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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 NESHAP Semi-Annual Report, Bay Area Air Quality Management District Regulation 8, Rule 34, 40 Code of Federal Regulations (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 (8-34) Semi-Annual Report; Semi-Annual Startup, Shutdown and Malfunction (SSM) Plan Report, National Emissions Standards for Hazardous Air Pollutants (NESHAP) Semi-Annual Report, Title V Semi-Annual Monitoring Report, and the Title V Annual Compliance Certification (ACC) Report to the BAAQMD and the U.S. Environmental Protection Agency (USEPA) Region IX for the Vasco Road Landfill (Vasco).

The Title V Semi-Annual Monitoring Report, the BAAQMD Rule 8-34 Semi-Annual Report and the SSM Plan Report, and NESHAP cover the period from February 1, 2022 through July 31, 2022.

The Title V report meets the requirements specified in the Title V Permit, BAAQMD guidance on Title V report submittals, and BAAQMD Regulation 2, Rule 6. The Rule 8-34 report includes the information required by BAAQMD Rule 8-34-411, it satisfies the requirements under the New Source Performance Standards (NSPS) for municipal solid waste landfills (40 Code of Federal Regulations [CFR], Part 60, Subpart WWW), including 40 CFR 60.757(f) and also includes the Initial NESHAP subpart AAAA reporting requirements. The Semi-Annual SSM Plan Report satisfies the requirements under the NESHAP rule for semi-annual reporting of SSM Plan implementation including 40 CFR 63.10(d)(S). The Initial NESHAP reports need the requirement under 40 CFR 63.1981(h). The Title V reports and the SSM Plan report each includes a certification by the responsible official for Vasco.

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 major compliance provisions of Subpart WWW and OOO were replaced as of September 27, 2021 by the NESHAP 40 CFR 63, Subpart AAAA requirements, which essentially implement and enhance provisions of 40 CFR 60, Subparts XXX (which were updated NSPS for Municipal Solid Waste (MSW) landfills promulgated in 2016) as well as removing the SSM Plan requirements. However, because the Title V Permit references Subpart WWW and includes SSM Reporting, this semi-annual report will continue to include Subpart WWW and SSM requirements. References to Subpart WWW will be removed from all reports after a new Title V Permit is issued removing references to Subpart WWW and updating applicable regulations, or we otherwise obtain approval from the BAAQMD to only comply with the new requirements

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 Maria Bowen at (619) 455-9518 or mbowen@scsengineers.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Josh Mills".

Josh Mills
General Manager
Vasco Road Landfill

cc: Antonia Gunner, Vasco
Maria Bowen, SCS Engineers
Hannah Morse, SCS Engineers

NESHAP/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
Livermore, CA 94551

For Submittal to:

Bay Area Air Quality Management District
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SCS ENGINEERS

01204082.06 Task 5 | August 2022

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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/Initial National Emission Standards for Hazardous Air Pollutants (NESHAP) Report, the Semi-Annual Startup, Shutdown, and Malfunction (SSM) Plan Report, and the Title V Semi-Annual Monitoring Report for the Vasco Road Landfill in Livermore, California, dated August 2022, 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) Semi-Annual/Initial National Emission Standards for Hazardous Air Pollutants (NESHAP) Report of information 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, 2022 through July 31, 2022 to the BAAQMD.

1.1 UPDATED NESHAP 40 CFR 63, SUBPART AAAAA

Due to the site's permitted design capacity being over the 2.5 million Megagram/2.5 million cubic meter limits and having an uncontrolled non-methane organic compound (NMOC) content exceeding 50 Megagrams per year (mg/year), the major compliance provisions of Subpart WWW and OOO were replaced as of September 27, 2021 by the NESHAP 40 CFR 63, Subpart AAAAA requirements, which essentially implement and enhance provisions of 40 CFR 60, Subparts XXX (which were updated NSPS for Municipal Solid Waste (MSW) landfills promulgated in 2016) as well as removing the SSM Plan requirements. However, because the Title V Permit references Subpart WWW and SSM, this semi-annual report will continue to include Subpart WWW and SSM requirements. References to Subpart WWW and SSM will be removed from all reports after a new Title V Permit is issued removing references to Subpart WWW and updating applicable regulations, or we otherwise obtain approval from the BAAQMD to only comply with the new requirements.

For the reporting period from February 1, 2022 through July 31, 2022, this Semi-Annual Report complies with the sections specified in Subpart WWW, 40 CFR 60.757(f), and Subpart AAAAA, 40 CFR 63.1981(h), which describes the items to be submitted in an annual report for landfills using an active collection system. Moreover, this report also includes SSM reporting as it is listed in the Title V Permit, even though it is no longer contained in NESHAP Subpart AAAAA. In accordance with NESHAP 40 CFR 63, Subpart AAAAA, this report is submitted semi-annually. This report includes a certification signed by a Responsible Official which is provided in **Appendix A**.

2.0 SITE BACKGROUND INFORMATION

Vasco Road is located in Livermore, California and is owned and operated by Republic Services Vasco Road, LLC. The 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). Permit Condition 818 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 incorporates the new EG requirements and specific parts of Subpart 000 which became effective June 21, 2021 and NESHAP which became effective September 27, 2021. As allowed by the regulations, Vasco has complied with the Subpart AAAA provisions in lieu of the equivalent Subpart 000 provisions. As the new rules are in effect, they are being implemented by the Landfill, and applications for the Title V Modification to add the new rule elements and remove the old NSPS Subpart WWW removed will be submitted accordingly.

A Gas Collection and Control System (GCCS) Design Plan was prepared for the site to review and determine the adequacy of the existing landfill gas (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 USEPA 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 LFG 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 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 acts as a supplementary emission control and/or backup control devices in the event that the LFGTE facility goes offline.

In the event the LFGTE facility and the LFG flare go 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 REPORTING REQUIREMENTS

The following information is required to be reported in a semi-annual report:

Table 1. Reporting Requirements, Corresponding Regulatory References

NSPS Subpart WWW	Updated NESHAP Subpart AAAA
40 CFR 60.757(f), (g)	40 CFR 63.1981(h), (i), (j), (k), (l)
Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (b), (c), and (d).	Number of times that applicable parameters monitored under 40 CFR 63.1958(b), (c), and (d) were exceeded and when the gas collection and control system was not operating under 40 CFR 63.1958(e), including periods of SSM.
Description and duration of all periods when the gas stream is diverted from the control device.	Description and duration of all periods when the gas stream was diverted from the control device or treatment system through a bypass line or the indication of bypass flow as specified under 40 CFR 63.1961.
Description and duration of all periods when the control device was not operating for more than 1 hour.	Description and duration of all periods when the control device or treatment system was not operating and length of time the control device or treatment system was not operating.
All periods when the collection system was not operating in excess of 5 days.	All periods when the collection system was not operating.
The location of each 500 ppmv methane exceedance, and the concentration recorded at each location for which an exceedance was recorded in the previous month.	The location of each exceedance of the 500-ppm methane concentration as provided in 40 CFR 63.1958(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.
The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755 paragraphs (a)(3), (b), and (c)(4).	The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 63.1960(a)(3) and (4), (b), and (c)(4).
Required information of the initial performance source test report pursuant to 40 CFR 60.757(g).	Required information of the initial performance source test report pursuant to 40 CFR 63.1981(i).
--	For any corrective action analysis for which corrective actions are required in 40 CFR 63.1960(a)(3)(i) or (a)(5) and that take more than 60 days to correct the exceedance, the root cause analysis conducted.
--	Each owner or operator required to conduct enhanced monitoring in 40 CFR 63.1961(a)(5) and (6) must include the results of all monitoring activities conducted during the period.
--	Where an owner or operator subject to the provisions of subpart 40 CFR

NSPS Subpart WWW	Updated NESHAP Subpart AAAA
40 CFR 60.757(f), (g)	40 CFR 63.1981(h), (i), (j), (k), (l)
	63.1981(k) seeks to demonstrate compliance with the operational standard for temperature in § 63.1958(c)(1) and a landfill gas temperature measured at either the wellhead or at any point in the well is greater than or equal to 76.7 degrees Celsius (170 degrees Fahrenheit) and the carbon monoxide concentration measured is greater than or equal to 1,000 ppmv, then you must report the date, time, well identifier, temperature and carbon monoxide reading via email to the Administrator within 24 hours of the measurement.
--	Beginning no later than September 27, 2021, the owner or operator must submit reports electronically according to paragraphs 40 CFR 63.1981(l)(1) and (2) of this section.
--	--
--	Submit semi-annual CMS summary reports including required items listed in 40 CFR 63.10(e)(3)(vi)

3.1 MONITORED PARAMETERS

The following information is required to be monitored:

Table 2. Monitored Parameters, Corresponding Regulatory References

NSPS Subpart WWW	Updated NESHAP Subpart AAAA
40 CFR 60.756(a), (b), (c), (d)	40 CFR 63.1961(a), (b), (f)
Vacuum applied to the extraction wells via the gas collection header is monitored on a monthly basis. A vacuum must be maintained at each wellhead to be in compliance with 40 CFR 60.753 (b).	Vacuum applied to the extraction wells via the gas collection header is monitored on a monthly basis. A vacuum must be maintained at each wellhead to be in compliance with 40 CFR 63.1961 (a)(1).
Nitrogen or oxygen content of LFG at the wellheads is monitored on a monthly basis. Nitrogen must be less than 20 percent (%) or oxygen less than five (5) % to comply with 40 CFR 60.753 (c).	Nitrogen or oxygen content of LFG at the wellheads is monitored on a monthly basis.
Temperature of the LFG at the wellheads is monitored on a monthly basis. Temperature must	Temperature of the LFG at the wellheads is monitored on a monthly basis. Temperature must be

NSPS Subpart WWW	Updated NESHAP Subpart AAAA
40 CFR 60.756(a), (b), (c), (d)	40 CFR 63.1961(a), (b), (f)
<p>be maintained below 55 degrees C (131 degrees F) to comply with 40 CFR 60.753 (c).</p>	<p>maintained below 62.8 degrees C (145 degrees F) to comply with 40 CFR 63.1961(a)(3).</p>
<p>A temperature or flame presence monitoring device with a continuous recorder, and a gas flow rate measuring device, which records flow at least once every 15 minutes, must be installed at the flare station. The temperature/flame presence and LFG flow rate monitoring data are used to determine the amount of time the LFG collection and control systems are on-line and to ensure compliance with the minimum temperature requirement for enclosed flares. The flare monitoring devices must be operating continuously to comply with 40 CFR 60.756 (b) and to show that the flare is on-line at any time that the collection system is operating (in compliance with 40 CFR 60.753 (e) and (f)).</p>	<p>A temperature or flame presence monitoring device with a continuous recorder, and a gas flow rate measuring device, which records flow at least once every 15 minutes, must be installed at the flare station. The temperature/flame presence and LFG flow rate monitoring data are used to determine the amount of time the LFG collection and control systems are on-line and to ensure compliance with the minimum temperature requirement for enclosed flares. The flare monitoring devices must be operating continuously to comply with 40 CFR 63.1961(b) and to show that the flare is on-line at any time that the collection system is operating (in compliance with 40 CFR 63.1958 (e) and (f)).</p>
<p>Landfill surface emissions monitoring was performed on a quarterly basis to measure concentrations of total organic carbon (TOC) as methane. A portable flame ionization detector (FID) organic vapor analyzer, which meets NSPS specifications, was used to measure concentrations of TOC as methane (in compliance with 40 CFR 60.756(f)).</p>	<p>Landfill surface emissions monitoring was performed on a quarterly basis to measure concentrations of TOC as methane. A portable FID organic vapor analyzer, which meets NSPS specifications, was used to measure concentrations of TOC as methane (in compliance with 40 CFR 63.1961(f)).</p>
<p>The landfill surface was inspected at least monthly for evidence of cracks or other surface integrity issues, in accordance with 40 CFR 60.755(c)(5).</p>	<p>The landfill surface was inspected at least monthly for evidence of cracks or other surface integrity issues, in accordance with 40 CFR 63.1960(c)(5).</p>
<p>Per 40 CFR 60 758(c)(1)(i), the average temperature of the flare for a 3-hour time period cannot fall below 28 °C (50 °F) less than the average operation temperature based on the most recent source test except during periods of SSM.</p>	<p>Per 40 CFR 63.1983(c)(1)(i), the average temperature of the flare for a 3-hour time period cannot fall below 28 °C (50 °F) less than the average operation temperature based on the most recent source test. Please note, continuous monitoring of temperature monitoring is required at all times except for periods of monitoring system malfunctions, repairs associated with monitoring system</p>

NSPS Subpart WWW	Updated NESHAP Subpart AAAA
40 CFR 60.756(a), (b), (c), (d)	40 CFR 63.1961(a), (b), (f)
	malfunctions, and required monitoring system quality assurance or quality control activities (in compliance with 40 CFR 63.1961(h)).

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 19.77 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.

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 3a**, 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 3b**, 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 for approximately 3,894.93 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. Three (3) wells were taken off-line during the reporting period due to active fill. Six (6) wells were abandoned and six (6) new wells were started up during the reporting period. All well downtime complied with Rule 8-34.

