REPUBLIC SERVICES

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

Direction of Compliance and Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Title V Reports

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

Subject: Combined 8-34 Semi-Annual Report, 40 CFR Subpart AAA Semi-Annual Report, and Title V Semi-Annual Monitoring Report
Vasco Road Landfill, Livermore, California (Title V Facility No. A5095)

Dear Sir or Madam:

Vasco Road, LLC 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, and Title V Semi-Annual Monitoring Report to the BAAQMD and the U.S. Environmental Protection Agency (EPA) Region IX for the Vasco Road Landfill (Vasco Road).

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 Code of Regulation [CFR] Part 60, Subpart WWW and 40 CFR Part 62, Subpart OOO which became effective on July 21, 2021), including 40 CFR 60.757(f)/40 CFR 62.16724(h). 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 Vasco Road.

If you have any questions regarding this submittal, please do not hesitate to reach Antonia Gunner at (619) 201-3764 or agunner@republicservices.com or Cassandra Drotman at (562) 426-9544 or cdrotman@scsengineers.com.

Sincerely,

Matthew D Ketchem

Matt Ketchem
General Manager
Vasco Road Landfill

cc: Antonia Gunner, Vasco Road
Cassandra Drotman, SCS Engineers
Meng Yuan, SCS Engineers

NSPS/BAAQMD Rule 8-34 Semi-Annual Report, SSM Plan Semi-Annual Report, and Title V Semi-Annual Report
Vasco Road Landfill
Livermore, California (Title V Facility No. 5095)

Prepared for:

Republic Services Vasco Road, LLC
4001 N. Vasco Road
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For Submittal to:

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SCS ENGINEERS

01204082.06 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 Vasco Road Landfill in Livermore, 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 Vasco Road, LLC, SCS Engineers (SCS) hereby submits this New Source Performance Standard (NSPS), 40 Code of Federal Regulations (CFR) Part 60, Subpart WWW), and Bay Area Air Quality Management District (BAAQMD or District) Rule 8-34 Semi-Annual Report and Semi-Annual Start-up, Shutdown, and Malfunction (SSM) Plan Report for Vasco Road Landfill (Vasco Road or Landfill) for the period of February 1, 2021 through July 31, 2021 to the BAAQMD.

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.

This Semi-Annual report also meets the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for MSW landfills, 40 CFR 63, Subpart AAAA, and complies with the requirements specified in Vasco Road's Title V permit. In addition, Vasco Road is not yet subject the new NESHAP, which goes into effect September 27, 2021, but will comply with the current version of the NESHAP until that time. 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.

The Semi-Annual Report pertains to the landfill gas (LFG) collection and control system (GCCS) operated at Vasco Road.

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 of 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

Vasco Road is located in Livermore, California and is owned and operated by Republic Services Vasco Road, LLC. The municipal solid waste (MSW) landfill is located on Vasco Road about three miles north of Interstate 580 in an unincorporated portion of eastern Alameda County north of the City of Livermore. The landfill lies within the Northern Diablo Range along the Altamont Anticline. The Landfill was permitted in 1962 and began accepting waste circa 1963. The 323-acre site is currently in operation, accepting nonhazardous solid waste and inert waste.

2.1 EXISTING AIR PERMITS

Vasco Road maintains a BAAQMD permit to operate (PTO) (Plant No. 5095), which includes conditions for the wellfield, collection system, and flare station (Condition No. 818). This condition incorporates all applicable requirements from NSPS Subpart WWW and BAAQMD Rule 8-34, which are addressed in this report. Vasco Road also maintains a Title V Permit (Facility No. A5059), which was most recently renewed in February 4, 2019. The current permit is a Title V revision permit issued on November 6, 2019, expiring in February 3, 2024.

As discussed above, the permit does not incorporate the new EG requirements and specific parts of NSPS Subpart OOO which became effective June 21, 2021. As the new rules are in effective, they are being implemented by the Landfill, and we are working to get the new rule elements added to the permit and having the old landfill NSPS Subpart WWW removed.

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 United States (U.S.) Environmental Protection Agency (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 Vasco Road 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 from collection system components.

A landfill gas to energy (LFGTE) facility, which is permitted by the BAAQMD separately from Vasco Road as facility No. 20432, has been the primary control system for Vasco Road's collected LFG since it began commercial operation in approximately 2012. The LFGTE facility is owned and operated by Ameresco Vasco Road, LLC (Ameresco). The flare station, which is operated and maintained by Republic Services Vasco Road, LLC, consists of one enclosed flare (A-4) which act as supplementary emission control and/or backup control devices in the event that the LFGTE facility goes offline.

In the event the LFGTE facility goes offline and the LFG flare goes off-line concurrently, an automatic valve is actuated that prevents LFG flow to the control systems. As a result, LFG flow from the collection system ceases entirely, such that there is no free-venting of uncombusted LFG to the atmosphere.

A diagram of the GCCS displaying system component locations is shown in the site plan(s) 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 GCCS, including 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 several occasions for a total of 36.43 hours. All 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 two events occurred on February 2, 2021 and May 16, 2021, and were due to site-wide power outages due to unforeseen utility outage events.

Reportable Compliance Activity (RCA) forms were submitted to the BAAQMD on February 3, 2021 and May 16, 2021, respectively, to request breakdown relief and to report the parametric excursion. BAAQMD issued RCA IDs 07Y14 and 07Y15 for the breakdown and excursion, respectively, for the February 2, 2021 event. BAAQMD issued RCA IDs 07Z56 and 07Z57 for the breakdown and excursion, respectively, for the May 16, 2021 event. On February 22, 2021 and May 24, 2021, Vasco Road submitted the Combined 10/30-Day Title V Reports and Notifications for RCA IDs 07Y14/07Y15 and 07Z56/07Z57 to the BAAQMD.

The typical operating scenario involves the LFGTE facility acting as the primary control device and the A-4 flare acting as backup or supplemental control. In addition, if the LFGTE facility goes offline unexpectedly in the middle of the night, LFGTE facility staff must drive to the site and perform inspection and maintenance of their system prior to the LFGTE facility and/or LFG flare re-starting, as re-starting these control systems without someone first inspecting or conducting maintenance on these systems could cause damage to the systems. Republic staff are alerted each time the LFGTE facility goes offline, and during each shutdown, Republic staff are in close communications with LFGTE facility staff regarding their inspections and maintenance of the LFGTE facility system and their estimates on when the GCCS can be brought back online. There were no occasions during the reporting period in which the LFGTE facility shut down in the middle of the night when no LFGTE facility staff were onsite.

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.

3.1.2 Emission Control System Downtime

A-4 Flare

During the reporting period, the flare was off-line on several occasions. A summary of A-4 flare downtime is provided in Table 1b, including the date, reason for the downtime, and the total elapsed time for each event. Note that the LFGTE facility acts as the primary control device and the majority of collected LFG is sent to this facility. As a result, the flare has been offline on a regular basis. In the event the LFGTE facility shuts down, or additional control is required, the flare acts as a backup control device. In the event the LFGTE facility and the flare go offline concurrently, the collection system will automatically shut down resulting in the entire GCCS going offline. During the reporting period, the flare was offline over a cumulative period of approximately 3,334.83 hours. Emission control system downtime records are available for review at the site.

As previously noted, whenever the LFGTE facility and the flare are offline concurrently, LFG flow to the control systems is automatically stopped. Therefore, during this reporting period, there were no instances during which LFG flow passed through the control devices uncontrolled (i.e., free venting), and the collected LFG stream was never diverted from the control devices.

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 (both engines were offline concurrently). 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, several wells were temporarily taken offline or were taken offline during a previous reporting period and remained offline for a portion of the reporting period due to active filling occurring in their vicinity.

No wells were taken off-line during the reporting period. Fourteen (14) wells were abandoned during the reporting period due to poor gas production.

Pursuant to permit condition No. 818, Part 2b, the owner/operator must notify the District of expected installation or decommissioning dates prior to commencing any component alterations. On April 21, 2021 (revised on April 26, 2021 and June 4, 2021), a Well Decommissioning and Startup Notification Letter was submitted to the BAAQMD for the decommissioning of fourteen (14) wells and the startup of twenty (20) wells.

Details of individual well shutdown and well startups occurring during the reporting period are provided in **Table 2**. Please see the Semi-Annual Startup, Shutdown, and Malfunction (SSM) Report included as Section II of this report for additional details.

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 the flare and the flare combustion temperature. As required by Rule 8-34, the Vasco Road flare is equipped with a flow measuring device and a temperature gauge that provide continuous readout displays using digital chart recorders. During the reporting period, the flow meter and temperature gauge/recorder 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

Vasco Road is required by permit condition No. 818, Part 5 to operate the flare (A-4) in such a manner that the combustion zone temperature within the flare does not drop below the permitted limit of 1,402 degrees Fahrenheit (°F) (averaged over a 3-hour period) or a higher or lower temperature based on the most recent source test. From February 1, 2021 through June 8, 2021, the minimum temperature above which the flare was required to operate was 1,568°F (source test results minus 82°F), based on the source test results in the test report dated May 28, 2020. From June 9, 2021 through July 31, 2021, the minimum temperature above which the flare was required to operate was 1,449°F (source test results minus 50°F), based on the source test results in the test report dated June 9, 2021.

During the reporting period, the flare operated above the permitted limit of 1,402°F at all times, except during periods of SSM. The flare operating records also indicated that the flare combustion zone temperature did not drop below 1,568°F or 1,449°F on a three-hour average basis while in operation.

Flare temperature records are available for review at the site. Excerpts from the June 9, 2021 source test report, summarizing the test results for the flare are provided in **Appendix D** of this report.

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 (ppm_v), 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 and calibration records are provided in **Appendix E** and are available for review at the site.

3.2.1 First Quarter 2021 Monitoring

SCS Field Services (SCSFS) conducted the component leak testing of the wellfield and flare station on March 8, 2021. No component leaks above 1,000 ppm_v were detected in the wellfield or at the flare station during the first quarter 2021 monitoring event.

3.2.2 Second Quarter 2021 Monitoring

Tetra Tech conducted the component leak testing of the wellfield and flare station on April 1, 2021. No component leaks above 1,000 ppm_v were detected in the wellfield or at the flare station during the second quarter 2021 monitoring events.

3.3 CONTROL EFFICIENCY

LFG flare A-4 was also tested on April 28, 2021 and retested on May 7, 2021 to demonstrate compliance with the control efficiency standard of 98 percent NMOC destruction efficiency or outlet concentration of 30 ppm_v of NMOC as methane (for flares) as required by BAAQMD Rules 8-34-301.3, 8-34-412, 8-34-501.4, and Condition # 818, Part 20. On May 5, 2021, Vasco Road notified the BAAQMD of the potential failed source test and provided a retest date and on June 16, 2021, a Title V 10-Day Deviation Report and 30-Day Follow-up Report was submitted to the BAAQMD. On July 13, 2021, Notice of Violation (NOV) number A55868 was issued by BAAQMD inspector Mr. Troy Hash for violation of Title V Permit Condition Number 818 Part 10. The requirement to provide specified information in response to the NOV had already been satisfied by the time the NOV was issued, however, a 10-day NOV response letter was submitted to the BAAQMD out of an abundance of caution. The NMOC destruction efficiency for the May 2021 source retest was measured to be <98 percent by weight, however, the NMOC as methane concentration in the flare outlet was 11.7 ppm_v, which is less than the limit of 30 ppm_v. As such, flare A-4 is in compliance with the aforementioned rules and permit condition by meeting the exhaust ppm_v limit.

Excerpts from the May 2021 source retest report dated June 9, 2021, summarizing the test results, are provided in **Appendix D** of this report.

3.4 LANDFILL SURFACE EMISSIONS MONITORING

Surface emissions monitoring (SEM) was conducted at Vasco Road 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 E.** Records of SEM are available for review at the site.

3.4.1 First Quarter 2021 Monitoring

SCSFS technicians monitored the landfill surface for leaks with a methane concentration of greater than 500 ppm_v above background on March 8, 9, 11, and 18, 2021 and April 6, 2021. Surface emissions in excess of 500 ppm_v were detected at one (1) location during the first quarter 2021 monitoring event. The location with the exceedance and associated methane concentration is provided in the first quarter 2021 SEM report (**Appendix E**).

SCSFS technicians performed appropriate corrective actions, including flow increases to the surrounding extraction wells, cover repairs, and installation of borehole emission control system. SCSFS completed the 10-day re-monitoring event for this location on March 18, 2021. The methane concentration for this location was under the 500 ppm_v threshold and thus back in compliance. SCSFS performed the 1-month re-monitoring event, as required by NSPS, on April 6, 2021, and the location remained in compliance.

3.4.1 Second Quarter 2021 Monitoring

SCSFS monitored the landfill surface for leaks with a methane concentration of greater than 500 ppm_v above background on April 1, 2, 5, and 15, 2021 and May 5, 2021. Surface emissions in excess of 500 ppm_v were detected at two (2) locations during the second quarter 2021 monitoring event. The locations with the exceedances and associated methane concentrations are provided in the second quarter 2021 SEM report (**Appendix E**).

SCSFS field technicians performed appropriate corrective actions, including flow increases to the surrounding extraction wells and borehole repairs. SCSFS completed the 10-day re-monitoring event for these locations on April 15, 2021. All the locations were under the 500 ppm_v threshold and thus back in compliance. SCSFS performed the 1-month re-monitoring event, as required by NSPS, on May 5, 2021, and all locations remained in compliance.

3.5 WELLHEAD MONTHLY MONITORING

Monthly wellhead monitoring for pressure, temperature, and oxygen content was conducted by SCSFS from February 2021 through July 2021 to comply with BAAQMD Rule 8-34-305 and 9-34-414. The results of this monitoring are summarized below. Wellhead exceedances are provided in **Table 3, 4, and 5.**

Please note that during the reporting period, all wells were monitored.

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 that 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.

No wells demonstrated a positive pressure reading at the end of the reporting period.

3.5.2 Oxygen

Vasco Road has elected to use oxygen as its compliance standard under Rule 8-34-305, rather than nitrogen. Per Vasco Road's PTO Condition No. 818, Part 3b(ii), the oxygen concentration limit does not apply to the wells listed below, provided that the oxygen concentration in the LFG at the main header does not exceed five percent oxygen by volume (dry basis) and the methane concentration in the LFG at the main header is greater than 35 percent by volume (dry basis). The oxygen Higher

Operating Value (HOV) is approved for wells: EW-9 (VRLFEW09), EW-27 (VRLFEW27), EW-31A (VRLFEW31A), EW- 33A (VRLEW33A), and EW- 41R (VRLFEW41).

Pursuant to Title V Permit Condition 818, Part 3c(i-iv) the four vertical leachate recirculation wells (VRLRW001, VRLRW002, VRLRW003, and VRLRW004), and two vertical LFG extraction wells (VR12GT4R and VR12GT05) operate on a non-continuous basis and are subject to an alternative oxygen wellhead standard. Oxygen concentrations in these wells may not exceed 15 percent by volume. The wells may be disconnected from the vacuum system if the oxygen concentration is above 15 percent or the temperature is greater than 131°F.

The majority of the wells were operating within the regulatory limit of five (5) percent oxygen 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 or 15 percent limit except for wells VR12LR01, VREW0901, and VREW1001. These wells will be returned to below the 5 percent limit as specified in BAAQMD Rule 8-34-414, and compliance will be documented in the next semi-annual report. Note under the EG rule and Subpart OOO, which took effect June 21, 2021, oxygen above 5 percent is no longer an exceedance, but under BAAQMD Rule 8-34-414 it still is, and the Landfill will continue to follow these requirements.

As of the end of the previous reporting period, wells VR12GT03, VR12GT05, VREW0907, VREW1001, VREW1003, VRLEW130, VRLEW138, and VRLEW93A were operating with an oxygen concentration above the 5 percent limit. These wells returned to compliance during this reporting period, except for wells VREW1003, VRLEW130, and VRLEW138, which were abandoned during the reporting period.

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 No. 818, Part 3b(i) in Vasco Road's BAAQMD PTO allows Vasco Road to operate wells EW- 9 (VRLFEW09), EW- 33A (VRLEW33A), and EW-44 (VRLFEW44) at an alternative temperature of 140°F.

The majority of wells were operating within their respective limits of 131°F or 140°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 these wells are provided in **Table 5.**

As of the end of the reporting period, all the active wells were operating with temperature limits below their respective limits except for wells VREW2103, VREW2106, VREW2108, and VREW2109. These wells will be returned to below the 131°F or 140°F limit 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, wells VREW126A, VREW2001, and VRLEW133 were operating with a temperature higher than 131 °F. These wells returned to compliance during this reporting period.

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 in conjunction with the wellhead monitoring on February 9, March 21, April 28, May 24, June 27, and July 19, 2021 using procedures specified in the GCCS Design Plan. The observations during these monitoring events indicated the landfill surface was in good condition. In the event visual evidence suggested otherwise, the surface will be promptly repaired. Records of cover integrity monitoring are available for review upon request.

3.7 GAS GENERATION ESTIMATE AND MONTHLY LANDFILL GAS FLOW RATES

The Vasco Road GCCS has been operating under BAAQMD Regulation 8-34-404 (Less Than Continuous Operation) as of November 19, 2014.

Pursuant to Application Number (A/N) 26049 Condition 818 Part 1 (b), the owner/operator may operate the A-4 Flare on a less than continuous basis. If the three-month rolling average of LFG methane content exceeds 50 percent, the owner/operator shall attempt to restart the A-4 Flare within one week of discovery of this excess. If the restart is successful, the A-4 Flare shall operate continuously until the remaining amount of LFG available for flaring is less than 800 standard cubic feet per minute (scfm) or the equivalent heat input rate for this excess LFG is less than 24 million British thermal units per hour (MMBTU/hour). The rolling average methane content is currently being calculated using the average of the inlet readings collected onsite.

3.8 ANNUAL WASTE ACCEPTANCE RATE AND REFUSE IN PLACE

Vasco Road is an active landfill that continues to accept refuse for disposal. From February 1, 2021 through July 31, 2021, the site accepted 312,524.51 tons of decomposable waste and cover material, resulting in a cumulative waste-in-place total of 18,244,386.03 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.

SECTION II. SSM PLAN REPORT

As mentioned previously, Vasco Road is subject to 40 CFR Part 63, Subpart AAAA, the NESHAPS for MSW Landfills. Vasco Road maintains a SSM Plan which documents 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 in this section.

During the reporting period, there were twelve (12) SSM events involving shutdown of the entire GCCS. One of these events was a planned startup/shutdown during construction activities and eleven (11) of these startup/shutdown events were associated with a malfunction of the GCCS.

During the reporting period, there were thirty-four (34) SSM events involving the wellfield as fourteen (14) wells was permanently decommissioned due to poor gas quality and twenty (20) wells were started up. There were no wells offline from the previous reporting period. There were no malfunctions of any of the wellfield components during the reporting period.

During the reporting period, there were no planned startups/shutdowns or malfunctions of LFG monitoring equipment (e.g. flow measuring/recording device, temperature measuring/recording device).

In each case described above, the SSM Plan was successfully implemented. Specific information regarding these SSMs are included in **Tables 1a (GCCS Downtime), 1b (A-4 Flare Downtime), and 2 (Individual Well Startup, Shutdown, and Decommissions)**.

No revisions were made to the SSM Plan during this reporting period. 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 Table 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
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

GCCS Shutdown	Restarted	Downtime Hours	Reason for Downtime	Corrective Actions Taken
2/2/21 7:21	**2/2/21 8:40**	**1.32**	**Site-wide power outage**	**The Flare was restarted**
There was no GCCS Downtime in March 2021.				
4/14/21 6:07	**4/14/21 6:54**	**0.78**	**Ameresco Plant shutdown**	**The Flare was restarted**
4/22/21 10:04	**4/22/21 10:21**	**0.28**	**Ameresco Engine 2 shutdown**	**Ameresco Engine 2 was restarted**
4/22/21 22:50	**4/23/21 2:18**	**3.47**	**Ameresco Engine 2 shutdown**	**Ameresco Engine 2 was restarted**
5/5/21 18:39	**5/5/21 19:40**	**1.02**	**Ameresco Plant shutdown**	**The Ameresco Engines were restarted**
5/12/21 7:24	5/12/21 19:30	12.10	Plant shutdown for Construction Activity	The Ameresco Engines were restarted
5/14/21 8:37	**5/14/21 9:15**	**0.63**	**Ameresco Engine 2 was offline**	**The Flare was restarted**
5/16/21 14:55	**5/16/21 17:42**	**2.78**	**Site-wide power outage**	**The Flare was restarted**
5/31/21 22:28	**6/1/21 7:52**	**9.40**	**Ameresco Engine 1 shutdown due to motor issue**	**The Flare was restarted**
6/28/21 7:53	**6/28/21 8:03**	**0.17**	**Ameresco Engine 1 shutdown due to motor issue**	**The Ameresco Engines were restarted**
7/3/21 7:11	**7/3/21 8:32**	**1.35**	**Ameresco Plant shutdown due to high oxygen**	**The Flare was restarted**
7/12/21 13:50	**7/12/21 16:58**	**3.13**	**Flare high vacuum shutdown**	**The Flare was restarted**
	Total:	**36.43**		

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 downtime events that occurred on February 2, 2021 and May 16, 2021, which were caused by site-wide power outages due to unforseen events.

Table 1b. Flare (A-4) Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Shutdown[1]	Startup[1]	Downtime Hours	Reason for Downtime
1/30/21 23:08	2/1/21 7:50	32.70	Automatic shutdown due to flame failure.
2/1/21 19:58	2/2/21 8:42	12.73	Automatic shutdown due to flame failure.
2/2/2021 10:54	2/2/2021 11:50	0.93	Automatic shutdown due to flame failure.
2/2/2021 23:20	2/3/2021 11:54	12.57	Automatic shutdown due to flame failure.
2/3/2021 21:32	2/4/2021 7:26	9.90	Automatic shutdown due to flame failure.
2/4/2021 22:54	2/5/2021 8:08	9.23	Automatic shutdown due to flame failure.
2/5/2021 22:34	2/8/2021 11:56	61.37	Automatic shutdown due to flame failure.
2/8/2021 21:08	2/9/2021 8:18	11.17	Automatic shutdown due to flame failure.
2/9/2021 19:14	2/10/2021 13:52	18.63	Automatic shutdown due to flame failure.
2/10/2021 20:46	2/15/2021 9:36	108.83	Automatic shutdown due to flame failure.
2/15/2021 13:38	2/15/2021 13:58	0.33	Automatic shutdown due to flame failure.
2/15/2021 23:04	2/16/2021 8:14	9.17	Automatic shutdown due to flame failure.
2/16/2021 11:34	2/16/2021 12:08	0.57	Manual shutdown for maintenance.
2/17/2021 12:24	2/17/2021 12:34	0.17	Automatic shutdown due to flame failure.
2/19/2021 1:50	2/19/2021 13:54	12.07	Automatic shutdown due to flame failure.
2/20/2021 4:48	2/23/2021 8:44	75.93	Automatic shutdown due to flame failure.
2/24/2021 5:42	2/25/2021 13:12	31.50	Automatic shutdown due to flame failure.
2/25/2021 20:34	3/2/2021 8:06	107.53	Automatic shutdown due to flame failure.
3/3/21 8:52	3/5/21 7:42	46.83	Automatic shutdown due to flame failure.
3/5/21 7:48	3/5/21 7:52	0.07	Automatic shutdown due to flame failure.
3/6/21 1:34	3/7/21 21:16	43.70	Automatic shutdown due to flame failure.
3/8/21 8:04	3/8/21 8:16	0.20	Automatic shutdown due to flame failure.
3/8/21 8:18	3/8/21 8:40	0.37	Automatic shutdown due to flame failure.
3/8/21 8:42	3/8/21 9:00	0.30	Automatic shutdown due to flame failure.
3/8/21 9:02	3/8/21 9:06	0.07	Automatic shutdown due to flame failure.
3/8/21 9:08	3/12/21 7:48	94.67	Automatic shutdown due to flame failure.
3/12/21 7:50	3/12/21 7:54	0.07	Automatic shutdown due to flame failure.
3/12/21 18:58	3/16/21 8:18	85.33	Automatic shutdown due to flame failure.
3/16/21 8:20	3/16/21 8:28	0.13	Automatic shutdown due to flame failure.
3/16/21 20:02	3/17/21 9:42	13.67	Automatic shutdown due to flame failure.
3/17/21 19:08	3/18/21 8:10	13.03	Automatic shutdown due to flame failure.
3/18/21 8:12	3/18/21 8:32	0.33	Automatic shutdown due to flame failure.
3/18/21 8:34	3/18/21 8:38	0.07	Automatic shutdown due to flame failure.
3/18/21 8:46	3/18/21 8:56	0.17	Automatic shutdown due to flame failure.
3/18/21 13:56	3/21/21 8:42	66.77	Automatic shutdown due to flame failure.
3/21/21 19:04	3/22/21 8:44	13.67	Automatic shutdown due to flame failure.

Table 1b. Flare (A-4) Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Shutdown[1]	Startup[1]	Downtime Hours	Reason for Downtime
3/22/21 12:08	3/22/21 12:10	0.03	Automatic shutdown due to flame failure.
3/22/21 20:10	3/23/21 8:22	12.20	Automatic shutdown due to flame failure.
3/23/21 21:48	3/30/21 7:04	153.27	Automatic shutdown due to flame failure.
3/30/21 20:22	4/1/21 7:32	35.17	Automatic shutdown due to flame failure.
4/1/21 22:10	4/2/21 7:54	9.73	Automatic shutdown due to flame failure.
4/2/21 14:42	4/5/21 7:52	65.17	Automatic shutdown due to flame failure.
4/5/21 19:58	4/6/21 8:10	12.20	Automatic shutdown due to flame failure.
4/6/21 13:06	4/6/21 14:58	1.87	Automatic shutdown due to flame failure.
4/6/21 17:26	4/7/21 11:42	18.27	Automatic shutdown due to flame failure.
4/8/21 4:00	4/12/21 7:30	99.50	Automatic shutdown due to flame failure.
4/12/21 16:18	4/13/21 7:00	14.70	Automatic shutdown due to flame failure.
4/13/21 11:54	4/14/21 6:54	19.00	Automatic shutdown due to flame failure.
4/14/21 7:18	4/14/21 7:24	0.10	Automatic shutdown due to flame failure.
4/14/21 7:36	4/14/21 7:46	0.17	Automatic shutdown due to flame failure.
4/14/21 7:58	4/15/21 9:50	25.87	Automatic shutdown due to flame failure.
4/15/21 10:00	4/19/21 10:04	96.07	Automatic shutdown due to flame failure.
4/19/21 16:20	4/20/21 7:30	15.17	Automatic shutdown due to flame failure.
4/20/21 9:10	4/20/21 9:34	0.40	Automatic shutdown due to flame failure.
4/21/21 1:24	4/22/21 7:52	30.47	Automatic shutdown due to flame failure.
4/22/21 8:04	4/22/21 8:16	0.20	Automatic shutdown due to flame failure.
4/22/21 8:26	4/28/21 7:46	143.33	Automatic shutdown due to flame failure.
4/28/21 19:02	5/6/21 14:02	187.00	Automatic shutdown due to flame failure.
5/6/21 19:50	5/7/21 7:32	11.70	Automatic shutdown due to flame failure.
5/7/21 15:28	5/7/21 15:32	0.07	Automatic shutdown due to flame failure.
5/7/21 15:40	5/10/21 6:38	62.97	Automatic shutdown due to flame failure.
5/10/21 20:24	5/12/21 7:06	34.70	Automatic shutdown due to flame failure.
5/12/21 7:22	5/12/21 17:58	10.60	Automatic shutdown due to flame failure.
5/13/21 4:42	5/14/21 9:14	28.53	Automatic shutdown due to flame failure.
5/14/21 11:26	5/16/21 17:42	54.27	Automatic shutdown due to flame failure.
5/17/21 17:38	5/18/21 11:00	17.37	Automatic shutdown due to flame failure.
5/21/21 5:32	5/21/21 6:42	1.17	Automatic shutdown due to flame failure.
5/21/21 19:28	5/24/21 7:26	59.97	Automatic shutdown due to flame failure.
5/24/21 7:22	5/24/21 7:26	0.07	Automatic shutdown due to flame failure.
5/25/21 6:18	5/25/21 13:10	6.87	Automatic shutdown due to flame failure.
5/25/21 17:58	5/26/21 8:10	14.20	Automatic shutdown due to flame failure.
5/27/21 6:34	5/27/21 12:56	6.37	Automatic shutdown due to flame failure.

