4875 carrivas@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-65), NH_3, Formaldehyde (S-65) & 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	0.073	0.15	In Compliance
CO, g/BHp-hr	0.057	1.8	In Compliance
SO_2, ppm @ 15% O_2	<0.0067	9	In Compliance
SO_2, g/BHp-hr	<0.00013	0.18	In Compliance
Ammonia, ppm @ 15% O_2	0.65	10	In Compliance
CH_4, ppm @ 15% O_2	497.0	3,000	In Compliance
NMOC, ppm @ 15% O_2 as CH_4	3.53	32	In Compliance
NMOC, g/BHp-hr as CH_4	0.017	0.16	In Compliance
TRS in fuel, ppm as H_2S	<0.110	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	0.053	0.15	In Compliance
CO, g/BHp-hr	0.056	1.8	In Compliance
SO_2, ppm @ 15% O_2	<0.0077	9	In Compliance
SO_2, g/BHp-hr	<0.00013	0.18	In Compliance
Ammonia, ppm @ 15% O_2	0.46	10	In Compliance
CH_4, ppm @ 15% O_2	388.5	3,000	In Compliance
NMOC, ppm @ 15% O_2 as CH_4	10.5	32	In Compliance
NMOC, g/BHp-hr as CH_4	0.043	0.16	In Compliance
Formaldehyde, lb/hr	0.0023	0.51	In Compliance
Total Particulate, as PM_{10}, g/BHp	0.011	0.10	In Compliance
TRS in fuel, ppm as H_2S	<0.114	150	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This annual test was performed to demonstrate compliance of Engine #1 (S-64) and Engine #2 (S-65) with the emission limits specified in Bay Area Air Quality Management District (BAAQMD) Permit to Operate (PTO) for Facility 1179, Permit Condition 25635, Part 13. This testing also satisfies compliance requirements of 40 CFR 60, Subpart JJJJ – New Source Performance Standards for Spark Ignition Internal Combustion Engines

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA), Bay Area Air Quality Management District (BAAQMD), California Air Resources Board (CARB) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Velocity Traverses
EPA Method 2	Flow Rate Calculation, DSCFM
EPA Method 3A	O_2, CO_2
EPA Method 10	CO
EPA Method ALT-078	NMOC, CH_4
EPA Method 7E	NO_X
EPA Method 19	Flow Rate Calculation, DSCFM
EPA Method 25C	LFG Gas analysis for NMOC by GC
ASTM D-1945/3588	LFG Gas analysis for BTU and F-Factor
ASTM D-5504	Sulfur Species, H_2S and TRS
CARB Method 430	Formaldehyde
BAAQMD ST-1B/1A	NH_3
EPA Method 5/202	Particulate Matter (PM_{10} as total PM)

2.3. Test Date(s)

Testing was conducted on July 14th – 15th, 2021.

2.4. Sampling and Observing Personnel

Testing was performed by Chuck Arrivas, Wesley Alder and Timothy Eandi representing Blue Sky Environmental, Inc.

Jon Silva of SCS Engineers and Michael Chan of Waste Management, were present to operate and oversee the Engine operations and assist in coordinating testing and the collection of process data during testing.

EPA and BAAQMD were notified of the scheduled testing in a plan submitted on June 11th, 2021. Source Test Protocol acknowledgements were received by Blue Sky Environmental (NST #6557 S-64 and NST #6558 S-65). No agency observers were on site during the test program. A copy of the source test protocol and BAAQMD acknowledgments are provided in Appendix I.

2.5. Source/Process Description

Redwood Landfill and Recycling Center generates clean renewable electricity from landfill gas produced from decomposing organic materials received at the site. The facility operates two identical 2,739 Bhp-hr Caterpillar G3502C, landfill gas engines equipped with oxidation catalysts and SCR with urea injection. Engine #1 (S-64) and Engine #2 (S-65) emissions vent through 30-inch diameter stacks (inner diameter approx. 28.5 inches).

2.6. Source Operating Conditions

The engines were operated on biogas fuel under normal conditions during the test program. Process data provided by the facility was recorded at 5-minute intervals. The operating kilowatt (kW) and fuel flow rate records are provided in Appendix F.

The average values are listed below.

Parameter	Engine #1 (S-64)	Engine #2 (S-65)
Generator Load, kW	1,870	1,874
Fuel Consumption Rate, SCFM	663	652

LFG samples collected at the header of Engine #1 (S-64) showed that the methane quality averaged 48.5% and the Oxygen content was 0.83%. LFG samples collected at the header of Engine #2 (S-65) showed that the Methane quality averaged 44.1% and the Oxygen content was 2.17%. Additional LFG data is provided in Appendix C.

