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1. ☐ RECEIVED IN ENFORCEMENT: 08/31/2021

Subject: Combined 8-34 Semi-Annual Report, 40 CFR Subpart AAA Semi-Annual Report, and Title V Semi-Annual Monitoring Report
Sonoma County Central Landfill, Petaluma, California (Title V Facility No. A2254)

Dear Sir or Madam:

Republic Services of Sonoma County, Inc. is pleased to submit the enclosed combined Bay Area Air Quality Management District (BAAQMD), Regulation 8, Rule 34 Semi-Annual Report; Semi-Annual Startup, Shutdown and Malfunction (SSM) Plan Report, Title V Semi-Annual Monitoring Report, and the Title V Annual Compliance Certification (ACC) Report to the BAAQMD and the U.S. Environmental Protection Agency (EPA) Region IX for the Sonoma County Central Landfill (Sonoma Central).

The Title V Semi-Annual Monitoring Report, the BAAQMD Rule 8-34 Semi-Annual Report and the SSM Plan Report cover the period from February 1, 2021 through July 31, 2021.

The Title V reports meet the requirements specified in the Title V permit, BAAQMD guidance on Title V report submittals, and Regulation 2, Rule 6. The Rule 8-34 report includes the information required by BAAQMD Rule 8-34-411 and also satisfies the requirements under the New Source Performance Standards (NSPS) for municipal solid waste landfills (40 California Code of Regulation [CFR] Part 60, Subpart WWW), including 40 CFR 60.757(f). The Semi-Annual SSM Plan Report satisfies the requirements under the Maximum Achievable Control Technology (MACT) rule for semi-annual reporting of SSM Plan implementation including 40 CFR 63.10(d)(S). The Title V reports and the SSM Plan report each includes a certification by the responsible official for Sonoma Central.

If you have any questions regarding this submittal, please do not hesitate to call me at (510) 301-9387 or email me at DCheney@republicservices.com.

Sincerely,

Derek Cheney
Environmental Manager
Sonoma Central Landfill

cc: Rob Sherman, Sonoma Central
Ray Huff, SCS Engineers

NSPS/BAAQMD Rule 8-34 Semi-Annual Report, SSM Plan Semi-Annual Report, Title V Semi-Annual Report
Sonoma County Central Landfill
Petaluma, California (Title V Facility No. A2254)

Prepared for:

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For Submittal to:

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SCS ENGINEERS

01213327.01 Task 1 | August 2021

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This submittal consisting of the New Source Performance Standards (NSPS)/Bay Area Air Quality Management District (BAAQMD) Rule 8-34 Semi-Annual Report, the Semi-Annual Startup, Shutdown, and Malfunction Plan Report, and the Title V Semi-Annual Monitoring Report for the Sonoma County Central Landfill in Petaluma, California, dated August 2021, was prepared and reviewed by the following:

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SECTION I. NSPS/BAAQMD RULE 8-34 SEMI-ANNUAL REPORT

1.0 INTRODUCTION

On behalf of Republic Services of Sonoma County, Inc. (Republic), SCS Engineers (SCS) prepared this combined New Source Performance Standard (NSPS), 40 Code of Federal Regulations (CFR) Part 60, Subpart WWW), Bay Area Air Quality Management District (BAAQMD or District) Rule 8-34 Semi-Annual Report (SAR) pertaining to the Sonoma County Central Landfill (Sonoma Central) for the period of February 1, 2021 through July 31, 2021 to the BAAQMD and the United States Environmental Protection Agency (EPA).

Please note that as of June 21, 2021, the facility complies with the new Emission Guidelines (EG) requirements in California. The approved state plan for the EG includes compliance with Title 17 California Code of Regulations (CCR) Sections 95460 to 95476, known as AB 32 Landfill Methane Rule (LMR) and specific portions of 40 CFR Part 62 Subpart OOO. The NSPS/EG references will be updated in the next semi-annual report.

The Semi-Annual Report pertains to the landfill gas (LFG) collection and control system (GCCS) operated at the Sonoma County Central Landfill (Sonoma Central).

This report includes the following information, as required by BAAQMD Rule 8-34-411:

- All collection system and/or component downtime and reasons for the shutdown (8-34-501.1).
- All emission control system downtime and reason for the shutdown (8-34-501.2).
- Continuous temperature monitoring and dates of any excesses (8-34-501.3 and 507).
- Testing performed to satisfy the requirements of this Rule (8-34-501.4).
- Monthly LFG flow rates and excesses (8-34-501.5).
- Collection and emission control system leak testing and any excesses, action taken to correct excesses, and re-monitored concentrations (8-34-501.6 and 503).
- Landfill surface monitoring, location of excesses, excess concentration, date discovered, actions taken to repair the excess, and re-monitored concentrations (8-34-501.6 and 506).
- Annual waste acceptance rate and the current amount of waste in-place (8-34-501.7).
- Records of non-degradable waste if area is excluded from LFG collection (8-34-501.8).
- Well head monitoring including gauge pressure, LFG temperature, and LFG oxygen concentration (8-34-501.9 and 505).
- Continuous flow monitoring (8-34-501.10).

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

2.0 SITE BACKGROUND INFORMATION

Sonoma Central is a municipal solid waste (MSW) landfill located in Petaluma, California and is operated by Republic. The approximately 170-acre landfill began accepting waste circa 1971 and is currently in operation.

2.1 EXISTING AIR PERMITS

Sonoma Central maintains a BAAQMD permit to operate (PTO) (Plant No. 22987). PTO Condition No. 4044 includes requirements for the wellfield, collection system, and A-4 flare station, as well as waste and cover material dumping (S-22) and landfill excavating, bulldozing, and compacting activities (S-23). PTO Condition No. 19933 includes requirements for the ten LFG-fired internal combustion (IC) engines (S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, and S-14). The PTO also has conditions for a LFG compression plant (S-15) (Condition No. 23087) and a 195 horsepower portable propane tipper engine (S-24) (Condition No. 26171).

Condition No. 4044 incorporates all applicable requirements from NSPS Subpart WWW and from BAAQMD Rule 8-34, which are addressed in this report. Sonoma also maintains a Major Facility Review (MFR or Title V) Permit (Facility No. A2254), which was most recently issued on June 9, 2021, expiring on June 8, 2026.

A GCCS Design Plan was prepared for the site to review and determine the adequacy of the existing LFG system. The current design of the system was determined to be adequate to comply with both NSPS and BAAQMD Rule 8-34 requirements. The system design is based on the density of wells calculated to sufficiently extract the maximum flow of LFG generated, according to the EPA LFG emissions model (LandGEM). The GCCS is designed to control surface emissions, as well as to minimize subsurface lateral migration of LFG. Both the perimeter of the landfill and the landfill surface are monitored on a quarterly basis. Additional details regarding the GCCS are in the GCCS Design Plan that was previously submitted to the BAAQMD. A drawing showing the existing GCCS is provided in Appendix B.

2.2 EXISTING LANDFILL GAS COLLECTION AND CONTROL SYSTEM

The GCCS at Sonoma Central consists of extraction wells used to collect the LFG from within the landfill (the “wellfield”) and a piping system (the “collection system”) used to convey the collected LFG to the control systems for destruction. The LFG is extracted from the landfill through a combination of vertical gas extraction wells and horizontal gas extraction trenches/pipes, as well as leachate collection system components.

The LFG is controlled by the emission control system. The emission control system consists of a LFG-to-energy (LFGTE) facility, which consists of ten IC engines (S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, and S-14), and an enclosed backup flare (A-4).

The A-4 Flare was installed on December 12, 2017 and replaced the A-3 Flare. The A-4 Flare is now the backup flare to the engines at the landfill. Engine No. 10 (S-14) is on long-term standby pursuant to BAAQMD Application No. 22513.

A diagram of the GCCS displaying system component locations is shown in the site plan provided in Appendix B.

3.0 MONITORING AND RECORDS

3.1 CONTINUOUSLY MONITORED PARAMETERS

According to BAAQMD Rule 8-34-301.1, the GCCS must be operated continuously. To comply with this requirement, the landfill owner/operator is required to maintain full-time operation of the LFG collection system and control system, as well as individual extraction wells. Downtime for any of these components must be reported in the Rule 8-34 Semi-Annual Report. This information is summarized below and in the attached tables. Records of continuously monitored parameters are available for review at the site.

3.1.1 Gas Extraction System Downtime

During the reporting period, the LFG extraction system was off-line on thirteen (13) occasions for a total of 7.17 hours. Shutdowns involved pre-programmed or manual system shutdowns for inspection, maintenance and/or repair of the GCCS, and thus meet the criteria for allowed GCCS downtime, as specified in Rule 8-34-113 and in accordance with the BAAQMD November 5, 2018 Compliance Advisory, with the exception of two events. These events included shutdown of the blower as a result of the variable frequency drive (VFD), which resulted in a shutdown of the GCCS that occurred on February 11, 2021 from 03:20 to 06:34, and a loss of power due to an area wide Pacific Gas & Electric (PG&E) utility outage, which resulted in a shutdown of the GCCS that occurred on June 5, 2021 from 06:44 to 06:54. These events were reported to the BAAQMD as reportable compliance activities (RCA) and breakdown relief was requested. Due to the short duration of these events, there is no reason to believe there were any excess LFG surface emissions during these GCCS downtimes.

A summary of the GCCS downtime for this reporting period is provided in Table 1a, including the date, reason for the downtime, description of the corrective measure(s) implemented to resume GCCS operation, and the total elapsed time for each event. Gas extraction system downtime records are available for review at the site. These include periods of times when the entire GCCS was offline.

3.1.2 Emission Control System Downtime

A-4 Flare

During the reporting period, the A-4 Flare was off-line on several occasions. A summary of the A-4 Flare downtime is provided in Table 1b, including the date, reason for the downtime, and the total elapsed time for each event. During the reporting period, downtime for the A-4 Flare occurred over a cumulative period of approximately 426.53 hours. Emission control system downtime records are available for review at the site.

LFGTE Facility

During the reporting period, individual IC engines were offline on several occasions. In addition, there were several periods when the entire LFGTE facility was offline (all engines were offline concurrently). Note that engine 9 (S-13) was out of service during the reporting period. Engine 1 (S-4) was out of service from February 1, 2021 through July 13, 2021. In addition, engine 10 (S-14) is on long-term standby. During the reporting period, the entire LFGTE facility was offline for a total of 147.19 hours. Downtime logs, which include individual IC engine shut downs, are included in Appendix C.

3.1.3 Individual Well Downtime

In some instances, the entire GCCS may not go off-line, but individual extraction wells may be taken off-line for inspection, maintenance, and/or repair, as well as for other unforeseen circumstances. These are generally planned events, although such events can occur without notice. During the reporting period, no wells were temporarily taken offline or were taken offline during a previous reporting period and remained offline for a portion of the reporting period.

SCV104-A, SCV227-0, SCV240-0, SCV241-0, and SCEC0018 were abandoned during the reporting period due to poor gas production and were abandoned during 2021 construction activities. SCEW2018 was also abandoned during the reporting period due to poor gas production. SCEW2101 through SCEW2126 are newly installed wells which were initially activated during the reporting period.

Pursuant to permit condition No. 4044, Part 4b(iv) and (v), the owner/operator must notify the District at least three days prior to initiating operation of a well or collector and no later than three working days after the disconnection of a component. These notifications were submitted to the BAAQMD for the well actions noted above, as required. In addition, pursuant to permit condition No. 4044, Part 4b(vii), if there is a net reduction (number of decommissioned components minus the number of installed components) of more than five components during a 120-day period, a comprehensive decommissioning notice must be submitted to the BAAQMD. This requirement was not applicable during the reporting period.

Details of individual well shutdown and well startups occurring during the reporting period are provided in Table 2.

3.1.4 Flow Meter and Temperature Gauge Downtime

The continuous operation of the GCCS is measured through the continuous measurement of LFG flow to each flare and flare combustion temperature. As required by Rule 8-34, the A-4 Flare at Sonoma Central is equipped with flow measuring devices and temperature gauges that provide continuous readout displays using digital chart recorders. During the reporting period, the flow meter(s) and temperature gauge(s)/recorders at the flare station did not go out of operation due to malfunction or other breakdown conditions.

Continuous monitoring and calibration information are available for review at the site.

3.1.5 Flare Combustion Zone Temperature

Sonoma Central is required by permit condition No. 4044, Part 10 to operate the A-4 Flare in such a manner that the combustion zone temperature within the flare does not drop below the permitted limit of 1,599 degrees Fahrenheit (°F) (averaged over a 3-hour period), or a higher or lower temperature based on the most recent source test. During the reporting period, the minimum temperature above which the flare was required to operate was 1,602°F (source test results minus 50°F), based on the source test results in the test report dated March 3, 2021. During the reporting period, the flare operated above the minimum established temperature at all times, except during periods of startup, shutdown, and malfunction (SSM).

Flare temperature records are available for review at the site. Excerpts from the March 3, 2021 source test report, summarizing the test results for the flares are provided in **Appendix E**.

3.2 COMPONENT LEAK QUARTERLY MONITORING

During the reporting period, quarterly testing of the GCCS components for any leaks with a methane concentration of greater than 1,000 parts per million by volume (ppmv), as required by BAAQMD Rule 8-34-503, was conducted. Testing in the wellfield and at the flare station was performed using an organic vapor analyzer (OVA), which was calibrated on the same day as the testing. Monitoring results are provided in **Appendix D** and are available for review at the site.

3.2.1 First Quarter 2021 Monitoring

SCS Field Services (SCSFS) personnel conducted component leak monitoring of the flare station on March 24, 2021, the LFGTE facility on March 26, 2021, and at the wellfield on March 24 and 26, 2021. No component leaks above 1,000 ppmv were detected at the flare station, wellfield, or LFGTE facility during the first quarter 2021 monitoring event. These results are included in **Appendix D**.

3.2.2 Second Quarter 2021 Monitoring

SCSFS personnel conducted the component leak monitoring of the flare station on April 19, 2021, the LFGTE Plant on April 19, 2021, and at the wellfield on April 19, 2021. No component leaks above 1,000 ppmv were detected at the flare station, wellfield, or LFGTE facility during second quarter 2021 monitoring events. These results are included in **Appendix D**.

3.3 CONTROL EFFICIENCY

Flare A-4

LFG flare A-4 was also tested on January 20, 2021 to demonstrate compliance with the control efficiency standard of 98 percent non-methane organic compound (NMOC) destruction efficiency or outlet concentration of 30 ppmv of NMOC as methane, corrected to 3% oxygen (for flares) as required by BAAQMD Rules 8-34-301.3, 8-34-412, and 8-34-501.4. The NMOC destruction efficiency for the A-4 Flare during the January 2021 source test was measured to be >98.85 percent by weight, and the NMOC as methane concentration in the flare outlet was <4.9 ppmv. As such, flare A-4 is in compliance with the aforementioned rules.

Excerpts from the January 2021 source test report dated March 3, 2021, summarizing the test results are provided in **Appendix E**.

IC Engines

The IC engines are required to demonstrate compliance with the control efficiency standard of 97 percent NMOC destruction efficiency or outlet concentration of 120 ppmv of NMOC as methane, corrected to 3% oxygen (for energy recovery devices) as required by BAAQMD Rules 8-34-301.4, 8-34-412, and 8-34-501.4. The most recent source testing results for these engines are summarized below. All engines met the outlet concentration limit of 120 ppmv of NMOC as methane, corrected to 3% oxygen during the most recent source tests.

Engine	Source Test Date	Results (ppm as CH_4 @ 3% O_2)
S-4[1]	July 28, 2021	TBD
S-5	January 12, 2021	82.1
S-6	November 6, 2020	99.8
S-7	October 21, 2020	<32
S-9	March 12, 2021	109.3
S-10	April 29, 2021	95.7
S-11	April 26, 2021	74.8
S-12	January 12, 2021	122.8*
S-13	February 20, 2018**	40.97

[1] The S-4 Engine was source tested near the end of the reporting period, thus the source test report was not available for inclusion in this report. The S-4 engine source test report will be included in the next semi-annual report, due in August 2022.
*NMOC outlet concentration exceeds the limit but falls within 10% of the permitted limit and is considered in compliance per BAAQMD Resolution No. 1390.
**Note 2019 and 2020 source tests for S-13 were unable to be completed due to mechanical issues. S-13 has been offline since 2019 and will be tested once repairs are completed.

Excerpts for the IC engine source test reports that were issued during the reporting period (S-9, S-10, and S-11) are included in **Appendix E**.

3.4 LANDFILL SURFACE EMISSIONS MONITORING

Surface emissions monitoring (SEM) was conducted at Sonoma Central on a quarterly basis during the reporting period, in accordance with BAAQMD Rule 8-34-303 and 8-34-506. The SEM events were conducted in accordance with the SEM plan in the landfill's GCCS Design Plan. Testing was performed using a Trimble SiteFID Landfill Gas Monitor Portable Flame Ionization Detector (FID), which was calibrated the same day as the testing. The results of this monitoring are summarized below. Reports for each quarterly monitoring event are provided in **Appendix D**.

3.4.1 First Quarter 2021 Monitoring

SCSFS personnel monitored the landfill surface for leaks with a methane concentration of greater than 500 ppmv above background on March 24, 25, 26, and 31, and April 21, 2021. Surface emissions in excess of 500 ppmv were detected at three (3) locations during the first quarter 2021 monitoring event. System adjustments and repair work was performed by site personnel. The subsequent 10-day re-monitoring, which was conducted on March 31, 2021, indicated that the three (3) areas with instantaneous exceedances had returned to compliance. One-month re-monitoring event was conducted, as required by NSPS, on April 21, 2021, and all locations remained in compliance.

The locations with the exceedances and associated methane concentrations are provided in the first quarter 2021 SEM report (**Appendix D**).

3.4.2 Second Quarter 2021 Monitoring

SCSFS personnel monitored the landfill surface for leaks with a methane concentration of greater than 500 ppmv above background on April 19, 20, 21, and 30, and May 21, 2021. Surface emissions in excess of 500 ppmv were detected at three (3) locations during the second quarter 2021 monitoring event. System adjustments and repair work was performed by site personnel. The subsequent 10-day re-monitoring, which was conducted on April 30, 2021, indicated that the three (3) areas with instantaneous exceedances had returned to compliance. One-month re-monitoring was conducted, as required by NSPS, on May 21, 2021, and all locations remained in compliance.

The locations with the exceedances and associated methane concentrations are provided in the second quarter 2021 SEM report (**Appendix D**).

3.5 WELLHEAD MONTHLY MONITORING

Monthly wellhead monitoring for pressure, temperature, and oxygen content was conducted by SCSFS personnel during the reporting period to comply with BAAQMD Rule 8-34-305 and 9-34-414. The results of this monitoring are summarized below.

3.5.1 Pressure

The majority of the operational extraction wells were under negative pressure during the monitoring events conducted during the reporting period, in accordance with BAAQMD Rule 8-34-305 and 8-34-414. For any wells that exhibited positive pressure during this reporting period, the identification number and dates on which each well was operating with positive pressure are provided in **Table 3**. The table also includes corrective action and re-monitoring results. In all instances, corrective action and re-monitoring were performed in accordance with the 5- and 15-day requirements specified in the NSPS regulations and in Rule 8-34.

One (1) operating well, SCV082-1, demonstrated a positive pressure reading at the end of the reporting period. This well will be returned under negative pressure by the applicable compliance date, as specified in BAAQMD Rule 8-34-414, and compliance will be documented in the next semi-annual report.

As of the end of the previous reporting period, no wells were operating under positive pressure.

3.5.2 Oxygen

Sonoma Central has elected to use oxygen as its compliance standard under Rule 8-34-305, rather than nitrogen. Per Sonoma's PTO Condition No. 4044, Part 5(b)i, the oxygen Higher Operating Value (HOV) of 15% is approved for wells: V-058, V-061, V-062, and V-117; EC-9.1, EC-15, EC-19, EC-24, EC-25, EC-26, and EC- 26.1. However, all of these wells have since been permanently decommissioned with the exception of EC-15, EC-19, and EC-24.

The majority of the wells were operating within the regulatory limit of five (5) percent oxygen (or within 15% oxygen for EC-15, EC-19, and EC-24) during the monitoring events conducted during the reporting period. The dates when wells were operating with excessive oxygen, and the well identification number, corrective actions, and re-monitoring results for these wells are provided in **Table 4**.

As of the end of the reporting period, all of the operating wells were operating with an oxygen concentration below the 5 percent limit except for wells SC000H03, SC000H04, SCEC0019, SCHC2001, SCLEW-05, SCV003-0, SCV065-0, SCV066-5, SCV067-A, SCV068-5, SCV079-1, SCV100-5, SCV112-0, SCV124-0, SCV137-0, SCV143-0, SCV149-A, SCV222-0, SCV52-5A, SCV68-1A. These wells will be returned to below the 5 percent limit by the applicable compliance dates, as specified in BAAQMD Rule 8-34-414, and compliance will be documented in the next semi-annual report. These compliance dates are as follows: October 9, 2021 (SC000H03), November 24, 2021 (SC000H04), October 16, 2021 (SCEC0019), October 29, 2021 (SCHC2001), November 17, 2021 (SCLEW-05), November 16, 2021 (SCV003-0), September 25, 2021 (SCV065-0), November 17, 2021 (SCV066-5), November 17, 2021 (SCV067-A), November 10, 2021 (SCV068-5), November 19, 2021 (SCV079-1), October 14, 2021 (SCV100-5), November 19, 2021 (SCV112-0), October 27, 2021 (SCV124-0), November 19, 2021 (SCV137-0), November 17, 2021 (SCV143-0), November 20, 2021 (SCV149-A), September 11, 2021 (SCV222-0), October 29, 2021 (SCV52-5A), September 8, 2021 (SCV68-1A).

As of the end of the previous reporting period, wells SCV051-A, SCV222-0, and c were operating with an oxygen concentration above the 5 percent limit. These wells were back in compliance within the timeline specified in 8-34-414.

3.5.3 Temperature

BAAQMD Rule 8-34-305 requires the landfill gas temperature in each wellhead to measure less than 55 degrees Celsius (°C) or 131°F. However, Condition 4044, Part 5(b)ii in Sonoma's BAAQMD PTO allows Sonoma Central to operate wells SCV107-0, SCV109-0, SCV112-0, SCV113-0, SCV114-0, and SCV115-0 at an alternative temperature of 145°F. However, note that SCV109-0 has been permanently decommissioned.

The majority of wells were operating within their respective limits of 131°F and 145°F during the monitoring events conducted during the reporting period. The dates when wells were operating above their respective temperature limits, and the well identification number, correction actions, and re-monitoring results for each of these wells are provided in **Table 5.**

As of the end of the reporting period, all wells were operating below their respective temperature limits of 131°F and 145°F.

As of the end of the previous reporting period, all wells were operating with a temperature concentration below the 131°F limit.

3.6 COVER INTEGRITY MONITORING

Under BAAQMD Rule 8-34-510 and the NSPS, the landfill surface must be monitored at least monthly for evidence of cracks or other surface integrity issues, which could allow for surface emissions. During the reporting period, cover integrity monitoring was conducted by SCSFS personnel in conjunction with the wellhead monitoring on February 22, March 21, April 19, May 17, June 20, July 26, 2021. All necessary repairs were implemented in a timely manner. Records of cover integrity monitoring are available for review upon request.

3.7 GAS GENERATION ESTIMATE AND MONTHLY LANDFILL GAS FLOW RATES

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

3.8 ANNUAL WASTE ACCEPTANCE RATE AND REFUSE IN PLACE

Sonoma Central is an active landfill that continues to accept refuse for disposal. From February 1, 2021 through July 31, 2021, the site accepted 160,999.87 tons of MSW, resulting in a cumulative waste-in-place total of 17,475,576 tons as of July 31, 2021.

3.8.1 Non-Degradable Waste Areas

No areas of non-degradable waste deposition are known to exist. There are no landfill areas that are excluded from the collection system requirements. Therefore, BAAQMD Regulation 8-34-501.8 is not applicable.

SECTION II. SSM PLAN REPORT

This Semi-Annual report also meets the requirements of the National Emissions for Hazardous Air Pollutants (NESHAP) for MSW landfills, 40 CFR 63, Subpart AAAA and complies with the requirements specified in Sonoma Central's Title V permit. This Semi-Annual report includes a certification signed by a Responsible Official which is provided in **Appendix A**. In accordance with the NESHAP for Landfills, this report is submitted semi-annually.

Sonoma Central maintains a SSM Plan which describes the procedures for operating and maintaining the affected elements of the GCCS during startup, shutdown, and malfunction (SSM). The SSM events that occurred during the reporting period of February 1, 2021 through July 31, 2021 are documented below.

- During the reporting period, the GCCS had 13 SSM events. Details of these events are included in **Table 1a**.
- During the reporting period, A-4 Flare had 154 SSM events. Details of these events are included in **Table 1b**.
- During the reporting period, 219 SSM events occurred at the nine IC Engines (S-4, S-5, S-6, S-7, S-9, S- 10, S-11, and S-12). IC Engines S-13 and S-14 did not operate during the reporting period. The IC Engines were shut down and restarted during the reporting period due to the reasons noted in the downtime logs provided in **Appendix C**.
- During the reporting period, 31 Wellfield SSM events occurred. Details are included **Table 2**.
- During the reporting period, there were no SSM events associated with the LFG monitoring equipment (e.g. flow measuring/recording device, temperature measuring/recording device).
- In all events, automatic systems and operator actions were consistent with the standard operating procedures contained in the SSM Plan. There were no deviations from the SSM plan.
- Exceedances were not identified during the reporting period for any applicable emission limitation in the landfills NESHAP (§63.10(d)(5)(i)).
- Revisions of the SSM Plan to correct deficiencies in the landfill operations or procedures were neither required, nor prepared (§63.6(e)(3)(viii)).
- A copy of the SSM Plan and all revisions/addenda are kept on file at the facility for at least five (5) years and are available to appropriate regulatory agency personnel for inspection.

SECTION III. TITLE V SEMI-ANNUAL REPORT

As specified in 40 Code of Federal Regulation (CFR) Part 70, reports of any required monitoring must be submitted at least every 6 months. All instances of deviations from permit requirements for the semi-annual reporting period, specified in the Landfill's Initial Title V Permit as August 1 through January 31 and February 1 through July 31, must be clearly identified in each report. This Title V Report covers the February 1, 2021 through July 31, 2021 reporting period.

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

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

Tables

Table 1a. GCCS Downtime
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

GCCS Shutdown	Restarted	Downtime Hours	Reason for Downtime	Corrective Actions Taken
2/3/21 6:36	2/3/21 6:46	**0.17**	Planned Blower Inspection and Maintenance (113)	Flare was inspected and adjusted before being returned to service.
2/9/21 21:02	2/9/21 21:20	**0.30**	Planned shut down for power line service (113)	Flare was inspected and adjusted before being returned to service.
2/11/21 3:20	**2/11/21 6:34**	**3.23**	**Automatic shutdown of the flare blower associated with the variable frequency drive (VFD) (RCA submitted)**	**Flare was inspected and adjusted before being returned to service.**
2/11/21 9:10	2/11/21 9:18	**0.13**	Plant start up	Flare was inspected and adjusted before being returned to service.
2/11/21 9:38	2/11/21 10:18	**0.67**	Plant start up	Flare was inspected and adjusted before being returned to service.
There was no GCCS downtime in March 2021.				
4/15/21 9:00	4/15/21 9:32	**0.53**	GCCS Construction (118)	Flare was inspected and adjusted before being returned to service.
5/1/21 6:30	5/1/21 6:38	**0.13**	Planned Pacific Gas and Energy (PG and E) Maintenance Work, Alarmed shutdown and auto restart to swap power source to another line (113)	Flare was inspected and adjusted before being returned to service.
5/3/21 10:36	5/3/21 11:20	**0.73**	Planned Sump Maintenance and Inspection (113)	Flare was inspected and adjusted before being returned to service.
5/3/21 11:34	5/3/21 11:46	**0.20**	Planned Sump Maintenance and Inspection (113)	Flare was inspected and adjusted before being returned to service.
5/3/21 12:50	5/3/21 12:58	**0.13**	Planned Sump Maintenance and Inspection (113)	Flare was inspected and adjusted before being returned to service.
5/3/21 17:02	5/3/21 17:32	**0.50**	Planned Blower 104 Maintenance and Inspection (113)	Flare was inspected and adjusted before being returned to service.
6/5/21 6:44	**6/5/21 6:54**	**0.17**	**PG and E Power Outage (RCA Submitted)**	**Flare was inspected and adjusted before being returned to service.**
6/5/21 8:38	6/5/21 8:54	**0.27**	PG and E Maintenance	Flare was inspected and adjusted before being returned to service.
There was no GCCS downtime in July 2021.				
	Total:	**7.17**		

Notes:
Events in bold type denotes Malfunction Events
Downtimes listed represent periods when all landfill gas combustion devices were offline concurrently (no gas flow from the collection system).

All events listed involved GCCS inspection and/or maintenance activities prior to start up (or as soon as feasible following programmed startups) in accordance with Rule 8-34-113 requirements and the BAAQMD Compliance Advisory for Municipal Solid Waste Landfills, dated November 5, 2018, with the exception of the events that occurred on February 11 and June 5, 2021 which involved shutdown of the blower associated with the VFD and a utility outage from the Pacific Gas and Energy (PG&E). These events were considered reportable compliance activities (RCA) and breakdown relief was requested.

Table 1b. Flare (A-4) Downtime
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown	Startup	Downtime Hours	Reason for Downtime
2/2/21 11:26	2/2/21 13:44	2.30	Knock-out pot (KOP) inspection and maintenance (113)
2/3/21 6:34	2/3/21 6:46	0.20	Blower inspection and maintenance (113)
2/9/21 21:02	2/9/21 21:20	0.30	Shutdown for power line transfer
2/11/21 3:20	**2/11/21 6:34**	**3.23**	**Automatic shutdown of the flare blower associated with the variable frequency drive (VFD)**
2/11/21 9:10	2/11/21 9:18	0.13	Plant start up
2/11/21 9:38	2/11/21 10:18	0.67	Plant start up
2/18/21 12:36	2/18/21 14:16	1.67	Blower inspection and maintenance (113)
2/25/21 8:44	2/25/21 10:28	1.73	Blower inspection and maintenance (113)
2/25/21 10:52	2/25/21 11:22	0.50	Blower inspection and maintenance (113)
3/4/21 2:14	3/4/21 7:36	5.37	Low temp shut down (pre-programmed parametric shutdown)
3/10/21 9:14	3/10/21 11:16	2.03	KOP inspection and maintenance (113)
3/16/21 11:42	3/16/21 11:54	0.20	Blower Swap (113)
3/19/21 8:40	3/19/21 9:32	0.87	Flare Inspections (113)
3/19/21 12:26	3/19/21 12:54	0.47	Flare Inspections (113)
3/29/21 10:34	3/29/21 10:48	0.23	Blower Swap (113)
4/10/21 7:56	4/10/21 11:02	3.10	High condensate alarm (pre- programmed parametric shutdown)
4/13/21 16:50	4/13/21 17:20	0.50	Flare Inspections (113)
4/14/21 8:50	4/14/21 12:04	3.23	GCCS Construction (118)
4/15/21 8:34	4/15/21 8:40	0.10	GCCS Construction (118)
4/15/21 8:42	4/15/21 9:32	0.83	GCCS Construction (118)
4/15/21 12:34	4/15/21 15:34	3.00	GCCS Construction (118)
4/22/21 12:30	4/22/21 12:58	0.47	Flare Inspections (113)
4/22/21 13:44	4/22/21 14:00	0.27	Flare Inspections (113)
4/27/21 12:40	4/27/21 12:44	0.07	Flare Inspections (113)
4/28/21 8:18	4/28/21 8:20	0.03	Flare Inspections and Startup (113)
4/28/21 8:28	4/28/21 8:36	0.13	Flare Inspections and Startup (113)
4/28/21 8:40	4/28/21 9:28	0.80	Flare Inspections and Startup (113)
4/28/21 9:34	4/28/21 9:56	0.37	Flare Inspections (113)
4/29/21 9:24	4/29/21 14:28	5.07	Plant start up
4/30/21 9:22	4/30/21 9:24	0.03	Flare Inspections and Startup (113)
5/1/21 6:30	5/1/21 6:38	0.13	Planned Pacific Gas and Energy (PG and E) Maintenance Work, Alarmed shutdown and auto restart to swap power source to another line (113)
5/3/21 10:36	5/3/21 11:20	0.73	Sump Maintenance and inspection (113)
5/3/21 11:34	5/3/21 11:46	0.20	Sump Maintenance and inspection (113)
5/3/21 12:50	5/3/21 12:58	0.13	Sump Maintenance and inspection (113)
5/3/21 17:02	5/3/21 17:32	0.50	Sump Maintenance and inspection (113)
5/3/21 17:48	5/3/21 18:00	0.20	Sump Maintenance and inspection (113)
5/11/21 15:14	5/11/21 15:32	0.30	Blower maintenance and inspection (113)
5/11/21 15:40	5/11/21 15:56	0.27	Blower maintenance and inspection (113)
5/11/21 16:12	5/11/21 16:28	0.27	Blower maintenance and inspection (113)
5/11/21 16:50	5/11/21 17:14	0.40	Blower maintenance and inspection (113)
5/19/21 8:36	5/19/21 10:48	2.20	Blower valve installations (113)
5/24/21 7:48	5/24/21 9:42	1.90	Blower inspection and maintenance (113)
6/1/21 7:30	6/1/21 7:54	0.40	Low temp shut down (pre-programmed parametric shutdown)
6/5/21 6:42	**6/5/21 6:54**	**0.20**	**PG and E Power Outage**
6/5/21 8:38	6/5/21 8:54	0.27	PG and E Maintenance

Table 1b. Flare (A-4) Downtime
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown	Startup	Downtime Hours	Reason for Downtime
6/7/21 12:32	6/7/21 12:48	0.27	Low temp shut down (pre-programmed parametric shutdown)
6/21/21 8:04	6/21/21 8:24	0.33	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 8:30	6/22/21 9:36	1.10	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 11:08	6/22/21 11:10	0.03	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 11:14	6/22/21 11:16	0.03	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 11:30	6/22/21 11:32	0.03	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 11:38	6/22/21 11:46	0.13	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 11:50	6/22/21 11:56	0.10	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 12:02	6/22/21 12:06	0.07	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 12:08	6/22/21 12:16	0.13	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 12:20	6/22/21 16:32	4.20	Low temp shut down (pre-programmed parametric shutdown)
6/22/21 22:14	6/22/21 22:16	0.03	Low temp shut down (pre-programmed parametric shutdown)
6/23/21 6:18	6/23/21 6:20	0.03	Low temp shut down (pre-programmed parametric shutdown)
6/23/21 10:34	6/23/21 10:42	0.13	Low temp shut down (pre-programmed parametric shutdown)
6/23/21 10:44	6/25/21 8:14	45.50	Low temp shut down (pre-programmed parametric shutdown)
7/6/21 7:56	7/6/21 8:06	0.17	Low temp shutdown due to engine ramp up
7/12/21 7:48	7/12/21 8:00	0.20	Low temp shutdown due to engine ramp up
7/12/21 8:12	7/12/21 8:22	0.17	Low temp shutdown due to engine ramp up
7/12/21 8:30	7/12/21 8:48	0.30	Low temp shutdown due to engine ramp up
7/12/21 8:54	7/12/21 9:06	0.20	Low temp shutdown due to engine ramp up
7/12/21 9:14	7/12/21 14:02	4.80	Low temp shutdown due to engine ramp up
7/13/21 7:20	7/13/21 7:22	0.03	Low temp shutdown due to engine ramp up
7/13/21 9:26	7/26/21 8:26	311.00	Shutdown due to engine ramp up
7/29/21 11:26	7/29/21 12:22	0.93	Low temp shutdown due to engine ramp up
7/29/21 12:24	7/29/21 12:26	0.03	Low temp shutdown due to engine ramp up
7/29/21 20:14	7/29/21 20:16	0.03	Low temp shutdown due to engine ramp up
7/29/21 20:36	7/29/21 20:42	0.10	Low temp shutdown due to engine ramp up
7/29/21 20:50	7/29/21 20:52	0.03	Low temp shutdown due to engine ramp up
7/29/21 21:00	7/29/21 21:02	0.03	Low temp shutdown due to engine ramp up
7/29/21 21:04	7/29/21 21:06	0.03	Low temp shutdown due to engine ramp up
7/29/21 21:10	7/29/21 21:12	0.03	Low temp shutdown due to engine ramp up
7/29/21 21:14	7/29/21 21:18	0.07	Low temp shutdown due to engine ramp up
7/29/21 21:20	7/29/21 21:22	0.03	Low temp shutdown due to engine ramp up
7/29/21 21:32	7/29/21 21:34	0.03	Low temp shutdown due to engine ramp up
7/29/21 22:04	7/29/21 22:06	0.03	Low temp shutdown due to engine ramp up
7/29/21 22:08	7/29/21 22:14	0.10	Low temp shutdown due to engine ramp up
7/29/21 22:32	7/29/21 22:36	0.07	Low temp shutdown due to engine ramp up
7/29/21 22:50	7/29/21 22:52	0.03	Low temp shutdown due to engine ramp up
7/29/21 22:58	7/29/21 23:02	0.07	Low temp shutdown due to engine ramp up
7/29/21 23:06	7/29/21 23:12	0.10	Low temp shutdown due to engine ramp up
7/29/21 23:14	7/29/21 23:16	0.03	Low temp shutdown due to engine ramp up
7/29/21 23:18	7/29/21 23:20	0.03	Low temp shutdown due to engine ramp up
7/29/21 23:22	7/29/21 23:24	0.03	Low temp shutdown due to engine ramp up
7/29/21 23:46	7/29/21 23:48	0.03	Low temp shutdown due to engine ramp up
7/29/21 23:58	7/30/21 0:02	0.07	Low temp shutdown due to engine ramp up
7/30/21 0:08	7/30/21 0:10	0.03	Low temp shutdown due to engine ramp up
7/30/21 0:14	7/30/21 0:16	0.03	Low temp shutdown due to engine ramp up
7/30/21 0:18	7/30/21 0:24	0.10	Low temp shutdown due to engine ramp up
7/30/21 0:26	7/30/21 0:30	0.07	Low temp shutdown due to engine ramp up

Table 1b. Flare (A-4) Downtime
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown	Startup	Downtime Hours	Reason for Downtime
7/30/21 0:32	7/30/21 0:34	0.03	Low temp shutdown due to engine ramp up
7/30/21 0:52	7/30/21 0:56	0.07	Low temp shutdown due to engine ramp up
7/30/21 0:58	7/30/21 1:00	0.03	Low temp shutdown due to engine ramp up
7/30/21 1:04	7/30/21 1:10	0.10	Low temp shutdown due to engine ramp up
7/30/21 1:12	7/30/21 1:14	0.03	Low temp shutdown due to engine ramp up
7/30/21 1:18	7/30/21 1:20	0.03	Low temp shutdown due to engine ramp up
7/30/21 1:22	7/30/21 1:24	0.03	Low temp shutdown due to engine ramp up
7/30/21 1:56	7/30/21 1:58	0.03	Low temp shutdown due to engine ramp up
7/30/21 2:02	7/30/21 2:04	0.03	Low temp shutdown due to engine ramp up
7/30/21 2:06	7/30/21 2:10	0.07	Low temp shutdown due to engine ramp up
7/30/21 2:14	7/30/21 2:16	0.03	Low temp shutdown due to engine ramp up
7/30/21 2:20	7/30/21 2:22	0.03	Low temp shutdown due to engine ramp up
7/30/21 2:34	7/30/21 2:36	0.03	Low temp shutdown due to engine ramp up
7/30/21 2:46	7/30/21 2:52	0.10	Low temp shutdown due to engine ramp up
7/30/21 3:06	7/30/21 3:08	0.03	Low temp shutdown due to engine ramp up
7/30/21 3:14	7/30/21 3:16	0.03	Low temp shutdown due to engine ramp up
7/30/21 3:20	7/30/21 3:26	0.10	Low temp shutdown due to engine ramp up
7/30/21 3:42	7/30/21 3:44	0.03	Low temp shutdown due to engine ramp up
7/30/21 3:46	7/30/21 3:48	0.03	Low temp shutdown due to engine ramp up
7/30/21 3:54	7/30/21 3:56	0.03	Low temp shutdown due to engine ramp up
7/30/21 3:58	7/30/21 4:06	0.13	Low temp shutdown due to engine ramp up
7/30/21 4:08	7/30/21 4:12	0.07	Low temp shutdown due to engine ramp up
7/30/21 4:18	7/30/21 4:20	0.03	Low temp shutdown due to engine ramp up
7/30/21 4:22	7/30/21 4:24	0.03	Low temp shutdown due to engine ramp up
7/30/21 4:26	7/30/21 4:34	0.13	Low temp shutdown due to engine ramp up
7/30/21 4:36	7/30/21 4:44	0.13	Low temp shutdown due to engine ramp up
7/30/21 4:52	7/30/21 4:54	0.03	Low temp shutdown due to engine ramp up
7/30/21 5:06	7/30/21 5:08	0.03	Low temp shutdown due to engine ramp up
7/30/21 5:20	7/30/21 5:34	0.23	Low temp shutdown due to engine ramp up
7/30/21 5:36	7/30/21 5:42	0.10	Low temp shutdown due to engine ramp up
7/30/21 5:44	7/30/21 5:46	0.03	Low temp shutdown due to engine ramp up
7/30/21 5:48	7/30/21 5:56	0.13	Low temp shutdown due to engine ramp up
7/30/21 5:58	7/30/21 6:02	0.07	Low temp shutdown due to engine ramp up
7/30/21 6:14	7/30/21 6:16	0.03	Low temp shutdown due to engine ramp up
7/30/21 6:18	7/30/21 6:28	0.17	Low temp shutdown due to engine ramp up
7/30/21 6:30	7/30/21 7:02	0.53	Low temp shutdown due to engine ramp up
7/30/21 7:04	7/30/21 7:08	0.07	Low temp shutdown due to engine ramp up
7/30/21 7:10	7/30/21 7:44	0.57	Low temp shutdown due to engine ramp up
7/30/21 7:46	7/30/21 8:06	0.33	Low temp shutdown due to engine ramp up
7/30/21 8:08	7/30/21 8:14	0.10	Low temp shutdown due to engine ramp up
7/30/21 8:16	7/30/21 10:20	2.07	Low temp shutdown due to engine ramp up
7/30/21 10:22	7/30/21 12:16	1.90	Low temp shutdown due to engine ramp up
7/30/21 12:18	7/30/21 12:42	0.40	Low temp shutdown due to engine ramp up
7/30/21 12:44	7/30/21 12:56	0.20	Low temp shutdown due to engine ramp up
7/30/21 12:58	7/30/21 13:02	0.07	Low temp shutdown due to engine ramp up
7/30/21 13:04	7/30/21 13:06	0.03	Low temp shutdown due to engine ramp up
7/30/21 13:08	7/30/21 13:12	0.07	Low temp shutdown due to engine ramp up
7/30/21 13:14	7/30/21 13:16	0.03	Low temp shutdown due to engine ramp up
7/30/21 13:18	7/30/21 13:24	0.10	Low temp shutdown due to engine ramp up

Table 1b. Flare (A-4) Downtime
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown	Startup	Downtime Hours	Reason for Downtime
7/30/21 13:26	7/30/21 13:28	0.03	Low temp shutdown due to engine ramp up
7/30/21 13:30	7/30/21 13:32	0.03	Low temp shutdown due to engine ramp up
7/30/21 13:34	7/30/21 13:40	0.10	Low temp shutdown due to engine ramp up
7/30/21 13:42	7/30/21 13:46	0.07	Low temp shutdown due to engine ramp up
7/30/21 13:54	7/30/21 13:58	0.07	Low temp shutdown due to engine ramp up
7/30/21 14:06	7/30/21 14:08	0.03	Low temp shutdown due to engine ramp up
7/30/21 14:12	7/30/21 14:16	0.07	Low temp shutdown due to engine ramp up
7/30/21 14:22	7/30/21 14:26	0.07	Low temp shutdown due to engine ramp up
7/30/21 14:28	7/30/21 14:30	0.03	Low temp shutdown due to engine ramp up
7/30/21 14:36	7/30/21 14:38	0.03	Low temp shutdown due to engine ramp up
7/30/21 14:40	7/30/21 14:42	0.03	Low temp shutdown due to engine ramp up
Total		**426.53**	

Notes:

Events in bold type denotes Malfunction Events

All events listed involved GCCS inspection and/or maintenance activities prior to start up (or as soon as feasible following programmed startups) in accordance with Rule 8-34-113 requirements and the BAAQMD Compliance Advisory for Municipal Solid Waste Landfills, dated November 5, 2018, with the exception of the events that occurred on February 11 and June 5, 2021 which involved shutdown of the blower associated with the variable frequency drive (VFD) and a utility outage from the Pacific Gas and Energy (PG&E). These events were considered reportable compliance activities (RCA) and breakdown relief was requested.