Table 1b. Flare (A-4) Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Shutdown[1]	Startup[1]	Downtime Hours	Reason for Downtime
5/28/21 6:58	6/1/21 7:52	96.90	Automatic shutdown due to flame failure.
6/1/21 11:52	6/3/21 7:50	43.97	Automatic shutdown due to flame failure.
6/3/21 8:04	6/3/21 8:14	0.17	Automatic shutdown due to flame failure.
6/3/21 8:18	6/3/21 8:44	0.43	Automatic shutdown due to flame failure.
6/5/21 10:18	6/7/21 9:14	46.93	Automatic shutdown due to flame failure.
6/7/21 21:00	6/8/21 6:02	9.03	Automatic shutdown due to flame failure.
6/8/21 6:06	6/8/21 6:10	0.07	Automatic shutdown due to flame failure.
6/8/21 9:40	6/9/21 8:08	22.47	Automatic shutdown due to flame failure.
6/9/21 8:12	6/9/21 8:14	0.03	Automatic shutdown due to flame failure.
6/9/21 8:18	6/9/21 8:22	0.07	Automatic shutdown due to flame failure.
6/9/21 8:26	6/9/21 8:42	0.27	Automatic shutdown due to flame failure.
6/9/21 8:46	6/9/21 10:34	1.80	Automatic shutdown due to flame failure.
6/9/21 12:48	6/9/21 13:04	0.27	Automatic shutdown due to flame failure.
6/11/21 9:00	6/15/21 13:16	100.27	Automatic shutdown due to flame failure.
6/16/21 16:24	6/17/21 8:28	16.07	Automatic shutdown due to flame failure.
6/17/21 10:32	6/18/21 7:46	21.23	Automatic shutdown due to flame failure.
6/18/21 21:36	6/21/21 7:40	58.07	Automatic shutdown due to flame failure.
6/21/21 22:34	6/22/21 7:04	8.50	Automatic shutdown due to flame failure.
6/22/21 22:22	6/23/21 6:40	8.30	Automatic shutdown due to flame failure.
6/23/21 19:46	6/24/21 10:22	14.60	Automatic shutdown due to flame failure.
6/24/21 12:46	6/24/21 14:02	1.27	Automatic shutdown due to flame failure.
6/24/21 16:52	6/27/21 9:06	64.23	Automatic shutdown due to flame failure.
6/28/21 11:04	6/28/21 11:46	0.70	Automatic shutdown due to flame failure.
6/28/21 12:18	7/1/21 7:52	67.57	Automatic shutdown due to flame failure.
7/1/21 8:52	7/1/21 9:48	0.93	Automatic shutdown due to flame failure.
7/1/21 12:52	7/2/21 7:10	18.30	Automatic shutdown due to flame failure.
7/2/21 8:42	7/2/21 10:48	2.10	Automatic shutdown due to flame failure.
7/2/21 11:06	7/2/21 11:10	0.07	Automatic shutdown due to flame failure.
7/2/21 11:14	7/2/21 11:18	0.07	Automatic shutdown due to flame failure.
7/2/21 12:56	7/2/21 13:18	0.37	Automatic shutdown due to flame failure.
7/2/21 18:36	7/3/21 8:32	13.93	Automatic shutdown due to flame failure.
7/3/21 8:56	7/3/21 9:00	0.07	Automatic shutdown due to flame failure.
7/3/21 9:08	7/7/21 8:48	95.67	Automatic shutdown due to flame failure.
7/7/21 21:28	7/12/21 16:58	115.50	Automatic shutdown due to flame failure.
7/12/21 17:36	7/12/21 17:44	0.13	Automatic shutdown due to flame failure.
7/12/21 22:14	7/13/21 9:42	11.47	Automatic shutdown due to flame failure.

Table 1b. Flare (A-4) Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Shutdown[1]	Startup[1]	Downtime Hours	Reason for Downtime
7/13/21 9:46	**7/13/21 9:58**	**0.20**	**Automatic shutdown due to flame failure.**
7/13/21 10:06	**7/13/21 10:08**	**0.03**	**Automatic shutdown due to flame failure.**
7/14/21 6:44	**7/16/21 7:42**	**48.97**	**Automatic shutdown due to flame failure.**
7/16/21 12:56	**7/19/21 9:02**	**68.10**	**Automatic shutdown due to flame failure.**
7/19/21 17:52	**7/21/21 7:36**	**37.73**	**Automatic shutdown due to flame failure.**
7/21/21 19:42	**7/22/21 7:28**	**11.77**	**Automatic shutdown due to flame failure.**
7/22/21 17:00	**7/23/21 9:56**	**16.93**	**Automatic shutdown due to flame failure.**
7/23/21 18:04	**7/26/21 9:38**	**63.57**	**Automatic shutdown due to flame failure.**
7/26/21 21:54	**7/28/21 9:42**	**35.80**	**Automatic shutdown due to flame failure.**
7/28/21 18:58	**7/30/21 6:26**	**35.47**	**Automatic shutdown due to flame failure.**
7/30/21 17:00	**8/1/21 0:00**	**31.00**	**Automatic shutdown due to flame failure.**
Total		**3334.83**	

Notes:
Events in bold type denotes Malfunction Events
[1]The A-4 flare was offline at the beginning and end of the reporting period. For reporting purposes, the shutdown and startup is calculated as having started on February 1, 2021 at 0:00 and ended on August 1, 2021 at 0:00.

*Per the Startup, Shutdown, and Malfunction (SSM) forms, a flare flame failure shutdown is due to limited gas available while acting as a back-up device to the engine plant. In these instances, the flare cannot maintain the proper temperature to comply with the temperature limit, so a shutdown is activated to avoid non-compliance.

A-4 flare operated during all instances when the flow rate to the power generating facility was less than 1,200 scfm, in accordance with PTO Condition 818 Part 1(a). In addition, the A-4 flare only operated intermittently when the conditions in Part 1(b) were met.

All events where the entire GCCS was offline 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 2, 2021 and May 24, 2021, which were caused by site-wide power outages due to unforeseen events.

Table 2. Individual Well Startups, Shutdowns and Decommissions
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Shutdown	Start-up	Days Offline	Reason for Shutdown/Startup
VREW2101	NA	5/17/21 14:35	NA	New well installation
VREW2102	NA	5/17/21 14:46	NA	New well installation
VREW2103	NA	5/17/21 14:51	NA	New well installation
VREW2104	NA	5/17/21 14:25	NA	New well installation
VREW2105	NA	5/17/21 14:20	NA	New well installation
VREW2106	NA	5/17/21 14:40	NA	New well installation
VREW2107	NA	5/17/21 14:30	NA	New well installation
VREW2108	NA	5/17/21 15:44	NA	New well installation
VREW2109	NA	5/17/21 15:38	NA	New well installation
VREW2110	NA	5/17/21 14:15	NA	New well installation
VREW2111	NA	5/17/21 14:58	NA	New well installation
VREW2112	NA	5/17/21 15:03	NA	New well installation
VREW2113	NA	5/17/21 15:07	NA	New well installation
VREW2114	NA	5/17/21 15:15	NA	New well installation
VREW2115	NA	5/17/21 15:19	NA	New well installation
VREW2116	NA	5/17/21 15:24	NA	New well installation
VREW2117	NA	5/17/21 15:28	NA	New well installation
VREW2118	NA	5/18/21 15:33	NA	New well installation
VREW2119	NA	5/17/21 14:02	NA	New well installation
VREW2120	NA	5/17/21 13:54	NA	New well installation
VRLEW114	5/3/21 15:15	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW128	5/15/21 9:00	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW129	5/15/21 11:10	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW130	5/12/21 11:30	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW133	5/15/21 9:30	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW138	4/22/21 10:05	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW74A	5/3/21 15:15	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW90A	5/12/21 16:30	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW150	4/28/21 11:00	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VREW1003	5/4/21 8:00	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VREW1009	5/4/21 11:20	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW135	4/28/21 15:00	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW149	4/28/21 9:00	NA	NA	Well Permanently Decommissioned Due to Poor Gas Quality
VRLEW155	4/28/21 13:00	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
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
VREW120A	1/4/2021 13:04	1.25	0.26	Adjusted Valve
VREW120A	1/4/2021 13:07	-0.11	-0.1	In Compliance
VREW126A	1/21/2021 10:53	-1.09	0.17	Adjusted Valve
VREW126A	1/21/2021 10:54	-1.16	-1.14	In Compliance
VREW2101	5/17/2021 14:35	0.29	0.16	Adjusted Valve
VREW2101	5/17/2021 14:36	0.16	0.15	Second Reading
VREW2101	5/17/2021 16:20	0.02	0.03	Adjusted Valve
VREW2101	5/18/2021 12:25	-0.16	-0.25	In Compliance
VREW2102	5/17/2021 14:46	0.51	0.27	Adjusted Valve
VREW2102	5/17/2021 14:47	0.26	0.25	Second Reading
VREW2102	5/17/2021 16:26	0.23	0.13	Adjusted Valve
VREW2102	5/17/2021 16:27	0.08	0.08	Adjusted Valve
VREW2102	5/18/2021 12:22	-0.36	-0.36	In Compliance
VREW2103	5/17/2021 14:51	0.36	0.17	Adjusted Valve
VREW2103	5/17/2021 14:55	0.09	0.1	Second Reading
VREW2103	5/17/2021 16:31	0.12	0.02	Adjusted Valve
VREW2103	5/17/2021 16:32	0.05	0.07	Adjusted Valve
VREW2103	5/18/2021 12:29	-0.42	-0.4	In Compliance
VREW2104	5/17/2021 14:25	0.87	0.46	Adjusted Valve
VREW2104	5/17/2021 14:27	0.38	0.45	Second Reading
VREW2104	5/17/2021 16:11	0.53	0.24	Adjusted Valve
VREW2104	5/17/2021 16:13	0.2	0.2	Adjusted Valve
VREW2104	5/18/2021 12:13	-0.4	-0.41	In Compliance
VREW2105	5/17/2021 14:20	0.36	0.23	Adjusted Valve
VREW2105	5/17/2021 14:20	0.36	0.23	Second Reading
VREW2105	5/17/2021 14:21	0.2	0.19	Adjusted Valve
VREW2105	5/17/2021 16:06	0.17	0.1	Adjusted Valve
VREW2105	5/17/2021 16:07	0.07	0.07	Adjusted Valve
VREW2105	5/18/2021 11:33	-0.16	-0.26	In Compliance
VREW2106	5/17/2021 14:40	0.22	0.11	Adjusted Valve
VREW2106	5/17/2021 14:42	0.14	0.12	Second Reading
VREW2106	5/17/2021 16:23	0.07	0.07	Adjusted Valve
VREW2106	5/18/2021 11:59	-0.15	-0.26	In Compliance
VREW2107	5/17/2021 14:30	0.68	0.36	Adjusted Valve
VREW2107	5/17/2021 14:32	0.33	0.35	Second Reading
VREW2107	5/17/2021 16:17	0.31	0.14	Adjusted Valve
VREW2107	5/17/2021 16:18	0.14	0.14	Adjusted Valve
VREW2107	5/18/2021 12:06	-0.27	-0.26	In Compliance
VREW2108	5/17/2021 15:44	0.39	0.22	Adjusted Valve
VREW2108	5/17/2021 15:46	0.21	0.22	Second Reading
VREW2108	5/17/2021 17:10	0.13	0.13	Adjusted Valve

Table 3. Wells with Positive Pressure
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
VREW2108	5/18/2021 11:51	0.1	-0.1	Adjusted Valve
VREW2108	5/18/2021 11:51	0.1	-0.1	Second Reading
VREW2108	5/18/2021 11:53	-0.13	-0.12	In Compliance
VREW2109	5/17/2021 15:38	0.5	0.25	Adjusted Valve
VREW2109	5/17/2021 15:40	0.32	0.31	Second Reading
VREW2109	5/17/2021 17:04	0.23	0.21	Adjusted Valve
VREW2109	5/17/2021 17:05	0.24	0.24	Adjusted Valve
VREW2109	5/18/2021 11:43	0.14	-0.1	Adjusted Valve
VREW2109	5/18/2021 11:45	-0.13	-0.14	In Compliance
VREW2110	5/17/2021 14:15	2.01	1.1	Adjusted Valve
VREW2110	5/17/2021 14:16	0.92	0.91	Second Reading
VREW2110	5/17/2021 16:02	0.11	0.11	Adjusted Valve
VREW2110	5/18/2021 11:25	-0.63	-0.76	In Compliance
VREW2111	5/17/2021 14:58	0.16	0.08	Adjusted Valve
VREW2111	5/17/2021 14:59	0.07	0.07	Second Reading
VREW2111	5/17/2021 16:37	-0.11	-0.02	In Compliance
VREW2111	5/17/2021 16:37	0.02	0.02	Adjusted Valve
VREW2111	5/18/2021 12:34	-0.12	-0.21	In Compliance
VREW2112	5/17/2021 15:03	0.64	0.02	Adjusted Valve
VREW2112	5/17/2021 15:04	-0.09	-0.09	In Compliance
VREW2113	5/17/2021 15:07	0.07	0.02	Adjusted Valve
VREW2113	5/17/2021 15:08	-0.08	-0.08	In Compliance
VREW2114	5/17/2021 15:15	0.51	0.19	Adjusted Valve
VREW2114	5/17/2021 15:16	0.18	0.19	Second Reading
VREW2114	5/17/2021 16:47	0.15	0.11	Adjusted Valve
VREW2114	5/17/2021 16:48	0.05	0.06	Adjusted Valve
VREW2114	5/18/2021 12:47	-0.16	-0.38	In Compliance
VREW2115	5/17/2021 15:19	0.09	0.04	Adjusted Valve
VREW2115	5/17/2021 15:20	0.03	0.03	Second Reading
VREW2115	5/17/2021 16:50	0.03	0.03	Adjusted Valve
VREW2115	5/18/2021 12:53	-0.18	-0.26	In Compliance
VREW2116	5/17/2021 15:24	0.32	0.16	Adjusted Valve
VREW2116	5/17/2021 15:25	0.18	0.16	Second Reading
VREW2116	5/17/2021 16:54	-0.06	-0.05	In Compliance
VREW2116	5/17/2021 16:55	0.06	0.05	Adjusted Valve
VREW2116	5/18/2021 12:57	-0.11	-0.14	In Compliance
VREW2118	5/17/2021 15:33	0.09	-0.01	Adjusted Valve
VREW2118	5/17/2021 15:34	-0.05	-0.04	In Compliance

Table 3. Wells with Positive Pressure
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Static Pressure ("H_2O)	Adjusted Static Pressure ("H_2O)	Comments
VREW2118	5/17/2021 17:00	0.02	0.01	Adjusted Valve
VREW2118	5/18/2021 13:03	-0.89	-0.88	In Compliance
VREW2119	5/17/2021 14:02	0.2	0.11	Adjusted Valve
VREW2119	5/17/2021 14:04	0.05	0.03	Second Reading
VREW2119	5/17/2021 15:58	0.01	0.02	Adjusted Valve
VREW2119	5/18/2021 11:20	-0.12	-0.19	In Compliance
VRLEW107	1/19/2021 11:04	0.17	0.24	Adjusted Valve
VRLEW107	1/19/2021 11:16	-0.32	-0.3	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
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
VR12GT03	2/9/2021 9:39	9.2	Adjusted Valve
VR12GT03	2/9/2021 9:43	9.8	Second Reading
VR12GT03	2/18/2021 10:23	4.0	In Compliance
VR12GT03	3/12/2021 9:55	8.2	Adjusted Valve
VR12GT03	3/12/2021 9:56	8.7	Second Reading
VR12GT03	3/18/2021 14:39	0.0	In Compliance
VR12GT03	4/22/2021 11:58	5.9	Adjusted Valve
VR12GT03	4/22/2021 11:59	6.6	Second Reading
VR12GT03	5/4/2021 13:56	0.0	In Compliance
VR12GT03	5/19/2021 11:36	15.6	Adjusted Valve
VR12GT03	5/19/2021 11:37	15.1	Second Reading
VR12GT03	6/7/2021 12:10	14.5	Adjusted Valve
VR12GT03	6/7/2021 12:11	14.7	Second Reading
VR12GT03	6/24/2021 15:53	7.3	Adjusted Valve
VR12GT03	6/24/2021 15:54	8.1	Second Reading
VR12GT03	7/7/2021 13:39	3.8	In Compliance
VR12GT05*	5/19/2021 10:30	17.5	Adjusted Valve
VR12GT05*	5/19/2021 10:32	17.6	Second Reading
VR12GT05*	6/3/2021 14:11	11.8	In Compliance
VR12GT05*	6/24/2021 16:46	15.1	Adjusted Valve
VR12GT05*	7/13/2021 13:50	9.9	In Compliance
VR12LR01	2/9/2021 11:42	12.7	Adjusted Valve
VR12LR01	2/9/2021 11:43	15.3	Second Reading
VR12LR01	2/18/2021 12:15	16.6	Adjusted Valve
VR12LR01	2/18/2021 12:17	16.8	Second Reading
VR12LR01	2/23/2021 10:08	0.0	In Compliance
VR12LR01	4/12/2021 14:04	6.8	Adjusted Valve
VR12LR01	4/12/2021 14:04	6.8	Second Reading
VR12LR01	4/12/2021 14:05	4.2	In Compliance
VR12LR01	5/19/2021 10:34	6.9	Adjusted Valve
VR12LR01	5/19/2021 10:35	6.7	Second Reading
VR12LR01	5/24/2021 11:31	7.5	Adjusted Valve
VR12LR01	5/24/2021 11:33	11.3	Second Reading
VR12LR01	6/3/2021 14:07	6.6	Adjusted Valve
VR12LR01	6/3/2021 14:09	6.7	Second Reading
VR12LR01	6/24/2021 16:48	9.1	Adjusted Valve
VR12LR01	6/24/2021 16:50	4.8	In Compliance
VR12LR01	7/13/2021 13:54	11.4	Adjusted Valve
VR12LR01	7/13/2021 13:55	6.7	Second Reading
VR12LR01	7/19/2021 13:31	18.4	Adjusted Valve

Table 4. Wells with Oxygen Exceedances
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
VR12LR03	3/12/2021 9:52	12.9	Adjusted Valve
VR12LR03	3/12/2021 9:53	13.0	Second Reading
VR12LR03	3/23/2021 10:34	0.1	In Compliance
VREW0901	6/24/2021 14:50	11.4	Adjusted Valve
VREW0901	6/24/2021 14:52	8.6	Second Reading
VREW0901	7/7/2021 10:58	8.0	Adjusted Valve
VREW0901	7/7/2021 10:59	7.3	Second Reading
VREW0901	7/19/2021 11:28	7.4	Adjusted Valve
VREW0901	7/19/2021 11:29	19.3	Second Reading
VREW1001	2/9/2021 12:16	5.9	Adjusted Valve
VREW1001	2/9/2021 12:17	5.7	Second Reading
VREW1001	2/18/2021 10:57	18.5	Adjusted Valve
VREW1001	2/18/2021 10:58	2.3	In Compliance
VREW1001	3/12/2021 12:22	11.3	Adjusted Valve
VREW1001	3/12/2021 12:22	12.4	Second Reading
VREW1001	3/23/2021 9:35	12.0	Adjusted Valve
VREW1001	3/23/2021 9:36	12.7	Second Reading
VREW1001	4/12/2021 12:45	8.1	Adjusted Valve
VREW1001	4/12/2021 12:47	9.5	Second Reading
VREW1001	4/22/2021 13:54	4.5	In Compliance
VREW1001	7/26/2021 12:06	8.8	Adjusted Valve
VREW1001	7/26/2021 12:07	9.5	Second Reading
VREW1003	2/9/2021 12:01	20.7	Adjusted Valve
VREW1003	2/9/2021 12:02	20.8	Second Reading
VREW1003	2/18/2021 10:37	20.6	Adjusted Valve
VREW1003	2/18/2021 10:37	21.5	Second Reading
VREW1003	3/5/2021 11:59	18.2	Adjusted Valve
VREW1003	3/5/2021 12:00	21.1	Second Reading
VREW1003	3/18/2021 12:06	19.5	Adjusted Valve
VREW1003	3/18/2021 12:07	20.4	Second Reading
VREW1003	4/12/2021 12:05	20.0	Adjusted Valve
VREW1003	4/12/2021 12:06	20.2	Second Reading
VREW1003	4/22/2021 13:25	20.7	Adjusted Valve
VREW1003	4/22/2021 13:25	20.9	Well Permanently Decommissioned on 5/4/21 due to Poor Gas Production
VREW1009	2/18/2021 8:37	9.9	Adjusted Valve
VREW1009	2/18/2021 8:38	10.4	Second Reading
VREW1009	3/2/2021 10:34	8.2	Adjusted Valve
VREW1009	3/2/2021 10:35	8.1	Second Reading
VREW1009	3/18/2021 10:06	8.8	Adjusted Valve
VREW1009	3/18/2021 10:07	9.8	Second Reading
VREW1009	4/12/2021 9:51	8.4	Adjusted Valve

Table 4. Wells with Oxygen Exceedances
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
VREW1009	4/12/2021 10:35	8.2	Second Reading
VREW1009	4/22/2021 11:27	12.2	Adjusted Valve
VREW1009	4/22/2021 11:29	13.4	Second Reading
VREW1009	5/7/2021 8:59	20.5	Adjusted Valve
VREW1009	5/7/2021 9:00	20.7	Well Permanently Decommissioned on 5/4/21 due to Poor Gas Production
VREW120A	6/24/2021 16:03	7.1	Adjusted Valve
VREW120A	6/24/2021 16:03	7.1	Second Reading
VREW120A	6/24/2021 16:05	4.7	In Compliance
VREW2120	5/17/2021 13:54	20.2	Adjusted Valve
VREW2120	5/17/2021 13:56	1.4	In Compliance
VRL0601R	4/22/2021 14:03	5.3	Adjusted Valve
VRL0601R	4/22/2021 14:05	4.9	In Compliance
VRL0601R	5/6/2021 10:16	7.2	Adjusted Valve
VRL0601R	5/6/2021 10:17	7.1	Second Reading
VRL0601R	5/19/2021 13:15	3.9	In Compliance
VRL0604R	5/19/2021 10:20	8.6	Adjusted Valve
VRL0604R	5/19/2021 10:22	9.4	Second Reading
VRL0604R	5/19/2021 14:26	0.0	In Compliance
VRL0604R	6/24/2021 17:11	10.0	Adjusted Valve
VRL0604R	6/24/2021 17:12	9.7	Second Reading
VRL0604R	7/7/2021 10:35	0.2	In Compliance
VRLEW114	3/12/2021 11:59	12.1	Adjusted Valve
VRLEW114	3/18/2021 13:05	18.4	Adjusted Valve
VRLEW114	3/18/2021 13:07	11.5	Second Reading
VRLEW114	4/12/2021 14:33	4.2	In Compliance
VRLEW116	4/22/2021 13:29	19.6	Adjusted Valve
VRLEW116	4/22/2021 13:30	17.5	Second Reading
VRLEW116	5/4/2021 13:35	15.8	Adjusted Valve
VRLEW116	5/4/2021 13:37	17.5	Second Reading
VRLEW116	5/19/2021 12:55	0.1	In Compliance
VRLEW129	2/18/2021 11:36	9.1	Adjusted Valve
VRLEW129	2/18/2021 11:37	2.6	In Compliance
VRLEW130	2/9/2021 10:04	12.7	Adjusted Valve
VRLEW130	2/9/2021 10:06	11.9	Second Reading
VRLEW130	2/18/2021 11:33	13.6	Adjusted Valve
VRLEW130	2/18/2021 11:34	12.7	Second Reading
VRLEW130	3/12/2021 9:15	19.7	Adjusted Valve
VRLEW130	3/12/2021 9:15	19.7	Second Reading

Table 4. Wells with Oxygen Exceedances
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
VRLEW130	3/12/2021 9:16	20.4	Adjusted Valve
VRLEW130	3/23/2021 10:00	19.1	Adjusted Valve
VRLEW130	3/23/2021 10:01	19.4	Second Reading
VRLEW130	4/12/2021 13:21	15.4	Adjusted Valve
VRLEW130	4/12/2021 13:22	14.7	Well Permanently Decommissioned on 5/12/21 due to Poor Gas Production
VRLEW135	2/9/2021 10:27	7.0	Adjusted Valve
VRLEW135	2/9/2021 10:28	7.1	Second Reading
VRLEW135	2/18/2021 10:47	4.4	In Compliance
VRLEW138	2/9/2021 12:07	7.6	Adjusted Valve
VRLEW138	2/9/2021 12:08	7.4	Second Reading
VRLEW138	2/18/2021 11:03	10.8	Adjusted Valve
VRLEW138	2/18/2021 11:04	14.8	Second Reading
VRLEW138	3/12/2021 12:27	8.8	Adjusted Valve
VRLEW138	3/12/2021 12:28	5.8	Second Reading
VRLEW138	3/12/2021 12:28	5.8	Adjusted Valve
VRLEW138	3/23/2021 9:40	9.0	Adjusted Valve
VRLEW138	3/23/2021 9:41	14.5	Second Reading
VRLEW138	4/12/2021 15:34	8.8	Adjusted Valve
VRLEW138	4/12/2021 15:35	8.3	Second Reading
VRLEW138	4/22/2021 9:46	7.5	Adjusted Valve
VRLEW138	4/22/2021 9:47	12.1	Well Permanently Decommissioned on 4/22/21 due to Poor Gas Production
VRLEW147	3/5/2021 11:48	16.6	Adjusted Valve
VRLEW147	3/5/2021 11:50	4.9	In Compliance
VRLEW147	3/10/2021 10:08	7.1	Adjusted Valve
VRLEW147	3/10/2021 10:10	6.8	Second Reading
VRLEW147	3/18/2021 11:19	6.5	Adjusted Valve
VRLEW147	3/18/2021 11:19	6.5	Second Reading
VRLEW147	3/18/2021 11:19	6.6	Adjusted Valve
VRLEW147	4/12/2021 11:36	13.4	Adjusted Valve
VRLEW147	4/12/2021 11:37	13.0	Second Reading
VRLEW147	4/19/2021 14:15	9.6	Adjusted Valve
VRLEW147	4/19/2021 14:17	15.5	Second Reading
VRLEW147	5/4/2021 12:27	4.7	In Compliance
VRLEW147	5/19/2021 13:45	16.5	Adjusted Valve
VRLEW147	5/19/2021 13:46	16.0	Second Reading
VRLEW147	6/3/2021 11:08	4.6	In Compliance
VRLEW149	2/9/2021 10:40	12.5	Adjusted Valve
VRLEW149	2/9/2021 10:41	13.8	Second Reading
VRLEW149	2/18/2021 11:32	3.0	In Compliance
VRLEW149	3/12/2021 10:16	10.4	Adjusted Valve

Table 4. Wells with Oxygen Exceedances
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Oxygen (%)	Comments
VRLEW149	3/12/2021 10:17	5.9	Second Reading
VRLEW149	3/23/2021 10:03	0.0	In Compliance
VRLEW154	5/4/2021 13:47	7.3	Adjusted Valve
VRLEW154	5/4/2021 13:48	11.0	Second Reading
VRLEW154	5/19/2021 11:47	0.0	In Compliance
VRLEW155	3/18/2021 14:50	11.5	Adjusted Valve
VRLEW155	3/18/2021 14:52	12.0	Second Reading
VRLEW155	3/18/2021 14:52	12.0	Adjusted Valve
VRLEW155	3/30/2021 9:53	2.6	In Compliance
VRLEW38A	2/18/2021 8:52	9.4	Adjusted Valve
VRLEW38A	2/18/2021 8:53	9.6	Second Reading
VRLEW38A	3/2/2021 10:45	0.0	In Compliance
VRLEW38A	6/7/2021 12:40	5.9	Adjusted Valve
VRLEW38A	6/7/2021 12:41	5.9	Second Reading
VRLEW38A	6/24/2021 11:58	7.2	Adjusted Valve
VRLEW38A	6/24/2021 11:59	9.7	Second Reading
VRLEW38A	7/7/2021 14:15	0.0	In Compliance
VRLFEW19	3/5/2021 8:23	5.8	Adjusted Valve
VRLFEW19	3/5/2021 8:24	6.5	Second Reading
VRLFEW19	3/16/2021 13:12	6.6	Adjusted Valve
VRLFEW19	3/16/2021 13:13	6.5	Second Reading
VRLFEW19	4/5/2021 12:56	6.0	Adjusted Valve
VRLFEW19	4/5/2021 12:58	6.1	Second Reading
VRLFEW19	4/20/2021 12:22	5.5	Adjusted Valve
VRLFEW19	4/20/2021 12:23	5.5	Second Reading
VRLFEW19	5/6/2021 11:33	0.3	In Compliance
VRLRW004*	3/18/2021 12:51	16.1	Adjusted Valve
VRLRW004*	3/18/2021 12:52	9.9	In Compliance

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

*Pursuant to Title V Permit Condition 818, Part 3c(i-iv), the well noted with an asterick operates on a non-continuous basis and is subject to an alternative oxygen wellhead standard of 15% O_2.