Engine serial numbers and hours of operation at time of test

Engine #1 (S-64), SN: LGS00188, Hours of Operation: 33,710

Engine #2 (S-65), SN: LGS00189, Hours of Operation: 32,939

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

Sampling was conducted at the 30-inch diameter exhaust stack of each engine through 4-inch ports that were accessible from ground-level. Sampling ports were located approximately four stack diameters downstream from the nearest disturbance and approximately 1 ½ stack diameters upstream of nearest disturbance or exhaust.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental, Inc. conducted two perpendicular 12-point traverses of each stack to check for the presence of cyclonic flow. The traverse points for the 30-inch diameter stacks with 4-inch deep ports were 0.6, 1.9, 3.4, 5.1, 7.3, 10.3, 18.7, 21.8, 23.9, 25.6, 27.1 and 28.4 inches from the stack wall. Stratification was less than 10%; however, subsequent CEM and PM sampling was conducted using a full traverse across two axis of the stack. Ammonia and formaldehyde samples were collected from a point mid-stack.

3.3. Sample Train Descriptions

Sampling system diagrams are included in the Appendix G. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Descriptions

Three consecutive 60-minute gaseous emissions tests were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), ammonia (NH_3), methane (CH_4), and non-methane organic compounds (NMOC) at each engine exhaust stack.

The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Three 60-minute tests for particulate matter (PM) and three 30-minute test runs for formaldehyde were performed on Engine #2 (S-65).

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of six digester gas samples (three per engine) to determine the average Btu value by ASTM D-1945, and sulfur content by ASTM D-5504. The samples were collected in 6-liter SUMMA cannisters and analyzed by Atmospheric Analysis & Consulting, Inc (AAC) in Ventura, CA. Laboratory test results are provided in Appendix C.

The sampling and analysis methods are summarized below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

CARB/EPA Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
This method is used to determine the average velocity and the volumetric flow rate of stack gas using a standard S-type pitot tube and inclined manometer. Temperature is monitored using a K-type thermocouple and calibrated Omega temperature meter. The entire sampling system is leak checked prior to and at the end of the sampling program. Thermometer calibrations are performed using an Omega Model CL-601K simulator. Geometric calibrations of S-type pitot tubes are performed every 6 months or according to the guidelines outlined in California Air Resources Board (CARB) QA/QC Volume VI, Table 3.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)
This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. Section 16.2.2 of the method is used to determine the NO_X analyzer NO_2 to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources
This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point.

EPA Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

EPA Method 5 – Determination of Particulate Matter Emissions from Stationary Sources
This method is used to determine filterable particulate matter (PM) emissions from stationary sources. Particulate matter is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at 248 ± 25°F. The sampling equipment consists of a stainless steel or glass nozzle, a heated probe, heated filter box and filter holder with glass fiber filter, followed by a Teflon line and umbilical to four Greenburg-Smith impingers, a pump and a meter control module. Filterable particulate is determined gravimetrically from the probe/nozzle acetone rinse and filter, following evaporation and desiccation of these fractions. The first two impingers contain 100ml of de-ionized water each, a third short-stem impinger is left empty and the fourth impinger contains silica gel desiccant to dry the gas before the pump and gas meter. Moisture is condensed in the solution of de-ionized water and absorbed in the silica gel. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively.

QA/QC: consists of pitot leak checks performed by pressurizing each leg of the pitot separately to a pressure greater than 3" H2O. The leak check is passed when no movement in the manometer fluid occurs over 15 seconds. Sampling system leak checks are performed before and after each test run by capping the nozzle, then pulling a vacuum greater than 15 inches of mercury and observing the meter rate. The leak check is passed, when the leak rate is less than 0.02 CFM or 4% of the average sample rate, whichever is less. The final leak check is performed at a vacuum at least as high as the highest vacuum pulled during the run. The impingers are kept in ice to maintain the temperature of the gas exiting the last impinger to below 68°F. No silicone grease is used on the components of the sampling train. The dry gas meter, pitot, thermocouples, gauges, and nozzles are all calibrated according to the methods and with a frequency of between 6 to 12 months as specified in CARB QA/QC Volume VI, Table 3. Nozzles are calibrated in the field to within 0.001" diameter and are inspected for damage prior to each test. Acetone rinse blanks are collected using equipment, reagents, proportions, and techniques that are identical to the test samples.

EPA Method 202 – Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources
This method is used to measure condensable particulate matter (CPM) emissions from stationary sources after filterable particulate matter (PM) has been removed. The concentrations and emission rates of PM_{10} are measured using a combination of EPA Methods 5 and EPA Method 202. The CPM is collected in dry impingers followed by a nitrogen purge after filterable PM has been collected. Test runs are ≥60 minutes in duration to collect sufficient sample volume to provide detection limits low enough to determine compliance with the permit conditions.
The apparatus includes a Pyrex/quartz sampling nozzle and Pyrex/quartz probe liner attached to a glass filter holder with glass-fiber filter heated to 248 ± 25°F. The filter holder is mounted to the end of the probe liner, which is attached to a length of heated Teflon tubing to connect the filter holder to the impinger train. The impinger train is connected to the control box, which contains the sampling pump and dry gas meter. A nozzle size is chosen to allow isokinetic sampling (i.e., within 10%) at all the traverse points at the calculated sampling rate.