Table 2. Individual Well Startups, Shutdowns and Decommissions
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Shutdown	Start-up	Days Offline	Reason for Shutdown/Startup
SCEW2018	5/7/21 0:00	NA	NA	Well Permanently Decommissioned During Construction Activities Due to Poor Gas Quality
SCV104-A	5/7/21 0:00	NA	NA	Well Permanently Decommissioned During Construction Activities Due to Poor Gas Quality
SCV227-0	5/7/21 0:00	NA	NA	Well Permanently Decommissioned During Construction Activities Due to Poor Gas Quality
SCV240-0	5/7/21 0:00	NA	NA	Well Permanently Decommissioned During Construction Activities Due to Poor Gas Quality
SCV241-0	5/7/21 0:00	NA	NA	Well Permanently Decommissioned During Construction Activities Due to Poor Gas Quality
SCEW2101	NA	5/20/21 9:31	NA	Initial Startup of New Vertical Extraction Well
SCEW2102	NA	5/20/21 9:21	NA	Initial Startup of New Vertical Extraction Well
SCEW2103	NA	5/20/21 10:59	NA	Initial Startup of New Vertical Extraction Well
SCEW2104	NA	5/19/21 11:31	NA	Initial Startup of New Vertical Extraction Well
SCEW2105	NA	5/19/21 9:54	NA	Initial Startup of New Vertical Extraction Well
SCEW2106	NA	5/19/21 9:34	NA	Initial Startup of New Vertical Extraction Well
SCEW2107	NA	5/19/21 10:04	NA	Initial Startup of New Vertical Extraction Well
SCEW2108	NA	5/20/21 9:48	NA	Initial Startup of New Vertical Extraction Well
SCEW2109	NA	5/19/21 12:18	NA	Initial Startup of New Vertical Extraction Well
SCEW2110	NA	5/19/21 12:02	NA	Initial Startup of New Vertical Extraction Well
SCEW2111	NA	5/19/21 12:42	NA	Initial Startup of New Vertical Extraction Well
SCEW2112	NA	5/19/21 12:57	NA	Initial Startup of New Vertical Extraction Well
SCEW2113	NA	5/20/21 8:55	NA	Initial Startup of New Vertical Extraction Well
SCEW2114	NA	5/20/21 8:47	NA	Initial Startup of New Vertical Extraction Well
SCEW2115	NA	5/20/21 8:37	NA	Initial Startup of New Vertical Extraction Well
SCEW2116	NA	5/20/21 8:27	NA	Initial Startup of New Vertical Extraction Well
SCEW2117	NA	5/20/21 8:14	NA	Initial Startup of New Vertical Extraction Well
SCEW2118	NA	5/20/21 8:02	NA	Initial Startup of New Vertical Extraction Well
SCEW2119	NA	5/20/21 7:45	NA	Initial Startup of New Vertical Extraction Well
SCEW2120	NA	5/19/21 14:15	NA	Initial Startup of New Vertical Extraction Well
SCEW2121	NA	5/19/21 14:24	NA	Initial Startup of New Vertical Extraction Well
SCEW2122	NA	5/19/21 14:34	NA	Initial Startup of New Vertical Extraction Well
SCEW2123	NA	5/19/21 14:45	NA	Initial Startup of New Vertical Extraction Well
SCEW2124	NA	5/20/21 7:25	NA	Initial Startup of New Vertical Extraction Well
SCEW2125	NA	5/19/21 13:40	NA	Initial Startup of New Vertical Extraction Well
SCEW2126	NA	5/19/21 13:26	NA	Initial Startup of New Vertical Extraction Well
SCEC0018	6/22/21 0:00	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality

Note: All well downtime events listed are consistent with applicable Rule 8-34 provisions and BAAQMD permit conditions.

Table 3. Wells with Positive Pressure
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SC000H52	5/26/2021 14:15	0.71	0.71	Adjusted Valve
SC000H52	5/26/2021 14:18	-0.79	-0.89	In Compliance
SC0V106A	3/25/2021 12:38	-0.01	0.05	Adjusted Valve
SC0V106A	3/26/2021 17:06	-0.13	-0.08	In Compliance
SC0V106A	5/7/2021 8:18	0.04	0.05	Adjusted Valve
SC0V106A	5/7/2021 8:21	-0.08	-0.09	In Compliance
SC0V110A	6/2/2021 13:10	1.74	1.72	Adjusted Valve
SC0V110A	6/7/2021 14:37	1.48	-0.25	Adjusted Valve, In Compliance
SC0V110A	7/21/2021 8:42	1.99	-0.19	Adjusted Valve, In Compliance
SCEC0006	4/5/2021 13:08	0.01	0.01	Adjusted Valve
SCEC0006	4/5/2021 13:12	-0.14	-0.15	In Compliance
SCEC0006	5/27/2021 9:41	0.73	0.73	Adjusted Valve
SCEC0006	5/27/2021 9:43	-0.08	-0.11	In Compliance
SCEC0022	5/10/2021 8:32	0.05	0.04	Adjusted Valve
SCEC0022	5/10/2021 8:35	-6.52	-7.01	In Compliance
SCEC0024	5/10/2021 8:18	8.05	8.05	Adjusted Valve
SCEC0024	5/10/2021 8:21	-0.44	-0.58	In Compliance
SCEW2001	5/26/2021 10:45	0.9	0.92	Adjusted Valve
SCEW2001	5/26/2021 10:49	-0.12	-0.14	In Compliance
SCEW2002	2/4/2021 11:53	0	0.03	Adjusted Valve
SCEW2002	2/11/2021 11:16	-0.85	-0.84	In Compliance
SCEW2002	5/26/2021 10:33	0.89	0.89	Adjusted Valve
SCEW2002	6/4/2021 9:07	-1.82	-1.6	In Compliance
SCEW2003	2/4/2021 11:23	-0.03	0	Adjusted Valve
SCEW2003	2/4/2021 11:26	-0.17	-0.17	In Compliance
SCEW2003	2/4/2021 11:27	0.02	0.01	Adjusted Valve
SCEW2003	2/10/2021 12:00	-0.13	-0.13	In Compliance
SCEW2003	5/26/2021 9:40	0.81	0.8	Adjusted Valve
SCEW2003	5/26/2021 9:42	0.8	0.81	Second Reading
SCEW2003	5/26/2021 9:46	-0.08	-0.1	In Compliance
SCEW2004	5/26/2021 9:23	1.04	1.06	Adjusted Valve
SCEW2004	5/26/2021 9:27	-0.07	-0.07	In Compliance
SCEW2005	5/26/2021 8:52	0.51	0.52	Adjusted Valve
SCEW2005	5/26/2021 8:56	-0.09	-0.1	In Compliance
SCEW2007	5/26/2021 9:02	0.65	0.68	Adjusted Valve
SCEW2007	5/26/2021 9:06	-0.18	-0.17	In Compliance
SCEW2007	5/27/2021 8:20	0.66	0.69	Adjusted Valve
SCEW2007	5/27/2021 8:23	-0.07	-0.11	In Compliance

Table 3. Wells with Positive Pressure
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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCEW2008	5/26/2021 9:14	0.92	0.93	Adjusted Valve
SCEW2008	5/26/2021 9:18	-0.14	-0.15	In Compliance
SCEW2010	5/26/2021 10:56	1.01	1.03	Adjusted Valve
SCEW2010	5/26/2021 10:59	-0.06	-0.05	In Compliance
SCEW2011	5/26/2021 11:12	0.91	0.93	Adjusted Valve
SCEW2011	5/26/2021 11:20	-0.19	-0.21	In Compliance
SCEW2014	5/26/2021 8:07	0.69	0.72	Adjusted Valve
SCEW2014	5/26/2021 8:10	-0.24	-0.25	In Compliance
SCEW2015	5/26/2021 8:20	1.11	1.12	Adjusted Valve
SCEW2015	5/26/2021 8:24	-0.17	-0.2	In Compliance
SCEW2017	5/26/2021 7:56	1.16	1.18	Adjusted Valve
SCEW2017	5/26/2021 8:00	-0.29	-0.29	In Compliance
SCEW2101	5/20/2021 9:31	0.12	0.12	Adjusted Valve
SCEW2101	5/20/2021 9:34	0.05	0.06	Second Reading
SCEW2101	5/21/2021 10:00	-0.08	-0.04	In Compliance
SCEW2102	5/20/2021 9:21	0.09	0.11	Adjusted Valve
SCEW2102	5/20/2021 9:23	0.12	0.13	Second Reading
SCEW2102	5/21/2021 9:50	0.04	0.04	Adjusted Valve
SCEW2102	5/21/2021 9:53	-0.09	-0.1	In Compliance
SCEW2103	5/20/2021 10:59	0.08	0.09	Adjusted Valve
SCEW2103	5/20/2021 11:01	0.06	0.06	Second Reading
SCEW2103	5/21/2021 9:28	0.03	0.03	Adjusted Valve
SCEW2103	5/21/2021 9:31	-0.13	-0.14	In Compliance
SCEW2104	5/19/2021 11:31	0.09	0.08	Adjusted Valve
SCEW2104	5/19/2021 11:33	0.04	0.04	Second Reading
SCEW2104	5/21/2021 9:15	0.08	0.08	Adjusted Valve
SCEW2104	5/21/2021 9:19	-0.1	-0.1	In Compliance
SCEW2105	5/19/2021 9:54	0.04	0.04	Adjusted Valve
SCEW2105	5/19/2021 9:56	0.02	0.04	Second Reading
SCEW2105	5/21/2021 9:05	-0.22	-0.13	In Compliance
SCEW2106	5/19/2021 9:34	0.03	0.04	Adjusted Valve
SCEW2106	5/19/2021 9:36	0.03	0.04	Second Reading
SCEW2106	5/21/2021 8:54	-0.12	-0.08	In Compliance
SCEW2106	5/24/2021 16:04	0.07	0.06	Adjusted Valve
SCEW2106	5/24/2021 16:10	-0.11	-0.14	In Compliance
SCEW2107	5/19/2021 10:04	0.04	0.04	Adjusted Valve
SCEW2107	5/19/2021 10:07	0.03	0.03	Second Reading
SCEW2107	5/21/2021 9:01	-0.14	-0.06	In Compliance
SCEW2108	5/20/2021 9:48	0.06	0.07	Adjusted Valve
SCEW2108	5/20/2021 9:50	0.09	0.09	Second Reading
SCEW2108	5/21/2021 9:39	0.08	0.08	Adjusted Valve

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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCEW2108	5/21/2021 9:42	-0.08	-0.08	In Compliance
SCEW2109	5/19/2021 12:18	0.04	0.07	Adjusted Valve
SCEW2109	5/21/2021 10:10	0.03	0.05	Adjusted Valve
SCEW2109	5/21/2021 10:16	-0.1	-0.11	In Compliance
SCEW2110	5/19/2021 12:02	0.03	0.02	Adjusted Valve
SCEW2110	5/19/2021 12:04	0.01	0.02	Second Reading
SCEW2110	5/19/2021 12:20	0.08	0.1	Third Reading
SCEW2110	5/21/2021 10:28	-0.14	-0.1	In Compliance
SCEW2110	5/24/2021 17:26	0.09	0.07	Adjusted Valve
SCEW2110	5/24/2021 17:28	-0.07	-0.07	In Compliance
SCEW2111	5/19/2021 12:42	0.14	0.09	Adjusted Valve
SCEW2111	5/19/2021 12:44	0.11	0.12	Second Reading
SCEW2111	5/21/2021 13:37	0.13	0.13	Adjusted Valve
SCEW2111	5/24/2021 15:49	-0.19	-0.18	In Compliance
SCEW2112	5/19/2021 12:57	0.07	0.09	Adjusted Valve
SCEW2112	5/19/2021 13:00	0.08	0.07	Second Reading
SCEW2112	5/21/2021 13:26	0.01	0.01	Adjusted Valve
SCEW2112	5/21/2021 13:28	-0.22	-0.21	In Compliance
SCEW2113	5/20/2021 8:55	0.13	0.19	Adjusted Valve
SCEW2113	5/20/2021 8:57	0.15	0.18	Second Reading
SCEW2113	5/21/2021 13:01	0.17	0.18	Adjusted Valve
SCEW2113	5/21/2021 13:06	-0.21	-0.23	In Compliance
SCEW2114	5/20/2021 8:47	0.22	0.23	Adjusted Valve
SCEW2114	5/20/2021 8:49	0.21	0.23	Second Reading
SCEW2114	5/21/2021 12:53	0.19	0.18	Adjusted Valve
SCEW2114	5/21/2021 12:57	-0.14	-0.15	In Compliance
SCEW2115	5/20/2021 8:37	0.27	0.27	Adjusted Valve
SCEW2115	5/20/2021 8:39	0.22	0.21	Second Reading
SCEW2115	5/21/2021 12:45	0.11	0.13	Adjusted Valve
SCEW2115	5/21/2021 12:49	-0.25	-0.23	In Compliance
SCEW2116	5/20/2021 8:27	0.06	0.07	Adjusted Valve
SCEW2116	5/20/2021 8:29	0.16	0.18	Second Reading
SCEW2116	5/21/2021 12:35	0.22	0.22	Adjusted Valve
SCEW2116	5/21/2021 12:39	-0.25	-0.24	In Compliance
SCEW2117	5/20/2021 8:14	0.07	0.09	Adjusted Valve
SCEW2117	5/20/2021 8:17	0.12	0.12	Second Reading
SCEW2117	5/21/2021 12:26	0.11	0.11	Adjusted Valve
SCEW2117	5/21/2021 12:29	-0.14	-0.12	In Compliance
SCEW2118	5/20/2021 8:02	0.08	0.1	Adjusted Valve
SCEW2118	5/20/2021 8:05	0.1	0.1	Second Reading
SCEW2118	5/21/2021 12:18	0.03	0.05	Adjusted Valve
SCEW2118	5/21/2021 12:20	-0.18	-0.17	In Compliance
SCEW2119	5/20/2021 7:45	0.03	0.06	Adjusted Valve
SCEW2119	5/20/2021 7:47	0.09	0.09	Second Reading

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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCEW2119	5/21/2021 12:09	0.08	0.1	Adjusted Valve
SCEW2119	5/21/2021 12:11	-0.42	-0.39	In Compliance
SCEW2120	5/19/2021 14:15	0.34	0.38	Adjusted Valve
SCEW2120	5/19/2021 14:17	0.36	0.34	Second Reading
SCEW2120	5/21/2021 10:46	0	0.01	Adjusted Valve
SCEW2120	5/21/2021 10:48	-0.11	-0.1	In Compliance
SCEW2121	5/19/2021 14:24	0.5	0.5	Adjusted Valve
SCEW2121	5/19/2021 14:26	0.25	0.31	Second Reading
SCEW2121	5/21/2021 10:52	0.13	0.16	Adjusted Valve
SCEW2121	5/21/2021 10:55	-0.09	-0.1	In Compliance
SCEW2121	5/24/2021 14:26	0.01	-0.03	Adjusted Valve, In Compliance
SCEW2122	5/19/2021 14:34	0.71	0.66	Adjusted Valve
SCEW2122	5/19/2021 14:36	0.7	0.74	Second Reading
SCEW2122	5/21/2021 11:00	0.03	0.07	Adjusted Valve
SCEW2122	5/21/2021 11:04	-0.1	-0.11	In Compliance
SCEW2123	5/19/2021 14:45	0.93	0.91	Adjusted Valve
SCEW2123	5/19/2021 14:47	1.18	1.17	Second Reading
SCEW2123	5/21/2021 11:42	0.44	0.47	Adjusted Valve
SCEW2123	5/21/2021 11:46	-0.18	-0.2	In Compliance
SCEW2124	5/20/2021 7:25	0.03	0.03	Adjusted Valve
SCEW2124	5/20/2021 7:28	0.34	0.35	Second Reading
SCEW2124	5/21/2021 11:32	0.54	0.53	Adjusted Valve
SCEW2124	5/21/2021 11:35	-0.24	-0.24	In Compliance
SCEW2125	5/19/2021 13:40	0.46	0.5	Adjusted Valve
SCEW2125	5/21/2021 11:19	0.11	0.15	Adjusted Valve
SCEW2125	5/21/2021 11:21	-0.31	-0.26	In Compliance
SCEW2125	5/26/2021 12:39	0.73	0.72	Adjusted Valve
SCEW2125	5/26/2021 12:43	-0.21	-0.21	In Compliance
SCEW2126	5/19/2021 13:26	0.18	0.17	Adjusted Valve
SCEW2126	5/19/2021 13:28	0.16	0.17	Second Reading
SCEW2126	5/21/2021 11:12	-0.01	0	Adjusted Valve
SCEW2126	5/21/2021 11:14	-0.25	-0.25	In Compliance
SCEW2126	5/26/2021 12:27	0.6	0.61	Adjusted Valve
SCEW2126	5/26/2021 12:33	-0.07	-0.07	In Compliance
SCHC2001	3/24/2021 11:39	0.1	0.11	Adjusted Valve
SCHC2001	3/24/2021 11:45	-0.27	-0.21	In Compliance
SCHC2001	4/28/2021 11:12	21.13	21.12	Adjusted Valve
SCHC2001	4/28/2021 11:55	18.4	18.39	Second Reading
SCHC2001	4/30/2021 9:04	-0.11	-0.09	In Compliance
SCHC2001	5/25/2021 9:33	1.23	1.26	Adjusted Valve
SCHC2001	5/25/2021 9:36	1.38	1.38	Second Reading
SCHC2001	6/10/2021 13:04	0.01	0.01	Adjusted Valve
SCHC2001	6/10/2021 13:10	-0.03	-0.02	In Compliance

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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCHC2001	7/1/2021 10:04	0	-0.02	Adjusted Valve, In Compliance
SCLEW-06	6/17/2021 8:48	0.15	-0.19	Adjusted Valve, In Compliance
SCV003-0	7/14/2021 11:00	26.67	-0.17	Adjusted Valve, In Compliance
SCV04-2A	7/21/2021 6:55	0.13	-0.1	Adjusted Valve, In Compliance
SCV049-A	5/25/2021 9:22	0.07	0.05	Adjusted Valve
SCV049-A	5/25/2021 9:24	-0.4	-0.4	In Compliance
SCV050-A	4/22/2021 14:56	0.09	0.08	Adjusted Valve
SCV050-A	4/22/2021 14:59	-0.05	-0.06	In Compliance
SCV050-A	5/6/2021 13:15	0.03	0.03	Adjusted Valve
SCV050-A	5/6/2021 13:17	-0.13	-0.1	In Compliance
SCV050-A	5/25/2021 11:54	1.11	1.12	Adjusted Valve
SCV050-A	5/25/2021 12:00	-0.45	-0.46	In Compliance
SCV050-A	6/17/2021 10:14	0.01	-0.15	Adjusted Valve, In Compliance
SCV051-A	2/4/2021 14:20	0.11	-0.04	Adjusted Valve, In Compliance
SCV051-A	5/25/2021 12:07	1.2	1.21	Adjusted Valve
SCV051-A	5/25/2021 12:13	-0.26	-0.3	In Compliance
SCV064-5	6/11/2021 10:15	0.54	-0.28	Adjusted Valve, In Compliance
SCV065-0	6/11/2021 9:15	23.65	-0.3	Adjusted Valve, In Compliance
SCV065-0	7/7/2021 12:09	2.81	-1.15	Adjusted Valve, In Compliance
SCV065-0	7/20/2021 9:43	0.28	-0.28	Adjusted Valve, In Compliance
SCV066-5	5/28/2021 7:45	6.08	5.64	Adjusted Valve
SCV066-5	5/28/2021 7:48	-0.16	-0.17	In Compliance
SCV066-5	7/14/2021 10:32	15.89	-0.27	Adjusted Valve, In Compliance
SCV066-A	7/14/2021 8:21	0.07	-0.1	Adjusted Valve, In Compliance
SCV067-5	2/5/2021 10:38	0.11	0.14	Adjusted Valve
SCV067-5	2/5/2021 10:44	-0.25	-0.28	In Compliance
SCV067-5	5/28/2021 7:31	0.06	0.09	Adjusted Valve
SCV067-5	5/28/2021 7:35	-0.12	-0.14	In Compliance
SCV067-5	7/14/2021 7:59	0.3	-0.1	Adjusted Valve, In Compliance
SCV068-5	6/23/2021 11:44	0.23	-0.53	Adjusted Valve, In Compliance
SCV074-A	6/2/2021 11:15	0.1	0.1	Adjusted Valve
SCV074-A	6/2/2021 11:17	-0.33	-0.35	In Compliance

Table 3. Wells with Positive Pressure
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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCV076-1	6/29/2021 7:35	2.22	-0.76	Adjusted Valve, In Compliance
SCV077-1	4/7/2021 12:25	0.04	0.05	Adjusted Valve
SCV077-1	4/7/2021 12:28	-5.74	-5.96	In Compliance
SCV078-1	7/26/2021 12:52	0.38	-0.63	Adjusted Valve, In Compliance
SCV079-1	7/14/2021 14:29	1.29	-0.37	Adjusted Valve, In Compliance
SCV081-1	6/2/2021 7:42	11.44	11.44	Adjusted Valve
SCV081-1	6/2/2021 7:42	11.44	11.44	Second Reading
SCV081-1	6/2/2021 7:46	10.58	10.54	Third Reading
SCV081-1	6/10/2021 8:43	7.12	-0.33	Adjusted Valve, In Compliance
SCV081-1	7/9/2021 13:18	5.17	-5.21	Adjusted Valve, In Compliance
SCV082-1	7/22/2021 10:59	4.19	4.17	Adjusted Valve
SCV082-1	7/22/2021 11:01	4.2	4.21	Second Reading
SCV095-A	6/11/2021 10:22	0.08	-0.25	Adjusted Valve, In Compliance
SCV1007A	3/24/2021 10:25	0.02	0.02	Adjusted Valve
SCV1007A	3/24/2021 10:27	-1.16	-1.18	In Compliance
SCV1007A	5/25/2021 10:05	0.92	0.94	Adjusted Valve
SCV1007A	5/25/2021 10:11	-0.22	-0.21	In Compliance
SCV1007A	7/14/2021 13:31	0.04	-0.13	Adjusted Valve, In Compliance
SCV101-0	7/1/2021 12:35	0.05	-0.3	Adjusted Valve, In Compliance
SCV102-A	4/8/2021 10:51	0.04	0.05	Adjusted Valve
SCV102-A	4/8/2021 10:54	-0.85	-0.89	In Compliance
SCV102-A	5/25/2021 9:44	1.14	1.15	Adjusted Valve
SCV102-A	5/25/2021 9:48	-0.24	-0.22	In Compliance
SCV103-A	3/24/2021 12:37	0.02	0.03	Adjusted Valve
SCV103-A	3/24/2021 12:40	-0.84	-0.84	In Compliance
SCV103-A	5/25/2021 9:15	0.22	0.22	Adjusted Valve
SCV103-A	5/26/2021 13:52	0.57	0.57	Adjusted Valve
SCV103-A	5/26/2021 14:03	-0.41	-0.46	In Compliance
SCV103-A	6/7/2021 13:41	0.29	-0.25	Adjusted Valve, In Compliance
SCV103-A	6/17/2021 12:59	0.12	-0.17	Adjusted Valve, In Compliance
SCV107-0	7/1/2021 8:46	2.15	-0.35	Adjusted Valve, In Compliance
SCV109-A	7/23/2021 7:40	0.12	-0.35	Adjusted Valve, In Compliance
SCV114-0	6/1/2021 13:16	3.19	3.19	Adjusted Valve
SCV114-0	6/1/2021 13:23	-0.31	-0.25	In Compliance
SCV114-0	7/22/2021 9:42	0.29	-0.25	Adjusted Valve, In Compliance

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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCV116-A	5/20/2021 11:53	-0.03	0	Adjusted Valve
SCV116-A	5/20/2021 11:57	-0.15	-0.16	In Compliance
SCV125A0	7/1/2021 9:04	0.39	-0.11	Adjusted Valve, In Compliance
SCV125A0	7/14/2021 11:35	0.33	-0.04	Adjusted Valve, In Compliance
SCV127A0	7/2/2021 13:42	1.73	-0.1	Adjusted Valve, In Compliance
SCV128-A	7/21/2021 8:55	8.45	-0.28	Adjusted Valve, In Compliance
SCV132-0	3/25/2021 12:09	0.14	0.19	Adjusted Valve
SCV132-0	3/25/2021 12:13	0.03	-0.24	Adjusted Valve, In Compliance
SCV132-0	4/20/2021 11:17	0.03	0.02	Adjusted Valve
SCV132-0	4/20/2021 11:20	-0.09	-0.09	In Compliance
SCV132-0	7/22/2021 8:50	0.06	-0.08	Adjusted Valve, In Compliance
SCV133-0	7/21/2021 8:27	1.81	-0.19	Adjusted Valve, In Compliance
SCV134-0	3/29/2021 14:32	0.24	0.25	Adjusted Valve
SCV134-0	3/29/2021 14:35	-0.21	-0.25	In Compliance
SCV135-0	4/20/2021 13:36	0.01	0.01	Adjusted Valve
SCV135-0	4/20/2021 13:39	-0.36	-0.37	In Compliance
SCV135-0	6/24/2021 10:45	0.03	-0.11	Adjusted Valve, In Compliance
SCV136-0	7/26/2021 12:05	0.18	-1.36	Adjusted Valve, In Compliance
SCV137-0	4/7/2021 9:45	0.22	0.23	Adjusted Valve
SCV137-0	4/7/2021 9:52	-0.06	-0.07	In Compliance
SCV138-0	6/2/2021 10:17	1.26	1.15	Adjusted Valve
SCV138-0	6/2/2021 10:22	-0.47	-0.42	In Compliance
SCV139-0	3/26/2021 14:01	3.21	3.23	Adjusted Valve
SCV139-0	3/26/2021 14:05	-0.56	-0.62	In Compliance
SCV139-0	4/21/2021 9:51	3.05	3.04	Adjusted Valve
SCV139-0	4/21/2021 10:41	-2.4	-2.36	In Compliance
SCV139-0	6/24/2021 10:03	3.37	-0.21	Adjusted Valve, In Compliance
SCV141-0	5/25/2021 13:13	0.28	0.3	Adjusted Valve
SCV141-0	5/25/2021 13:15	-0.3	-0.34	In Compliance
SCV142-0	3/10/2021 13:17	0.19	0.23	Adjusted Valve
SCV142-0	3/10/2021 13:20	-2.88	-3	In Compliance
SCV142-0	5/25/2021 13:31	0.99	1	Adjusted Valve
SCV142-0	5/25/2021 13:34	-0.15	-0.17	In Compliance
SCV143-0	5/25/2021 12:19	1	0.98	Adjusted Valve

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Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCV143-0	5/25/2021 12:23	-0.47	-0.5	In Compliance
SCV143-0	6/21/2021 13:27	0.04	-0.09	Adjusted Valve, In Compliance
SCV143-0	7/2/2021 11:16	0.32	-0.05	Adjusted Valve, In Compliance
SCV144-0	5/25/2021 13:56	0.93	0.95	Adjusted Valve
SCV144-0	5/25/2021 14:02	-0.25	-0.23	In Compliance
SCV146-0	4/21/2021 9:25	0.02	0.01	Adjusted Valve
SCV146-0	4/21/2021 9:28	-0.18	-0.18	In Compliance
SCV149-A	4/28/2021 11:31	0.01	0.01	Adjusted Valve
SCV149-A	4/28/2021 11:34	0.07	0.06	Second Reading
SCV149-A	5/3/2021 15:08	-14.77	-14.76	In Compliance
SCV202-0	2/15/2021 12:36	3.74	3.8	Adjusted Valve
SCV202-0	2/15/2021 13:25	2.65	2.68	Second Reading
SCV202-0	2/17/2021 10:18	-22.67	-22.56	In Compliance
SCV220-0	7/19/2021 9:57	0.3	-0.08	Adjusted Valve, In Compliance
SCV223-0	4/9/2021 9:34	0.23	0.23	Adjusted Valve
SCV223-0	4/9/2021 9:38	-0.35	-0.44	In Compliance
SCV223-0	4/30/2021 9:51	0.14	0.12	Adjusted Valve
SCV223-0	4/30/2021 9:54	-0.07	-0.07	In Compliance
SCV223-0	7/19/2021 10:33	0.43	-0.09	Adjusted Valve, In Compliance
SCV225-0	2/15/2021 13:36	0.47	0.51	Adjusted Valve
SCV225-0	2/16/2021 15:13	-0.77	-0.7	In Compliance
SCV226-0	5/26/2021 12:15	0.87	0.88	Adjusted Valve
SCV226-0	5/26/2021 12:22	-0.15	-0.15	In Compliance
SCV230-0	5/27/2021 11:43	0.21	0.22	Adjusted Valve
SCV230-0	5/27/2021 11:47	-0.97	-0.93	In Compliance
SCV234-0	6/24/2021 8:37	0.02	-0.15	Adjusted Valve, In Compliance
SCV235-0	2/15/2021 14:23	0.55	0.57	Adjusted Valve
SCV235-0	2/17/2021 10:22	-15.96	-15.87	In Compliance
SCV235-0	5/4/2021 10:36	0.15	0.16	Adjusted Valve
SCV235-0	5/5/2021 8:04	-1.04	-1.01	In Compliance
SCV236-0	2/15/2021 12:25	1.97	1.97	Adjusted Valve
SCV236-0	2/15/2021 12:29	1.93	1.94	Second Reading
SCV236-0	2/15/2021 13:14	0.98	1.04	Third Reading
SCV236-0	2/15/2021 13:17	0.96	1.01	Fourth Reading
SCV236-0	2/17/2021 10:08	-23.22	-23.25	In Compliance
SCV236-0	4/9/2021 10:07	3.56	3.59	Adjusted Valve
SCV236-0	4/9/2021 10:20	3.65	3.65	Second Reading
SCV236-0	4/16/2021 12:37	-27.04	-27.06	In Compliance

Table 3. Wells with Positive Pressure
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
SCV236-0	5/27/2021 10:12	0.87	0.9	Adjusted Valve
SCV236-0	6/3/2021 12:02	-1.63	-0.24	In Compliance
SCV49-5A	3/25/2021 8:19	0.13	0.13	Adjusted Valve
SCV49-5A	3/25/2021 8:22	-0.55	-0.55	In Compliance
SCV49-5A	5/6/2021 13:22	0.01	0.04	Adjusted Valve
SCV49-5A	5/6/2021 13:24	-0.11	-0.12	In Compliance
SCV49-5A	5/25/2021 11:45	0.9	0.93	Adjusted Valve
SCV49-5A	5/25/2021 11:49	-0.18	-0.21	In Compliance
SCV51-5A	5/25/2021 12:29	0.99	1.07	Adjusted Valve
SCV51-5A	5/25/2021 12:33	-0.55	-0.49	In Compliance
SCV68-1A	7/7/2021 11:51	8.9	-25.53	Adjusted Valve, In Compliance
SCV88-5A	7/1/2021 7:13	0.15	-0.23	Adjusted Valve, In Compliance

Note: All required corrective action and remonitoring was completed in accordance with Rule 8-34 and NSPS timelines.

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
SC000H03	2/5/2021 13:13	7.2	Adjusted Valve
SC000H03	2/8/2021 8:22	3.6	In Compliance
SC000H03	6/11/2021 7:36	5.7	Adjusted Valve
SC000H03	6/11/2021 7:39	7.9	Second Reading
SC000H03	6/23/2021 13:10	6.6	Adjusted Valve
SC000H03	6/23/2021 13:13	5	Second Reading
SC000H03	7/7/2021 11:10	11.2	Adjusted Valve
SC000H03	7/7/2021 11:12	12.6	Second Reading
SC000H03	7/20/2021 7:45	20.7	Adjusted Valve
SC000H03	7/20/2021 7:48	13.2	Second Reading
SC000H03	7/20/2021 7:53	10.4	Third Reading
SC000H04	6/11/2021 7:48	6.2	Adjusted Valve
SC000H04	6/11/2021 7:50	6.2	Second Reading
SC000H04	6/23/2021 13:22	5.2	Adjusted Valve
SC000H04	6/23/2021 13:24	14.2	Second Reading
SC000H04	7/7/2021 11:22	10.8	Adjusted Valve
SC000H04	7/7/2021 11:26	3.5	In Compliance
SC000H04	7/27/2021 14:09	11.4	Adjusted Valve
SC000H04	7/27/2021 14:11	10.8	Second Reading
SC000H52	6/24/2021 12:36	15.8	Adjusted Valve
SC000H52	6/24/2021 12:38	13	Second Reading
SC000H52	7/7/2021 12:40	0.3	In Compliance
SCEC0008	5/29/2021 11:45	6.8	Adjusted Valve
SCEC0008	5/29/2021 11:47	2.1	In Compliance
SCEC0009	3/17/2021 11:22	5.2	Adjusted Valve
SCEC0009	3/17/2021 11:25	0	In Compliance
SCEC0018	2/16/2021 13:25	9.5	Adjusted Valve
SCEC0018	2/16/2021 13:29	9.8	Second Reading
SCEC0018	2/18/2021 7:50	17.7	Adjusted Valve
SCEC0018	2/18/2021 7:53	18.4	Second Reading
SCEC0018	2/22/2021 9:41	11.8	Adjusted Valve
SCEC0018	2/22/2021 9:46	11.2	Second Reading
SCEC0018	2/23/2021 13:29	0.4	In Compliance
SCEC0018	2/23/2021 13:33	6	Adjusted Valve
SCEC0018	2/24/2021 15:38	15.4	Adjusted Valve
SCEC0018	2/24/2021 15:56	13.1	Second Reading
SCEC0018	3/1/2021 11:18	7.9	Adjusted Valve
SCEC0018	3/5/2021 9:06	14.9	Adjusted Valve
SCEC0018	3/8/2021 13:20	15.9	Adjusted Valve
SCEC0018	3/8/2021 13:22	16.2	Second Reading
SCEC0018	3/11/2021 13:40	11.2	Adjusted Valve
SCEC0018	3/11/2021 13:43	10.8	Second Reading
SCEC0018	3/12/2021 11:52	7.6	Adjusted Valve
SCEC0018	3/12/2021 11:57	9.3	Second Reading
SCEC0018	3/15/2021 11:17	14.2	Adjusted Valve
SCEC0018	3/15/2021 11:21	13.4	Second Reading
SCEC0018	3/18/2021 9:35	17.6	Adjusted Valve
SCEC0018	3/18/2021 9:37	17.2	Second Reading
SCEC0018	3/19/2021 13:16	5.1	Adjusted Valve
SCEC0018	3/19/2021 13:19	9.4	Second Reading
SCEC0018	3/23/2021 8:55	19.3	Adjusted Valve

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
SCEC0018	3/23/2021 8:57	19.1	Second Reading
SCEC0018	3/26/2021 10:27	13.1	Adjusted Valve
SCEC0018	3/26/2021 10:29	14.7	Second Reading
SCEC0018	4/5/2021 11:00	15.3	Adjusted Valve
SCEC0018	4/5/2021 11:02	15.5	Second Reading
SCEC0018	4/9/2021 10:41	12.3	Adjusted Valve
SCEC0018	4/9/2021 10:43	12.4	Second Reading
SCEC0018	4/21/2021 11:26	7	Adjusted Valve
SCEC0018	4/21/2021 11:29	6	Second Reading
SCEC0018	5/10/2021 9:06	12.3	Adjusted Valve
SCEC0018	5/10/2021 9:08	11.8	Second Reading
SCEC0018	5/14/2021 9:41	17.4	Adjusted Valve
SCEC0018	5/14/2021 9:43	17.3	Second Reading
SCEC0018	5/17/2021 12:42	10.9	Adjusted Valve
SCEC0018	5/17/2021 12:43	11.2	Second Reading
SCEC0018	5/27/2021 8:02	18.3	Adjusted Valve
SCEC0018	5/27/2021 8:03	18.1	Second Reading
SCEC0018	6/3/2021 7:55	17.4	Adjusted Valve
SCEC0018	6/3/2021 7:57	15.6	Second Reading
SCEC0018	6/10/2021 10:47	5.6	Adjusted Valve
SCEC0018	6/10/2021 10:49	6.3	Second Reading
SCEC0018	6/15/2021 7:53	16.7	Adjusted Valve
SCEC0018	6/15/2021 7:55	17.8	Second Reading
SCEC0018	6/18/2021 8:33	11.9	Adjusted Valve
SCEC0018	6/18/2021 8:35	11.9	Second Reading
SCEC0018	6/22/2021 14:36	13.6	Adjusted Valve
SCEC0018	6/22/2021 14:38	7.4	Well Permanently Decommissioned due to Poor Gas Quality
SCEC0019	6/3/2021 7:48	16.5	Adjusted Valve
SCEC0019	6/3/2021 7:50	14.6	In Compliance - HOV of 15% Oxygen
SCEC0019	6/18/2021 8:26	19.3	Adjusted Valve
SCEC0019	6/18/2021 8:28	19.7	Second Reading
SCEC0019	7/8/2021 8:11	20.8	Adjusted Valve
SCEC0019	7/8/2021 8:13	20.9	Second Reading
SCEC0019	7/26/2021 12:19	20.3	Adjusted Valve
SCEC0019	7/26/2021 12:21	20.5	Second Reading
SCEC0019	7/27/2021 11:14	20.2	Adjusted Valve
SCEC0019	7/27/2021 11:16	20.3	Second Reading
SCEC0033	3/17/2021 10:49	10.1	Adjusted Valve
SCEC0033	3/17/2021 10:51	9.4	Second Reading
SCEC0033	3/19/2021 11:58	0	In Compliance
SCEC0033	6/28/2021 8:42	10.3	Adjusted Valve
SCEC0033	6/28/2021 8:44	9.9	Second Reading
SCEC0033	7/8/2021 9:07	8.1	Adjusted Valve
SCEC0033	7/8/2021 9:15	8.1	Second Reading
SCEC0033	7/26/2021 12:29	0.4	In Compliance
SCEC0207	5/10/2021 9:47	19.2	Adjusted Valve
SCEC0207	5/10/2021 9:50	0.4	In Compliance
SCEW2001	4/22/2021 11:31	11.4	Adjusted Valve
SCEW2001	4/22/2021 11:34	10.8	Second Reading
SCEW2001	4/23/2021 10:30	0	In Compliance

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
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Well ID	Date and Time	Oxygen (%)	Comments
SCEW2001	4/28/2021 11:00	8.7	Adjusted Valve
SCEW2001	5/4/2021 11:49	0	In Compliance
SCEW2002	3/30/2021 9:29	19.2	Adjusted Valve
SCEW2002	3/30/2021 9:32	19.9	Second Reading
SCEW2002	3/30/2021 12:47	0	In Compliance
SCEW2018	2/23/2021 8:21	14.1	Adjusted Valve
SCEW2018	2/23/2021 8:24	14.2	Second Reading
SCEW2018	3/1/2021 14:11	0.2	In Compliance
SCEW2018	3/22/2021 11:32	14.7	Adjusted Valve
SCEW2018	3/22/2021 11:36	14.7	Second Reading
SCEW2018	3/26/2021 8:45	18.8	Adjusted Valve
SCEW2018	3/26/2021 8:47	18.6	Second Reading
SCEW2018	4/1/2021 12:29	17.3	Adjusted Valve
SCEW2018	4/1/2021 12:33	17.5	Second Reading
SCEW2018	4/9/2021 8:06	17.3	Adjusted Valve
SCEW2018	4/9/2021 8:09	17.3	Second Reading
SCEW2018	4/23/2021 9:33	13.7	Adjusted Valve
SCEW2018	4/23/2021 9:35	13.9	Second Reading
SCEW2018	5/3/2021 12:44	16.7	Adjusted Valve
SCEW2018	5/3/2021 12:48	17.1	Second Reading
SCEW2018	5/28/2021 9:32	20.9	Adjusted Valve
SCEW2018	5/28/2021 9:35	12.6	Second Reading
SCEW2018	6/2/2021 12:26	0	In Compliance
SCEW2110	5/19/2021 12:04	8.9	Adjusted Valve
SCEW2110	5/19/2021 12:20	0.3	In Compliance
SCEW2115	5/24/2021 13:44	5	Adjusted Valve
SCEW2115	5/24/2021 13:47	0.2	In Compliance
SCEW2124	5/20/2021 7:25	12.7	Adjusted Valve
SCEW2124	5/20/2021 7:28	0	In Compliance
SCHC2001	4/8/2021 11:06	11.3	Adjusted Valve
SCHC2001	4/8/2021 11:09	11.1	Second Reading
SCHC2001	4/28/2021 11:07	8.5	Adjusted Valve
SCHC2001	4/28/2021 11:12	8.6	Second Reading
SCHC2001	4/28/2021 11:55	8.7	Third Reading
SCHC2001	4/30/2021 9:04	9	Adjusted Valve
SCHC2001	5/4/2021 8:48	8.3	Adjusted Valve
SCHC2001	5/4/2021 8:51	8.3	Second Reading
SCHC2001	5/20/2021 17:15	10	Adjusted Valve
SCHC2001	5/20/2021 17:17	9.9	Second Reading
SCHC2001	5/25/2021 9:33	9.8	Adjusted Valve
SCHC2001	5/25/2021 9:36	9.2	Second Reading
SCHC2001	6/10/2021 13:04	2.8	In Compliance
SCHC2001	6/21/2021 12:55	6.6	Adjusted Valve
SCHC2001	6/21/2021 12:58	9	Second Reading
SCHC2001	7/1/2021 10:01	7	Adjusted Valve
SCHC2001	7/1/2021 10:04	7.1	Second Reading
SCHC2001	7/14/2021 12:06	6.2	Adjusted Valve
SCHC2001	7/14/2021 12:09	6.4	Second Reading
SCHC2001	7/21/2021 11:49	10.8	Adjusted Valve
SCHC2001	7/21/2021 11:52	10.1	Second Reading

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
SCHC2001	7/28/2021 11:55	11.4	Adjusted Valve
SCHC2001	7/28/2021 12:00	11.1	Second Reading
SCLEW-05	3/25/2021 8:55	6.1	Adjusted Valve
SCLEW-05	3/25/2021 8:58	6.9	Second Reading
SCLEW-05	4/6/2021 11:26	0.8	In Compliance
SCLEW-05	6/17/2021 8:09	8	Adjusted Valve
SCLEW-05	6/17/2021 8:12	3.4	In Compliance
SCLEW-05	7/20/2021 12:06	19.8	Adjusted Valve
SCLEW-05	7/20/2021 12:08	16.4	Second Reading
SCV003-0	6/18/2021 12:55	8.9	Adjusted Valve
SCV003-0	6/18/2021 12:58	0.4	In Compliance
SCV003-0	7/19/2021 12:07	19	Adjusted Valve
SCV003-0	7/19/2021 12:10	8.8	Second Reading
SCV04-2A	7/2/2021 12:48	5.3	Adjusted Valve
SCV04-2A	7/2/2021 12:51	14.2	Second Reading
SCV04-2A	7/14/2021 11:16	8.3	Adjusted Valve
SCV04-2A	7/14/2021 11:19	0.7	In Compliance
SCV044-A	7/1/2021 13:01	8.6	Adjusted Valve
SCV044-A	7/1/2021 13:03	0.7	In Compliance
SCV050-A	3/11/2021 8:59	9	Adjusted Valve
SCV050-A	3/11/2021 9:02	8.9	Second Reading
SCV050-A	3/12/2021 9:05	6	Adjusted Valve
SCV050-A	3/12/2021 9:09	5.9	Second Reading
SCV050-A	3/15/2021 13:44	6.6	Adjusted Valve
SCV050-A	3/15/2021 13:47	3.4	In Compliance
SCV050-A	5/6/2021 13:17	8.3	Adjusted Valve
SCV050-A	5/20/2021 16:04	3.3	In Compliance
SCV050-A	6/4/2021 13:22	6.1	Adjusted Valve
SCV050-A	6/4/2021 13:26	1.8	In Compliance
SCV051-A	2/4/2021 14:20	0	(Initial Exceedance on 12/4/20) In Compliance
SCV051-A	3/10/2021 14:04	6.8	Adjusted Valve
SCV051-A	3/10/2021 14:07	6.9	Second Reading
SCV051-A	3/12/2021 9:18	20.2	Adjusted Valve
SCV051-A	3/12/2021 9:21	20.3	Second Reading
SCV051-A	3/15/2021 13:51	2.2	In Compliance
SCV051-A	4/6/2021 12:20	6.6	Adjusted Valve
SCV051-A	4/6/2021 12:44	6.4	Second Reading
SCV051-A	4/15/2021 12:31	5.3	Adjusted Valve
SCV051-A	4/15/2021 12:33	5.3	Second Reading
SCV051-A	4/26/2021 11:59	7.1	Adjusted Valve
SCV051-A	4/26/2021 12:03	7	Second Reading
SCV051-A	5/6/2021 13:06	7.2	Adjusted Valve
SCV051-A	5/6/2021 13:09	7.2	Second Reading
SCV051-A	5/20/2021 16:55	1.9	In Compliance