Table 5. Wells with Temperature Exceedances
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Temp [ ]	Adjusted Temp [ ]	Comments
VREW126A	2/3/2021 8:42	133.1	133.1	Adjusted Valve
VREW126A	2/3/2021 8:43	133.3	133.3	Second Reading
VREW126A	2/9/2021 11:06	123.6	123.8	In Compliance
VREW126A	2/18/2021 12:07	133	133.1	Adjusted Valve
VREW126A	2/18/2021 12:08	133.2	133.3	Second Reading
VREW126A	3/2/2021 10:10	134	134	Adjusted Valve
VREW126A	3/2/2021 10:12	134	134	Second Reading
VREW126A	3/12/2021 10:12	131.4	131.8	Adjusted Valve
VREW126A	3/12/2021 10:13	132.2	132.3	Second Reading
VREW126A	3/23/2021 9:48	124.9	125.1	In Compliance
VREW2001	2/3/2021 8:38	132.5	132.4	Adjusted Valve
VREW2001	2/3/2021 8:39	132.5	132.4	Second Reading
VREW2001	2/9/2021 10:19	125.9	126.1	In Compliance
VREW2103	5/24/2021 10:47	131.5	131.6	Adjusted Valve
VREW2103	6/3/2021 12:35	129.5	130.9	In Compliance
VREW2103	6/3/2021 12:35	132.1	132.2	Adjusted Valve
VREW2103	6/7/2021 10:49	133.4	134.3	Adjusted Valve
VREW2103	6/7/2021 10:50	134.5	134.5	Second Reading
VREW2103	6/23/2021 11:51	135.2	135.4	Adjusted Valve
VREW2103	6/23/2021 11:52	135.4	135.4	Second Reading
VREW2103	7/7/2021 11:47	134.4	134.5	Adjusted Valve
VREW2103	7/7/2021 11:48	134.4	134.4	Second Reading
VREW2103	7/19/2021 12:05	135.9	136	Adjusted Valve
VREW2103	7/19/2021 12:08	136	136	Second Reading
VREW2106	6/7/2021 10:59	132.6	132.5	Adjusted Valve
VREW2106	6/7/2021 11:00	132.6	132.7	Second Reading
VREW2106	6/23/2021 11:28	133.1	133.1	Adjusted Valve
VREW2106	6/23/2021 11:29	133.2	133.2	Second Reading
VREW2106	7/7/2021 11:20	133.4	133.4	Adjusted Valve
VREW2106	7/7/2021 11:21	133.6	133.5	Second Reading
VREW2106	7/19/2021 12:32	135	135.4	Adjusted Valve
VREW2108	5/17/2021 17:10	143.2	143.3	Adjusted Valve
VREW2108	5/18/2021 11:51	151.4	154.1	Adjusted Valve
VREW2108	5/18/2021 11:51	151.4	154.1	Second Reading
VREW2108	5/18/2021 11:53	153.6	153.6	Adjusted Valve
VREW2108	5/19/2021 9:52	156.9	157	Adjusted Valve
VREW2108	5/19/2021 9:53	156.9	157	Second Reading
VREW2108	5/24/2021 10:17	161	160.8	Adjusted Valve
VREW2108	5/24/2021 10:18	160.7	160.7	Second Reading
VREW2108	6/3/2021 12:08	162.2	162.2	Adjusted Valve
VREW2108	6/3/2021 12:08	162.2	162.2	Second Reading
VREW2108	6/18/2021 10:11	161	161	Adjusted Valve
VREW2108	6/18/2021 10:15	119.7	131.7	In Compliance
VREW2108	6/23/2021 11:02	161.1	161.3	Adjusted Valve

Table 5. Wells with Temperature Exceedances
Vasco Road Landfill, Livermore, California
(February 1, 2021 through July 31, 2021)

Well ID	Date and Time	Initial Temp [ ]	Adjusted Temp [ ]	Comments
VREW2108	6/23/2021 11:03	161.4	161.4	Second Reading
VREW2108	7/7/2021 11:10	162.2	162	Adjusted Valve
VREW2108	7/7/2021 11:11	161.9	161.9	Second Reading
VREW2108	7/21/2021 11:53	165.1	165.1	Adjusted Valve
VREW2108	7/30/2021 11:02	161	161	Adjusted Valve
VREW2109	5/17/2021 15:38	70.3	132.7	Adjusted Valve
VREW2109	5/17/2021 15:40	136.5	139.4	Second Reading
VREW2109	5/17/2021 17:04	153.2	153.2	Adjusted Valve
VREW2109	5/17/2021 17:05	153.2	153.4	Adjusted Valve
VREW2109	5/18/2021 11:43	158.1	161	Adjusted Valve
VREW2109	5/18/2021 11:45	161	161	Second Reading
VREW2109	5/19/2021 9:31	159.4	158.8	Adjusted Valve
VREW2109	5/19/2021 9:33	157.3	158.7	Second Reading
VREW2109	5/24/2021 10:14	158.5	158.7	Adjusted Valve
VREW2109	5/24/2021 10:15	158.7	158.5	Second Reading
VREW2109	6/3/2021 12:04	157.8	157.7	Adjusted Valve
VREW2109	6/3/2021 12:05	157.8	157.8	Second Reading
VREW2109	6/18/2021 9:58	153.9	153.9	Adjusted Valve
VREW2109	6/18/2021 9:58	153.9	153.9	Second Reading
VREW2109	6/18/2021 10:07	113.9	148.9	In Compliance
VREW2109	6/23/2021 10:46	160.7	160.7	Adjusted Valve
VREW2109	6/23/2021 13:17	160	160	Second Reading
VREW2109	7/7/2021 11:03	155	155	Adjusted Valve
VREW2109	7/7/2021 11:04	154.9	154.9	Second Reading
VREW2109	7/21/2021 11:58	155.3	155.3	Adjusted Valve
VREW2109	7/30/2021 11:07	150.8	150.9	Adjusted Valve
VREW2109	7/30/2021 11:08	151	151	Second Reading
VRLEW133	2/18/2021 11:40	138.1	138.1	Adjusted Valve
VRLEW133	2/18/2021 11:41	138.1	138.1	Second Reading
VRLEW133	3/2/2021 10:01	135.4	135.4	Adjusted Valve
VRLEW133	3/2/2021 10:02	135.3	135.3	Second Reading
VRLEW133	3/12/2021 9:21	134.8	134.9	Adjusted Valve
VRLEW133	3/12/2021 9:22	134.8	134.8	Second Reading
VRLEW133	3/23/2021 10:05	132	131.8	Adjusted Valve
VRLEW133	3/23/2021 10:06	131	131.4	Second Reading
VRLEW133	4/12/2021 13:28	120.2	120.2	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:

Matthew D Ketchem

08/26/21

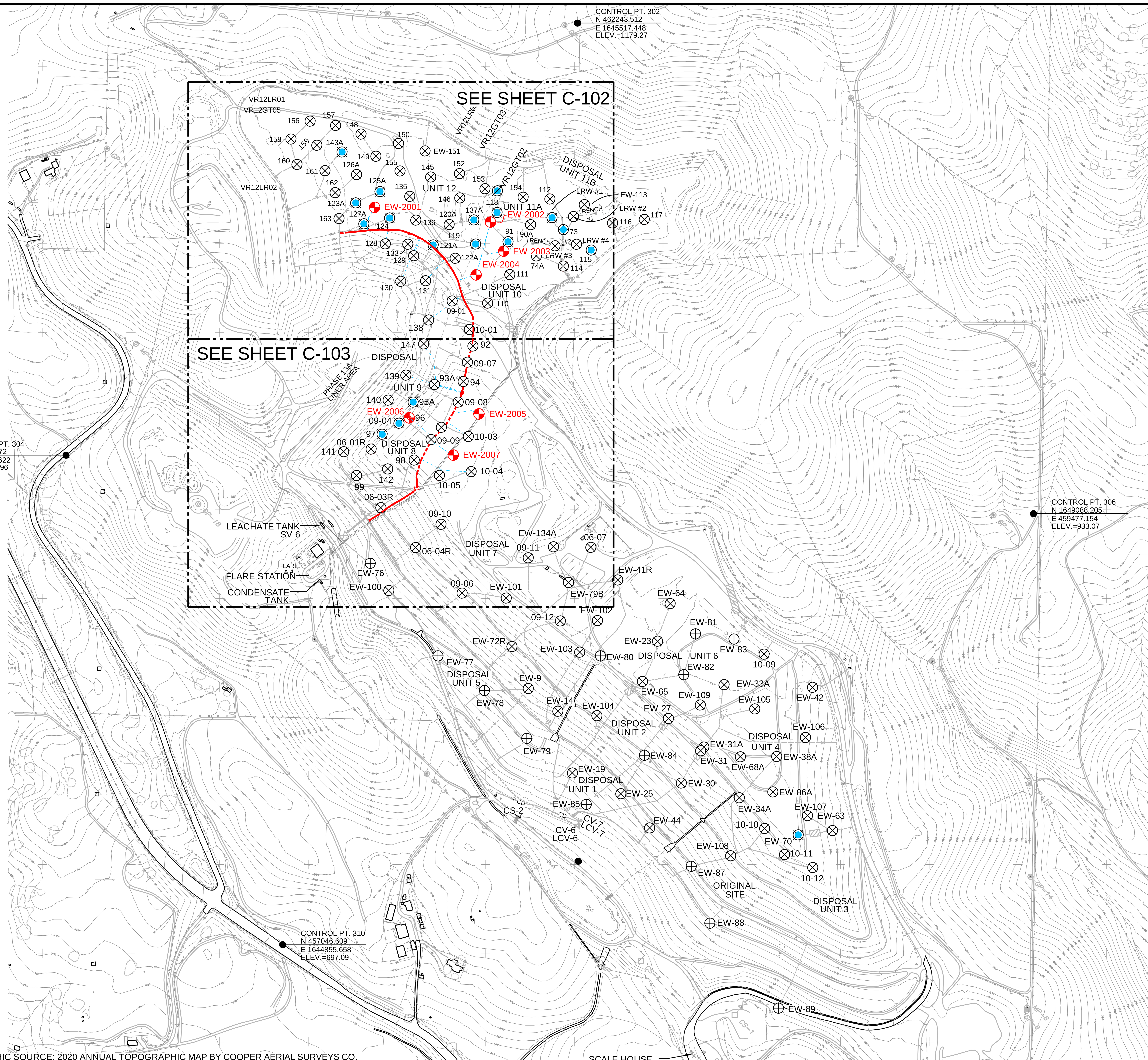
Signature of Responsible Official

Date

Matt Ketchem

Name of Responsible Official

Appendix B – Existing GCCS Layout



TOPOGRAPHIC SOURCE: 2020 ANNUAL TOPOGRAPHIC MAP BY COOPER AERIAL SURVEYS CO.

N

GRAPHIC SCALE

300 150 0 300 600

(IN FEET)

LEGEND

- EXISTING VERTICAL GAS EXTRACTION WELL
- NEW VERTICAL GAS EXTRACTION WELL
- EXISTING ABOVE GRADE HEADER/LATERAL/DRAIN LINE
- EXISTING BELOW GRADE HEADER/LATERAL
- NEW 12" HDPE GAS HEADER, ON GRADE
- NEW 12" HDPE GAS HEADER, BELOW GRADE
- NEW 6" HDPE GAS LATERAL, BELOW GRADE
- EXISTING WELL/COLLECTOR TO BE DECOMMISSIONED (SEE DETAIL 2/C-503)

SITE SURVEY CONTROL POINTS

PANEL NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
301	463655.679	1643780.065	855.24	TARGET
302	462243.512	1646517.448	1179.27	TARGET
303	463373.270	1649133.063	1364.74	TARGET
304	459807.072	1643633.622	861.96	TARGET
306	459477.154	1649088.205	933.07	TARGET
309	455726.591	1648751.590	759.42	TARGET
310	457046.609	1644855.658	697.09	TARGET
41	455967.608	1646421.652	653.22	TARGET
51	457517.915	1646521.900	754.95	TARGET

MAP DATUM

HORIZONTAL DATUM: NAD27
VERTICAL DATUM: NGVD29
COORDINATE SYSTEM: CALIFORNIA STATE PLANE
ZONE: III
UNITS: US SURVEY FEET

RECORD DRAWING

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

VASCO ROAD LANDFILL
2020 GCCS IMPROVEMENTS
SITE PLAN/SURVEY CONTROL/INDEX TO PLAN SHEETS

DESIGNED BY :	S. ANGUS	SCALE : AS SHOWN			
DRAWN BY :	S. ANGUS	DATE :	5/2020	FILE NO.:	C-101
CHECKED BY :	S. AYASS, P.E.	DATE :	5/2020		
APPROVED BY :	G.E. ANDRAOS	DATE :	5/2020	SHEET	C-101

I:\dwg\Republic\Vasco Road\Gas\2020 Design\Record Drawings\C-101.dwg 5/08/20 13:06:45 scott.angus

Appendix C – LFGTE Facility Downtime Logs

Vasco
Monthly SSM Report

Lead Operator : Mike Rogers

Month : February 2021

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	2/2/21 7:21	2/2/21 10:36	3:15	44229	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
2	2/2/21 7:21	2/2/21 9:08	1:47	44229	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
1	2/2/21 10:38	2/2/21 10:53	0:15	44229	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	2/5/21 14:46	2/5/21 17:26	2:40	44233	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
2	2/9/21 8:26	2/9/21 16:00	7:34	44236	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	2/9/21 16:02	2/9/21 16:12	0:10	44237	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
2	2/16/21 12:05	2/17/21 11:46	23:41	44244	Mike Rogers	Unplanned	Ameresco	Generator	Reconfigure, and Restart
2	2/17/21 11:47	2/17/21 11:58	0:11	44244	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
2	2/17/21 12:24	2/17/21 14:53	2:29	44245	Mike Rogers	Unplanned	Landfill / Wellfield	Oxygen Levels	Restart Only
1	2/17/21 12:24	2/17/21 16:30	4:06	44245	Mike Rogers	Unplanned	Landfill / Wellfield	Oxygen Levels	Reconfigure, and Restart
1	2/17/21 16:30	2/18/21 14:45	22:15	44245	Mike Rogers	Unplanned	Ameresco	Electrical	Reconfigure, and Restart
2	2/18/21 10:57	2/18/21 13:55	2:58	44245	Mike Rogers	Unplanned	Landfill / Wellfield	Oxygen Levels	Restart Only
1	2/18/21 15:26	2/18/21 15:38	0:12	44246	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
2	2/19/21 13:44	2/19/21 16:41	2:57	44247	Mike Rogers	Unplanned	Ameresco	Dehy. Skid / Condensate	Reconfigure, and Restart
1	2/19/21 13:44	2/19/21 18:38	4:54	44247	Mike Rogers	Unplanned	Ameresco	Dehy. Skid / Condensate	Reconfigure, and Restart
2	2/19/21 17:34	2/19/21 19:05	1:31	44247	Mike Rogers	Unplanned	Ameresco	Dehy. Skid / Condensate	Reconfigure, and Restart

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Vasco
Monthly SSM Report

Lead Operator : Mike Rogers

Month : March 2021

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	3/5/21 9:19	3/5/21 11:37	2:18	44260	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart
2	3/5/21 12:04	3/5/21 14:31	2:27	44261	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
2	3/5/21 14:37	3/5/21 14:56	0:19	44261	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	3/17/21 9:36	3/17/21 18:47	9:11	44272	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
1	3/17/21 18:48	3/17/21 18:59	0:11	44273	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
2	3/21/21 11:09	3/21/21 15:50	4:41	44276	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart
2	3/22/21 9:53	3/22/21 12:00	2:07	44277	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart
2	3/22/21 12:09	3/22/21 12:23	0:14	44278	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart
2	3/22/21 12:29	3/22/21 12:43	0:14	44278	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart

Vasco
Monthly SSM Report

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Lead Operator : Mike Rogers
Month : April 2021

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
2	4/5/21 10:02	4/5/21 12:27	2:25	44291	Mike Rogers	Proactive	Ameresco	Engine	Replace, and Restart
1	4/6/21 9:22	4/6/21 17:21	7:59	44292	Mike Rogers	Proactive	Ameresco	Dehy. Skid / Condensate	Replace, and Restart
2	4/6/21 9:22	4/6/21 16:55	7:33	44292	Mike Rogers	Proactive	Ameresco	Dehy. Skid / Condensate	Replace, and Restart
2	4/6/21 16:58	4/6/21 17:15	0:17	44293	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	4/7/21 8:01	4/7/21 12:06	4:05	44293	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	4/7/21 8:01	4/7/21 12:11	4:10	44293	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	4/12/21 12:33	4/12/21 12:53	0:20	44299	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	4/12/21 12:33	4/12/21 12:59	0:26	44299	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	4/14/21 6:07	4/14/21 7:30	1:23	44300	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
2	4/14/21 6:07	4/14/21 7:25	1:18	44300	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
2	4/19/21 13:49	4/19/21 16:14	2:25	44306	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart
2	4/22/21 10:04	4/22/21 10:21	0:17	44308	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	4/22/21 22:50	4/23/21 2:18	3:28	44309	Mike Rogers	Unplanned	Ameresco	Other	Restart Only
1	4/28/21 13:18	4/28/21 18:58	5:40	44315	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Replace, and Restart
2	4/28/21 13:18	4/28/21 18:58	5:40	44315	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Replace, and Restart

Vasco
Monthly SSM Report

Lead Operator : Mike Rogers
Month : May 2021

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
2	5/5/21 18:39	5/5/21 19:40	1:01	44322	Mike Rogers	Unplanned	Ameresco	Valves	Restart Only
1	5/5/21 18:39	5/5/21 19:43	1:04	44322	Mike Rogers	Unplanned	Ameresco	Valves	Restart Only
2	5/7/21 8:11	5/7/21 15:26	7:15	44323	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Replace, and Restart
1	5/12/21 7:05	5/12/21 18:33	11:28	44328	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	5/12/21 7:05	5/12/21 19:30	12:25	44328	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	5/14/21 8:37	5/14/21 10:48	2:11	44330	Mike Rogers	Planned	Ameresco	Engine	Reconfigure, and Restart
2	5/14/21 10:52	5/14/21 11:22	0:30	44330	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	5/16/21 14:55	5/17/21 17:31	26:36	44333	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
2	5/16/21 14:55	5/17/21 17:28	26:33	44333	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
1	5/31/21 22:28			44348	Mike Rogers	Unplanned	Ameresco	Engine	

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Vasco
Monthly SSM Report

Lead Operator : Mike Rogers

Month : June 2021

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	5/31/21 22:28	6/1/21 11:40	13:12	44348	Mike Rogers	Unplanned	Ameresco	Engine	Repair, Replace, and
1	6/16/21 7:38	6/16/21 16:17	8:39	44363	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
1	6/17/21 8:25	6/17/21 10:25	2:00	44364	Mike Rogers	Planned	Ameresco	Engine	Reconfigure, and Restart
2	6/27/21 17:31	6/28/21 11:13	17:42	44375	Mike Rogers	Unplanned	Ameresco	TSA / H2S / Siloxane Removal	Reconfigure, Replace, and Restart
1	6/27/21 17:45	6/28/21 7:51	14:06	44375	Mike Rogers	Unplanned	Ameresco	TSA / H2S / Siloxane Removal	Reconfigure, and Restart
1	6/28/21 7:53	6/28/21 8:03	0:10	44375	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only

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Vasco
Monthly SSM Report

Lead Operator : Mike Rogers
Month : July 2021

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	7/2/21 13:15	7/2/21 18:14	4:59	44380	Mike Rogers	Unplanned	Ameresco	Valves	Reconfigure, and Restart
2	7/2/21 13:16	7/2/21 18:32	5:16	44380	Mike Rogers	Unplanned	Ameresco	Valves	Reconfigure, and Restart
1	7/3/21 7:11	7/3/21 8:49	1:38	44380	Mike Rogers	Unplanned	Landfill / Wellfield	Oxygen Levels	Restart Only
2	7/3/21 7:11	7/3/21 8:45	1:34	44380	Mike Rogers	Unplanned	Landfill / Wellfield	Oxygen Levels	Restart Only
1	7/12/21 13:50	7/12/21 17:40	3:50	44392	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	7/12/21 13:50	7/12/21 17:30	3:40	44392	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	7/23/21 9:52	7/23/21 17:58	8:06	44400	Mike Rogers	Proactive	Ameresco	TSA / H2S / Siloxane Removal	Replace, and Restart
1	7/23/21 9:52	7/23/21 17:55	8:03	44400	Mike Rogers	Proactive	Ameresco	TSA / H2S / Siloxane Removal	Replace, and Restart

Flare off line on 7/2 and 7/23,

Appendix D – Excerpts from 2021 Source Test Results (report dated June 9, 2021)

Republic Services

BAAQMD Plant # 5095

Annual Compliance Re-Test Report #21136
Landfill Gas Flare A-4

Located at:
Vasco Road Landfill
4001 North Vasco Road
Livermore, CA 94550

Prepared for:
Republic Services
901 Bailey Road
Pittsburg, CA 94565
Attn: Antonia Gunner
agunner@republicservices.com

For Submittal to:
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105
Attn: Gloria Espena/Marco Hernandez
gespena@baaqmd.gov/mhernandez@baaqmd.gov
sourcetest@baaqmd.gov

Testing Performed on:
May 7th, 2021

Final Report Submitted on:
June 9th, 2021

Performed and Reported by:
Blue Sky Environmental, Inc.
624 San Gabriel Avenue
Albany, CA 94706
Office (510) 508-3469/Mobile (510) 508 3469
bluesky@blueskyenvironmental.com

REVIEW AND CERTIFICATION

Team Leader:

The work performed herein was conducted under my supervision, and I certify that:

a) the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program,

b) that the sampling and analytical procedures and data presented in the report are authentic and accurate,

c) that all testing details and conclusions are accurate and valid, and

d) that the production rate and/or heat input rate during the source test are reported accurately.

If this report is submitted for compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please contact me at (925) 338-4875.

Chuck Arrivas, QSTI

Project Manager

Blue Sky Environmental, Inc.

TABLE of CONTENTS

SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by Republic Services to perform emissions re-testing for the Vasco Road Landfill, located in Livermore, California. This compliance source test was conducted to demonstrate that Landfill Gas Flare A-4 is operating in compliance with the Bay Area Air Quality Management District (BAAQMD) Permit Condition 818 for Facility #5095. Results of the test program are presented in this report. The source test information is summarized in Table 1. Test results derived from the source test are summarized in Table 2. Results for individual test runs are provided in Appendix A. The flare met all compliance emission criteria.

Table 1. Source Test Information

Test Location:	Vasco Road Landfill 4001 North Vasco Road, Livermore CA 94550
Source Contact:	Antonia Gunner, Republic Services (619) 201-3764
Source Tested:	LFG Industrial Landfill Gas Flare A-4, 120 MMBtu/hr
Source Test Date:	May 7th, 2021
Test Objective:	Determine Compliance with Bay Area Air Quality Management District (BAAQMD) Permit Condition 818 for Plant #5095; Regulation 8, Rule 34; and the State Landfill Methane Gas Rule under AB32 for Flare performance.
Test Performed by:	Blue Sky Environmental, Inc 624 San Gabriel Avenue, Albany, CA 94706 Chuck Arrivas (925) 338-4875 carrivas@blueskyenvironmental.com
Test Parameters:	**Landfill Gas** O_2, CO_2, BTU, THC, CH_4, NMOC, HHV, F-Factor, Sulfur Species, Volumetric Flow rate **Flare Emissions** THC, CH_4, NMOC, NO_X, CO, O_2, Moisture, Volumetric Flow rate

Table 2. Compliance Summary

Emission Parameter	Average Results (Flare A-4)	Permit Limit	Compliance Status
NO_X, ppm @ 15% O_2	8.4	11	In Compliance
NO_X, lbs/day	28.3	141.1	In Compliance
NO_X, lbs/MMBtu	0.033	0.049	In Compliance
CO, ppm @ 15% O_2	41.1	73	In Compliance
CO, lbs/MMBtu	0.100	0.19	In Compliance
TRS as H_2S, ppm in Fuel	42.1	320	In Compliance
SO_2, ppm *(Reg 9-1-302)*	2.9	300	In Compliance
TNMHC, ppm @ 3% O_2 as CH_4	11.7	30 or >98 %	In Compliance
NMOC Removal Efficiency, %	94.10 %		
CH_4 Destruction Efficiency, % *(AB32)*	99.78 %	>99 %	In Compliance
THC (TOC) Removal Efficiency, %	99.77 %	>98 %	In Compliance

SECTION 2. SOURCE TEST PROGRAM

2.1. Overview

This annual source test was performed to demonstrate that landfill gas Flare A-4 is operating in accordance with Bay Area Air Quality Management District (BAAQMD) Permit Condition 818 for Facility #5095, and Regulation 8, Rule 34. This testing also satisfies the compliance requirements outlined in the State Landfill Methane Gas Rule under AB32 for Flare performance.

2.2. Pollutants Tested

The following U.S. Environmental Protection Agency (EPA) and ASTM International sampling and analytical methods were used:

EPA Method 1	Sample and Traverse Point Determination
EPA Method 3A	O_2 and CO_2, Stack Gas Molecular Weight
EPA Method 10	CO
EPA Method 7E	NO_X and NO_2 Converter Check
EPA Method 4, part 16.4	Moisture Calculation
EPA Method 18	CH_4, THC, NMOC
EPA Method 19	Flow Rate Calculation DSCFM
EPA Method 25A	VOC Emissions
EPA Method 25C	TNMHC (NMOC) in fuel
ASTM D-1945/3588	BTU, F-Factor and Fixed Gases in Fuel
ASTM D-5504	Sulfur Species, Hydrogen Sulfide (H_2S) and TRS
EPA Method TO-15	Toxic organic Compounds

2.3. Test Date

Testing was conducted on May 7th, 2021.

2.4. Sampling and Observing Personnel

Testing was conducted by Chuck Arrivas and Timothy Eandi representing Blue Sky Environmental, Inc.

Anton Svorinich of SCS Engineers was on site to coordinate and assist with operation of the flare.

The BAAQMD was notified of the scheduled initial testing in a plan submitted on January 15th, 2021. The BAAQMD was notified of the re-test via email on May 5th, 2021. A Source Test Protocol acknowledgement (NST #6494) was received the same day; however, no agency observers were present during the retest. A copy of the source test protocol and email correspondence are provided in Appendix H.

2.5. Source/Process Description

The Vasco Road Landfill, located in Livermore, CA, is a multi-material landfill with a gas collection system that is abated by two industrial landfill gas flares. Flare A-4 has a 120 MMBtu/hr multiple nozzle burner.

2.6. Source Operating Conditions

The flare was operated on landfill gas under normal operating conditions during testing. The average exhaust temperature was 1,533 °F. The landfill gas (LFG) flowrate ranged from 1,427 to 1,440 SCFM. The operating exhaust temperature, and LFG flowrate records are provided in Appendix E.

LFG samples collected at the head of the flare showed an average methane content of 40.1% and an oxygen content of 4.0%.

SECTION 3. SAMPLING AND ANALYSIS PROCEDURES

3.1. Port Location

Sampling was conducted in the stack of the flare through ports that were accessed with a 45-foot boom lift. The ports were located approximately 35 feet above grade, five stack diameters downstream from the burners and one stack diameter upstream from the exhaust.

3.2. Point Description/Labeling – Ports/Stack

Blue Sky Environmental, Inc. conducted two perpendicular 8-point traverses to check for the presence of cyclonic flow. O_2 stratification was greater than 10%; therefore, subsequent CEM sampling was conducted using all traverse points. Sampling was performed for two minutes per point for a total of 16 points over a 30-minute test run.

3.3. Sample Train Description

Sampling system diagrams are included in the Appendix G. Additional descriptive information is included in the following section.

3.4. Sampling Procedure Description

Three consecutive 30-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 total hydrocarbons (THC) at the flare exhaust stack.
The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run. The gas flow was controlled with a rotameter to collect the 30-minute integrated samples.

Analyzer external calibrations were performed before and after each run using EPA protocol certified gas standards. Calibration gases were introduced to the sample manifold at the same flow rate as the sample. Any drift or bias was corrected using equation 100-3 from CARB Method 100. A NOx analyzer converter efficiency check was performed before the first test run and achieved an efficiency greater than 90%.

Concurrent with the exhaust sampling, Blue Sky Environmental collected a total of three integrated fuel samples by EPA Method 18 for off-site analysis by Atmospheric Analysis & Consulting, Inc., located in Ventura, CA. The samples were collected in 6-liter SUMMA canisters and analyzed for hydrocarbons by EPA Method 25, sulfur species (incl. H_2S and TRS) by ASTM D-5504, and HHV, F-factor, fixed gases, volatile organic compounds (VOCs), nonmethane organic compounds (NMOCs) and C^1-C^{6+} hydrocarbons by EPA Method 25C and ASTM D-1945. The samples were also analyzed for toxic organic compounds by EPA Method TO-15 (AP-42 2.4-1).

The sampling and analysis procedures are summarized below:

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 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 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 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 Methods 3A, 7E and 10 are all continuous monitoring techniques using instrumental analyzers. Sampling is performed by extracting exhaust flue gas from the stack, conditioning the sample, and analyzing it by continuous monitoring gas analyzers in a continuing emissions monitoring (CEM) test van. The sampling system consists of a stainless steel sample probe, Teflon sample line, glass-fiber particulate filter, and glass moisture-knockout condensers in ice, followed by thermoelectric coolers (optional), Teflon sample transfer tubing, a diaphragm pump, and a stainless steel/Teflon manifold and flow control/delivery system. A constant sample and calibration gas supply pressure of 5 PSI is provided to each analyzer to avoid pressure variable response differences. The entire sampling system is leak checked prior to and at the end of the sampling program.

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 7E and 10 all defer to EPA Method 7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

System Performance Criteria

Instrument Linearity	≤2% Full Scale
Instrument Bias	≤5% Full Scale
System Response Time	≤± 2 minutes
NO_X Converter Efficiency *(EPA Method 7E)*	≥ 90%
Instrument Zero Drift	≤± 3% Full Scale
Instrument Span Drift	≤± 3% Full Scale

EPA Method 4-16.4 – Determination of Moisture Content in Stack Gas
This is an acceptable alternative to EPA Method 4 for the determination of moisture using F-factors. The mole fraction of moisture in the ambient air is calculated using equations in EPA

Method 4-16.4 from 1) the measured ambient relative humidity, ambient temperature, and barometric pressure, 2) the mole fraction of free water in the fuel, calculated from the moisture % in the fuel, which is determined by the analytical lab to be the balance after all the major gaseous components have been summed or directly measured by wet bulb, dry bulb of the landfill gas, and 3) the mole fraction of hydrogen in the fuel. To determine the moisture in the fuel, the raw fuel analysis before normalization to 100% is referenced.

EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography

This method is used to determine emissions of volatile organics by gas chromatography (GC). Gases are collected in a pre-evacuated 6-Liter SUMMA canister with pre-set flow controller set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days for the target 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 consists of capillary orifice tubing designed to sample for a pre-set duration of 0.5 hrs.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates

This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates. 301.

EPA Method 25A – Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

This method is used to measure total hydrocarbons, methane, and non-methane hydrocarbons in stationary source emissions using a gas chromatograph with a flame ionization detector (GC/FID). Heated Teflon sample gas transfer lines are used to provide a continuous sample to the heated GC/FID hydrocarbon analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test.

EPA Method 25C – Determination of Nonmethane Organic Compounds (NMOC) in Landfill Gas

This method is used to sample and measure NMOC in landfill gases. Gases are collected in a pre-evacuated 6-Liter SUMMA canister with pre-set flow controller set to integrate over the desired test duration. The SUMMA® passivated canisters allow holding times up to 14 days. The sample gas is drawn by the canister vacuum through a micro-filter, pre-set orifice flow controller and on/off valve into the canister. The canister vacuum is monitored with a vacuum gauge to verify sample collection. The flow controller consists of capillary orifice tubing designed to sample for a pre-set duration of 0.5 hrs. The sample is injected into a GC column where the methane and CO_2 are flushed through and removed then the NMOC (ROC) fraction is oxidized to form CO_2 then reduced to methane and analyzed.

ASTM D1945 – Analysis of Natural Gas by Gas Chromatography
This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane by gas chromatography (GC/TCD). Light hydrocarbons, including C1-C7, are analyzed by GC/FID.

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels
This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence
This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed 7 days.

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.

3.5. Instrumentation and Analytical procedures

The following continuous emissions analyzers were used:

Instrumentation	Parameter	Principle
TECO Model 42C	NO_X/NO	Chemiluminescence
TECO Model 48C	CO	GFC/IR
TECO Model 55C	NMOC/CH_4	FID
Servomex Model 1440	CO_2	IR
Servomex Model 1440	O_2	Paramagnetic

The analyzer data recording system consists of a Honeywell DPR300 strip chart recorder, supported by a Data Acquisition System (DAS). The instrument response is recorded on strip charts and DAS. The averages are corrected for drift using BAAQMD and EPA Method 7E equations. All system performance criteria were met.

3.6. Comments: Limitations and Data Qualifications

This source test was performed in accordance with the protocol submitted to the BAAQMD. No deviations from the protocol or anomalies were observed during testing. The measured emissions from the flare comply with the permit limits.

Blue Sky Environmental has reviewed this report for accuracy and concluded that the test procedures were followed and accurately described and documented. The review included the following items:

Review of the general text
Review of calculations
Review of CEMS data
Review of supporting documentation

The services described in this report were performed in a manner consistent with the generally accepted professional testing principles and practices. No other warranty, expressed or implied, is made. These services were performed in a manner consistent with our agreement with our client. The report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report pertain to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and operating parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations, subsequent to this, and do not warranty the accuracy of information supplied by others.

SECTION 4. APPENDICES

A
Tabulated Results

TABLE #1

Republic Services Vasco Landfill
Flare A-4
1,533°F

RUN	1	2	3	AVERAGE	LIMITS
Test Date	5/7/21	5/7/21	5/7/21		
Test Time	1152-1230	1302-1336	1403-1439		
Standard Temperature, °F	70	70	70		
Flare Temperature, °F Average	1,532	1,532	1,534	1,533	
Fuel Flow Rate, SCFM	1,440	1,430	1,427	1,722	
Fuel Heat Input, MMBtu/hr	38.0	29.9	37.2	35.0	
Exhaust Flow Rate, DSCFM *(EPA M19)*	32,027	17,339	19,853	23,073	
Oxygen, O_2, %	17.0	15.2	14.7	15.6	
Carbon Dioxide, CO_2, %	3.1	3.2	3.2	3.2	
Water Vapor, H_2O, % *(EPA M4.16)*	5.4	6.6	6.8	6.3	
NOx, ppm	7.1	7.6	6.9	7.2	
NOx, ppm @ 15% O_2	**10.6**	**7.9**	**6.6**	**8.4**	**11**
NOx, lbs/hr	1.62	0.94	0.98	1.18	
NOx, lbs/day	**38.9**	**22.6**	**23.5**	**28.3**	**141.1**
NOx, lbs/MMBtu	**0.043**	**0.031**	**0.026**	**0.033**	**0.049**
CO, ppm	36.0	34.8	35.2	35.3	
CO, ppm @ 15% O_2	**53.9**	**36.0**	**33.4**	**41.1**	**73**
CO, lbs/hr	5.00	2.62	3.03	3.55	
CO, lbs/day	120.1	62.9	72.8	85.2	
CO, lbs/MMBtu	**0.132**	**0.088**	**0.081**	**0.100**	**0.19**
TRS as H_2S, ppm in Fuel	**31.2**	**41.2**	**53.8**	**42.1**	**320**
SO_2, ppm Exhaust (calculated)	**1.4**	**3.4**	**3.9**	**2.9**	**300**
THC, ppm wet *(Sum NMOC + CH_4)*	56.0	59.4	47.4	54.2	
THC, ppm dry	59.2	62.7	50.1	57.3	
THC, lbs/hr as CH_4	4.706	2.700	2.467	3.291	
CH_4, ppm wet *(EPA ALT 097)*	52.6	56.3	44.5	51.1	
CH_4, ppm dry	55.6	59.5	47.0	54.1	
CH_4, lbs/hr	4.422	2.563	2.317	3.101	
TNMHC, ppm as CH_4 *(EPA ALT 097)*	3.4	3.0	2.9	3.1	
TNMHC, ppm dry as CH_4	3.6	3.2	3.1	3.3	
TNMHC, lbs/hr as CH_4	0.284	0.137	0.151	0.191	
TNMHC, ppm @ 3% O_2 as CH_4	**16.3**	**10.0**	**8.8**	**11.7**	**30**
INLET TNMOC, ppm *(EPA M25C)*	973	786	922	894	
INLET NMOC lbs/hr as CH_4	3.5	2.8	3.3	3.2	**or**
NMOC Removal Efficiency	**91.83%**	**95.08%**	**95.38%**	**94.10%**	**>98**
INLET CH_4, ppm	432,000	342,000	428,000	400,667	
INLET CH_4 lbs/hr	1,544.3	1,214.0	1,516.1	1,425	
CH_4 Removal Efficiency	**99.71%**	**99.79%**	**99.85%**	**99.78%**	**99**
INLET THC (TOC) ppm as CH_4	432,973	342,786	428,922	401,560	
INLET THC (TOC) lbs/hr as CH_4	1,548	1,217	1,519	1,428	
THC (TOC) Removal Efficiency	**99.70%**	**99.78%**	**99.84%**	**99.77%**	**98**

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)
CH_4 = Methane (MW = 16)
TOC = THC = Total Organic Carbon as Methane including CH_4 (MW = 16)
THC = Total Hydrocarbons as Methane (MW = 16)
NMOC = Total Non-Methane Organic Compounds as Methane (MW = 16)
TNMHC = Total Non-Methane Hydrocarbons as Methane (MW = 16)
SO_2 = Sulfur Dioxide as SO_2 (MW = 64.1)
H_2S = Hydrogen Sulfide (MW = 34.1)
TRS = Total Reduced Sulfurs

CALCULATIONS,

PPM @ 15% O_2 = ppm * 5.9 / (20.9 - %O_2)
PPM @ 3% O_2 = ppm * 17.9 / (20.9 - %O_2)
Lbs/hr = ppm * 8.223 E-05 * DSCFM * MW / Tstd. °R
Lbs/day = Lbs/hr * 24
Removal Efficiency = (inlet lbs/hr- outlet lbs/hr) / inlet lbs/hr
SO_2 emission ppm = H_2S in fuel * Fuel Flow/Stack Gas Flow

TABLE # 2

Republic Services Vasco Landfill

(A-4) Landfill Gas Toxic Air Contaminants

1,533°F

RUN		**1**	**2**	**3**	**LIMITS**
Test Date		5/7/21	05/07/21	05/07/21	
Test Time		1152-1230	1302-1336	1403-1439	
Acrylonitrile	ppb	<267	<205	<243	
Benzene	ppb	1,180	980	1,150	
Benzyl Chloride	ppb	<66.7	<51.3	<60.8	
Carbon Tetrachloride	ppb	<66.7	<51.3	<60.8	
Chlorobenzene	ppb	131	135	131	
Chlorodifluoromethane	ppb	<66.7	<51.3	<60.8	
Chloroethane	ppb	<66.7	<51.3	69.3	
Chloroform	ppb	<66.7	<51.3	<60.8	
1,1 Dichloroethane	ppb	<66.7	<51.3	<60.8	
1,1 Dichloroethene	ppb	<66.7	<51.3	<60.8	
1,2 Dichloroethane	ppb	88.1	73.9	82.7	
1,4 Dichlorobenzene	ppb	190	171	179	
Dichlorodifluoromethane (CFC-12)	ppb	183	180	215	
Dichlorofluoromethane	ppb	145	123	134	
Ethylbenzene	ppb	3,100	2,580	2,990	
Ethlyene Dibromide (1,2 Dibromoethane)	ppb	<66.7	<51.3	<60.8	
Trichlorofluoromethane	ppb	<66.7	<51.3	<60.8	
Hexane	ppb	<66.7	445	537	
Isopropyl Alcohol (2-Propanol)	ppb	4,390	3,250	3,840	
Methyl Ethyl Ketone (2-Butanone)(MEK)	ppb	6,490	4,770	5,540	
Methylene Chloride (Dichloromethane)	ppb	<133	<103	<122	
Perchloroethylene (Tetrachloroethene)	ppb	80.1	67.8	77.8	
Toluene	ppb	3,990	3,350	3,940	
1,1,1 Trichlororethane	ppb	<66.7	<51.3	<60.8	
1,1,2,2 Tetrachloroethane	ppb	<66.7	<51.3	<60.8	
Trichloroethylene (Trichloroethene)	ppb	<66.7	<51.3	<60.8	
Vinyl Chloride	ppb	<66.7	<51.3	<60.8	
Xylenes m & p	ppb	4,230	3,470	3,940	
Xylenes o	ppb	1,750	1,480	1,660	
ASTM-5504					
Hydrogen Sulfide	ppm	28.6	38.5	50.8	
Carbon Disulfide	ppm	<0.133	<0.103	<0.122	
Carbonyl Sulfide (COS/SO_2)	ppm	0.314	0.262	0.334	
Dimethyl Sulfide	ppm	1.35	1.31	1.46	
Ethyl Mercaptan	ppm	<0.133	<0.103	<0.122	
Methyl Mercaptan	ppm	0.453	0.586	0.768	
Total Reduced Sulfur (TRS)	**ppm**	**31.2**	**41.2**	**53.8**	**320**

Appendix E – Surface Emission and GCCS Component Leak Monitoring Results

June 4, 2021
File No. 07221004.01

Ms. Antonia Gunner
Republic Services – Vasco Road Landfill
4001 N. Vasco Road
Livermore, California 94551

Subject: Vasco Road Landfill - Livermore, California

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

Dear Ms. Gunner:

SCS Field Services (SCS-FS) is pleased to provide the Republic Services, with the enclosed report summarizing the surface emissions monitoring services provided at the Vasco Road 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-FS appreciates the opportunity to be of assistance to Republic Services on this project. As you review the enclosed information, please contact Art Jones (209) 345-2062, Michael Calmes at (209) 573-3364 or Whitney Stackhouse at (209) 338-7990 if you have any questions or comments.

Sincerely,

Whitney Stackhouse
Project Manager
SCS Field Services

Michael Calmes
Project Manager
SCS Field Services

Encl.

Art Jones, SCS Field Services

Vasco Road Landfill

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

First Quarter 2021

Presented to:

Ms. Antonia Gunner
Republic Services – Vasco Road
4001 N. Vasco Road
Livermore, California 94551

SCS FIELD SERVICES

File No. 07221004.01 | June 4, 2021

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

Vasco Road 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 8, 9, 11, 18 and April 6, 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.

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 Vasco Road Landfill was performed on 25-foot pathways in accordance with the LMR.

On, March 8, 9, 11, 18 and April 6, 2021, SCS performed first quarter 2021 surface emissions monitoring testing as required by the Bay Area Air Quality Management District (BAAQMD). Instantaneous surface emissions monitoring results indicated that one (1) location exceeded the 500 ppmv maximum concentration during our initial monitoring (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 (Installation of new bentonite plugs and earthwork) by site 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 Vasco Road Landfill surface area was therefore divided into 233 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 follow up monitoring 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 quarterly. 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 (see attached location map). 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.

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

BACKGROUND

The Vasco Road 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 Vasco Road property contains a system to control the combustible gases generated in the landfill.

SURFACE EMISSIONS MONITORING

On March 8, 9, 11, 18 and April 6, 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 8, 9, 11, 18 and April 6, 2021, SCS performed first quarter 2021 instantaneous emissions monitoring testing as required by the BAAQMD. During this monitoring, surface emissions results indicated that one (1) location exceeded the 500 ppmv maximum concentration. The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring performed on March 18 and April 6, 2021, respectively, indicated that all areas had returned to compliance following system adjustments and remediation (borehole repairs using bentonite) performed by site 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 monitoring indicated no integrated exceedances of the 25 ppmv requirement on March 8, 9, 11 and April 6, 2021, therefore no further testing was required. Results of the 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 8, 2021, quarterly leak monitoring was performed in accordance with the LMR. SCS performed LFG pressurized pipe and component leak monitoring at the BFS. 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 3.7 ppmv, was well below the maximum threshold (see Table 1 for component results). Therefore, all pressurized piping and components located at the LFG BFS were in compliance at the time of our testing.

PROJECT SCHEDULE

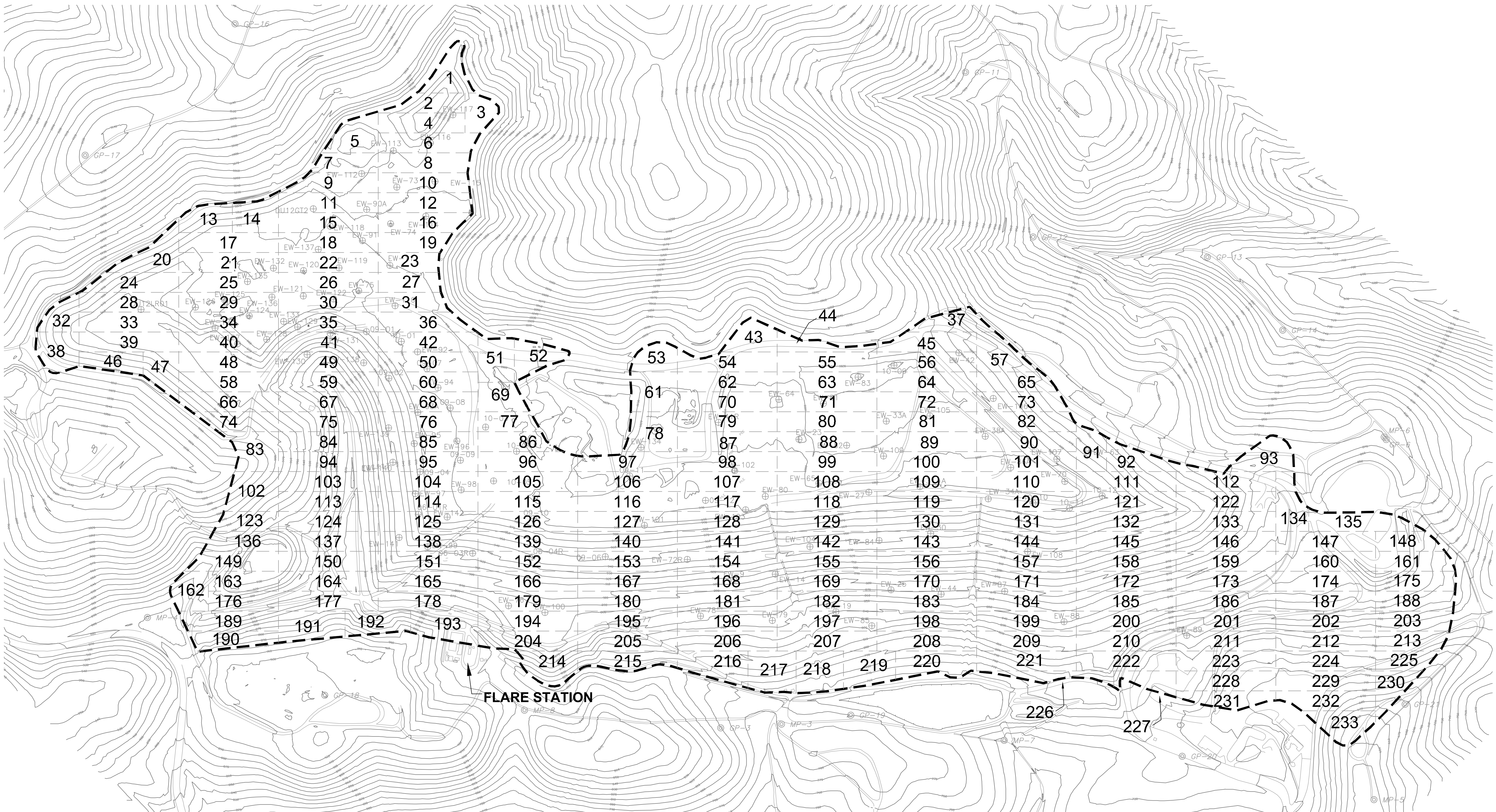
According to the LMR and NSPS, surface emissions monitoring at active landfills is required to be performed on a quarterly basis. Therefore, in accordance with our approved Work Scope, the second quarter 2021 (April through June) surface emissions testing event is scheduled to be performed by the end 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



0 250 500
SCALE IN FEET

LEGEND

	EXISTING SOLID WASTE BOUNDARY
1400	EXISTING 10' CONTOUR
1	SEM GRID BLOCK
EW-33	EXISTING VERTICAL GAS EXTRACTION WELL
MP-4 GP-32	EXISTING GAS MONITORING PROBE

NOTES:
1. THE 2016 TOPOGRAPHIC MAP WAS PREPARED BY COOPER AERIAL SURVEYS CO. DATE OF PHOTOGRAPHY: FEBRUARY 29, 2016. HORIZONTAL DATUM: NAD27, ZONE 3 VERTICAL DATUM: NGVD29.
2. THE 2016 GCCS AS-BUILT FILE WAS PROVIDED BY BAS ON SEPTEMBER 12, 2016.

DRAFT

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DATE OF ISSUE 9/22/2016
DRAWN BY RAW
DESIGNED BY ML
CHECKED BY SPP
APPROVED BY MED

cornerstone environmental

PREPARED BY:
CORNERSTONE ENVIRONMENTAL GROUP, LLC

VASCO ROAD LANDFILL
ALAMEDA COUNTY, CALIFORNIA

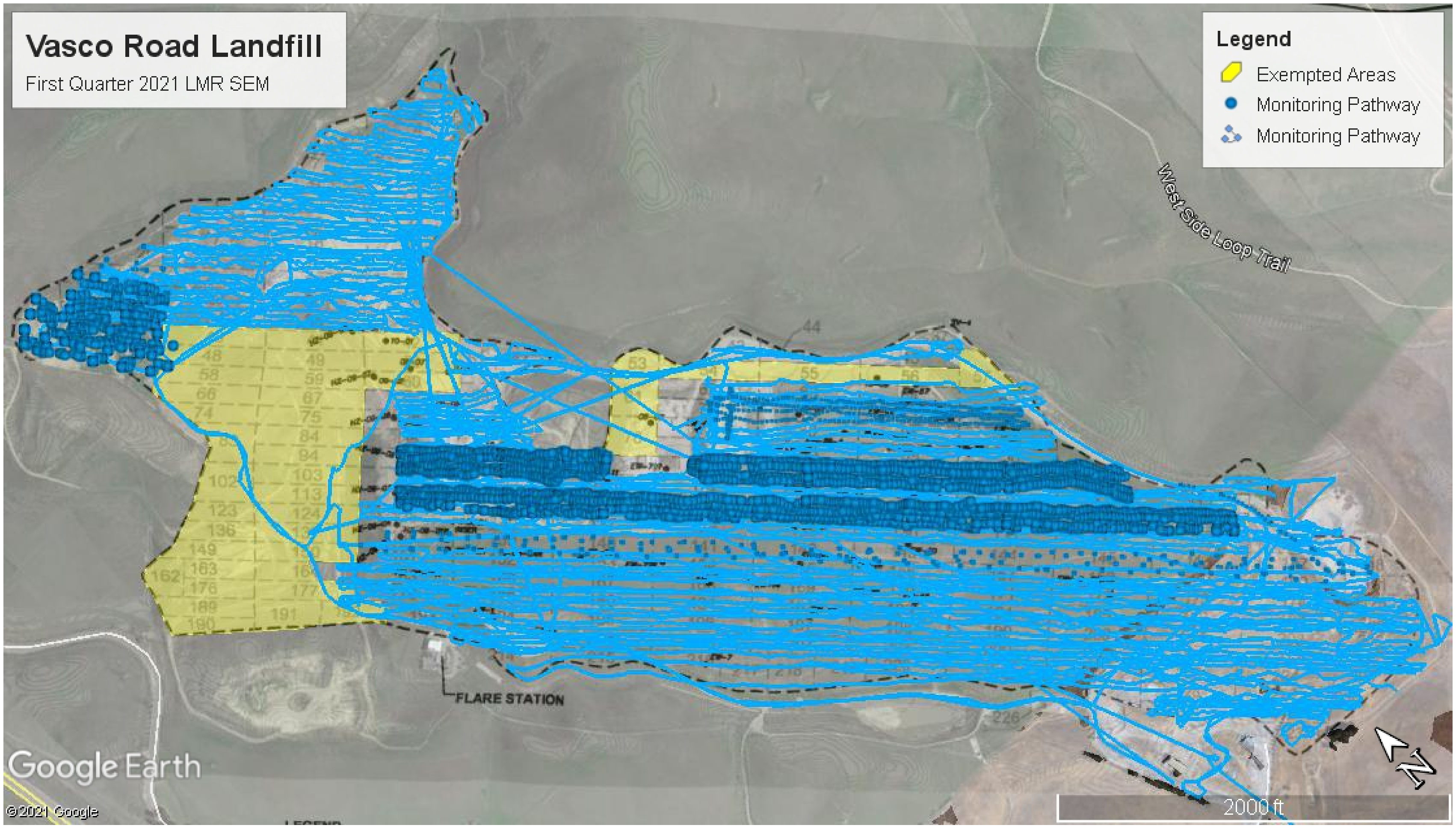
SURFACE EMISSIONS MONITORING GRID MAP

SHEET NO. 1

PROJECT NO. 160633

Attachment 2

Surface Pathway



First Quarter 2021
Initial LMR Surface Emissions Monitoring Pathway
Vasco Road Landfill, Livermore, California

Attachment 3

Instantaneous and Component Emissions Monitoring Results

First Quarter 2021

Table 1. Instantaneous Surface and Component Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

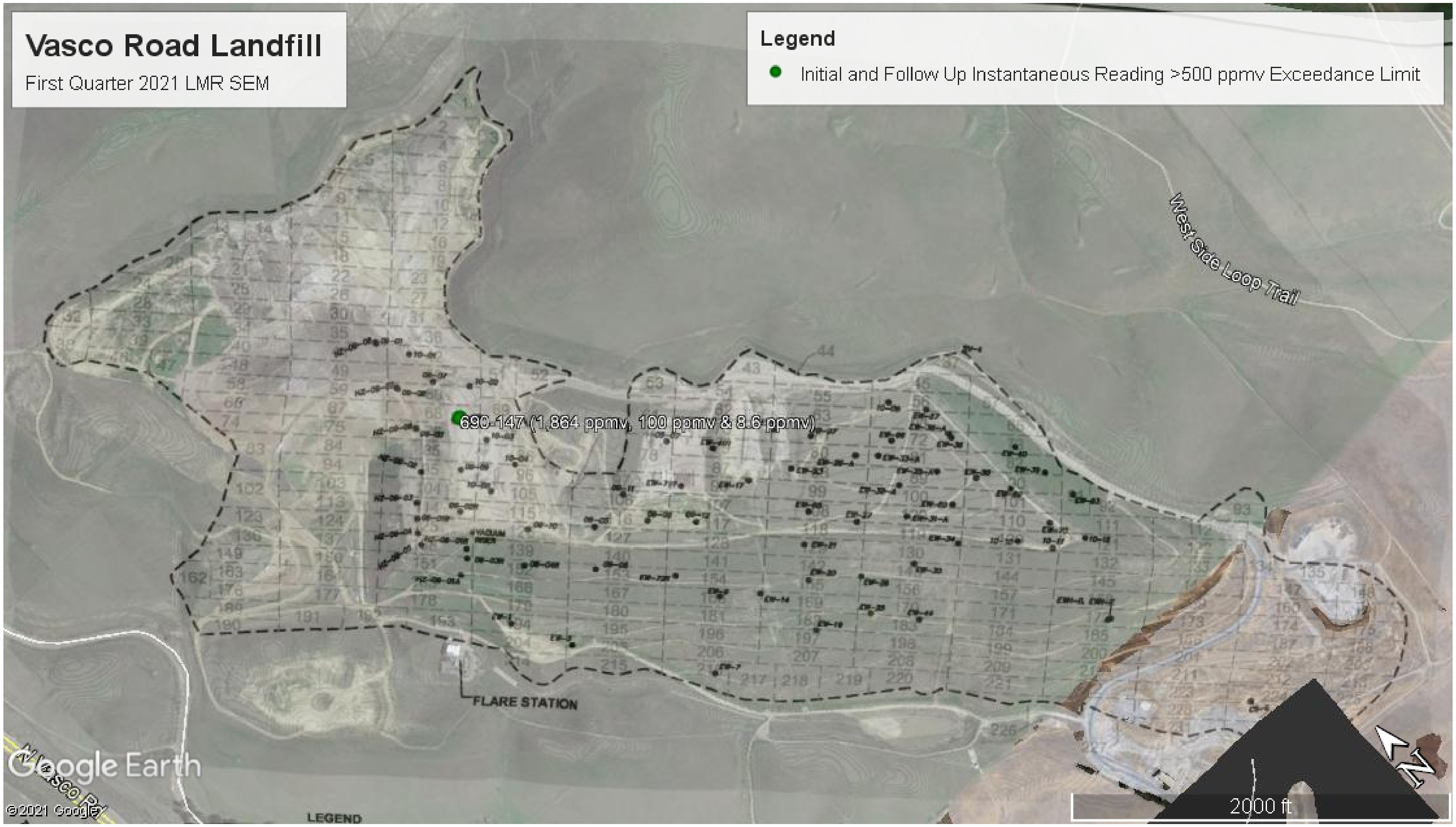
Instantaneous Data Report for March 8, 9, 11, 18, and April 6, 2021

Location (Surface)	Initial Monitoring Results (ppmv) March 8, 2021	10-Day Follow Up Monitoring Results (ppmv) March 18, 2021	30-Day Follow Up Monitoring Results (ppmv) April 6, 2021
690-147	1,864	100	8.6

Pressurized Pipe and Component Results

Route	Date	Concentration (ppmv)
FLARE STATION	3/8/2021	3.7

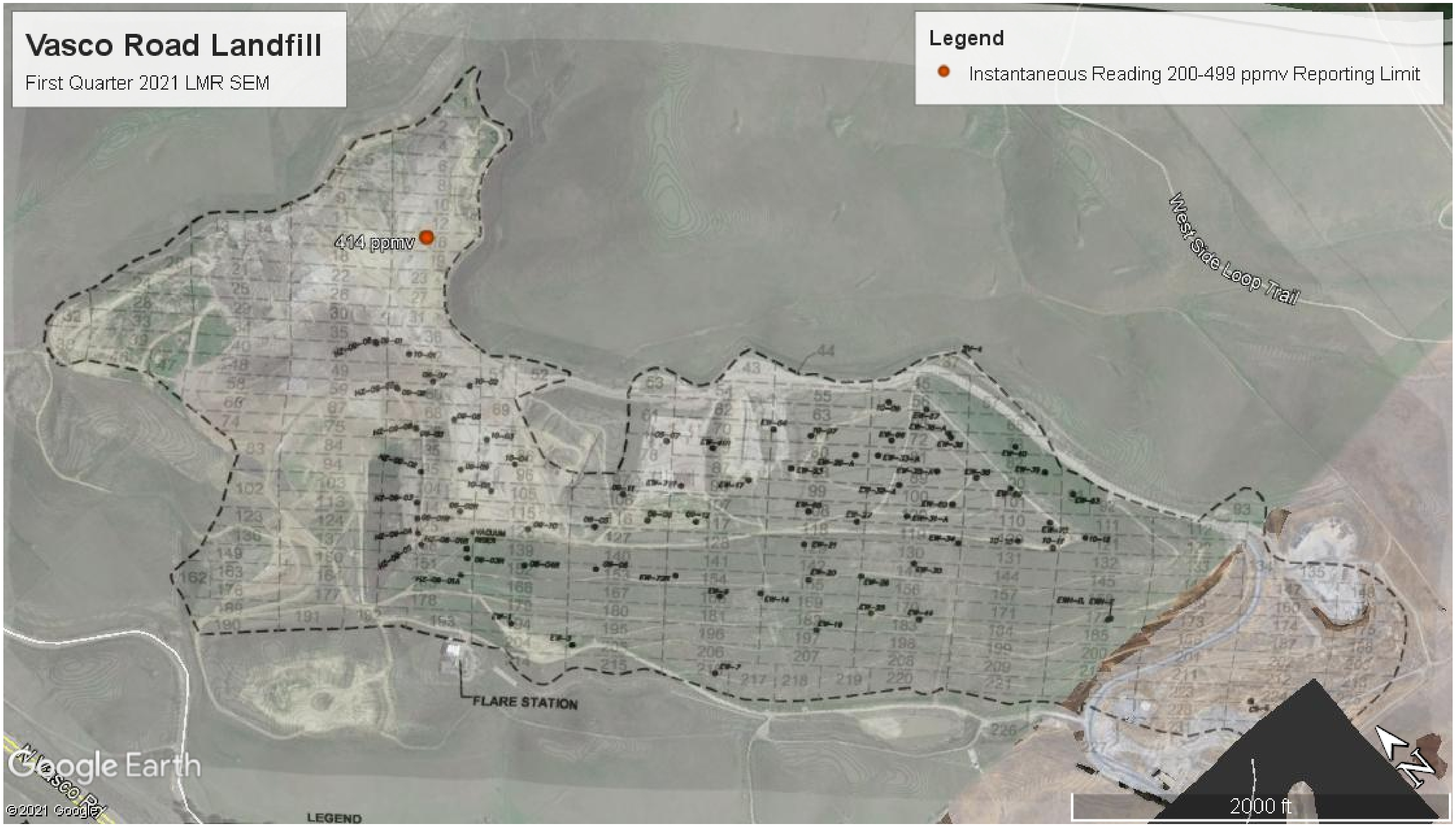
No other exceedances of the 500 ppmv threshold were observed during the first quarter 2021 monitoring.