The filterable "front-half" PM_{10} is recovered from the sampling apparatus as described in EPA Method 5. The sample fractions include the rinses of the internal sections of the nozzle, probe liner, the front-half of the filter holder, and the filter. The sample fractions are analyzed gravimetrically to determine the concentration of filterable PM_{10}.

The "back-half" contents are recovered and analyzed for condensable PM_{10} as described in EPA Method 202. The probe extension, condenser and first impinger contents are rinsed with water into the second impinger. Water is added as necessary for the subsequent purge. The condenser

and first impinger are reattached to the second impinger and the condenser, and the impingers and CPM filter are purged with nitrogen for one hour.

After the purge, the sample is recovered in three fractions: 1) the CPM filter, 2) the water contents and rinses of the condenser, impingers, and filter holder, and 3) the acetone/hexane rinses of the condenser, impingers, and filter holder. The sample containers are transported to an environmental testing laboratory for analysis.

CARB Method 430 – Determination of Formaldehyde and Acetaldehyde in Emissions from Stationary Sources

This method is used to determine emissions of aldehydes and ketone compounds from stationary sources. Gaseous emissions are drawn through a short 1/8 inch Teflon sample line and two midget impingers in series, each containing a 10 ml aqueous acidic solution of 2,4-dinitrophenyl-hydrazine (DNPH). Ice is used to cool the impingers during sampling. The sample is drawn at a rate of 0.1 to 0.5 liters per minute for 12 to 60 minutes. After organic solvent extraction, the samples are analyzed using reverse phase HPLC with an ultraviolet (UV) absorption detector operated at 360 nm. Each impinger is analyzed separately.

EPA Method 25A/ALT-078: Sampling for Total Hydrocarbons, Methane and Non-Methane Hydrocarbons. EPA Method 25A (FID/GC Method) employs a heated TECO 55C FID with GC column, heated Teflon sample gas transfer lines to provide a continuous sample to the heated FID/GC Hydrocarbon Analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation. Methane is determined by the calibrated GC method in the TECO 55C NMHC/CH_4/THC Analyzer. Calibration gases are selected to fall within 25-35%, 45-55% and 80-90% of Range for Methane, Total Hydrocarbon and Non-Methane Hydrocarbons

EPA Method 25C – Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gas

This method is used to sample and measure NMOC in landfill gases. Gases are collected in a pre-evacuated 6-Liter SUMMA canister with pre-set flow controller set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consists of capillary orifice tubing designed to sample for a pre-set duration of 0.5 hrs. The sample is injected into a GC column where the methane and CO_2 are flushed through and removed then the NMOC (ROC) fraction is oxidized to form CO_2 then reduced to methane and analyzed.

EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

This method is used to determine emissions of volatile organics by gas chromatograph/mass spectroscopy (GC/MS). Gaseous emissions are drawn through a Teflon sample transfer line to a Tedlar bag held in a rigid leak proof bag container. The sample is drawn into the bag by evacuating the container to stack gas pressure to allow sample flow without using a pump to avoid contamination. Negative pressure is adjusted to maintain an integrated sample flow for the collection time. The bag samples are taken to a laboratory and analyzed within 72 hours.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates

This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

BAAQMD Source Test Procedure ST-1B – Ammonia Integrated Sampling

This method is used to quantify ammonia emissions and determine compliance with Regulation 7-303. The sample is extracted from the gas stream using a Teflon or stainless-steel probe and the ammonia is condensed/adsorbed in two Greenburg-Smith impingers containing 200ml of 0.1N HCl, followed by an empty knock-out impinger, and a fourth impinger containing 200g of pre-weighed silica gel. The moisture gained is determined volumetrically and gravimetrically. A minimum of 20 cubic feet of sample is pulled using a leak tight pump and sampling assembly and the volume is measured with a calibrated dry gas meter. Ammonia is analyzed according to BAAQMD Analytical Procedure Lab-1 with a Specific Ion Electrode, or Nessler's reagent and a spectrophotometer. Results are recorded on the field data sheet. The entire sampling system is leak checked prior to and at the end of each test run. All the sampling equipment is calibrated according to CARB schedules and this documentation is included in the final report. Reagent blanks are collected. Analytical QA/QC includes testing a reagent blank, laboratory blanks, and sample duplicates.

BAAQMD Method 1A – Determination of Ammonia in Effluents Collected in Acid Media using the Specific Ion Electrode

This method is used to determine the ammonia content in effluents absorbed in a dilute HCl solution according to BAAQMD Source Test Procedure ST-1B. A 49ml aliquot of sample is placed into a clean polypropylene beaker and made alkaline with the addition of an ammonia pH adjusting solution. This releases the ammonia for determination by the specific ion electrode method. The sample is placed on top of a magnetic stirrer and a clean Teflon coated magnetic stirring bar is added. The ammonia-specific ion electrode is placed into the sample and a concentration of ammonia (as N_2) is displayed on the meter.