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
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Well ID	Date and Time	Oxygen (%)	Comments
SCV051-A	6/4/2021 13:34	7.2	Adjusted Valve
SCV051-A	6/4/2021 13:36	6.3	Second Reading
SCV051-A	6/15/2021 12:30	0.2	In Compliance
SCV057-0	7/20/2021 11:29	10.7	Adjusted Valve
SCV057-0	7/20/2021 11:31	2.6	In Compliance
SCV064-0	6/29/2021 11:03	5.3	Adjusted Valve
SCV064-0	6/29/2021 11:05	2.9	In Compliance
SCV064-5	3/24/2021 9:17	5.2	Adjusted Valve
SCV064-5	3/26/2021 9:48	4.1	In Compliance
SCV064-5	4/26/2021 13:10	12.5	Adjusted Valve
SCV064-5	4/26/2021 13:13	3.1	In Compliance
SCV064-5	6/23/2021 12:53	5.2	Adjusted Valve
SCV064-5	6/23/2021 12:55	8.7	Second Reading
SCV064-5	7/7/2021 12:16	3.9	In Compliance
SCV064-5	7/20/2021 9:50	5.1	Adjusted Valve
SCV064-5	7/21/2021 9:42	6.7	Second Reading
SCV064-5	7/21/2021 11:13	0	In Compliance
SCV065-0	5/11/2021 15:01	5.6	Adjusted Valve
SCV065-0	5/11/2021 15:05	4.6	In Compliance
SCV065-0	5/28/2021 8:23	5.2	Adjusted Valve
SCV065-0	6/7/2021 14:54	11.7	Adjusted Valve
SCV065-0	6/7/2021 14:57	11.7	Second Reading
SCV065-0	6/11/2021 9:15	20.1	Adjusted Valve
SCV065-0	6/11/2021 9:20	18.7	Second Reading
SCV065-0	6/23/2021 12:42	20.3	Adjusted Valve
SCV065-0	6/23/2021 12:46	20.3	Second Reading
SCV065-0	7/7/2021 12:09	20.2	Adjusted Valve
SCV065-0	7/7/2021 12:11	20	Second Reading
SCV065-0	7/14/2021 9:13	20.2	Adjusted Valve
SCV065-0	7/14/2021 9:16	20.3	Second Reading
SCV065-0	7/20/2021 9:43	20.2	Adjusted Valve
SCV065-0	7/20/2021 9:45	20.3	Second Reading
SCV066-5	5/28/2021 7:45	9	Adjusted Valve
SCV066-5	5/28/2021 7:48	3.7	In Compliance
SCV066-5	7/20/2021 8:48	14.1	Adjusted Valve
SCV066-5	7/20/2021 8:51	12.2	Second Reading
SCV067-A	6/10/2021 11:46	6.7	Adjusted Valve
SCV067-A	6/10/2021 11:48	6.7	Second Reading
SCV067-A	6/23/2021 12:13	5.6	Adjusted Valve
SCV067-A	6/23/2021 12:16	2.9	In Compliance
SCV067-A	7/20/2021 8:35	9	Adjusted Valve
SCV067-A	7/20/2021 8:37	13.7	Second Reading
SCV067-A	7/28/2021 11:21	19.4	Adjusted Valve
SCV067-A	7/28/2021 11:23	19.5	Second Reading
SCV068-5	7/13/2021 13:25	19.8	Adjusted Valve

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
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Well ID	Date and Time	Oxygen (%)	Comments
SCV068-5	7/13/2021 13:27	20.2	Second Reading
SCV068-5	7/20/2021 8:08	15.7	Adjusted Valve
SCV068-5	7/20/2021 8:11	17	Second Reading
SCV078-1	7/13/2021 9:20	13	Adjusted Valve
SCV078-1	7/13/2021 9:22	10.3	Second Reading
SCV078-1	7/26/2021 12:52	11.1	Adjusted Valve
SCV078-1	7/26/2021 12:55	0	In Compliance
SCV079-1	5/7/2021 10:20	7.3	Adjusted Valve
SCV079-1	5/7/2021 10:24	4.7	In Compliance
SCV079-1	6/2/2021 8:02	5	Adjusted Valve
SCV079-1	6/2/2021 8:03	2.1	In Compliance
SCV079-1	7/13/2021 9:10	20.5	Adjusted Valve
SCV079-1	7/13/2021 9:12	19.1	Second Reading
SCV079-1	7/14/2021 14:29	0	In Compliance
SCV079-1	7/22/2021 13:25	10.2	Adjusted Valve
SCV079-1	7/22/2021 13:28	7.7	Second Reading
SCV079-1	7/22/2021 13:30	10.8	Third Reading
SCV080-0	7/13/2021 9:01	8.6	Adjusted Valve
SCV080-0	7/13/2021 9:03	20.1	Second Reading
SCV080-0	7/14/2021 14:15	0.4	In Compliance
SCV080-0	7/22/2021 11:13	6.8	Adjusted Valve
SCV080-0	7/22/2021 11:16	4	In Compliance
SCV081-1	5/27/2021 12:20	6.8	Adjusted Valve
SCV081-1	5/27/2021 12:25	4	In Compliance
SCV082-1	6/2/2021 7:30	9.2	Adjusted Valve
SCV082-1	6/2/2021 7:35	8.3	Second Reading
SCV082-1	6/15/2021 13:17	11.1	Adjusted Valve
SCV082-1	6/15/2021 13:20	6.2	Second Reading
SCV082-1	6/24/2021 12:23	0.9	In Compliance
SCV082-1	7/9/2021 13:03	15.2	Adjusted Valve
SCV082-1	7/9/2021 13:05	1.5	In Compliance
SCV098-0	6/16/2021 9:36	11	Adjusted Valve
SCV098-0	6/16/2021 9:40	13.5	Second Reading
SCV098-0	7/1/2021 7:04	3.2	In Compliance
SCV100-5	6/16/2021 11:55	15.3	Adjusted Valve
SCV100-5	6/16/2021 11:58	8.6	Second Reading
SCV100-5	7/1/2021 8:35	6.6	Adjusted Valve
SCV100-5	7/1/2021 8:37	8.5	Second Reading
SCV100-5	7/16/2021 7:38	10.5	Adjusted Valve
SCV100-5	7/16/2021 7:40	6.7	Second Reading
SCV100-5	7/26/2021 13:15	9.2	Adjusted Valve
SCV100-5	7/26/2021 13:18	10.3	Second Reading
SCV100-5	7/26/2021 13:19	10.4	Third Reading
SCV103-A	5/25/2021 9:13	5	Adjusted Valve
SCV103-A	5/25/2021 9:15	4.9	In Compliance

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
SCV107-0	6/16/2021 12:08	8.8	Adjusted Valve
SCV107-0	6/16/2021 12:10	2.1	In Compliance
SCV107-0	7/21/2021 7:56	8.5	Adjusted Valve
SCV107-0	7/21/2021 7:58	4.5	In Compliance
SCV112-0	7/22/2021 9:00	6.1	Adjusted Valve
SCV112-0	7/22/2021 9:02	6.1	Second Reading
SCV113-0	6/1/2021 12:58	8.2	Adjusted Valve
SCV113-0	6/1/2021 13:01	5.1	Second Reading
SCV113-0	6/10/2021 9:26	0.3	In Compliance
SCV113-0	6/10/2021 9:45	8.1	Adjusted Valve
SCV113-0	6/10/2021 9:56	1	In Compliance
SCV115-0	6/17/2021 7:06	7.3	Adjusted Valve
SCV115-0	6/17/2021 7:09	14.9	Second Reading
SCV115-0	7/2/2021 7:51	1.3	In Compliance
SCV115-0	7/22/2021 9:55	5.8	Adjusted Valve
SCV115-0	7/22/2021 9:57	0.6	In Compliance
SCV122-0	5/28/2021 8:49	5.3	Adjusted Valve
SCV122-0	5/28/2021 8:52	2.3	In Compliance
SCV122-0	6/11/2021 7:56	5.1	Adjusted Valve
SCV122-0	6/11/2021 8:02	11.1	Second Reading
SCV122-0	6/24/2021 8:56	1.9	In Compliance
SCV122-0	7/14/2021 9:36	17.7	Adjusted Valve
SCV122-0	7/14/2021 9:38	4	In Compliance
SCV124-0	6/11/2021 8:10	6.3	Adjusted Valve
SCV124-0	6/11/2021 8:12	3.5	In Compliance
SCV124-0	6/29/2021 11:13	10.4	Adjusted Valve
SCV124-0	6/29/2021 11:15	14.6	Second Reading
SCV124-0	7/14/2021 9:49	13.9	Adjusted Valve
SCV124-0	7/14/2021 9:52	7.1	Second Reading
SCV124-0	7/20/2021 10:02	7.9	Adjusted Valve
SCV124-0	7/20/2021 10:08	20	Second Reading
SCV127A0	6/30/2021 10:06	14.5	Adjusted Valve
SCV127A0	6/30/2021 10:08	2.1	In Compliance
SCV128-A	7/2/2021 13:28	7.9	Adjusted Valve
SCV128-A	7/2/2021 13:30	4.3	In Compliance
SCV133-0	7/1/2021 9:19	5.7	Adjusted Valve
SCV133-0	7/1/2021 9:20	0.2	In Compliance
SCV136-0	7/30/2021 15:39	7.8	Adjusted Valve
SCV136-0	7/30/2021 15:41	2.1	In Compliance
SCV137-0	4/7/2021 9:45	14.4	Adjusted Valve
SCV137-0	4/7/2021 9:52	0	In Compliance

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
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Well ID	Date and Time	Oxygen (%)	Comments
SCV137-0	4/21/2021 10:59	11	Adjusted Valve
SCV137-0	4/21/2021 11:01	9.6	Second Reading
SCV137-0	5/7/2021 13:47	9.9	Adjusted Valve
SCV137-0	5/7/2021 13:52	10.4	Second Reading
SCV137-0	5/21/2021 7:39	13.3	Adjusted Valve
SCV137-0	5/21/2021 7:42	12.7	Second Reading
SCV137-0	6/2/2021 10:29	10.5	Adjusted Valve
SCV137-0	6/2/2021 10:29	10.5	Second Reading
SCV137-0	6/2/2021 10:31	9.9	Third Reading
SCV137-0	6/10/2021 9:03	13.6	Adjusted Valve
SCV137-0	6/10/2021 9:05	12.5	Second Reading
SCV137-0	6/21/2021 13:46	11.7	Adjusted Valve
SCV137-0	6/21/2021 13:49	11.8	Second Reading
SCV137-0	6/24/2021 10:25	6	Adjusted Valve
SCV137-0	6/24/2021 10:28	10.4	Second Reading
SCV137-0	7/13/2021 12:16	8.3	Adjusted Valve
SCV137-0	7/13/2021 12:19	9.5	Second Reading
SCV137-0	7/14/2021 12:32	5.9	Adjusted Valve
SCV137-0	7/14/2021 12:35	4.4	In Compliance
SCV137-0	7/22/2021 12:03	6.2	Adjusted Valve
SCV137-0	7/22/2021 12:05	5.8	Second Reading
SCV138-0	6/2/2021 10:17	5.6	Adjusted Valve
SCV138-0	6/2/2021 10:22	4.3	In Compliance
SCV142-0	3/25/2021 9:20	5.4	Adjusted Valve
SCV142-0	3/25/2021 9:23	5.7	Second Reading
SCV142-0	4/6/2021 11:08	3.1	In Compliance
SCV142-0	6/4/2021 12:02	5.7	Adjusted Valve
SCV142-0	6/4/2021 12:06	5.1	Second Reading
SCV142-0	6/15/2021 12:04	0.1	In Compliance
SCV143-0	3/26/2021 10:06	8.7	Adjusted Valve
SCV143-0	3/30/2021 14:36	3	In Compliance
SCV143-0	6/4/2021 13:45	6.8	Adjusted Valve
SCV143-0	6/4/2021 13:53	8.8	Second Reading
SCV143-0	6/21/2021 13:27	0.3	In Compliance
SCV143-0	7/20/2021 13:02	6.1	Adjusted Valve
SCV143-0	7/20/2021 13:04	5.8	Second Reading
SCV144-0	2/23/2021 10:05	7.2	Adjusted Valve
SCV144-0	2/23/2021 10:09	7.1	Second Reading
SCV144-0	3/1/2021 13:38	0	In Compliance
SCV144-0	3/25/2021 8:43	5.2	Adjusted Valve
SCV144-0	3/25/2021 8:46	5.3	Second Reading
SCV144-0	3/26/2021 10:09	8.7	Adjusted Valve
SCV144-0	3/26/2021 10:11	8.6	Second Reading
SCV144-0	3/30/2021 14:23	0.4	In Compliance
SCV144-0	4/6/2021 11:35	5.7	Adjusted Valve
SCV144-0	4/6/2021 11:39	5.7	Second Reading
SCV144-0	4/15/2021 12:06	0.1	In Compliance

Table 4. Wells with Oxygen Exceedances
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Well ID	Date and Time	Oxygen (%)	Comments
SCV144-0	4/26/2021 10:44	6.6	Adjusted Valve
SCV144-0	4/26/2021 10:46	6.7	Second Reading
SCV144-0	5/6/2021 12:07	3.8	In Compliance
SCV144-0	6/4/2021 12:30	7.7	Adjusted Valve
SCV144-0	6/7/2021 15:12	4.7	In Compliance
SCV146-0	2/5/2021 11:29	8.7	Adjusted Valve
SCV146-0	2/5/2021 11:32	9.8	Second Reading
SCV146-0	2/10/2021 12:53	0	In Compliance
SCV149-A	6/16/2021 10:19	5.3	Adjusted Valve
SCV149-A	6/16/2021 10:22	4.4	In Compliance
SCV149-A	7/1/2021 7:26	5	Adjusted Valve
SCV149-A	7/1/2021 7:27	1.1	In Compliance
SCV149-A	7/23/2021 8:05	15.9	Adjusted Valve
SCV149-A	7/23/2021 8:07	13	Second Reading
SCV218-0	3/26/2021 8:42	19.1	Adjusted Valve
SCV218-0	4/2/2021 12:56	0	In Compliance
SCV218-0	5/18/2021 8:19	12.9	Adjusted Valve
SCV218-0	5/18/2021 8:22	17	Second Reading
SCV218-0	5/28/2021 15:03	13.4	Adjusted Valve
SCV218-0	5/28/2021 15:05	16.6	Second Reading
SCV218-0	6/8/2021 8:18	20.3	Adjusted Valve
SCV218-0	6/8/2021 8:20	20.6	Second Reading
SCV218-0	6/15/2021 8:12	19.9	Adjusted Valve
SCV218-0	6/15/2021 8:15	18.9	Second Reading
SCV218-0	6/23/2021 8:11	19.6	Adjusted Valve
SCV218-0	6/23/2021 8:14	20.1	Second Reading
SCV218-0	7/7/2021 10:10	18.3	Adjusted Valve
SCV218-0	7/7/2021 10:12	19.6	Second Reading
SCV218-0	7/19/2021 9:28	16.1	Adjusted Valve
SCV218-0	7/19/2021 9:32	17.2	Second Reading
SCV218-0	7/19/2021 9:36	1.2	In Compliance
SCV219-0	7/8/2021 11:09	10.7	Adjusted Valve
SCV219-0	7/8/2021 11:11	7.8	Second Reading
SCV219-0	7/19/2021 9:49	3.1	In Compliance
SCV220-0	4/16/2021 10:19	16.2	Adjusted Valve
SCV220-0	4/16/2021 10:22	19.7	Second Reading
SCV220-0	4/30/2021 9:35	10.5	Adjusted Valve
SCV220-0	4/30/2021 9:45	13.4	Second Reading
SCV220-0	5/10/2021 13:53	20.1	Adjusted Valve
SCV220-0	5/10/2021 13:57	2.9	In Compliance
SCV220-0	6/8/2021 8:45	14.6	Adjusted Valve
SCV220-0	6/8/2021 8:48	16.7	Second Reading
SCV220-0	6/15/2021 8:23	10.4	Adjusted Valve
SCV220-0	6/15/2021 8:28	9.9	Second Reading
SCV220-0	6/23/2021 8:30	15.7	Adjusted Valve
SCV220-0	6/23/2021 8:32	15.7	Second Reading
SCV220-0	7/8/2021 12:25	5.2	Adjusted Valve
SCV220-0	7/8/2021 12:28	9.4	Second Reading

Table 4. Wells with Oxygen Exceedances
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Well ID	Date and Time	Oxygen (%)	Comments
SCV220-0	7/19/2021 9:57	0	In Compliance
SCV222-0	2/5/2021 13:37	0.3	(Initial Exceedance on 11/6/2020) In Compliance
SCV222-0	3/2/2021 13:48	18.2	Adjusted Valve
SCV222-0	3/2/2021 13:51	13.4	Second Reading
SCV222-0	3/5/2021 8:16	1.3	In Compliance
SCV222-0	4/2/2021 11:57	6.3	Adjusted Valve
SCV222-0	4/2/2021 12:06	7.7	Second Reading
SCV222-0	4/9/2021 9:44	19.1	Adjusted Valve
SCV222-0	4/9/2021 9:48	13.4	Second Reading
SCV222-0	4/16/2021 9:51	2.2	In Compliance
SCV222-0	5/14/2021 8:18	10.7	Adjusted Valve
SCV222-0	5/14/2021 8:23	18.9	Second Reading
SCV222-0	5/18/2021 8:46	18.6	Adjusted Valve
SCV222-0	5/27/2021 10:32	17.5	Adjusted Valve
SCV222-0	5/27/2021 10:36	14.9	Second Reading
SCV222-0	5/27/2021 10:38	16.1	Third Reading
SCV222-0	6/8/2021 9:21	18.4	Adjusted Valve
SCV222-0	6/8/2021 9:23	19.1	Second Reading
SCV222-0	6/15/2021 9:37	19.7	Adjusted Valve
SCV222-0	6/15/2021 9:39	18.6	Second Reading
SCV222-0	6/23/2021 8:51	8.2	Adjusted Valve
SCV222-0	6/23/2021 8:54	12.9	Second Reading
SCV222-0	7/7/2021 10:19	13.6	Adjusted Valve
SCV222-0	7/7/2021 10:22	13.3	Second Reading
SCV222-0	7/19/2021 10:11	11	Adjusted Valve
SCV222-0	7/19/2021 10:14	8.3	Second Reading
SCV223-0	4/2/2021 11:37	6.9	Adjusted Valve
SCV223-0	4/2/2021 11:40	6.9	Second Reading
SCV223-0	4/9/2021 9:34	0	In Compliance
SCV223-0	4/16/2021 9:36	6.8	Adjusted Valve
SCV223-0	4/16/2021 9:42	7.5	Second Reading
SCV223-0	4/30/2021 9:51	0.1	In Compliance
SCV223-0	6/8/2021 9:30	7	Adjusted Valve
SCV223-0	6/8/2021 9:33	7.1	Second Reading
SCV223-0	6/8/2021 9:40	0.3	In Compliance
SCV223-0	6/23/2021 8:59	5.2	Adjusted Valve
SCV223-0	6/23/2021 9:01	5.7	Second Reading
SCV223-0	7/7/2021 10:28	5	Adjusted Valve
SCV223-0	7/7/2021 10:30	5.2	Second Reading
SCV223-0	7/19/2021 10:33	0	In Compliance
SCV225-0	2/16/2021 15:13	7.4	Adjusted Valve
SCV225-0	2/16/2021 15:15	5.5	Second Reading
SCV225-0	2/16/2021 15:17	3.8	In Compliance
SCV225-0	3/23/2021 9:31	20.3	Adjusted Valve
SCV225-0	3/23/2021 9:34	20.5	Second Reading
SCV225-0	3/26/2021 10:39	17.2	Adjusted Valve
SCV225-0	3/26/2021 10:42	17.1	Second Reading
SCV225-0	4/2/2021 11:09	7.7	Adjusted Valve

Table 4. Wells with Oxygen Exceedances
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Well ID	Date and Time	Oxygen (%)	Comments
SCV225-0	4/2/2021 11:13	8.4	Second Reading
SCV225-0	4/9/2021 9:14	5.2	Adjusted Valve
SCV225-0	4/9/2021 9:18	5.4	Second Reading
SCV225-0	4/16/2021 9:16	2.9	In Compliance
SCV226-0	2/16/2021 15:22	6.1	Adjusted Valve
SCV226-0	2/16/2021 15:26	6.1	Second Reading
SCV226-0	2/18/2021 8:23	10.1	Adjusted Valve
SCV226-0	2/22/2021 10:27	7.3	Adjusted Valve
SCV226-0	2/22/2021 10:30	7.4	Second Reading
SCV226-0	2/23/2021 13:58	7.7	Adjusted Valve
SCV226-0	2/23/2021 14:00	6.2	Second Reading
SCV226-0	3/1/2021 13:19	8.5	Adjusted Valve
SCV226-0	3/2/2021 14:20	8.1	Adjusted Valve
SCV226-0	3/2/2021 14:23	8.2	Second Reading
SCV226-0	3/4/2021 9:57	12.3	Adjusted Valve
SCV226-0	3/4/2021 10:00	13.1	Second Reading
SCV226-0	3/5/2021 8:55	20.2	Adjusted Valve
SCV226-0	3/8/2021 13:47	19.5	Adjusted Valve
SCV226-0	3/8/2021 13:52	21	Second Reading
SCV226-0	3/11/2021 14:06	13.4	Adjusted Valve
SCV226-0	3/11/2021 14:09	12.6	Second Reading
SCV226-0	3/12/2021 12:28	4.8	In Compliance
SCV226-0	3/23/2021 9:21	6.7	Adjusted Valve
SCV226-0	3/23/2021 9:25	6.7	Second Reading
SCV226-0	3/26/2021 10:46	9.2	Adjusted Valve
SCV226-0	3/26/2021 10:50	9.1	Second Reading
SCV226-0	4/2/2021 11:19	7.8	Adjusted Valve
SCV226-0	4/2/2021 11:22	7.3	Second Reading
SCV226-0	4/9/2021 9:05	7.2	Adjusted Valve
SCV226-0	4/9/2021 9:08	7.2	Second Reading
SCV226-0	4/16/2021 9:06	7.9	Adjusted Valve
SCV226-0	4/16/2021 9:09	8	Second Reading
SCV226-0	4/30/2021 9:59	11.4	Adjusted Valve
SCV226-0	4/30/2021 10:02	17.2	Second Reading
SCV226-0	5/5/2021 9:10	14.8	Adjusted Valve
SCV226-0	5/5/2021 9:14	8.7	Second Reading
SCV226-0	5/6/2021 11:25	0	In Compliance
SCV226-0	5/14/2021 9:53	19.1	Adjusted Valve
SCV226-0	5/14/2021 9:56	20.9	Second Reading
SCV226-0	5/18/2021 9:21	18.5	Adjusted Valve
SCV226-0	5/18/2021 9:24	20.2	Second Reading
SCV226-0	5/26/2021 12:15	9.1	Adjusted Valve
SCV226-0	5/26/2021 12:22	8.3	Second Reading
SCV226-0	6/8/2021 10:02	10.5	Adjusted Valve
SCV226-0	6/8/2021 10:04	11	Second Reading
SCV226-0	6/15/2021 10:12	8.8	Adjusted Valve
SCV226-0	6/15/2021 10:14	8.7	Second Reading
SCV226-0	6/23/2021 9:32	10.5	Adjusted Valve
SCV226-0	6/23/2021 9:34	9.1	Second Reading
SCV226-0	7/7/2021 10:50	0.3	In Compliance
SCV230-0	5/18/2021 10:34	14.4	Adjusted Valve
SCV230-0	5/18/2021 10:37	11.3	Second Reading
SCV230-0	5/27/2021 11:43	18.3	Adjusted Valve
SCV230-0	5/27/2021 11:47	0	In Compliance

Table 4. Wells with Oxygen Exceedances
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Well ID	Date and Time	Oxygen (%)	Comments
SCV234-0	2/3/2021 12:47	8.5	Adjusted Valve
SCV234-0	2/3/2021 12:54	5.7	Second Reading
SCV234-0	2/10/2021 13:41	5.8	Adjusted Valve
SCV234-0	2/10/2021 13:50	5.8	Second Reading
SCV234-0	2/10/2021 13:58	6.1	Third Reading
SCV234-0	2/10/2021 14:03	6.3	Fourth Reading
SCV234-0	2/16/2021 15:52	0.9	In Compliance
SCV234-0	3/3/2021 8:24	8.8	Adjusted Valve
SCV234-0	3/5/2021 8:40	8.4	Adjusted Valve
SCV234-0	3/5/2021 8:43	8.4	Second Reading
SCV234-0	3/5/2021 8:46	8.5	Third Reading
SCV234-0	3/8/2021 13:33	9.1	Adjusted Valve
SCV234-0	3/8/2021 13:36	9	Second Reading
SCV234-0	3/11/2021 13:53	8.5	Adjusted Valve
SCV234-0	3/11/2021 13:56	8.7	Second Reading
SCV234-0	3/12/2021 12:09	4.2	In Compliance
SCV234-0	3/15/2021 11:29	5.5	Adjusted Valve
SCV234-0	3/15/2021 11:33	9.3	Second Reading
SCV234-0	3/17/2021 12:52	4.2	In Compliance
SCV234-0	3/17/2021 12:56	5.7	Adjusted Valve
SCV234-0	3/17/2021 12:59	7	Second Reading
SCV234-0	3/18/2021 8:08	10.7	Adjusted Valve
SCV234-0	3/18/2021 8:16	14.4	Second Reading
SCV234-0	3/23/2021 11:48	1	In Compliance
SCV234-0	4/5/2021 14:12	7.3	Adjusted Valve
SCV234-0	4/5/2021 14:15	7.5	Second Reading
SCV234-0	4/9/2021 10:50	9.3	Adjusted Valve
SCV234-0	4/9/2021 10:52	9.2	Second Reading
SCV234-0	4/16/2021 14:44	4.9	In Compliance
SCV234-0	5/18/2021 10:02	10.9	Adjusted Valve
SCV234-0	5/18/2021 10:05	10.8	Second Reading
SCV234-0	5/28/2021 15:09	8.9	Adjusted Valve
SCV234-0	5/28/2021 15:11	9.3	Second Reading
SCV234-0	6/8/2021 11:31	11.6	Adjusted Valve
SCV234-0	6/8/2021 11:34	11.4	Second Reading
SCV234-0	6/15/2021 10:25	10.4	Adjusted Valve
SCV234-0	6/15/2021 10:29	10.4	Second Reading
SCV234-0	6/24/2021 8:37	7	Adjusted Valve
SCV234-0	6/24/2021 8:39	6	Second Reading
SCV234-0	6/28/2021 11:54	0.3	In Compliance
SCV234-0	7/9/2021 7:06	11.7	Adjusted Valve
SCV234-0	7/9/2021 7:08	11.6	Second Reading
SCV234-0	7/23/2021 14:44	0.4	In Compliance
SCV235-0	3/1/2021 10:18	9.6	Adjusted Valve
SCV235-0	3/1/2021 10:20	10.2	Second Reading
SCV235-0	3/5/2021 9:15	6.3	Adjusted Valve
SCV235-0	3/5/2021 9:18	6.2	Second Reading
SCV235-0	3/8/2021 13:09	0.2	In Compliance
SCV236-0	4/2/2021 14:04	20.3	Adjusted Valve

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Well ID	Date and Time	Oxygen (%)	Comments
SCV236-0	4/2/2021 14:09	20.4	Second Reading
SCV236-0	4/5/2021 9:53	20.1	Adjusted Valve
SCV236-0	4/5/2021 9:57	20.7	Second Reading
SCV236-0	4/9/2021 10:07	0	In Compliance
SCV236-0	4/16/2021 12:37	20.5	Adjusted Valve
SCV236-0	4/16/2021 12:39	20.5	Second Reading
SCV236-0	4/23/2021 8:01	21	Adjusted Valve
SCV236-0	4/23/2021 8:03	21	Second Reading
SCV236-0	5/5/2021 7:48	20.7	Adjusted Valve
SCV236-0	5/5/2021 7:50	20.9	Second Reading
SCV236-0	5/14/2021 9:27	20.7	Adjusted Valve
SCV236-0	5/14/2021 9:30	20.7	Second Reading
SCV236-0	5/17/2021 11:05	20.7	Adjusted Valve
SCV236-0	5/17/2021 11:12	20.7	Second Reading
SCV236-0	5/27/2021 9:59	19.7	Adjusted Valve
SCV236-0	5/27/2021 10:03	19.9	Second Reading
SCV236-0	5/27/2021 10:12	0.3	In Compliance
SCV236-0	6/3/2021 12:02	19.7	Adjusted Valve
SCV236-0	6/3/2021 12:09	20.5	Second Reading
SCV236-0	6/10/2021 11:01	19.1	Adjusted Valve
SCV236-0	6/10/2021 11:03	19.5	Second Reading
SCV236-0	6/23/2021 10:20	17.8	Adjusted Valve
SCV236-0	6/23/2021 10:24	18	Second Reading
SCV236-0	7/7/2021 9:48	17.9	Adjusted Valve
SCV236-0	7/7/2021 9:53	18.3	Second Reading
SCV236-0	7/26/2021 12:08	0.2	In Compliance
SCV243-0	2/3/2021 12:01	6.4	Adjusted Valve
SCV243-0	2/10/2021 13:20	5.3	Second Reading
SCV243-0	2/10/2021 13:32	3.7	In Compliance
SCV243-0	2/16/2021 15:07	14	Adjusted Valve
SCV243-0	2/18/2021 8:16	3.2	In Compliance
SCV243-0	5/18/2021 9:00	10.3	Adjusted Valve
SCV243-0	5/18/2021 9:03	8.3	Second Reading
SCV243-0	5/27/2021 11:35	6.6	Adjusted Valve
SCV243-0	5/27/2021 11:38	7.7	Second Reading
SCV243-0	6/8/2021 9:43	1.8	In Compliance
SCV243-0	6/23/2021 9:11	5.2	Adjusted Valve
SCV243-0	6/23/2021 9:13	12.3	Second Reading
SCV243-0	7/7/2021 10:37	10.8	Adjusted Valve
SCV243-0	7/7/2021 10:39	15.3	Second Reading
SCV243-0	7/19/2021 10:46	10	Adjusted Valve
SCV243-0	7/19/2021 10:49	14.9	Second Reading
SCV243-0	7/28/2021 10:58	5.7	Adjusted Valve
SCV243-0	7/28/2021 11:00	4.5	In Compliance
SCV49-5A	3/11/2021 8:50	7.5	Adjusted Valve
SCV49-5A	3/11/2021 8:53	8.6	Second Reading
SCV49-5A	3/12/2021 8:54	3.4	In Compliance
SCV49-5A	4/6/2021 12:59	5.4	Adjusted Valve
SCV49-5A	4/6/2021 13:01	5.3	Second Reading
SCV49-5A	4/15/2021 12:42	2.5	In Compliance

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
SCV49-5A	4/22/2021 14:44	5.2	Adjusted Valve
SCV49-5A	4/22/2021 14:47	5.3	Second Reading
SCV49-5A	5/6/2021 13:22	2.3	In Compliance
SCV49-5A	6/4/2021 13:10	8.8	Adjusted Valve
SCV49-5A	6/4/2021 13:13	9.6	Second Reading
SCV49-5A	6/15/2021 12:48	4.9	In Compliance
SCV51-5A	4/6/2021 12:17	6.8	Adjusted Valve
SCV51-5A	4/6/2021 12:41	6.3	Second Reading
SCV51-5A	4/15/2021 12:20	2.7	In Compliance
SCV51-5A	4/26/2021 11:21	10.1	Adjusted Valve
SCV51-5A	4/26/2021 11:25	9.8	Second Reading
SCV51-5A	5/6/2021 12:48	8	Adjusted Valve
SCV51-5A	5/6/2021 12:52	8	Second Reading
SCV51-5A	5/21/2021 7:57	8.3	Adjusted Valve
SCV51-5A	5/21/2021 8:02	8.4	Second Reading
SCV51-5A	5/25/2021 12:29	5.3	Adjusted Valve
SCV51-5A	5/25/2021 12:33	5.3	Second Reading
SCV51-5A	6/10/2021 7:53	1.3	In Compliance
SCV52-5A	3/24/2021 12:27	9	Adjusted Valve
SCV52-5A	3/24/2021 12:30	8.2	Second Reading
SCV52-5A	3/26/2021 12:25	0.4	In Compliance
SCV52-5A	5/25/2021 8:57	8.3	Adjusted Valve
SCV52-5A	5/25/2021 9:00	0.7	In Compliance
SCV52-5A	6/7/2021 13:27	16.2	Adjusted Valve
SCV52-5A	6/7/2021 13:31	11.8	Second Reading
SCV52-5A	6/15/2021 13:36	19.5	Adjusted Valve
SCV52-5A	6/15/2021 13:42	15.6	Second Reading
SCV52-5A	6/17/2021 12:44	10	Adjusted Valve
SCV52-5A	6/17/2021 12:46	8	Second Reading
SCV52-5A	7/1/2021 11:07	4.5	In Compliance
SCV52-5A	7/1/2021 11:10	6.4	Adjusted Valve
SCV52-5A	7/8/2021 11:36	8.9	Adjusted Valve
SCV52-5A	7/8/2021 11:38	19.1	Second Reading
SCV52-5A	7/20/2021 7:32	20.9	Adjusted Valve
SCV52-5A	7/20/2021 7:34	20.9	Second Reading
SCV52-5A	7/28/2021 12:36	20.3	Adjusted Valve
SCV52-5A	7/28/2021 12:39	20.3	Second Reading
SCV68-1A	5/11/2021 11:07	6.4	Adjusted Valve
SCV68-1A	5/11/2021 11:10	7.2	Second Reading
SCV68-1A	5/14/2021 12:19	5	Adjusted Valve
SCV68-1A	5/14/2021 12:21	5.4	Second Reading
SCV68-1A	5/28/2021 7:24	19.1	Adjusted Valve
SCV68-1A	5/28/2021 7:27	19.7	Second Reading
SCV68-1A	6/10/2021 11:24	17.9	Adjusted Valve
SCV68-1A	6/10/2021 11:27	18.3	Second Reading
SCV68-1A	6/23/2021 11:58	17.8	Adjusted Valve
SCV68-1A	6/23/2021 12:02	19.6	Second Reading
SCV68-1A	7/7/2021 11:51	16.9	Adjusted Valve
SCV68-1A	7/7/2021 11:53	18.1	Second Reading

Table 4. Wells with Oxygen Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
SCV68-1A	7/20/2021 8:18	18.9	Adjusted Valve
SCV68-1A	7/20/2021 8:20	20.4	Second Reading
SCV68-1A	7/28/2021 11:29	18.8	Adjusted Valve
SCV68-1A	7/28/2021 11:31	19.3	Second Reading
SCV88-5A	5/18/2021 11:58	6.4	Adjusted Valve
SCV88-5A	5/18/2021 12:00	7.4	Second Reading
SCV88-5A	6/1/2021 9:32	5.9	Adjusted Valve
SCV88-5A	6/1/2021 9:35	5.9	Second Reading
SCV88-5A	6/1/2021 9:38	5.7	Third Reading
SCV88-5A	6/10/2021 8:24	6.2	Adjusted Valve
SCV88-5A	6/10/2021 8:27	6	Second Reading
SCV88-5A	6/16/2021 9:48	2.2	In Compliance
SCV89-5A	2/19/2021 10:37	12	(Initial Exceedance on 1/8/21) Adjusted Valve
SCV89-5A	2/19/2021 10:40	12.1	Second Reading
SCV89-5A	3/3/2021 10:36	12.5	Adjusted Valve
SCV89-5A	3/3/2021 10:40	12.5	Second Reading
SCV89-5A	3/5/2021 9:59	10	Adjusted Valve
SCV89-5A	3/8/2021 10:53	10.5	Adjusted Valve
SCV89-5A	3/8/2021 10:57	13.7	Second Reading
SCV89-5A	3/12/2021 10:36	20.2	Adjusted Valve
SCV89-5A	3/12/2021 10:40	16.4	Second Reading
SCV89-5A	3/15/2021 14:23	12.3	Adjusted Valve
SCV89-5A	3/15/2021 14:26	12.9	Second Reading
SCV89-5A	3/18/2021 11:10	12.3	Adjusted Valve
SCV89-5A	3/18/2021 11:12	13	Second Reading
SCV89-5A	3/19/2021 14:07	15.2	Adjusted Valve
SCV89-5A	3/19/2021 14:10	15.6	Second Reading
SCV89-5A	3/23/2021 12:23	10.3	Adjusted Valve
SCV89-5A	3/23/2021 12:25	10.5	Second Reading
SCV89-5A	3/26/2021 8:26	20.4	Adjusted Valve
SCV89-5A	3/26/2021 8:28	20.9	Second Reading
SCV89-5A	4/1/2021 10:12	7.9	Adjusted Valve
SCV89-5A	4/1/2021 10:14	8.6	Second Reading
SCV89-5A	4/9/2021 8:32	20.2	Adjusted Valve
SCV89-5A	4/9/2021 8:36	19.8	Second Reading
SCV89-5A	4/19/2021 9:43	19.7	Adjusted Valve
SCV89-5A	4/19/2021 9:45	18	Second Reading
SCV89-5A	4/20/2021 10:46	1.4	In Compliance
SCV89-5A	7/1/2021 7:56	8.6	Adjusted Valve
SCV89-5A	7/1/2021 7:57	9.2	Second Reading
SCV89-5A	7/14/2021 11:48	0.4	In Compliance

Note: All required corrective action and monitoring was completed in accordance with Rule 8-34 and NSPS timelines

Table 5. Wells with Temperature Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Temp [°F]	Adjusted Temp [°F]	Comments
SC0V108A	2/4/2021 8:06	134.3	134.3	Adjusted Valve
SC0V108A	2/8/2021 9:26	130.9	129.9	In Compliance
SC0V108A	2/19/2021 11:19	133.8	133.9	Adjusted Valve
SC0V108A	2/22/2021 11:48	135.5	135.4	Adjusted Valve
SC0V108A	2/22/2021 12:17	100.1	100.1	In Compliance
SC0V108A	3/3/2021 11:36	134.7	134.7	Adjusted Valve
SC0V108A	3/5/2021 9:50	134.1	134.2	Adjusted Valve
SC0V108A	3/8/2021 12:37	129.3	129.4	In Compliance
SC0V108A	3/8/2021 12:42	133	133	Adjusted Valve
SC0V108A	3/12/2021 10:22	132.4	132.4	Adjusted Valve
SC0V108A	3/12/2021 10:27	132.8	132.8	Second Reading
SC0V108A	3/15/2021 14:14	132.8	132.8	Adjusted Valve
SC0V108A	3/15/2021 14:16	133	133	Second Reading
SC0V108A	3/18/2021 10:58	131.8	131.8	Adjusted Valve
SC0V108A	3/18/2021 11:03	132	132	Second Reading
SC0V108A	3/19/2021 13:58	132.7	132.8	Adjusted Valve
SC0V108A	3/19/2021 14:02	132.9	132.8	Second Reading
SC0V108A	3/23/2021 13:03	133.4	133.4	Adjusted Valve
SC0V108A	3/23/2021 13:06	133.5	133.5	Second Reading
SC0V108A	3/26/2021 8:17	132.3	132.3	Adjusted Valve
SC0V108A	3/26/2021 8:21	132.3	132.3	Second Reading
SC0V108A	3/30/2021 13:55	133.6	133.7	Adjusted Valve
SC0V108A	3/30/2021 13:59	133.7	133.7	Second Reading
SC0V108A	4/1/2021 11:09	133.9	133.9	Adjusted Valve
SC0V108A	4/1/2021 11:11	133.9	133.9	Second Reading
SC0V108A	4/9/2021 8:23	132.7	132.7	Adjusted Valve
SC0V108A	4/9/2021 8:26	132.8	132.8	Second Reading
SC0V108A	4/23/2021 8:26	132.9	132.9	Adjusted Valve
SC0V108A	4/23/2021 8:29	132.9	132.9	Second Reading
SC0V108A	4/27/2021 9:51	133.3	133.3	Adjusted Valve
SC0V108A	4/27/2021 9:54	133.2	133.2	Second Reading
SC0V108A	5/6/2021 8:43	132.2	132.3	Adjusted Valve
SC0V108A	5/6/2021 8:47	132.3	132.3	Second Reading
SC0V108A	5/19/2021 15:24	133	133	Adjusted Valve
SC0V108A	5/19/2021 15:30	106	104.3	In Compliance
SC0V108A	7/1/2021 8:57	131.6	132	Adjusted Valve
SC0V108A	7/8/2021 12:05	135	128.4	Adjusted Valve, In Compliance
SC0V110A	7/21/2021 8:42	134.2	134.3	Adjusted Valve
SC0V110A	7/21/2021 8:47	133.9	133.9	Second Reading
SC0V110A	7/23/2021 8:25	129.6	129.6	In Compliance
SCV051-A	3/15/2021 14:10	132.8	132.8	Adjusted Valve
SCV051-A	3/18/2021 10:32	72.9	73.5	In Compliance
SCV125A0	7/1/2021 9:04	131	132.5	Adjusted Valve
SCV125A0	7/1/2021 9:06	132.8	132.8	Second Reading
SCV125A0	7/14/2021 11:35	131.8	132.1	Adjusted Valve
SCV125A0	7/14/2021 11:37	131.9	131.8	Second Reading
SCV125A0	7/14/2021 11:37	131.9	131.8	Third Reading
SCV125A0	7/21/2021 8:10	128.4	128.4	In Compliance
SCV128-A	7/21/2021 9:02	136.1	136.1	Adjusted Valve
SCV128-A	7/21/2021 9:33	86.9	87	In Compliance

Table 5. Wells with Temperature Exceedances
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Temp [°F]	Adjusted Temp [°F]	Comments
SCV234-0	2/3/2021 12:47	139	135.9	Adjusted Valve
SCV234-0	2/3/2021 12:54	126.8	127.2	In Compliance
SCV234-0	3/12/2021 12:09	131.7	130.2	Adjusted Valve, In Compliance
SCV234-0	3/15/2021 11:29	132.3	130.4	Adjusted Valve, In Compliance
SCV234-0	3/17/2021 12:52	141.8	142.6	Adjusted Valve
SCV234-0	3/17/2021 12:56	147.9	147.8	Second Reading
SCV234-0	3/17/2021 12:59	147.8	147.8	Third Reading
SCV234-0	3/18/2021 8:08	128.9	127.6	In Compliance
SCV234-0	7/9/2021 7:06	133.2	133	Adjusted Valve
SCV234-0	7/9/2021 7:08	131.9	131.4	Second Reading
SCV234-0	7/23/2021 14:44	110	109.9	In Compliance

Note: All required corrective action and remonitoring was completed in accordance with Rule 8-34 and NSPS timelines.