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 May 20, 2022, a Well Decommissioning Notification Letter was submitted to the BAAQMD for the decommissioning of six (6) wells. Additionally, on June 6, 2022, a Well Startup Notification Letter was submitted to the BAAQMD for the start up of six (6) new wells.

Details of individual well shutdown and well startups occurring during the reporting period are provided in **Table 4**. Please see the Semi-Annual 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 A-4 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, 2022 through May 12, 2022, the minimum temperature above which the flare was required to operate was 1,483 °F (source test results of 1533 °F minus 50 °F), based on the source test (conducted on May 7, 2021) results in the test report dated June 9, 2021. From May 12, 2022 through July 31, 2022, the minimum temperature above which the flare was required to operate was 1,426 °F (source test results of

1,476°F minus 50°F), based on the source test (conducted on March 29, 2022) results in the test report dated May 12, 2022.

During the reporting period, the average temperature for the A-4 Flare did not drop below the established minimum temperatures. From February 1, 2022 through July 31, 2022, there were zero (0) missing data events for the flare during the reporting period, except for periods excluded per 40 CFR 63.1961.

Please note the new NESHAP minimum temperature requirement is 82°F below the most recent source test. Due to Vasco's Title V permit still including the WWW requirement of 50°F below the most recent source test, the most stringent requirement was used for this report.

Flare temperature records are available for review at the site. Excerpts from the May 12, 2022 source test report, summarizing the test results for the flare are provided as **Appendix D**.

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 D** and are available for review at the site.

3.2.1 First Quarter 2022 Monitoring

SCS Field Services (SCSFS) conducted the component leak testing of the wellfield and flare station on January 12, 2022. No component leaks above 1,000 ppm_v were detected in the wellfield or at the flare station during the First Quarter 2022 monitoring event.

3.2.2 Second Quarter 2022 Monitoring

SCSFS conducted the component leak testing of the wellfield and flare station on April 7, 2022. No component leaks above 1,000 ppm_v were detected in the wellfield or at the flare station during the Second Quarter 2022 monitoring events.

3.3 CONTROL EFFICIENCY

LFG Flare A-4 was also tested on March 29, 2022 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 Number 818, Part 20. The NMOC destruction efficiency for the March 2022 source test was measured to be >99.37 percent by weight and the NMOC as methane concentration in the flare outlet was <3.9 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 March 2022 source test report dated May 12, 2022, summarizing the test results, were provided in the previous semi-annual 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 D**. Records of SEM are available for review at the site.

3.4.1 First Quarter 2022 Monitoring

SCSFS technicians monitored the landfill surface for leaks with a methane concentration of greater than 500 ppm_v above background on January 10, 11, and 12, 2022. No surface emissions in excess of 500 ppm_v were detected during the First Quarter 2022 monitoring event. Based on these results not additional monitoring was required. The monitoring results are provided in the First Quarter 2022 SEM report (**Appendix D**).

3.4.1 Second Quarter 2022 Monitoring

SCSFS monitored the landfill surface for leaks with a methane concentration of greater than 500 ppm_v above background on April 6, 7, 8, 12, 18 and May 5, 2022. Surface emissions in excess of 500 ppm_v was detected at one (1) location during the Second Quarter 2022 monitoring event. The location with the exceedance and associated methane concentrations are provided in the Second Quarter 2022 SEM report (**Appendix D**).

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 this location on April 18, 2022. 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/NESHAP, on May 5, 2022, 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 2022 through July 2022 to comply with BAAQMD Rules 8-34-305 and 8-34-414. The results of this monitoring are summarized below. Wellhead exceedances are provided in **Table 5, 6, and 7**.

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 Rules 8-34-305 and 8-34-414. Six (6) wells, VREW2201, VREW2202, VREW2204B, VREW2205, VRLRW003, and VRLRW004 exhibited positive pressure during this reporting period, the identification number and date that the well was operating with positive pressure are provided in **Table 5**. The table also includes corrective action and re-monitoring results. Corrective action and re-monitoring were

performed in accordance with the 5- and 15-day requirements specified in the NSPS/NESHAP regulations and in Rule 8-34.

One (1) well demonstrated positive pressure readings beyond 15 days and compliance will be achieved within 60 or 120 days and documented in the next semi-annual report.

Per 40 CFR 63.1960(a)(3)(i), a “root cause analysis” (RCA) is required if pressure exceedances cannot be corrected in 15 days. An additional “corrective action analysis” (CAA) and notification is required for corrective actions that require more than 60 days to complete. At the end of the reporting period, wells VEW2204B, VRLRW003, and VRLRW004 could not be corrected within 15 days and RCAs were required. See **Appendix G** for RCA forms, CAA forms, and 75-day notifications.

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 6**.

As of the end of this reporting period, all of the operating wells were operating with an oxygen concentration below the 5 or 15 percent limit except for wells VRLFEW19, VRLEW38A , and VREW2108. 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 Subpart AAAA, which took effect September 27, 2021, oxygen above 5 percent is no longer an exceedance, but under BAAQMD Rule 8-34-414 and Subpart WWW it still is, and the Landfill will continue to follow these requirements.

As of the end of the previous reporting period, wells VREW1001, VREW116, VR12LR01, VRL0601R, and VR12GT03 were operating with an oxygen concentration above the 5 percent limit. These wells returned to compliance or were abandoned during this 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. Subpart AAAA allows wellhead temperatures up to 145°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 7**.

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, and VREW2104. 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 VREW2106, VREW2108, and VREW2109 were operating with a temperature higher than 131 °F. These wells returned to compliance during this reporting period. A higher operating value request of 150°F was submitted on September 1, 2021 for wells VREW2103, VREW2106, VREW2108, and VREW2109.

Per 40 CFR 63.1960(a)(4)(i), an RCA is required if temperature exceedances cannot be corrected in 15 days. An additional CAA and notification is required for corrective actions that require more than 60 days to complete. At the end of the reporting period, wells VREW2103, VREW2103, VREW2104, VREW2106, VREW2107 could not be corrected within 15 days and RCAs were required. Moreover, wells VREW2103 and VREW2107 could not be corrected within 60 days and CAA and 75-day notifications were required. See **Appendix G** for RCA forms, CAA forms, and 75-day notifications.

Moreover, please note that there were no wells with temperature readings over 145°F, so no enhanced monitoring was required under Subpart AAAA.

3.6 COVER INTEGRITY MONITORING

Under BAAQMD Rule 8-34-510 and the NSPS/NESHAP, 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 13, March 27, April 28, May 26, June 26, and July 27, 2022 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, 2022 through July 31, 2022, the site accepted 210,179.41 tons of decomposable waste and cover material, resulting in a cumulative waste-in-place total of 18,681,049.29 tons as of July 31, 2022.

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.

3.9 24 HOUR HIGH TEMPERATURE

40 CFR 63.1981(k) and 40 CFR 62.16724(q) require the reporting of any landfill gas temperature measurements greater than or equal to 170°F. During the reporting period, there were no readings greater or equal to 170°F.

3.10 TREATMENT SYSTEM MONITORING PLAN

There are no vents within the treatment system, which allow venting of gas to the atmosphere, and the treatment system is not designed nor equipped to bypass a control device and vent directly to the atmosphere. A calibrated flow meter is installed to measure flow to the treatment system. Treated landfill gas, which cannot be routed for sale or beneficial use, is routed to a control system. Ameresco maintains and operates all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required by §62.16726(b)(5)(ii) and §63.1983(b)(5)(ii). During this reporting period, per Ameresco there were no parameter exceedances of the Treatment Monitoring Plan.

SECTION II. SSM PLAN REPORT

As mentioned previously, Vasco Road is subject to 40 CFR Part 63, Subpart AAAAA, 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, 2022 through July 31, 2022 are documented in this section.

During the reporting period, there were fourteen (14) SSM events involving shutdown of the entire GCCS. All of these startup/shutdown events were associated with a malfunction of the GCCS.

During the reporting period, there were nineteen (19) SSM events involving the wellfield as seven (7) wells was permanently decommissioned due to poor gas quality, six (6) wells were started up, three (3) wells were offline due to active fill and two (2) wells were not read due to unsafe conditions from construction. Additionally, there was one (1) well 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 3a (GCCS Downtime), 3b (A-4 Flare Downtime), and 4 (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, 2022 through July 31, 2022 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 E**.

Tables

**Table 3a. GCCS Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)**

GCCS Shutdown	Restarted	Downtime Hours	Reason for Downtime	Corrective Actions Taken
2/16/22 13:08	2/16/22 13:20	0.20	Offline due to sump repairs	Flare started
2/16/22 13:42	2/16/22 13:54	0.20	Offline due to sump repairs	Flare started
2/16/22 14:14	2/16/22 17:10	2.93	Offline due to sump repairs	Flare started
3/14/22 8:07	3/14/22 8:28	0.35	Offline due to flare maintenance prior to source test	Flare started
3/14/22 9:42	3/14/22 12:19	2.62	Offline due to flare maintenance prior to source test	Engine Started
4/5/22 6:20	4/5/22 6:44	0.40	Flare offline due to flame failure; Plant down due to forced utility shutdown	Flare started
4/30/22 16:55	4/30/22 18:36	1.68	Flare offline due to flame failure; Plant down due to forced utility shutdown	Flare started
5/3/22 21:02	5/3/22 21:06	0.07	Engine offline. High O2	Flare started
5/5/22 11:20	5/5/22 11:33	0.22	High Vacuum shutdown	Flare started
5/8/22 20:20	5/8/22 22:20	2.00	High Vacuum shutdown	Flare started
5/25/22 6:49	5/25/22 11:03	4.23	Plant shutdown for Construction Activity	Engine restarted
No Downtime in June 2022				
7/1/22 9:00	7/1/22 11:32	2.53	High Vacuum shutdown	Flare started
7/22/22 8:20	7/22/22 10:35	2.25	High Vacuum shutdown	Flare started
7/22/22 10:35	7/22/22 10:40	0.08	High Vacuum shutdown	Flare started
Total:		19.77		

Notes:

TSA = temperature swing adsorption, H2S = hydrogen sulfide, HVAC = Heating, Ventilation, and Air Conditioning

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.

Table 3b. Flare (A-4) Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)

Shutdown	Startup ¹	Downtime Hours	Reason for Downtime
2/3/22 8:22	2/4/22 10:04	25.70	Automatic shutdown due to flame failure.
2/4/22 15:30	2/8/22 8:20	88.83	Automatic shutdown due to flame failure.
2/8/22 14:54	2/9/22 8:14	17.33	Automatic shutdown due to flame failure.
2/9/22 17:52	2/10/22 8:06	14.23	Automatic shutdown due to flame failure.
2/10/22 11:24	2/16/22 8:46	141.37	Automatic shutdown due to flame failure.
2/16/22 13:08	2/16/22 13:20	0.20	Automatic shutdown due to flame failure.
2/16/22 13:42	2/16/22 13:54	0.20	Automatic shutdown due to flame failure.
2/16/22 14:14	2/16/22 17:10	2.93	Automatic shutdown due to flame failure.
2/17/22 1:32	2/23/22 8:18	150.77	Automatic shutdown due to flame failure.
2/23/22 10:22	3/1/22 8:52	142.50	Automatic shutdown due to flame failure.
3/1/22 8:56	3/3/22 10:18	49.37	Automatic shutdown due to flame failure.
3/4/22 8:54	3/14/22 8:28	239.57	Automatic shutdown due to flame failure.
3/14/22 9:42	3/28/22 7:52	334.17	Automatic shutdown due to flame failure.
3/28/22 11:14	3/29/22 7:44	20.50	Automatic shutdown due to flame failure.
3/29/22 12:10	4/5/22 6:44	162.57	Automatic shutdown due to flame failure.
4/5/22 7:56	4/5/22 8:44	0.80	Automatic shutdown due to flame failure.
4/5/22 14:58	4/7/22 7:44	40.77	Automatic shutdown due to flame failure.
4/7/22 16:44	4/8/22 10:20	17.60	Automatic shutdown due to flame failure.
4/8/22 17:24	4/13/22 11:20	113.93	Automatic shutdown due to flame failure.
4/16/22 14:14	4/19/22 9:30	67.27	Automatic shutdown due to flame failure.
4/19/22 15:16	4/20/22 12:52	21.60	Automatic shutdown due to flame failure.
4/20/22 15:02	4/22/22 7:50	40.80	Automatic shutdown due to flame failure.
4/22/22 12:48	4/30/22 18:36	197.80	Automatic shutdown due to flame failure.
4/30/22 18:54	5/3/22 21:06	74.20	Automatic shutdown due to flame failure.
5/4/22 14:36	5/5/22 11:20	20.73	Automatic shutdown due to flame failure.
5/5/22 15:14	5/6/22 8:50	17.60	Automatic shutdown due to flame failure.
5/6/22 14:28	5/8/22 22:20	55.87	Automatic shutdown due to flame failure.
5/8/22 22:38	5/10/22 9:24	34.77	Automatic shutdown due to flame failure.
5/10/22 14:52	5/11/22 8:46	17.90	Automatic shutdown due to flame failure.
5/11/22 13:14	5/16/22 8:48	115.57	Automatic shutdown due to flame failure.
5/16/22 12:36	5/17/22 8:16	19.67	Automatic shutdown due to flame failure.
5/17/22 14:28	5/18/22 11:40	21.20	Automatic shutdown due to flame failure.
5/18/22 11:58	5/20/22 8:20	44.37	Automatic shutdown due to flame failure.
5/20/22 12:40	5/25/22 13:48	121.13	Automatic shutdown due to flame failure.
5/25/22 15:52	5/26/22 7:50	15.97	Automatic shutdown due to flame failure.
5/26/22 13:32	6/1/22 8:30	138.97	Automatic shutdown due to flame failure.