An Orion 920A pH/Concentration/ISE meter with an Orion #95-11 ion-specific electrode is calibrated with 1mg/ml and 10mg/ml ammonia (NH_3) as nitrogen (N_2). The ammonia working standards are produced by diluting 100mg/ml ammonia as nitrogen with 0.1N HCl in 100:1 and 10:1 ratios, respectively. The standards are enhanced with a pH adjusting ionic strength adjuster to help the electrode read the nitrogen more effectively. Once the calibration is completed, the meter will calculate a standard curve for the electrode. The standard curve is acceptable between –54mv (millivolts) and –60mv.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography

This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

3.5. Instrumentation and Analytical Procedures

The following continuous emissions analyzers were used

Instrumentation	Parameter	Principle
TECO Model 42C	$NO_X/NO/NO_2$	Chemiluminescence
TECO Model 48C	CO	GFC/IR
Servomex Model 1440	CO_2	Infrared (IR)
Servomex Model 1440	O_2	Paramagnetic
TECO Model 43C	SO_2	Pulsed Fluorescence
TECO Model 55C	$THC/CH_4/NMOC$	Flame Ionization (FID)

3.6. System Performance Criteria

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DPR 3000 chart recorder, supported by a Data Acquisition System (DAS). The instrument response is recorded on strip charts and DAS. The averages are corrected for drift and bias using EPA Method 7E equations. All system performance criteria were met.

Instrument Linearity	≤2% Full Scale
Instrument Bias	≤5% Full Scale
System Response Time	≤± 2 minutes
NO_X Converter Efficiency *(EPA Method 7E)*	≥ 90%
Instrument Zero Drift	≤± 3% Full Scale
Instrument Span Drift	≤± 3% Full Scale

3.7. Comments: Limitations and Data Qualifications

This source test was performed in accordance with the protocol submitted to BAAQMD. No deviations from the protocol or anomalies were observed during testing. The measured emissions comply with the permitted limits.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A. Tabulated Results

B. Calculations

C. Laboratory Reports

D. Field Data Sheets

E. Process Information

F. Calibration Certificates and Quality Assurance Records

G. Sample Train Configuration and Stack Diagrams

H. Related Correspondence (Source Test Plan)

I. Bay Area Air Quality Management District (BAAQMD) PTO

A
Tabulated Results

TABLE #1

Redwood Landfill, Inc
Engine #1 (S-64)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	7/14/21	7/14/21	7/14/21	--	
Test Time	1059-1202	1226-1335	1355-1500	--	
Standard Temperature, °F	70	70	70	--	
Process Parameters:					
Generator, kW	1,870	1,867	1,873	1,870	
Engine, BHp	2,605	2,601	2,609	2,605	
Urea Injection Rate, gph	0.86	0.86	0.86	0.86	
Fuel Gas:					
Fuel Flow Rate, SCFM	664.2	662.7	661.0	662.6	
Fuel Gross Calorific Value, Btu/cf @ 60°F	485.0	504.3	484.0	491.1	
Fuel Fd-Factor, DSCF/MMBtu @ 60°F	9,489	9,442	9,468	9,467	
Inlet TNMOC, ppm *(EPA Method 25C)*	96.5	130	156	128	
Inlet NMOC, lb/hr as CH_4	0.2	0.2	0.3	0.2	
Inlet CH_4, ppm	479,000	498,000	478,000	485,000	
Inlet CH_4, lb/hr	789.8	819.2	784.3	797.8	
H_2S, ppm *(ASTM D5504)*	<0.103	<0.103	<0.124	<0.110	
TRS as H_2S, ppm *(ASTM D5504)*	<0.103	<0.103	<0.124	<0.110	150
Stack Gas:					
SCR Temperature, °F	825	825	825	825	
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	5,839	5,943	5,842	5,875	
Oxygen (O_2), % volume dry	10.0	9.8	10.1	9.9	
Carbon Dioxide (CO_2), % volume dry	9.2	9.4	9.5	9.4	
Moisture (H_2O), % volume dry	9.4	11.8	9.8	10.3	
NO_X Emissions (reported as NO_2):					
NO_X, ppm	9.3	10.2	10.3	10.0	
NO_X, ppm @ 15% O_2	5.0	5.4	5.6	5.4	
NOx, lb/hr	0.39	0.43	0.43	0.42	
NOx, g/BHp-hr	0.068	0.076	0.075	0.073	0.15
CO Emissions:					
CO, ppm	13.4	11.9	13.3	12.9	
CO, ppm @ 15% O_2	7.2	6.3	7.2	6.9	
CO, lb/hr	0.34	0.31	0.34	0.33	
CO, g/BHp-hr	0.059	0.053	0.059	0.057	1.8
SO_2 Emissions:					
SO_2, ppm *(calculated emission)*	<0.012	<0.011	<0.014	<0.012	
SO_2, ppm @ 15% O_2	<0.0063	<0.0061	<0.0076	<0.0067	9
SO_2, lb/hr	<0.00068	<0.00068	<0.00082	<0.00072	
SO_2, g/BHp-hr	<0.00012	<0.00012	<0.00014	<0.00013	0.18
Ammonia Emissions:					
Ammonia, ppm	1.2	1.3	1.1	1.2	
Ammonia, ppm @ 15% O_2	0.65	0.70	0.60	0.65	10
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method ALT 078)*	633.0	823.4	1,023.9	826.8	
CH_4, ppm	698.7	933.7	1134.7	922.4	
CH_4, ppm @ 15% O_2	376.7	496.5	617.8	497.0	3,000
CH_4, lb/hr	10.13	13.78	16.46	13.5	
CH_4, g/BHp-hr	1.76	2.40	2.86	2.34	
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method ALT 078)*	4.80	7.42	5.42	5.88	
NMOC, ppm	5.30	8.42	6.00	6.57	
NMOC, ppm @ 15% O_2	2.86	4.48	3.27	3.53	32
NMOC, lb/hr	0.077	0.124	0.087	0.096	
NMOC, g/BHp-hr	0.013	0.022	0.015	0.017	0.16
THC Emissions (reported as CH_4):					
THC, ppm	704.0	942.1	1,140.7	929.0	
THC, lb/hr	10.2	13.9	16.5	13.5	
THC g/BHp-hr	1.78	2.42	2.88	2.36	
CH_4 Destruction Efficiency, %	>98.7%	>98.3%	>97.9%	>98.3%	
NMOC Destruction Efficiency, %	>51.7%	>41.9%	>66.0%	>53.2%	