Appendix A – Responsible Official Certification Form

Certification of Truth and Accuracy and Completeness:

I certify the following:

Based on the information and belief formed after reasonable inquiry, the information in this document are true, accurate, and complete:

Rob Sherman

Signature of Responsible Official

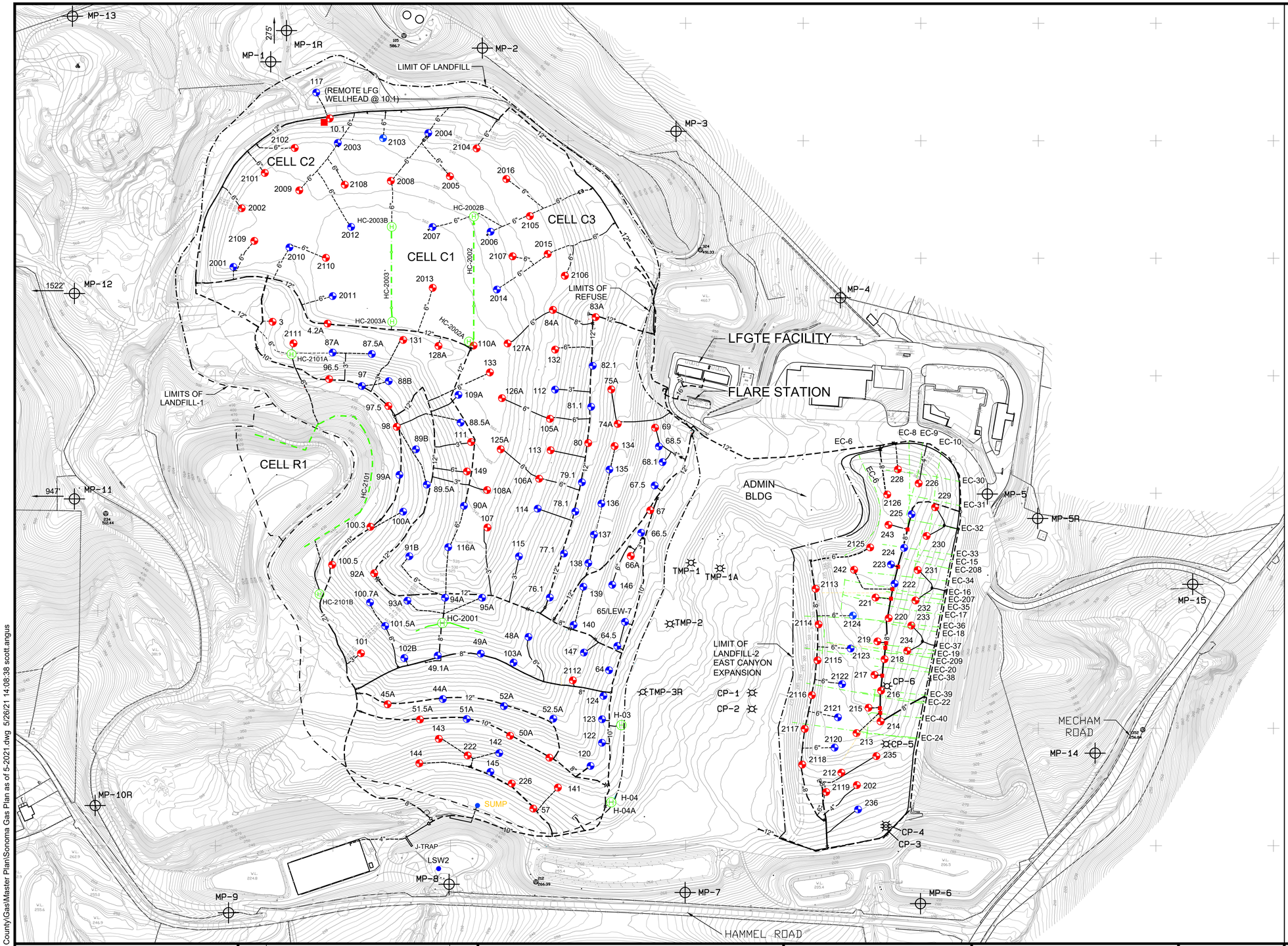
8-26-2021

Date

Rob Sherman

Name of Responsible Official

Appendix B – Existing GCCS Layout



I:\dwg\Republic\Sonoma County\Gas\Master Plan\Sonoma Gas Plan as of 5-2021.dwg 5/26/21 14:08:38 scott.angus

GRAPHIC SCALE

200 100 0 200 400

(IN FEET)

LEGEND

- GAS HEADER LINE ABOVE GRADE (8" & LARGER)
- GAS HEADER LINE BELOW GRADE (8" & LARGER)
- GAS LATERAL LINE (6" & SMALLER)
- GAS LINE BELOW GRADE (6" & SMALLER)
- HORIZONTAL GAS COLLECTOR
- 126 VERTICAL GAS EXTRACTION WELL
- 1 HORIZONTAL WELLHEAD LOCATION
- 126 VERTICAL GAS WELL WITH PUMP
- REMOTE WELLHEAD LOCATION
- CP/TMP/MP-6 LFG MONITORING PROBE

NO.	REVISION DESCRIPTION	BY:

REPUBLIC SERVICES, INC.

WASTE COLLECTION • RECYCLING • TRANSFER • DISPOSAL

TETRA TECH
21700 Copley Drive, Suite 200
Diamond Bar, CA 91765
TEL 909.860.7777 FAX 909.860.8017

SONOMA CENTRAL LANDFILL

LANDFILL GAS COLLECTION AND CONTROL SYSTEM

DESIGNED BY :	S. ANGUS	SCALE : AS SHOWN	
DRAWN BY :	S. ANGUS	DATE : 5/2021	SCALE: AS NOTED
CHECKED BY :		DATE :	SHEET 1 OF 1
APPROVED BY :		DATE :	

Appendix C – LFGTE Facility Downtime Logs

Appendix C. LFGTE Facility Downtime Logs
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown Date/Time	Startup Date/Time	Duration (Hours)	Engine(s)	Reason for Downtime
2/1/2021 0:00	3/1/2021 0:00	672.00	1 (S-4)	Out of service pending overhaul
2/2/2021 11:36	2/2/2021 11:42	0.10	2 (S-5)	Detonation
2/3/2021 6:36	2/23/2021 10:24	483.80	2 (S-5)	PG&E outage/Circuit switcher failure/PLC failure/service
2/1/2021 0:00	2/2/2021 13:00	37.00	3 (S-6)	Battery failure
2/3/2021 6:36	2/8/2021 10:40	124.07	3 (S-6)	PG&E outage/Circuit switcher failure/service
2/9/2021 17:44	2/11/2021 13:28	43.73	3 (S-6)	Switchgear control voltage failure
2/23/2021 10:06	2/23/2021 10:20	0.23	3 (S-6)	Detonation
2/26/2021 2:22	2/26/2021 9:38	7.27	3 (S-6)	Battery fault
2/3/2021 6:36	2/8/2021 10:48	124.20	4 (S-7)	PG&E outage/Circuit switcher failure
2/8/2021 13:10	2/8/2021 13:36	0.43	4 (S-7)	Blower swap
2/9/2021 17:44	2/12/2021 9:24	63.67	4 (S-7)	Switchgear control voltage failure
2/12/2021 10:28	2/12/2021 10:32	0.07	4 (S-7)	Detonation
2/16/2021 9:12	2/16/2021 11:56	2.73	4 (S-7)	Service
2/23/2021 10:06	2/23/2021 10:20	0.23	4 (S-7)	Detonation
2/3/2021 6:34	2/6/2021 14:56	80.37	5 (S-9)	PG&E outage/Circuit voltage failure/service
2/9/2021 20:28	2/11/2021 12:36	40.13	5 (S-9)	Switchgear control voltage failure
2/3/2021 6:32	2/6/2021 14:52	80.33	6 (S-10)	PG&E outage/Circuit switcher failure
2/8/2021 9:14	2/8/2021 11:26	2.20	6 (S-10)	Tuning
2/9/2021 20:28	2/11/2021 12:36	40.13	6 (S-10)	Switchgear control voltage failure
2/3/2021 6:32	2/6/2021 14:54	80.37	7 (S-11)	PG&E outage/Circuit switcher failure
2/9/2021 20:28	2/11/2021 13:24	40.93	7 (S-11)	Switchgear control voltage failure
2/3/2021 6:32	2/6/2021 15:16	80.73	8 (S-12)	PG&E outage/Circuit switcher failure/service
2/9/2021 20:30	2/11/2021 12:30	40.00	8 (S-12)	Switchgear control voltage failure
2/15/2021 14:10	2/15/2021 14:20	0.17	8 (S-12)	Detonation
2/22/2021 18:50	2/23/2021 13:10	18.33	8 (S-12)	Battery issue
2/24/2021 17:50	2/25/2021 8:38	14.80	8 (S-12)	Charging issue
2/1/2021 0:00	3/1/2021 0:00	672.00	9 (S-13)	Out of service pending overhaul
2/1/2021 0:00	3/1/2021 0:00	672.00	10 (S-14)	Long-Term Standby
3/1/2021 0:00	4/1/2021 0:00	744.00	1 (S-4)	Out of service pending overhaul
3/17/2021 9:50	3/19/2021 6:50	45.00	2 (S-5)	VFD installation
3/23/2021 8:14	3/23/2021 13:44	5.50	2 (S-5)	VFD tuning
3/25/2021 11:22	3/25/2021 11:58	0.60	2 (S-5)	Detonation
3/17/2021 9:50	3/19/2021 8:52	47.03	3 (S-6)	VFD installation
3/19/2021 8:58	3/19/2021 9:02	0.07	3 (S-6)	Tuning
3/19/2021 9:14	3/19/2021 9:22	0.13	3 (S-6)	Tuning
3/19/2021 10:02	3/19/2021 10:42	0.67	3 (S-6)	Tuning
3/19/2021 11:02	3/19/2021 11:08	0.10	3 (S-6)	Tuning
3/19/2021 12:10	3/19/2021 12:16	0.10	3 (S-6)	Tuning
3/19/2021 12:40	3/19/2021 13:18	0.63	3 (S-6)	Tuning
3/19/2021 13:50	3/19/2021 13:58	0.13	3 (S-6)	Tuning
3/21/2021 11:36	3/24/2021 12:54	73.30	3 (S-6)	Troubleshooting and service
3/25/2021 11:22	3/25/2021 11:56	0.57	3 (S-6)	VFD tuning
3/30/2021 13:06	3/30/2021 13:24	0.30	3 (S-6)	Detonation
3/17/2021 9:50	3/19/2021 6:54	45.07	4 (S-7)	VFD installation and service
3/23/2021 8:14	3/23/2021 13:46	5.53	4 (S-7)	VFD tuning
3/25/2021 11:22	3/25/2021 11:54	0.53	4 (S-7)	VFD tuning
3/10/2021 9:16	3/10/2021 11:24	2.13	5 (S-9)	Service
3/10/2021 12:26	3/10/2021 12:50	0.40	5 (S-9)	Tuning
3/19/2021 21:16	3/24/2021 11:52	110.60	5 (S-9)	Turbo failure and service
3/16/2021 8:14	3/16/2021 12:14	4.00	6 (S-10)	Service
3/16/2021 13:36	3/16/2021 13:48	0.20	6 (S-10)	Tuning
3/23/2021 9:36	3/23/2021 13:34	3.97	6 (S-10)	Control issue

Appendix C. LFGTE Facility Downtime Logs
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown Date/Time	Startup Date/Time	Duration (Hours)	Engine(s)	Reason for Downtime
3/25/2021 5:52	3/25/2021 6:26	0.57	6 (S-10)	Voltage issue
3/2/2021 11:24	3/2/2021 11:32	0.13	7 (S-11)	Tuning
3/22/2021 9:22	3/22/2021 15:00	5.63	7 (S-11)	Service
3/24/2021 5:12	4/1/2021 0:00	186.80	7 (S-11)	High temp shutdown/Cracked exhaust manifold
3/6/2021 3:54	4/1/2021 0:00	620.10	8 (S-12)	Dropped valve
3/1/2021 0:00	4/1/2021 0:00	744.00	9 (S-13)	Out of service pending overhaul
3/1/2021 0:00	4/1/2021 0:00	744.00	10 (S-14)	Long-Term Standby
4/1/2021 0:00	5/1/2021 0:00	720.00	1 (S-4)	Out of service pending overhaul
4/15/2021 9:00	4/15/2021 10:06	1.10	2 (S-5)	Cut header in field
4/15/2021 10:08	4/15/2021 10:20	0.20	2 (S-5)	Cut header in field
4/22/2021 14:52	4/22/2021 14:58	0.10	2 (S-5)	Detonation
4/23/2021 8:30	4/23/2021 8:44	0.23	2 (S-5)	Tuning
4/15/2021 8:58	4/15/2021 10:18	1.33	3 (S-6)	Cut header in field
4/15/2021 14:36	4/15/2021 14:46	0.17	3 (S-6)	Cut header in field
4/18/2021 4:34	4/20/2021 8:56	52.37	3 (S-6)	Failed battery charger
4/21/2021 14:08	4/22/2021 14:06	23.97	3 (S-6)	Charging issue
4/15/2021 8:58	4/15/2021 10:16	1.30	4 (S-7)	Cut header in field
4/15/2021 8:56	4/15/2021 10:48	1.87	5 (S-9)	Cut header in field
4/20/2021 15:24	4/20/2021 15:30	0.10	5 (S-9)	Tuning
4/23/2021 9:40	4/23/2021 14:10	4.50	5 (S-9)	Service
4/11/2021 5:58	4/14/2021 9:46	75.80	6 (S-10)	Troubleshooting and repairs
4/15/2021 8:54	4/15/2021 10:54	2.00	6 (S-10)	Cut header in field
4/21/2021 9:48	4/22/2021 8:42	22.90	6 (S-10)	VFD programming
4/23/2021 9:40	4/23/2021 14:04	4.40	6 (S-10)	Radiator repair
4/27/2021 7:40	4/27/2021 8:16	0.60	6 (S-10)	Tuning
4/27/2021 15:04	4/27/2021 15:12	0.13	6 (S-10)	Tuning
4/28/2021 9:22	4/28/2021 9:32	0.17	6 (S-10)	Tuning
4/28/2021 11:24	4/28/2021 12:12	0.80	6 (S-10)	Tuning
4/1/2021 0:00	4/21/2021 13:34	493.57	7 (S-11)	Exhaust manifold replacement
4/21/2021 14:14	4/22/2021 10:30	20.27	7 (S-11)	VFD programming
4/23/2021 9:40	4/23/2021 14:26	4.77	7 (S-11)	Tuning
4/1/2021 0:00	4/5/2021 12:30	108.50	8 (S-12)	Liner and head replacement
4/5/2021 15:58	4/6/2021 7:42	15.73	8 (S-12)	Adjustment and tuning
4/12/2021 15:14	4/12/2021 15:34	0.33	8 (S-12)	Tuning
4/13/2021 9:16	4/13/2021 9:52	0.60	8 (S-12)	Tuning
4/15/2021 8:58	4/15/2021 10:54	1.93	8 (S-12)	Cut header in field
4/22/2021 10:30	5/1/2021 0:00	205.50	8 (S-12)	Out of service pending electrical upgrade
4/1/2021 0:00	5/1/2021 0:00	720.00	9 (S-13)	Out of service pending electrical upgrade
4/1/2021 0:00	5/1/2021 0:00	720.00	10 (S-14)	Long-Term Standby
5/1/2021 0:00	6/1/2021 0:00	744.00	1 (S-4)	Out of service pending overhaul
5/1/2021 6:24	5/1/2021 11:56	5.53	2 (S-5)	PG&E planned outage
5/3/2021 10:24	5/4/2021 6:44	20.33	2 (S-5)	PG&E planned outage
5/4/2021 11:42	6/1/2021 0:00	660.30	2 (S-5)	Out of service pending overhaul
5/1/2021 6:24	5/1/2021 11:52	5.47	3 (S-6)	PG&E planned outage
5/3/2021 10:24	5/4/2021 6:40	20.27	3 (S-6)	PG&E planned outage
5/4/2021 8:56	5/4/2021 10:44	1.80	3 (S-6)	Tuning
5/4/2021 11:04	5/4/2021 11:22	0.30	3 (S-6)	Tuning
5/4/2021 11:24	5/4/2021 12:54	1.50	3 (S-6)	Breaker linkage issue
5/7/2021 15:04	5/7/2021 15:50	0.77	3 (S-6)	Service
5/17/2021 10:38	5/17/2021 10:44	0.10	3 (S-6)	Battery issue
5/17/2021 11:22	5/17/2021 11:28	0.10	3 (S-6)	Battery issue
5/18/2021 10:14	5/18/2021 10:32	0.30	3 (S-6)	Battery issue

Appendix C. LFGTE Facility Downtime Logs
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown Date/Time	Startup Date/Time	Duration (Hours)	Engine(s)	Reason for Downtime
5/20/2021 20:34	5/21/2021 14:02	17.47	3 (S-6)	Charger repairs
5/1/2021 6:24	5/3/2021 9:36	51.20	4 (S-7)	PG&E planned outage
5/3/2021 10:24	5/4/2021 6:38	20.23	4 (S-7)	PG&E planned outage and service
5/17/2021 10:38	5/17/2021 10:42	0.07	4 (S-7)	Tuning
5/18/2021 9:20	5/18/2021 9:22	0.03	4 (S-7)	Tuning
5/18/2021 12:30	5/18/2021 12:38	0.13	4 (S-7)	Tuning
5/19/2021 10:52	5/19/2021 11:00	0.13	4 (S-7)	tuning
5/28/2021 11:32	5/28/2021 11:46	0.23	4 (S-7)	Detonation
5/1/2021 6:28	5/1/2021 11:40	5.20	5 (S-9)	PG&E planned outage
5/3/2021 10:22	5/3/2021 17:46	7.40	5 (S-9)	PG&E planned outage
5/4/2021 9:02	5/4/2021 10:34	1.53	5 (S-9)	Water leak
5/4/2021 10:50	5/4/2021 12:00	1.17	5 (S-9)	Troubleshooting
5/7/2021 8:02	5/7/2021 8:26	0.40	5 (S-9)	Phase 2 outage breaker work
5/11/2021 7:52	5/11/2021 8:12	0.33	5 (S-9)	Phase 2 outage breaker work
5/28/2021 13:30	5/28/2021 13:38	0.13	5 (S-9)	Detonation
5/1/2021 6:28	5/1/2021 11:26	4.97	6 (S-10)	PG&E planned Outage
5/3/2021 10:22	5/3/2021 17:48	7.43	6 (S-10)	PG&E planned outage
5/4/2021 7:08	5/4/2021 8:58	1.83	6 (S-10)	Tuning
5/7/2021 8:04	5/7/2021 8:26	0.37	6 (S-10)	Phase 2 outage breaker work
5/10/2021 7:58	5/10/2021 11:18	3.33	6 (S-10)	Troubleshooting
5/11/2021 7:52	5/11/2021 8:10	0.30	6 (S-10)	Phase 2 outage breaker work
5/1/2021 6:28	5/1/2021 11:42	5.23	7 (S-11)	PG&E planned outage
5/3/2021 10:24	5/3/2021 17:48	7.40	7 (S-11)	PG&E planned outage
5/7/2021 8:04	5/7/2021 8:30	0.43	7 (S-11)	Phase 2 outage breaker work
5/11/2021 7:54	5/11/2021 8:08	0.23	7 (S-11)	Phase 2 outage breaker work
5/13/2021 8:04	5/13/2021 8:36	0.53	7 (S-11)	Service
5/1/2021 0:00	6/1/2021 0:00	744.00	8 (S-12)	Out of service pending overhaul
5/1/2021 0:00	6/1/2021 0:00	744.00	9 (S-13)	Out of service pending overhaul
5/1/2021 0:00	6/1/2021 0:00	744.00	10 (S-14)	Long-Term Standby
6/1/2021 0:00	7/1/2021 0:00	720.00	1 (S-4)	Out of service pending overhaul
6/5/2021 6:44	6/7/2021 11:04	52.33	3 (S-6)	PG&E outage
6/13/2021 7:14	6/14/2021 9:12	25.97	3 (S-6)	Electrical issue
6/14/2021 9:24	6/14/2021 10:00	0.60	3 (S-6)	Breaker trip
6/16/2021 19:00	6/17/2021 11:22	16.37	3 (S-6)	Service
6/22/2021 13:42	6/22/2021 13:48	0.10	3 (S-6)	Breaker trip
6/25/2021 6:36	6/25/2021 12:02	5.43	3 (S-6)	Breaker trip
6/25/2021 14:14	6/28/2021 9:58	67.73	3 (S-6)	Troubleshooting
6/28/2021 10:04	6/28/2021 11:08	1.07	3 (S-6)	breaker trip
6/29/2021 9:38	ongoing	38.37	3 (S-6)	Troubleshooting
6/5/2021 6:44	6/7/2021 10:54	52.17	4 (S-7)	PG&E outage
6/16/2021 19:00	6/17/2021 11:22	16.37	4 (S-7)	Service
6/25/2021 7:00	ongoing	137.00	4 (S-7)	Dropped valve/ head failure
6/5/2021 6:44	6/5/2021 20:24	13.67	5 (S-9)	PG&E outage
6/13/2021 20:18	6/14/2021 9:16	12.97	5 (S-9)	Detonation
6/14/2021 9:20	6/14/2021 9:26	0.10	5 (S-9)	Water level sensor repairs
6/15/2021 9:20	6/15/2021 10:06	0.77	5 (S-9)	Water level sensor repairs
6/15/2021 10:18	6/15/2021 10:24	0.10	5 (S-9)	Water level sensor repairs
6/21/2021 9:18	6/21/2021 9:38	0.33	5 (S-9)	Water level sensor repairs
6/21/2021 9:44	6/21/2021 9:50	0.10	5 (S-9)	Water level sensor repairs
6/21/2021 10:00	6/21/2021 10:14	0.23	5 (S-9)	Water level sensor repairs
6/21/2021 10:16	6/21/2021 10:28	0.20	5 (S-9)	Water level sensor repairs
6/29/2021 9:36	6/29/2021 10:20	0.73	5 (S-9)	Service

Appendix C. LFGTE Facility Downtime Logs
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown Date/Time	Startup Date/Time	Duration (Hours)	Engine(s)	Reason for Downtime
6/5/2021 6:44	6/5/2021 20:10	13.43	6 (S-10)	PG&E outage
6/15/2021 9:22	6/15/2021 10:02	0.67	6 (S-10)	Tuning
6/23/2021 11:24	6/23/2021 11:32	0.13	6 (S-10)	Detonation
6/25/2021 9:28	6/25/2021 9:36	0.13	6 (S-10)	Detonation
6/25/2021 9:46	6/25/2021 9:54	0.13	6 (S-10)	Detonation
6/5/2021 6:44	6/7/2021 9:24	50.67	7 (S-11)	PG&E outage
6/15/2021 9:18	6/15/2021 10:04	0.77	7 (S-11)	Service
6/15/2021 12:24	6/15/2021 12:28	0.07	7 (S-11)	Detonation
6/22/2021 11:34	6/22/2021 11:40	0.10	7 (S-11)	Detonation
6/23/2021 7:22	6/23/2021 10:36	3.23	7 (S-11)	Tuning
6/1/2021 0:00	6/15/2021 14:02	350.03	8 (S-12)	Electrical upgrades
6/15/2021 14:38	6/16/2021 8:30	17.87	8 (S-12)	Testing circuits
6/18/2021 10:36	6/18/2021 10:46	0.17	8 (S-12)	Testing circuits
6/23/2021 11:16	6/23/2021 11:28	0.20	8 (S-12)	Testing circuits
6/24/2021 10:26	6/24/2021 10:32	0.10	8 (S-12)	Tuning
6/25/2021 1:02	6/25/2021 6:46	5.73	8 (S-12)	Low water shutdown
6/1/2021 0:00	7/1/2021 0:00	720.00	9 (S-13)	Out of service pending overhaul
6/1/2021 0:00	7/1/2021 0:00	720.00	10 (S-14)	Long-Term Standby
7/1/2021 0:00	7/13/2021 9:30	297.50	1 (S-4)	Startup after overhaul
7/1/2021 0:00	8/1/2021 0:00	744.00	2 (S-5)	Out of service pending overhaul
7/1/2021 0:00	7/6/2021 13:22	133.37	3 (S-6)	Main switchgear outage
7/6/2021 14:12	7/7/2021 9:48	19.60	3 (S-6)	Valve adjustment
7/8/2021 12:42	7/8/2021 13:00	0.30	3 (S-6)	Tuning
7/8/2021 13:14	7/8/2021 13:30	0.27	3 (S-6)	Tuning
7/8/2021 14:08	7/8/2021 14:48	0.67	3 (S-6)	Tuning
7/8/2021 15:38	7/8/2021 15:40	0.03	3 (S-6)	Tuning
7/10/2021 10:22	7/12/2021 7:22	45.00	3 (S-6)	Breaker fault
7/13/2021 10:36	7/13/2021 10:50	0.23	3 (S-6)	Tuning
7/13/2021 11:12	7/13/2021 12:14	1.03	3 (S-6)	Regulator repairs
7/14/2021 12:10	7/14/2021 12:36	0.43	3 (S-6)	Tuning
7/14/2021 12:42	7/14/2021 13:04	0.37	3 (S-6)	Tuning
7/14/2021 13:12	7/15/2021 8:06	18.90	3 (S-6)	Troubleshooting
7/30/2021 17:26	8/1/2021 0:00	30.57	3 (S-6)	Detonation
7/1/2021 0:00	7/7/2021 12:50	156.83	4 (S-7)	Main switchgear outage
7/14/2021 16:04	7/14/2021 16:18	0.23	4 (S-7)	Detonation
7/27/2021 11:38	7/27/2021 11:48	0.17	4 (S-7)	Detonation
7/12/2021 9:56	7/12/2021 14:56	5.00	5 (S-9)	Regulator repairs
7/14/2021 15:18	7/14/2021 16:28	1.17	5 (S-9)	Adjustment
7/16/2021 14:14	7/16/2021 14:26	0.20	5 (S-9)	Tuning
7/19/2021 13:52	7/19/2021 14:06	0.23	5 (S-9)	Detonation
7/19/2021 19:52	7/19/2021 22:58	3.10	5 (S-9)	Low water level
7/20/2021 8:56	7/20/2021 12:22	3.43	5 (S-9)	Tuning
7/21/2021 9:32	7/21/2021 9:38	0.10	5 (S-9)	Detonation
7/23/2021 11:42	7/23/2021 11:48	0.10	5 (S-9)	Tuning
7/13/2021 11:04	7/13/2021 14:32	3.47	6 (S-10)	Service
7/14/2021 14:08	7/14/2021 15:16	1.13	6 (S-10)	Tuning
7/16/2021 14:00	7/16/2021 14:04	0.07	6 (S-10)	Detonation
7/19/2021 17:34	7/19/2021 22:52	5.30	6 (S-10)	High water temp shutdown
7/19/2021 22:54	7/19/2021 23:08	0.23	6 (S-10)	Tuning
7/14/2021 10:10	7/14/2021 14:16	4.10	7 (S-11)	Regulator repairs
7/22/2021 11:06	7/22/2021 13:28	2.37	7 (S-11)	Service
7/8/2021 14:00	7/8/2021 14:06	0.10	8 (S-12)	Detonation

Appendix C. LFGTE Facility Downtime Logs
Sonoma County Central Landfill, Petaluma, California
(February 1, 2021 through July 31, 2021)

Shutdown Date/Time	Startup Date/Time	Duration (Hours)	Engine(s)	Reason for Downtime
7/13/2021 15:52	7/14/2021 6:46	14.90	8 (S-12)	Detonation
7/14/2021 14:20	7/14/2021 14:32	0.20	8 (S-12)	Detonation
7/14/2021 15:52	7/14/2021 16:30	0.63	8 (S-12)	Tuning
7/15/2021 23:18	7/16/2021 7:04	7.77	8 (S-12)	Detonation
7/16/2021 20:46	7/19/2021 7:42	58.93	8 (S-12)	Service
7/19/2021 8:14	7/19/2021 8:20	0.10	8 (S-12)	Tuning
7/19/2021 20:54	7/19/2021 23:10	2.27	8 (S-12)	Detonation
7/23/2021 9:56	7/23/2021 10:08	0.20	8 (S-12)	Detonation
7/23/2021 12:48	7/23/2021 12:52	0.07	8 (S-12)	Detonation
7/1/2021 0:00	8/1/2021 0:00	744.00	9 (S-13)	Out of service pending overhaul
7/1/2021 0:00	8/1/2021 0:00	744.00	10 (S-14)	Long-Term Standby
TOTAL DOWNTIME[1]		**147.19**		

[1]Downtime is calculated when all engines (1, 2, 3, 4, 5, 6, 7, 8, 9, and 10) are offline concurrently.

Appendix D – Surface Emission and GCCS Component Leak Monitoring Results

June 6, 2021
File No. 07221077.00

Mr. Derek Cheney
Republic Services – Sonoma Central Landfill
500 Mecham Road
Petaluma, California 95492

Subject: Sonoma Central Landfill - Petaluma, California

Landfill Methane Rule (LMR) and New Source Performance Standards (NSPS) Surface Emissions Monitoring for First Quarter 2021.

Dear Mr. Cheney:

SCS Field Services (SCS) is pleased to provide the Republic Services, with the enclosed report summarizing the surface emissions monitoring services provided at the Sonoma Central Landfill (Site) during the First Quarter 2021. This report includes the results of surface scan, component emissions and blower/flare station emissions monitoring for the Site for this monitoring period.

SCS appreciates the opportunity to be of assistance to Republic Services on this project. As you review the enclosed information, please contact Michael Flanagan at (510) 363-7796 or Whitney Stackhouse at (209) 338-7990 if you have any questions or comments.

Sincerely,

Whitney Stackhouse
Project Manager
SCS Field Services

Michael Flanagan
Project Manager
SCS Field Services

Encl.

Sean Bass, SCS Field Services
Art Jones, SCS Field Services

Sonoma Central Landfill

Landfill Methane Rule (LMR) and New Source Performance Standards (NSPS) Surface Emissions Monitoring

First Quarter 2021

Presented to:

Mr. Derek Cheney
Republic Services – Sonoma Central
500 Mecham Road
Petaluma, California 94952

SCS FIELD SERVICES

File No. 07221078.00 Task 01 | June 6, 2021

SCS FIELD SERVICES
4730 Enterprise Way Suite A
Modesto, CA 95356

Sonoma Central Landfill

Landfill Methane Rule (LMR) and New Source Performance Standards (NSPS) Surface Emissions Monitoring First Quarter 2021

INTRODUCTION

This letter provides results of the March 24, 25, 26, 31 and April 21, 2021, LMR and NSPS landfill surface emissions monitoring (SEM) performed by SCS Field Services (SCS) at the subject site. All work was performed in accordance with our approved Work Scope dated December 23, 2020, and the LMR requirements.

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

SUMMARY AND CONCLUSIONS

As stipulated in LMR, if uncorrectable exceedances within the 10-day limitation are detected or emissions are discovered during an inspection by Regulatory Agencies, the landfill must perform monitoring on a 25-foot pathway on a quarterly basis for active disposal sites. Upon completion of four consecutive SEM events without an uncorrectable exceedance of the 25 ppmv or 500 ppmv standards, other than non-repeatable momentary readings, the landfill may perform the monitoring on a 100-foot spacing on an annual basis for closed landfills or quarterly for active disposal sites. Therefore, based on the previous monitoring events, in which exceedances were observed, the monitoring at the Sonoma Central Landfill was performed on 25-foot pathways in accordance with the LMR.

On, March 24, 25, 26, 31 and April 21, 2021, SCS performed first quarter 2021 SEM as required by the Bay Area Air Quality Management District (BAAQMD). Instantaneous surface emissions monitoring results indicated that three (3) locations exceeded the 500 ppmv maximum concentration during the initial monitoring event (Table 1 in Attachment 3). The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring indicated that all areas had returned to below regulatory compliance limits following system adjustments and remediation (well field adjustments and installation of new bentonite plugs) by SCS personnel. Based on these monitoring results no additional follow up testing was required.

Also, during the instantaneous monitoring event, SCS performed concurrent integrated monitoring of the landfill surface. As required by the LMR, the landfill was divided into 50,000 square foot areas. The Sonoma Central Landfill surface area was therefore divided into 163 grids, as shown on Figure 1 in Attachment 1. During this monitoring event, several grids were not monitored, in accordance with

the regulations, due to ongoing active landfilling activities, unsafe conditions, or there was no waste in place prior to the monitoring event.

During the monitoring event, there were no grid areas observed to exceed the 25 ppmv LMR integrated average threshold (Table 2 in Attachment 4). Based on these monitoring results, no further action is required at this time. These results are discussed in a subsequent section of this report.

In addition, quarterly monitoring of the pressurized piping or components of the Gas Collection and Control System (GCCS) that are under positive pressure must be performed. Results of the testing of the landfill gas (LFG) Blower Flare Station (BFS) pressurized piping and components indicated that all test locations were in compliance with the 500 ppmv requirement.

Further, as required under the LMR, any location on the landfill that has an observed instantaneous methane concentration above 200 ppmv, must be stake-marked and Global Positioning System (GPS) located on a site figure. During this reporting period, one (1) location was observed to exceed the 200 ppmv, reporting threshold. When these readings are observed, the locations are reported to site personnel for tracking and/or remediation and will be reported in the next submittal of the annual LMR report. Please see the figure in Attachment 3 for location details.

Finally, to help prevent potential future exceedances, SCS recommends that the landfill surface be routinely inspected and any observed surface erosion be routinely repaired.

SURFACE EMISSIONS MONITORING

On March 24, 25, 26, 31 and April 21, 2021, the instantaneous and integrated SEM was performed over the surface of the subject site. The intent of the monitoring was to identify any specific locations or areas of the landfill surface with organic compound concentrations exceeding the LMR threshold limit values of 500 ppmv measured as methane for instantaneous monitoring, or an average methane concentration of 25 ppmv for the integrated monitoring in the 50,000 square foot grids as required under the LMR. During this event, SCS performed the monitoring on a 25-foot pathway in accordance with the rules as required.

EMISSIONS TESTING INSTRUMENTATION/CALIBRATION

Instruments used to perform the landfill surface emission testing consisted of the following:

- Thermo Scientific TVA 2020 portable Flame Ionization Detector (FID). This instrument measures methane in air over a range of 1 to 50,000 ppmv. The TVA 2020 meets the State of California Air Resources Board (CARB) requirements for combined instantaneous and integrated monitoring and was calibrated in accordance with United States Environmental Protection Agency (US EPA) Method 21.

- Weather Anemometer with continuous recorder for meteorological conditions in accordance with the LMR.

Instrument calibration logs and weather information are shown in Attachments 5 and 6.

SURFACE EMISSIONS MONITORING PROCEDURES

Surface emissions monitoring was conducted in accordance with the LMR and NSPS requirements. Monitoring was performed with the FID inlet held within 3-inches of the landfill surface while a technician walked a grid in parallel paths not more than 25 -feet apart over the surface of the landfill. Cracks, holes and other cover penetrations in the surface were also tested. Surface emissions readings were monitored continuously and recorded every 5 seconds. Any areas in exceedance of the 200 or 500 ppmv standards (reporting and compliance levels, respectively) would be GPS tagged and stake-marked for on-site personnel to perform remediation or repairs.

The integrated average is based on the readings stored on the instrument, which are recorded every 5 seconds. The readings are then downloaded and the averages are calculated for each grid using SCS eTools®. All readings are maintained in this secure SCS Database. The readings are not provided in the report due to the volume of readings, but can be furnished upon request.

Recorded wind speed results are shown in Attachment 6. Wind speed averages were observed to remain below the alternative threshold of 10 miles per hour, and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within 72 hours of the monitoring events. Therefore, site meteorological conditions were within the alternatives of the LMR requirements on the above mentioned dates.

TESTING RESULTS

During this event, SCS performed the monitoring on a 25-foot pathway in accordance with the rule as required under the LMR and NSPS. The intent of the monitoring was to identify any specific locations or areas of the landfill surface with organic compound concentrations exceeding the LMR or NSPS threshold limit values of 500 ppmv measured as methane for instantaneous monitoring, or an average methane concentration of 25 ppmv for the integrated monitoring (LMR).

On March 24, 25, and 26, 2021, SCS performed first quarter 2021 instantaneous emissions monitoring testing as required by the BAAQMD. During this monitoring, surface emissions results indicated that three (3) locations exceeded the 500 ppmv maximum concentration. The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring performed on March 31 and April 21, 2021, respectively, indicated that all areas had returned to compliance following system adjustments and remediation (wellfield adjustment and borehole repairs using bentonite and soil) performed by SCS personnel. Based on these monitoring results no additional follow up testing was required. Results of the monitoring are shown in Attachments 2 and 3 (Table 1).

Additionally, calculated integrated grid monitoring indicated no areas exceedances of the 25-ppmv requirement during this monitoring event. Based on these monitoring results no follow up testing was required. Results of the initial monitoring are shown in Attachment 4 (Table 2). Calibration logs for the monitoring equipment are provided in Attachment 5.

During this monitoring event, several grids were not monitored, in accordance with the LMR, due to active landfilling activities, unsafe conditions or no waste in place. SCS will continue to monitor all accessible locations during the second quarter 2021.

PRESSURIZED PIPE AND COMPONENT LEAK MONITORING

On March 24 and 26, 2021, quarterly leak monitoring was performed in accordance with the LMR. SCS performed LFG pressurized pipe and component leak monitoring at the BFS and PGF Facility.

Monitoring was performed with the detector inlet held one-half of an inch from pressurized pipe and associated components. No locations exceeding the 500 ppmv threshold were observed during our monitoring event. The maximum reading, which was 65.6 ppmv, was well below the maximum threshold (see Table 1 for component results). Therefore, all pressurized piping and components located at the LFG BFS and PGF were in compliance at the time of our testing.

PROJECT SCHEDULE

According to the LMR and NSPS, surface emissions monitoring at active landfills is required to be performed on a quarterly basis. Therefore, in accordance with our approved Work Scope, the second quarter 2021 (April through June) surface emissions testing event is scheduled to be performed by the end of May 2021 in accordance with the Republic SOP unless an alternative timeline is requested by site personnel.

STANDARD PROVISIONS

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

Attachment 1

Landfill Grid

LEGEND

- APPROXIMATE LINER BOUNDARY
- 500 — EXISTING 10' CONTOUR
- EXISTING GAS PIPE, ABOVE GRADE
- EXISTING GAS PIPE, BELOW GRADE
- EXISTING HORIZONTAL GAS COLLECTOR
- AAG AAG AAG — EXISTING AIR FORCE MAIN, ABOVE GRADE
- ABG ABG ABG — EXISTING AIR FORCE MAIN, BELOW GRADE
- EXISTING AIR LEACHATE LINE
- EW-170 — EXISTING GAS/LEACHATE EXTRACTION WELL
- EW-165 — EXISTING VERTICAL GAS EXTRACTION WELL
- 88.5 — EXISTING VERTICAL GAS EXTRACTION WELL WITH PUMP ADDED
- EXISTING REMOTE WELLHEAD
- EXISTING CONTROL VALVE
- EXISTING BLIND FLANGE
- EXISTING FLANGE CONNECTION
- EXISTING REDUCER FITTING
- EXISTING END CAP
- SUMP — EXISTING CONDENSATE PUMP STATION
- 120 — SURFACE EMISSIONS MONITORING GRID

N

0 200 400

SCALE IN FEET

NOTES:

1. THE 2020 TOPOGRAPHIC MAP WAS PREPARED BY COOPER AERIAL SURVEYS CO. DATE OF PHOTOGRAPHY: JANUARY 31, 2020. HORIZONTAL DATUM: NAD27, ZONE 2 VERTICAL DATUM: NGVD29.
2. THE 2018 GCCS AS-BUILT GCCS IMPROVEMENTS PROVIDED BY REPUBLIC SERVICES INC. ON SEPTEMBER 20, 2018.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 11/11/2020 — DRAWN BY GVP — DESIGNED BY KK — CHECKED BY HLV — APPROVED BY ——

TETRA TECH

SONOMA COUNTY CENTRAL LANDFILL
PETALUMA, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

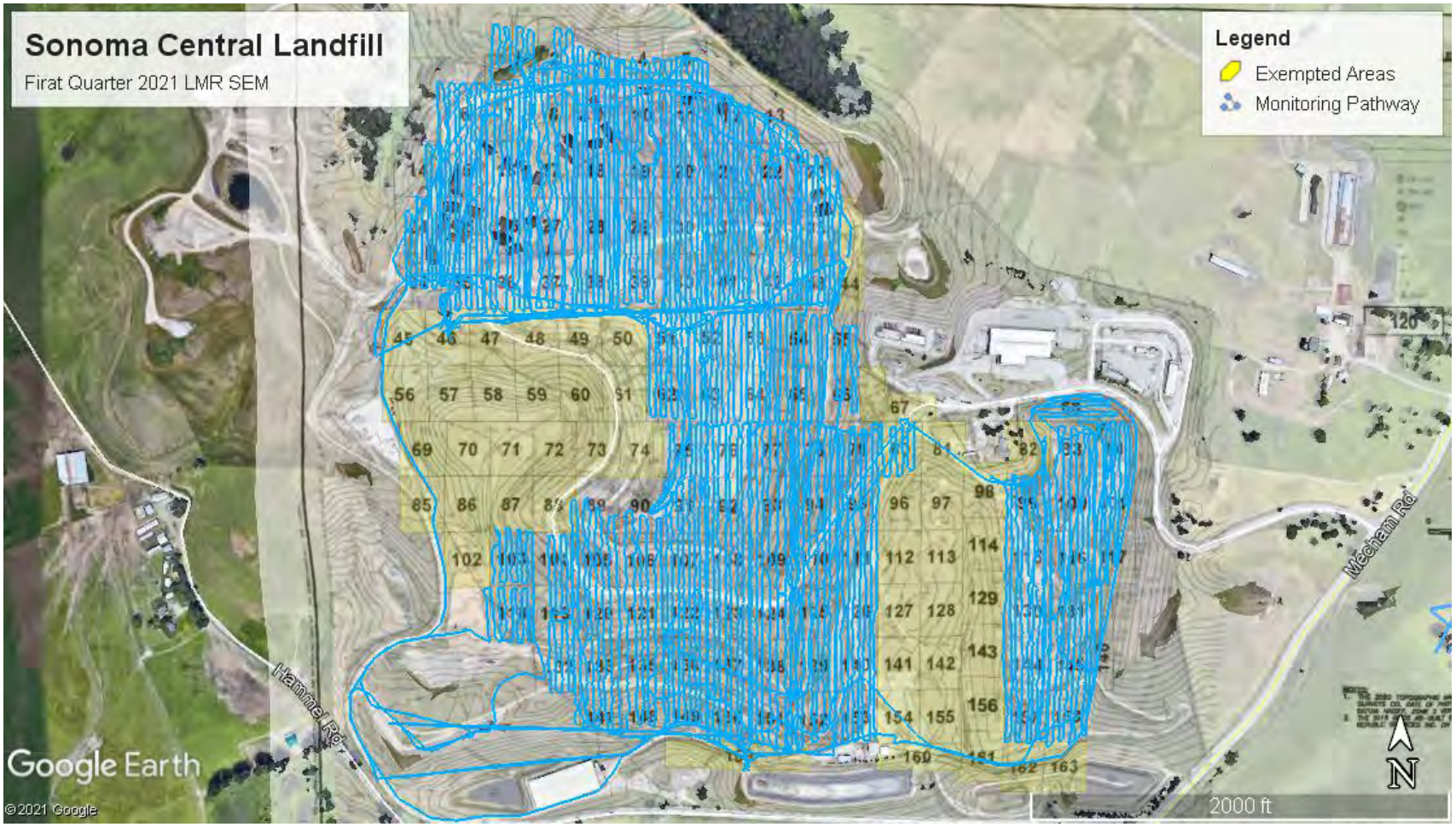
SHEET NO. 1

PROJECT NO. 197-200019

File: X:\PROJECTS\SONOMA COUNTY\200127 - SEM Plan Update\Project Drawings\DUSCLSEM_SEM GRID MAP_2020 MAP UPDATE.dwg Layout: SHT 1 User: GERARDO.PAREDES Nov 11, 2020 - 5:31pm

Attachment 2

Surface Pathway



First Quarter 2021

LMR Surface Emissions Monitoring Pathway

Sonoma Central Landfill, Petaluma, California

Attachment 3

Instantaneous and Component Emissions Monitoring Results

First Quarter 2021

Table 1. Instantaneous Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Instantaneous Data Report for March 24, 25, 26, 31 and April 21, 2021

Highest Component Reading

Location	Initial Monitoring (ppmv) March 26, 2021	10-Day Follow Up Monitoring (ppmv) March 31, 2021	20-Day Follow Up Monitoring (ppmv) April 21, 2021
V049-A	7,600	60	160
Condensate Sump 3	2,600	180	55
V217-0	1,700	60	100

Highest Pressurized Pipe Reading

Location	Date	Concentration (ppmv)
Flare	3/24/2021	3.3
PGF Facility	3/26/2021	65.6

No additional exceedances of the 500 ppm threshold were observed during the monitoring performed during the first quarter 2021.