Table 3b. Flare (A-4) Downtime
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)

Shutdown	Startup ¹	Downtime Hours	Reason for Downtime
6/1/22 14:34	6/2/22 8:34	18.00	Automatic shutdown due to flame failure.
6/2/22 14:28	6/7/22 8:50	114.37	Automatic shutdown due to flame failure.
6/7/22 10:06	6/8/22 11:34	25.47	Automatic shutdown due to flame failure.
6/8/22 14:36	6/10/22 9:24	42.80	Automatic shutdown due to flame failure.
6/10/22 12:14	6/21/22 9:54	261.67	Automatic shutdown due to flame failure.
6/21/22 10:04	6/23/22 7:54	45.83	Automatic shutdown due to flame failure.
6/23/22 14:30	6/27/22 8:48	90.30	Automatic shutdown due to flame failure.
6/27/22 13:16	6/28/22 7:54	18.63	Automatic shutdown due to flame failure.
6/28/22 13:20	7/1/22 11:32	70.20	Automatic shutdown due to flame failure.
7/1/22 13:46	7/5/22 10:26	92.67	Automatic shutdown due to flame failure.
7/5/22 13:14	7/6/22 7:52	18.63	Automatic shutdown due to flame failure.
7/6/22 14:12	7/11/22 8:46	114.57	Automatic shutdown due to flame failure.
7/11/22 14:26	7/13/22 8:04	41.63	Automatic shutdown due to flame failure.
7/13/22 14:48	7/15/22 9:16	42.47	Automatic shutdown due to flame failure.
7/15/22 9:32	7/19/22 7:48	94.27	Automatic shutdown due to flame failure.
7/19/22 15:58	7/20/22 7:26	15.47	Automatic shutdown due to flame failure.
7/20/22 12:48	7/22/22 7:06	42.30	Automatic shutdown due to flame failure.
7/22/22 8:20	7/22/22 10:40	2.33	Automatic shutdown due to flame failure.
7/25/22 13:24	8/1/22 0:00	154.60	Automatic shutdown due to flame failure.
Total		3894.93	

Notes:

Events in bold type denotes Malfunction Events

¹The A-4 flare was offline at the end of the reporting period. For reporting purposes, the startup is calculated as having ended on August 1, 2022 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 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 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

Table 4. Individual Well Startups, Shutdowns and Decommissions
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)

Well ID	Shutdown	Start-up	Days Offline	Reason for Shutdown
VR12GT05	N/A	N/A	N/A	Well not read in April due to construction activities for new cell.
VR12LR01	N/A	N/A	N/A	Well not read in April due to construction activities for new cell.
VREW0901	4/18/2022	N/A	N/A	Well shutdown.
VREW1001	5/5/2022	N/A	N/A	Well shutdown due to lack of flow.
VREW2105	4/6/2022	6/28/2022	83.0	Well offline due to active fill.
VREW2108	2/1/2022	5/10/2022	97.9	Well offline due to active fill.
VREW2109	1/14/2022	3/8/2022	53.5	Well offline due to active fill.
VREW2109	4/6/2022	Continuous	N/A	Well offline due to active fill.
VREW2201	N/A	6/23/2022	N/A	New well startup
VREW2202	N/A	6/23/2022	N/A	New well startup
VREW2203	N/A	6/23/2022	N/A	New well startup
VEW2204B	N/A	6/23/2022	N/A	New well startup
VREW2205	N/A	6/23/2022	N/A	New well startup
VREW2206	N/A	6/23/2022	N/A	New well startup
VRL0601R	5/17/2022	N/A	N/A	Well shutdown due to lack of flow.
VRL0601R	5/17/2022	N/A	N/A	Well shutdown due to lack of flow.
VRLFEW09	5/17/2022	N/A	N/A	Well shutdown due to lack of flow.
VRLFEW27	5/17/2022	N/A	N/A	Well shutdown due to lack of flow.
VRLFEW98	5/17/2022	N/A	N/A	Well shutdown due to lack of flow.

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

**Table 5. Wells with Positive Pressure
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)**

Well ID	Date	Initial Static Pressure ("H ₂ O)	Adjusted Static Pressure ("H ₂ O)	5-Day Corrective Action Date	Corrective Action	15-Day Follow-Up Pressure ["H ₂ O]	15-Day Follow-Up Date	Comments	Additional Corrective Action
VEW2204B	6/23/2022	0.51	0.51	6/23/2022	Adjusted Valve	0.39	6/28/2022*	Newly installed well	RCA
VREW2201	6/23/2022	0.11	0	6/23/2022	Adjusted Valve	-0.05	6/28/2022	Newly installed well	N/A
VREW2202	6/23/2022	0.12	0	6/23/2022	Adjusted Valve	-0.18	6/28/2022	Newly installed well	N/A
VREW2205	6/23/2022	0.4	0	6/23/2022	Adjusted Valve	-0.24	6/28/2022	Newly installed well	N/A
VRRLRW003	7/19/2022	5.05	5.1	7/19/2022	Adjusted Valve	-0.07	8/4/2022*	In compliance 8/4/22	RCA
VRRLRW004	7/19/2022	5.12	5.13	7/19/2022	Adjusted Valve	-0.28	8/4/2022*	In compliance 8/4/22	RCA

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

*Exceedance was not corrected in 15 days. Compliance will be achieved by the 120-day compliance dates specified above.

RCA = Root Cause Analysis, CAA = Corrective Action Analysis, 75-day = 75-Day Notification or request for additional time.

**Table 6. Wells with Oxygen Exceedance
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)**

Well ID	Date	Initial O2 [%]	5-Day Corrective Action Date	Corrective Action	Adjusted O2 [%]	15-Day Follow-Up Date	Comments
VREW1001	2/1/2022	16.8	2/1/2022	Adjusted Valve	4.5	2/24/2022	
VREW1001	3/17/2022	9.7	3/17/2022	Adjusted Valve	0	4/6/2022	
VRLEW116	2/1/2022	17.1	2/1/2022	Adjusted Valve	1.5	2/8/2022	
VRLEW116	2/16/2022	11.7	2/16/2022	Adjusted Valve	13.4	3/2/2022	In compliance on 3/17/22
VRLEW116	4/6/2022	18	4/6/2022	Adjusted Valve	18.2	4/18/2022	In compliance on 5/10/22
VRLEW146	2/1/2022	5.9	2/1/2022	Adjusted Valve	0	2/16/2022	
VRLEW147	5/20/2022	5.3	5/20/2022	Adjusted Valve	0.9	6/1/2022	
VRLF EW19	2/15/2022	12.7	2/15/2022	Adjusted Valve	13.6	2/16/2022	In compliance on 3/8/22
VRLF EW19	5/17/2022	5.1	5/17/2022	Adjusted Valve	14.8	6/2/22*	
VRLEW38A	4/22/2022	9.1	4/22/2022	Adjusted Valve	3.7	5/4/2022	
VRLEW38A	5/17/2022	7.5	5/17/2022	Adjusted Valve	1.5	5/23/2022	
VRLEW38A	6/1/2022	7.5	6/1/2022	Adjusted Valve	8.7	6/17/22*	
VRLO601R	2/1/2022	16.4	2/1/2022	Adjusted Valve	18.7	2/16/2022	Abandoned on 5/17/22
VREW0901	3/29/2022	6.4	3/29/2022	Adjusted Valve	2.6	4/18/2022	
VREW0911	7/20/2022	7.9	7/20/2022	Adjusted Valve	1	7/27/2022	
VRLF EW98	2/1/2022	20.8	2/1/2022	Adjusted Valve	14	2/15/2022	In compliance on 3/17/22
VRLF EW99	2/1/2022	15.3	2/1/2022	Adjusted Valve	0.3	2/15/2022	
VR12GT03	2/1/2022	7.1	2/1/2022	Adjusted Valve	2.7	2/16/2022	
VREW2108	5/10/2022	19.8	5/10/2022	Adjusted Valve	19.5	5/31/22*	
VREW2113	6/28/2022	10.9	6/28/2022	Adjusted Valve	0.6	7/11/2022	
VREW2113	7/19/2022	7.2	7/19/2022	Adjusted Valve	4.7	7/27/2022	
VREW2120	2/24/2022	7.8	2/24/2022	Adjusted Valve	0	3/10/2022	

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

*Exceedance remains at end of reporting period. Compliance will be achieved by the 120-day compliance dates specified above.

**Table 7. Wells with Temperature Exceedance
Vasco Road Landfill, Livermore, California
(February 1, 2022 through July 31, 2022)**

Well ID	Date	Initial Temperature [°F]	Adjusted Temperature [°F]	5-Day Corrective Action Date	Corrective Action	15-Day Follow-Up Temperature [°F]	15-Day Follow-Up Date	Comments	Additional Corrective Action
VREW2103	2/24/2022	133.3	133.5	2/24/2022	Adjusted Valve	134.4	3/1/2022	In compliance on 3/17/22	RCA
VREW2103	4/25/2022	133.7	133.8	4/25/2022	Adjusted Valve	135.9	5/4/2022*		RCA, CAA, 75-day
VREW2104	4/6/2022	133.9	134.1	4/6/2022	Adjusted Valve	130.7	4/18/2022		N/A
VREW2104	6/28/2022	134.7	134.7	6/28/2022	Adjusted Valve	137.7	7/11/22*		RCA
VREW2106	2/24/2022	132.7	132.7	2/24/2022	Adjusted Valve	138	3/1/2022	In compliance on 3/17/22	RCA
VREW2106	4/6/2022	131.4	131.5	4/6/2022	Adjusted Valve	130.9	4/18/2022		N/A
VREW2106	5/10/2022	133.9	133.9	5/10/2022	Adjusted Valve	130.5	5/26/2022		N/A
VREW2107	4/6/2022	133.7	133.7	4/6/2022	Adjusted Valve	130.3	4/18/2022		N/A
VREW2107	5/10/2022	135.1	135	5/10/2022	Adjusted Valve	135	5/23/2022*	In compliance on 7/20/22	RCA, CAA, 75-day
VREW2109	3/8/2022	144.4	144.5	3/8/2022	Adjusted Valve	125.1	3/17/2022		N/A

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

*Exceedance not corrected within 15 days. Compliance will be achieved by the 60 or 120-day compliance dates specified above.

RCA = Root Cause Analysis, CAA = Corrective Action Analysis, 75-day = 75-Day Notification or request for additional time.

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:



Signature of Responsible Official

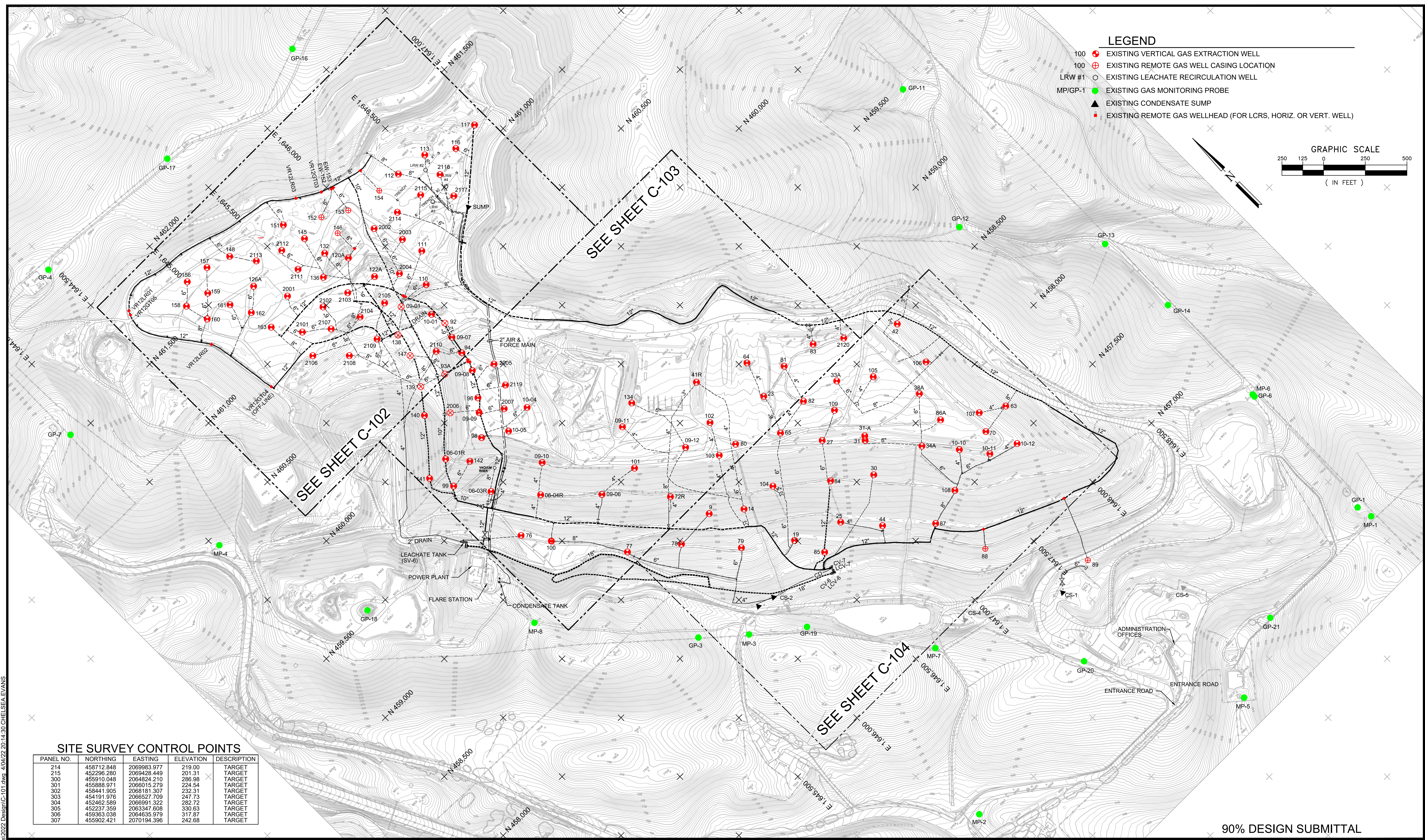
08/29/2022

Date

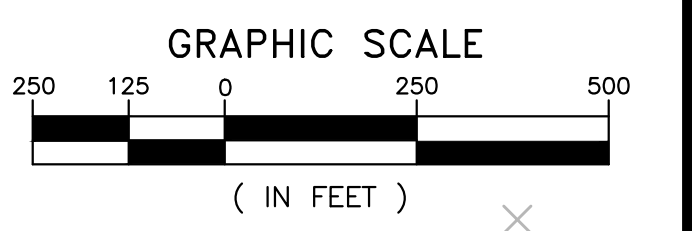
Josh Mills

Name of Responsible Official

Appendix B – Existing GCCS Layout



- LEGEND**
- 100 ● EXISTING VERTICAL GAS EXTRACTION WELL
 - 100 ⊕ EXISTING REMOTE GAS WELL CASING LOCATION
 - LRW #1 ○ EXISTING LEACHATE RECIRCULATION WELL
 - MP/GP-1 ● EXISTING GAS MONITORING PROBE
 - ▲ EXISTING CONDENSATE SUMP
 - EXISTING REMOTE GAS WELLHEAD (FOR LCRS, HORIZ. OR VERT. WELL)



SITE SURVEY CONTROL POINTS

PANEL NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
214	458712.848	2069983.977	219.00	TARGET
215	452296.280	2069428.449	201.31	TARGET
300	455910.048	2064824.210	286.98	TARGET
301	455938.971	2066015.279	224.54	TARGET
302	458441.905	2068181.307	232.31	TARGET
303	454191.976	2066527.709	247.73	TARGET
304	452462.589	2066991.322	282.72	TARGET
305	452237.359	2063347.608	330.63	TARGET
306	459363.038	2064635.979	317.87	TARGET
307	455902.421	2070194.396	242.68	TARGET

90% DESIGN SUBMITTAL

VASCO ROAD LANDFILL
2022 GCCS IMPROVEMENTS
SITE PLAN, SURVEY CONTROL, AND INDEX TO PLAN SHEETS

DESIGNED BY: CME	SCALE: AS SHOWN
DRAWN BY: CME	DATE: 4/4/2022 FILE NO. C-101:
CHECKED BY: AMN/SHA	DATE: 4/4/2022
APPROVED BY: PJS	DATE: 4/4/2022 SHEET C-101

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

NO.	REVISION DESCRIPTION	BY:

I:\proj\Republic\Yasco_Road\Gas\2022 Design\C-101.dwg 4/04/22 20:14:50 CHELSEA EVANS

Appendix C – LFGTE Facility Downtime Logs

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	1/24/22 7:04	2/3/22 9:01	241:57	44585	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	2/1/22 16:59	2/1/22 19:11	2:12	44594	Mike Rogers	Unplanned	Ameresco	Other	Restart Only
2	2/2/22 10:30	2/2/22 10:48	0:18	44594	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
2	2/2/22 18:22	2/2/22 19:31	1:09	44595	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	2/3/22 9:49	2/3/22 10:12	0:23	44595	Mike Rogers	Planned	Ameresco	Generator	Restart Only
1	2/3/22 10:14	2/3/22 10:24	0:10	44595	Mike Rogers	Planned	Ameresco	Generator	Restart Only
2	2/4/22 9:56	2/4/22 15:24	5:28	44596	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	2/4/22 15:36	2/4/22 16:15	0:39	44597	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	2/6/22 10:34	2/6/22 18:12	7:38	44598	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	2/9/22 8:11	2/9/22 17:45	9:34	44601	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
1	2/10/22 8:01	2/10/22 11:16	3:15	44602	Mike Rogers	Planned	Ameresco	Engine	Reconfigure, and Restart
1	2/16/22 13:16	2/16/22 13:36	0:20	44609	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	2/16/22 13:16	2/16/22 18:19	5:03	44609	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	2/16/22 13:38	2/16/22 17:44	4:06	44609	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	2/16/22 17:49	2/16/22 18:07	0:18	44609	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	2/23/22 8:15	2/23/22 9:54	1:39	44615	Mike Rogers	Unplanned	Ameresco	Electrical	Restart Only
2	2/23/22 8:16	2/23/22 10:08	1:52	44615	Mike Rogers	Unplanned	Ameresco	Electrical	Restart Only

Vasco

Monthly SSM Report

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	3/14/22 8:07	3/14/22 12:19	4:12	44634	Joshua Crouse	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
2	3/14/22 8:07	3/14/22 12:31	4:24	44634	Joshua Crouse	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	4/5/22 6:20	4/5/22 7:48	1:28	44656	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
2	4/5/22 6:20	4/5/22 7:43	1:23	44656	Mike Rogers	Unplanned	Electrical Utility	Other	Restart Only
1	4/8/22 10:14	4/8/22 17:33	7:19	44659	Mike Rogers	Proactive	Ameresco	Engine	Repair, and Restart
1	4/13/22 9:05	4/13/22 9:18	0:13	44664	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	4/13/22 9:20	4/14/22 14:04	28:44	44664	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	4/14/22 14:06	4/16/22 14:55	48:49	44666	Mike Rogers	Unplanned	Ameresco	Generator	Replace, and Restart
1	4/16/22 15:00	4/16/22 15:40	0:40	44668	Mike Rogers	Unplanned	Ameresco	Engine	Replace, and Restart
1	4/19/22 9:16	4/19/22 9:28	0:12	44670	Mike Rogers	Unplanned	Landfill / Wellfield	Landfill Vacuum / Gas Limited	Restart Only
1	4/20/22 12:44	4/20/22 12:57	0:13	44672	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
1	4/30/22 16:55	4/30/22 18:47	1:52	44682	Mike Rogers	Unplanned	Electrical Utility	Power Surge	Restart Only
2	4/30/22 16:55	4/30/22 18:48	1:53	44682	Mike Rogers	Unplanned	Electrical Utility	Power Surge	Restart Only

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	5/3/22 18:40	5/4/22 7:14	12:34	44685	Mike Rogers	Unplanned	Landfill / Digester	Oxygen Levels	Restart Only
2	5/3/22 21:02	5/4/22 7:42	10:40	44685	Mike Rogers	Unplanned	Landfill / Digester	Oxygen Levels	Restart Only
2	5/4/22 8:34	5/4/22 18:13	9:39	44685	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	5/4/22 18:33	5/4/22 18:45	0:12	44686	Mike Rogers	Unplanned	Ameresco	Other	Reconfigure, and Restart
1	5/5/22 8:51	5/5/22 11:33	2:42	44686	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
2	5/5/22 8:53	5/5/22 11:40	2:47	44686	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
1	5/8/22 3:26	5/8/22 4:48	1:22	44689	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
2	5/8/22 20:20	5/8/22 22:31	2:11	44690	Mike Rogers	Unplanned	Ameresco	Building / HVAC	Restart Only
1	5/8/22 20:20	5/8/22 22:32	2:12	44690	Mike Rogers	Unplanned	Ameresco	Building / HVAC	Restart Only
1	5/9/22 22:38	5/10/22 0:07	1:29	44691	Mike Rogers	Unplanned	Landfill / Digester	Oxygen Levels	Restart Only
1	5/10/22 21:27	5/10/22 22:32	1:05	44692	Mike Rogers	Unplanned	Landfill / Digester	Oxygen Levels	Restart Only
2	5/11/22 8:36	5/11/22 13:06	4:30	44692	Mike Rogers	Planned	Ameresco	Engine	Reconfigure, and Restart
1	5/11/22 22:48	5/12/22 0:04	1:16	44693	Mike Rogers	Unplanned	Landfill / Digester	Oxygen Levels	Reconfigure, and Restart
1	5/18/22 11:11	5/18/22 11:49	0:38	44699	Mike Rogers	Unplanned	Landfill / Digester	Oxygen Levels	Restart Only
1	5/25/22 6:49	5/25/22 11:03	4:14	44706	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	5/25/22 6:49	5/25/22 15:44	8:55	44706	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
1	5/25/22 11:03	5/25/22 15:46	4:43	44706	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Replace, and Restart
1	5/26/22 7:36	5/26/22 7:56	0:20	44707	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	6/3/22 11:24	6/3/22 11:34	0:10	44715	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/5/22 9:26	6/5/22 14:06	4:40	44717	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	6/6/22 0:19	6/6/22 1:08	0:49	44718	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/10/22 7:57	6/10/22 8:10	0:13	44722	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
1	6/11/22 0:58	6/11/22 1:51	0:53	44723	Mike Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	6/13/22 11:09	6/13/22 11:19	0:10	44725	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/14/22 0:28	6/14/22 7:03	6:35	44726	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/17/22 22:18	6/17/22 23:17	0:59	44730	Joshua Crouse	Unplanned	Ameresco	Engine	Restart Only
1	6/18/22 14:53	6/18/22 15:36	0:43	44731	Joshua Crouse	Unplanned	Ameresco	Engine	Restart Only
1	6/18/22 22:45	6/18/22 23:26	0:41	44731	Joshua Crouse	Unplanned	Ameresco	Engine	Restart Only
1	6/19/22 10:58	6/19/22 13:44	2:46	44731	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/26/22 7:41	6/26/22 8:46	1:05	44738	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/26/22 9:33	6/26/22 10:45	1:12	44738	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	6/26/22 22:53	6/26/22 23:46	0:53	44739	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only

Eng	Start Time	End Time	Duration (HH:MM)	Eng Hours	Operator	Type	Cause	Reason	Maintenance
1	7/1/22 9:00	7/1/22 13:39	4:39	44743	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
2	7/1/22 9:00	7/1/22 13:38	4:38	44743	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
1	7/3/22 9:37	7/3/22 11:59	2:22	44745	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	7/4/22 23:31	7/5/22 0:34	1:03	44747	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	7/7/22 8:15	7/7/22 8:30	0:15	44749	Michael Rogers	Unplanned	Ameresco	Engine	Reconfigure, and Restart
1	7/9/22 3:13	7/9/22 5:50	2:37	44751	Donnie Bodkin	Unplanned	Ameresco	Engine	Restart Only
1	7/9/22 10:18	7/9/22 11:13	0:55	44751	Donnie Bodkin	Unplanned	Ameresco	Engine	Restart Only
1	7/15/22 7:14	7/15/22 9:11	1:57	44757	Donnie Bodkin	Unplanned	Ameresco	Engine	Restart Only
2	7/15/22 7:14	7/15/22 9:42	2:28	44757	Donnie Bodkin	Unplanned	Ameresco	Engine	Restart Only
1	7/22/22 8:12	7/22/22 10:35	2:23	44764	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Reconfigure, and Restart
2	7/22/22 8:12	7/22/22 11:17	3:05	44764	Mike Rogers	Unplanned	Landfill / Digester	Landfill Vacuum / Gas Limited	Restart Only
1	7/22/22 10:35	7/22/22 15:45	5:10	44764	Mike Rogers	Unplanned	Ameresco	Generator	Reconfigure, and Restart
2	7/22/22 15:20	7/25/22 13:18	69:58	44765	Mike Rogers	Unplanned	Ameresco	Electrical	Replace, and Restart
1	7/26/22 21:40	7/26/22 22:42	1:02	44769	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
2	7/28/22 7:23	7/28/22 19:10	11:47	44770	Mike Rogers	Planned	Ameresco	Engine	Replace, and Restart
2	7/29/22 10:15	7/29/22 12:53	2:38	44771	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	7/29/22 20:35	7/29/22 22:08	1:33	44772	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	7/30/22 9:52	7/30/22 10:54	1:02	44772	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only
1	7/31/22 23:16	8/1/22 0:15	0:59	44774	Mike Rogers	Unplanned	Ameresco	Engine	Restart Only

Appendix D – Excerpt from the 2022 A-4 Source Test Results

Republic Services

BAAQMD Plant # 5095

Annual Compliance Test Report #22099 Landfill Gas Flare A-4

Located at:

Vasco Road Landfill

4001 N. 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:

March 29, 2022

Final Report Submitted on:

May 12, 2022

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 (810) 923-3181.