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_2O)

TABLE #2

Redwood Landfill, Inc
Engine #2 (S-65)

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	7/15/21	7/15/21	7/15/21	--	
Test Time	0935-1048	1133-1247	1327-1436	--	
Standard Temperature, °F	70	70	70	--	
Process Parameters:					
Generator, kW	1,872	1,878	1,873	1,874	
Engine, BHp	2,608	2,616	2,609	2,611	
Urea Injection Rate, gph	1.2	1.2	1.2	1.2	
Fuel Gas:					
Fuel Flow Rate, SCFM	651.8	653.5	650.2	651.8	
Fuel Gross Calorific Value, Btu/cf @ 60°F	375.6	483.0	482.0	446.9	
Fuel Fd-Factor, DSCF/MMBtu @ 60°F	9,514	9,512	9,521	9,516	
Inlet TNMOC, ppm *(EPA Method 25C)*	63.2	76.2	62.9	67.4	
Inlet NMOC, lb/hr as CH_4	0.1	0.1	0.1	0.1	
Inlet CH_4, ppm	371,000	477,000	476,000	441,333	
Inlet CH_4, lb/hr	600.3	773.9	768.3	714.1	
H_2S, ppm *(ASTM D5504)*	<0.116	<0.112	<0.114	<0.114	
TRS as H_2S, ppm *(ASTM D5504)*	<0.116	<0.112	<0.114	<0.114	150
Stack Gas:					
SCR Temperature, °F	825	825	825	825	
Exhaust Flow Rate, DSCFM *(EPA Method 19)*	4,683	5,787	6,008	5,493	
Oxygen (O_2), % volume dry	10.5	10.1	10.5	10.4	
Carbon Dioxide (CO_2), % volume dry	8.4	8.7	8.9	8.7	
Moisture (H_2O), % volume dry	10.0	10.4	10.1	10.1	
NO_X Emissions (reported as NO_2):					
NO_X, ppm	7.1	8.5	7.6	7.7	
NO_X, ppm @ 15% O_2	4.0	4.6	4.3	4.3	
NOx, lb/hr	0.24	0.35	0.33	0.31	
NOx, g/BHp-hr	0.041	0.061	0.057	0.053	0.15
CO Emissions:					
CO, ppm	13.0	15.3	12.1	13.5	
CO, ppm @ 15% O_2	7.4	8.3	6.9	7.5	
CO, lb/hr	0.26	0.38	0.32	0.32	
CO, g/BHp-hr	0.046	0.067	0.055	0.056	1.8
SO_2 Emissions:					
SO_2, ppm *(calculated emission)*	<0.016	<0.013	<0.012	<0.014	
SO_2, ppm @ 15% O_2	<0.0092	<0.0069	<0.0070	<0.0077	9
SO_2, lb/hr	<0.00075	<0.00073	<0.00074	<0.00074	
SO_2, g/BHp-hr	<0.00013	<0.00013	<0.00013	<0.00013	0.18
Ammonia Emissions:					
Ammonia, ppm	0.68	0.92	0.87	0.82	
Ammonia, ppm @ 15% O_2	0.39	0.50	0.49	0.46	10
Methane (CH_4) Emissions:					
CH_4, ppm wet *(EPA Method ALT 078)*	631.1	591.9	645.5	622.8	
CH_4, ppm	701.0	660.7	717.7	693.1	
CH_4, ppm @ 15% O_2	397.9	359.5	408.0	388.5	3,000
CH_4, lb/hr	8.15	9.49	10.70	9.4	
CH_4, g/BHp-hr	1.42	1.65	1.86	1.64	
NMOC Emissions (reported as CH_4):					
NMOC, ppm wet *(EPA Method ALT 078)*	20.6	17.0	12.7	16.8	
NMOC, ppm	22.9	19.0	14.1	18.7	
NMOC, ppm @ 15% O_2	13.0	10.3	8.0	10.5	32
NMOC, lb/hr	0.27	0.27	0.21	0.25	
NMOC, g/BHp-hr	0.046	0.047	0.037	0.043	0.16
THC Emissions (reported as CH_4):					
THC, ppm	723.9	679.7	731.9	711.8	
THC, lb/hr	8.42	9.76	10.92	9.70	
THC g/BHp-hr	1.46	1.69	1.90	1.68	
CH_4 Destruction Efficiency, %	98.6%	98.8%	98.6%	98.7%	
NMOC Destruction Efficiency, %	>60.0%	>57.8%	>67.8%	>61.9%	