First Quarter 2021

Emissions Monitoring Locations Greater Than 500 ppmv

Sonoma Central Landfill, Petaluma, California

First Quarter 2021

Emissions Monitoring Locations Between 200-499 ppmv

Sonoma Central Landfill, Petaluma, California

Attachment 4

Integrated Monitoring Results

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC001	3/24/2021 12:54	1.41	
SC002	3/24/2021 10:22	1.66	
SC003	3/24/2021 10:29	2.18	
SC004	3/25/2021 10:36	3.40	
SC005	3/24/2021 11:38	2.44	
SC006	3/24/2021 10:11	1.89	
SC007	3/24/2021 10:25	2.34	
SC008	3/24/2021 10:24	4.48	
SC009	3/24/2021 10:31	8.53	
SC010	3/25/2021 10:36	9.94	
SC011	3/24/2021 11:23	6.88	
SC012	3/24/2021 12:13	5.28	
SC013	3/24/2021 11:38	7.97	
SC014	3/25/2021 09:29	1.74	
SC015	3/24/2021 10:07	2.25	
SC016	3/24/2021 10:37	1.92	
SC017	3/24/2021 10:21	8.96	
SC018	3/24/2021 10:34	6.46	
SC019	3/25/2021 10:40	8.48	
SC020	3/24/2021 11:22	5.05	
SC021	3/24/2021 12:05	3.07	
SC022	3/24/2021 11:40	5.39	
SC023	3/24/2021 11:29	8.42	
SC024	3/25/2021 09:35	1.93	
SC025	3/24/2021 10:06	2.14	
SC026	3/24/2021 10:34	4.27	
SC027	3/24/2021 10:35	3.48	
SC028	3/24/2021 10:26	2.99	
SC029	3/25/2021 10:40	2.93	
SC030	3/24/2021 11:19	2.33	
SC031	3/24/2021 12:02	2.96	
SC032	3/24/2021 11:42	4.89	
SC033	3/24/2021 11:32	6.13	
SC034	3/25/2021 09:35	1.51	
SC035	3/24/2021 10:12	1.67	
SC036	3/24/2021 10:35	5.57	
SC037	3/24/2021 10:28	4.51	
SC038	3/24/2021 10:34	3.06	
SC039	3/25/2021 10:35	7.16	
SC040	3/24/2021 11:18	3.86	
SC041	3/24/2021 11:59	3.98	
SC042	3/24/2021 12:22	2.99	
SC043	3/24/2021 11:30	5.47	

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC044	--	--	Exempted By Site
SC045	--	--	Exempted By Site
SC046	--	--	Exempted By Site
SC047	--	--	Exempted By Site
SC048	--	--	Exempted By Site
SC049	--	--	Exempted By Site
SC050	--	--	Exempted By Site
SC051	3/26/2021 12:08	2.70	
SC052	3/25/2021 12:28	4.20	
SC053	3/26/2021 08:49	2.12	
SC054	3/26/2021 09:26	2.95	
SC055	3/26/2021 09:54	5.48	
SC056	--	--	Exempted By Site
SC057	--	--	Exempted By Site
SC058	--	--	Exempted By Site
SC059	--	--	Exempted By Site
SC060	--	--	Exempted By Site
SC061	--	--	Exempted By Site
SC062	3/26/2021 11:57	4.54	
SC063	3/25/2021 12:30	5.11	
SC064	3/26/2021 08:49	1.82	
SC065	3/26/2021 09:25	2.58	
SC066	3/26/2021 09:54	5.87	
SC067	--	--	Exempted By Site
SC068	3/24/2021 10:42	1.62	
SC069	--	--	Exempted By Site
SC070	--	--	Exempted By Site
SC071	--	--	Exempted By Site
SC072	--	--	Exempted By Site
SC073	--	--	Exempted By Site
SC074	--	--	Exempted By Site
SC075	3/26/2021 12:31	2.29	
SC076	3/25/2021 09:46	5.10	
SC077	3/25/2021 10:23	2.79	
SC078	3/25/2021 10:24	1.88	
SC079	3/25/2021 10:30	2.51	
SC080	--	--	Exempted By Site
SC081	--	--	Exempted By Site
SC082	--	--	Inaccessible-Fenced
SC083	3/24/2021 11:41	3.04	
SC084	3/25/2021 11:09	4.73	
SC085	--	--	Exempted By Site
SC086	--	--	Exempted By Site

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC087	--	--	Exempted By Site
SC088	--	--	Exempted By Site
SC089	3/26/2021 09:43	2.27	
SC090	3/25/2021 12:12	3.95	
SC091	3/26/2021 09:06	2.26	
SC092	3/25/2021 09:55	8.09	
SC093	3/25/2021 10:26	6.28	
SC094	3/25/2021 10:23	3.39	
SC095	3/25/2021 10:32	2.59	
SC096	--	--	Exempted By Site
SC097	--	--	Exempted By Site
SC098	--	--	Exempted By Site
SC099	3/24/2021 11:36	3.95	
SC100	3/24/2021 11:41	4.94	
SC101	3/25/2021 11:08	5.48	
SC102	--	--	Exempted By Site
SC103	3/26/2021 10:22	2.54	
SC104	3/25/2021 11:52	2.69	
SC105	3/26/2021 09:43	3.84	
SC106	3/25/2021 12:12	9.10	
SC107	3/26/2021 09:04	6.46	
SC108	3/25/2021 09:52	11.84	
SC109	3/25/2021 10:34	8.63	
SC110	3/25/2021 10:30	3.51	
SC111	3/25/2021 10:30	2.74	
SC112	--	--	Exempted By Site
SC113	--	--	Exempted By Site
SC114	--	--	Exempted By Site
SC115	3/24/2021 11:33	3.77	
SC116	3/24/2021 11:37	4.55	
SC117	3/25/2021 11:03	3.71	
SC118	3/25/2021 13:08	1.86	
SC119	3/25/2021 11:51	3.74	
SC120	3/26/2021 09:47	5.33	
SC121	3/25/2021 12:07	8.65	
SC122	3/26/2021 09:05	7.25	
SC123	3/25/2021 09:49	7.53	
SC124	3/25/2021 10:28	9.15	
SC125	3/25/2021 10:24	5.00	
SC126	3/25/2021 10:39	2.73	
SC127	--	--	Exempted By Site
SC128	--	--	Exempted By Site
SC129	--	--	Exempted By Site

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC130	3/24/2021 11:34	5.65	
SC131	3/24/2021 11:34	5.06	
SC132	3/25/2021 11:46	2.41	
SC133	3/26/2021 09:43	3.23	
SC134	--	--	Not on Grid Map
SC135	3/25/2021 12:06	1.54	
SC136	3/26/2021 09:06	3.82	
SC137	3/25/2021 09:43	3.48	
SC138	3/25/2021 10:26	7.59	
SC139	3/25/2021 10:28	8.60	
SC140	3/25/2021 10:33	2.33	
SC141	--	--	Exempted By Site
SC142	--	--	Exempted By Site
SC143	--	--	Exempted By Site
SC144	3/24/2021 11:35	6.02	
SC145	3/24/2021 11:39	6.73	
SC146	3/26/2021 11:17	9.35	
SC147	3/26/2021 09:44	2.04	
SC148	3/25/2021 12:06	2.39	
SC149	3/26/2021 09:04	2.12	
SC150	3/25/2021 09:51	3.34	
SC151	3/25/2021 10:26	2.07	
SC152	3/25/2021 10:23	1.54	
SC153	3/25/2021 10:40	1.59	
SC154	--	--	Exempted By Site
SC155	--	--	Exempted By Site
SC156	--	--	Exempted By Site
SC157	3/24/2021 11:32	3.80	
SC158	3/24/2021 11:32	3.70	
SC159	--	--	Exempted By Site
SC160	--	--	Exempted By Site
SC161	--	--	Exempted By Site
SC162	--	--	Exempted By Site
SC163	--	--	Exempted By Site

Attachment 5

Calibration Logs

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: B 24-21 Site Name: Sonoma

Inspector(s): Brant Wade Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5415 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	501	1	3
2	.2	502	2	2
3	.1	499	1	5

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 142176
Counters Observed for the Zero= 4585

Trial 2:
Counts Observed for the Span= 142486
Counters Observed for the Zero= 4597

Trial 3:
Counts Observed for the Span= 142702
Counters Observed for the Zero= 4600

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 52 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Hunter off Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 54120 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1		500	0	3
2		499	0	2
3		498	2	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 128972
Counters Observed for the Zero= 3454

Trial 2:
Counts Observed for the Span= 129945
Counters Observed for the Zero= 3469

Trial 3:
Counts Observed for the Span= 129457
Counters Observed for the Zero= 3488

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Bryan ochoa Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	501	1	
2	.1	500	0	
3	0	500	0	

Average Difference: .3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- .3 /500 x 100%

= 99.94 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 128948
Counters Observed for the Zero= 2891

Trial 2:
Counts Observed for the Span= 129203
Counters Observed for the Zero= 2909

Trial 3:
Counts Observed for the Span= 129547
Counters Observed for the Zero= 2977

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.4 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Liam McGinn Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 64 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	501	1	3
2	0	500	0	2
3	0	500	0	2

Average Difference: .33

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- .3 /500 x 100%

= 99.94 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 128364
Counters Observed for the Zero= 2860

Trial 2:
Counts Observed for the Span= 128718
Counters Observed for the Zero= 2869

Trial 3:
Counts Observed for the Span= 128605
Counters Observed for the Zero= 2887

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): _____ Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5419 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	500	0	3
2	.16	501	1	3
3	.2	502	2	2

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- _____ /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 166624
Counters Observed for the Zero= 4782

Trial 2:
Counts Observed for the Span= 162824
Counters Observed for the Zero= 4799

Trial 3:
Counts Observed for the Span= 162497
Counters Observed for the Zero= 4823

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 64 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	500	0	3
2	.2	501	1	2
3	.3	500	0	1

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 162078
Counters Observed for the Zero= 3599

Trial 2:
Counts Observed for the Span= 162258
Counters Observed for the Zero= 3615

Trial 3:
Counts Observed for the Span= 162503
Counters Observed for the Zero= 3649

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.6 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Pablo Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2.7 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5421 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	501	1	3
2	.2	502	2	4
3	.1	499	1	2

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 142420
Counters Observed for the Zero= 3877

Trial 2:
Counts Observed for the Span= 142620
Counters Observed for the Zero= 3883

Trial 3:
Counts Observed for the Span= 142850
Counters Observed for the Zero= 3905

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): _____ Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2.7 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 2364 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	498	2	4
2	.2	494	1	5
3	.1	501	1	5

Average Difference: 1.3

*Perform recallbration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 171276
Counters Observed for the Zero= 4177

Trial 2:
Counts Observed for the Span= 171501
Counters Observed for the Zero= 4196

Trial 3:
Counts Observed for the Span= 171834
Counters Observed for the Zero= 4225

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonora

Inspector(s): Ryan Haslam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	4
2	.2	498	2	5
3	.1	499	1	4

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 114312
Counters Observed for the Zero= 4135

Trial 2:
Counts Observed for the Span= 114526
Counters Observed for the Zero= 4158

Trial 3:
Counts Observed for the Span= 114810
Counters Observed for the Zero= 4182

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Cnr. d152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Brant Wade Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5415 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	499	1	
2	.2	501	1	
3	.1	502	2	

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 99.7 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 141039
Counters Observed for the Zero= 4672

Trial 2:
Counts Observed for the Span= 141357
Counters Observed for the Zero= 4694

Trial 3:
Counts Observed for the Span= 141674
Counters Observed for the Zero= 4720

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Hunter OTT Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5420 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	2	503	3	4
2	1	499	1	3
3	2	501	1	5

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 127853
Counters Observed for the Zero= 3471

Trial 2:
Counts Observed for the Span= 128041
Counters Observed for the Zero= 3496

Trial 3:
Counts Observed for the Span= 128365
Counters Observed for the Zero= 3519

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.4 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.2	502	7	4
2	.1	498	2	5
3	.3	501	1	5

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 127857
Counters Observed for the Zero= 2953

Trial 2:
Counts Observed for the Span= 128061
Counters Observed for the Zero= 2989

Trial 3:
Counts Observed for the Span= 129057
Counters Observed for the Zero= 3016

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.4 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Liam M Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.2	501	1	4
2	.1	498	2	5
3	.1	501	1	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 127312
Counters Observed for the Zero= 2882

Trial 2:
Counts Observed for the Span= 127586
Counters Observed for the Zero= 2908

Trial 3:
Counts Observed for the Span= 127851
Counters Observed for the Zero= 2937

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.4 ppm

Downwind Location Description: MW-152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): _____ Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: NWN Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5411a Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	501	1	4
2	2	498	2	5
3	1	501	1	5

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 165010
Counters Observed for the Zero= 4819

Trial 2:
Counts Observed for the Span= 165276
Counters Observed for the Zero= 4841

Trial 3:
Counts Observed for the Span= 165423
Counters Observed for the Zero= 4865

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 52 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-21 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.2	502	2	4
2	.1	501	1	3
3	.1	501	1	4

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 161638
Counters Observed for the Zero= 3637

Trial 2:
Counts Observed for the Span= 161852
Counters Observed for the Zero= 3657

Trial 3:
Counts Observed for the Span= 161993
Counters Observed for the Zero= 3691

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 52 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-2021 Site Name: Sonoma

Inspector(s): Pablo Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5421 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	4
2	.2	500	0	3
3	.1	498	2	5

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 141291
Counters Observed for the Zero= 3889

Trial 2:
Counts Observed for the Span= 141508
Counters Observed for the Zero= 3925

Trial 3:
Counts Observed for the Span= 141817
Counters Observed for the Zero= 3956

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-24-2021 Site Name: Sonoma

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: WNW Barometric Pressure: 30 "Hg

Air Temperature: 45 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	2	501	1	
2	1	498	2	
3	1	499	1	

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 113285
Counters Observed for the Zero= 4186

Trial 2:
Counts Observed for the Span= 113571
Counters Observed for the Zero= 4208

Trial 3:
Counts Observed for the Span= 113865
Counters Observed for the Zero= 4237

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 52 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3/25/21 Site Name: Sonoma Central

Inspector(s): Liam M Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: SWS Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1273 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	500	0	4
2	.2	502	2	5
3	.1	498	2	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7%

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 114336
Counters Observed for the Zero= 2824

Trial 2:
Counts Observed for the Span= 114529
Counters Observed for the Zero= 2851

Trial 3:
Counts Observed for the Span= 114761
Counters Observed for the Zero= 2883

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3/25/21 Site Name: Sonoma Central

Inspector(s): ~~Ryan H~~ Brian O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: SWS Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	502	2	3
2	.1	499	1	4
3	.1	499	1	4

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 94484
Counters Observed for the Zero= 3158

Trial 2:
Counts Observed for the Span= 94416
Counters Observed for the Zero= 3175

Trial 3:
Counts Observed for the Span= 94723
Counters Observed for the Zero= 3204

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3/25/21 Site Name: Sonoma Central

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: SWS Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5420 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	500	0	4
2	.1	502	2	5
3	.1	499	1	3

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 109128
Counters Observed for the Zero= 3680

Trial 2:
Counts Observed for the Span= 109354
Counters Observed for the Zero= 3694

Trial 3:
Counts Observed for the Span= 109576
Counters Observed for the Zero= 3711

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.2 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3/25/21 Site Name: Sonoma Central

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: SWS Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	502	2	4
2	1	501	2	3
3	0	499	1	3

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 135056
Counters Observed for the Zero= 3865

Trial 2:
Counts Observed for the Span= 135136
Counters Observed for the Zero= 3890

Trial 3:
Counts Observed for the Span= 135382
Counters Observed for the Zero= 3872

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3/25/21 Site Name: Sonoma Central

Inspector(s): Brant W. Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5415 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	501	1	4
2	2	507	7	3
3	1	505	5	2

Average Difference: 2

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 2 /500 x 100%

= 99.6 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 123128
Counters Observed for the Zero= 4865

Trial 2:
Counts Observed for the Span= 123459
Counters Observed for the Zero= 4884

Trial 3:
Counts Observed for the Span= 123681
Counters Observed for the Zero= 4921

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.7 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3/25/21 Site Name: Sonoma Central

Inspector(s): ~~Brian O~~ Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: SWS Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	501	1	3
2	2	503	3	4
3	1	501	1	4

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 113528
Counters Observed for the Zero= 4089

Trial 2:
Counts Observed for the Span= 113751
Counters Observed for the Zero= 4106

Trial 3:
Counts Observed for the Span= 113975
Counters Observed for the Zero= 4125

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: MW. d 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 8-25-21 Site Name: Sonoma

Inspector(s): Liam M Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 51 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	502	2	4
2	-1	499	1	3
3	-1	501	1	5

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 113627
Counters Observed for the Zero= 2869

Trial 2:
Counts Observed for the Span= 113813
Counters Observed for the Zero= 2883

Trial 3:
Counts Observed for the Span= 113979
Counters Observed for the Zero= 2897

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-25-21 Site Name: Sonoma

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 51 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	-2	502	2	4
2	-1	499	1	3
3	-1	498	2	6

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 102568
Counters Observed for the Zero= 3211

Trial 2:
Counts Observed for the Span= 102743
Counters Observed for the Zero= 3230

Trial 3:
Counts Observed for the Span= 103057
Counters Observed for the Zero= 3241

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-25-21 Site Name: Sonoma

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 51 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 542 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.2	503	3	21
2	.1	501	1	3
3	.2	499	1	3

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 108728
Counters Observed for the Zero= 3239

Trial 2:
Counts Observed for the Span= 108874
Counters Observed for the Zero= 32599

Trial 3:
Counts Observed for the Span= 108959
Counters Observed for the Zero= 3286

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-25-21 Site Name: Sonoma

Inspector(s): Don Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 51 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	502	2	4
2	2	501	1	5
3	1	498	2	2

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 134753
Counters Observed for the Zero= 38 57

Trial 2:
Counts Observed for the Span= 134907
Counters Observed for the Zero= 38 78

Trial 3:
Counts Observed for the Span= 135083
Counters Observed for the Zero= 38 94

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: 1-Entrance Reading: 1.2 ppm

Downwind Location Description: grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-25-21 Site Name: Sonoma

Inspector(s): Brank Wade Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 51 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5415 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	502	2	5
2	2	498	2	4
3	2	501	1	3

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 122351
Counters Observed for the Zero= 4918

Trial 2:
Counts Observed for the Span= 122584
Counters Observed for the Zero= 4958

Trial 3:
Counts Observed for the Span= 122871
Counters Observed for the Zero= 4962

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: cyfield 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

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SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-25-21 Site Name: Sonoma

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SW Barometric Pressure: 30 "Hg

Air Temperature: 51 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	2	503	3	3
2	1	501	1	3
3	2	499	1	4

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 115684
Counters Observed for the Zero= 4106

Trial 2:
Counts Observed for the Span= 113825
Counters Observed for the Zero= 4134

Trial 3:
Counts Observed for the Span= 114073
Counters Observed for the Zero= 4159

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 52 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-26-21 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: ~~1265~~ 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	502	2	4
2	2	501	1	3
3	1	502	2	4

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 176352
Counters Observed for the Zero= 4934

Trial 2:
Counts Observed for the Span= 176524
Counters Observed for the Zero= 4961

Trial 3:
Counts Observed for the Span= 176709
Counters Observed for the Zero= 4985

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

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SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-26-2021 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: N Barometric Pressure: 30 "Hg

Air Temperature: 39 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5411a Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	3
2	.2	501	1	4
3	.1	499	1	4

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 177192
Counters Observed for the Zero= 4936

Trial 2:
Counts Observed for the Span= 176144
Counters Observed for the Zero= 4932

Trial 3:
Counts Observed for the Span= 178036
Counters Observed for the Zero= 4949

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-26-21 Site Name: Sonoma

Inspector(s): Brgan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	3
2	.2	501	1	5
3	.1	498	2	4

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 136523
Counters Observed for the Zero= 3126

Trial 2:
Counts Observed for the Span= 136758
Counters Observed for the Zero= 3153

Trial 3:
Counts Observed for the Span= 136947
Counters Observed for the Zero= 3179

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 7.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-26-2021 Site Name: Sonoma

Inspector(s): Bryan Ochoa Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: N Barometric Pressure: 30 "Hg

Air Temperature: 39 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 3124 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.3	501	1	4
2	.1	498	2	3
3	.2	499	1	4

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 137936
Counters Observed for the Zero= 3140

Trial 2:
Counts Observed for the Span= 140096
Counters Observed for the Zero= 3124

Trial 3:
Counts Observed for the Span= 141936
Counters Observed for the Zero= 3114

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pos6

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-26-21 Site Name: Sonoma

Inspector(s): Liam M Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: NW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	-1	503	2	5
2	-1	502	2	4
3	1	0	0	4

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 135623
Counters Observed for the Zero= 2854

Trial 2:
Counts Observed for the Span= 135851
Counters Observed for the Zero= 2868

Trial 3:
Counts Observed for the Span= 136972
Counters Observed for the Zero= 2894

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.5 ppm

Downwind Location Description: Grid 152 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-26-2021 Site Name: Sonoma

Inspector(s): Liam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: N Barometric Pressure: 30 "Hg

Air Temperature: 39 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	2	502	2	4
2	3	498	2	3
3	1	501	1	5

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity: 138016

Trial 1:
Counts Observed for the Span= 136232
Counters Observed for the Zero= 2867

Trial 2:
Counts Observed for the Span= 135896
Counters Observed for the Zero= 2862

Trial 3:
Counts Observed for the Span= 2866
Counters Observed for the Zero= 2866

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm

Downwind Location Description: Grid 152 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

PRE

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-2021 Site Name: Sonoma

Inspector(s): Dan Cy Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: 9 Barometric Pressure: 29.84 "Hg

Air Temperature: 43 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	4
2	.0	500	0	5
3	.2	501	1	4

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 169428
Counters Observed for the Zero= 3737

Trial 2:
Counts Observed for the Span= 171564
Counters Observed for the Zero= 3710

Trial 3:
Counts Observed for the Span= 170284
Counters Observed for the Zero= 3759

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Have Reading: 12 ppm

Downwind Location Description: G 77 Reading: 13 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-2021 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: S Barometric Pressure: 29.89 "Hg

Air Temperature: 67 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	500	0	5
2	.0	502	2	3
3	.1	501	1	4

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 168937
Counters Observed for the Zero= 3751

Trial 2:
Counts Observed for the Span= 169205
Counters Observed for the Zero= 3789

Trial 3:
Counts Observed for the Span= 169374
Counters Observed for the Zero= 3802

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

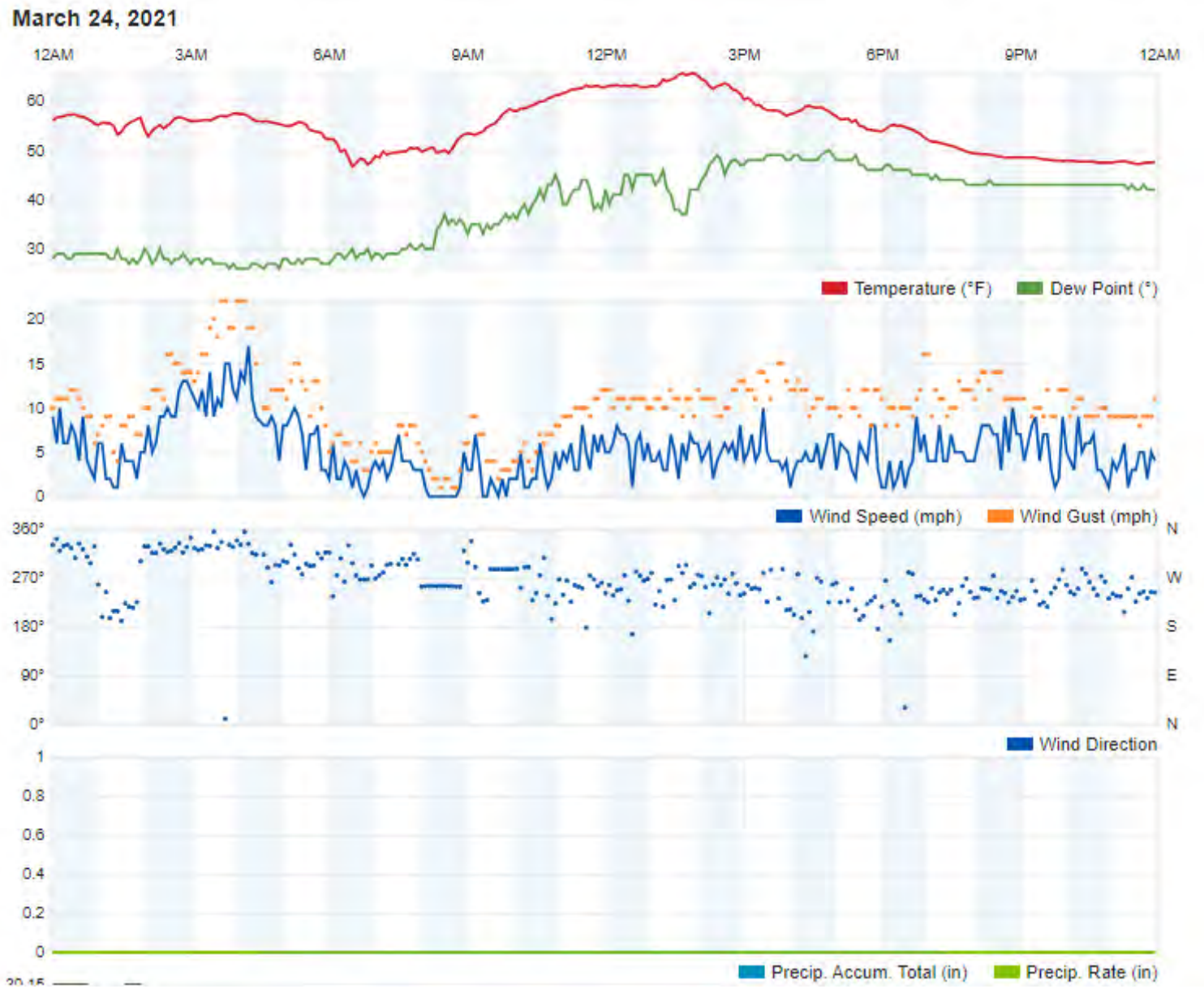
Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: GTT Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Attachment 6

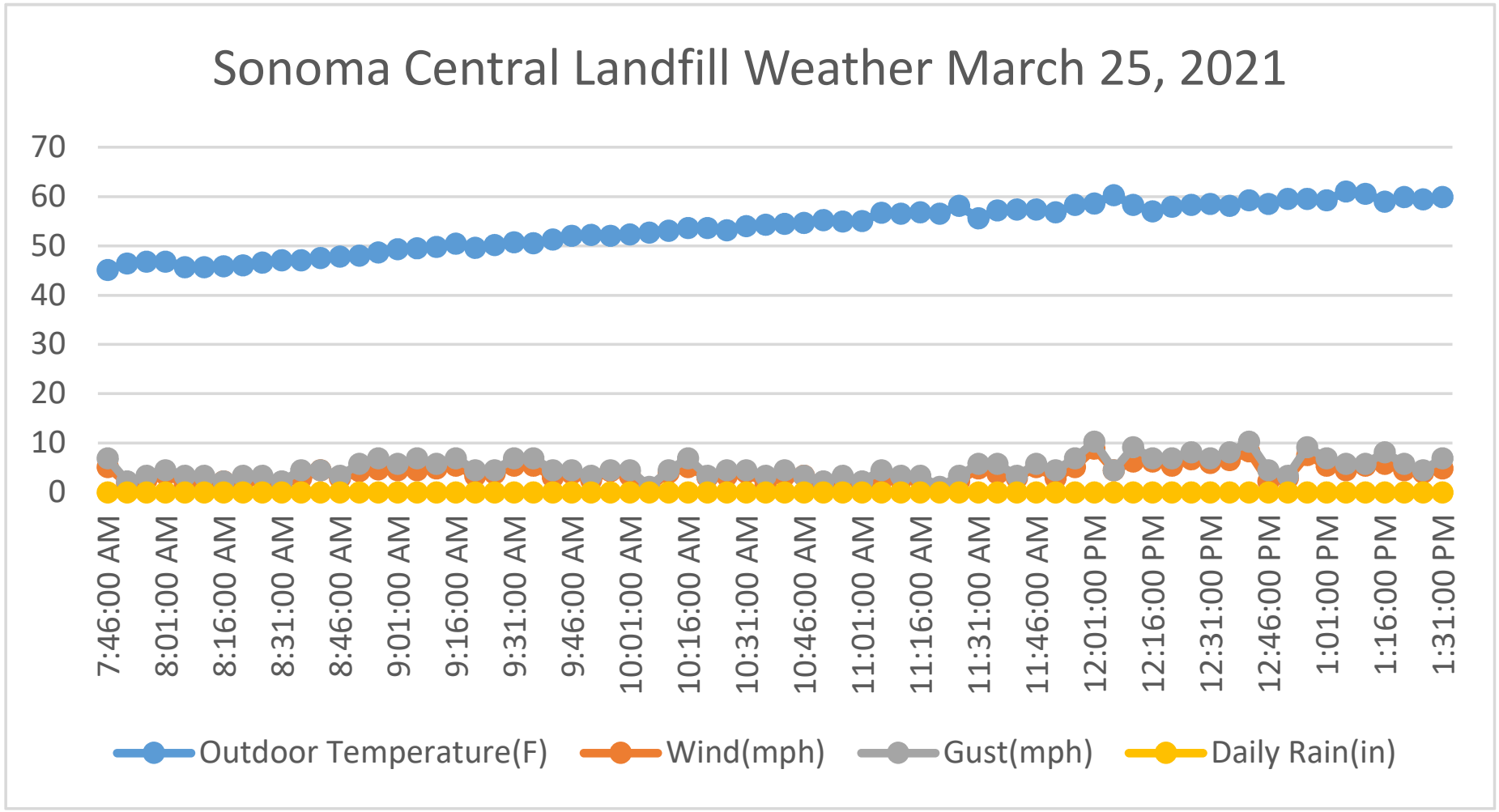
Weather Data

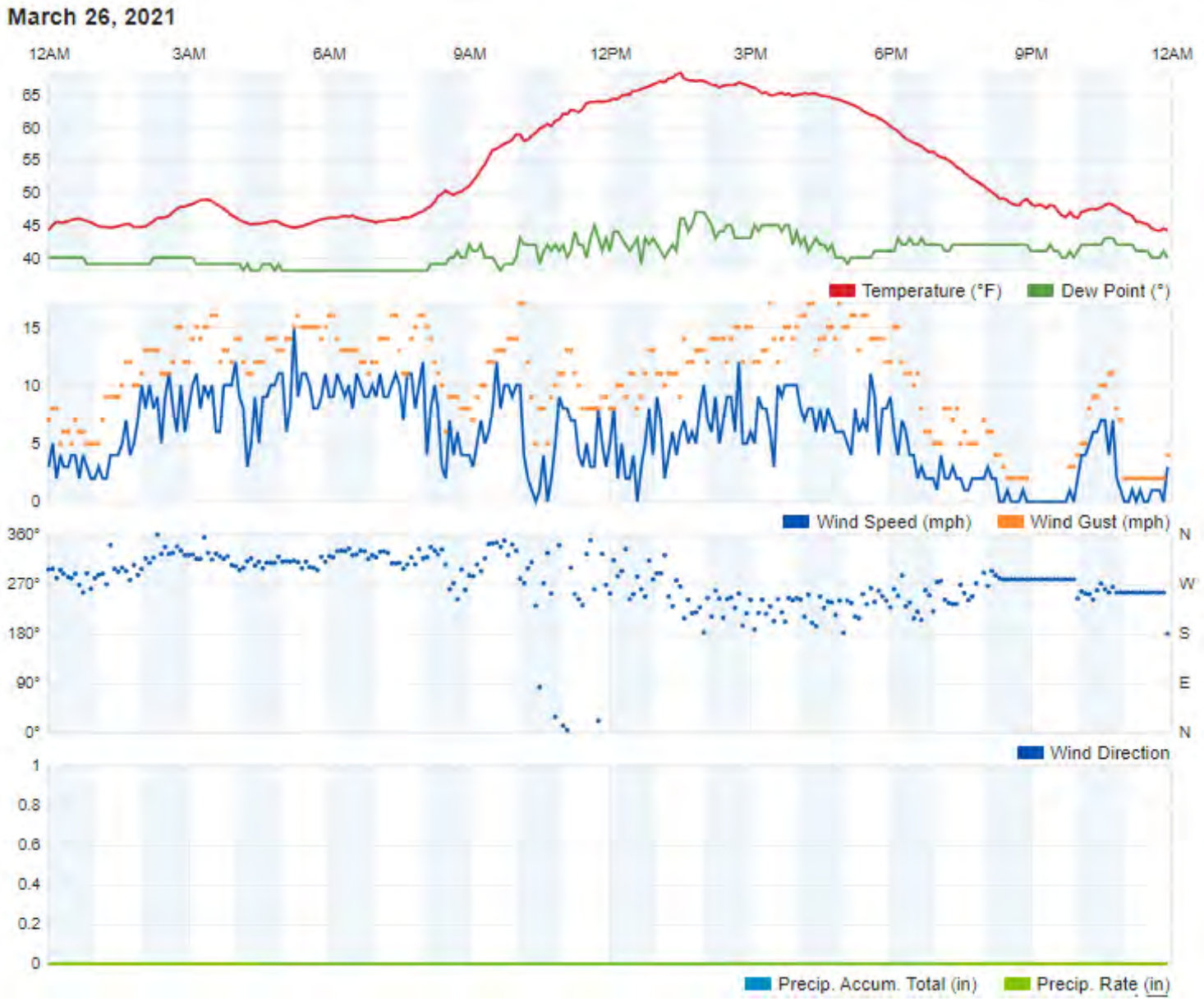


First Quarter 2021

LMR Instantaneous Weather Data for March 24, 2021

Sonoma Central Landfill, Petaluma, California

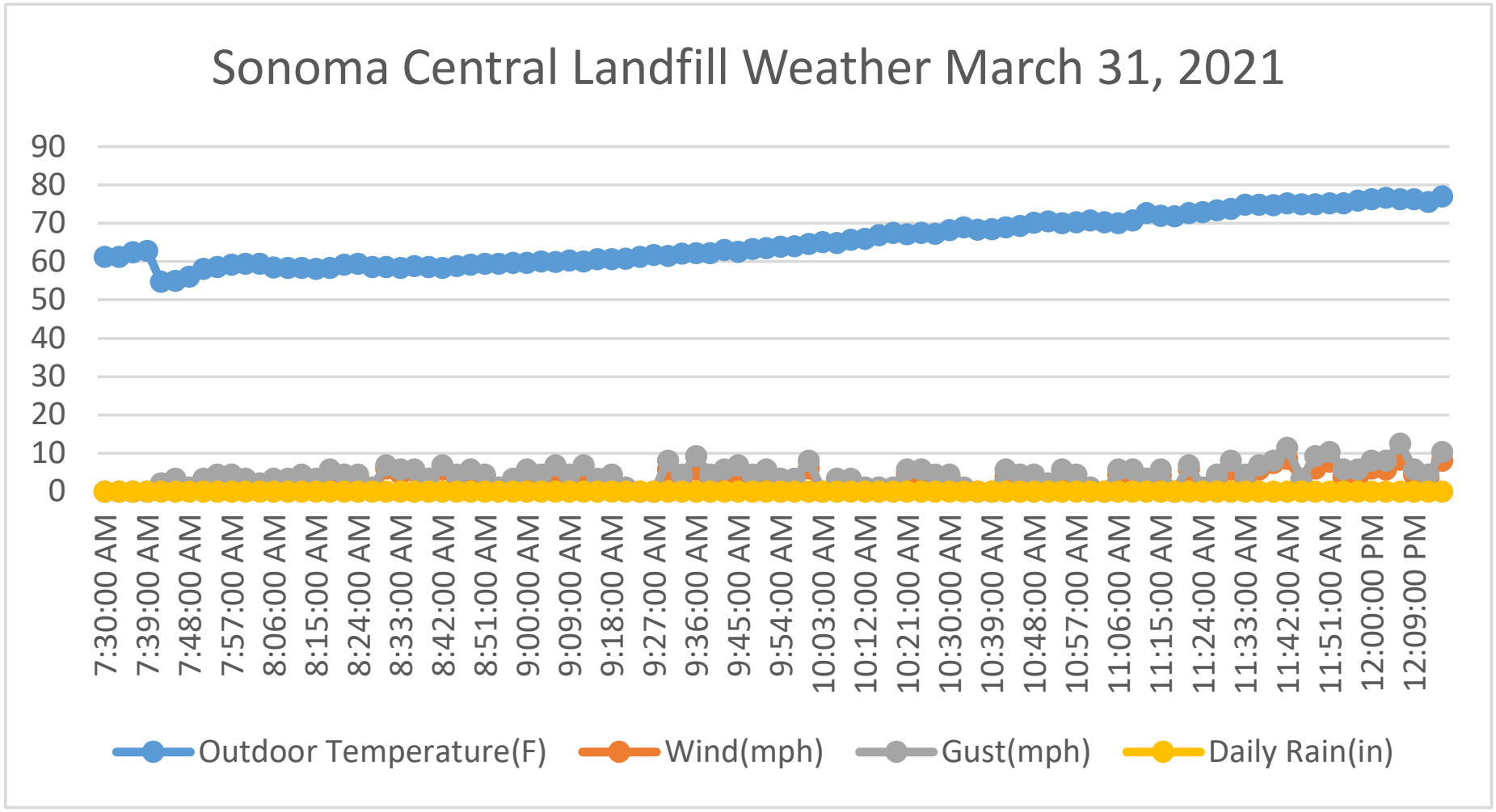

Sonoma Central Landfill Weather March 25, 2021
70
60
50
40
30
20
10
0
7:46:00 AM
8:01:00 AM
8:16:00 AM
8:31:00 AM
8:46:00 AM
9:01:00 AM
9:16:00 AM
9:31:00 AM
9:46:00 AM
10:01:00 AM
10:16:00 AM
10:31:00 AM
10:46:00 AM
11:01:00 AM
11:16:00 AM
11:31:00 AM
11:46:00 AM
12:01:00 PM
12:16:00 PM
12:31:00 PM
12:46:00 PM
1:01:00 PM
1:16:00 PM
1:31:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Daily Rain(in)

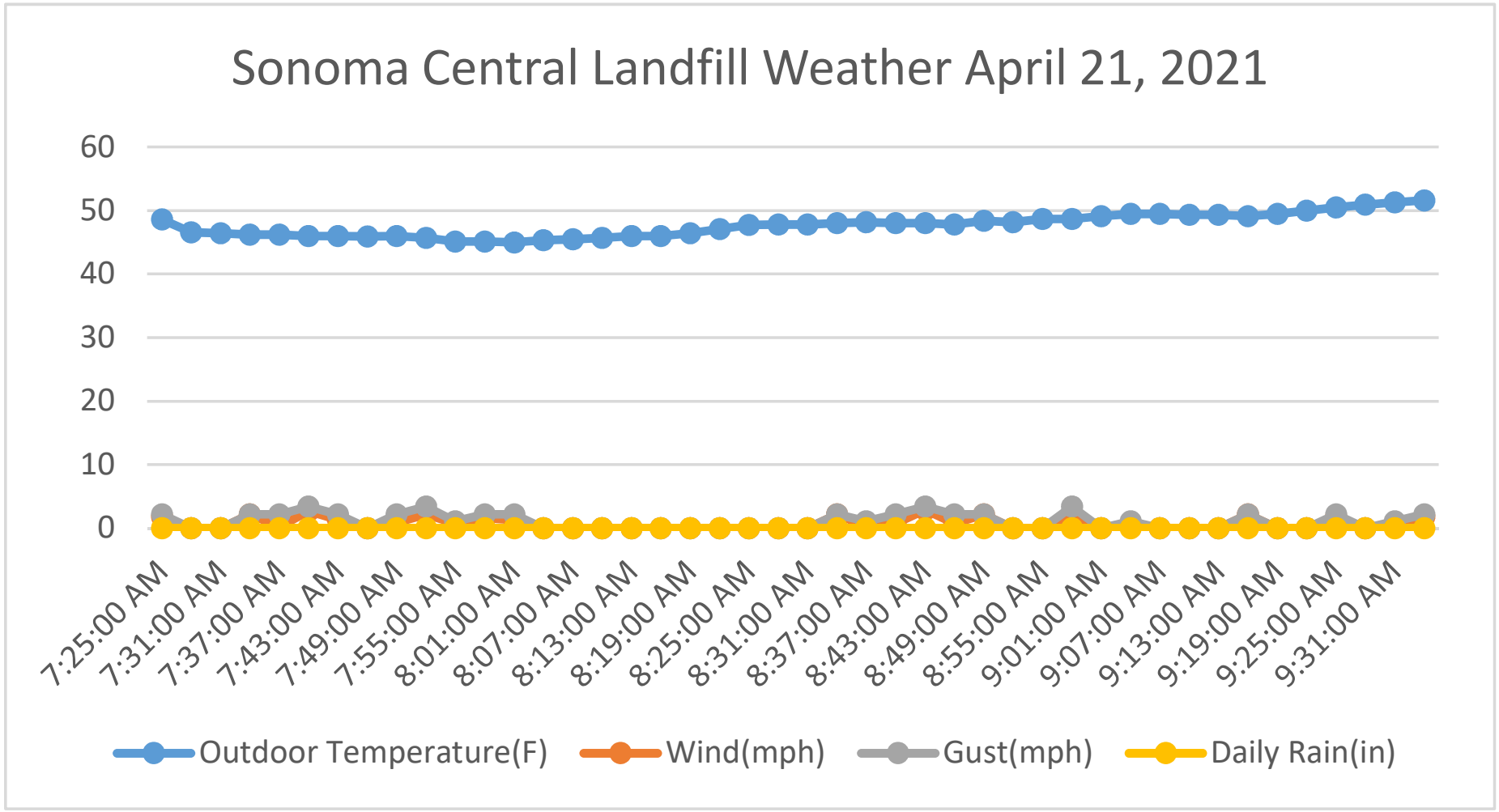


First Quarter 2021

LMR Instantaneous Weather Data for March 26, 2021

Sonoma Central Landfill, Petaluma, California


Sonoma Central Landfill Weather March 31, 2021
90
80
70
60
50
40
30
20
10
0
7:30:00 AM
7:39:00 AM
7:48:00 AM
7:57:00 AM
8:06:00 AM
8:15:00 AM
8:24:00 AM
8:33:00 AM
8:42:00 AM
8:51:00 AM
9:00:00 AM
9:09:00 AM
9:18:00 AM
9:27:00 AM
9:36:00 AM
9:45:00 AM
9:54:00 AM
10:03:00 AM
10:12:00 AM
10:21:00 AM
10:30:00 AM
10:39:00 AM
10:48:00 AM
10:57:00 AM
11:06:00 AM
11:15:00 AM
11:24:00 AM
11:33:00 AM
11:42:00 AM
11:51:00 AM
12:00:00 PM
12:09:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Daily Rain(in)


Sonoma Central Landfill Weather April 21, 2021
60
50
40
30
20
10
0
7:25:00 AM
7:31:00 AM
7:37:00 AM
7:43:00 AM
7:49:00 AM
7:55:00 AM
8:01:00 AM
8:07:00 AM
8:13:00 AM
8:19:00 AM
8:25:00 AM
8:31:00 AM
8:37:00 AM
8:43:00 AM
8:49:00 AM
8:55:00 AM
9:01:00 AM
9:07:00 AM
9:13:00 AM
9:19:00 AM
9:25:00 AM
9:31:00 AM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Daily Rain(in)

August 5, 2021
File No. 07221077.00

Mr. Derek Cheney
Republic Services – Sonoma Central Landfill
500 Mecham Road
Petaluma, California 95492

Subject: Sonoma Central Landfill - Petaluma, California

Landfill Methane Rule (LMR) and New Source Performance Standards (NSPS) Surface Emissions Monitoring for Second Quarter 2021.

Dear Mr. Cheney:

SCS Field Services (SCS) is pleased to provide the Republic Services, with the enclosed report summarizing the surface emissions monitoring services provided at the Sonoma Central Landfill (Site) during the Second Quarter 2021. This report includes the results of surface scan, component emissions and blower/flare station emissions monitoring for the Site for this monitoring period.

SCS appreciates the opportunity to be of assistance to Republic Services on this project. As you review the enclosed information, please contact Michael Flanagan at (510) 363-7796 or Whitney Stackhouse at (209) 338-7990 if you have any questions or comments.

Sincerely,

Whitney Stackhouse
Project Manager
SCS Field Services

Michael Flanagan
Project Manager
SCS Field Services

Encl.

Sean Bass, SCS Field Services
Art Jones, SCS Field Services

Sonoma Central Landfill

Landfill Methane Rule (LMR) and New Source Performance Standards (NSPS) Surface Emissions Monitoring

Second Quarter 2021

Presented to:

Mr. Derek Cheney
Republic Services – Sonoma Central
500 Mecham Road
Petaluma, California 94952

SCS FIELD SERVICES

File No. 07221078.00 Task 01 | August 1, 2021

SCS FIELD SERVICES
4730 Enterprise Way Suite A
Modesto, CA 95356

Sonoma Central Landfill

Landfill Methane Rule (LMR) and New Source Performance Standards (NSPS) Surface Emissions Monitoring Second Quarter 2021

INTRODUCTION

This letter provides results of the April 19, 20, 21, 30, and May 21, 2021, LMR and NSPS landfill surface emissions monitoring (SEM) performed by SCS Field Services (SCS) at the subject site. All work was performed in accordance with our approved Work Scope dated December 23, 2020, and the LMR requirements.