First Quarter 2021

Initial and Follow Up Emissions Monitoring Results Greater Than 500 ppmv

Vasco Road Landfill, Livermore, California



First Quarter 2021
Emissions Monitoring Results of 200-499 ppmv
Vasco Road Landfill, Livermore, California

Attachment 4

Integrated Monitoring Results

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 001	3/8/2021	4.03	
VR 002	3/8/2021	7.53	
VR 003	3/8/2021	8.20	
VR 004	3/8/2021	5.39	
VR 005	3/8/2021	3.61	
VR 006	3/8/2021	5.63	
VR 007	3/8/2021	4.25	
VR 008	3/8/2021	9.46	
VR 009	3/8/2021	3.63	
VR 010	3/8/2021	5.09	
VR 011	3/8/2021	3.62	
VR 012	3/8/2021	4.59	
VR 013	3/8/2021	7.34	
VR 014	3/8/2021	3.44	
VR 015	3/8/2021	3.56	
VR 016	3/8/2021	7.61	
VR 017	3/8/2021	2.16	
VR 018	3/8/2021	3.40	
VR 019	3/8/2021	6.97	
VR 020	3/11/2021	7.51	
VR 021	3/8/2021	3.06	
VR 022	3/8/2021	3.68	
VR 023	3/8/2021	7.14	
VR 024	3/11/2021	3.45	
VR 025	3/8/2021	2.87	
VR 026	3/8/2021	4.26	
VR 027	3/8/2021	7.14	
VR 028	3/8/2021	1.53	
VR 029	3/8/2021	2.19	
VR 030	3/8/2021	5.80	
VR 031	3/8/2021	8.94	
VR 032	3/11/2021	6.69	
VR 033	3/8/2021	2.55	
VR 034	3/8/2021	4.20	
VR 035	3/8/2021	7.82	
VR 036	3/8/2021	7.04	
VR 037	3/11/2021	2.25	
VR 038	3/11/2021	6.12	
VR 039	3/11/2021	1.39	
VR 040	--	--	Active
VR 041	--	--	Active
VR 042	--	--	Active
VR 043	3/11/2021	2.33	

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 044	3/11/2021	2.34	
VR 045	3/11/2021	2.31	
VR 046	3/11/2021	1.95	
VR 047	3/11/2021	1.09	
VR 048	--	--	Active
VR 049	--	--	Active
VR 050	--	--	Active
VR 051	3/11/2021	3.34	
VR 052	3/11/2021	5.79	
VR 053	--	--	Active
VR 054	--	--	Active
VR 055	--	--	Active
VR 056	--	--	Active
VR 057	--	--	Active
VR 058	--	--	Active
VR 059	--	--	Active
VR 060	--	--	Active
VR 061	--	--	Active
VR 062	3/11/2021	2.89	
VR 063	3/11/2021	2.90	
VR 064	3/11/2021	2.89	
VR 065	3/11/2021	2.93	
VR 066	--	--	Active
VR 067	--	--	Active
VR 068	3/11/2021	8.41	
VR 069	3/11/2021	3.90	
VR 070	3/11/2021	3.29	
VR 071	3/11/2021	3.23	
VR 072	3/11/2021	3.30	
VR 073	3/11/2021	2.88	
VR 074	--	--	Active
VR 075	--	--	Active
VR 076	3/11/2021	13.76	
VR 077	3/11/2021	3.62	
VR 078	--	--	Active
VR 079	3/11/2021	2.66	
VR 080	3/11/2021	2.64	
VR 081	3/11/2021	2.61	
VR 082	3/11/2021	2.64	
VR 083	--	--	Active
VR 084	--	--	Active
VR 085	3/11/2021	8.84	
VR 086	3/11/2021	4.46	

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 087	3/11/2021	2.60	
VR 088	3/11/2021	2.69	
VR 089	3/11/2021	2.64	
VR 090	3/11/2021	2.63	
VR 091	3/11/2021	2.01	
VR 092	3/11/2021	2.02	
VR 093	3/11/2021	2.43	
VR 094	--	--	Active
VR 095	3/11/2021	6.87	
VR 096	3/11/2021	2.53	
VR 097	3/11/2021	2.07	
VR 098	3/11/2021	2.10	
VR 099	3/11/2021	2.02	
VR 100	3/11/2021	2.00	
VR 101	3/11/2021	2.01	
VR 102	--	--	Active
VR 103	--	--	Active
VR 104	3/11/2021	5.26	
VR 105	3/11/2021	4.37	
VR 106	3/11/2021	2.79	
VR 107	3/11/2021	2.54	
VR 108	3/11/2021	2.50	
VR 109	3/11/2021	2.59	
VR 110	3/11/2021	2.52	
VR 111	3/11/2021	2.52	
VR 112	3/11/2021	3.44	
VR 113	--	--	Active
VR 114	3/11/2021	9.37	
VR 115	3/11/2021	6.77	
VR 116	3/11/2021	1.98	
VR 117	3/11/2021	1.60	
VR 118	3/11/2021	1.42	
VR 119	3/11/2021	1.40	
VR 120	3/11/2021	1.40	
VR 121	3/11/2021	2.19	
VR 122	3/11/2021	4.18	
VR 123	--	--	Active
VR 124	--	--	Active
VR 125	3/11/2021	6.40	
VR 126	3/11/2021	2.56	
VR 127	3/11/2021	2.54	
VR 128	3/11/2021	1.99	
VR 129	3/11/2021	1.95	

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 130	3/11/2021	1.84	
VR 131	3/11/2021	1.84	
VR 132	3/11/2021	2.05	
VR 133	3/11/2021	3.00	
VR 134	3/11/2021	2.25	
VR 135	3/11/2021	2.30	
VR 136	--	--	Active
VR 137	--	--	Active
VR 138	3/11/2021	5.58	
VR 139	3/11/2021	4.92	
VR 140	3/11/2021	3.30	
VR 141	3/11/2021	3.25	
VR 142	3/11/2021	2.85	
VR 143	3/11/2021	2.83	
VR 144	3/11/2021	3.19	
VR 145	3/11/2021	3.63	
VR 146	3/11/2021	2.75	
VR 147	3/11/2021	2.78	
VR 148	3/11/2021	3.00	
VR 149	--	--	Active
VR 150	--	--	Active
VR 151	3/11/2021	4.00	
VR 152	3/11/2021	2.96	
VR 153	3/11/2021	2.48	
VR 154	3/11/2021	2.39	
VR 155	3/11/2021	2.36	
VR 156	3/11/2021	2.13	
VR 157	3/11/2021	2.22	
VR 158	3/11/2021	2.24	
VR 159	3/11/2021	2.77	
VR 160	3/11/2021	3.48	
VR 161	3/11/2021	2.73	
VR 162	--	--	Active
VR 163	--	--	Active
VR 164	3/9/2021	1.20	
VR 165	3/9/2021	1.68	
VR 166	3/9/2021	1.30	
VR 167	3/9/2021	1.19	
VR 168	3/9/2021	1.22	
VR 169	3/9/2021	1.25	
VR 170	3/9/2021	1.16	
VR 171	3/9/2021	1.19	
VR 172	3/9/2021	1.37	

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 173	3/9/2021	3.13	
VR 174	3/9/2021	5.44	
VR 175	3/9/2021	2.50	
VR 176	--	--	Active
VR 177	--	--	Active
VR 178	3/9/2021	1.60	
VR 179	3/9/2021	1.43	
VR 180	3/9/2021	1.41	
VR 181	3/9/2021	1.26	
VR 182	3/9/2021	1.38	
VR 183	3/9/2021	1.32	
VR 184	3/9/2021	1.33	
VR 185	3/9/2021	1.48	
VR 186	3/9/2021	3.93	
VR 187	3/9/2021	3.52	
VR 188	3/9/2021	2.64	
VR 189	--	--	Active
VR 190	--	--	Active
VR 191	--	--	Active
VR 192	--	--	Active
VR 193	3/9/2021	2.26	
VR 194	3/9/2021	1.50	
VR 195	3/9/2021	1.48	
VR 196	3/9/2021	1.52	
VR 197	3/9/2021	1.50	
VR 198	3/9/2021	1.52	
VR 199	3/9/2021	1.54	
VR 200	3/9/2021	1.64	
VR 201	3/9/2021	1.94	
VR 202	3/9/2021	3.06	
VR 203	3/9/2021	1.39	
VR 204	3/9/2021	1.52	
VR 205	3/9/2021	1.49	
VR 206	3/9/2021	1.49	
VR 207	3/9/2021	1.47	
VR 208	3/9/2021	1.45	
VR 209	3/9/2021	1.48	
VR 210	3/9/2021	1.56	
VR 211	3/9/2021	1.49	
VR 212	3/9/2021	1.72	
VR 213	3/9/2021	1.50	
VR 214	3/9/2021	1.56	
VR 215	3/9/2021	2.19	

First Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 216	3/9/2021	1.35	
VR 217	3/9/2021	1.31	
VR 218	3/9/2021	1.39	
VR 219	3/9/2021	1.28	
VR 220	3/9/2021	1.22	
VR 221	3/9/2021	1.25	
VR 222	3/9/2021	1.46	
VR 223	3/9/2021	1.49	
VR 224	3/9/2021	1.44	
VR 225	3/9/2021	1.33	
VR 226	3/9/2021	1.60	
VR 227	3/9/2021	1.95	
VR 228	3/9/2021	1.53	
VR 229	3/9/2021	2.29	
VR 230	3/9/2021	1.48	
VR 231	3/9/2021	1.26	
VR 232	3/9/2021	1.10	
VR 233	3/9/2021	1.00	

Attachment 5

Calibration Logs

Pre

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-8-21 Site Name: Vasco

Inspector(s): Hunter Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: SSE 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	498	2	3
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= 166425
Counters Observed for the Zero= 3742

Trial 2:
Counts Observed for the Span= 166893
Counters Observed for the Zero= 3791

Trial 3:
Counts Observed for the Span= 167369
Counters Observed for the Zero= 3827

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: Flare 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: 3-8-21 Site Name: Vasco

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 9 MPH Wind Direction: SSE 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	50	502	2	3
2	.1	499	1	5
3	0	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= 137351

Counters Observed for the Zero= 3247

Trial 2:

Counts Observed for the Span= 137946

Counters Observed for the Zero= 3212

Trial 3:

Counts Observed for the Span= 138251

Counters Observed for the Zero= 3310

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: Flare 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: 3-8-21 Site Name: Vasco

Inspector(s): Pablo R Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 9 MPH Wind Direction: SSE 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	5.0	501	1	4
2	.1	499	1	3
3	.1	502	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= 138741
Counters Observed for the Zero= 4585

Trial 2:
Counts Observed for the Span= 139263
Counters Observed for the Zero= 4631

Trial 3:
Counts Observed for the Span= 139627
Counters Observed for the Zero= 4688

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: Flare 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: 3-8-21 Site Name: Vasco

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 9 MPH Wind Direction: SSE 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	.2	502	2	4
2	.1	498	2	4
3	.1	500	0	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= 178593
Counters Observed for the Zero= 3784

Trial 2:
Counts Observed for the Span= 178874
Counters Observed for the Zero= 3816

Trial 3:
Counts Observed for the Span= 179358
Counters Observed for the Zero= 3859

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: Flare 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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-8-21 Site Name: Vasco

Inspector(s): Hunter O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 11 MPH Wind Direction: S Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: Cloudy

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	5
2	.2	499	1	4
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= 166537	**Trial 3:** Counts Observed for the Span= 167641
Counters Observed for the Zero= 3842	Counters Observed for the Zero= 3925
Trial 2: Counts Observed for the Span= 167351	
Counters Observed for the Zero= 3897	

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: Flare 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: 3-8-21 Site Name: Yasco

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 11 MPH Wind Direction: S Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: cloudy

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	5
2	.1	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= 136743
Counters Observed for the Zero= 3710

Trial 2:
Counts Observed for the Span= 136958
Counters Observed for the Zero= 3245

Trial 3:
Counts Observed for the Span= 137351
Counters Observed for the Zero= 3296

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: Flare 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: 3-8-21 Site Name: Vasco

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 11 MPH Wind Direction: S Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: cloudy

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	5
2	0	501	1	4
3	.2	498	2	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= 178571

Counters Observed for the Zero= 3942

Trial 2:

Counts Observed for the Span= 179025

Counters Observed for the Zero= 3963

Trial 3:

Counts Observed for the Span= 179426

Counters Observed for the Zero= 4027

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: Flare 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: 3-8-21 Site Name: Vasco

Inspector(s): Pablo R Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 11 MPH Wind Direction: S Barometric Pressure: 30 "Hg

Air Temperature: 55 °F General Weather Conditions: cloudy

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	.2	501	1	3
2	.1	498	2	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= 139427
Counters Observed for the Zero= 4585

Trial 3:
Counts Observed for the Span= 140126
Counters Observed for the Zero= 4679

Trial 2:
Counts Observed for the Span= 139753
Counters Observed for the Zero= 4624

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: Flare 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: 3-9-2021 Site Name: Vasco

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: ESE Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: cloudy

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	501	1	3
2	.2	499	1	4
3	0	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= 165352
Counters Observed for the Zero= 3731

Trial 2:
Counts Observed for the Span= 165624
Counters Observed for the Zero= 3768

Trial 3:
Counts Observed for the Span= 165983
Counters Observed for the Zero= 3814

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: Flare 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: 3-9-2021 Site Name: Vasco

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: ESE Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: Cloudy

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	3
2	.1	501	1	2
3	0	503	3	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= 136268
Counters Observed for the Zero= 3012

Trial 2:
Counts Observed for the Span= 136581
Counters Observed for the Zero= 3059

Trial 3:
Counts Observed for the Span= 136972
Counters Observed for the Zero= 3103

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: Flare 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: 3-9-21 Site Name: Vasco

Inspector(s): Brant W Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: ESE Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: cloudy

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	0	499	1	4
2	1	499	1	3
3	0	502	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= 145280 Counters Observed for the Zero= 4617	**Trial 3:** Counts Observed for the Span= 145972 Counters Observed for the Zero= 4692
Trial 2: Counts Observed for the Span= 145628 Counters Observed for the Zero= 4649	

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: Flare 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: 3-9-2021 Site Name: Vasco

Inspector(s): Cody Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: ESE Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: cloudy

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	497	3	4
2	0	499	1	3
3	0	500	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= 149848
Counters Observed for the Zero= 3904

Trial 2:
Counts Observed for the Span= 150263
Counters Observed for the Zero= 3948

Trial 3:
Counts Observed for the Span= 150571
Counters Observed for the Zero= 3985

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.1 ppm

Downwind Location Description: Flare 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: 3-9-21 Site Name: Vasco

Inspector(s): Liam M Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: ESE Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: cloudy

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	0	502	2	4
2	1	501	1	5
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= 21692
Counters Observed for the Zero= 4059

Trial 2:
Counts Observed for the Span=
Counters Observed for the Zero= 4193

Trial 3:
Counts Observed for the Span=
Counters Observed for the Zero= 4235

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: Flare 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: 3-9-21 Site Name: Vasco

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: ESE Barometric Pressure: 30 "Hg

Air Temperature: 42 °F General Weather Conditions: cloudy

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	498	2	5
2	.1	501	1	
3	.2	498	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= 116744

Counters Observed for the Zero= 3994

Trial 2:

Counts Observed for the Span= 117351

Counters Observed for the Zero= 4026

Trial 3:

Counts Observed for the Span= 117842

Counters Observed for the Zero= 4057

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: Flare 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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-9-21 Site Name: Vasco

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7.8 MPH Wind Direction: NNW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: Cloudy

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	501	1	4
2	.1	498	2	3
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= 163468
Counters Observed for the Zero= 3851

Trial 2:
Counts Observed for the Span= 163852
Counters Observed for the Zero= 3879

Trial 3:
Counts Observed for the Span= 164179
Counters Observed for the Zero= 3921

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: Flare 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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 3-9-21 Site Name: Vasco

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7.8 MPH Wind Direction: NNW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: cloudy

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	5
2	.1	500	0	4
3	0	503	3	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= 135426
Counters Observed for the Zero= 3125

Trial 2:
Counts Observed for the Span= 135874
Counters Observed for the Zero= 3154

Trial 3:
Counts Observed for the Span= 136253
Counters Observed for the Zero= 3185

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: Flare 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: 3-9-2021 Site Name: Vaolo

Inspector(s): Brant W Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 54 MPH Wind Direction: 7.8 Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: cloudy

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	.2	502	2	4
2	.1	498	2	3
3	.1	500	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= 144174 Counters Observed for the Zero= 4709	**Trial 3:** Counts Observed for the Span= 144891 Counters Observed for the Zero= 4774
Trial 2: Counts Observed for the Span= 144368 Counters Observed for the Zero= 4731	

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: Flare 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: 3-9-2021 Site Name: Vasco

Inspector(s): ______ Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7.8 MPH Wind Direction: NNW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: cloudy

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	3
2	.2	499	1	5
3	0	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= 147275
Counters Observed for the Zero= 4020

Trial 2:
Counts Observed for the Span= 147481
Counters Observed for the Zero= 4056

Trial 3:
Counts Observed for the Span= 147845
Counters Observed for the Zero= 4103

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: Flare 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: 3-9-2021 Site Name: Vasco

Inspector(s): Liam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7.8 MPH Wind Direction: NNW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: cloudy

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: 7364 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	4
3	0	498	2	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=

Counters Observed for the Zero= 4303

Trial 2:

Counts Observed for the Span=

Counters Observed for the Zero= 4377

Trial 3:

Counts Observed for the Span=

Counters Observed for the Zero= 4381

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: Flare 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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 7-2-21 Site Name: Nasco

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 7.8 MPH Wind Direction: NNW Barometric Pressure: 30 "Hg

Air Temperature: 54 °F General Weather Conditions: Cloudy

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	5
2	.1	498	2	4
3	0	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= 115349

Counters Observed for the Zero= 4085

Trial 2:

Counts Observed for the Span= 115842

Counters Observed for the Zero 4125

Trial 3:

Counts Observed for the Span= 116253

Counters Observed for the Zero= 4183

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.9 ppm

Downwind Location Description: Flare 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: 4-6-21 Site Name: Vasco

Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 65 °F General Weather Conditions: Cloudy

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	501	1	2
2	2	502	2	1
3	1	501	1	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= 165723 Counters Observed for the Zero= 3634	**Trial 3:** Counts Observed for the Span= 166837 Counters Observed for the Zero= 3685
Trial 2: Counts Observed for the Span= 165612 Counters Observed for the Zero= 3641	

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 93 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.

post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-6-21 Site Name: Vasco

Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: n/a 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	1	502	2	2
2	2	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= 167412
Counters Observed for the Zero= 3684

Trial 2:
Counts Observed for the Span= 168394
Counters Observed for the Zero= 3741

Trial 3:
Counts Observed for the Span= 168783
Counters Observed for the Zero= 3754

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

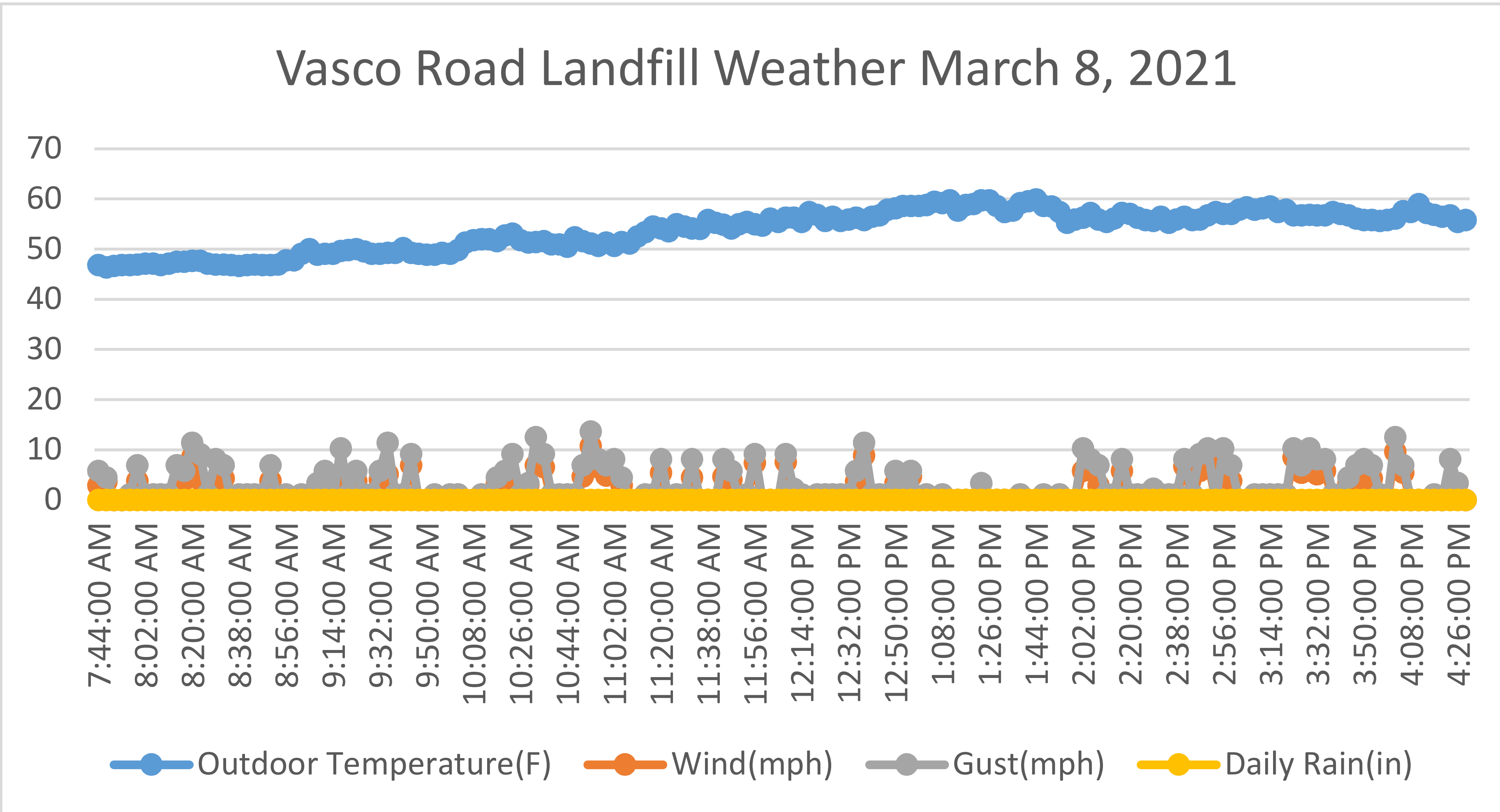
Upwind Location Description: Entrance Reading: 1.2 ppm

Downwind Location Description: Grid 93 Reading: 1.3 ppm

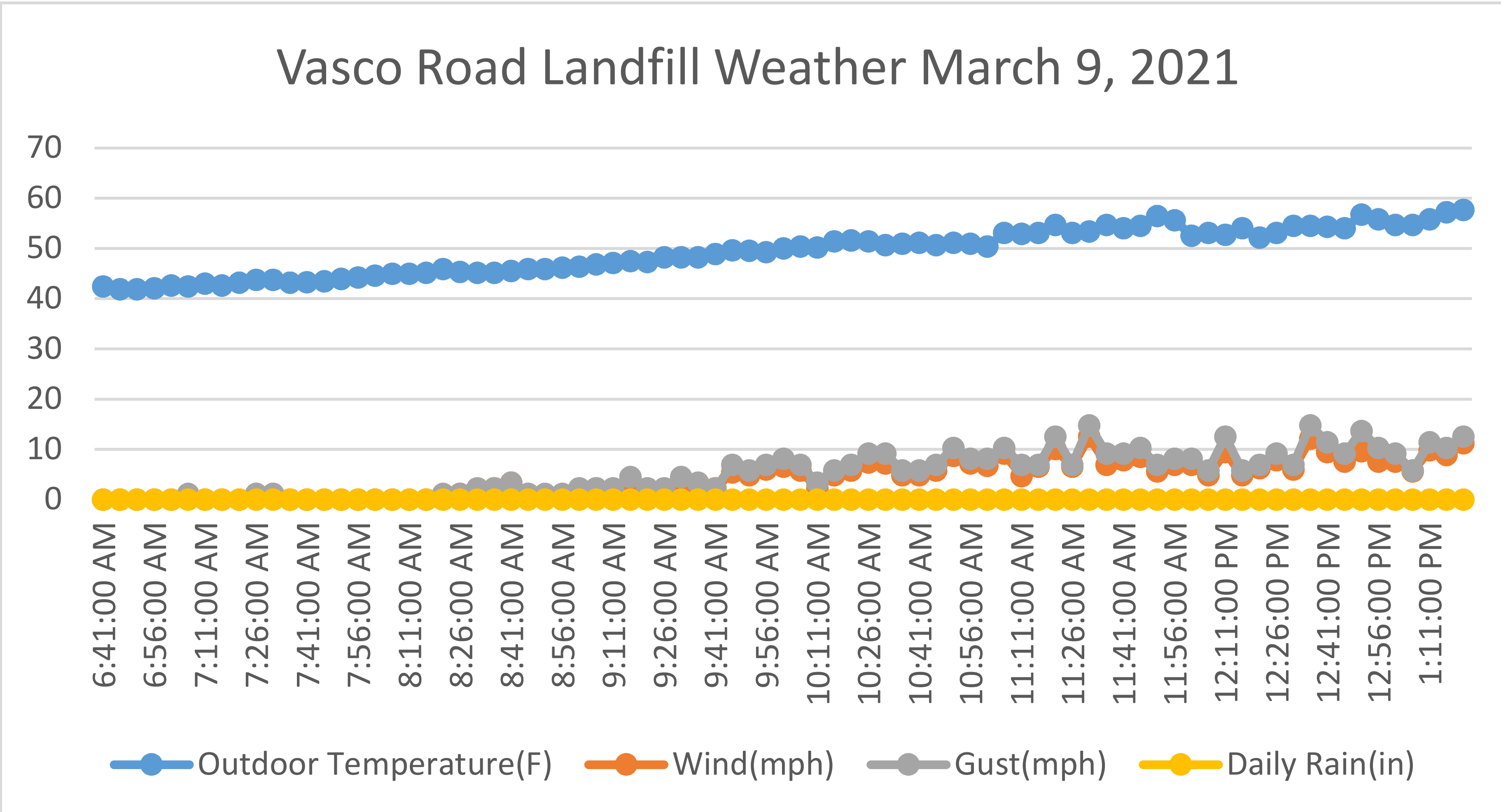
Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested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

Attachment 6

Weather Data



Vasco Road Landfill Weather March 8, 2021
70
60
50
40
30
20
10
0
7:44:00 AM
8:02:00 AM
8:20:00 AM
8:38:00 AM
8:56:00 AM
9:14:00 AM
9:32:00 AM
9:50:00 AM
10:08:00 AM
10:26:00 AM
10:44:00 AM
11:02:00 AM
11:20:00 AM
11:38:00 AM
11:56:00 AM
12:14:00 PM
12:32:00 PM
12:50:00 PM
1:08:00 PM
1:26:00 PM
1:44:00 PM
2:02:00 PM
2:20:00 PM
2:38:00 PM
2:56:00 PM
3:14:00 PM
3:32:00 PM
3:50:00 PM
4:08:00 PM
4:26:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Daily Rain(in)