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_2O)

Table #3

Total Particulate Results

Redwood Landfill, Inc
Engine #2 (S-65)

Parameter	Run #1	Run #2	Run #3	Average Results	Permit Limits
Test Date	07/15/21	07/15/21	07/15/21	--	
Test Time	0931-1046	1133-1246	1326-1434	--	
Engine kW	1,872	1,878	1,873	1,874	
Engine BHp	2,608	2,616	2,609	2,611	
Sample Volume, DSCF	40.57	36.98	33.85	37.13	
Isokinetic, %	100.4	98.0	94.8	97.7	
Duct Temperature, °F	826.3	829.7	832.9	829.6	
Stack Gas:					
Velocity, ft/sec	70.8	66.4	70.0	69.1	
Flow Rate, ACFM	19,488	18,285	19,258	19,010	
Flow Rate, DSCFM	7,223	6,749	7,090	7,021	
Water Vapor (H_2O), %	10.10	10.28	10.30	10.23	
Oxygen (O_2), %	10.64	10.18	10.65	10.49	
Carbon Dioxide (CO_2), %	8.56	8.82	9.00	8.79	
Filterable Particulate Emissions:					
Filterable Particulate, mg	1.70	0.92	1.90	1.51	
Filterable Particulate, gr/DSCF	0.00065	0.00038	0.00087	0.00063	
Filterable Particulate, lb/hr	0.0401	0.0221	0.0526	0.0383	
Condensable Particulate Emissions:					
Condensable Particulate, mg	1.36	0.87	0.96	1.06	
Condensable Particulate, gr/DSCF	0.00052	0.00065	0.00077	0.00064	
Condensable Particulate, lb/hr	0.0319	0.0374	0.0465	0.0386	
Total Particulate Emissions:					
Total Particulate as PM_{10}, mg	3.06	1.78	2.86	2.57	
Total Particulate as PM_{10}, gr/DSCF	0.0012	0.00074	0.0013	0.0011	
Total Particulate as PM_{10}, lb/hr	0.072	0.043	0.079	0.065	
Total Particulate as PM_{10}, g/BHp-hr	0.013	0.007	0.014	0.011	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 #4

Formaldehyde Results

Redwood Landfill, Inc
Engine #2 (S-65)

Parameter	Run #1	Run #2	Run #3	Average Results	Permit Limits
Test Date	7/15/21	7/15/21	7/15/21		
Test Time	1015-1045	1215-1245	1326-1356		
Sample Duration, min	30	30	30		
Standard Temperature, °F (Tstd)	70	70	70		
Exhaust Flow Rate, DSCFM *(EPA Method 2)*	7,223	6,749	7,090	7,021	
Meter Yd	1.0741	1.0741	1.0741	1.0741	
Meter Volume, L (Vm)	14.717	15.000	14.633	14.783	
Rotometer Rate, LPM	0.5	0.5	0.5	0.5	
Total Volume, L (Vm corr)	15.808	16.112	15.717	15.879	
Average Meter Temperature, °F (Tm)	66.2	77.3	80.0	74.5	
Standard Meter Volume, L (Vm std)	15.923	15.892	15.426	15.747	
Formaldehyde Emissions:					
Formaldehyde, ug/sample	1.34	1.64	1.17	1.38	
Formaldehyde, ug/DSCM	84.2	101.5	74.6	86.8	
Formaldehyde, ppb	68.2	81.7	60.1	70.0	
Formaldehyde, g/hr	1.03	1.16	0.90	1.03	
Formaldehyde, lb/hr	0.0023	0.0026	0.0020	0.0023	0.51

WHERE:
ml = milliliter
g = gram
ug = microgram
DSCFM = dry standard cubic foot per minute
DSCM = dry standard cubic meter
L = liter

CALCULATIONS:
Formaldehyde, ppb = 1,000 · (ug/sample) · 24.14 / (30.0 Mol.Wt. · Vm std L)
ug/DSCM = (1,000 L/DSCM) · (ug/sample) / (sample volume, L)
g/hr = ug/DSCM · (DSCM · 60 min-hr/35.3) / (1,000,000 ug/g)
lb/hr = (g/hr) / 453.6 g/lb
Vmstd = Vm · Yd · (460 + Tstd) / (460 + Tm)