Jeramie Richardson
Project Manager
Blue Sky Environmental, Inc.



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SECTION 1. INTRODUCTION

1.1. Summary

Blue Sky Environmental, Inc. was contracted by Republic Services to perform emissions testing at the Vasco Road Landfill in Livermore, California. This compliance source test was conducted to demonstrate that Landfill Gas Flare A-4 is operating in compliance with condition 818 of the Bay Area Air Quality Management District (BAAQMD) permit to operate for Plant 5095.

Results of the test program are presented in this report. The source test information is summarized in Table 1-1. Test results derived from the source test are summarized in Table 1-2. Results for individual test runs are provided in Appendix A. The flare met all compliance emission criteria.

Table 1-1. Source Test Information

Test Location:	Vasco Road Landfill 4001 N. Vasco Road, Livermore, CA 94550
Source Contact:	Antonia Gunner, Republic Services (619) 201-3764
Source Tested:	Flare A-4 – 120 MMBtu/hr LFG Industrial Landfill Gas Flare
Source Test Date:	March 29, 2022
Test Objective:	Determine compliance with condition 818 of the Bay Area Air Quality Management District (BAAQMD) permit to operate for Plant 5095; BAAQMD 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 Jeramie Richardson (810) 923-3181 jrichardson@blueskyenvironmental.com
Test Parameters:	<u>Landfill Gas</u> O ₂ , CO ₂ , BTU, THC, CH ₄ , NMOC, HHV, F-factor, sulfur species, volumetric flow rate <u>Flare Emissions</u> THC, CH ₄ , NMOC, NO _x , CO, O ₂ , moisture, volumetric flow rate



Table 1-2. Compliance Summary

Emission Parameter	Average Results (Flare A-4)	Permit Limit	Compliance Status
NO _x , ppmvd @ 15% O ₂	10.5	11	In Compliance
NO _x , lb/day	34.2	141.1	In Compliance
NO _x , lb/MMBtu	0.0427	0.049	In Compliance
CO, ppmvd @ 15% O ₂	21.7	73	In Compliance
CO, lb/MMBtu	0.0534	0.19	In Compliance
Total Reduced Sulfurs in Fuel as H ₂ S, ppmvd	54.4	320	In Compliance
SO ₂ , ppmvd (Reg 9-1-302)	0.0780	300	In Compliance
NMOC as CH ₄ , ppmvd @ 3% O ₂	<3.9	30 or >98 %	In Compliance
NMOC Destruction Efficiency, %	>99.37 %		
CH ₄ Destruction Efficiency, % (AB32)	99.95 %	>99 %	In Compliance
THC (TOC) Destruction Efficiency, %	99.95 %	>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 compliance with condition 818 of the Bay Area Air Quality Management District (BAAQMD) permit to operate for Plant 5095, and BAAQMD 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 Emissions, Stack Gas Molecular Weight
EPA Method 10	CO Emissions
EPA Method 7E	NO _x Emissions and NO ₂ Converter Check
EPA Method 4, part 16.4	Moisture Calculation
EPA Method 18	CH ₄ , THC, NMOC Emissions
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 ₂ S) and TRS
EPA Method TO-15	Toxic Organic Compounds

2.3. Test Date

Testing was conducted on March 29, 2022.

2.4. Sampling and Observing Personnel

Testing was conducted by Jeramie Richardson and Timothy Eandi representing Blue Sky Environmental, Inc.

Dan Haslam of SCS Engineers was on-site to coordinate flare operations.

BAAQMD was notified of the scheduled testing in a source test plan submitted on March 9, 2022. A Source Test Protocol acknowledgement (NST #7278) was received March 10, 2022; however, no agency observers from BAAQMD were present during testing. A copy of the source test protocol and email correspondence are provided in Appendix H.

2.5. Source/Process Description

Vasco Road Landfill (S-1), located in Livermore, California, is a multi-material landfill with a gas collection system that is abated by an industrial landfill gas flare (A-4) with a 120 MMBtu/hr



multiple nozzle burner. Collected landfill gas is either abated by the on-site landfill flare or vented to the off-site Ameresco Vasco Road, LLC Facility for processing and use as fuel.

2.6. Source Operating Conditions

The flare was operated on landfill gas under normal operating conditions during testing. The average exhaust temperature was 1,476 °F. The landfill gas (LFG) flowrate ranged from 1,183 to 1,205 SCFM. The operating exhaust temperature, and LFG flowrate records are provided in Appendix E.

LFG samples collected at the head of the flare had an average methane content of 46.2% and an oxygen content of 1.2%.



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 of the stack to check for the presence of cyclonic flow. Sampling was performed for 2.5 minutes per point for a total of 16 points over the 40-minute test run. O₂ stratification was greater than 10%; therefore, subsequent CEM sampling was conducted using all traverse points.

3.3. Sample Train Description

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

3.4. Sampling Procedure Description

Three consecutive 40-minute gaseous emissions tests were performed for oxides of nitrogen (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), oxygen (O₂), methane (CH₄) and non-methane organic compounds (NMOC) at the flare exhaust stack. The sampling system was checked for leaks before the start of the testing, by plugging the sample probe and observing the sample rotameter flow drop to zero. Instrument linearity and system bias were checked. The system response time for each analyzer was recorded. The temperatures of the heated sample line between the probe and sample conditioner/condenser, and the condenser exhaust temperatures were maintained within limits during each test run. The gas flow was controlled with a rotameter to collect the 40-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 NO_x 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, California. The samples were collected in 6-liter SUMMA canisters and analyzed for nonmethane organic compounds (NMOCs) by EPA Method 25C, sulfur species (including H₂S and TRS) by ASTM D-5504, and HHV, F-factor, fixed gases, and C₁-C₆₊ hydrocarbons by ASTM D-1945. The samples were also analyzed for toxic organic compounds by EPA Method TO-15.

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. A continuous representative gas sample is extracted from the sampling point and conditioned to remove water and particulate material. A small portion of the sample is passed through a fuel cell type paramagnetic oxygen analyzer which measures the electrical current generated by the oxidation reaction at the gas/fuel cell interface. Carbon dioxide is determined by passing the sample through a non-dispersive infrared analyzer (NDIR) tuned to a frequency at which carbon dioxide absorbs infrared radiation

EPA Method 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)

This method is used to measure nitrogen oxides in stationary source emissions using a continuous instrumental analyzer. A continuous representative gas sample is extracted from the sampling point and conditioned to remove water and particulate material. Nitric oxide is determined by passing the sample through a chemiluminescent analyzer. The chemiluminescent process is based on the light given off when nitric oxide and ozone react. Nitrogen dioxide (NO₂) concentrations are determined by passing the sample through a catalyst which reduces the NO₂ to NO. The total oxides of nitrogen concentration (NO₂ + NO) is then determined by chemiluminescence.

Section 16.2.2 of the method is used to determine the NO_x analyzer NO₂ to NO conversion efficiency.

EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources

This method is used to measure carbon monoxide from integrated or continuous gas samples extracted from a sampling point. A continuous representative gas sample is extracted from the sampling point and conditioned to remove water and particulate material. Carbon monoxide is determined by passing the sample through a non-dispersive infrared analyzer (NDIR) tuned to a frequency at which carbon monoxide absorbs infrared radiation.

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

The sampling and analytical system is checked for linearity with zero, mid (40-60%) and high span (80-100%) calibrations and is checked for system bias at the beginning and end of each run. System bias is determined by introducing calibration gas to the probe and pulling it through the entire sampling system. Individual test run calibrations use the calibration gas that most closely matches the stack gas effluent. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test. EPA Methods 3A, 6C, 7E and 10 all defer to EPA Method



7E for the calculations of effluent concentration, span, calibration gas, analyzer calibration error (linearity), sampling system bias, zero drift, calibration drift and response time.

All calibration gases are EPA Protocol #1. The analyzer data recording system consists of a Honeywell DPR3000 strip chart recorder supported by a Data Acquisition System (DAS).

System Performance Criteria

Instrument Linearity	≤2% Full Scale
Instrument Bias	≤5% Full Scale
System Response Time	≤± 2 minutes
NO _x Converter Efficiency (<i>EPA Method 7E</i>)	≥ 90%
Instrument Zero Drift	≤± 3% Full Scale
Instrument Span Drift	≤± 3% Full Scale

EPA Method 4 – Determination of Moisture Content in Stack Gas

This method is used to determine the moisture content of stack gas. The sample is extracted and condensed in Greenburg-Smith impingers immersed in an ice bath and in a final impinger silica gel trap. The moisture is condensed in a solution of de-ionized water, or solutions of another type of sampling train if the moisture is being determined as part of another sampling method, such as EPA Method 5, SCAQMD Method 201.7 or BAAQMD ST-32. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively.

QA/QC procedures require that a minimum of 21 cubic feet of sample is pulled using a leak tight pump. The sample volume is measured with a calibrated dry gas meter. The impingers are immersed in an ice bath to maintain a gas outlet temperature of less than 68°F. Pre-test leak checks are performed for each run using a minimum 15 inches of mercury vacuum. Post-test leak checks are performed at the highest sample vacuum or greater. The leak test is acceptable if the leak rate is less than 0.02 cubic feet per minute or 4% of the average sampling rate, whichever is less. If the final leak check exceeds the criteria, either the volume is corrected based on the leak rate or the run is voided and repeated.

EPA 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 D-1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is



multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates. 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 CO₂ are flushed through and removed then the NMOC (ROC) fraction is oxidized to form CO₂ then reduced to methane and analyzed.

ASTM D-1945 – Analysis of Natural Gas by Gas Chromatography

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

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

ASTM D-5504 – Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence

This method is used for the determination of speciated volatile sulfur-containing compounds in high methane content gaseous fuels by gas chromatography. Sulfur compounds are processed using a flame ionization detector (GC/FID). The products are then analyzed with a sulfur chemiluminescence detector (GC/SCD). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed 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	Gas Filter Correlation/IR
TECO Model 55C	NMOC/CH ₄	Flame Ionization (FID)
Servomex Model 1440	CO ₂	Infrared (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 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
- B. Calculations
- C. Laboratory Reports
- D. Field Data Sheets
- E. Process Information
- F. QC Calibration Certificates and Quality Assurance Records
- G. Sample Train Configuration and Stack Diagrams
- H. Related Correspondence (Source Test Plan and Email)
- I. BAAQMD Permit Conditions



Blue Sky Environmental, Inc

A Tabulated Results

TABLE #1

Republic Services - Vasco Road Landfill
Flare A-4

Parameter	Run 1	Run 2	Run 3	Average Results	Permit Limits
Test Date	3/29/22	3/29/22	3/29/22		
Test Time	0844-0928	0956-1042	1109-1155		
Standard Temperature, °F	70	70	70		
Fuel:					
Flare Temperature, °F	1,476	1,475	1,476	1,476	
Fuel Flow Rate, DSCFM	1,205	1,195	1,183	1,194	
Fuel Heat Input, MMBtu/hr	33.7	33.2	33.2	33.4	
Inlet Hydrogen Sulfide (H ₂ S), ppmvd (ASTM D5504)	49.1	52.7	44.9	48.9	
Inlet Total Reduced Sulfurs, ppmvd as H ₂ S (ASTM D5504)	54.2	58.3	50.8	54.4	320
Stack Gas:					
Exhaust Flow Rate, DSCFM (EPA Method 19)	24,158	22,754	23,066	23,326	
Oxygen (O ₂), % volume dry	16.2	16.0	16.1	16.1	
Carbon Dioxide (CO ₂), % volume dry	4.1	4.1	3.9	4.0	
Water Vapor (H ₂ O), % volume (EPA Method 4)	5.4	4.5	6.1	5.3	
SO ₂ , ppmvd (calculated)	0.0757	0.0851	0.0731	0.0780	300
NO_x Emissions (reported as NO₂):					
NO _x , ppmvd	8.5	8.7	8.5	8.6	
NO _x , ppmvd @ 15% O ₂	10.7	10.6	10.4	10.5	11
NO _x , lb/hr	1.46	1.42	1.39	1.43	
NO _x , lb/day	35.1	34.1	33.4	34.2	141.1
NO _x , lb/MMBtu	0.0434	0.0427	0.0419	0.0427	0.049
CO Emissions:					
CO, ppmvd	18.2	17.4	17.2	17.6	
CO, ppmvd @ 15% O ₂	22.9	21.1	21.1	21.7	73
CO, lb/hr	1.91	1.72	1.73	1.78	
CO, lb/day	45.7	41.3	41.4	42.8	
CO, lb/MMBtu	0.0565	0.0518	0.0520	0.0534	0.19
THC Emissions (reported as CH₄):					
THC, ppmv wet (EPA Method 25.A)	10.9	10.1	14.1	11.7	
THC, ppmvd	11.5	10.5	15.0	12.4	
THC, lb/hr	0.692	0.596	0.862	0.716	
Methane (CH₄) Emissions:					
CH ₄ , ppmv wet (EPA Method 25.A)	10.9	10.1	14.1	11.7	
CH ₄ , ppmvd	11.5	10.5	15.0	12.4	
CH ₄ , lb/hr	0.692	0.596	0.862	0.716	
NMOC Emissions (reported as CH₄):					
NMOC, ppmv wet (EPA Method 25.A)	<1.0	<1.0	<1.0	<1.0	
NMOC, ppmvd	<1.1	<1.0	<1.1	<1.1	
NMOC, ppmvd @ 3% O ₂	<4.1	<3.8	<4.0	<3.9	30
NMOC, lb/hr	<0.063	<0.059	<0.06	<0.06	
Inlet Hydrocarbons:					
Inlet NMOC, ppmvd (EPA Method 25C)	2,852	2,979	2,653	2,828	
Inlet NMOC, lb/hr	8.53	8.84	7.79	9.66	
NMOC Destruction Efficiency, %	>99.26%	>99.33%	>99.22%	>99.37%	>98%
Inlet CH ₄ , ppmvd (ASTM D-1945)	463,000	459,000	464,000	462,000	
Inlet CH ₄ , lb/hr	1,385	1,362	1,363	1,578	
CH₄ Destruction Efficiency, %	99.95%	99.96%	99.94%	99.95%	>99%
Inlet THC (TOC), ppmvd	465,852	461,979	466,653	464,828	
Inlet THC (TOC), lb/hr	1,393	1,371	1,371	1,588	
THC (TOC) Destruction Efficiency, %	99.95%	99.96%	99.94%	99.95%	>98%