Vasco Road Landfill Weather March 9, 2021
70
60
50
40
30
20
10
0
6:41:00 AM
6:56:00 AM
7:11:00 AM
7:26:00 AM
7:41:00 AM
7:56:00 AM
8:11:00 AM
8:26:00 AM
8:41:00 AM
8:56:00 AM
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9:41:00 AM
9:56:00 AM
10:11:00 AM
10:26:00 AM
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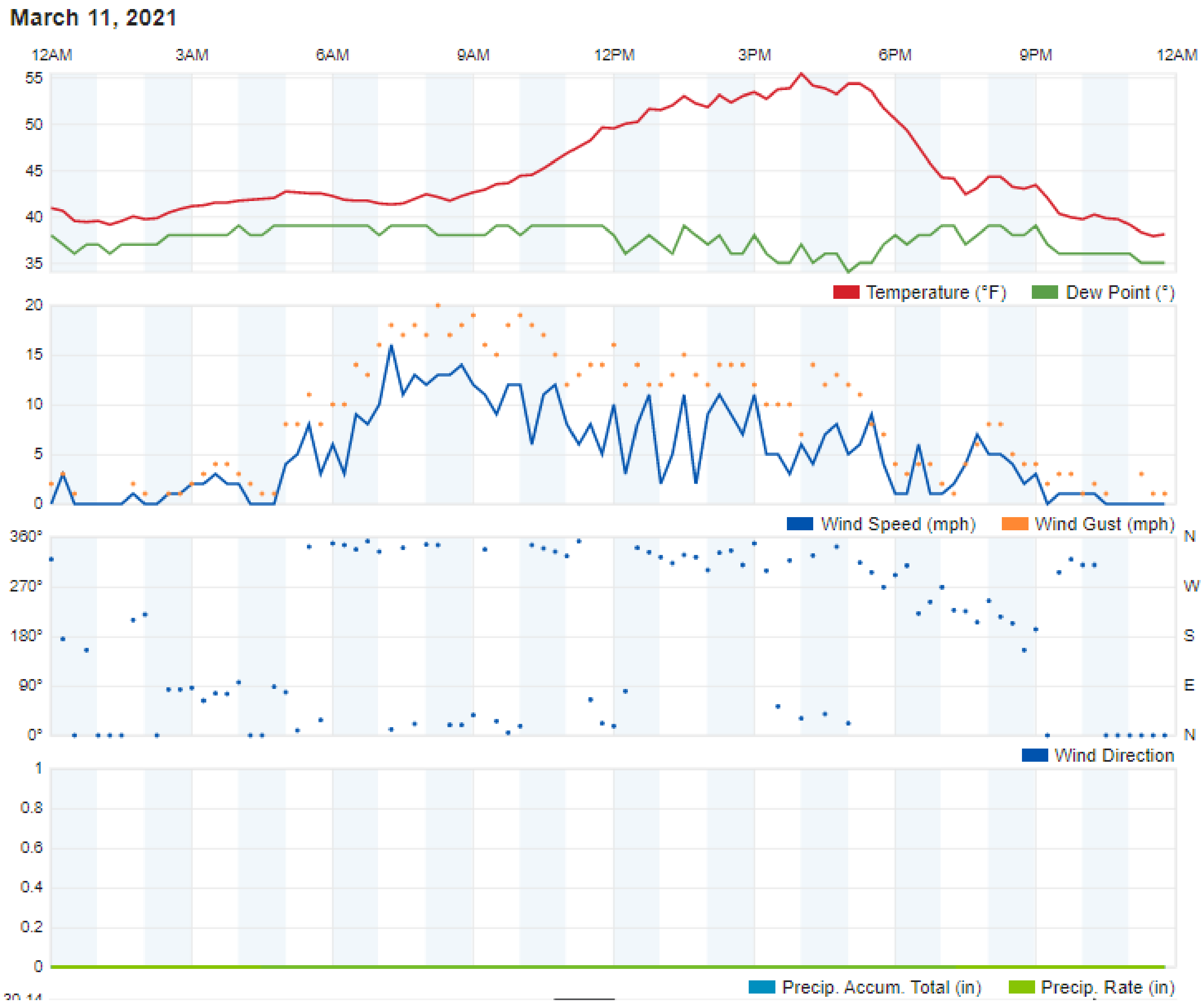
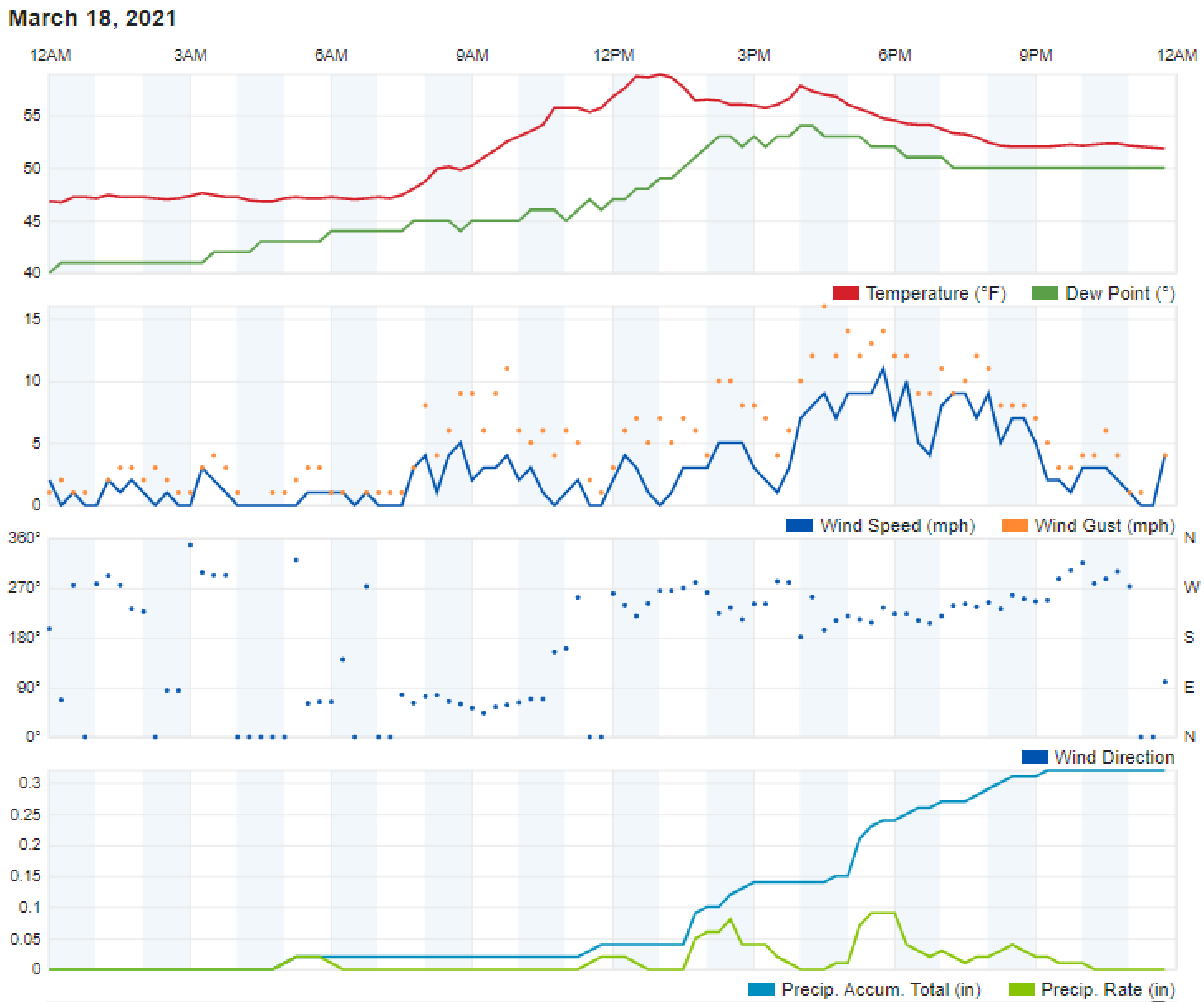
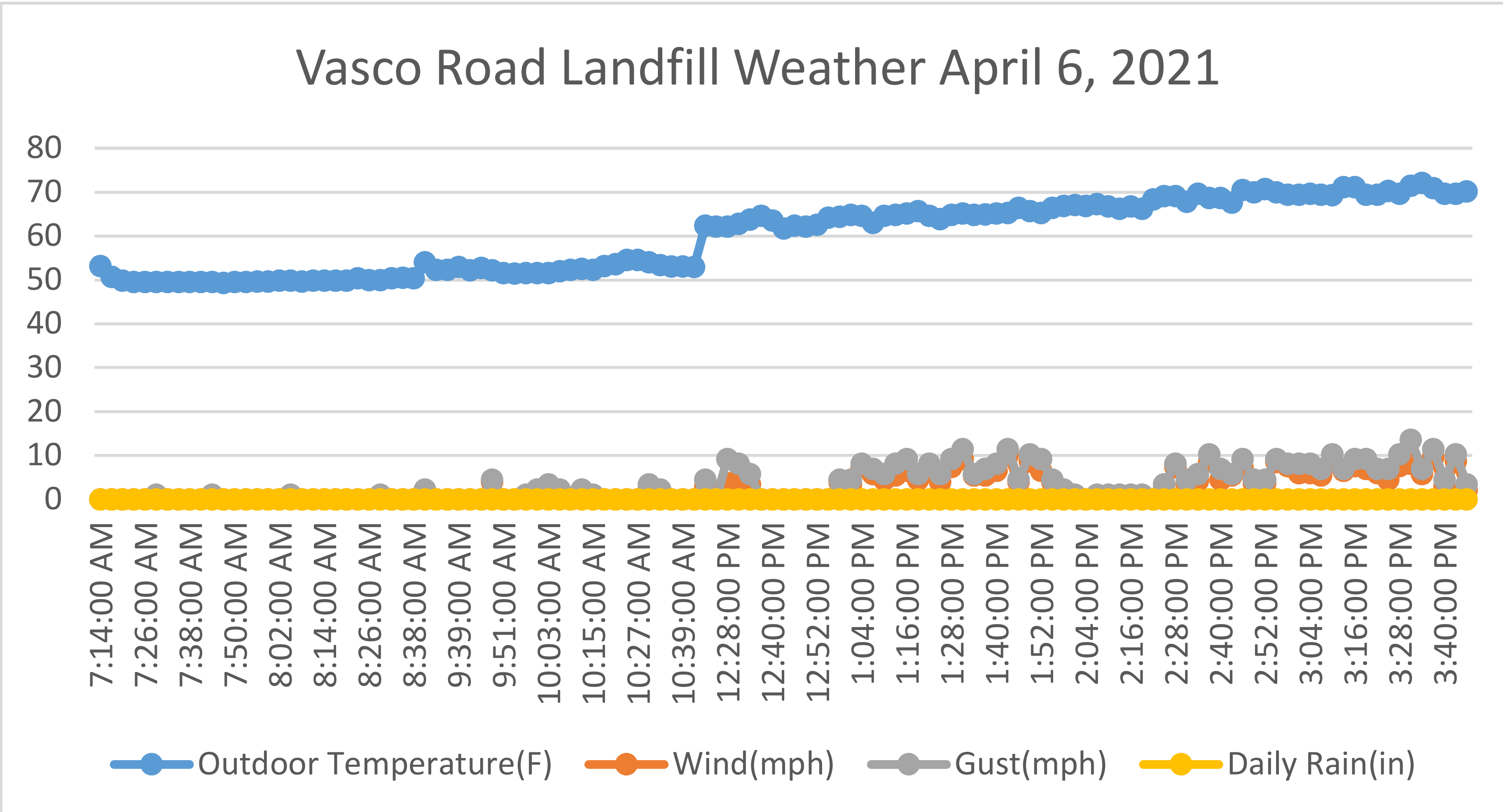
10:56:00 AM
11:11:00 AM
11:26:00 AM
11:41:00 AM
11:56:00 AM
12:11:00 PM
12:26:00 PM
12:41:00 PM
12:56:00 PM
1:11:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Daily Rain(in)



First Quarter 2021
Weather Data for March 11, 2021
Vasco Road Landfill, Livermore, California



First Quarter 2021
Weather Data for March 18, 2021
Vasco Road Landfill, Livermore, California


Vasco Road Landfill Weather April 6, 2021
80
70
60
50
40
30
20
10
0
7:14:00 AM
7:26:00 AM
7:38:00 AM
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8:02:00 AM
8:14:00 AM
8:26:00 AM
8:38:00 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
12:28:00 PM
12:40:00 PM
12:52:00 PM
1:04:00 PM
1:16:00 PM
1:28:00 PM
1:40:00 PM
1:52:00 PM
2:04:00 PM
2:16:00 PM
2:28:00 PM
2:40:00 PM
2:52:00 PM
3:04:00 PM
3:16:00 PM
3:28:00 PM
3:40:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Daily Rain(in)

SCS FIELD SERVICES

Environmental
Consultants & Contractors

July 16, 2021
File No. 07221004.01

Ms. Antonia Gunner
Republic Services – Vasco Road Landfill
4001 N. Vasco Road
Livermore, California 94551

Subject: Vasco Road Landfill - Livermore, California

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

Dear Ms. Gunner:

SCS Field Services (SCS-FS) is pleased to provide the Republic Services, with the enclosed report summarizing the surface emissions monitoring services provided at the Vasco Road 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-FS appreciates the opportunity to be of assistance to Republic Services on this project. As you review the enclosed information, please contact Art Jones (209) 345-2062, Michael Calmes at (209) 573-3364 or Whitney Stackhouse at (209) 338-7990 if you have any questions or comments.

Sincerely,

Whitney Stackhouse
Project Manager
SCS Field Services

Michael Calmes
Project Manager
SCS Field Services

Encl.

Art Jones, SCS Field Services

Vasco Road Landfill

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

Second Quarter 2021

Presented to:

Ms. Antonia Gunner
Republic Services – Vasco Road
4001 N. Vasco Road
Livermore, California 94551

SCS FIELD SERVICES

File No. 07221004.01 | July 16, 2021

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

Vasco Road 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 1, 2, 5, 15 and May 5, 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.

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 Vasco Road Landfill was performed on 25-foot pathways in accordance with the LMR.

On, April 1, 2, 5, 15 and May 5, 2021, SCS performed second quarter 2021 surface emissions monitoring testing as required by the Bay Area Air Quality Management District (BAAQMD). Instantaneous surface emissions monitoring results indicated that two (2) location exceeded the 500 ppmv maximum concentration during our initial monitoring (Table 1 in Attachment 3). The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring indicated that both locations had returned to below regulatory compliance limits following system adjustments and remediation (Installation of new bentonite plugs and earthwork) by site 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 grid areas. The Vasco Road Landfill surface area was therefore divided into 233 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 follow up monitoring 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 quarterly. 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, no locations were 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.

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

BACKGROUND

The Vasco Road 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 Vasco Road property contains a system to control the combustible gases generated in the landfill.

SURFACE EMISSIONS MONITORING

On April 1, 2, 5, 15 and May 5, 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 1, 2, and 5, 2021, SCS performed second quarter 2021 instantaneous emissions monitoring testing as required by the BAAQMD. During this monitoring, surface emissions results indicated that two (2) locations exceeded the 500 ppmv maximum concentration. The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring performed on April 15 and May 5, 2021, respectively, indicated that all areas had returned to compliance following system adjustments and remediation (borehole repairs using bentonite) performed by site 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 monitoring indicated no integrated exceedances of the 25 ppmv requirement on April 1, 2, and 5, 2021, therefore no further testing was required. Results of the 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 third quarter 2021.

PRESSURIZED PIPE AND COMPONENT LEAK MONITORING

On April 1, 2021, quarterly leak monitoring was performed in accordance with the LMR. SCS performed LFG pressurized pipe and component leak monitoring at the BFS. Monitoring was performed with the detector inlet held one-half of an inch from pressurized piping and associated components. No locations exceeding the 500 ppmv threshold were observed during our monitoring event. The maximum reading, which was 5.7 ppmv, was well below the maximum threshold (see Table 1 for component results). Therefore, all pressurized piping and components located at the LFG BFS 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

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS

3117 FITE CIRCLE, SUITE 108
SACRAMENTO, CALIFORNIA 95827
PH. (916) 361-1297 FAX. (916) 361-1299

PROJ. NO.	07217028.00	DWN. BY:	ATV	ACAD FILE:	FIGURE 1.DWG
DSN. BY:	ATV	CHK. BY:	WBS	APP. BY:	AJ

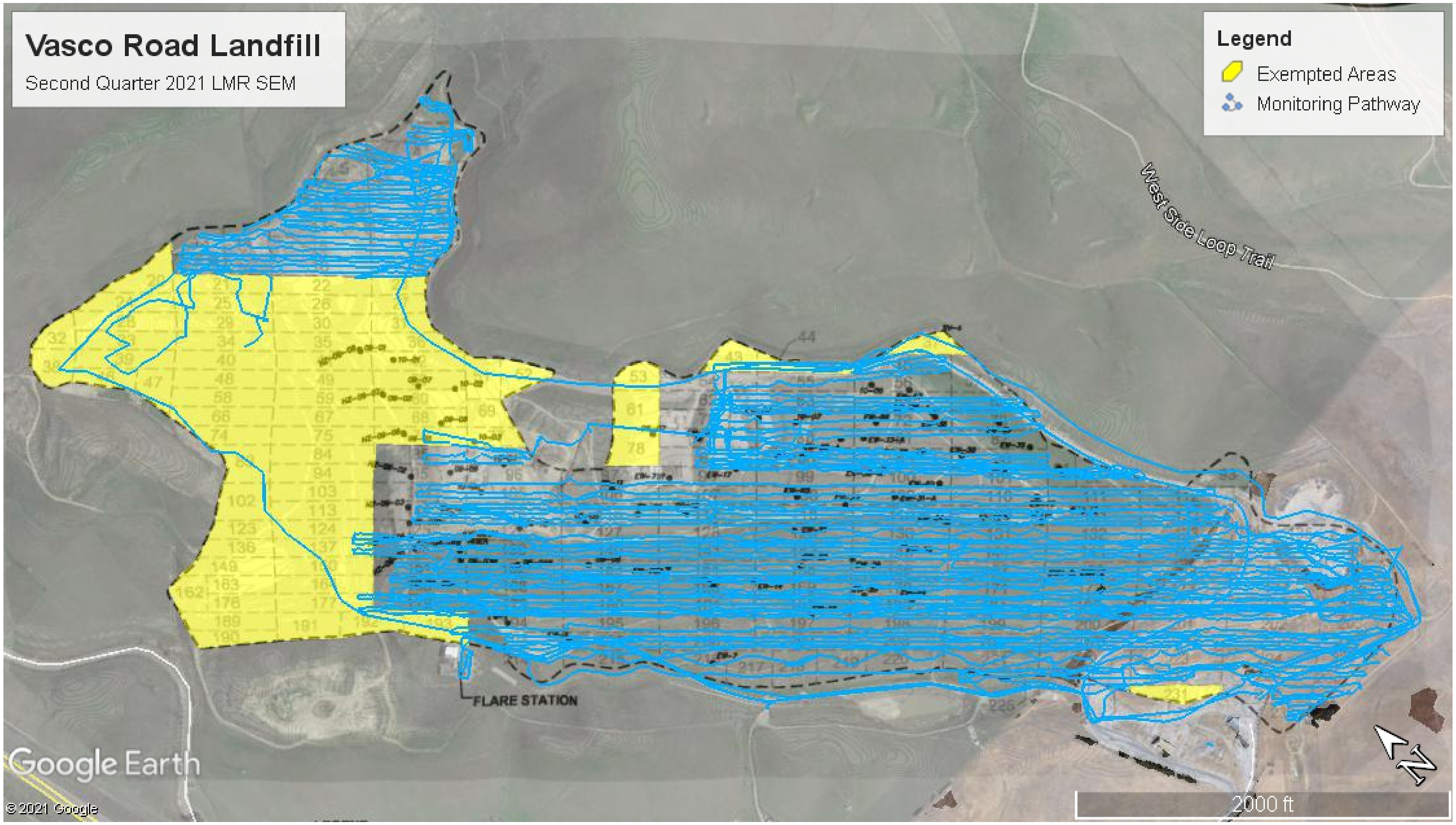
SHEET TITLE:
SURFACE EMISSIONS MONITORING GRID MAP

PROJECT TITLE:
VASCO ROAD LANDFILL
ALAMEDA COUNTY, CALIFORNIA

DATE: 3/14/17
SCALE: AS SHOWN
FIGURE: 1-A

Attachment 2

Surface Pathway



Second Quarter 2021
Initial LMR Surface Emissions Monitoring Pathway
Vasco Road Landfill, Livermore, California

Attachment 3

Instantaneous and Component Emissions Monitoring Results

Second Quarter 2021

Table 1. Instantaneous Surface and Component Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

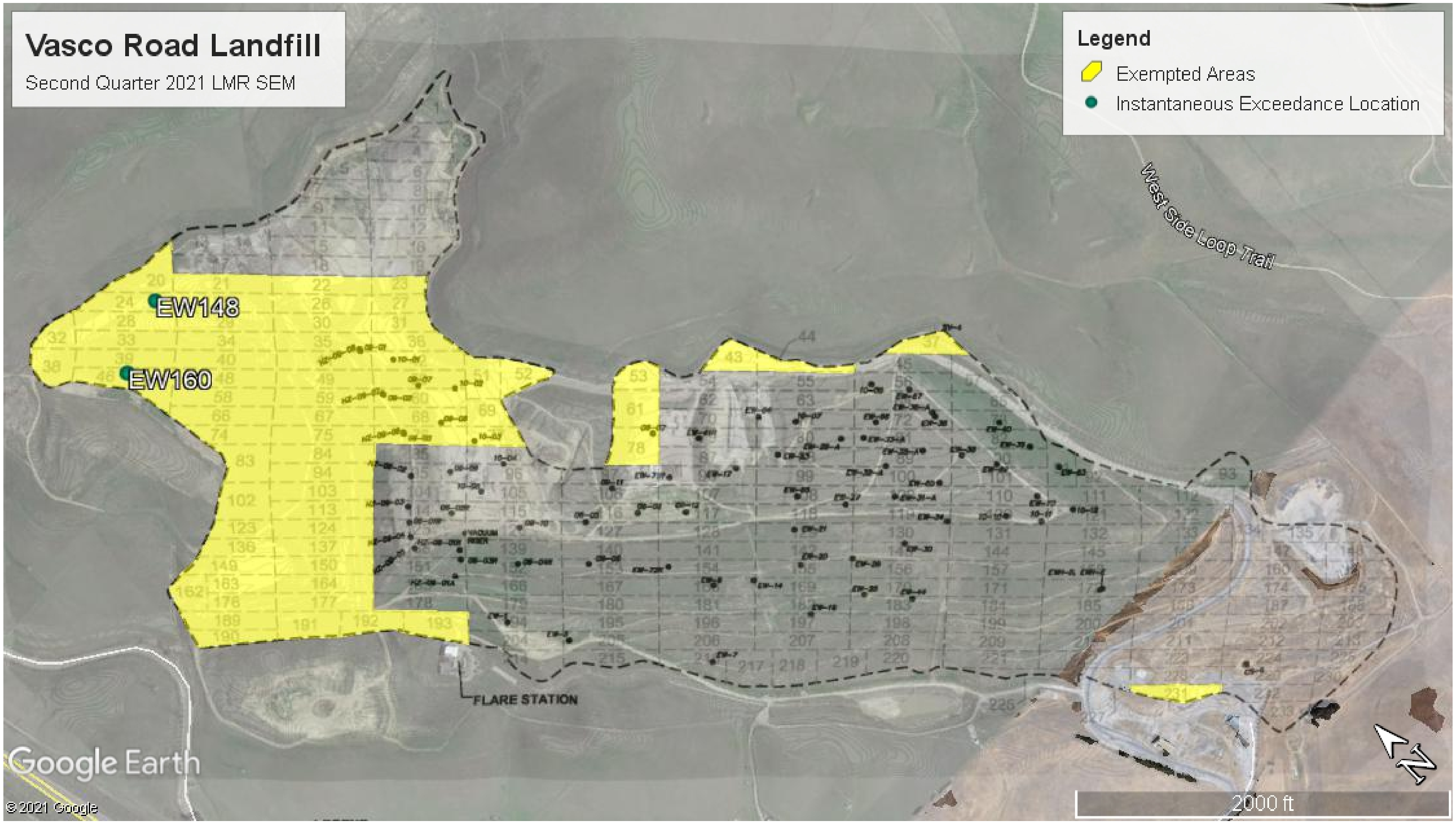
Instantaneous Data Report for April 1, 2, 5, 15, and May 5, 2021

Location (Surface)	Initial Monitoring Results (ppmv) April 5, 2021	10-Day Follow Up Monitoring Results (ppmv) April 15, 2021	30-Day Follow Up Monitoring Results (ppmv) May 5, 2021
VRLEW148	8,481	25	30
VRLEW160	2,021	15	25

Pressurized Pipe and Component Results

Route	Date	Concentration (ppmv)
FLARE STATION	4/1/2021	5.7

No other exceedances of the 500 ppmv threshold were observed during the second quarter 2021 monitoring.