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

SUMMARY AND CONCLUSIONS

As stipulated in LMR, if uncorrectable exceedances within the 10-day limitation are detected or emissions are discovered during an inspection by Regulatory Agencies, the landfill must perform monitoring on a 25-foot pathway on a quarterly basis for active disposal sites. Upon completion of four consecutive SEM events without an uncorrectable exceedance of the 25 ppmv or 500 ppmv standards, other than non-repeatable momentary readings, the landfill may perform the monitoring on a 100-foot spacing on an annual basis for closed landfills or quarterly for active disposal sites. Therefore, based on the previous monitoring events, in which exceedances were observed, the monitoring at the Sonoma Central Landfill was performed on 25-foot pathways in accordance with the LMR.

On, April 19, 20, 21, 30, and May 21, 2021, SCS performed second quarter 2021 SEM as required by the Bay Area Air Quality Management District (BAAQMD). Instantaneous surface emissions monitoring results indicated that three (3) locations exceeded the 500 ppmv maximum concentration during the initial monitoring event (Table 1 in Attachment 3). The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring indicated that all areas had returned to below regulatory compliance limits following system adjustments and remediation (well field adjustments and installation of new bentonite plugs) by SCS personnel. Based on these monitoring results no additional follow up testing was required.

Also, during the instantaneous monitoring event, SCS performed concurrent integrated monitoring of the landfill surface. As required by the LMR, the landfill was divided into 50,000 square foot areas. The Sonoma Central Landfill surface area was therefore divided into 163 grids, as shown on Figure 1 in Attachment 1. During this monitoring event, several grids were not monitored, in accordance with

the regulations, due to ongoing active landfilling activities, unsafe conditions, or there was no waste in place prior to the monitoring event.

During the monitoring event, there were no grid areas observed to exceed the 25 ppmv LMR integrated average threshold (Table 2 in Attachment 4). Based on these monitoring results, no further action is required at this time. These results are discussed in a subsequent section of this report.

In addition, quarterly monitoring of the pressurized piping or components of the Gas Collection and Control System (GCCS) that are under positive pressure must be performed. Results of the testing of the landfill gas (LFG) Blower Flare Station (BFS) pressurized piping and components indicated that all test locations were in compliance with the 500 ppmv requirement.

Further, as required under the LMR, any location on the landfill that has an observed instantaneous methane concentration above 200 ppmv, must be stake-marked and Global Positioning System (GPS) located on a site figure. During this reporting period, one (1) location was observed to exceed the 200 ppmv, reporting threshold. When these readings are observed, the locations are reported to site personnel for tracking and/or remediation and will be reported in the next submittal of the annual LMR report. Please see the figure in Attachment 3 for location details.

Finally, to help prevent potential future exceedances, SCS recommends that the landfill surface be routinely inspected and any observed surface erosion be routinely repaired.

SURFACE EMISSIONS MONITORING

On April 19, 20, 21, 30, and May 21, 2021, the instantaneous and integrated SEM was performed over the surface of the subject site. The intent of the monitoring was to identify any specific locations or areas of the landfill surface with organic compound concentrations exceeding the LMR threshold limit values of 500 ppmv measured as methane for instantaneous monitoring, or an average methane concentration of 25 ppmv for the integrated monitoring in the 50,000 square foot grids as required under the LMR. During this event, SCS performed the monitoring on a 25-foot pathway in accordance with the rules as required.

EMISSIONS TESTING INSTRUMENTATION/CALIBRATION

Instruments used to perform the landfill surface emission testing consisted of the following:

- Thermo Scientific TVA 2020 portable Flame Ionization Detector (FID). This instrument measures methane in air over a range of 1 to 50,000 ppmv. The TVA 2020 meets the State of California Air Resources Board (CARB) requirements for combined instantaneous and integrated monitoring and was calibrated in accordance with United States Environmental Protection Agency (US EPA) Method 21.

- Weather Anemometer with continuous recorder for meteorological conditions in accordance with the LMR.

Instrument calibration logs and weather information are shown in Attachments 5 and 6.

SURFACE EMISSIONS MONITORING PROCEDURES

Surface emissions monitoring was conducted in accordance with the LMR and NSPS requirements. Monitoring was performed with the FID inlet held within 3-inches of the landfill surface while a technician walked a grid in parallel paths not more than 25 -feet apart over the surface of the landfill. Cracks, holes and other cover penetrations in the surface were also tested. Surface emissions readings were monitored continuously and recorded every 5 seconds. Any areas in exceedance of the 200 or 500 ppmv standards (reporting and compliance levels, respectively) would be GPS tagged and stake-marked for on-site personnel to perform remediation or repairs.

The integrated average is based on the readings stored on the instrument, which are recorded every 5 seconds. The readings are then downloaded and the averages are calculated for each grid using SCS eTools®. All readings are maintained in this secure SCS Database. The readings are not provided in the report due to the volume of readings, but can be furnished upon request.

Recorded wind speed results are shown in Attachment 6. Wind speed averages were observed to remain below the alternative threshold of 10 miles per hour, and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within 72 hours of the monitoring events. Therefore, site meteorological conditions were within the alternatives of the LMR requirements on the above mentioned dates.

TESTING RESULTS

During this event, SCS performed the monitoring on a 25-foot pathway in accordance with the rule as required under the LMR and NSPS. The intent of the monitoring was to identify any specific locations or areas of the landfill surface with organic compound concentrations exceeding the LMR or NSPS threshold limit values of 500 ppmv measured as methane for instantaneous monitoring, or an average methane concentration of 25 ppmv for the integrated monitoring (LMR).

On April 19, 20, and 21, 2021, SCS performed second quarter 2021 instantaneous emissions monitoring testing as required by the BAAQMD. During this monitoring, surface emissions results indicated that three (3) locations exceeded the 500 ppmv maximum concentration. The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring performed on April 30 and May 21, 2021, respectively, indicated that all areas had returned to compliance following system adjustments and remediation (wellfield adjustment and borehole repairs using bentonite and soil) performed by SCS personnel. Based on these monitoring results no additional follow up testing was required. Results of the monitoring are shown in Attachments 2 and 3 (Table 1).

Additionally, calculated integrated grid monitoring indicated no areas exceedances of the 25-ppmv requirement during this monitoring event. Based on these monitoring results no follow up testing was required. Results of the initial monitoring are shown in Attachment 4 (Table 2). Calibration logs for the monitoring equipment are provided in Attachment 5.

During this monitoring event, several grids were not monitored, in accordance with the LMR, due to active landfilling activities, unsafe conditions or no waste in place. SCS will continue to monitor all accessible locations during the second quarter 2021.

PRESSURIZED PIPE AND COMPONENT LEAK MONITORING

On April 19, 2021, quarterly leak monitoring was performed in accordance with the LMR. SCS performed LFG pressurized pipe and component leak monitoring at the BFS and PGF Facility.

Monitoring was performed with the detector inlet held one-half of an inch from pressurized pipe and associated components. No locations exceeding the 500 ppmv threshold were observed during our monitoring event. The maximum reading, which was 58.7 ppmv, was well below the maximum threshold (see Table 1 for component results). Therefore, all pressurized piping and components located at the LFG BFS and PGF were in compliance at the time of our testing.

PROJECT SCHEDULE

According to the LMR and NSPS, surface emissions monitoring at active landfills is required to be performed on a quarterly basis. Therefore, in accordance with our approved Work Scope, the third quarter 2021 (July through September) surface emissions testing event is scheduled to be performed by the end of August 2021 in accordance with the Republic SOP unless an alternative timeline is requested by site personnel.

STANDARD PROVISIONS

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

Attachment 1

Landfill Grid

LEGEND

- APPROXIMATE LINER BOUNDARY
- 500 — EXISTING 10' CONTOUR
- EXISTING GAS PIPE, ABOVE GRADE
- EXISTING GAS PIPE, BELOW GRADE
- EXISTING HORIZONTAL GAS COLLECTOR
- AAG AAG AAG — EXISTING AIR FORCE MAIN, ABOVE GRADE
- ABG ABG ABG — EXISTING AIR FORCE MAIN, BELOW GRADE
- EXISTING AIR LEACHATE LINE
- EW-170 — EXISTING GAS/LEACHATE EXTRACTION WELL
- EW-165 — EXISTING VERTICAL GAS EXTRACTION WELL
- 88.5 — EXISTING VERTICAL GAS EXTRACTION WELL WITH PUMP ADDED
- EXISTING REMOTE WELLHEAD
- EXISTING CONTROL VALVE
- EXISTING BLIND FLANGE
- EXISTING FLANGE CONNECTION
- EXISTING REDUCER FITTING
- EXISTING END CAP
- SUMP — EXISTING CONDENSATE PUMP STATION
- 120 — SURFACE EMISSIONS MONITORING GRID

N

0 200 400

SCALE IN FEET

NOTES:

1. THE 2020 TOPOGRAPHIC MAP WAS PREPARED BY COOPER AERIAL SURVEYS CO. DATE OF PHOTOGRAPHY: JANUARY 31, 2020. HORIZONTAL DATUM: NAD27, ZONE 2 VERTICAL DATUM: NGVD29.
2. THE 2018 GCCS AS-BUILT GCCS IMPROVEMENTS PROVIDED BY REPUBLIC SERVICES INC. ON SEPTEMBER 20, 2018.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 11/11/2020 — DRAWN BY GVP — DESIGNED BY KK — CHECKED BY HLV — APPROVED BY ——

TETRA TECH

SONOMA COUNTY CENTRAL LANDFILL
PETALUMA, CALIFORNIA

SURFACE EMISSIONS MONITORING
GRID MAP

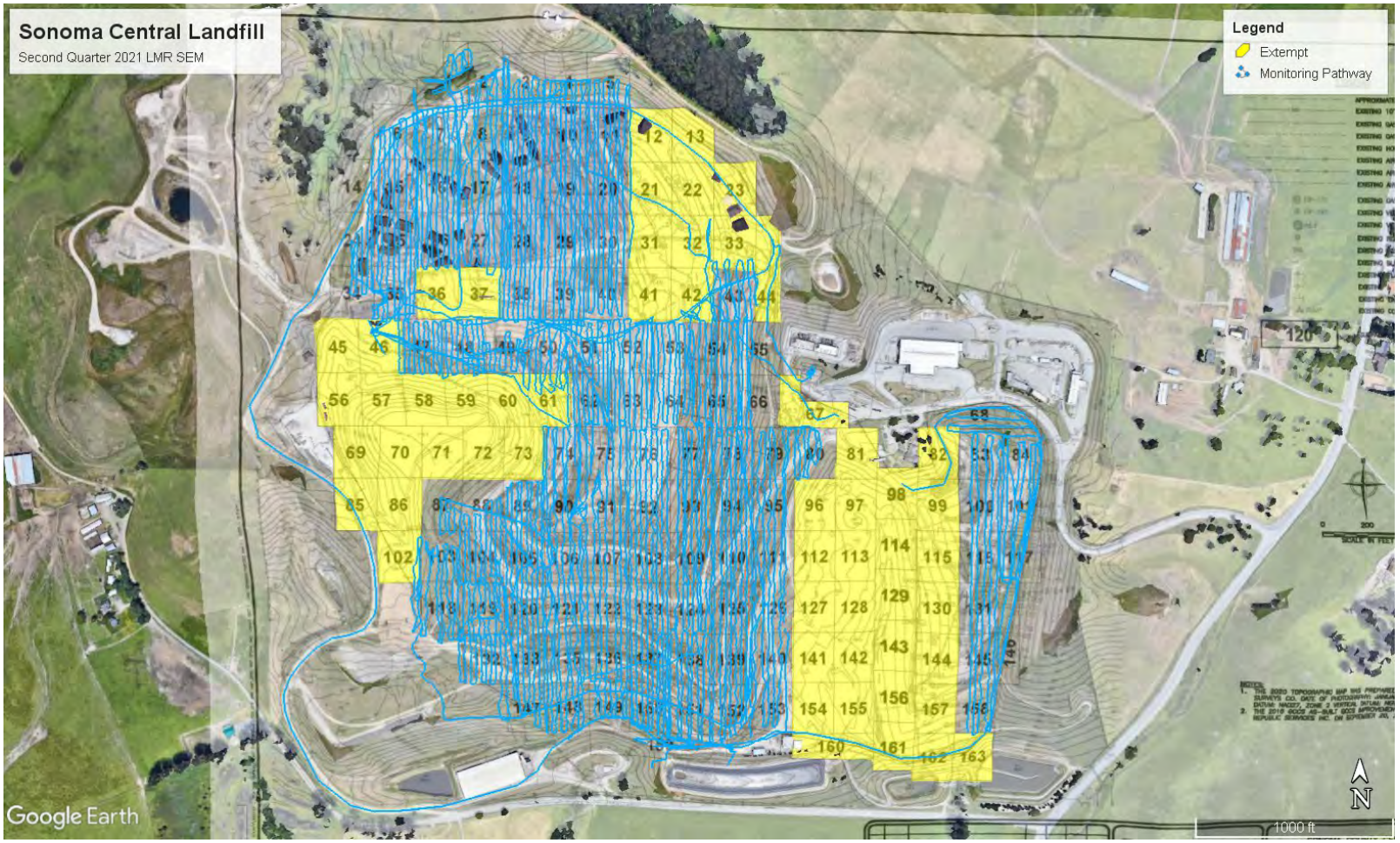
SHEET NO. 1

PROJECT NO. 197-200019

File: X:\PROJECTS\SONOMA COUNTY\200127 - SEM Plan Update\Project Drawings\DUSCLSEM_SEM GRID MAP_2020 MAP UPDATE.dwg Layout: SHT 1 User: GERARDO.PAREDES Nov 11, 2020 - 5:31pm

Attachment 2

Surface Pathway



Second Quarter 2021
LMR Surface Emissions Monitoring Pathway
Sonoma Central Landfill, Petaluma, California

Attachment 3

Instantaneous and Component Emissions Monitoring Results

Second Quarter 2021

Table 1. Instantaneous Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Instantaneous Data Report for April 19, 20, 21, 30, and May 21, 2021

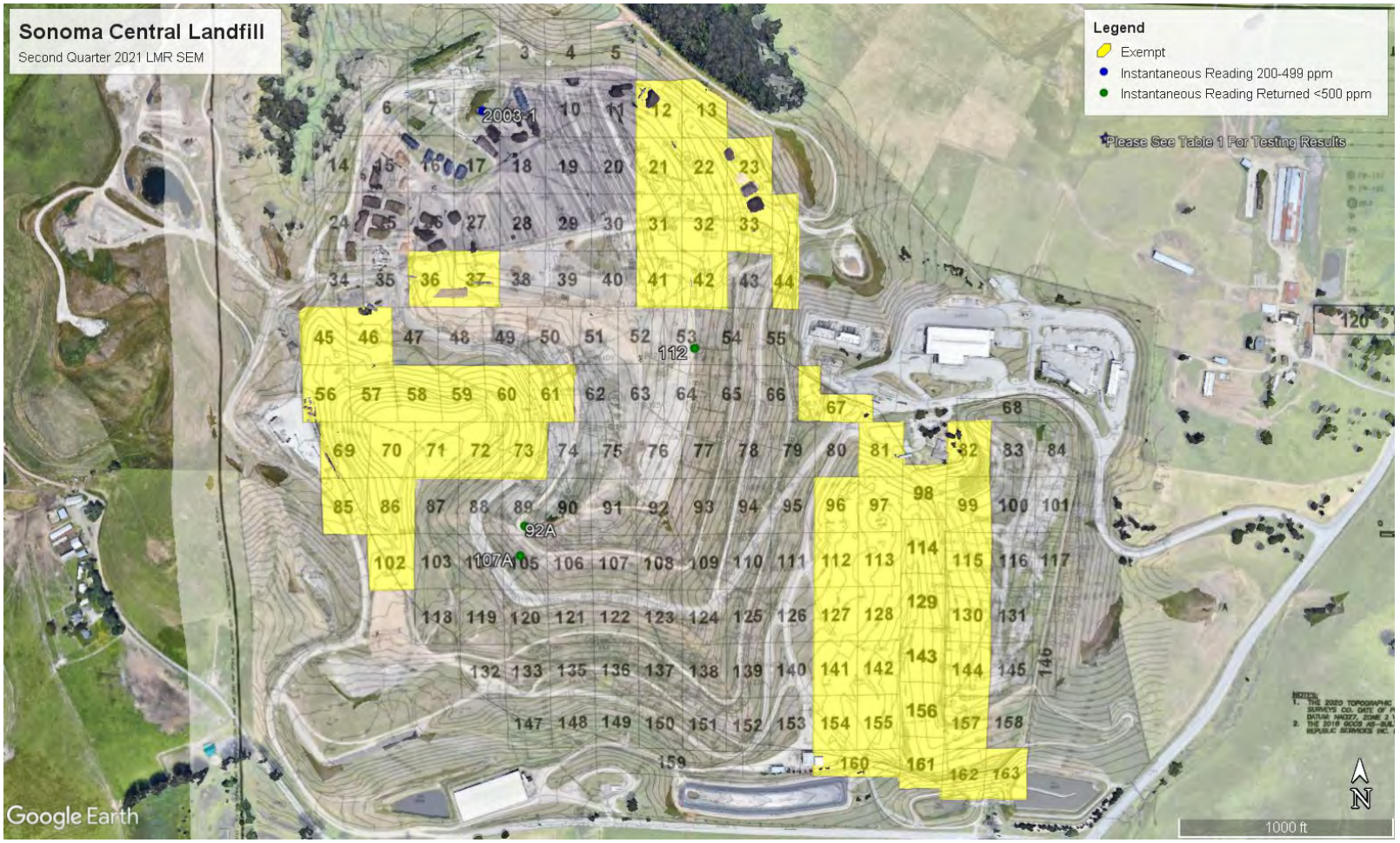
Highest Component Reading

Location	Initial Monitoring (ppmv) April 19 or 21, 2021	10-Day Follow Up Monitoring (ppmv) April 30, 2021	20-Day Follow Up Monitoring (ppmv) May 21, 2021
2003-1	444	NA	NA
112	2,800	5	6.5
92A	1,500	5	229
107A	1,800	8	63.5

Highest Pressurized Pipe Reading

Location	Date	Concentration (ppmv)
Flare	4/19/2021	3
PGF Facility	4/19/2021	58.7

No additional exceedances of the 500 ppm threshold were observed during the monitoring performed during the second quarter 2021.



Second Quarter 2021

Emissions Monitoring Locations Greater Than 200 ppmv and 500 ppmv

Sonoma Central Landfill, Petaluma, California

Attachment 4

Integrated Monitoring Results

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC001	4/19/2021	1.07	
SC002	4/19/2021	2.62	
SC003	4/19/2021	2.42	
SC004	4/19/2021	3.08	
SC005	4/19/2021	3.42	
SC006	4/19/2021	2.88	
SC007	4/19/2021	2.72	
SC008	4/19/2021	5.52	
SC009	4/19/2021	6.64	
SC010	4/19/2021	11.61	
SC011	4/19/2021	10.40	
SC012	--	--	Construction Activites
SC013	--	--	Construction Activites
SC014	4/19/2021	1.21	
SC015	4/19/2021	3.21	
SC016	4/19/2021	2.54	
SC017	4/19/2021	2.96	
SC018	4/19/2021	4.85	
SC019	4/19/2021	5.60	
SC020	4/19/2021	3.56	
SC021	--	--	Construction Activites
SC022	--	--	Construction Activites
SC023	--	--	Construction Activites
SC024	4/19/2021	1.50	
SC025	4/19/2021	2.14	
SC026	4/19/2021	2.53	
SC027	4/19/2021	2.71	
SC028	4/19/2021	2.64	
SC029	4/19/2021	2.10	
SC030	4/19/2021	2.39	
SC031	--	--	Construction Activites
SC032	--	--	Construction Activites
SC033	--	--	Construction Activites
SC034	4/19/2021	1.86	
SC035	4/19/2021	1.29	
SC036	--	--	Construction Activites
SC037	--	--	Construction Activites
SC038	4/19/2021	3.33	
SC039	4/19/2021	5.16	
SC040	4/19/2021	3.17	
SC041	--	--	Construction Activites
SC042	--	--	Construction Activites
SC043	4/19/2021	5.03	

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC044	--	--	Native
SC045	--	--	Native
SC046	--	--	Native
SC047	4/19/2021	6.09	
SC048	4/19/2021	6.27	
SC049	4/19/2021	2.87	
SC050	4/19/2021	3.76	
SC051	4/19/2021	3.41	
SC052	4/19/2021	3.05	
SC053	4/19/2021	3.15	
SC054	4/20/2021	2.75	
SC055	4/21/2021	2.03	
SC056	--	--	Native
SC057	--	--	Native
SC058	--	--	Native
SC059	--	--	Native
SC060	--	--	Native
SC061	--	--	Native
SC062	4/19/2021	2.94	
SC063	4/19/2021	4.62	
SC064	4/19/2021	3.06	
SC065	4/20/2021	2.04	
SC066	4/21/2021	1.80	
SC067	--	--	Native
SC068	4/19/2021	1.60	
SC069	--	--	Native
SC070	--	--	Native
SC071	--	--	Native
SC072	--	--	Native
SC073	--	--	Native
SC074	4/21/2021	2.86	
SC075	4/20/2021	2.14	
SC076	4/20/2021	4.88	
SC077	4/20/2021	1.10	
SC078	4/20/2021	2.62	
SC079	4/19/2021	2.71	
SC080	4/19/2021	2.01	
SC081	--	--	Native
SC082	--	--	Construction Activites
SC083	4/18/2021	4.03	
SC084	4/19/2021	5.39	
SC085	--	--	Native
SC086	--	--	Native

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC087	4/21/2021	4.45	
SC088	4/21/2021	3.24	
SC089	4/21/2021	2.77	
SC090	4/21/2021	5.06	
SC091	4/20/2021	4.93	
SC092	4/20/2021	10.17	
SC093	4/20/2021	1.08	
SC094	4/20/2021	4.21	
SC095	4/19/2021	2.69	
SC096	--	--	Native
SC097	--	--	Native
SC098	--	--	Construction Activites
SC099	--	--	Construction Activites
SC100	4/18/2021	7.13	
SC101	4/19/2021	5.75	
SC102	--	--	Native
SC103	4/20/2021	3.39	
SC104	4/21/2021	4.05	
SC105	4/21/2021	4.86	
SC106	4/21/2021	7.46	
SC107	4/20/2021	8.24	
SC108	4/20/2021	12.43	
SC109	4/20/2021	1.26	
SC110	4/20/2021	4.04	
SC111	4/19/2021	2.28	
SC112	--	--	Native
SC113	--	--	Native
SC114	--	--	Construction Activites
SC115	--	--	Construction Activites
SC116	4/18/2021	4.34	
SC117	4/19/2021	6.54	
SC118	4/20/2021	2.22	
SC119	4/20/2021	4.61	
SC120	4/21/2021	6.81	
SC121	4/21/2021	6.95	
SC122	4/20/2021	7.34	
SC123	4/20/2021	8.79	
SC124	4/20/2021	3.46	
SC125	4/20/2021	5.09	
SC126	4/19/2021	2.24	
SC127	--	--	Native
SC128	--	--	Native

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Sonoma Central Landfill, Sonoma, California

Point Name	Record Date	FID Concentration (ppm)	Comments
SC129	--	--	Construction Activites
SC130	--	--	Construction Activites
SC131	4/18/2021	5.46	
SC132	4/21/2021	2.98	
SC133	4/21/2021	2.31	
SC134	--	--	No on Grid Map
SC135	4/21/2021	2.29	
SC136	4/20/2021	1.39	
SC137	4/20/2021	3.82	
SC138	4/19/2021	7.22	
SC139	4/20/2021	6.60	
SC140	4/19/2021	1.93	
SC141	--	--	Native
SC142	--	--	Native
SC143	--	--	Construction Activites
SC144	--	--	Construction Activites
SC145	4/18/2021	3.53	
SC146	4/19/2021	15.47	
SC147	4/21/2021	1.68	
SC148	4/21/2021	3.67	
SC149	4/19/2021	1.63	
SC150	4/20/2021	3.64	
SC151	4/19/2021	1.29	
SC152	4/20/2021	2.69	
SC153	4/19/2021	1.68	
SC154	--	--	Native
SC155	--	--	Native
SC156	--	--	Construction Activites
SC157	--	--	Construction Activites
SC158	4/18/2021	4.09	
SC159	4/20/2021	0.98	
SC160	--	--	Native
SC161	--	--	Construction Activites
SC162	--	--	Construction Activites
SC163	--	--	Native

Attachment 5

Calibration Logs

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Hunter Ott Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: foggy

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5420 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.0	502	2	3
2	.0	499	1	3
3	.1	501	1	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 132528
Counters Observed for the Zero= 3435

Trial 2:
Counts Observed for the Span= 132980
Counters Observed for the Zero= 3447

Trial 3:
Counts Observed for the Span= 133603
Counters Observed for the Zero= 3493

Post Monitoring Calibration Check

Zero Air Reading: 10.2 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: Grid64 Reading: 1.3 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-21 Site Name: Sonoma

Inspector(s): Liam Mcginn Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: fog

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	4
2	.0	499	1	5
3	.2	499	1	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 129672
Counters Observed for the Zero= 2736

Trial 2:
Counts Observed for the Span= 129782
Counters Observed for the Zero= 2750

Trial 3:
Counts Observed for the Span= 129955
Counters Observed for the Zero= 2783

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plare Reading: 1.3 ppm

Downwind Location Description: Grid 64 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: fog

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.0	501	1	3
2	.1	500	0	5
3	.0	498	2	9

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 128780
Counters Observed for the Zero= 3059

Trial 2:
Counts Observed for the Span= 128951
Counters Observed for the Zero= 3082

Trial 3:
Counts Observed for the Span= 128651
Counters Observed for the Zero= 3102

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.3 ppm

Downwind Location Description: Grid C4 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-21 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: fog

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	3
2	.1	501	1	2
3	.1	499	1	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7%

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 166108
Counters Observed for the Zero= 3890

Trial 2:
Counts Observed for the Span= 166372
Counters Observed for the Zero= 3917

Trial 3:
Counts Observed for the Span= 166509
Counters Observed for the Zero= 3949

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plant Reading: 1.3 ppm

Downwind Location Description: Grid 64 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-21 Site Name: Sonoma

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: fog

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	501	1	4
2	.2	501	1	5
3	.1	501	1	5

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 114756
Counters Observed for the Zero= 3963

Trial 2:
Counts Observed for the Span= 114903
Counters Observed for the Zero= 3985

Trial 3:
Counts Observed for the Span= 115051
Counters Observed for the Zero= 3999

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: Grid 64 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

RSE

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Cody Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: foggy

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5419 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	501	1	3
2	.1	501	1	4
3	.1	501	1	3

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 172812
Counters Observed for the Zero= 5419

Trial 2:
Counts Observed for the Span= 172976
Counters Observed for the Zero= 5429

Trial 3:
Counts Observed for the Span= 173580
Counters Observed for the Zero= 5462

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 2.3 ppm

Downwind Location Description: Grid 64 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

PRC

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Pablo R Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 5 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: foggy

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5421 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	500	0	4
2	.1	500	0	3
3	.1	501	1	3

Average Difference: .3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- .3 /500 x 100%

= 99.9 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 144756
Counters Observed for the Zero= 3902

Trial 2:
Counts Observed for the Span= 144980
Counters Observed for the Zero= 3958

Trial 3:
Counts Observed for the Span= 145203
Counters Observed for the Zero= 3972

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Farm Reading: 1.2 ppm

Downwind Location Description: GH Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5419 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	-1	502	2	4
2	-0	501	1	3
3	-1	501	1	3

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 171356
Counters Observed for the Zero= 5376

Trial 2:
Counts Observed for the Span= 171682
Counters Observed for the Zero= 5392

Trial 3:
Counts Observed for the Span= 171809
Counters Observed for the Zero= 5417

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 12 ppm

Downwind Location Description: Grid 64 Reading: 14 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-21 Site Name: Sonoma

Inspector(s): Hunter Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5420 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	-1	500	9	4
2	-0	502	8	2
3	-1	500	8	5

Average Difference: 6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 6 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 132110
Counters Observed for the Zero= 3426

Trial 2:
Counts Observed for the Span= 132386
Counters Observed for the Zero= 3450

Trial 3:
Counts Observed for the Span= 132547
Counters Observed for the Zero= 3489

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.7 ppm

Downwind Location Description: Grid 64 Reading: 13 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Dock

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-1a-21 Site Name: Sonoma

Inspector(s): Daldo R Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 5421 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	500	0	4
2	1	501	1	3
3	1	502	2	5

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8%

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 143848
Counters Observed for the Zero= 3856

Trial 2:
Counts Observed for the Span= 144125
Counters Observed for the Zero= 3879

Trial 3:
Counts Observed for the Span= 144583
Counters Observed for the Zero= 3920

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: V-lane Reading: 1.2 ppm

Downwind Location Description: Grid 64 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	501	1	3
2	0	501	1	5
3	2	501	1	4

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 127976
Counters Observed for the Zero= 3056

Trial 2:
Counts Observed for the Span= 128095
Counters Observed for the Zero= 3074

Trial 3:
Counts Observed for the Span= 128237
Counters Observed for the Zero= 3102

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: Grid 64 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2024 Site Name: Sonoma

Inspector(s): Liam M Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.0	502	2	4
2	.1	501	1	5
3	.1	500	0	21

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 128846
Counters Observed for the Zero= 2754

Trial 2:
Counts Observed for the Span= 128984
Counters Observed for the Zero= 2776

Trial 3:
Counts Observed for the Span= 129103
Counters Observed for the Zero= 2801

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: Grid 64 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	4
2	.0	501	1	5
3	.1	500	0	3

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 113894
Counters Observed for the Zero= 3957

Trial 2:
Counts Observed for the Span= 114076
Counters Observed for the Zero= 3984

Trial 3:
Counts Observed for the Span= 114213
Counters Observed for the Zero= 3998

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: Grid64 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-19-2021 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	500	0	3
2	0	501	1	5
3	1	501	1	4

Average Difference: 0.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 165847
Counters Observed for the Zero= 3927

Trial 2:
Counts Observed for the Span= 165982
Counters Observed for the Zero= 3957

Trial 3:
Counts Observed for the Span= 166106
Counters Observed for the Zero= 3978

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: Grid 64 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Post

Date: 4-20-21 Site Name: Sonoma

Inspector(s): Hunter Ott Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH Wind Direction: SE Barometric Pressure: 30 "Hg

Air Temperature: 65 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: _____ Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	502	2	3
2	1	501	1	2
3	1	501	1	2

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.3 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 135641
Counters Observed for the Zero= 3738

Trial 2:
Counts Observed for the Span= 134541
Counters Observed for the Zero= 3748

Trial 3:
Counts Observed for the Span= 136841
Counters Observed for the Zero= 3638

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plaza Reading: 1.3 ppm

Downwind Location Description: Grid 62 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-20-2021 Site Name: Sonoma

Inspector(s): Hunter O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SE Barometric Pressure: 30 "Hg

Air Temperature: 93 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: _____ Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	499	1	2
2	2	501	1	2
3	1	501	1	1

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 134780
Counters Observed for the Zero= 3749

Trial 2:
Counts Observed for the Span= 132992
Counters Observed for the Zero= 3722

Trial 3:
Counts Observed for the Span= 137680
Counters Observed for the Zero= 3654

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.3 ppm

Downwind Location Description: Grid 62 Reading: 1.6 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Post

Date: 4-2021 Site Name: Sonoma

Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH Wind Direction: SE Barometric Pressure: 30 "Hg

Air Temperature: 68 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	501	1	2
2	1	501	1	2
3	1	501	1	3

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 168432
Counters Observed for the Zero= 3984

Trial 2:
Counts Observed for the Span= 168312
Counters Observed for the Zero= 3972

Trial 3:
Counts Observed for the Span= 169147
Counters Observed for the Zero= 3931

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plant Reading: 1.3 ppm

Downwind Location Description: Grid 62 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-20-2021 Site Name: Sonoma

Inspector(s): Don CT Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SE Barometric Pressure: 30 "Hg

Air Temperature: 93 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	502	2	3
2	0	501	1	5
3	2	499	1	4

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 99.7 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 166332
Counters Observed for the Zero= 4000

Trial 2:
Counts Observed for the Span= 169636
Counters Observed for the Zero= 3914

Trial 3:
Counts Observed for the Span= 170912
Counters Observed for the Zero= 3874

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.3 ppm

Downwind Location Description: Grid 62 Reading: 1.6 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-20-2021 Site Name: Sonoma

Inspector(s): Bryan O/ Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SE Barometric Pressure: 30 "Hg

Air Temperature: 43 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	500	0	3
2	2	502	2	4
3	1	501	1	2

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 132560
Counters Observed for the Zero= 2977

Trial 2:
Counts Observed for the Span= 133960
Counters Observed for the Zero= 2993

Trial 3:
Counts Observed for the Span= 134840
Counters Observed for the Zero= 3021

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Alar Reading: 1.3 ppm

Downwind Location Description: Grid 62 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

post

Date: 4-20-21 Site Name: Sonoma

Inspector(s): Bryan Ochoa Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH Wind Direction: SE Barometric Pressure: 30 "Hg

Air Temperature: 65 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	501	1	2
2	1	501	1	3
3	0	501	1	2

Average Difference: 1.6

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.6 /500 x 100%

= 99.7 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 131894
Counters Observed for the Zero= 3032

Trial 2:
Counts Observed for the Span= 131631
Counters Observed for the Zero= 3024

Trial 3:
Counts Observed for the Span= 130965
Counters Observed for the Zero= 3148

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: @Flare Reading: 1.3 ppm

Downwind Location Description: Grid 67 Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

PRE

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-2021 Site Name: Sonoma

Inspector(s): Dan Cy Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: 9 Barometric Pressure: 29.84 "Hg

Air Temperature: 43 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	502	2	4
2	.0	500	0	5
3	.2	501	1	4

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 169428
Counters Observed for the Zero= 3737

Trial 2:
Counts Observed for the Span= 171564
Counters Observed for the Zero= 3710

Trial 3:
Counts Observed for the Span= 170284
Counters Observed for the Zero= 3759

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Have Reading: 12 ppm

Downwind Location Description: G 77 Reading: 13 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

PVE

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-2021 Site Name: Sonoma

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: S Barometric Pressure: 29.84 "Hg

Air Temperature: 43 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.0	500	0	4
2	.0	502	2	5
3	.1	501	1	4

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 114816
Counters Observed for the Zero= 3932

Trial 2:
Counts Observed for the Span= 113672
Counters Observed for the Zero= 3886

Trial 3:
Counts Observed for the Span= 113842
Counters Observed for the Zero= 3902

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.3 ppm

Downwind Location Description: G77 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-21 Site Name: Sonoma

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: 5 Barometric Pressure: 29.84 "Hg

Air Temperature: 43 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	501	1	4
2	0	501	1	5
3	2	501	1	3

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 194960
Counters Observed for the Span= 2990

Trial 2:
Counts Observed for the Span= 142572
Counters Observed for the Span= 2968

Trial 3:
Counts Observed for the Span= 143487
Counters Observed for the Span= 3017

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare G Reading: 1.2 ppm

Downwind Location Description: G77 Reading: 14 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-2021 Site Name: Sonoma

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: S Barometric Pressure: 29.89 "Hg

Air Temperature: 67 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1220 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.1	500	0	5
2	.0	502	2	3
3	.1	501	1	4

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 168937
Counters Observed for the Zero= 3751

Trial 2:
Counts Observed for the Span= 169205
Counters Observed for the Zero= 3789

Trial 3:
Counts Observed for the Span= 169374
Counters Observed for the Zero= 3802

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: GTT Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-21 Site Name: Sonoma

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: S Barometric Pressure: 29.84 "Hg

Air Temperature: 67 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1211 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.0	501	1	3
2	-1	501	1	5
3	.1	500	0	4

Average Difference: 16

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 16 /500 x 100%

= 998 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 113372
Counters Observed for the Zero= 3886

Trial 2:
Counts Observed for the Span= 113486
Counters Observed for the Zero= 3910

Trial 3:
Counts Observed for the Span= 113687
Counters Observed for the Zero= 3943

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.1 ppm

Downwind Location Description: GTT Reading: 1.4 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-21-21 Site Name: Donora

Inspector(s): Bryano Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: S Barometric Pressure: 30 "Hg

Air Temperature: 67 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	500	0	4
2	1	501	1	5
3	-1	502	2	3

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 141976
Counters Observed for the Zero= 2969

Trial 2:
Counts Observed for the Span=
Counters Observed for the Zero= 2994

Trial 3:
Counts Observed for the Span=
Counters Observed for the Zero= 3017

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Flare Reading: 1.2 ppm

Downwind Location Description: CTT Reading: 1.3 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-30-21 Site Name: Sonoma

Inspector(s): Liam McGinn Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	0	501	1	3
2	0	500	0	3
3	1	502	2	3

Average Difference: 1

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 125631
Counters Observed for the Zero= 2219

Trial 2:
Counts Observed for the Span= 125620
Counters Observed for the Zero= 2236

Trial 3:
Counts Observed for the Span= 125622
Counters Observed for the Zero= 2220

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: entrance Reading: 1.2 ppm

Downwind Location Description: Grid 35 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Post

Date: 4-30-21 Site Name: Sonoma

Inspector(s): Liam McGinn Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: W Barometric Pressure: 30 "Hg

Air Temperature: 63 °F General Weather Conditions: clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 1223 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	1	500	0	3
2	0	500	0	3
3	0	501	1	4

Average Difference: .3

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- .3 /500 x 100%

= 99.9 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 126505
Counters Observed for the Zero= 1986

Trial 2:
Counts Observed for the Span= 126528
Counters Observed for the Zero= 1993

Trial 3:
Counts Observed for the Span= 126510
Counters Observed for the Zero= 2001

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: entrance Reading: 1.2 ppm

Downwind Location Description: Grid 35 Reading: 1.5 ppm

Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 5-21-21 Site Name: Sonoma Central

Inspector(s): Hunter Ott Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 9 MPH Wind Direction: WNW Barometric Pressure: 30.02 "Hg

Air Temperature: 52 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. The calibration precision must be less than or equal to 10% of the calibration gas value.

Instrument Serial Number: 2364 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.2	500	0	
2	.1	502	2	
3	0	503	3	

Average Difference: 1.66

*Perform recalibration if average difference is greater than 10

Calibration Precision= Average Difference/Cal Gas Conc. X 100%

= 100%- 1.66 /500 x 100%

= 99.68 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 169884
Counters Observed for the Zero= 4221

Trial 2:
Counts Observed for the Span= 168896
Counters Observed for the Zero= 4153

Trial 3:
Counts Observed for the Span= 167244
Counters Observed for the Zero= 4067

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

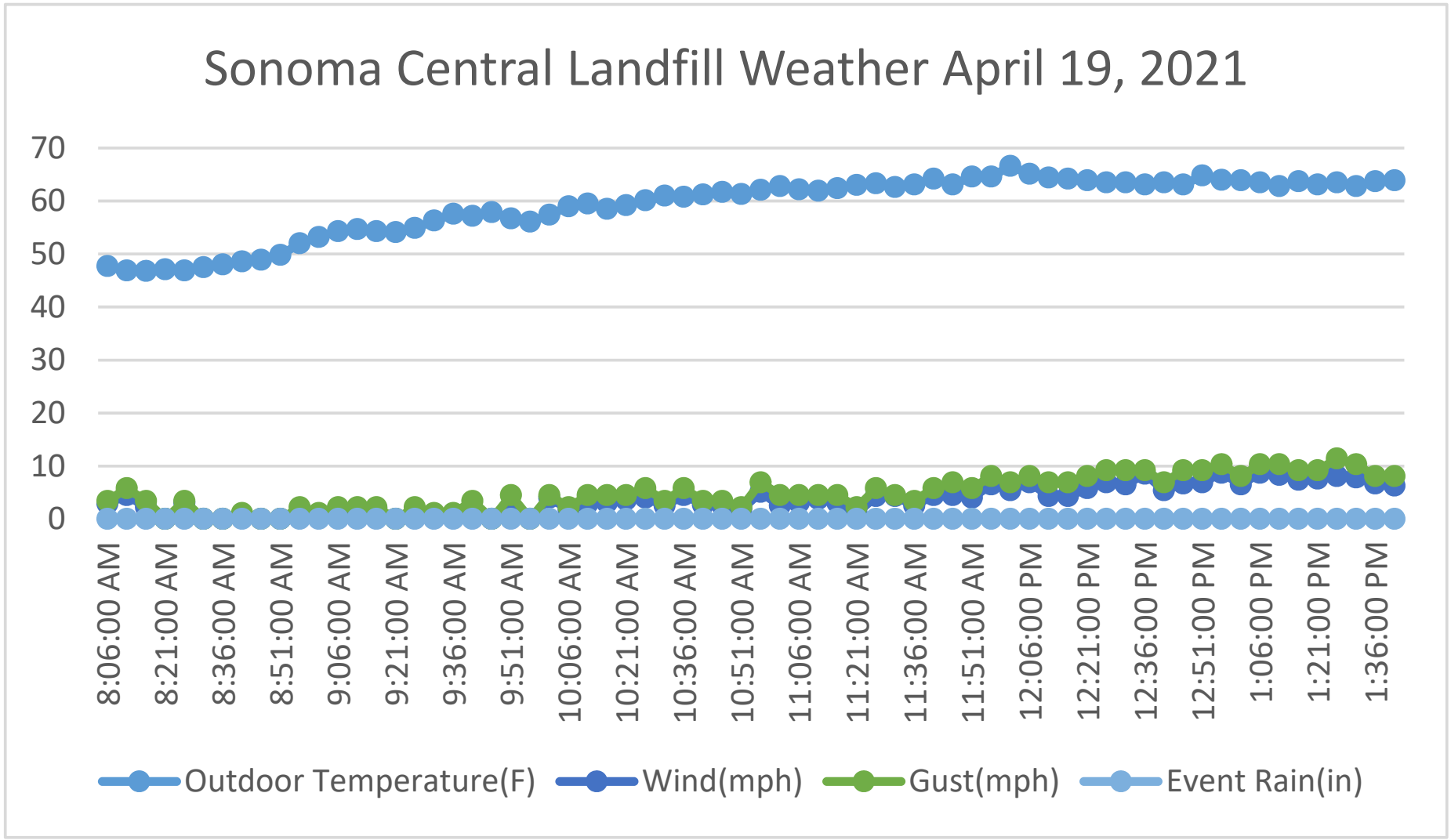
Upwind Location Description: _____ Reading: 1.2 ppm

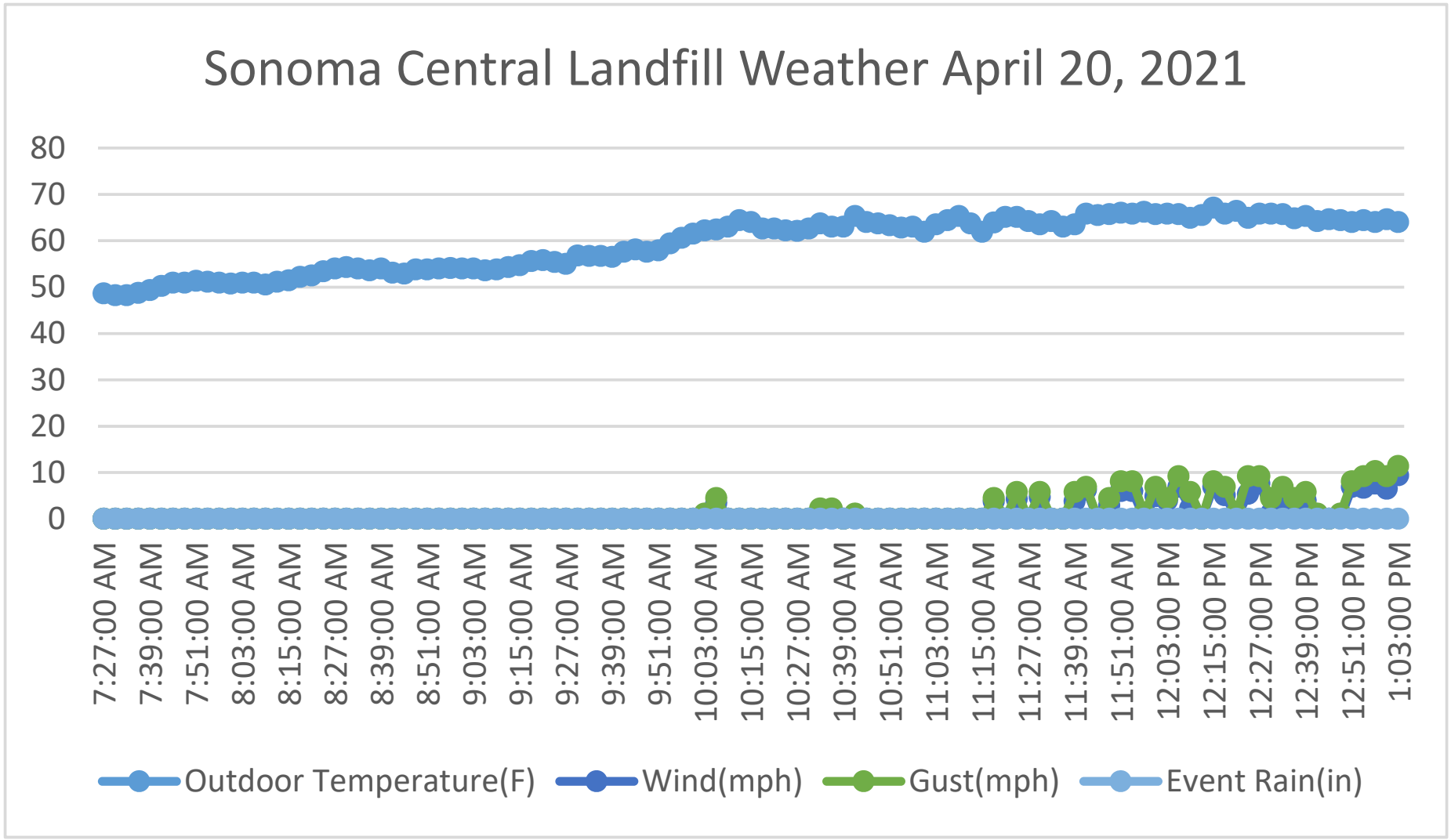
Downwind Location Description: _____ Reading: 1.4 ppm

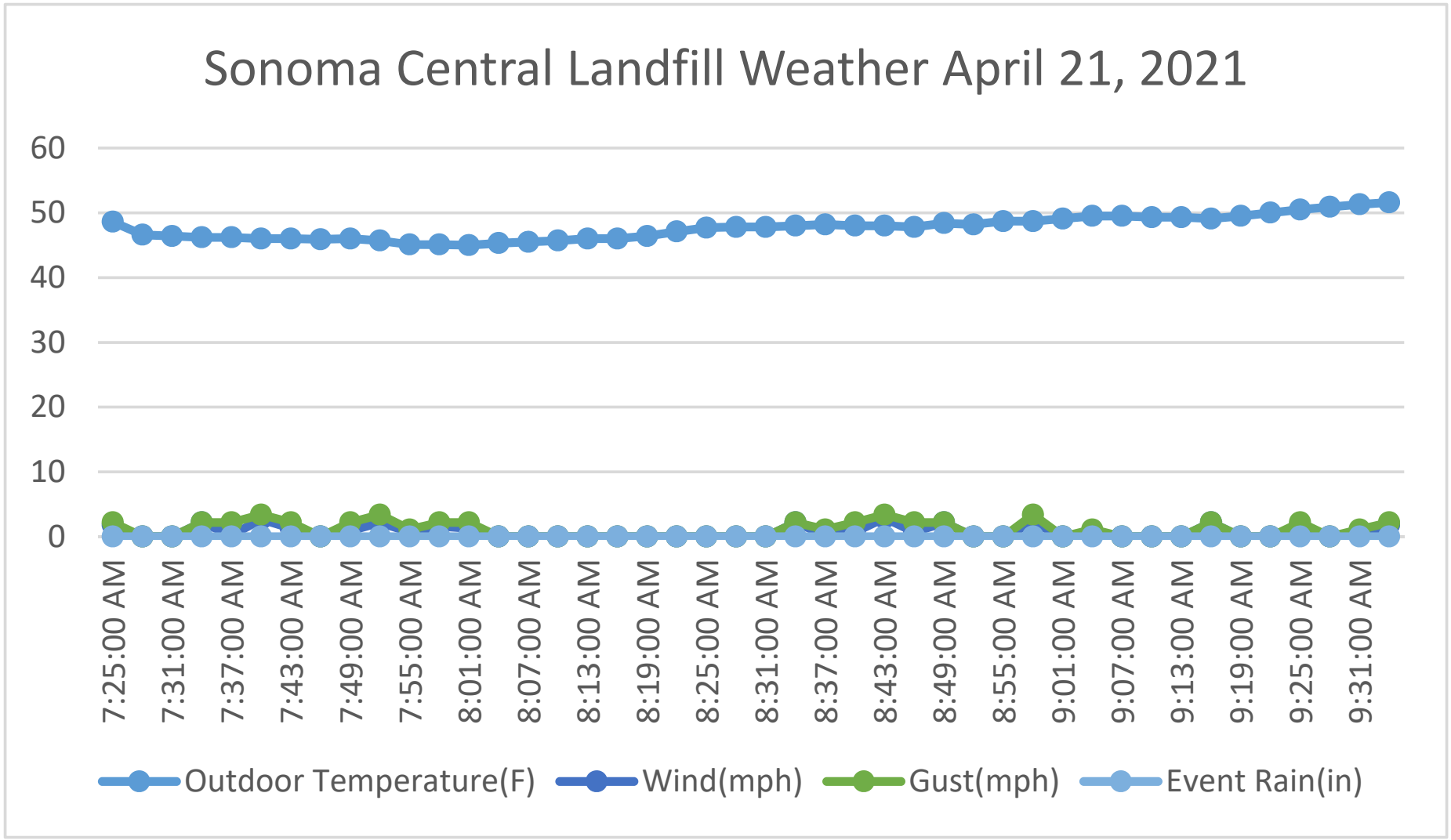
Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested alternatives of the LMR requirements on the above mentioned date.