WHERE,

ppmvd = parts per million concentration by volume expressed on a dry gas basis
 lb/hr = pound per hour emission rate
 Tstd. = standard temperature (°R = °F+460)
 MW = molecular weight
 DSCFM = dry standard cubic feet per minute
 NO_x = oxides of nitrogen, reported as NO₂ (MW = 46)
 CO = carbon monoxide (MW = 28)
 CH₄ = methane (MW = 16)
 THC = total hydrocarbons, reported as CH₄ (MW = 16)
 NMOC = non-methane organic compounds, reported as CH₄ (MW = 16)
 SO₂ = sulfur dioxide

CALCULATIONS,

15% O₂ Correction = ppm · 5.9 / (20.9 - %O₂)
 3% O₂ Correction = ppm · 17.9 / (20.9 - %O₂)
 lb/hr = ppm · 8.223 E-05 · DSCFM · MW / Tstd. °R
 lb/day = lb/hr · 24
 lb/MMBtu = Fd · MW · ppm · 2.59E-9 · 20.9 / (20.9 - %O₂)
 Destruction Efficiency = (inlet, lb/hr - outlet, lb/hr) / inlet, lb/hr

 <value = 2% of analyzer range

TABLE #2
AP42 2.4-1 - Landfill Gas Samples

Republic Services - Vasco Road Landfill
Flare A-4

Constituent	Method	Units	Results		
			3/29/22	3/29/22	3/29/22
			R1-LFG	R2-LFG	R3-LFG
1,1,1-Trichloroethane	EPA TO-15	ppb	<42.4	<47.9	<42.6
1,1,2,2-Tetrachloroethane	EPA TO-15	ppb	<42.4	<47.9	<42.6
1,1-Dichloroethane (Ethylidene Dichloride)	EPA TO-15	ppb	<42.4	<47.9	<42.6
1,1-Dichloroethene (1,1-Dichloroethylene)	EPA TO-15	ppb	<42.4	<47.9	<42.6
1,2-Dichloroethane (Ethylene Dichloride)	EPA TO-15	ppb	<42.4	<47.9	102
2-Propanol (Isopropyl Alcohol, IPA)	EPA TO-15	ppb	3,840	4,910	4,610
Acrylonitrile	EPA TO-15	ppb	<169	<191	<170
Benzyl Chloride	EPA TO-15	ppb	<42.4	<47.9	<42.6
Carbon Disulfide	EPA TO-15	ppb	<169	<191	<170
Carbon Tetrachloride	EPA TO-15	ppb	<42.4	<47.9	<42.6
Carbonyl sulfide (COS)	ASTM D-5504	ppm	1.08	0.88	1.26
Chlorobenzene	EPA TO-15	ppb	<42.4	54.6	59.6
Chlorodifluoromethane	EPA TO-15	ppb	145	225	249
Chloroethane	EPA TO-15	ppb	<42.4	<47.9	43.4
Chloroform	EPA TO-15	ppb	<42.4	<47.9	<42.6
1,4-Dichlorobenzene	EPA TO-15	ppb	100	132	149
Dichlorodifluoromethane (CFC-12)	EPA TO-15	ppb	72.0	101	106
Dichlorofluoromethane	EPA TO-15	ppb	72.8	98.6	97.9
Dichloromethane (Methylene Chloride)	EPA TO-15	ppb	<84.7	<95.7	<85.1
Dimethyl Sulfide	ASTM D-5504	ppm	2.76	3.21	3.13
Ethyl Mercaptan	ASTM D-5504	ppm	<0.085	<0.096	<0.085
Ethyl Benzene	EPA TO-15	ppb	2,000	2,590	2,850
1,2 Dibromoethane (Ethylene Dibromide)	EPA TO-15	ppb	<42.4	<47.9	<42.6
Trichlorofluoromethane (Fluorotrichloromethane)	EPA TO-15	ppb	<42.4	<47.9	<42.6
Hexane	EPA TO-15	ppb	422	600	723
Hydrogen sulfide	ASTM D-5504	ppm	49.1	52.7	44.9
Methyl Mercaptan	ASTM D-5504	ppm	0.535	0.634	0.570
2-Butanone (MEK)	EPA TO-15	ppb	4,840	6,410	7,600
Tetrachloroethylene (Perchloroethylene)	EPA TO-15	ppb	47.4	52.6	61.3
Trichloroethylene (Trichloroethene)	EPA TO-15	ppb	<42.4	<47.9	43.4
Vinyl Chloride	EPA TO-15	ppb	<42.4	<47.9	<42.6
m,p-Xylene	EPA TO-15	ppb	3,020	3,860	4,080
o-Xylene	EPA TO-15	ppb	1,040	1,380	1,590
Benzene	EPA TO-15	ppb	708	946	1,200
Toluene	EPA TO-15	ppb	3,750	4,380	4,600

< = less than the method reporting limit

Appendix E – Surface Emission and GCCS Component Leak Monitoring Results

April 14, 2022
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 2022.

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 2022. 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.

cc: 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 | April 14, 2022

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 January 10, 11 and 12, 2022, 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, January 10, 11 and 12, 2022, 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 no locations exceeded the 500 ppmv maximum concentration during our monitoring (Table 1 in Attachment 3). 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, one (1) location was observed to exceed the 200 ppmv, reporting threshold. When these readings are observed, the locations are reported to site personnel for tracking and/or remediation and will be reported in the next submittal of the annual LMR report.

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 January 10, 11 and 12, 2022, 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 January 10, 11 and 12, 2022, SCS performed first quarter 2021 instantaneous emissions monitoring testing as required by the BAAQMD. During this monitoring, surface emissions results indicated that no locations exceeded the 500 ppmv maximum concentration. 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, no integrated exceedances (the calculated average of the instantaneous monitoring results) of the 25 ppmv requirement on January 10, 11 and 12, 2022, were observed, 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 2022.

PRESSURIZED PIPE AND COMPONENT LEAK MONITORING

On January 12, 2022, quarterly leak monitoring was performed in accordance with the LMR. SCS performed LFG pressurized pipe and component leak monitoring at the BFS and power generation facility (reported separately). 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 5.1 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

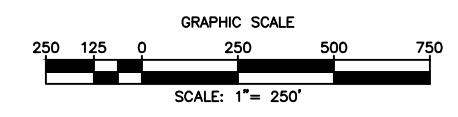
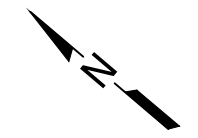
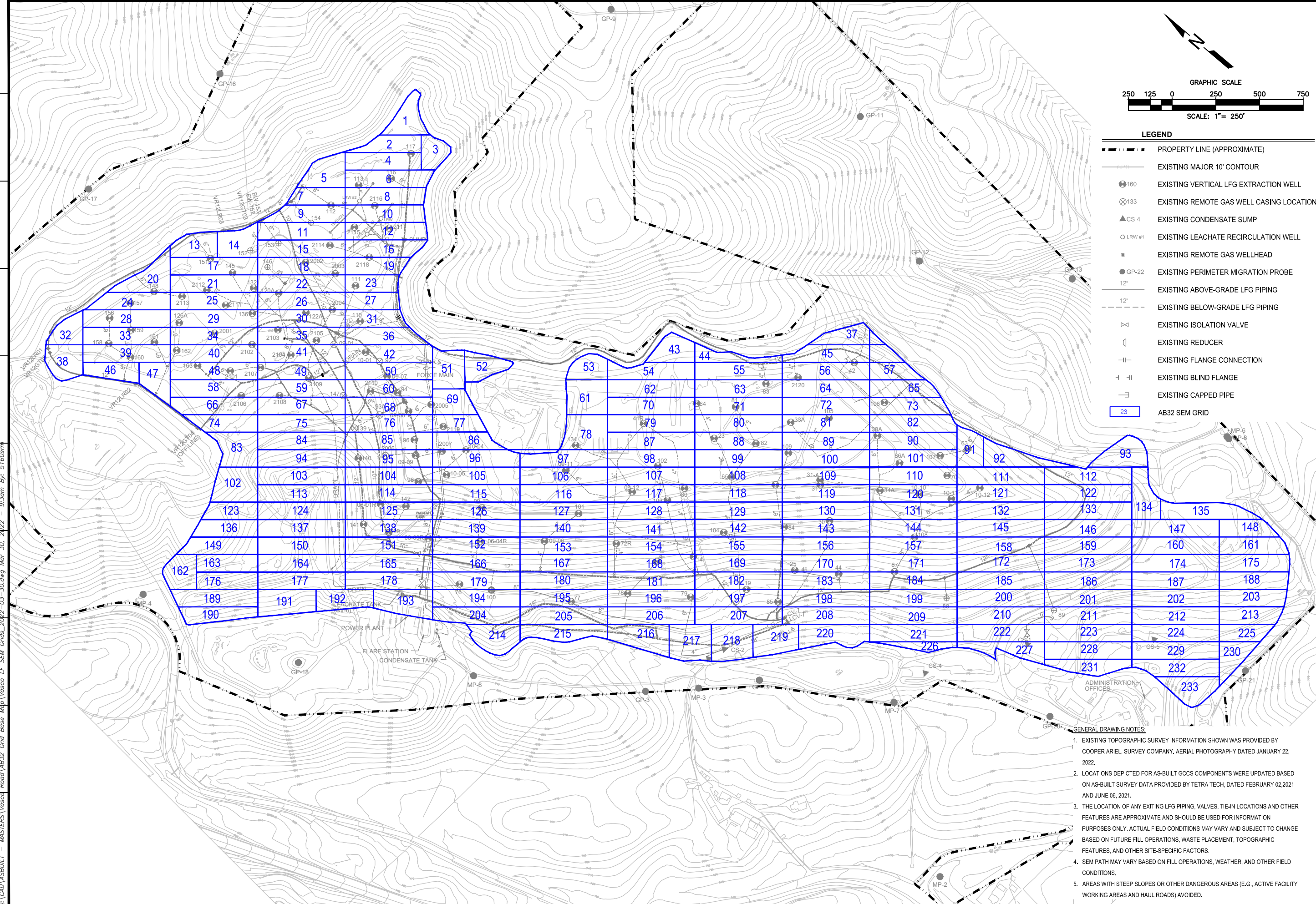
According to the LMR and NSPS, surface emissions monitoring at active landfills is required to be performed on a quarterly basis. Therefore, in accordance with our approved Work Scope, the second quarter 2022 (April through June) surface emissions testing event is scheduled to be performed by the end of May 2022 in accordance with the Republic SOP unless an alternative timeline is requested by site personnel.