Second Quarter 2021
Instantaneous Emissions Monitoring Locations Greater Than 500 ppmv
Vasco Road Landfill, Livermore, California

Attachment 4

Integrated Monitoring Results

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 001	4/5/2021 09:51	3.67	
VR 002	4/5/2021 00:00	5.43	
VR 003	4/5/2021 00:00	13.54	
VR 004	4/5/2021 00:00	5.15	
VR 005	4/5/2021 10:40	3.47	
VR 006	4/5/2021 10:23	8.39	
VR 007	4/5/2021 10:08	3.18	
VR 008	4/5/2021 10:08	4.86	
VR 009	4/5/2021 00:00	2.92	
VR 010	4/5/2021 00:00	5.70	
VR 011	4/5/2021 10:35	5.02	
VR 012	4/5/2021 10:35	6.87	
VR 013	4/5/2021 00:00	5.85	
VR 014	4/5/2021 00:00	2.72	
VR 015	4/5/2021 00:00	2.40	
VR 016	4/4/2021 23:28	5.75	
VR 017	4/5/2021 10:43	1.12	
VR 018	4/5/2021 10:41	2.44	
VR 019	4/5/2021 10:36	5.22	
VR 020	--	--	Active or Native
VR 021	--	--	Active or Native
VR 022	--	--	Active or Native
VR 023	--	--	Active or Native
VR 024	--	--	Active or Native
VR 025	--	--	Active or Native
VR 026	--	--	Active or Native
VR 027	--	--	Active or Native
VR 028	--	--	Active or Native
VR 029	--	--	Active or Native
VR 030	--	--	Active or Native
VR 031	--	--	Active or Native
VR 032	--	--	Active or Native
VR 033	--	--	Active or Native
VR 034	--	--	Active or Native
VR 035	--	--	Active or Native
VR 036	--	--	Active or Native
VR 037	--	--	Active or Native
VR 038	--	--	Active or Native
VR 039	--	--	Active or Native
VR 040	--	--	Active or Native
VR 041	--	--	Active or Native
VR 042	--	--	Active or Native
VR 043	--	--	Active or Native

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 044	--	--	Active or Native
VR 045	4/5/2021 10:50	2.35	
VR 046	--	--	Active or Native
VR 047	--	--	Active or Native
VR 048	--	--	Active or Native
VR 049	--	--	Active or Native
VR 050	--	--	Active or Native
VR 051	--	--	Active or Native
VR 052	--	--	Active or Native
VR 053	--	--	Active or Native
VR 054	4/5/2021 10:06	1.38	
VR 055	4/5/2021 10:07	1.36	
VR 056	4/5/2021 10:09	1.32	
VR 057	4/5/2021 10:07	1.39	
VR 058	--	--	Active or Native
VR 059	--	--	Active or Native
VR 060	--	--	Active or Native
VR 061	--	--	Active or Native
VR 062	4/5/2021 10:10	2.66	
VR 063	4/5/2021 10:18	2.58	
VR 064	4/5/2021 10:14	2.62	
VR 065	4/5/2021 10:15	2.73	
VR 066	--	--	Active or Native
VR 067	--	--	Active or Native
VR 068	--	--	Active or Native
VR 069	--	--	Active or Native
VR 070	4/5/2021 09:35	5.11	
VR 071	4/5/2021 09:35	5.11	
VR 072	4/5/2021 09:36	5.09	
VR 073	4/5/2021 09:35	5.28	
VR 074	--	--	Active or Native
VR 075	--	--	Active or Native
VR 076	--	--	Active or Native
VR 077	--	--	Active or Native
VR 078	--	--	Active or Native
VR 079	4/5/2021 09:33	1.62	
VR 080	4/5/2021 09:34	1.61	
VR 081	4/5/2021 09:34	1.61	
VR 082	4/5/2021 09:33	1.82	
VR 083	--	--	Active or Native
VR 084	--	--	Active or Native
VR 085	4/1/2021 23:44	1.87	
VR 086	4/1/2021 23:47	1.57	

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 087	4/1/2021 22:21	1.32	
VR 087	4/5/2021 09:19	3.09	
VR 088	4/1/2021 22:18	1.32	
VR 088	4/5/2021 09:24	3.03	
VR 089	4/1/2021 22:18	1.32	
VR 089	4/5/2021 09:24	3.05	
VR 090	4/1/2021 22:24	1.31	
VR 090	4/5/2021 09:22	3.19	
VR 091	4/1/2021 22:11	1.36	
VR 092	4/1/2021 22:17	1.36	
VR 093	4/6/2021 14:20	4.16	
VR 094	--	--	Active or Native
VR 095	4/6/2021 13:25	3.19	
VR 096	4/6/2021 13:23	3.84	
VR 097	4/6/2021 13:20	1.59	
VR 098	4/6/2021 13:22	1.55	
VR 099	4/6/2021 13:24	1.54	
VR 100	4/6/2021 13:20	1.30	
VR 101	4/6/2021 13:25	1.39	
VR 102	--	--	Active or Native
VR 103	--	--	Active or Native
VR 104	4/2/2021 10:50	5.20	
VR 105	4/2/2021 10:37	5.14	
VR 106	4/2/2021 10:38	2.31	
VR 107	4/2/2021 10:31	2.30	
VR 108	4/2/2021 10:37	2.30	
VR 109	4/2/2021 10:45	2.29	
VR 110	4/2/2021 10:36	2.32	
VR 111	4/2/2021 10:53	2.35	
VR 112	4/2/2021 10:50	2.69	
VR 113	--	--	Active or Native
VR 114	4/2/2021 10:29	6.35	
VR 115	4/2/2021 10:18	4.86	
VR 116	4/2/2021 10:27	2.33	
VR 117	4/2/2021 10:26	2.32	
VR 118	4/2/2021 10:27	2.32	
VR 119	4/2/2021 10:23	2.36	
VR 120	4/2/2021 10:28	2.34	
VR 121	4/2/2021 10:27	2.40	
VR 122	4/2/2021 10:21	3.13	
VR 123	--	--	Active or Native
VR 124	--	--	Active or Native
VR 125	4/1/2021 12:33	9.66	

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 126	4/1/2021 12:43	9.71	
VR 127	4/1/2021 12:35	3.06	
VR 128	4/1/2021 12:33	2.55	
VR 129	4/1/2021 13:02	2.37	
VR 130	4/1/2021 12:54	2.39	
VR 131	4/1/2021 12:58	2.31	
VR 132	4/1/2021 12:46	2.91	
VR 133	4/1/2021 12:29	3.54	
VR 134	4/1/2021 12:53	2.88	
VR 135	4/1/2021 12:40	2.28	
VR 136	--	--	Active or Native
VR 137	--	--	Active or Native
VR 138	4/1/2021 00:00	3.10	
VR 139	4/1/2021 00:02	3.08	
VR 140	4/1/2021 00:04	1.40	
VR 141	4/1/2021 00:06	1.34	
VR 142	4/1/2021 00:08	1.40	
VR 143	4/1/2021 00:10	1.41	
VR 144	4/1/2021 00:12	1.41	
VR 145	4/1/2021 00:15	2.47	
VR 146	4/1/2021 00:17	2.38	
VR 147	4/1/2021 00:19	2.04	
VR 148	4/1/2021 00:20	1.31	
VR 149	--	--	Active or Native
VR 150	--	--	Active or Native
VR 151	4/1/2021 11:15	5.82	
VR 152	4/1/2021 11:02	4.36	
VR 153	4/1/2021 11:20	2.82	
VR 154	4/1/2021 11:13	2.47	
VR 155	4/1/2021 11:20	2.16	
VR 156	4/1/2021 11:15	2.28	
VR 157	4/1/2021 11:16	2.27	
VR 158	4/1/2021 11:07	2.67	
VR 159	4/1/2021 11:19	3.38	
VR 160	4/1/2021 11:07	3.13	
VR 161	4/1/2021 11:09	2.44	
VR 162	--	--	Active or Native
VR 163	--	--	Active or Native
VR 164	--	--	Active or Native
VR 165	4/1/2021 11:50	4.56	
VR 166	4/1/2021 11:51	3.21	
VR 167	4/1/2021 11:55	3.32	
VR 168	4/1/2021 11:58	2.46	

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 169	4/1/2021 11:35	2.52	
VR 170	4/1/2021 11:43	2.54	
VR 171	4/1/2021 11:57	2.62	
VR 172	4/1/2021 11:27	3.09	
VR 173	4/1/2021 11:50	4.33	
VR 174	4/1/2021 11:36	3.52	
VR 175	4/1/2021 11:31	3.26	
VR 176	--	--	Active or Native
VR 177	--	--	Active or Native
VR 178	4/1/2021 11:34	4.50	
VR 179	4/1/2021 11:49	3.71	
VR 180	4/1/2021 11:45	2.62	
VR 181	4/1/2021 11:39	2.52	
VR 182	4/1/2021 11:54	2.53	
VR 183	4/1/2021 11:47	2.57	
VR 184	4/1/2021 11:39	2.64	
VR 185	4/1/2021 11:46	3.09	
VR 186	4/1/2021 11:41	7.50	
VR 187	4/1/2021 11:48	6.99	
VR 188	4/1/2021 11:42	3.79	
VR 189	--	--	Active or Native
VR 190	--	--	Active or Native
VR 191	--	--	Active or Native
VR 192	--	--	Active or Native
VR 193	--	--	Active or Native
VR 194	4/1/2021 11:31	2.29	
VR 195	4/1/2021 11:40	2.15	
VR 196	4/1/2021 11:44	2.01	
VR 197	4/1/2021 11:41	2.00	
VR 198	4/1/2021 11:41	1.60	
VR 199	4/1/2021 11:38	1.54	
VR 200	4/1/2021 11:51	2.05	
VR 201	4/1/2021 11:35	3.06	
VR 202	4/1/2021 11:39	6.76	
VR 203	4/1/2021 11:17	2.56	
VR 204	4/2/2021 11:18	1.19	
VR 205	4/2/2021 11:15	1.19	
VR 206	4/2/2021 11:13	1.18	
VR 207	4/2/2021 11:18	1.18	
VR 208	4/2/2021 11:21	1.16	
VR 209	4/2/2021 11:20	1.18	
VR 210	4/2/2021 11:20	1.17	
VR 211	4/2/2021 11:11	1.22	

Second Quarter 2021
Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 212	4/2/2021 11:06	1.26	
VR 213	4/2/2021 11:03	1.27	
VR 214	4/2/2021 11:17	1.74	
VR 215	4/2/2021 11:17	1.72	
VR 216	4/2/2021 11:14	1.71	
VR 217	4/2/2021 11:15	1.69	
VR 218	4/2/2021 11:16	1.60	
VR 219	4/2/2021 11:18	1.57	
VR 220	4/2/2021 11:21	1.54	
VR 221	4/2/2021 11:04	1.82	
VR 222	4/2/2021 11:08	1.78	
VR 223	4/2/2021 11:10	1.91	
VR 224	4/2/2021 11:05	1.77	
VR 225	4/2/2021 11:00	1.83	
VR 226	4/2/2021 10:11	3.45	
VR 227	4/2/2021 10:17	3.41	
VR 228	4/2/2021 10:10	3.49	
VR 229	4/2/2021 10:10	3.45	
VR 230	4/2/2021 10:12	3.41	
VR 231	--	--	Active or Native
VR 232	4/2/2021 10:55	3.29	
VR 233	4/2/2021 11:02	3.24	

Attachment 5

Calibration Logs

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-6-21 Site Name: Vasco

Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 65 °F General Weather Conditions: Cloudy

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	501	1	2
2	2	502	2	1
3	1	501	1	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= 165723
Counters Observed for the Zero= 3634

Trial 2:
Counts Observed for the Span= 165612
Counters Observed for the Zero= 3641

Trial 3:
Counts Observed for the Span= 166837
Counters Observed for the Zero= 3685

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 93 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.

post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-6-21 Site Name: Vasco

Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 3 MPH Wind Direction: n/w Barometric Pressure: 30 "Hg

Air Temperature: 68 °F General Weather Conditions: ~~[illegible]~~ 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	502	2	2
2	2	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= 167412
Counters Observed for the Zero= 3684

Trial 2:
Counts Observed for the Span= 168394
Counters Observed for the Zero= 3741

Trial 3:
Counts Observed for the Span= 168983
Counters Observed for the Zero= 3754

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: ~~[illegible]~~ Grid 93 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: 4-1-2021 Site Name: Vasco

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: n Barometric Pressure: 30 "Hg

Air Temperature: 47 °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	501	1	3
2	.0	502	2	5
3	.1	500	0	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= 93572 Counters Observed for the Zero= 2807	**Trial 3:** Counts Observed for the Span= 94572 Counters Observed for the Zero= 2872
Trial 2: Counts Observed for the Span= 94283 Counters Observed for the Zero= 2841	

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 90 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 03-1-21 Site Name: Vasco

Inspector(s): Pablo Rivera Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: N Barometric Pressure: 29.9 "Hg

Air Temperature: 47 °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	.0	502	2	4
2	.1	500	0	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%- .6 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 131748
Counters Observed for the Zero= 41053

Trial 2:
Counts Observed for the Span= 131900
Counters Observed for the Zero= 3978

Trial 3:
Counts Observed for the Span= 131660
Counters Observed for the Zero= 3968

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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: 04-1-21 Site Name: Vasco

Inspector(s): cody crocker Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: N Barometric Pressure: 29.9 "Hg

Air Temperature: 47 °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: 5419 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	.0	498	2	5
3	.0	500	0	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= 152836
Counters Observed for the Zero= 5020

Trial 2:
Counts Observed for the Span= 149208
Counters Observed for the Zero= 4909

Trial 3:
Counts Observed for the Span= 150643
Counters Observed for the Zero= 4872

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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: 04-1-21 Site Name: Vasco

Inspector(s): Hunter O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: N Barometric Pressure: 29.9 "Hg

Air Temperature: 52 °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: 2364 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	0	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:		Trial 3:	
Counts Observed for the Span=	145912	Counts Observed for the Span=	146173
Counters Observed for the Zero=	4240	Counters Observed for the Zero=	4552
Trial 2:			
Counts Observed for the Span=	145628		
Counters Observed for the Zero=	4151		

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.4 ppm

Downwind Location Description: Grid 79 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: 4-1-21 Site Name: Vasco

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: N Barometric Pressure: 29.9 "Hg

Air Temperature: 52 °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	5
2	.2	499	1	5
3	.1	500	0	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= 94024
Counters Observed for the Zero= 2699

Trial 3:
Counts Observed for the Span= 94008
Counters Observed for the Zero= 265

Trial 2:
Counts Observed for the Span= 93852
Counters Observed for the Zero= 2364

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.4 ppm

Downwind Location Description: Grid 79 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: 4-1-21 Site Name: Vasco

Inspector(s): Liam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: N Barometric Pressure: 29.9 "Hg

Air Temperature: 52 °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	5
2	.1	502	2	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%

= %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 100840
Counters Observed for the Zero= 2662

Trial 2:
Counts Observed for the Span= 101114
Counters Observed for the Zero= 2312

Trial 3:
Counts Observed for the Span= 101359
Counters Observed for the Zero= 2302

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 9-1-2021 Site Name: Vasco

Inspector(s): Paldo Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 81 °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	.2	502	2	4
2	.1	499	1	3
3	.1	500	0	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= 127321
Counters Observed for the Zero= 4647

Trial 2:
Counts Observed for the Span= 128035
Counters Observed for the Zero= 4658

Trial 3:
Counts Observed for the Span= 129572
Counters Observed for the Zero= 4617

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.4 ppm

Downwind Location Description: Grid 79 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: 4-1-2021 Site Name: Vasco

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 81 °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	.2	499	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%

=99.6 %

Span Sensitivity:

Trial 1:

Counts Observed for the Span= 150039

Counters Observed for the Zero= 4822

Trial 2:

Counts Observed for the Span= 150175

Counters Observed for the Zero= 4839

Trial 3:

Counts Observed for the Span= 150294

Counters Observed for the Zero= 4862

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid70 Reading: 1.7 ppm

Downwind Location Description: Grid79 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: 4-1-2021   Site Name: Vasco

Inspector(s): Hunter O   Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 81 °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	500	0	4
2	.0	498	2	5
3	~~5~~0	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= 145872
Counters Observed for the Zero= 4527

Trial 2:
Counts Observed for the Span= 145973
Counters Observed for the Zero= 4901

Trial 3:
Counts Observed for the Span= 146136
Counters Observed for the Zero= 4575

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70   Reading: 1.4 ppm

Downwind Location Description: Grid 79   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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 11-1-2021 Site Name: Vasco

Inspector(s): Bryan Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 81 °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	.2	501	1	5
2	.1	500	0	3
3	.1	497	3	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= 93762
Counters Observed for the Zero= 2639

Trial 2:
Counts Observed for the Span= 93907
Counters Observed for the Zero= 2652

Trial 3:
Counts Observed for the Span= 94096
Counters Observed for the Zero= 2674

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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: 4-1-2021   Site Name: Vasco

Inspector(s): Liam   Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 81 °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	.2	501	1	4
2	.1	498	2	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%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 100742
Counters Observed for the Zero= 2311

Trial 2:
Counts Observed for the Span= 100906
Counters Observed for the Zero= 2330

Trial 3:
Counts Observed for the Span= 101152
Counters Observed for the Zero= 2351

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70   Reading: 1.4 ppm

Downwind Location Description: Grid 79   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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 9-1-2021 Site Name: Vasco

Inspector(s): Ryan Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 81 °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	.2	502	2	
2	.0	499	1	
3	.1	501	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= 94327
Counters Observed for the Zero= 2852

Trial 2:
Counts Observed for the Span= 94581
Counters Observed for the Zero= 2875

Trial 3:
Counts Observed for the Span= 94771
Counters Observed for the Zero= 2892

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 11-2-2021 Site Name: Vasco

Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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	501	1	4
2	.1	498	2	5
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= 127224
Counters Observed for the Zero= 2894

Trial 2:
Counts Observed for the Span= 128496
Counters Observed for the Zero= 2853

Trial 3:
Counts Observed for the Span= 178592
Counters Observed for the Zero= 2877

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.7 ppm

Downwind Location Description: Grid 79 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: 4-2-2021 Site Name: Na500

Inspector(s): Bryan ochoa Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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: ________ 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	499	1	5
3	.0	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= 127942
Counters Observed for the Zero= 2853

Trial 2:
Counts Observed for the Span= 128085
Counters Observed for the Zero= 2873

Trial 3:
Counts Observed for the Span= 128134
Counters Observed for the Zero= 2893

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: arido Reading: 1.3 ppm

Downwind Location Description: ервid 79 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: 4-2-2021 Site Name: Vasco

Inspector(s): Liam McGinn Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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	.1	502	2	4
2	.0	499	1	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= 125338
Counters Observed for the Zero= 2521

Trial 2:
Counts Observed for the Span= 125964
Counters Observed for the Zero= 2521

Trial 3:
Counts Observed for the Span= 126074
Counters Observed for the Zero= 2539

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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: 4-2-2021 Site Name: Vasco

Inspector(s): Liam Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 73 °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	.2	501	1	5
2	.1	499	1	3
3	.1	498	2	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= 125351
Counters Observed for the Zero= 2486

Trial 2:
Counts Observed for the Span= 125494
Counters Observed for the Zero= 2499

Trial 3:
Counts Observed for the Span= 125693
Counters Observed for the Zero= 2512

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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: 4-2-2021 Site Name: Vasco

Inspector(s): Ryan H Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 73 °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	498	2	5
2	.1	498	2	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= 112576
Counters Observed for the Zero= 3625

Trial 2:
Counts Observed for the Span= 112709
Counters Observed for the Zero= 3642

Trial 3:
Counts Observed for the Span= 112938
Counters Observed for the Zero= 3671

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 4-2-2020 Site Name: Vasco

Inspector(s): Ryan Haslam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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	.1	500	0	4
2	.1	499	1	5
3	.0	501	1	3

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= 115268

Counters Observed for the Zero= 3899

Trial 2:

Counts Observed for the Span= 113708

Counters Observed for the Zero= 3816

Trial 3:

Counts Observed for the Span= 113826

Counters Observed for the Zero= 3641

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 110 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 4-2-2021 Site Name: Vasco

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 73 °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	.2	501	1	3
2	.0	499	1	5
3	.1	499	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= 170582
Counters Observed for the Zero= 4851

Trial 2:
Counts Observed for the Span= 170691
Counters Observed for the Zero= 4872

Trial 3:
Counts Observed for the Span= 170873
Counters Observed for the Zero= 4889

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 9-2-2021 Site Name: Vasco

Inspector(s): Cody C Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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: 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	5
2	.1	502	2	3
3	.0	500	0	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= 171728
Counters Observed for the Zero= 4891

Trial 2:
Counts Observed for the Span= ~~12~~ 171552
Counters Observed for the Zero= 4842

Trial 3:
Counts Observed for the Span= 171721
Counters Observed for the Zero= 4864

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.2 ppm

Downwind Location Description: Grid 79 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: 11-2-2021

Site Name: Vasco

Inspector(s): Hunter O

Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH

Wind Direction: W

Barometric Pressure: 30 "Hg

Air Temperature: 73 °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	501	1	3
2	.0	500	0	5
3	.2	498	2	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= 170371

Counters Observed for the Zero= 3748

Trial 2:

Counts Observed for the Span= 170635

Counters Observed for the Zero= 3761

Trial 3:

Counts Observed for the Span= 170751

Counters Observed for the Zero= 3792

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm

Cal Gas Reading: 500 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70

Reading: 1.3 ppm

Downwind Location Description: Grid 79

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: 4-2-2021 Site Name: Vasco

Inspector(s): Hunter O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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: 2364 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	|Cal Gas Conc.-Cal Gas Reading|	Response Time (seconds)
1	.0	501	1	5
2	.1	499	1	3
3	.0	500	0	4

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= 170972
Counters Observed for the Zero= 3815

Trial 2:
Counts Observed for the Span= 171037
Counters Observed for the Zero= 3765

Trial 3:
Counts Observed for the Span= 171163
Counters Observed for the Zero= 3782

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid79 Reading: 1.2 ppm

Downwind Location Description: Grid70 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: 4-8-2021 Site Name: Vasco

Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: S 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	.0	501	1	3
2	.1	501	1	3
3	.1	499	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%

= 1.3 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 162000
Counters Observed for the Zero= 3687

Trial 2:
Counts Observed for the Span= 162173
Counters Observed for the Zero= 3642

Trial 3:
Counts Observed for the Span= 162289
Counters Observed for the Zero= 3659

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 70 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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.

Post

SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA

Date: 4-2-2021 Site Name: Yasco

Inspector(s): Pong Instrument: TVA 2020

WEATHER OBSERVATIONS

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

Air Temperature: 73 °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	501	1	4
2	.2	500	0	5
3	.1	503	3	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= 161751
Counters Observed for the Zero= 3642

Trial 2:
Counts Observed for the Span= 161895
Counters Observed for the Zero= 3662

Trial 3:
Counts Observed for the Span= 161953
Counters Observed for the Zero= 3684

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 20 Reading: 1.3 ppm

Downwind Location Description: Grid 79 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: 5-5-21 Site Name: Vasco

Inspector(s): Ryan Haskam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 11 MPH Wind Direction: E Barometric Pressure: 30 "Hg

Air Temperature: 89 °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	3
2	1	500	0	3
3	0	502	2	3

Average Difference: .7

*Perform recalibration if average difference is greater than 10

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

= 100%- .7 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:
Counts Observed for the Span= 110536
Counters Observed for the Zero= 3815

Trial 2:
Counts Observed for the Span= 110542
Counters Observed for the Zero= 3814

Trial 3:
Counts Observed for the Span= 110543
Counters Observed for the Zero= 3817

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: Entrance 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: 5-5-21 Site Name: Vasco

Inspector(s): Ryan Haslam Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 11 MPH Wind Direction: E Barometric Pressure: 30 "Hg

Air Temperature: 89 °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	3
2	1	500	0	3
3	0	502	2	3

Average Difference: .7

*Perform recalibration if average difference is greater than 10

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

= 100%- .7 /500 x 100%

= 99.8 %

Span Sensitivity:

Trial 1:

Counts Observed for the Span= 110614

Counters Observed for the Zero= 3784

Trial 2:

Counts Observed for the Span= 110617

Counters Observed for the Zero= 3780

Trial 3:

Counts Observed for the Span= 110620

Counters Observed for the Zero= 3790

Post Monitoring Calibration Check

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

BACKGROUND CONCENTRATIONS CHECKS

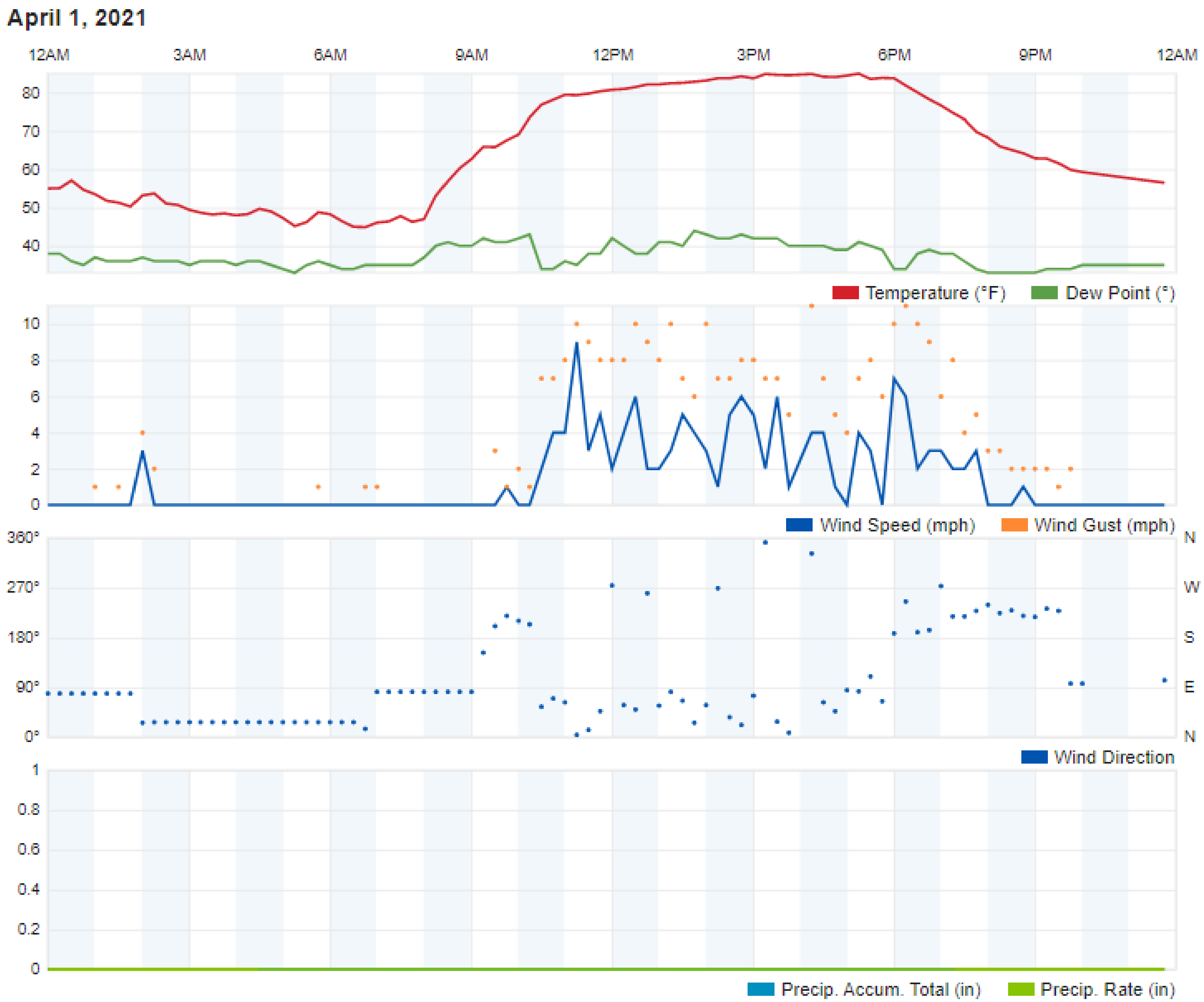
Upwind Location Description: Flare Reading: 1.1 ppm

Downwind Location Description: Entrance Reading: 1.4 ppm

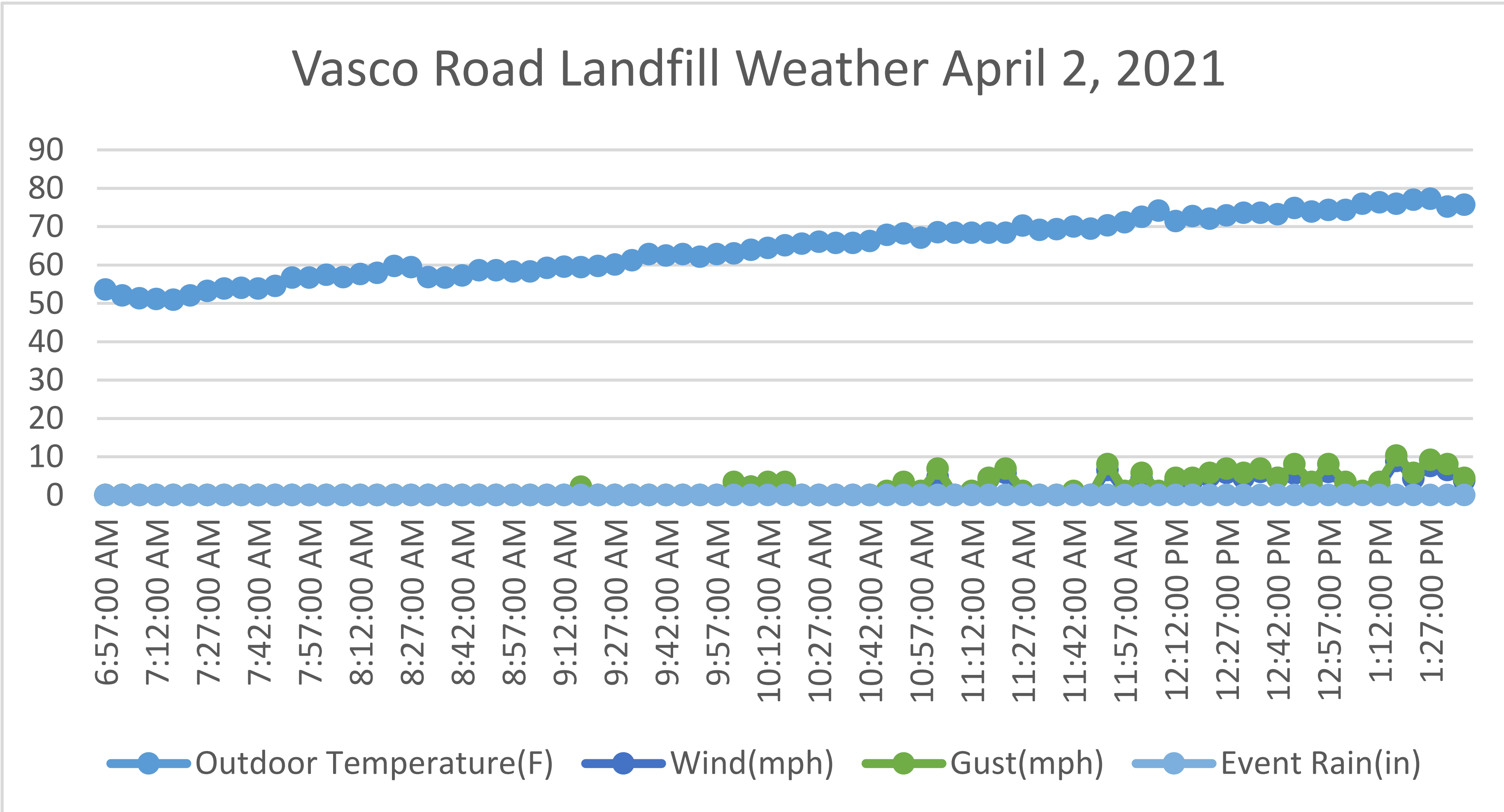
Notes: Wind speed averages were observed to remain below the alternative requested 10 miles per hour and no instantaneous speeds exceeded 20 miles per hour. No rainfall had occurred within the previous 24 hours of the monitoring event. Therefore, site meteorological conditions were within the requested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