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
04/22/2021

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

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	08/01/2021
Date/Time of Test: 04/22/2021 10:30 am			

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	☒ Phase I vapor coupler	☐ Phase I vent line	☐ Phase II vapor riser
Pressure measuring device	☒ digital manometer		
Calibration date for pressure measuring device (must be within 180 days of the test)			03/10/2021
Ending value for digital manometer drift test if applicable (must be 0.01 in. w.c. or less)			.01 in. w.c
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)	571				571
Ullage (gallons)[1]	429				429
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	10:30 AM				
Initial Pressure, inches of water column (in. w.c.)	2.00				
Pressure at one minute, in. w.c.	1.92				
Pressure at two minutes, in. w.c.	1.88				
Pressure at three minutes, in. w.c.	1.84				
Pressure at four minutes, in. w.c.	1.80				
Pressure at five minutes, in. w.c.	1.76				
Allowable minimum pressure, in. w.c.	1.16				
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: 04/22/2021

TABLE 1
TP-206.3

Leak Rate Criteria

ULLAGE (GALLONS)	MINIMUM PRESSURE AFTER 5 MINUTES, (INCHES OF WATER COLUMN)
100	**0.21**
150	0.45
200	**0.65**
250	0.82
300	**0.95**
350	1.05
400	**1.14**
450	1.22
500	**1.28**
550	1.33
600	**1.38**
650	1.42
700	**1.45**
750	1.48
800	**1.51**
850	1.54
900	**1.56**
950	1.58
1,000	**1.60**
1,200	1.66
1,400	**1.70**
1,600	1.74
1,800	**1.77**
2,000	1.79
2,200	**1.81**
2,400	1.82
2,600	**1.83**
2,800	1.85
3,000	**1.86**
3,500	1.88
4,000	**1.89**
4,500	1.90
5,000	**1.91**
6,000	1.93
7,000	**1.94**
8,000	1.94
9,000	**1.95**
10,000	1.96
15,000	**1.97**
20,000	1.98

NOTE: [1]The minimum ullage shall be 25 percent and the maximum shall be 75% of the tank capacity.

Chan, Michael

From: McCutcheon, Alisha
Sent: Monday, May 17, 2021 2:05 PM
To: gdfresults@baaqmd.gov
Cc: Chan, Michael
Subject: FW: [EXTERNAL] Redwood Landfill Air Quality Test Results
Attachments: Redwood Landfill AQ Test Results.PDF

FYI, These ST-38 test results summited on behalf of Redwood Landfill, Plant 1179, were the ANNUAL TEST RESULTS. Thank you.

Alisha McCutcheon
Technical Manager
Redwood Landfill
amccutch@wm.com

Waste Management
PO Box 793
8950 Redwood Hwy
Novato, CA 94948
Tel 415 408 9055
Cell 415 373 8033

From: Byron Melendez <mbservices1@yahoo.com>
Sent: Saturday, May 15, 2021 8:59 AM
To: GDFResults <gdfresults@baaqmd.gov>
Cc: McCutcheon, Alisha <amccutch@wm.com>
Subject: [EXTERNAL] Redwood Landfill Air Quality Test Results

Hi please open attachments to view Air Quality test results for Redwood Landfill location for test performed.
if you have any question please let us know.

Sincerely,
MB Services
Byron Melendez
707-2907716
707-4393778

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			
2020 Q1	January	1.37	70.96	26.50	26.06	124.89	363.30	1,499
	February	0.00	69.14	25.07	25.31	119.51		
	March	0.00	64.00	27.34	27.56	118.90		
2020 Q2	April	0.21	64.45	20.94	26.19	111.79	326.15	1,428
	May	0.00	63.49	21.03	25.98	110.50		
	June	0.00	71.80	11.20	20.88	103.87		
2020 Q3	July	0.66	60.39	15.49	21.88	98.42	295.91	1,325
	August	0.00	51.93	21.62	24.92	98.47		
	September	0.00	71.80	19.09	8.14	99.02		
2020 Q4	October	0.33	56.26	28.64	13.83	99.05	285.98	1,271
	November	0.00	38.91	28.23	25.88	93.02		
	December	0.04	37.22	29.16	27.48	93.90		
2021 Q1	January	0.25	37.74	29.16	27.17	94.32	276.05	1,184
	February	0.00	37.00	25.37	22.58	84.94		
	March	0.00	43.52	27.30	25.97	96.79		
2021 Q2	April	0.00	37.47	28.42	24.39	90.28	269.56	1,127
	May	0.00	46.39	27.28	18.05	91.73		
	June	0.00	55.98	23.92	7.65	87.55		
2021 Q3	July	0.00	56.37	23.90	9.07	89.34	254.42	1,086
	August	0.00	36.09	27.79	23.66	87.53		
	September	0.00	41.75	14.96	20.83	77.55		
2021 Q4	October	0.00	57.12	12.98	19.35	89.45	89.45	889
	November							
	December							

Pursuant to Title V Permit Condition Number 25634 Part 1, the total landfill gas throughput to the landfill gas combustion equipment at Plant #1179 shall not exceed 2,625 million scf of landfill gas during any consecutive rolling 4-quarter period.