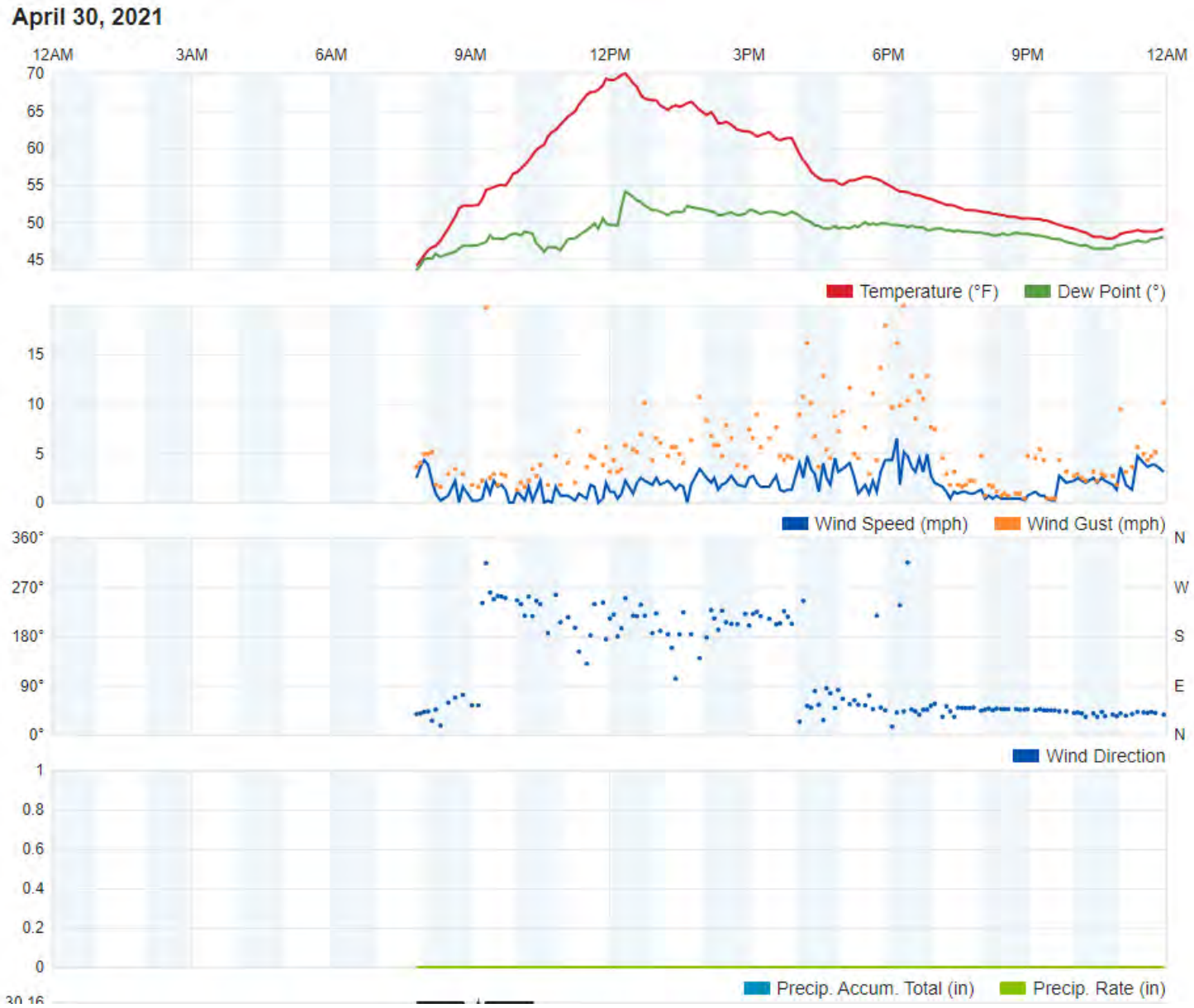
Attachment 6

Weather Data


Sonoma Central Landfill Weather April 19, 2021
70
60
50
40
30
20
10
0
8:06:00 AM
8:21:00 AM
8:36:00 AM
8:51:00 AM
9:06:00 AM
9:21:00 AM
9:36:00 AM
9:51:00 AM
10:06:00 AM
10:21:00 AM
10:36:00 AM
10:51:00 AM
11:06:00 AM
11:21:00 AM
11:36:00 AM
11:51:00 AM
12:06:00 PM
12:21:00 PM
12:36:00 PM
12:51:00 PM
1:06:00 PM
1:21:00 PM
1:36:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Event Rain(in)


Sonoma Central Landfill Weather April 20, 2021
80
70
60
50
40
30
20
10
0
7:27:00 AM
7:39:00 AM
7:51:00 AM
8:03:00 AM
8:15:00 AM
8:27:00 AM
8:39:00 AM
8:51:00 AM
9:03:00 AM
9:15:00 AM
9:27:00 AM
9:39:00 AM
9:51:00 AM
10:03:00 AM
10:15:00 AM
10:27:00 AM
10:39:00 AM
10:51:00 AM
11:03:00 AM
11:15:00 AM
11:27:00 AM
11:39:00 AM
11:51:00 AM
12:03:00 PM
12:15:00 PM
12:27:00 PM
12:39:00 PM
12:51:00 PM
1:03:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Event Rain(in)

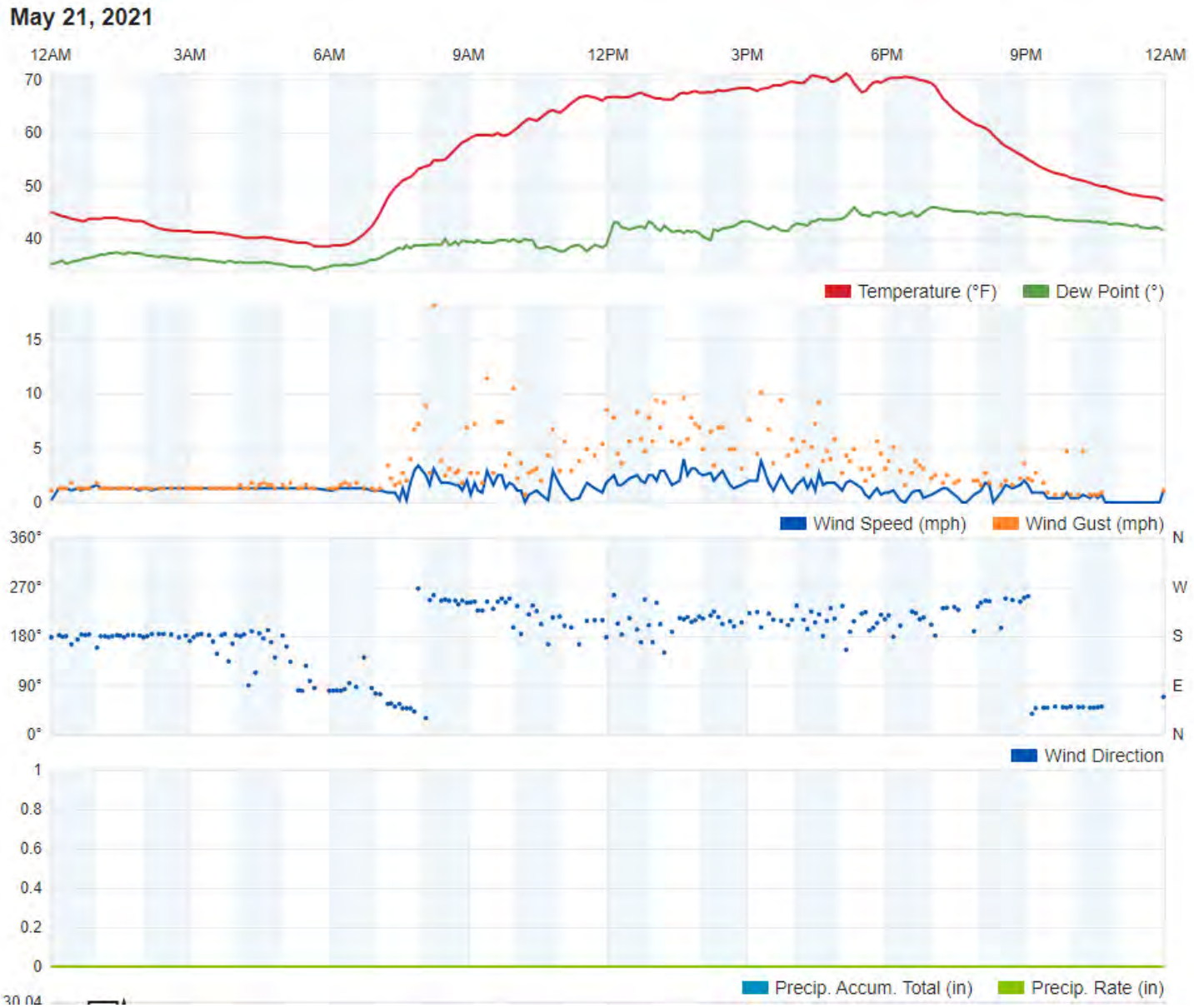

Sonoma Central Landfill Weather April 21, 2021
60
50
40
30
20
10
0
7:25:00 AM
7:31:00 AM
7:37:00 AM
7:43:00 AM
7:49:00 AM
7:55:00 AM
8:01:00 AM
8:07:00 AM
8:13:00 AM
8:19:00 AM
8:25:00 AM
8:31:00 AM
8:37:00 AM
8:43:00 AM
8:49:00 AM
8:55:00 AM
9:01:00 AM
9:07:00 AM
9:13:00 AM
9:19:00 AM
9:25:00 AM
9:31:00 AM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Event Rain(in)



Second Quarter 2021

LMR Instantaneous Weather Data for April 30, 2021

Sonoma Central Landfill, Petaluma, California



Second Quarter 2021

LMR Instantaneous Weather Data for May 21, 2021

Sonoma Central Landfill, Petaluma, California

Appendix E – Excerpts from the Source Test Reports Issued during the Reporting Period (A-4 Flare, S-9, S-10, S-11)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

375 Beale Street, Suite 600
San Francisco, California 94105
(415) 771-6000

Contractor Source Test Supplemental Form

Site name: Sonoma County Central Landfill
NST number: 6295
Testing company: Blue Sky Environmental, Inc.

Test purpose:

- ☑ Routine compliance testing
- ☐ Compliance test required after previous source test failure
- ☐ Start-up test
- ☐ Other, ex: trial testing for permit changes, engineering studies
  Please explain _____
- ☐ Revised report with corrections noted
  Revision number _____

Preliminary test results:

- ☑ In compliance
- ☐ Not in compliance
- ☐ N/A
  Please explain_____

Sonoma County Central Landfill

BAAQMD PLANT #: 22987

Compliance Emissions Test Report #21022

Enclosed Landfill Gas Flare (A-4)

Located at:
Sonoma County Central Landfill
500 Mecham Road
Petaluma, CA 94952

Prepared for:
Republic Services of Sonoma County, Inc.
500 Mecham Road
Petaluma, CA 94952
Attn: Derek Cheney
DCheney@republicservices.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street #600
San Francisco, CA 94105
Attn: Marco Hernandez & Gloria Espena
mhernandez@baaqmd.gov & gespena@baaqmd.gov

Testing Performed on:
January 20th, 2021

Final Report Submitted on:
March 3rd, 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

Blue Sky Environmental, Inc.
624 San Gabriel Avenue
Albany, CA 94706
Office (510) 525 1261
Cell (510) 508 3469
bluesky@blueskyenvironmental.com

March 3rd, 2021

Sonoma County Central Landfill
500 Mecham Road
Petaluma, CA 94952

Attn.: Derek Cheney

Subject: Source test emission report for the John Zink ZTOF, 91.26 MMBtu/hr Landfill Gas-Fired Flare (A-4) located at the Sonoma County Central Landfill, 500 Mecham Road, Petaluma, CA 94952. Plant # 22987, ATC 28326, Condition 4044.

Test Date(s): Testing was conducted on January 20th, 2021.

Sampling Location: Sampling was conducted at the exhaust stack of the enclosed flare through ports that were accessible by scissor-lift. Sampling ports were available that met the minimum EPA Method 1 criteria of 2 stack diameters downstream from the nearest disturbance and 0.5 stack diameters upstream from the nearest disturbance or exhaust.

Sampling Personnel: Testing was performed by Jeramie Richardson of Blue Sky Environmental, Inc.

Observing Personnel: The BAAQMD was notified of the scheduled source test in a plan submitted on January 11th, 2021 (NST #6295); however, no agency observers from BAAQMD were present during testing. Matt Beat and Derek Cheney of Republic Services were on site to coordinate flare operation.

Process Description: Landfill gas collected at the Sonoma County Central Landfill is vented to internal combustion (IC) engine and generator sets to produce power. The 91.26 MMBtu/hr flare (A-4) is used as necessary to combust excess gas when the flow of landfill gas exceeds the capacity of the IC engines in service. The landfill gas flow rate and flare operating temperature are continuously recorded on a Yokogawa system.

Test Program: This source test was conducted on the site's landfill gas flare to evaluate emissions and determine compliance with BAAQMD ATC 28326. Three consecutive thirty-minute gaseous emissions tests were performed for oxides of nitrogen (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4) and non-methane organic compounds (NMOC) at the exhaust stack of the flare. 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. Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. A NOx analyzer converter efficiency check was performed before the first test run and found to be greater than 90%.

Sampling and Analysis Methods: The following U.S. Environmental Protection Agency (EPA) ASTM International sampling and analytical methods were used:

EPA Method 3A	O_2, CO_2 Emissions
EPA Method 7E	NO_X Emissions
EPA Method 10	CO Emissions
EPA Method 25A/ALT-096	THC/CH_4/NMHC Emissions
EPA Method 4, part 16.4	Stack Moisture
EPA Method 19	Stack Gas Flowrate
EPA Method 25C	Analysis of landfill gas for TNMHC (NMOC)
ASTM D-1945/3588	Fuel Analysis for BTU and F-Factors & Fixed Gases
ASTM D-5504	Total Reduced Sulfur Compounds (TRS) in Fuel
EPA Method TO-15	Volatile Organic Compounds (VOC) in Fuel

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 DRP3000 strip chart recorder supported by a Data Acquisition System (DAS).

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. All data is corrected according to the method.

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 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.

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 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.

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.

Instrumentation: The following continuous emissions analyzers were used:

Instrument	Analyte	Principle
Servomex 1400	O_2	Paramagnetic
Servomex 1400	CO_2	IR
TECO Model 42C	NO_X	Chemiluminescence
TECO Model 48C	CO	GFC/IR
TECO Model 55C	CH_4/NMOC	FID

Test Results: Emission results derived from the source test complied with permit conditions and are summarized below. Detailed results for individual test runs are provided in Table 1. The full list of AP42 2.4-1 compounds is provided in Table 2.

Emission Parameter	Average Results (Flare A-4)	Permit Limits	Compliance Status
NO_X, lbs/MMBtu	0.044	0.05	In Compliance
CO, lbs/MMBtu	0.013	0.20	In Compliance
Inlet TRS, ppm	68.7	300	In Compliance
NMOC, ppm @ 3% O_2	<4.9	30 ppm or >98%	In Compliance
NMOC Removal Efficiency	>98.85		
CH_4 Removal Efficiency	>99.97	>99%	In Compliance
THC (TOC) Removal Efficiency	99.97%	>99%	In Compliance

The appendices are organized as follows:

Calculations
: All the calculations performed on the continuous emissions monitoring (CEM) data and flow rate calculations are presented in this section.

Laboratory Reports
: All laboratory reports and chain of custody.

Field Data Sheets
: All the CEMS data, any transcribed data from the strip charts.

Process Information
: Facility Process Data.

Calibration Gas Certificates
: Certifications for the calibration gas standards.

Stack Diagram
: Sketch or photograph of the stack.

Sample System Diagram
: Schematic of the sampling system configuration

Permit to Operate / ATC
: Permit to Operate / Authority to Construct

Source Test Plan
: Sampling protocols submitted to the BAAQMD prior to testing

Comments: 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. This source test indicates that the emissions comply with permitted limits.

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 is 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 Jeramie Richardson at (810) 923-3181, Chuck Arrivas at (925) 338-4875 or Guy Worthington at (510) 508-3469.

Prepared by,

Anne Richardson

Reviewed by,

Julie Wose-Jennings

TABLE #1

Sonoma-Central Landfill
Flare (A-4)
1,652°F

RUN	1	2	3	AVERAGE	LIMITS
Test Date	1/20/21	1/20/21	1/20/21		
Test Time	0925-1014	1037-1115	1135-1213		
Standard Temperature, °F	70	70	70	70	
Flare Temperature, °F	1,644	1,660	1,652	1,652	
Fuel Flow Rate, DSCFM	854	881	905	880	
Fuel Heat Input, MMBtu/hr	26.83	27.92	28.60	27.79	
Exhaust Flow Rate, DSCFM *(EPA M19)*	11,456	12,036	12,178	11,890	
Oxygen, O_2, %	13.2	13.3	13.2	13.2	
Carbon Dioxide, CO_2, %	6.9	6.7	6.7	6.8	
Carbon Dioxide, CO_2, lbs/hr	5,430	5,525	5,597	5,517	
Water Vapor, H_2O, % *(EPA M4.16)*	4.3	4.3	4.3	4.3	
NOx, ppm	14.8	14.1	14.0	14.3	
NOx, ppm @ 15% O_2	11.4	10.9	10.7	11.0	
NOx, lbs/hr	1.21	1.21	1.21	1.21	
NOx, lbs/day	29.0	29.1	29.1	29.1	
NOx, lb/MMBTU	**0.045**	**0.043**	**0.042**	**0.044**	**0.05**
CO, ppm	2.4	9.0	9.0	6.8	
CO, ppm @ 15% O_2	1.9	7.0	6.9	5.2	
CO, lbs/hr	0.12	0.47	0.48	0.36	
CO, lbs/day	2.9	11.3	11.4	8.5	
CO, lb/MMBTU	**0.004**	**0.017**	**0.017**	**0.013**	**0.20**
THC, ppm (wet) *(EPA M25A)*	<10.0	<10.0	<10.0	<10.0	
THC, ppm (dry)	<10.5	<10.4	<10.5	<10.5	
THC, lbs/hr as CH_4	<0.30	<0.31	<0.32	<0.31	
CH_4, ppm (wet) *(EPA M25A)*	<10.0	<10.0	<10.0	<10.0	
CH_4, ppm (dry)	<10.5	<10.4	<10.5	<10.5	
CH_4, lbs/hr	<0.3	<0.3	<0.3	<0.3	
TNMHC (POC), ppm as CH_4 (wet) *(EPA M25A)*	<2.0	<2.0	<2.0	<2.0	
TNMHC, ppm as CH_4 (dry)	<2.1	<2.1	<2.1	<2.1	
TNMHC, lbs/hr as CH_4	<0.06	<0.06	<0.06	<0.06	
TNMHC, ppm @ 3% O_2 as CH_4	**<4.9**	**<4.9**	**<4.9**	**<4.9**	**30**

INLET TRS, ppm *(ASTM 5504)*	**67.6**	**69.3**	**69.2**	**68.7**	**300**
SO_2, ppm	0.16	0.16	0.16	0.16	
INLET TNMHC, ppm as CH_4 *(EPA M25C)*	2,255	2,537	2,564	2,452	
INLET TNMHC, lbs/hr as CH_4	4.78	5.55	5.76	5.35	
TNMHC Removal Efficiency	**>98.76%**	**>98.87%**	**>98.90%**	**>98.85%**	**98**
INLET CH_4, ppm *(EPA M25C)*	524,000	528,000	527,000	526,333	
INLET CH_4, lbs/hr	1,110.42	1,154.08	1,183.36	1,149.22	
CH_4 Removal Efficiency	**>99.97%**	**>99.97%**	**>99.97%**	**>99.97%**	**99**
INLET THC (TOC), ppm as CH_4	526,255	530,537	529,564	528,785	
INLET THC (TOC), lbs/hr as CH_4	1,115.20	1,159.63	1,189.12	1,154.58	
THC (TOC) Removal Efficiency	**99.97%**	**99.97%**	**99.97%**	**99.97%**	**99**

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)
CO_2 = Carbon Dioxide (MW = 44)
CH_4 = Methane (MW = 16)
TOC = THC = Total Organic Carbon as Methane (MW = 16)
THC = Total Hydrocarbons as Methane (MW = 16)
TNMHC = Total Non-Methane Hydrocarbons as Methane (MW = 16)
POC = Precursor Organic Compunds (MW = 16)

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 x 8.223 E-05 x DSCFM x MW / Tstd. °R
Lbs/day = Lbs/hr * 24
Removal Efficiency = (inlet lbs/hr- outlet lbs/hr) / inlet lbs/hr
lbs/MMBtu = Fd * MW * ppm * 2.59E-9 * 20.9/(20.9 - %O_2)
<VALUE = 2% Value of Analyzer Range

TABLE #2

Sonoma-Central Landfill
Permit 2254, part 18
AP42 2.4-1

Constituent	Method	Units	Landfill Gas Samples 1/20/21 AP42 Table 2.4-1 LFG RUN 1	1/20/21 AP42 Table 2.4-1 LFG RUN 2	1/20/21 AP42 Table 2.4-1 LFG RUN 3	Permit Limit Condition #4044 parts 6 & 7
1,1,1-Trichloroethane	EPA TO-15	ppb	<788	<755	<762	
1,1,2,2-Tetrachloroethane	EPA TO-15	ppb	<788	<755	<762	
1,1-Dichloroethane (Ethylidene Dichloride)	EPA TO-15	ppb	<788	<755	<762	
1,1-Dichloroethene (1,1-Dichloroethylene)	EPA TO-15	ppb	<788	<755	<762	
1,2-Dichloroethane (Ethylene Dichloride)	EPA TO-15	ppb	<788	<755	<762	
1,2-Dichloropropane	EPA TO-15	ppb	<788	<755	<762	
2-Propanol (Isopropyl Alcohol, IPA)	EPA TO-15	ppb	5,550	11,600	13,100	
Acrylonitrile	EPA TO-15	ppb	<3,150	<3,020	<3,050	
Bromodichloromethane	EPA TO-15	ppb	<788	<755	<762	
Butane (C4)	EPA 18/ASTM 1945	ppm	10.1	9.2	9.3	
Carbon Disulfide	EPA TO-15	ppb	<3,150	<3,020	<3,050	
Carbon Monoxide	EPA 3C/ASTM 1945	%	<0.2	<0.2	<0.2	
Carbon Tetrachloride	EPA TO-15	ppb	<788	<755	<762	
Carbonyl sulfide (COS)	ASTM D-5504	ppm	<0.079	<0.076	<0.076	
Chlorobenzene	EPA TO-15	ppb	<788	<755	<762	
Chlorodifluoromethane	EPA TO-15	ppb	<788	<755	<762	
Chloroethane	EPA TO-15	ppb	<788	<755	<762	
Chloroform	EPA TO-15	ppb	<788	<755	<762	
Chloromethane	EPA TO-15	ppb	<1,580	<1,510	<1,520	
1,3-Dichlorobenzene	EPA TO-15	ppb	<788	<755	<762	
1,4-Dichlorobenzene	EPA TO-15	ppb	<788	<755	<762	
1,2-Dichlorobenzene	EPA TO-15	ppb	<788	<755	<762	
Dichlorodifluoromethane	EPA TO-15	ppb	<788	<755	<762	
Dichlorofluoromethane	EPA TO-15	ppb	<788	<755	<762	
Dichloromethane (Methylene Chloride)	**EPA TO-15**	**ppb**	**<1,580**	**<1,510**	**<1,520**	**20,000**
Dimethyl Sulfide	ASTM D-5504	ppm	1.07	1.21	1.25	
Ethane (C2)	EPA 18/ASTM 1945	ppm	0	0	0	
Ethanol	EPA TO-15	ppb	33,000	69,500	74,600	
Ethyl Mercaptan	ASTM D-5504	ppm	<0.079	<0.076	<0.076	
Ethyl Benzene	EPA TO-15	ppb	3,040	3,110	3,380	
1,2 Dibromoethane (Ethylene Dibromide)	EPA TO-15	ppb	<788	<755	<762	
Trichlorofluoromethane	EPA TO-15	ppb	<788	<755	<762	
Hexane	EPA TO-15	ppb	<788	<755	<762	
Hydrogen sulfide	**ASTM D-5504**	**ppm**	**64.6**	**66.3**	**66.3**	**300**
Mercury	NIOSH 6009	ug/m3	NA	NA	NA	
2-Butanone (MEK)	EPA TO-15	ppb	5,450	10,200	8,650	
Methyl isoButyl Ketone (MiBK)	EPA TO-15	ppb	<788	<755	<762	
Pentane (C5)	EPA 18/ASTM 1945	ppm	29.4	28.4	28.2	
Tetrachloroethylene (Perchloroethylene)	**EPA TO-15**	**ppb**	**<788**	**<755**	**<762**	**3,000**
Propane (C3)	EPA 18/ASTM 1945	ppm	25.2	24.3	24.0	
trans-1,2-Dichloroethene (t-1,2-Dichloroethylene)	EPA TO-15	ppb	<788	<755	<762	
Trichloroethylene (Trichloroethene)	**EPA TO-15**	**ppb**	**<788**	**<755**	**<762**	**3,000**
Vinyl Chloride	**EPA TO-15**	**ppb**	**<788**	**<755**	**<762**	**2,500**
m,p-Xylene	EPA TO-15	ppb	5,090	5,030	5,430	
o-Xylene	EPA TO-15	ppb	1,700	1,780	1,980	
Benzene	**EPA TO-15**	**ppb**	**1,120**	**1,100**	**1,160**	**2,500**
Chlorobenzene	EPA TO-15	ppb	<788	<755	<762	
Toluene	EPA TO-15	ppb	6,130	5,910	6,370	

Republic Services of Sonoma County, Inc.

BAAQMD PLANT #: 22987

Compliance Emissions Test Report #21083

Caterpillar Landfill Gas Engine #5 (S-9)

Located at:
Central Landfill
500 Mecham Road
Petaluma, CA 94952

Prepared for:
Republic Services of Sonoma County, Inc.
500 Mecham Road
Petaluma, CA 94952
Attn: Derek Cheney
DCheney@republicservices.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Marco Hernandez & Gloria Espena
mhernandez@baaqmd.gov & gespena@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
March 12th, 2021

Final Report Submitted on:
May 6th, 2021

Performed and Reported by:
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May 6th, 2021

Republic Services of Sonoma County, Inc
500 Mecham Road
Petaluma, CA 94952

Attn.: Derek Cheney

Subject: Source emissions test report for Republic Services of Sonoma County, Inc.'s Engine #5 (S-9), located at the Central Landfill in Petaluma, CA, to determine compliance with the Bay Area Air Quality Management District (BAAQMD) Title V Permit for Plant 22987.

Test Date(s): Testing was conducted on March 12th, 2021.

Sampling Location: Emission sampling was conducted at the 12-inch diameter exhaust stack of Engine #5 (S-9) through ports that were accessible both from the roof of the facility and from a probe extending from ground level. The ¾-inch sample ports on the stack met EPA Method 1 minimum criteria of two stack diameters downstream from the nearest disturbance and 0.5 stack diameters upstream from the nearest disturbance or exhaust.

Sampling Personnel: Sampling was performed by Jeramie Richardson of Blue Sky Environmental, Inc.

Observing and Facility Personnel: The Bay Area Air Quality Management District (BAAQMD) was notified of the scheduled testing in a plan submitted on March 4th, 2021 (NST #6401); however, no agency observers from the BAAQMD were present during testing.

Matt Beat of Republic Services of Sonoma County, Inc. was on site to coordinate engine operations.

Process Description: The Central Landfill operates ten Caterpillar Model G3516 lean burn IC engines that produce power from the waste landfill gas generated by the facility. Each of the 1,138 hp reciprocating engines operates with an 800 kW Genset. The control room uses a Yokogawa fuel-flow monitoring system to read the LFG flows to each engine. Engines #9 (S-13) and #10 (S-14) are currently out of service; but when operating, carry a 50-kW parasitic load that is added to the generator output kW when calculating total kW.

Each engine has a dedicated fuel meter and individual kW meter that is used to indicate load. Readings taken during testing were used with the gas analysis to calculate the exhaust flow rate and to calculate load.

Test Program: Three consecutive 35-minute gaseous emissions tests were performed for nitrogen oxides (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4), and total nonmethane hydrocarbons (TNMHC) at the 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. Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. A NOx analyzer converter efficiency check was performed before the first test run and found to be greater than 90%.

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of three LFG samples from the engine header for CH_4, CO_2, O_2, CO, N_2, and BTU, F-Factor analysis. The samples were collected in Silco canisters and analyzed at Atmospheric Analysis and Consulting, Inc., located in Ventura, CA.

Sampling & Analytical Methods: The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling methods 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 7E	NO_X Emissions & NO_2 Converter Efficiency
EPA Method 10	CO Emissions
EPA Method 4, Part 16.4	Moisture Calculated
EPA Method ALT-078	CH_4 & NMHC Emissions
EPA Method 19	Calculation of Stack Gas Flow Rate
ASTM D-1945/3588	Fuel Analysis for BTU and F-Factors
EPA Method 25C	Analysis of landfill gas for TNMHC (NMOC)

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.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DRP3000 strip chart recorder supported by a Data Acquisition System (DAS).

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 25A/ALT-078 – 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. All data is corrected according to the method.

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.

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.

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.

Instrumentation: The following continuous emissions analyzers were used:

Instrument	Analyte	Principle
Servomex Model 1400	O_2	Paramagnetic
Servomex Model 1400	CO_2	IR
TECO Model 42C	NO_X	Chemiluminescence
TECO Model 48C	CO	GFC/IR
TECO Model 55C	THC/CH_4/NMOC	FID

Test Results: The engine met all compliance emission criteria. The compliance summary is presented below. Detailed source test information is provided in Table 1.

Emission Parameter	Average Results Engine #5 (S-9)	Permit Limits	Status
NO_X, ppm @ 15% O_2	27.4	----	----
NO_X, g/Bhp-hr	0.44	0.8	In Compliance
CO, ppm @ 15% O_2	200.8	----	----
CO, g/Bhp-hr	1.94	2.1	In Compliance
CH_4, ppm @ 3% O_2	1,081	3,000	In Compliance
NMOC ppm as CH_4 @ 3% O_2	109.3	120 **or** >98%	In Compliance
NMOC Removal Efficiency as CH_4	>68.7%		

Note: POC (Precursor Organic Compounds) and NMOC (Non-Methane Organic Compounds) are used synonymously -Condition 19933 Part 8

The appendices are organized as follows:

Calculations
: All the calculations performed on the continuous emissions monitoring (CEM) data and flow rate calculations are presented in this section.

Laboratory Reports
: All laboratory reports and chain of custody.

Field Data Sheets
: All the CEMS data, any transcribed data from the strip charts.

Process Information
: Relevant and available facility process operating documentation.

Calibration Gas Certificates
: Certifications for the calibration gas standards.

Equipment Calibrations
: Calibration records for equipment used (e.g., S-type pitot tubes, dry gas meters, rotameters)

Stack Diagram
: Sketch or photograph of the stack.

Sample System Diagram
: Schematic of the sampling system configuration.

Permit / Authority to Construct
: Permit to Operate / Authority to Construct.

Source Test Plan
: Sampling protocols submitted to the BAAQMD prior to testing.

Comments: 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 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 is 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 there are any questions concerning this report, please contact Jeramie Richardson at (810) 923-3181, Chuck Arrivas at (925) 338-4875 or Guy Worthington at (510) 508-3469.

Prepared by,

Anne Richardson

Reviewed by,

Julie Wose-Jennings

TABLE #1

Sonoma Central Landfill
ENGINE #5 (S-9)

800 kW Caterpillar Landfill Gas Engine

RUN	1	2	3	AVERAGE	LIMITS
Test Date	03/12/21	03/12/21	03/12/21		
Test Time	0930-1005	1029-1104	1136-1211		
Standard Temperature, °F	70	70	70	70	
Stack Exhaust Temperature, °F	719	723	720	721	
Engine (Generator), kW	800	800	810	803	
Engine BHp	1,072	1,072	1,085	1,076	
Fuel Flow Rate, SCFM	314.5	311.9	312.7	313.0	
Gas Fd-Factor @ 70°F	9,612	9,611	9,595	9,606	
Heat Input, MMBtu/Day	**223.9**	**218.8**	**215.1**	**219.2**	**252.6**
Exhaust Flow Rate, DSCFM *(EPA M19)*	2,391	2,349	2,321	2,354	
Oxygen, O_2, %	**7.59**	**7.65**	**7.75**	**7.66**	**6.4-8.3**
Carbon Dioxide, CO_2 %	11.8	11.8	11.7	11.8	
Carbon Dioxide, lbs/hr	1,933	1,890	1,851	1,891	
Water Vapor, H_2O, %	12.4	12.4	12.3	12.3	
NOx, ppm	60.2	63.4	61.0	61.5	
NOx, ppm @ 15% O_2	26.7	28.2	27.4	27.4	
NOx, lbs/hr	1.03	1.06	1.01	1.03	
NOx, lbs/MMBtu	0.108	0.115	0.111	0.111	
NOx, g/Bhp-hr	**0.43**	**0.45**	**0.42**	**0.44**	**0.8**
CO, ppm	448.1	455.6	447.9	450.5	
CO, ppm @ 15% O_2	198.6	202.9	201.0	200.8	
CO, lbs/hr	4.65	4.65	4.52	4.61	
CO, lbs/MMBtu	0.490	0.501	0.495	0.496	
CO, g/Bhp-hr	**1.97**	**1.97**	**1.89**	**1.94**	**2.1**
THC, ppm (wet) *(EPA M25A)*	2,142.2	2,212.5	2,237.6	2,197.4	
THC, ppm (dry)	2,444.8	2,524.5	2,550.3	2,506.6	
THC, lbs/hr as CH_4	14.5	14.7	14.7	14.6	
CH_4, ppm (wet) *(EPA M25A)*	2,073	2,140	2,167	2,127	
CH_4, ppm (dry)	2,365	2,442	2,470	2,426	
CH_4, ppm @ 15% O_2	**1,048**	**1,088**	**1,108**	**1,081**	**3,000**
CH_4, lbs/hr	14.0	14.2	14.2	14.2	
TNMHC (POC), ppm as CH_4 (wet) *(EPA M25A)*	69.7	72.0	70.8	70.8	
TNMHC (POC), ppm as CH_4 (dry)	79.5	82.2	80.8	80.8	
TNMHC (POC), ppm as CH_4 @ 3%O_2	**106.9**	**111.0**	**109.9**	**109.3**	**120**
TNMHC, lbs/hr as CH_4	0.47	0.48	0.47	0.47	
TNMHC, g/Bhp-hr as CH_4	0.20	0.20	0.19	0.20	
INLET TNMHC (POC) ppm as CH_4 *(EPA M25C)*	2,315	2,232	1,435	1,994	**>98% or 120ppm @ 3%O_2**
INLET TNMHC (POC) lbs/hr as CH_4	1.81	1.73	1.11	1.55	
TNMHC (POC) Removal Efficiency	**>73.9%**	**>72.3%**	**>58.2%**	**>68.1%**	
INLET % CH_4 *(ASTM D-1945 & EPA M25C)*	49.6	48.9	47.9	48.8	
INLET CH_4 lbs/hr	387.2	378.6	371.8	379.2	
CH_4 Removal Efficiency	**>96.4%**	**>96.2%**	**>96.2%**	**>96.3%**	
INLET THC (TOC) % as CH_4	49.8	49.1	48.0	49.0	
INLET THC (TOC) lbs/hr as CH_4	389.0	380.3	372.9	380.8	
THC (TOC) Removal Efficiency	>96.3%	>96.1%	>96.1%	>96.2%	

WHERE,

ppm = Parts per Million Concentration
Lbs/hr = Pound per Hour Emission Rate
Tstd. = Standard Temp. (°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 (MW = 16)
THC = Total Hydrocarbons as Methane (MW = 16)
TNMHC = POC = Total Non-Methane Hydrocarbons as Methane (MW = 16)
CO_2 = Carbon Dioxide (MW - 44)

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
lbs/MMBtu = Fd * MW * ppm x 2.59E-9 * 20.9/(20.9 - %O_2)
Removal Efficiency = 100* (inlet lbs/hr - exhaust lbs/hr) / inlet lbs/hr
Engine BHp = Engine kW * 1.34
gm/BHp-hr = Lbs/hr * 453.6 / BHp
TNMHC Detection Limit +/- 2% of THC Value
PPM (dry) = PPM (wet) * 100 / (100 - H_2O%)

Republic Services of Sonoma County, Inc.

BAAQMD Plant # 22987

Compliance Emissions Test Report #21132

Caterpillar Landfill Gas Engine #6 (S-10)

Located at:
Central Landfill
500 Mecham Road
Petaluma, CA 94952

Prepared for:
Republic Services of Sonoma County, Inc.
500 Mecham Road
Petaluma, CA 94952
Attn: Derek Cheney
DCheney@republicservices.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Marco Hernandez & Gloria Espena
mhernandez@baaqmd.gov & gespena@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
April 29th, 2021

Final Report Submitted on:
June 7th, 2021

Performed and Reported by:
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June 7th, 2021

Republic Services of Sonoma County, Inc
500 Mecham Road
Petaluma, CA 94952

Attn.: Derek Cheney

Subject: Source emissions test report for Republic Services of Sonoma County, Inc.'s Engine #6 (S-10), located at the Central Landfill in Petaluma, CA, to determine compliance with the Bay Area Air Quality Management District (BAAQMD) Title V Permit for Plant 22987.

Test Date(s): Testing was conducted on April 29th, 2021.

Sampling Location: Emission sampling was conducted at the 12-inch diameter exhaust stack of Engine #6 (S-10) through ports that were accessible both from the roof of the facility and from a probe extending from ground level. The ¾-inch sample ports on the stack met EPA Method 1 minimum criteria of two stack diameters downstream from the nearest disturbance and 0.5 stack diameters upstream from the nearest disturbance or exhaust.

Sampling Personnel: Sampling was performed by Jeramie Richardson of Blue Sky Environmental, Inc.

Observing and Facility Personnel: The Bay Area Air Quality Management District (BAAQMD) was notified of the scheduled testing in a plan submitted on April 13th, 2021 and revised April 28th, 2021 (NST #6441); however, no agency observers from the BAAQMD were present during testing.

Matt Beat of Republic Services of Sonoma County, Inc. was on site to coordinate engine operations.

Process Description: The Central Landfill operates ten Caterpillar Model G3516 lean burn IC engines that produce power from the waste landfill gas generated by the facility. Each of the 1,138 hp reciprocating engines operates with an 800 kW Genset. The control room uses a Yokogawa fuel-flow monitoring system to read the LFG flows to each engine. Engines #9 (S-13) and #10 (S-14) are currently out of service; but when operating, carry a 50-kW parasitic load that is added to the generator output kW when calculating total kW.

Each engine has a dedicated fuel meter and individual kW meter that is used to indicate load. Readings taken during testing were used with the gas analysis to calculate the exhaust flow rate and to calculate load.

Test Program: Three consecutive 35-minute gaseous emissions tests were performed for nitrogen oxides (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4), and total nonmethane hydrocarbons (TNMHC) at the 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. Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. A NOx analyzer converter efficiency check was performed before the first test run and found to be greater than 90%.

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of three LFG samples from the engine header for CH_4, CO_2, O_2, CO, N_2, and BTU, F-Factor analysis. The samples were collected in Silco canisters and analyzed by Atmospheric Analysis and Consulting, Inc., located in Ventura, CA.