Attachment 6

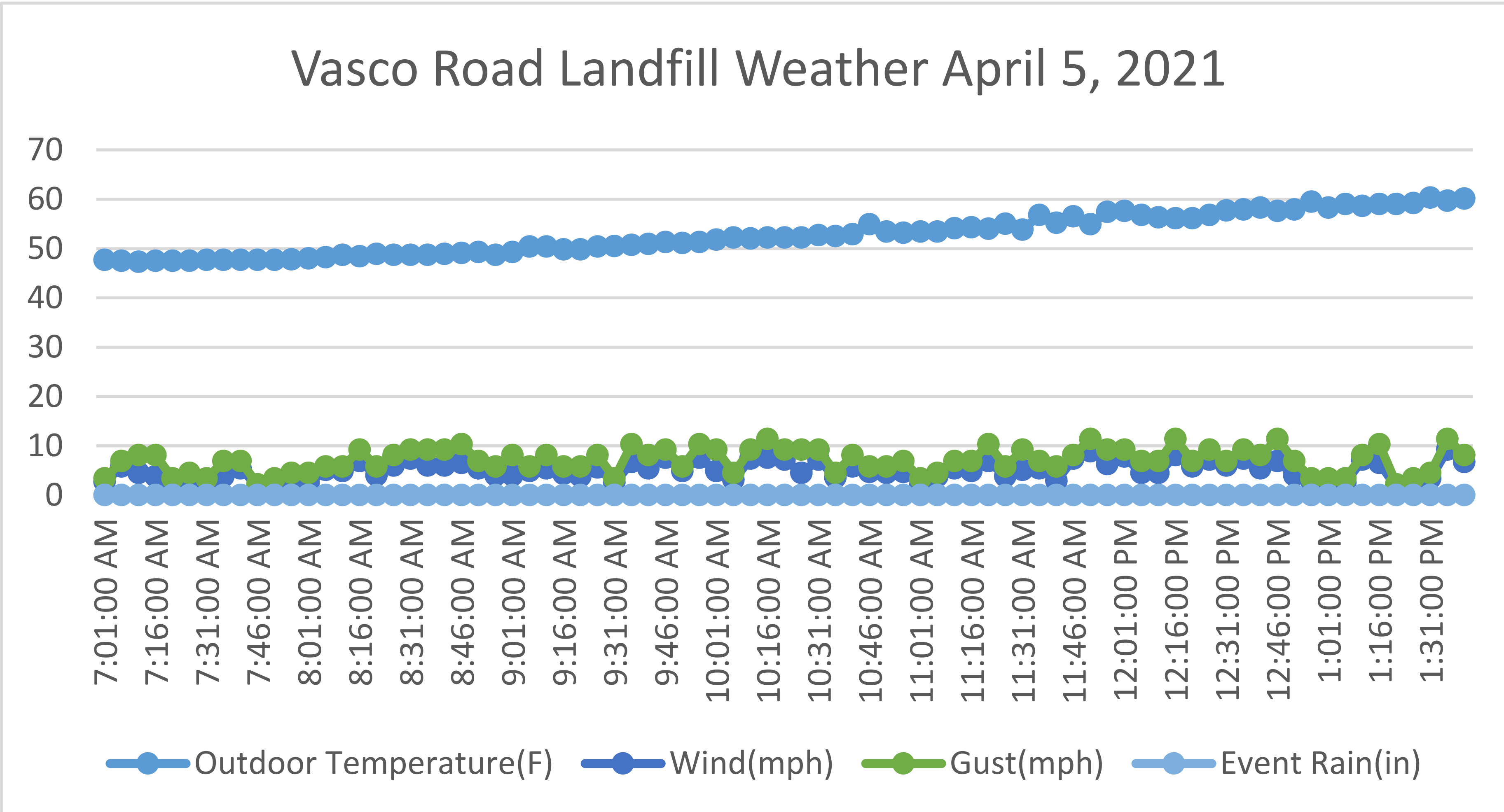
Weather Data



Second Quarter 2021
Weather Data for April 1, 2021
Vasco Road Landfill, Livermore, California



Vasco Road Landfill Weather April 2, 2021
90
80
70
60
50
40
30
20
10
0
6:57:00 AM
7:12:00 AM
7:27:00 AM
7:42:00 AM
7:57:00 AM
8:12:00 AM
8:27:00 AM
8:42:00 AM
8:57:00 AM
9:12:00 AM
9:27:00 AM
9:42:00 AM
9:57:00 AM
10:12:00 AM
10:27:00 AM
10:42:00 AM
10:57:00 AM
11:12:00 AM
11:27:00 AM
11:42:00 AM
11:57:00 AM
12:12:00 PM
12:27:00 PM
12:42:00 PM
12:57:00 PM
1:12:00 PM
1:27:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Event Rain(in)


Vasco Road Landfill Weather April 5, 2021
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60
50
40
30
20
10
0
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7:31:00 AM
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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
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10:46:00 AM
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11:16:00 AM
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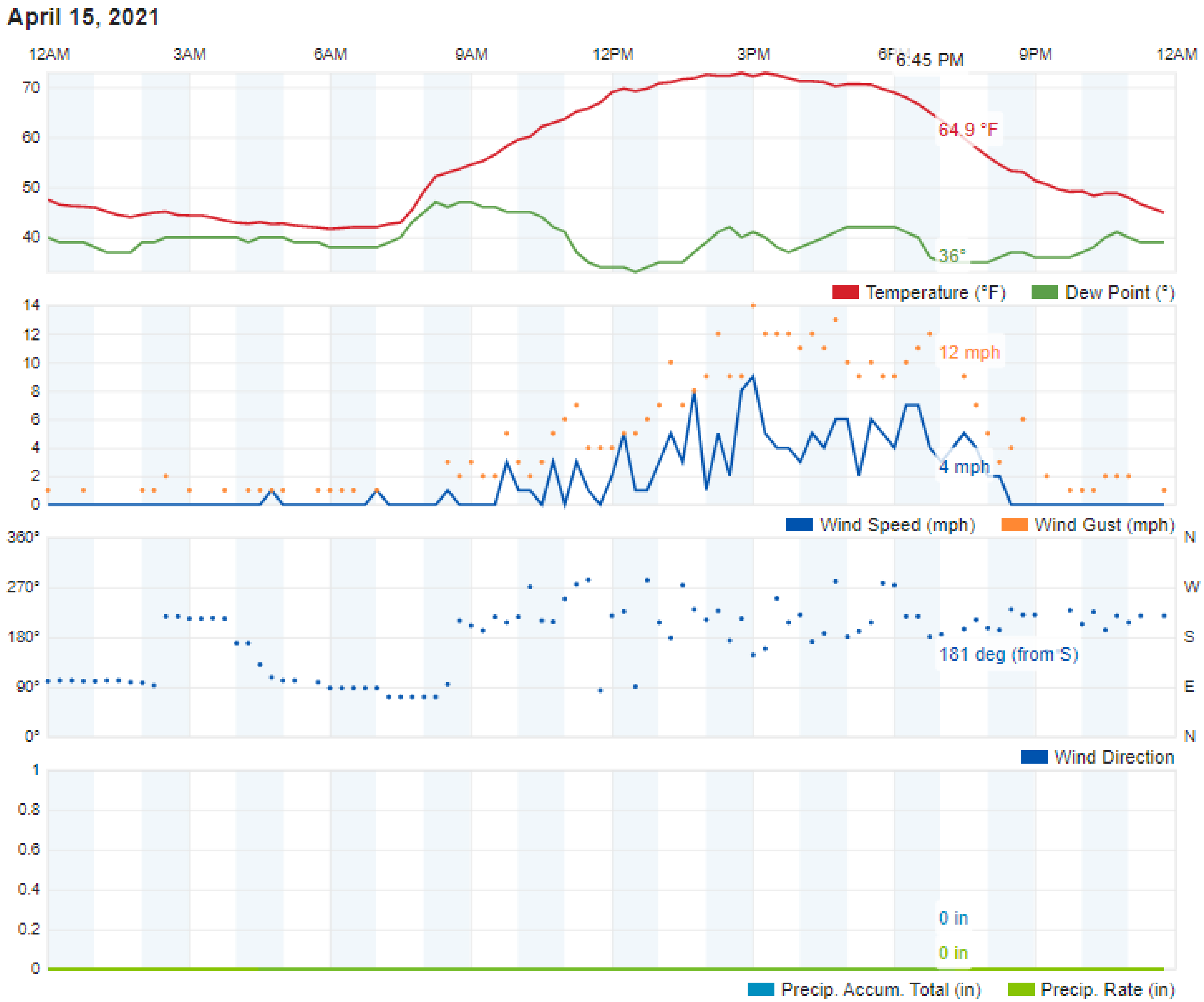
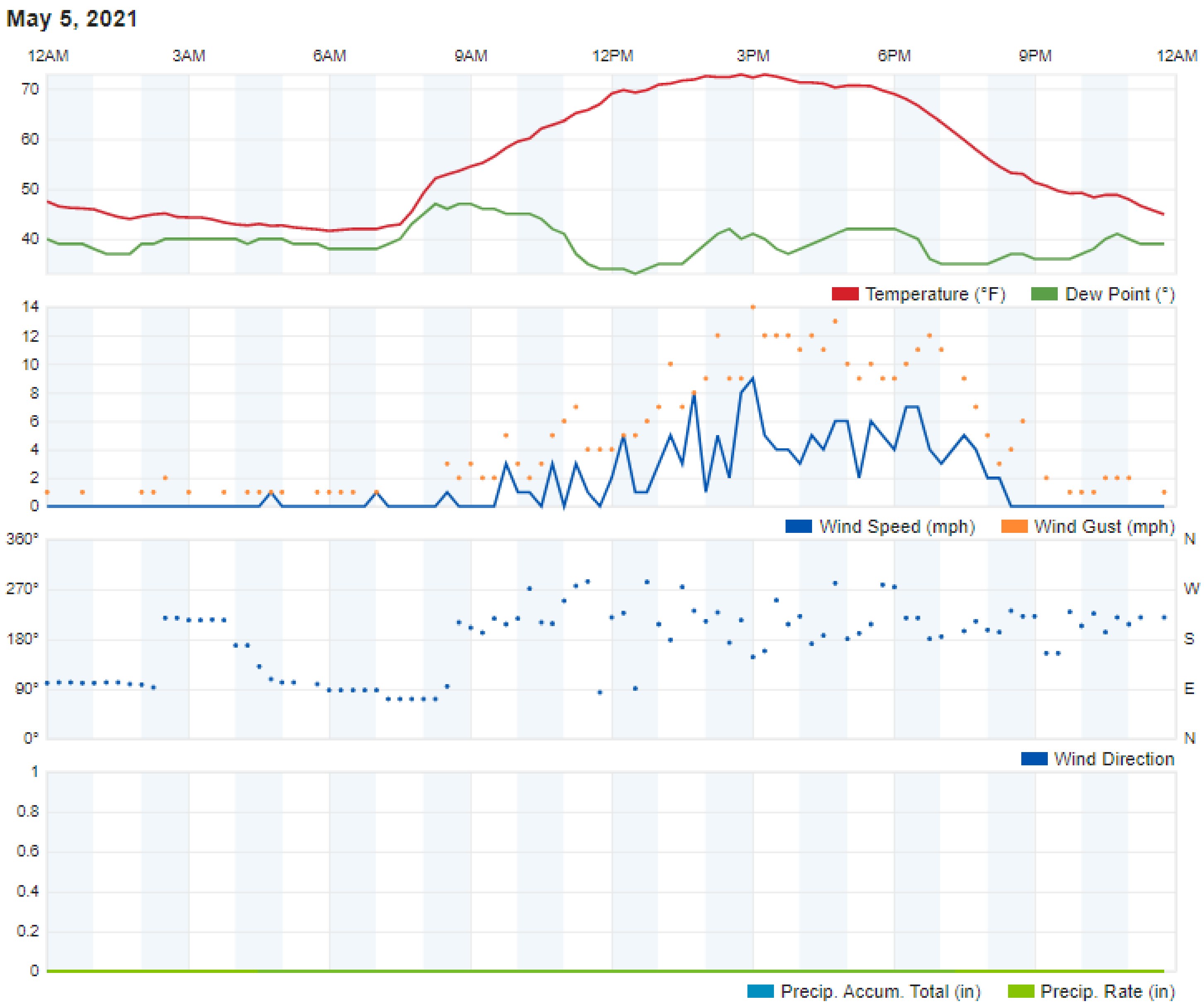
1:31:00 PM
Outdoor Temperature(F)
Wind(mph)
Gust(mph)
Event Rain(in)



Second Quarter 2021
Weather Data for April 15, 2021
Vasco Road Landfill, Livermore, California



Second Quarter 2021
Weather Data for May 5, 2021
Vasco Road Landfill, Livermore, California

Appendix F – Title V Semi-Annual Report

VASCO ROAD LANDIFLL

TITLE V SEMI-ANNUAL MONITORING REPORT

SITE: VASCO ROAD LANDFILL	**FACILITY ID#:** A5095
REPORTING PERIOD: *from* 02/01/2021 *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:

Matthew D Ketchem

08/26/21

Signature of Responsible Official Date

Matt Ketchem

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

VASCO ROAD LANDIFLL

TITLE V SEMI-ANNUAL MONITORING REPORT

SITE: VASCO ROAD LANDFILL		**FACILITY ID#:** A5095
REPORTING PERIOD: *from* 02/01/2021	*through* 07/31/2021	

List of Permitted Sources and Abatement Device

Permit Unit Number	**Equipment Description**
S-#	**Description**
S-1	Vasco Road Landfill – Waste Decomposition Process; Equipped with Gas Collection System; Abated by A-4 Landfill Gas Flare
S-12	Vasco Road Landfill – Waste and Cover Material Dumping
S-203	Vasco Road Landfill – Excavating, Bulldozing and Compacting Activities
S-7	Non-retail Gasoline Dispensing Facility
S-14	Green Waste Processing Operation; A-14 Water Sprayer
S-15	Wood Waste Processing Operation; A-15 Water Sprayer
A-4	Landfill Gas Flare

Notes:

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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 # 818, Parts 22b-c and 22e-g	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 # 818, Parts 22a-c and 22e-g	Records	Periodic / On event basis	BAAQMD 8-34-304.2	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 # 818, Parts 22a-c and 22e-g	Records	Periodic / On event basis	BAAQMD 8-34-304.3	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

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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	Gas Flow Meter and Recorder (every 15 minutes)	Continuous	BAAQMD 8-34-301 and 301.1	Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system	Intermittent	On February 2, 2021 and May 24, 2021, the Vasco GCCS was shut down due to a two instances of site-wide utility outages. On February 22, 2021 and May 24, 2021, Combined 10/30-Day Title V Reports were submitted to the BAAQMD for RCA IDs 07Y14/07Y15 and 07Z56/07Z57.

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 VASCO ROAD LANDFILL, A-4 LANDFILL GAS FLARE; S-12 WASTE AND COVER MATERIAL DUMPING; S-13 EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES	**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 8-34-404, 8-34-501.1, 8-34-501.2, 8-34-501.5, 8-34-501.10, 8-34-508, and BAAQMD Condition # 818, Part 22g	Records of Landfill Gas Flow Rates, Collection and Control Systems Downtime, and Collection System Components	Periodic / Daily	BAAQMD Condition # 818, Parts 1-3	Landfill gas collection system shall operate continuously and all collected gases shall be vented to a properly operating control system; Except That Flare A-4 May Operate Less Than Continuously If: LFG Flow to Energy Plant is > 1200 scfm AND Remaining LFG Flow Available for A-4 is < 800 scfm (< 24 MM BTU/hour)	Continuous	N/A
Collection and Control Systems Shutdown Time	BAAQMD 8-34-501.1	Operating Records	Periodic / Daily	BAAQMD 8-34-113.2	≤ 240 hours per year and ≤ 5 consecutive days	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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
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 per incident and ≤ 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
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), except for components identified in Condition # 818, Part 3b(i)	Continuous	N/A
Temperature of Gas at Specified Well-heads	BAAQMD 8-34-414, 501.9 and 505.2	Monthly Inspection and Records	Periodic / Monthly	BAAQMD Condition # 818, Part 3b(i)	< 140 ºF	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 VASCO ROAD LANDFILL, A-4 LANDFILL GAS FLARE; S-12 WASTE AND COVER MATERIAL DUMPING; S-13 EXCAVATING, BULLDOZING, AND COMPACTING ACTIVITIES	**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 Concentrations in LFG 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% (by volume, dry basis) **OR** O_2 < 5% (by volume, dry basis), except for components identified in Condition # 818, Part 3b(ii)	Continuous	N/A
Gas Concentrations in LFG at Header	BAAQMD 8-34-414 and 8-34-501.4 and BAAQMD Condition # 818, Part 3b(ii)	Monthly Inspection and Records	Periodic / Monthly	BAAQMD Condition # 818, Part 3b(ii)	O2 < 5% (by volume, dry basis) and CH4 > 35% (by volume, dry basis)	Continuous	N/A
Well Shutdown Limits	BAAQMD 8-34-116.5 and 501.1	Records	Periodic / Daily	BAAQMD 8-34-116.2	< 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

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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	< 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 Compounds Plus Methane)	BAAQMD 8-34-501.6 and 503 and BAAQMD Condition # 818, Part 3b(iii)	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

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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 and BAAQMD Condition # 818, Part 3b(iii)	Monthly Visual Inspection of Cover, Quarterly Inspection with OVA of Surface, Various Re-inspection Times for Leaking Areas, and Records	Periodic / Monthly, Quarterly, and on an Event Basis	TOC BAAQMD 8-34-303	Surface Leak Limit: < 500 ppmv as methane at 2 inches above surface	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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
Non-Methane Organic Compounds (NMOC)	BAAQMD 8-34-412 and 8-34-501.4 and BAAQMD Condition # 818, Part 20	Annual Source Tests and Records	Periodic / Annual	BAAQMD 8-34-301.3	NMOC Destruction Efficiency: > 98% removal by weight OR NMOC Outlet Concentration: < 30 ppmv, dry basis @ 3% O2, expressed as methane (applies to flare only)	Intermittent	On April 28, 2021, the annual source test was conducted at the A-4 Flare. However, issues were discovered during the source test and prevented the flare from testing under the permitted pollution limits. On May 7, 2021, the flare was re-tested and passed. On June 16, 2021, a Title V 10-Day Deviation Report and 30-Day Follow-Up Report was submitted to the BAAQMD.
Temperature of Combustion Zone (CT)	BAAQMD 8-34-501.3, and 507, and BAAQMD Condition # 818, Part 4	Temperature Sensor and Recorder (continuous)	Continuous	BAAQMD Condition # 818, Part 5	Flare CT > 1402 °F, averaged over any 3-hour period	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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
Opacity	BAAQMD Condition # 818, Part 22d	Records of all site watering and road cleaning events	Periodic / On event basis, Monthly	BAAQMD 6-1-301 and SIP 6-301	Ringelmann No. 1 for ≤ 3 minutes/hr (applies to active landfill operations)	Continuous	N/A
Opacity	None	N/A	None	BAAQMD 6-1-301 and SIP 6-301	Ringelmann No. 1 for < 3 minutes/hr (applies to flare)	Continuous	N/A
TSP	None	N/A	None	BAAQMD 6-1-310.1 and SIP 6-310	< 0.15 grains/dscf (applies to flare only)	Continuous	N/A
NO_x	BAAQMD Condition # 818, Part 20	Annual Source Test	Periodic / Annual	BAAQMD Condition # 818, Part 8	Flare Outlet Concentration: < 11 ppmv of NOx @ 15% O2, dry basis OR Flare Outlet Emission Rate: < 0.049 pounds of NO2 per MM BTU	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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 # 818, Part 20	Annual Source Test	Periodic / Annual	BAAQMD Condition # 818, Part 10	Flare Outlet Concentration: < 73 ppmv of CO @ 15% O2, dry basis OR Flare Outlet Emission Rate: < 0.19 pounds of CO per MM BTU	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 (applies to flare only)	Continuous	N/A
SO_2	None	N/A	None	BAAQMD Regulation 9-1-302	≤ 300 ppm, (dry basis) (applies to flare only)	Continuous	N/A
Sulfur Content in Landfill Gas	BAAQMD Condition # 818, Parts 12, 21	Sulfur analysis of landfill gas	Periodic / Quarterly	BAAQMD Condition # 818, Part 12	Annual Average TRS < 320 ppmv, expressed as H2S (dry basis)	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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
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
Heat Input	BAAQMD 8-34-501.10 and 508 and BAAQMD Condition # 818, Parts 3b(ii), 13 and 22g	Gas Flow Rate Meter, LFG Methane Analyses, Calculations and Records	Continuous, Periodic / Daily, and Periodic / Monthly	BAAQMD Condition # 818, Part 13	< 2880 MM BTU per day and < 1,051,200 MM BTU per 12-month period	Continuous	N/A
Vehicle Traffic	BAAQMD Condition # 818, Part 22a	Records	Periodic / Daily	BAAQMD Condition # 818, Part 14a	< 625 vehicles per day	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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 Material Accepted	BAAQMD Condition # 818, Part 22a	Records	Periodic / Daily	BAAQMD Condition # 818, Part 14	< 2518 tons per day of solid waste and < 23,800,000 tons (cumulative) of decomposable materials and < 31,650,000 yd3 (cumulative) amount of all wastes and cover materials	Continuous	N/A
Total Carbon Emissions	BAAQMD Condition # 818, Part 18	Records	Periodic / Daily	BAAQMD 8-2-301	< 15 pounds per day Or < 300 ppmv, dry basis (applies only to aeration of or use as cover soil of soil containing < 50 ppmw of volatile organic compounds)	Continuous	N/A
Organic Content of Soil	BAAQMD Condition # 818, Part 18	Records	Periodic / Daily	BAAQMD Condition # 818, Part 15	< 50 ppmw of VOC in soil or < 50 ppmv of VOC, expressed as C1, measured 3 inches above soil	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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 VOC Laden Soil Accepted	BAAQMD Condition # 818, Part 18	Records	Periodic / On event basis	BAAQMD Condition # 818, Part 16a-b	< 10,000 tons per consecutive 12-month period for soil with high chlorinated compound concentration and < 170,000 tons per consecutive 12-month period for other VOC laden soil	Continuous	N/A
TAC Concentration Limits for VOC-laden Soil	BAAQMD Condition # 818, Part 18	Records	Periodic / On event basis	BAAQMD Condition # 818, Part 16a-b	Compound < ppmw Benzene 0.50 Carbon Tetrachloride 0.50 Chloroform 6.00 1,4 Dichlorobenzene 7.50 1,2 Dichloroethane 0.50 Tetrachloroethylene 0.70 Trichloroethylene 0.50 Vinyl Chloride 0.20	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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 Metal Laden Soil Accepted	BAAQMD Condition # 818, Part 18	Records	Periodic / On event basis	BAAQMD Condition # 818, Part 16	< 180,000 tons per consecutive 12-month period	Continuous	N/A
TAC Concen-tration Limits for Metal-Laden Soil	BAAQMD Condition # 818, Part 18	Records	Periodic / On event basis	BAAQMD Condition # 818, Part 16	Arsenic < 130 ppmw Beryllium < 75 ppmw Cadmium < 100 ppmw Chromium VI < 7 ppmw Copper < 2500 ppmw Lead < 1000 ppmw Mercury < 20 ppmw Nickel < 2000 ppmw Selenium < 100ppmw Zinc < 5000 ppmw	Continuous	N/A
Startup Shutdown or Malfunction Procedures	40 CFR 63.1980(a-b)	Records (all occurrences, duration of each, corrective actions)	Periodic / On event basis	40 CFR 63.6(e)	Minimize Emissions by Implementing SSM Plan	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-1 Vasco Road Landfill, A-4 landfill gas flare; S-12 Waste and Cover Material Dumping; S-13 Excavating, Bulldozing, and Compacting Activities	**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
Trackout onto Paved Roadways	BAAQMD 6-6-501	Records	Periodic / Daily	BAAQMD 6-6-301	Trackout causing visible emissions: < 25 linear feet for no more than 4 hours; and Trackout remaining on adjacent paved public roadway or paved shoulder: < 1 quart at end of each workday	Continuous	N/A
Visible Emissions from Cleaning Trackout	BAAQMD 6-6-501	Records	Periodic / Daily	BAAQMD 6-6-302	< Ringelmann No. 1 Limitation for no more than 3 minutes in any 60-minute period	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-7 NON-RETAIL GASOLINE DISPENSING FACILITY #9551	**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
Gasoline Throughput	BAAQMD 8-7-503.1	Records	Periodic / Annual	BAAQMD Condition # 7523	< 400,000 gallons per 12-month period	Continuous	N/A
Exempt Throughput	BAAQMD 8-7-501 and 8-7-503.2	Records	Periodic / On event basis	BAAQMD 6-1-310	< 1000 gallons per facility for tank integrity leak checking	Continuous	N/A
Organic Compounds	CARB EO G-70-116-F, paragraph 19 and BAAQMD 8-7-301.13 and 8-7-407	Annual Check for Vapor Tightness and Proper Operation of Vapor Recovery System	Periodic / Annual	BAAQMD 8-7-301.6	All Phase I Equipment (except components with allowable leak rates) shall be leak free (<3 drops/minute) and vapor tight	Continuous	N/A
Organic Compounds	CARB EO G-70-116-F, paragraph 19 and BAAQMD 8-7-301.13 and 8-7-407	Annual Check for Vapor Tightness and Proper Operation of Vapor Recovery System	Periodic / Annual	BAAQMD 8-7-302.5	All Phase II Equipment (except components with allowable leak rates or at the nozzle/fill-pipe interface) Shall Be: leak free (<3 drops/minute) and vapor tight	Continuous	N/A
Organic Compounds	SIP 8-5-403 and 8-5-503	Annual Inspection with Portable Hydro-carbon Detector	Periodic / On event basis	SIP 8-5-303.2	Tank Pressure Vacuum Valve Shall Be: Gas Tight or < 500 ppmv (expressed as	Continuous	N/A

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-7 NON-RETAIL GASOLINE DISPENSING FACILITY #9551	**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
					methane) above background for PRVs (as defined in SIP 8-5-206)		
Organic Compounds	CARB EO G-70-116-F, paragraph 19 and BAAQMD 8-7-301.13 and 8-7-407	Annual Check for Vapor Tightness and Proper Operation of Vapor Recovery System	Periodic / Annual	CARB EO G-70-116-F, paragraph 10	Any Emergency Vent or Manway Shall Be: leak free	Continuous	N/A
Defective Component Repair/ Replacement Time Limit	BAAQMD 8-7-503.2	Records	Periodic / On event basis	BAAQMD 8-7-302.4	≤ 7 days	Continuous	N/A
Liquid Removal Rate	CARB EO G-70-116-F	CARB Certification Procedures	Periodic / On event basis	BAAQMD 8-7-302.8	> 5 ml per gallon dispensed, when dispensing rate > 5 gallons/minute	Continuous	N/A
Liquid Retain from Nozzles	CARB EO G-70-116-F	CARB Certification Procedures	Periodic / On event basis	BAAQMD 8-7-302.12	≤ 100 ml per 1000 gallons dispensed	Continuous	N/A
Nozzle Spitting	CARB EO G-70-116-F	CARB Certification Procedures	Periodic / On event basis	BAAQMD 8-7-302.13	≤ 1.0 ml per nozzle per test	Continuous	N/A
Pressure-Vacuum Valve Settings	CARB EO G-70-116-F	CARB Certification Procedures	Periodic / On event basis	BAAQMD 8-7-316 and CARB EO G-70-116-F, paragraph 14	Pressure Setting: > 2.5 inches of water, gauge	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-7 NON-RETAIL GASOLINE DISPENSING FACILITY #9551	**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
Pressure-Vacuum Valve Settings	SIP 8-5-403 and CARB EO G-70-116-	Semi-Annual Inspection and CARB Certification Procedures	Periodic / On event basis	SIP 8-5-303.1	Pressure Setting: > 10% of maximum working pressure or > 0.5 psig	Continuous	N/A
Disconnection Liquid Leaks	CARB EO G-70-116-F, paragraph 19 and BAAQMD 8-7-301.13 and 8-7-407	Annual Check for Vapor Tightness and Proper Operation of Vapor Recovery System	Periodic / Annual	CARB EO G-70-116-F, paragraph 12	≤ 10 ml per disconnect, averaged over 3 disconnect operations	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-14 GREENWASTE PROCESSING OPERATION, A-14 WATER SPRAYER	**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
Waste Processing Limit	BAAQMD Condition # 25515 Part 1	Records	Periodic / Annual	BAAQMD Condition # 25515 Part 1	≤ 16,000 tons of green waste per 12-month period	Continuous	N/A
Opacity	BAAQMD Condition # 25515, Part 2	Observation of Source in Operation	Periodic / On event basis	BAAQMD 6-1-301 and SIP 6-301	< Ringelmann 1.0 for 3 minutes in any hour	Continuous	N/A
TSP	None	N/A	None	BAAQMD 6-1-311.1 and SIP 6-311	$E = 4.10(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >55,116 lb/hr	Continuous	N/A
Total Carbon Emissions	None	N/A	None	BAAQMD 8-2-301	≤ 15 pounds/day or ≤ 300 ppm, dry basis and vapor tight	Continuous	N/A

VASCO ROAD LANDFILL

TITLE V SEMI-ANNUAL MONITORING REPORT

Site: Vasco Road Landfill	**Facility ID#:** A5095
Permitted Unit: S-15 WOODWASTE PROCESSING OPERATION, A-15 WATER SPRAYER	**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
Waste Processing Limit	BAAQMD Condition # 25516 Part 1	Records	Periodic / Annual	BAAQMD Condition # 25516 Part 1	≤ 5,000 tons of wood waste per 12-month period	Continuous	N/A
Opacity	BAAQMD Condition # 25516, Part 2	Observation of Source in Operation	Periodic / On event basis	BAAQMD 6-1-301 and SIP 6-301	< Ringelmann 1.0 for 3 minutes in any hour	Continuous	N/A
TSP	None	N/A	None	BAAQMD 6-1-311.1 and SIP 6-311	$E = 4.10(P)^{0.67}$ where: E = Allowable Emission Rate (lb/hr); and P = Process Weight Rate (lb/hr) Maximum Allowable Emission Rate = 40 lb/hr For P >55,116 lb/hr	Continuous	N/A