S-66, and S-67 have not been installed.

QUARTERLY CO EMISSIONS From All LFG-Fired Combustion Equipment

WM - REDWOOD LANDFILL, Novato, CA

Quarter	Month	Total CO Emissions (tons)				Monthly Total (tons)	Quarterly Total (tons)	Rolling 4-Qtr Total (tons)
		A-51	A-60	S-64	S-65			
2020 Q1	January	0.01	1.70	0.60	0.59	2.89	8.45	41.8
	February	0.00	1.66	0.57	0.57	2.79		
	March	0.00	1.53	0.62	0.62	2.77		
2020 Q2	April	0.00	1.54	0.47	0.59	2.60	7.62	36.0
	May	0.00	1.52	0.47	0.58	2.58		
	June	0.00	1.72	0.25	0.47	2.44		
2020 Q3	July	0.00	1.45	0.35	0.49	2.29	6.95	30.8
	August	0.00	1.24	0.49	0.56	2.29		
	September	0.00	1.78	0.41	0.18	2.37		
2020 Q4	October	0.00	1.46	0.64	0.33	2.43	6.96	30.0
	November	0.00	1.01	0.63	0.62	2.26		
	December	0.00	0.96	0.65	0.66	2.27		
2021 Q1	January	0.00	0.98	0.65	0.65	2.28	6.71	28.2
	February	0.00	0.96	0.57	0.54	2.07		
	March	0.00	1.13	0.61	0.62	2.36		
2021 Q2	April	0.00	0.97	0.63	0.59	2.19	6.60	27.2
	May	0.00	1.20	0.61	0.43	2.24		
	June	0.00	1.45	0.53	0.18	2.17		
2021 Q3	July	0.00	1.46	0.53	0.22	2.21	5.44	25.7
	August	0.00	0.93	0.62	0.57	2.12		
	September	0.00	0.95	0.07	0.09	1.11		
2021 Q4	October	0.00	1.27	0.05	0.08	1.40	1.40	20.2
	November							
	December							

Pursuant to Title V Permit Condition Number 25634 Part 2, the total CO emissions from all landfill gas combustion equipment at Plant #1179 shall not exceed 237.5 tons during any consecutive rolling 4-quarter period.

S-66, and S-67 have not been installed.

QUARTERLY SO_2 EMISSIONS From All LFG-Fired Combustion Equipment

WM - REDWOOD LANDFILL, Novato, CA

Quarter	Month	Total SO_2 Emissions (tons)				Monthly Total (tons)	Quarterly Total (tons)	Rolling 4-Qtr Total (tons)
		A-51	A-60	S-64	S-65			
2020 Q1	January	0.09	4.51	0.02	0.02	4.64	13.20	69.5
	February	0.00	4.40	0.02	0.02	4.44		
	March	0.00	4.07	0.02	0.02	4.11		
2020 Q2	April	0.01	3.64	0.02	0.02	3.69	11.38	58.1
	May	0.00	3.58	0.02	0.02	3.62		
	June	0.00	4.05	0.01	0.02	4.08		
2020 Q3	July	0.04	3.89	0.01	0.02	3.96	11.99	50.6
	August	0.00	3.34	0.02	0.02	3.38		
	September	0.00	4.62	0.01	0.01	4.64		
2020 Q4	October	0.03	5.24	0.02	0.01	5.30	12.48	49.0
	November	0.00	3.62	0.02	0.02	3.67		
	December	0.00	3.47	0.02	0.02	3.51		
2021 Q1	January	0.02	3.69	0.02	0.02	3.76	11.72	47.6
	February	0.00	3.62	0.02	0.02	3.66		
	March	0.00	4.26	0.02	0.02	4.30		
2021 Q2	April	0.00	2.75	0.02	0.02	2.79	10.35	46.5
	May	0.00	3.40	0.02	0.01	3.43		
	June	0.00	4.10	0.02	0.01	4.13		
2021 Q3	July	0.00	2.47	0.02	0.01	2.50	5.96	40.5
	August	0.00	1.58	0.02	0.02	1.62		
	September	0.00	1.83	0.00	0.00	1.83		
2021 Q4	October	TBD	TBD	0.00	0.00	TBD	TBD	TBD
	November							
	December							

Pursuant to Title V Permit Condition Number 25634 Part 3, the total SO2 emissions from all landfill gas combustion equipment at Plant #1179 shall not exceed 99 tons during any consecutive rolling 4-quarter period.

TBD=To Be Determined.

SO2 emissions from flares are updated at the end of each quarter when the quarterly average emission factor is calculated.