Sampling & Analytical Methods: The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling methods 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 7E	NO_X Emissions & NO_2 Converter Efficiency
EPA Method 10	CO Emissions
EPA Method 4	Moisture
EPA Method 25A / ALT-078	CH_4 & NMHC Emissions
EPA Method 19	Calculation of Stack Gas Flow Rate
ASTM D-1945/3588	Fuel Analysis for BTU and F-Factors
EPA Method 25C	Analysis of landfill gas for TNMHC (NMOC)

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.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DRP3000 strip chart recorder supported by a Data Acquisition System (DAS).

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 or EPA 12. 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 Method 25A/ALT-078 – 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. All data is corrected according to the method.

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.

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.

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.

Instrumentation: The following continuous emissions analyzers were used:

Instrument	Analyte	Principle
Servomex Model 1400	O_2	Paramagnetic
Servomex Model 1400	CO_2	IR
TECO Model 42C	NO_X	Chemiluminescence
TECO Model 48C	CO	GFC/IR
TECO Model 55C	THC/CH_4/NMOC	FID

Test Results: The engine met all compliance emission criteria. The compliance summary is presented below. Detailed source test information is provided in Table 1.

Emission Parameter	Average Results Engine #6 (S-10)	Permit Limits	Compliance Status
NO_X, ppm @ 15% O_2	26.5	----	----
NO_X, g/Bhp-hr	0.40	0.80	In Compliance
CO, ppm @ 15% O_2	157.8	----	----
CO, g/Bhp-hr	1.44	2.1	In Compliance
CH_4, ppm @ 15% O_2	951	3,000	In Compliance
TNMHC ppm as CH_4 @ 3% O_2	95.7	120 **or** >98%	In Compliance
TNMHC Removal Efficiency, %	>63.1%		

Note: POC (Precursor Organic Compounds) and TNMHC (Total; Non-Methane Hydrocarbons) are used synonymously -Condition 19933 Part 8

The appendices are organized as follows:

Calculations
: Calculations performed on the continuous emissions monitoring (CEM) data and flow rate calculations.

Laboratory Reports
: Laboratory reports and chains-of-custody.

Field Data Sheets
: CEMS data and any transcribed data from the strip charts.

Process Information
: Relevant and available facility process operating documentation.

Calibration Gas Certificates
: Certifications for the calibration gas standards.

Equipment Calibrations
: Calibration records for equipment used (e.g., S-type pitot tubes, dry gas meters, rotameters)

Stack Diagram
: Sketch or photograph of the stack.

Sample System Diagram
: Schematic of the sampling system configuration.

Permit / Authority to Construct
: Permit to Operate / Authority to Construct.

Source Test Plan
: Sampling protocols submitted to the BAAQMD prior to testing.

Comments: This source test was performed in accordance with the protocol submitted to the BAAQMD. The fuel sample collected during Run 2 appeared to have significant air intrusion. The results from Run 2 were therefore excluded from the averages.

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 is 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 there are any questions concerning this report, please contact Jeramie Richardson at (810) 923-3181, Chuck Arrivas at (925) 338-4875 or Guy Worthington at (510) 508-3469.

Prepared by,

Anne Richardson

Reviewed by,

Julie Wose-Jennings

TABLE #1

Sonoma Central Landfill
Engine #6 (S-10)

800 kW Caterpillar Landfill Gas Engine

RUN	1	2	3	AVERAGE	LIMITS
Test Date	04/29/21	04/29/21	04/29/21		
Test Time	0929-1004	1032-1107	1127-1202		
Standard Temperature, °F	70	70	70	70	
Stack Exhaust Temperature, °F	779	779	781	780	
Engine (Generator) kW	695	675	715	695	
Engine BHp	931	905	958	931	
Fuel Flow Rate, SCFM	289.8	291.9	295.5	292.4	
Gas Fd-Factor @ 70°F	9,691	9,685	9,690	9,689	
Heat Input, MMBtu/day	**192.4**	**154.5**	**195.3**	**180.7**	**252.6**
Exhaust Flow Rate, DSCFM *(EPA M19)*	2,001	1,597	2,018	1,872	
Oxygen, O_2 %	**7.4**	**7.3**	**7.3**	**7.3**	**6.4-8.3**
Carbon Dioxide, CO_2 %	11.9	12.0	12.1	12.0	
Carbon Dioxide, lbs/hr	1,630	1,310	1,663	1,534	
Water Vapor, H_2O %	13.3	12.3	12.6	12.8	
NOx, ppm	56.8	62.3	64.0	61.0	
NOx, ppm @ 15% O_2	24.8	27.0	27.7	26.5	
NOx, lbs/hr	0.81	0.71	0.92	0.81	
NOx, lbs/MMBtu	0.101	0.111	0.113	0.108	
NOx, g/Bhp-hr	**0.40**	**0.36**	**0.44**	**0.40**	**0.80**
CO, ppm	365.6	363.1	360.4	363.0	
CO, ppm @ 15% O_2	159.5	157.5	156.3	157.8	
CO, lbs/hr	3.18	2.52	3.16	2.95	
CO, lbs/MMBtu	0.397	0.392	0.389	0.393	
CO, g/Bhp-hr	**1.55**	**1.26**	**1.50**	**1.44**	**2.1**
THC, ppm (wet) *(EPA M25A)*	2029.1	1960.0	1924.4	1971.2	
THC, ppm (dry)	2,340.8	2,235.7	2,202.8	2,259.7	
THC, lbs/hr as CH_4	11.6	8.9	11.0	10.5	
CH_4, ppm (wet) *(EPA M25A)*	1,964	1,897	1,862	1,908	
CH_4, ppm (dry)	2,266	2,164	2,132	2,187	
CH_4, ppm @ 15% O_2	**989**	**939**	**924**	**951**	**3,000**
CH_4, lbs/hr	11.3	8.6	10.7	10.2	
TNMHC (POC), ppm as CH_4 (wet) *(EPA M25A)*	64.9	62.8	62.3	63.3	
TNMHC (POC), ppm as CH_4 (dry)	74.8	71.7	71.3	72.6	
TNMHC (POC), ppm as CH_4 @ 3%O_2	**99.1**	**94.3**	**93.7**	**95.7**	**120**
TNMHC, lbs/hr as CH_4	0.37	0.28	0.36	0.34	
TNMHC, g/Bhp-hr as CH_4	0.18	0.14	0.17	0.16	
INLET TNMHC (POC) ppm as CH_4 *(EPA M25C)*	1,370	1,050ǂ	1,347	1,359ǂ	**>98% or 120 ppm @ 3% O_2**
INLET TNMHC (POC) lbs/hr as CH_4	0.986	0.761ǂ	0.988	0.987ǂ	
TNMHC (POC) Removal Efficiency	**>62.3%**	**>62.7%ǂ**	**>63.9%**	**>63.1%ǂ**	
INLET % CH_4 *(ASTM D-1945 & EPA M25C)*	46.4	37.0ǂ	46.2	46.3ǂ	
INLET CH_4 lbs/hr	333.8	268.1ǂ	338.8	336.3ǂ	
CH_4 Removal Efficiency	**>96.6%**	**>96.8%ǂ**	**>96.8%**	**>96.7%ǂ**	
INLET THC (TOC) % as CH_4	46.5	37.1ǂ	46.3	46.4ǂ	
INLET THC (TOC) lbs/hr as CH_4	334.8	268.9ǂ	339.8	337.3ǂ	
THC (TOC) Removal Efficiency	>96.5%	>96.7%ǂ	>96.8%	>96.6%ǂ	

ǂRun 2 results were excluded from the average due to air intrusion of the fuel sample

WHERE,

ppm = Parts per Million Concentration
Lbs/hr = Pound per Hour Emission Rate
Tstd. = Standard Temp. (°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 (MW = 16)
THC = Total Hydrocarbons as Methane (MW = 16)
TNMHC = Total Non-Methane Hydrocarbons as Methane (MW = 16)
CH_4 = Methane (MW = 16)
POC = Precursor Organic Compounds as Methane (MW = 16)
CO_2 = Carbon Dioxide (MW = 44)

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
lbs/MMBtu = Fd * MW * ppm x 2.59E-9 * 20.9/(20.9 - %O_2)
Removal Efficiency = 100* (inlet lbs/hr - exhaust lbs/hr) / inlet lbs/hr
Engine BHp = Engine kW * 1.34
gm/BHp-hr = Lbs/hr * 453.6 / BHp
TNMHC Detection Limit +/- 2% of THC Value
PPM (dry) = PPM (wet) * 100 / (100 - H_2O%)

Republic Services of Sonoma County, Inc.

BAAQMD Plant # 22987

Compliance Emissions Test Report #21124

Caterpillar Landfill Gas Engine #7 (S-11)

Located at:
Central Landfill
500 Mecham Road
Petaluma, CA 94952

Prepared for:
Republic Services of Sonoma County, Inc.
500 Mecham Road
Petaluma, CA 94952
Attn: Derek Cheney
DCheney@republicservices.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Marco Hernandez & Gloria Espena
mhernandez@baaqmd.gov & gespena@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
April 26th, 2021

Final Report Submitted on:
June 7th, 2021

Performed and Reported by:
Blue Sky Environmental, Inc.
624 San Gabriel Avenue
Albany, CA 94706
bluesky@blueskyenvironmental.com
Office (510) 525 1261 / Mobile (510) 508 3469

Blue Sky Environmental, Inc.
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June 7th, 2021

Republic Services of Sonoma County, Inc
500 Mecham Road
Petaluma, CA 94952

Attn.: Derek Cheney

Subject: Source emissions test report for Republic Services of Sonoma County, Inc.'s Engine #7 (S-11), located at the Central Landfill in Petaluma, CA, to determine compliance with the Bay Area Air Quality Management District (BAAQMD) Title V Permit for Plant 22987.

Test Date(s): Testing was conducted on April 26th, 2021.

Sampling Location: Emission sampling was conducted at the 12-inch diameter exhaust stack of Engine #7 (S-11) through ports that were accessible both from the roof of the facility and from a probe extending from ground level. The ¾-inch sample ports on the stack met EPA Method 1 minimum criteria of two stack diameters downstream from the nearest disturbance and 0.5 stack diameters upstream from the nearest disturbance or exhaust.

Sampling Personnel: Sampling was performed by Jeramie Richardson of Blue Sky Environmental, Inc.

Observing and Facility Personnel: The Bay Area Air Quality Management District (BAAQMD) was notified of the scheduled testing in a plan submitted on April 19th, 2021 (NST #6446); however, no agency observers from the BAAQMD were present during testing.

Matt Beat of Republic Services of Sonoma County, Inc. was on site to coordinate engine operations.

Process Description: The Central Landfill operates ten Caterpillar Model G3516 lean burn IC engines that produce power from the waste landfill gas generated by the facility. Each of the 1,138 hp reciprocating engines operates with an 800 kW Genset. The control room uses a Yokogawa fuel-flow monitoring system to read the LFG flows to each engine. Engines #9 (S-13) and #10 (S-14) are currently out of service; but when operating, carry a 50-kW parasitic load that is added to the generator output kW when calculating total kW.

Each engine has a dedicated fuel meter and individual kW meter that is used to indicate load. Readings taken during testing were used with the gas analysis to calculate the exhaust flow rate and to calculate load.

Test Program: Three consecutive 35-minute gaseous emissions tests were performed for nitrogen oxides (NO_X), carbon monoxide (CO), carbon dioxide (CO_2), oxygen (O_2), methane (CH_4), and total nonmethane hydrocarbons (TNMHC) at the 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. Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. A NO_X analyzer converter efficiency check was performed before the first test run and found to be greater than 90%.

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of three LFG samples from the engine header for CH_4, CO_2, O_2, CO, N_2, and BTU, F-Factor analysis. The samples were collected in Silco canisters and analyzed by Atmospheric Analysis and Consulting, Inc., located in Ventura, CA.

Sampling & Analytical Methods: The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling methods 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 7E	NO_X Emissions & NO_2 Converter Efficiency
EPA Method 10	CO Emissions
EPA Method 4	Moisture
EPA Method 25A/ALT-078	CH_4 & NMHC Emissions
EPA Method 19	Calculation of Stack Gas Flow Rate
ASTM D-1945/3588	Fuel Analysis for BTU and F-Factors
EPA Method 25C	Analysis of landfill gas for TNMHC (NMOC)

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.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DRP3000 strip chart recorder supported by a Data Acquisition System (DAS).

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 or EPA 12. 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 Method 25A/ALT-078 – 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. All data is corrected according to the method.

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.

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.

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.

Instrumentation: The following continuous emissions analyzers were used:

Instrument	Analyte	Principle
Servomex Model 1400	O_2	Paramagnetic
Servomex Model 1400	CO_2	IR
TECO Model 42C	NO_X	Chemiluminescence
TECO Model 48C	CO	GFC/IR
TECO Model 55C	THC/CH_4/NMOC	FID

Test Results: The engine met all compliance emission criteria. The compliance summary is presented below. Detailed source test information is provided in Table 1.

Emission Parameter	Average Results Engine #7 (S-11)	Permit Limits	Compliance Status
NO_X, ppm @ 15% O_2	43.7	----	----
NO_X, g/Bhp-hr	0.67	0.80	In Compliance
CO, ppm @ 15% O_2	158.0	----	----
CO, g/Bhp-hr	1.48	2.1	In Compliance
CH_4, ppm @ 15% O_2	874	3,000	In Compliance
TNMHC, ppm as CH_4 @ 3% O_2	74.8	120 **or** >98%	In Compliance
TNMHC Removal Efficiency, %	>69.6%		

Note: POC (Precursor Organic Compounds) and TNMHC (Total Non-Methane Hydrocarbons) are used synonymously -Condition 19933 Part 8

The appendices are organized as follows:

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: Calculations performed on the continuous emissions monitoring (CEM) data and flow rate calculations.

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Stack Diagram
: Sketch or photograph of the stack.

Sample System Diagram
: Schematic of the sampling system configuration.

Permit / Authority to Construct
: Permit to Operate / Authority to Construct.

Source Test Plan
: Sampling protocols submitted to the BAAQMD prior to testing.

Comments: This source test was performed in accordance with the protocol submitted to the BAAQMD. No deviations from the protocol or anomalies were observed during the test.

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 is 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 there are any questions concerning this report, please contact Jeramie Richardson at (810) 923-3181, Chuck Arrivas at (925) 338-4875 or Guy Worthington at (510) 508-3469.

Prepared by,

Anne Richardson

Reviewed by,

Julie Wose-Jennings

TABLE #1

Sonoma Central Landfill
Engine #7 (S-11)

800 kW Caterpillar Landfill Gas Engine

RUN	1	2	3	AVERAGE	LIMITS
Test Date	04/26/21	04/26/21	04/26/21		
Test Time	1010-1045	1108-1143	1214-1249		
Standard Temperature, °F	70	70	70	70	
Stack Exhaust Temperature, °F	788	785	787	787	
Engine (Generator) kW	785	790	790	788	
Engine BHp	1,052	1,059	1,059	1,056	
Fuel Flow Rate, SCFM	314	313	311	313	
Gas Fd-Factor @ 70°F	9,656	9,655	9,655	9,655	
Heat Input, MMBtu/day	**212.2**	**211.9**	**210.8**	**211.6**	**252.6**
Exhaust Flow Rate, DSCFM *(EPA M19)*	2,119	2,110	2,078	2,102	
Oxygen, O_2 %	**6.9**	**6.8**	**6.7**	**6.8**	**6.4-8.3**
Carbon Dioxide, CO_2 %	12.4	12.5	12.5	12.5	
Carbon Dioxide, lbs/hr	1,795	1,794	1,780	1,790	
Water Vapor, H_2O %	12.7	13.0	13.5	13.1	
NOx, ppm	86.4	102.9	124.4	104.6	
NOx, ppm @ 15% O_2	36.3	43.1	51.6	43.7	
NOx, lbs/hr	1.31	1.55	1.85	1.57	
NOx, lbs/MMBtu	0.148	0.176	0.210	0.178	
NOx, g/Bhp-hr	**0.56**	**0.66**	**0.79**	**0.67**	**0.80**
CO, ppm	367.2	376.6	389.7	377.8	
CO, ppm @ 15% O_2	154.4	157.8	161.8	158.0	
CO, lbs/hr	3.38	3.45	3.52	3.45	
CO, lbs/MMBtu	0.383	0.391	0.401	0.392	
CO, g/Bhp-hr	**1.46**	**1.48**	**1.51**	**1.48**	**2.1**
THC, ppm (wet) *(EPA M25A)*	1879.8	1866.1	1861.7	1869.2	
THC, ppm (dry)	2,152.1	2,145.4	2,152.0	2,149.9	
THC, lbs/hr as CH_4	11.3	11.2	11.1	11.2	
CH_4, ppm (wet) *(EPA M25A)*	1,828	1,815	1,810	1,818	
CH_4, ppm (dry)	2,093	2,087	2,092	2,091	
CH_4, ppm @ 15% O_2	**880**	**875**	**868**	**874**	**3,000**
CH_4, lbs/hr	11.0	10.9	10.8	10.9	
TNMHC (POC), ppm as CH_4 (wet) *(EPA M25A)*	51.5	50.7	51.7	51.3	
TNMHC (POC), ppm as CH_4 (dry)	59.0	58.3	59.8	59.0	
TNMHC (POC), ppm as CH_4 @ 3%O_2	**75.2**	**74.2**	**75.3**	**74.9**	**120**
TNMHC, lbs/hr as CH_4	0.31	0.31	0.31	0.31	
TNMHC, g/Bhp-hr as CH_4	0.13	0.13	0.13	0.13	
INLET TNMHC (POC) ppm as CH_4 *(EPA M25C)*	1,369	1,183	1,258	1,314	**>98% or 120 ppm @ 3% O_2**
INLET TNMHC (POC) lbs/hr as CH_4	1.068	0.918	0.971	1.019	
TNMHC (POC) Removal Efficiency	**>70.9%**	**>66.7%**	**>68.2%**	**>69.6%**	
INLET % CH_4 *(ASTM D-1945 & EPA M25C)*	47.2	47.4	47.4	47.3	
INLET CH_4 lbs/hr	368.1	367.7	365.8	367.0	
CH_4 Removal Efficiency	**>97.0%**	**>97.0%**	**>97.0%**	**>97.0%**	
INLET THC (TOC) % as CH_4	47.3	47.5	47.5	47.4	
INLET THC (TOC) lbs/hr as CH_4	369.2	368.6	366.8	368.0	
THC (TOC) Removal Efficiency	>96.9%	>97.0%	>97.0%	>97.0%	

WHERE,

ppm = Parts per Million Concentration
Lbs/hr = Pound per Hour Emission Rate
Tstd. = Standard Temp. (°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 (MW = 16)
THC = Total Hydrocarbons as Methane (MW = 16)
TNMHC = Total Non-Methane Hydrocarbons as Methane (MW = 16)
CH_4 = Methane (MW = 16)
POC = Precursor Organic Compounds as Methane (MW = 16)
CO_2 = Carbon Dioxide (MW = 44)

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
lbs/MMBtu = Fd * MW * ppm x 2.59E-9 * 20.9/(20.9 - %O_2)
Removal Efficiency = 100* (inlet lbs/hr - exhaust lbs/hr) / inlet lbs/hr
Engine BHp = Engine kW * 1.34
gm/BHp-hr = Lbs/hr * 453.6 / BHp
TNMHC Detection Limit +/- 2% of THC Value
PPM (dry) = PPM (wet) * 100 / (100 - H_2O%)

Appendix F – Title V Semi-Annual Report

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

SITE: SONOMA COUNTY CENTRAL LANDFILL	**FACILITY ID#:** A2254
REPORTING PERIOD: *from* 02/01/2020	*through* 07/31/2021

CERTIFICATION:

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

Rob Sherman
Signature of Responsible Official

8-26-2021
Date

Rob Sherman
Name of Responsible Official (please print)

General Manager
Title of Responsible Official (please print)

Mail to:

Director of Compliance and Enforcement
BAAQMD
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Title V reports

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

SITE: SONOMA COUNTY CENTRAL LANDFILL	**FACILITY ID#:** A2254
REPORTING PERIOD: *from* 02/01/2020 *through* 07/31/2021	

List of Permitted Sources and Abatement Device in Title V Permit

Permit Unit Number	**Equipment Description**
S-#	**Description**
S-1	Landfill with Gas Collection System
S-15	Landfill Gas Compression Plant
S-22	Waste and Cover Material
S-23	Mobile Surface Equipment
A-3	Landfill Gas Flare (Control Device for S-1)
A-8	Waste Sprays (Control Device for S-1)
S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, S-14	Lean Burn Internal Combustion Engines and Generator Sets

Notes:

- Application Number (AN) 28194/Change of Permit Condition (COPC) issued 02/01/2017
  - Change in vertical wells and horizontal collectors. Increase number of components allowed for installation or decommissioning. These changes have not yet been incorporated into the Title V Permit.

- Application Number (AN) 28326/Change of Permit Condition (COPC) issued 07/24/2017
  - Added in operational requirements of the new A-4 Landfill Gas Flare as the replacement of the A-3 Landfill Gas Flare and incorporated changes from AN28194. These changes have not yet been incorporated into the Title V Permit.

- S-24 (Portable reciprocating engine, 195 hp, portable landfill truck tipper). This source is currently operating under a permit to operate (PTO) (Condition No. 26171) which has not yet been incorporated into the Title V Permit. All conditions have been reviewed for compliance, and the site is in compliance. However, note that PTO Condition 26171 Part 3 states that S-24 shall not operate more than 11 hours during any one day or 2,000 hours during any consecutive rolling 12-month period unless the owner/operator can demonstrate to the BAAQMD's satisfaction that the heat input to the engine has not exceeded 17.2 MMBTU during any one day and that the heat input to the engine has not exceeded 3,129 MMBTU during any consecutive rolling 12-month period. The S-24 tipper engine operated over its permitted operational hours during the semi-annual reporting period; however, the site has demonstrated below, using the default high heat

value (HHV) for propane of 0.091 MMBtu/gal and the daily and annual fuel usages, that the alternative heat input limits are well below the annual and daily heat input limits. Therefore, the facility believes compliance with the S-24 operational limits has been demonstrated based on this data.

Rolling 12-Month Propane Usage: 6,575.8 gallons
Number of Operating Days: 311 days
Average Daily Propane Usage: 21.1 gallons

6,575.8 gallons/yr × 0.091 MMBtu/gal = 598.4 MMBtu/yr (permit limit: 3,129 MMBtu/yr)

21.1 gallons/day × 0.091 MMBtu/gal = 1.92 MMBtu/day (permit limit: 17.2 MMBtu/day)

- Condition No 26507 – applies to all sources at the facility. This condition in the PTO has not yet been incorporated into the Title V permit. All conditions have been reviewed for compliance, and the site is in compliance.

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Collection System Installation Dates	BAAQMD 8-34-501.7 and 501.8 and BAAQMD Condition # 4044, Parts 19d, f, g, h	Records	Periodic / On event basis	BAAQMD 8-34-304.1	For Inactive/Closed Areas: collection system components must be installed and operating by 2 years + 60 days after initial waste placement	Continuous	N/A
Collection System Installation Dates	BAAQMD 8-34-501.7 and 501.8 and BAAQMD Condition # 4044, Parts 19d, f, g, h	Records	Periodic / On event basis	BAAQMD 8-34-304.2 and BAAQMD Condition # 4044, Part 4	For Active Areas: Collection system components must be installed and operating by 5 years + 60 days after initial waste placement	Continuous	N/A
Collection System Installation Dates	BAAQMD 8-34-501.7 and 501.8 and BAAQMD Condition # 4044, Parts 19e-h	Records	Periodic / On event basis	BAAQMD 8-34-304.3 and BAAQMD Condition # 4044, Part 4	For Any Uncontrolled Areas or Cells: collection system components must be installed and operating within 60 days after the uncontrolled area or cell accumulates 1,000,000 tons of decomposable waste	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Collection System Installation Dates	40 CFR 60.758(a), (d)(1) and (d)(2), and 60.759(a)(3) and BAAQMD Condition # 4044, Parts 19d, f, g	Records	Periodic / On event basis	40 CFR 60.753 (a)(2) and 60.755 (b)(2)	For Inactive/Closed Areas: collection system components must be installed and operating by 2 years + 60 days after initial waste placement	Continuous	N/A
Collection System Installation Dates	40 CFR 60.758(a), (d)(1) and (d)(2) and BAAQMD Condition # 4044, Parts 19d, f, g	Records	Periodic / On event basis	40 CFR 60.753 (a)(1) and 60.755 (b)(1)	For Active Areas: Collection system components must be installed and operating by 5 years + 60 days after initial waste placement	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Gas Flow	BAAQMD Condition #4044, Part 11 and Condition #19933, Part 4	Gas Flow Meter	Continuous	BAAQMD 8-34-301 and 301.1; BAAQMD Condition # 4044, Parts 4a, 5, 8, and 9; BAAQMD Condition #19933, Parts 1 & 2	Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	Intermittent	There were two landfill gas collection and control system (GCCS) downtime events that did not meet the exemption criteria specified in Rule 8-34-113. These events included a blower shutdown resulting from the variable frequency drive (VFD), which resulted in a shutdown of the GCCS that occurred on February 11, 2021 from 03:20 to 06:34, and a loss of power due to a utility outage, which resulted in a shutdown of the GCCS that occurred on June 5, 2021 from 06:44 to 06:54. These events were reported to the BAAQMD as reportable compliance activities (RCA) and breakdown relief was requested.

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Gas Flow	BAAQMD 8-34-501.10 and 508	Gas Flow Meter and Recorder (every 15 minutes)	Continuous	BAAQMD 8-34-301 and 301.1; BAAQMD Condition # 4044, Parts 4a, 5, 8, and 9; BAAQMD Condition #19933, Parts 1 & 2	Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	Continuous	N/A
Gas Flow	40 CFR 60.756(b)(2) (i or ii) and 60.758(c)(2)	Gas Flow Meter and Recorder (every 15 minutes) or Monthly Inspection of Bypass Valve and Lock and Records	Continuous. Periodic/ Monthly	40 CFR 60.753(a) and (e)	Operate a Collection System in each area or cell and vent all collected gases to a properly operating control system	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Collection and Control Systems Shutdown Time	BAAQMD 8-34-501.1 and BAAQMD Condition # 4044, Part 19i	Operating Records	Periodic / Daily	BAAQMD 8-34-113.2	240 hours per year and 5 consecutive days	Continuous	N/A
Collection System Startup Shutdown or Malfunction	40 CFR 60.7(b), 60.757(f)(2) and (f)(4)	Operating Records (all occurrences and duration of each)	Periodic / Daily	40 CFR 60.755(e)	5 days per event for collection system or 1 hour for control system	Continuous	N/A
Periods of Inoperation for Parametric Monitors	BAAQMD 1-523.4	Operating Records for All Parametric Monitors	Periodic / Daily	BAAQMD 1-523.2	$\leq$ 15 consecutive days per incident and $\leq$ 30 calendar days per 12-month period	Continuous	N/A
Continuous Monitors	40 CFR 60.7(b)	Operating Records for All Continuous Monitors	Periodic / Daily	40 CFR 60.13(e)	Requires Continuous Operation except for breakdowns, repairs, calibration, and required span adjustments	Continuous	N/A
Wellhead Pressure	BAAQMD 8-34-414, 501.9 and 505.1	Monthly Inspection and Records	Periodic / Monthly	BAAQMD 8-34-305.1	< 0 psig	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Wellhead Pressure	40 CFR 60.755(a)(3), 60.756(a)(1), and 60.758(c) and (e)	Monthly Inspection and Records	Periodic / Monthly	40 CFR 60.753(b)	< 0 psig	Continuous	N/A
Temperature of Gas at Wellhead	BAAQMD 8-34-414, 501.9 and 505.2	Monthly Inspection and Records	Periodic / Monthly	BAAQMD 8-34-305.2	< 55 ºC (< 131 ºF),	Continuous	N/A
Temperature of Gas at Wellheads	40 CFR 60.755(a)(5), 60.756(a)(3), and 60.758(c) and (e)	Monthly Inspection and Records	Periodic / Monthly	40 CFR 60.753(c)	< 55 ºC	Continuous	N/A
Gas Concentration at Wellhead	BAAQMD 8-34-414, 501.9 and 505.3 or 505.4	Monthly Inspection and Records	Periodic / Monthly	BAAQMD 8-34-305.3 or 305.4	N_2 < 20% **OR** O_2 < 5%	Continuous	N/A
Gas Concentration at Wellhead	40 CFR 60.755(a)(5), 60.756(a)(2), and 60.758(c) and (e)	Monthly Inspection and Records	Periodic / Monthly	40 CFR 60.753(c)	N2 < 20% **OR** O_2 < 5%	Continuous	N/A
Well Shutdown Limits	BAAQMD 8-34-116.5 and 501.1	Records	Periodic / Daily	BAAQMD 8-34-116.2	No more than 5 wells at a time or 10% of total collection system, whichever is less	Continuous	N/A
Well Shutdown Limits	BAAQMD 8-34-116.5 and 501.1	Records	Periodic / Daily	BAAQMD 8-34-116.3	< 24 hours per well	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Well Shutdown Limits	BAAQMD 8-34-117.6 and 501.1	Records	Periodic / Daily	BAAQMD 8-34-117.4	No more than 5 wells at a time or 10% of total collection system, whichever is less	Continuous	N/A
Well Shutdown Limits	BAAQMD 8-34-117.6 and 501.1	Records	Periodic / Daily	BAAQMD 8-34-117.5	24 hours per well	Continuous	N/A
TOC (Total Organic Com-pounds Plus Methane)	BAAQMD 8-34-501.6 and 503	Quarterly Inspection of collection and control system components with OVA and Records	Periodic / Quarterly	BAAQMD 8-34-301.2	Component Leak Limit: < 1000 ppmv as methane	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
TOC	BAAQMD 8-34-415, 416, 501.6, 506 and 510	Monthly Visual Inspection of Cover, Quarterly Inspection with OVA of Surface, Various Reinspec-tion Times for Leaking Areas, and Records	Periodic / Monthly, Quarterly, and on an Event Basis	BAAQMD 8-34-303	Surface Leak Limit: < 500 ppmv as methane at 2 inches above surface	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
TOC	40 CFR 60.755(c)(1), (4) and (5), 60.756(f), and 60.758(c) and (e)	Monthly Visual Inspection of Cover, Quarterly Inspection with OVA of Surface, Various Reinspection Times for Leaking Areas, and Records	Periodic / Monthly, Quarterly, and on an Event Basis	40 CFR 60.753(d)	<500 ppmv as methane at 5-10 cm from surface	Continuous	N/A
Non-Methane Organic Com-pounds (NMOC)	BAAQMD 8-34-412 and 8-34-501.4 and BAAQMD Condition # 4044, Parts 17 and 19m	Initial and Annual Source Tests	Periodic / Annual	BAAQMD 8-34-301.3	> 98% removal by weight OR < 30 ppmv, dry basis @ 3% O2, expressed as methane	Continuous	N/A
NMOC	40 CFR 60.8 and 60.752(b)(2)(iii)(B) and 60.758(b)(2)(ii)	Initial Source Test and Records	Periodic	40 CFR 60.752(b)(2)(iii)(B)	98% removal by weight OR < 20 ppmv dry @ 3% O2, expressed as hexane	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
NOx	BAAQMD Condition # 4044, Part 17	Annual Source Test	Periodic / Annual	BAAQMD Condition # 4044, Part 11	0.05 lb/MMBTU (as NO2)	Continuous	N/A
CO	BAAQMD Condition # 4044, Part 17	Annual Source Test	Periodic / Annual	BAAQMD Condition # 4044, Part 12	0.20 lb/MMBTU	Continuous	N/A
Temperature of Combustion Zone (CT)	BAAQMD 8-34-501.3 and 507 and BAAQMD Condition # 4044, Parts 16 and 19l	Temperature Sensor and Recorder (continuous)	Continuous	BAAQMD Condition # 4044, Part 10	CT > 1400°F	Continuous	N/A
Temperature of Combustion Zone (CT)	40 CFR 60.756(b)(1) and 60.758 (b)(2)(i)	Temperature Sensor and Recorder (measured every 15 minutes and averaged over performance test time period and 3-hours)	Continuous	40 CFR 60.758 (c)(1)(i)	CT (3-hour average) > (CT_{PF} – 28 °C), where CT_{PF} is the average combustion temperature during the most recent complying performance test	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Total Carbon	BAAQMD Condition # 4044, Part 21a-c	Records	Periodic / Daily	BAAQMD 8-2-301	15 pounds/day or 300 ppm, dry basis (applies only to aeration of or use as cover soil of soil containing < 50 ppmw of volatile organic compounds)	Continuous	N/A
Amount of Contaminated Soil Aerated or Used as Cover	BAAQMD Condition # 4044, Part 20l	Records	Periodic / On Event Basis	BAAQMD 8-40-116.1	1 cubic yard per project	Continuous	N/A
Amount of Contaminated Soil Aerated or Used as Cover	BAAQMD 8-40-116.2 and BAAQMD Condition # 4044, Part 20l	Records	Periodic / On Event Basis	BAAQMD 8-40-116.2	8 cubic yards per project, provided organic content < 500 ppmw and limited to 1 exempt project per 3 month period	Continuous	N/A
Amount of Contaminated Soil Aerated or Used as Cover	BAAQMD Condition # 4044, Part 20l	Records	Periodic / On Event Basis	BAAQMD 8-40-301	Prohibited for Soil with Organic Content >50 ppmw unless exempt per BAAQMD 8-40-116, 117, or 118	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Amount of Accidental Spillage	None	N/A	None	BAAQMD 8-40-117	Soil Contaminated by Accidental Spillage of < 5 Gallons of Liquid Organic Compounds	Continuous	N/A
Total Aeration Project Emissions	BAAQMD Condition # 4044, Part 20l	Records	Periodic / On Event Basis	BAAQMD 8-40-118	< 150 pounds VOC per project and toxic air contaminant emissions per year < BAAQMD Table 2-1-316 limits	Continuous	N/A
Contaminated Soil Handling	BAAQMD Condition # 4044, Part 20l	Records	Periodic / On Event Basis	BAAQMD Condtion # 4044, Part 20d	Limited to 2 on-site transfers per lot of contaminated soil	Continuous	N/A
Contaminated Soil On-Site Storage Time	BAAQMD Condition # 4044, Part 20l	Records	Periodic / On Event Basis	BAAQMD Condtion # 4044, Part 20e-f	If organic content is: < 500 ppmw, storage time < 90 days > 500 ppmw, storage time < 45 days	Continuous	N/A
Opacity	BAAQMD Condition # 4044, Part 19n-o	Records of Dust Suppressant and Water Application	Periodic / On event basis	BAAQMD 6-1-301	Ringelmann No. 1 for ≤ 3 minutes/hr	Continuous	N/A
Opacity	None	N/A	None	BAAQMD 6-1-301	Ringelmann No. 1 for < 3 minutes/hr	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

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Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
FP	None	N/A	None	BAAQMD 6-310	0.15 grains/dscf (applies to FlareA-3)	Continuous	N/A
Opacity	BAAQMD Condition # 4044, Part 19n-o	Records of Dust Suppressant and Water Application	Periodic / On event basis	BAAQMD Condition # 4044, Part 2	Ringelmann No. 0.5	Continuous	N/A
Amount of Waste Accepted	BAAQMD Condition # 4044, Part 19a-c	Records	Periodic / Daily	BAAQMD Condition # 4044, Part 1	< 2500 tons/day (except for temporary situations approved by the LEA) and < 897,500 tons/year	Continuous	N/A
Total Amount of Waste and Cover Materials	BAAQMD Condition # 4044, Part 19c	Records	Periodic / Monthly	BAAQMD Condition # 4044, Part 1	< 32.65 E6 yd^3 and < 19.59 E6 tons	Continuous	N/A
SO_2	None	N/A	None	BAAQMD 9-1-301	Property Line Ground Level Limits: < 0.5 ppm for 3 minutes and < 0.25 ppm for 60 min. and <0.05 ppm for 24 hours	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-1 LANDFILL WITH GAS COLLECTION SYSTEM; S-15 LANDFILL GAS COMPRESSION PLANT; S-22 WASTE AND COVER MATERIAL; S-23 MOBILE SURFACE EQUIPMENT; A-3 LANDFILL GAS FLARE	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
SO_2	BAAQMD Condition # 4044, Parts 18 and 19m	Sulfur analysis of landfill gas and Records	Periodic / Annual	BAAQMD Regulation 9-1-302	< 300 ppm (dry basis)	Continuous	N/A
H_2S	None	N/A	None	BAAQMD 9-2-301	Property Line Ground Level Limits: < 0.06 ppm, averaged over 3 minutes and < 0.03 ppm, averaged over 60 minutes	Continuous	N/A
Total Sulfur Content in Landfill Gas	BAAQMD Condition # 4044, Parts 18 and 19m	Sulfur analysis of landfill gas	Periodic / Annual	BAAQMD Condition # 4044, Part 7	< 1300 ppmv	Continuous	N/A
Toxic Air Contaminants in Collected Landfill Gas	BAAQMD Condition # 4044, Part 18	Annual Source Test	Periodic / Annual	BAAQMD Condition # 4044, Part 6	Benzene < 2.5 ppmv Trichloroethylene < 3.0 ppmv Perchloroethylene < 3.0 ppmv Methylene Chloride<20.0ppmv Vinyl Chloride < 2.5 ppmv	Continuous	N/A
Periods of Inoperation for Parametric Monitors	BAAQMD 1-523.4	Operating Records for All Parametric Monitors	Periodic / Daily	BAAQMD 1-523.2	15 consecutive days/incident and 30 calendar days/12 month period	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

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Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Continuous Monitors	40 CFR 60.7(b)	Operating Records for All Continuous Monitors	Periodic / Daily	40 CFR 60.13(e)	Requires Continuous Operation except for breakdowns, repairs, calibration, and required span adjustments	Continuous	N/A
Heat Input	BAAQMD Condition #4044, Part 13	Monthly and Annual Records	Periodic / Monthly / Annual	BAAQMD Condition #4044, Part 13	< 547,680 MM BTU per year	Continuous	N/A

SONOMA COUNTY CENTRAL LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, S-14 LEAN BURN INTERNAL COMBUSTION ENGINES AND GENERATOR SETS	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
TSP	None	N/A	None	BAAQMD 6-301	Ringelmann No. 1	Continuous	N/A
TSP	None	N/A	None	BAAQMD 6-310	0.15 grains/dscf	Continuous	N/A
TOC (Total Organic Com-pounds Plus Methane)	BAAQMD 8-34-501.6 and 8-34-503	Quarterly Inspection and Records	Periodic / Quarterly	BAAQMD 8-34-301.2	1000 ppmv as methane (component leak limit)	Continuous	N/A
Non-Methane Organic Com-pounds (NMOC)	BAAQMD 8-34-412 and 8-34-501.4 and BAAQMD Condition #19933, Part 8	Initial and Annual Source Tests and Records	Periodic / Annual	BAAQMD 8-34-301.4	98% removal by weight OR < 120 ppmv dry @ 3% O2, expressed as methane	Continuous	N/A
NMOC	BAAQMD Condition #24894, Part 8	Annual Source Test	Periodic / Annual	BAAQMD Condition # 19933, Part 6	< 120 ppmv dry @ 3% O2, expressed as methane (S-13, S-14: when fired by biogas fuel)	Continuous	N/A
POC	BAAQMD Condition #19933, Part 8	Annual Source Test	Periodic / Annual	BAAQMD Condition # 19933, Part 7	98% removal by weight OR < 120 ppmv dry @ 3% O2, expressed as methane	Continuous	N/A
SO_2	None	N/A	None	BAAQMD 9-1-301	Property Line Ground Level Limits: < 0.5 ppm for 3 minutes, < 0.25 ppm for 60 minutes & < 0.05 ppm for 24 hours	Continuous	N/A

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Site: Sonoma County Central Landfill	**Facility ID#:** A2254
Permitted Unit: S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, S-14 LEAN BURN INTERNAL COMBUSTION ENGINES AND GENERATOR SETS	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
SO_2	BAAQMD Condition # 4044, Parts 15 and 17m	Sulfur Analysis of landfill gas	Periodic / Annual	BAAQMD 9-1-302	300 ppm (dry)	Continuous	N/A
H_2S	None	N/A	None	BAAQMD 9-2-301	Property Line ground level limits < 0.06 ppm Averaged over 3 minutes and < 0.03 ppm Averaged over 60 minutes	Continuous	N/A
Total Sulfur Content in Landfill Gas	BAAQMD Condition # 4044, Parts 15 and 17m	Sulfur Analysis of landfill gas	Periodic / Annual	BAAQMD Condition # 4044, Part 7	< 1300 ppmv	Continuous	N/A
NO_x	None	N/A	None	BAAQMD 9-8-301.2	Fossil Fuel Gas, Lean-Burn 140 ppmv dry @ 15% O2	Continuous	N/A
NO_x	BAAQMD Condition #19933, Part 8	Annual Source Test	Periodic / Annual	BAAQMD 9-8-302.1	Waste Fuel Gas, Lean-Burn 140 ppmv dry @ 15% O2	Continuous	N/A
NO_x	BAAQMD Condition #19933, Part 8	Annual Source Test	Periodic / Annual	BAAQMD Condition # 19933, Part 5	0.80 grams per brake horsepower hour (g/bhp-hr)	Continuous	N/A
NO_x	BAAQMD Condition #24894, Part 8	Annual Source Test	Periodic / Annual	BAAQMD Condition # 24894, Part 4	0.80 grams per brake horsepower hour (g/bhp-hr) (S-13, S-14: when fired by biogas fuel)	Continuous	N/A
CO	None	N/A	None	BAAQMD 9-8-301.3	Fossil Fuel Gas: 2000 ppmv dry @ 15% O_2	Continuous	N/A
CO	BAAQMD Condition #19933, Part 8	Annual Source Test	Periodic / Annual	BAAQMD 9-8-302.3	Waste Fuel Gas: 2000 ppmv dry @ 15% O_2	Continuous	N/A

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Permitted Unit: S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, S-14 LEAN BURN INTERNAL COMBUSTION ENGINES AND GENERATOR SETS	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
CO	BAAQMD Condition #19933, Part 8	Annual Source Test	Periodic / Annual	BAAQMD Condition #19933, Part 6	2.1 g/bhp-hr	Continuous	N/A
CO	BAAQMD Condition #24894, Part 8	Annual Source Test	Periodic / Annual	BAAQMD Condition # 24894, Part 5	2.1 grams per brake horsepower hour (g/bhp-hr) (S-13, S-14: when fired by biogas fuel)	Continuous	N/A
Heat Input	BAAQMD Condition #19933, Part 9a-e	Records	Periodic / Daily	BAAQMD Condition # 19933, Part 10	Limits for each engine: < 252.6 MM BTU/day And < 92,199 MM BTU/year	Continuous	N/A
Emission Control System Shutdown Time	BAAQMD 8-34-501.2 and BAAQMD Condition #19933, Part 9a	Records	Periodic / Daily	BAAQMD 8-34-113.2	240 hours/year	Continuous	N/A
Engine Exhaust Oxygen Content	BAAQMD Condition #19933, Part 11 and BAAQMD 8-34-509	Monthly Exhaust Oxygen Monitoring and Records	Periodic / Monthly	BAAQMD 8-34-301.4	98% removal by weight OR < 120 ppmv dry @ 3% O2, expressed as methane (as demonstrated by proper exhaust oxygen content range)	Continuous	N/A
Natural Gas Usage	BAAQMD Condition #19933, Part 9a-c	Records	Periodic / Daily	BAAQMD Condition # 19933, Part 3	Prohibited when flare is operating and unless it is needed as supplemental fuel	Continuous	N/A
Gas Flow	BAAQMD Condition #19933, Part 4	Gas Flow Meter (per engine)	Continuous	BAAQMD 8-34-301 and 301.1;	Vent all collected gases to a properly operating control system and operate control	Continuous	N/A

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Permitted Unit: S-4, S-5, S-6, S-7, S-9, S-10, S-11, S-12, S-13, S-14 LEAN BURN INTERNAL COMBUSTION ENGINES AND GENERATOR SETS	**Reporting Period:** *from* 02/01/2021 *through* 07/31/2021

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
				BAAQMD Condition # 19933, Parts 1 & 2	system continuously.		
Gas Flow	BAAQMD 8-34-501.10 and 508	Gas Flow Meter and Recorder (every 15 minutes);	Continuous	BAAQMD 8-34-301 and 301.1; BAAQMD Condition # 19933, Parts 1 & 2	Vent all collected gases to a properly operating control system and operate control system continuously.	Continuous	N/A
Periods of Inoperation for Parametric Monitors	BAAQMD 1-523.4	Records of occurrence and duration	Periodic / Daily	BAAQMD 1-523.2	15 consecutive days/incident and 30 calendar days/12 month period	Continuous	N/A