STANDARD PROVISIONS

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

Attachment 1

Landfill Grid



LEGEND

- PROPERTY LINE (APPROXIMATE)
- EXISTING MAJOR 10' CONTOUR
- EXISTING VERTICAL LFG EXTRACTION WELL
- EXISTING REMOTE GAS WELL CASING LOCATION
- EXISTING CONDENSATE SUMP
- EXISTING LEACHATE RECIRCULATION WELL
- EXISTING REMOTE GAS WELLHEAD
- EXISTING PERIMETER MIGRATION PROBE
- EXISTING ABOVE-GRADE LFG PIPING
- EXISTING BELOW-GRADE LFG PIPING
- EXISTING ISOLATION VALVE
- EXISTING REDUCER
- EXISTING FLANGE CONNECTION
- EXISTING BLIND FLANGE
- EXISTING CAPPED PIPE
- AB32 SEM GRID

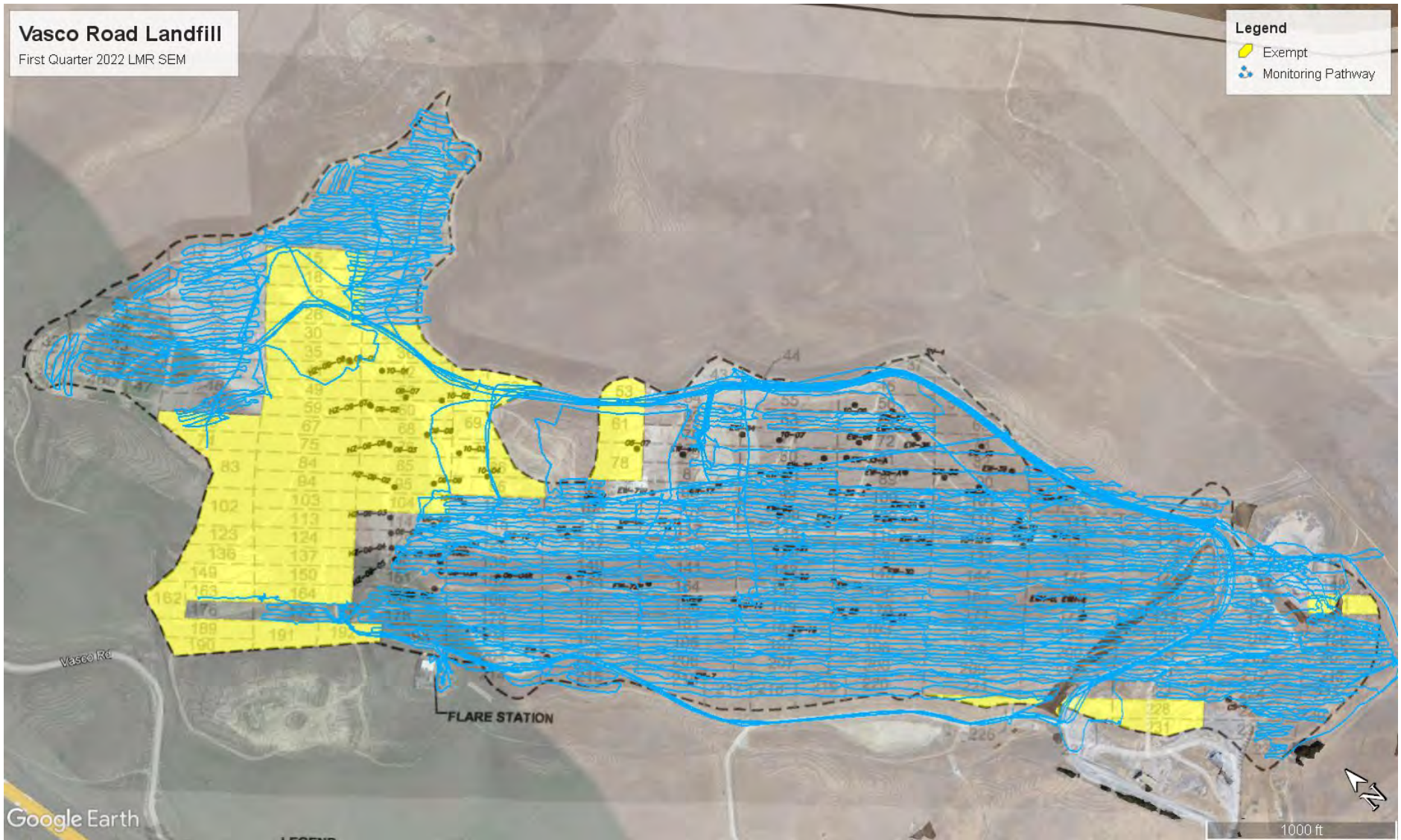
- GENERAL DRAWING NOTES:**
1. EXISTING TOPOGRAPHIC SURVEY INFORMATION SHOWN WAS PROVIDED BY COOPER ARIEL, SURVEY COMPANY, AERIAL PHOTOGRAPHY DATED JANUARY 22, 2022.
 2. LOCATIONS DEPICTED FOR AS-BUILT GCCS COMPONENTS WERE UPDATED BASED ON AS-BUILT SURVEY DATA PROVIDED BY TETRA TECH, DATED FEBRUARY 02, 2021 AND JUNE 06, 2021.
 3. THE LOCATION OF ANY EXISTING LFG PIPING, VALVES, TIE-IN LOCATIONS AND OTHER FEATURES ARE APPROXIMATE AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY. ACTUAL FIELD CONDITIONS MAY VARY AND SUBJECT TO CHANGE BASED ON FUTURE FILL OPERATIONS, WASTE PLACEMENT, TOPOGRAPHIC FEATURES, AND OTHER SITE-SPECIFIC FACTORS.
 4. SEM PATH MAY VARY BASED ON FILL OPERATIONS, WEATHER, AND OTHER FIELD CONDITIONS.
 5. AREAS WITH STEEP SLOPES OR OTHER DANGEROUS AREAS (E.G., ACTIVE FACILITY WORKING AREAS AND HAUL ROADS) AVOIDED.

DATE		REVISION		NO.	
<p>SHEET TITLE: 2022 SEM MAP</p> <p>PROJECT TITLE: VASCO ROAD LANDFILL LIVERMORE, CALIFORNIA</p>					
<p>CLIENT: SCS ENGINEERS ENVIRONMENTAL CONSULTANTS</p> <p>1990 CALIFORNIA AVENUE SUITE 200 SUNNYVALE, CA 94089 FAX: (650) 571-5500</p> <p>ACAD FILE: E:\ENGINEERS APP. BY: MD CHK. BY: MD</p>					
DATE:	3/30/2022	SCALE:	AS SHOWN	SHEET:	1

C:\CADD\ASBUILT - MASTERS\Vasco Road\AB32 Grid Base Map\Vasco LF SEM Grids_2022-03-30.dwg Mar 30, 2022 - 9:30am By: 5160sm

Attachment 2

Surface Pathway



First Quarter 2022
Initial LMR Surface Emissions Monitoring Pathway
Vasco Road Landfill, Livermore, California

Attachment 3

Instantaneous and Component Emissions Monitoring Results

First Quarter 2022

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

Instantaneous Data Report for January 10, 11 and 12, 2022

Location (Surface)	Initial Monitoring Results (ppmv) 1/12/2022	First 10-Day Follow Up Monitoring Results (ppmv) NA	Second 10-Day Follow Up Monitoring Results (ppmv) NA	30-Day Follow Up Monitoring Results (ppmv) NA	Latitude	Longitude
Surface Reading in Grid VR008	372	--	--	--	37.759600	-121.722860

Pressurized Pipe and Component Results

Route	Date	Concentration (ppmv)
FLARE STATION	1/12/2022	5.1

No exceedances of the 500 ppmv threshold were observed during the first quarter 2022 monitoring.

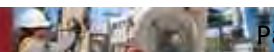
Attachment 4

Integrated Monitoring Results

First Quarter 2022

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

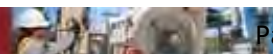
Point Name	Record Date	FID Concentration (ppm)	Comments
VR 001	1/12/2022	2.14	
VR 002	1/12/2022	2.03	
VR 003	1/12/2022	1.93	
VR 004	1/12/2022	3.01	
VR 005	1/12/2022	2.61	
VR 006	1/12/2022	2.49	
VR 007	1/12/2022	2.71	
VR 008	1/12/2022	5.58	
VR 009	1/12/2022	3.57	
VR 010	1/12/2022	3.92	
VR 011	1/12/2022	2.52	
VR 012	1/12/2022	3.36	
VR 013	1/12/2022	5.22	
VR 014	1/12/2022	2.38	
VR 015	--	--	Exempt
VR 016	1/12/2022	2.51	
VR 017	1/12/2022	2.90	
VR 018	--	--	Exempt
VR 019	1/12/2022	2.51	
VR 020	1/12/2022	1.39	
VR 021	1/12/2022	1.68	
VR 022	--	--	Exempt
VR 023	1/12/2022	3.70	
VR 024	1/12/2022	3.19	
VR 025	1/12/2022	3.40	
VR 026	--	--	Exempt
VR 027	1/12/2022	6.87	
VR 028	1/12/2022	3.05	
VR 029	1/12/2022	3.28	
VR 030	--	--	Exempt
VR 031	--	--	Exempt
VR 032	1/12/2022	2.78	
VR 033	1/12/2022	2.80	
VR 034	1/12/2022	2.90	
VR 035	--	--	Exempt
VR 036	--	--	Exempt
VR 037	1/12/2022	2.44	
VR 038	1/12/2022	2.81	
VR 039	1/12/2022	2.79	
VR 040	1/12/2022	2.76	
VR 041	--	--	Exempt
VR 042	--	--	Exempt
VR 043	1/12/2022	2.13	



First Quarter 2022

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

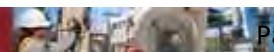
Point Name	Record Date	FID Concentration (ppm)	Comments
VR 044	1/12/2022	2.29	
VR 045	1/12/2022	2.24	
VR 046	1/12/2022	1.64	
VR 047	1/12/2022	4.14	
VR 048	1/12/2022	2.29	
VR 049	--	--	Exempt
VR 050	--	--	Exempt
VR 051	--	--	Exempt
VR 052	--	--	Exempt
VR 053	--	--	Exempt
VR 054	1/12/2022	2.57	
VR 055	1/12/2022	2.29	
VR 056	1/12/2022	2.12	
VR 057	1/12/2022	2.22	
VR 058	1/11/2022	2.27	
VR 059	--	--	Exempt
VR 060	--	--	Exempt
VR 061	--	--	Exempt
VR 062	1/11/2022	1.70	
VR 063	1/11/2022	2.68	
VR 064	1/11/2022	2.02	
VR 065	1/12/2022	2.14	
VR 066	--	--	Exempt
VR 067	--	--	Exempt
VR 068	--	--	Exempt
VR 069	--	--	Exempt
VR 070	1/11/2022	0.87	
VR 071	1/11/2022	2.11	
VR 072	1/11/2022	1.29	
VR 073	1/11/2022	2.16	
VR 074	--	--	Exempt
VR 075	--	--	Exempt
VR 076	--	--	Exempt
VR 077	--	--	Exempt
VR 078	--	--	Exempt
VR 079	1/11/2022	2.23	
VR 080	1/11/2022	2.52	
VR 081	1/11/2022	2.50	
VR 082	1/11/2022	3.63	
VR 083	--	--	Exempt
VR 084	--	--	Exempt
VR 085	--	--	Exempt
VR 086	--	--	Exempt



First Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 087	1/11/2022	1.49	
VR 088	1/11/2022	1.54	
VR 089	1/11/2022	1.73	
VR 090	1/11/2022	2.41	
VR 091	1/12/2022	1.32	
VR 092	1/12/2022	1.50	
VR 093	1/12/2022	1.47	
VR 094	--	--	Exempt
VR 095	--	--	Exempt
VR 096	--	--	Exempt
VR 097	1/12/2022	2.25	
VR 098	1/12/2022	2.02	
VR 099	1/12/2022	1.89	
VR 100	1/12/2022	1.82	
VR 101	1/12/2022	2.13	
VR 102	--	--	Exempt
VR 103	--	--	Exempt
VR 104	--	--	Exempt
VR 105	1/11/2022	2.64	
VR 106	1/11/2022	1.99	
VR 107	1/11/2022	1.82	
VR 108	1/11/2022	1.84	
VR 109	1/11/2022	1.89	
VR 110	1/11/2022	1.88	
VR 111	1/11/2022	1.85	
VR 112	1/11/2022	2.62	
VR 113	--	--	Exempt
VR 114	1/11/2022	4.42	
VR 115	1/11/2022	2.49	
VR 116	1/11/2022	1.60	
VR 117	1/11/2022	1.48	
VR 118	1/11/2022	1.48	
VR 119	1/11/2022	1.34	
VR 120	1/11/2022	1.36	
VR 121	1/11/2022	1.86	
VR 122	1/11/2022	3.25	
VR 123	--	--	Exempt
VR 124	--	--	Exempt
VR 125	1/11/2022	8.81	
VR 126	1/11/2022	5.46	
VR 127	1/11/2022	1.63	
VR 128	1/11/2022	1.45	
VR 129	1/11/2022	1.50	



First Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 130	1/11/2022	1.41	
VR 131	1/11/2022	1.37	
VR 132	1/11/2022	2.08	
VR 133	1/11/2022	4.04	
VR 134	1/11/2022	2.41	
VR 135	1/11/2022	1.69	
VR 136	--	--	Exempt
VR 137	--	--	Exempt
VR 138	1/11/2022	9.87	
VR 139	1/11/2022	3.91	
VR 140	1/11/2022	1.76	
VR 141	1/11/2022	1.33	
VR 142	1/11/2022	1.37	
VR 143	1/11/2022	1.35	
VR 144	1/11/2022	1.36	
VR 145	1/11/2022	1.74	
VR 146	1/11/2022	2.46	
VR 147	1/11/2022	2.05	
VR 148	1/11/2022	1.70	
VR 149	--	--	Exempt
VR 150	--	--	Exempt
VR 151	1/11/2022	5.47	
VR 152	1/11/2022	3.65	
VR 153	1/11/2022	2.36	
VR 154	1/11/2022	1.17	
VR 155	1/11/2022	1.22	
VR 156	1/11/2022	1.15	
VR 157	1/11/2022	1.10	
VR 158	1/11/2022	1.04	
VR 159	1/11/2022	1.22	
VR 160	1/11/2022	1.82	
VR 161	--	--	Exempt
VR 162	--	--	Exempt
VR 163	--	--	Exempt
VR 164	--	--	Exempt
VR 165	1/10/2022	5.53	
VR 166	1/10/2022	5.33	
VR 167	1/10/2022	3.18	
VR 168	1/10/2022	2.13	
VR 169	1/10/2022	2.19	
VR 170	1/10/2022	2.10	
VR 171	1/10/2022	2.04	
VR 172	1/10/2022	2.10	



First Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 173	1/10/2022	1.31	
VR 174	1/10/2022	1.64	
VR 175	1/10/2022	2.09	
VR 176	1/10/2022	0.68	
VR 177	1/10/2022	1.54	
VR 178	1/10/2022	3.60	
VR 179	1/10/2022	2.82	
VR 180	1/10/2022	1.64	
VR 181	1/10/2022	1.12	
VR 182	1/10/2022	1.17	
VR 183	1/10/2022	1.22	
VR 184	1/10/2022	1.22	
VR 185	1/10/2022	1.34	
VR 186	1/10/2022	1.91	
VR 187	1/10/2022	2.58	
VR 188	1/10/2022	3.50	
VR 189	--	--	Exempt
VR 190	--	--	Exempt
VR 191	--	--	Exempt
VR 192	--	--	Exempt
VR 193	1/10/2022	3.33	
VR 194	1/10/2022	3.08	
VR 195	1/10/2022	1.90	
VR 196	1/10/2022	1.32	
VR 197	1/10/2022	1.42	
VR 198	1/10/2022	1.45	
VR 199	1/10/2022	1.47	
VR 200	1/10/2022	1.52	
VR 201	1/10/2022	1.90	
VR 202	1/10/2022	9.58	
VR 203	1/10/2022	2.57	
VR 204	1/10/2022	3.53	
VR 205	1/10/2022	2.39	
VR 206	1/10/2022	1.68	
VR 207	1/10/2022	1.48	
VR 208	1/10/2022	1.40	
VR 209	1/10/2022	1.38	
VR 210	1/10/2022	1.41	
VR 211	1/10/2022	1.91	
VR 212	1/10/2022	4.12	
VR 213	1/10/2022	2.30	
VR 214	1/11/2022	1.98	
VR 215	1/11/2022	2.51	



First Quarter 2022

**Table 2. Integrated Surface Emissions Monitoring Results
Vasco Road Landfill, Livermore, California**

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 216	1/10/2022	3.01	
VR 217	1/10/2022	2.46	
VR 218	1/10/2022	2.28	
VR 219	1/10/2022	2.23	
VR 220	1/10/2022	2.14	
VR 221	1/10/2022	2.11	
VR 222	1/10/2022	1.58	
VR 223	1/10/2022	1.74	
VR 224	1/10/2022	2.06	
VR 225	1/10/2022	2.23	
VR 226	--	--	Exempt
VR 227	--	--	Exempt
VR 228	--	--	Exempt
VR 229	1/10/2022	1.76	
VR 230	1/10/2022	1.95	
VR 231	--	--	Exempt
VR 232	1/10/2022	1.64	
VR 233	1/10/2022	1.41	



Attachment 5

Calibration Logs

**SOIL GAS EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 1-11-22 Site Name: UASCO
 Inspector(s): Bryan O Instrument: TVAZ020

WEATHER OBSERVATIONS

Wind Speed: 1 MPH Wind Direction: NW Barometric Pressure: 30.39 "Hg
 Air Temperature: 43 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 1220 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>-0.1</u>	<u>500</u>	<u>0</u>	<u>3</u>
2	<u>0.0</u>	<u>500</u>	<u>0</u>	<u>4</u>
3	<u>0.0</u>	<u>500</u>	<u>0</u>	<u>4</u>

Average Difference: 0
*Perform recalibration if average difference is greater than 10

Calibration Precision = Average Difference / Cal Gas Conc. X 100%
 = 100% - 0 / 500 x 100%
 = 100 %

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>142792</u>	Counts Observed for the Span = <u>142092</u>
Counters Observed for the Zero = <u>3718</u>	Counters Observed for the Zero = <u>3713</u>
Trial 2:	
Counts Observed for the Span = <u>142436</u>	
Counters Observed for the Zero = <u>3729</u>	

Post Monitoring Calibration Check

Zero Air Reading: 1.3 ppm Cal Gas Reading: 507 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grnd 76 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.

CALIBRATION AND PERTINENT DATA

Date: 1-11-22 Site Name: VASCO
 Inspector(s): Brian S Instrument: TVAZOZO

WEATHER OBSERVATIONS

Wind Speed: 1 MPH Wind Direction: NW Barometric Pressure: 30.39 "Hg
 Air Temperature: 43 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 2364 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>-0.2</u>	<u>505</u>	<u>5</u>	<u>3</u>
2	<u>-0.1</u>	<u>499</u>	<u>1</u>	<u>3</u>
3	<u>0.0</u>	<u>501</u>	<u>1</u>	<u>3</u>

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%
 = 98.6 %

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>167256</u>	Counts Observed for the Span = <u>167384</u>
Counters Observed for the Zero = <u>4070</u>	Counters Observed for the Zero = <u>4018</u>
Trial 2:	
Counts Observed for the Span = <u>176452</u>	
Counters Observed for the Zero = <u>4044</u>	

Post Monitoring Calibration Check

Zero Air Reading: 1.3 ppm Cal Gas Reading: 498 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 76 Reading: 1.1 ppm
 Downwind Location Description: Flare 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.

**SOX AND EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 01-11-21 Site Name: VASCO
 Inspector(s): DOM G Instrument: TVA7020

WEATHER OBSERVATIONS

Wind Speed: 1 MPH Wind Direction: NW Barometric Pressure: 30 "Hg
 Air Temperature: 43 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 5470 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc. - Cal Gas Reading	Response Time (seconds)
1	<u>.0</u>	<u>505</u>	<u>3</u>	<u>3</u>
2	<u>.5</u>	<u>502</u>	<u>2</u>	<u>3</u>
3	<u>.0</u>	<u>499</u>	<u>1</u>	<u>3</u>

Average Difference: 2

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{2}{500} \times 100\% = 99.6\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>165220</u>	Counts Observed for the Span = <u>169056</u>
Counters Observed for the Zero = <u>3612</u>	Counters Observed for the Zero = <u>3597</u>
Trial 2:	
Counts Observed for the Span = <u>162180</u>	
Counters Observed for the Zero = <u>3990</u>	

Post Monitoring Calibration Check

Zero Air Reading: 1.1 ppm Cal Gas Reading: 505 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 76 Reading: 1.6 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.

**CONTACT EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 01-11-21 Site Name: NASCO
 Inspector(s): Liam M Instrument: TVA7020

WEATHER OBSERVATIONS

Wind Speed: 1 MPH Wind Direction: NW Barometric Pressure: 30 "Hg
 Air Temperature: 43 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 1163 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc. - Cal Gas Reading	Response Time (seconds)
1	<u>0</u>	<u>509</u>	<u>9</u>	<u>3</u>
2	<u>0</u>	<u>501</u>	<u>1</u>	<u>3</u>
3	<u>0</u>	<u>503</u>	<u>3</u>	<u>3</u>

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 = <u>178812</u>	Counts Observed for the Span = <u>176200</u>
Counters Observed for the Zero = <u>3118</u>	Counters Observed for the Zero = <u>3000</u>
Trial 2:	
Counts Observed for the Span = <u>179672</u>	
Counters Observed for the Zero = <u>3019</u>	

Post Monitoring Calibration Check

Zero Air Reading: 0 ppm Cal Gas Reading: 502 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 76 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.

SOX CALIBRATION AND PERTINENT DATA

Date: 01-11-21 Site Name: Vasco
 Inspector(s): Michael M Instrument: TVA7020

WEATHER OBSERVATIONS

Wind Speed: 1 MPH Wind Direction: NW Barometric Pressure: 30 "Hg
 Air Temperature: 43 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 1215 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>0</u>	<u>500</u>	<u>0</u>	<u>3</u>
2	<u>0</u>	<u>500</u>	<u>0</u>	<u>3</u>
3	<u>0</u>	<u>500</u>	<u>1</u>	<u>3</u>

Average Difference: .3

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{.3}{500} \times 100\%$$

$$= 99.9\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>139996</u>	Counts Observed for the Span = <u>135784</u>
Counters Observed for the Zero = <u>2988</u>	Counters Observed for the Zero = <u>2971</u>
Trial 2:	
Counts Observed for the Span = <u>145948</u>	
Counters Observed for the Zero = <u>2973</u>	

Post Monitoring Calibration Check

Zero Air Reading: 1.0 ppm Cal Gas Reading: 497 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grnd 76 Reading: 1.1 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.

CALIBRATION AND PERTINENT DATA

Date: 1/12/22 Site Name: VASCO
 Inspector(s): Brian S Instrument: TVA2020

WEATHER OBSERVATIONS

Wind Speed: 4 NNE MPH Wind Direction: NNE Barometric Pressure: 30.29 "Hg
 Air Temperature: 41 °F General Weather Conditions: Foggy

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: _____ Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	0.0	499	2	3
2	0.0	501	1	3
3	0.0	503	3	3

Average Difference: 2
*Perform recalibration if average difference is greater than 10

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

$$= 100\% \cdot \frac{498}{500} / 500 \times 100\%$$

$$= 99.6 \%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>161928</u>	Counts Observed for the Span = <u>160244</u>
Counters Observed for the Zero = <u>3952</u>	Counters Observed for the Zero = <u>3922</u>
Trial 2:	
Counts Observed for the Span = <u>161420</u>	
Counters Observed for the Zero = <u>3938</u>	

Post Monitoring Calibration Check

Zero Air Reading: -0.4 ppm Cal Gas Reading: 470 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 182 Reading: 1.3 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.

**CONTRACT EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 01-12-22 Site Name: VASCO
 Inspector(s): Liam M Instrument: TRAZOZO

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: N Barometric Pressure: 30 "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: 1211 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>.0</u>	<u>507</u>	<u>7</u>	<u>3</u>
2	<u>.1</u>	<u>499</u>	<u>1</u>	<u>3</u>
3	<u>.1</u>	<u>499</u>	<u>1</u>	<u>4</u>

Average Difference: 1.3
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{1.3}{500} \times 100\%$$

$$= 99.7\%$$

Span Sensitivity:

Trial 1:	Counts Observed for the Span=	Counters Observed for the Zero=	Trial 3:	Counts Observed for the Span=	Counters Observed for the Zero=
	<u>170384</u>	<u>4169</u>		<u>169592</u>	<u>4194</u>
Trial 2:	Counts Observed for the Span=	Counters Observed for the Zero=			
	<u>171260</u>	<u>4133</u>			

Post Monitoring Calibration Check

Zero Air Reading: 1.8 ppm Cal Gas Reading: 496 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 192 Reading: 1.3 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.

**SOIL GAS EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 01-12-22 Site Name: Varsco
 Inspector(s): Michael M Instrument: TVA7020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: N Barometric Pressure: 30 "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: 1215 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>.0</u>	<u>506</u>	<u>6</u>	<u>3</u>
2	<u>.0</u>	<u>501</u>	<u>1</u>	<u>3</u>
3		<u>501</u>	<u>1</u>	<u>3</u>

Average Difference: 8
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{8}{500} \times 100\% = 98.4\%$$

Span Sensitivity:

Trial 1:	Trial 2:	Trial 3:
Counts Observed for the Span = <u>137900</u>	Counts Observed for the Span = <u>140280</u>	Counts Observed for the Span = <u>140172</u>
Counters Observed for the Zero = <u>3049</u>	Counters Observed for the Zero = <u>3061</u>	Counters Observed for the Zero = <u>3051</u>

Post Monitoring Calibration Check

Zero Air Reading: 1.2 ppm Cal Gas Reading: 490 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Grid 192 Reading: 1.3 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.

**SOURCE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 1/12/22
Inspector(s): Robert M

Site Name: V&S
Instrument: TVA2020

WEATHER OBSERVATIONS

Wind Speed: 4 MPH Wind Direction: NVE Barometric Pressure: 30.29 "Hg
Air Temperature: 41 °F General Weather Conditions: Foggy

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 1153 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	0.0	508	8	3
2	0.0	510	10	3
3	0.0	500	0	3

Average Difference: 6
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{494}{500} / 500 \times 100\%$$

$$= 98.8\%$$

Span Sensitivity:

Trial 1:	Trial 2:	Trial 3:
Counts Observed for the Span = <u>166536</u>	Counts Observed for the Span = <u>167064</u>	Counts Observed for the Span = <u>167064</u>
Counters Observed for the Zero = <u>3034</u>	Counters Observed for the Zero = <u>3033</u>	Counters Observed for the Zero = <u>3053</u>

Post Monitoring Calibration Check

Zero Air Reading: -1.5 ppm Cal Gas Reading: 508 ppm

BACKGROUND CONCENTRATIONS CHECKS

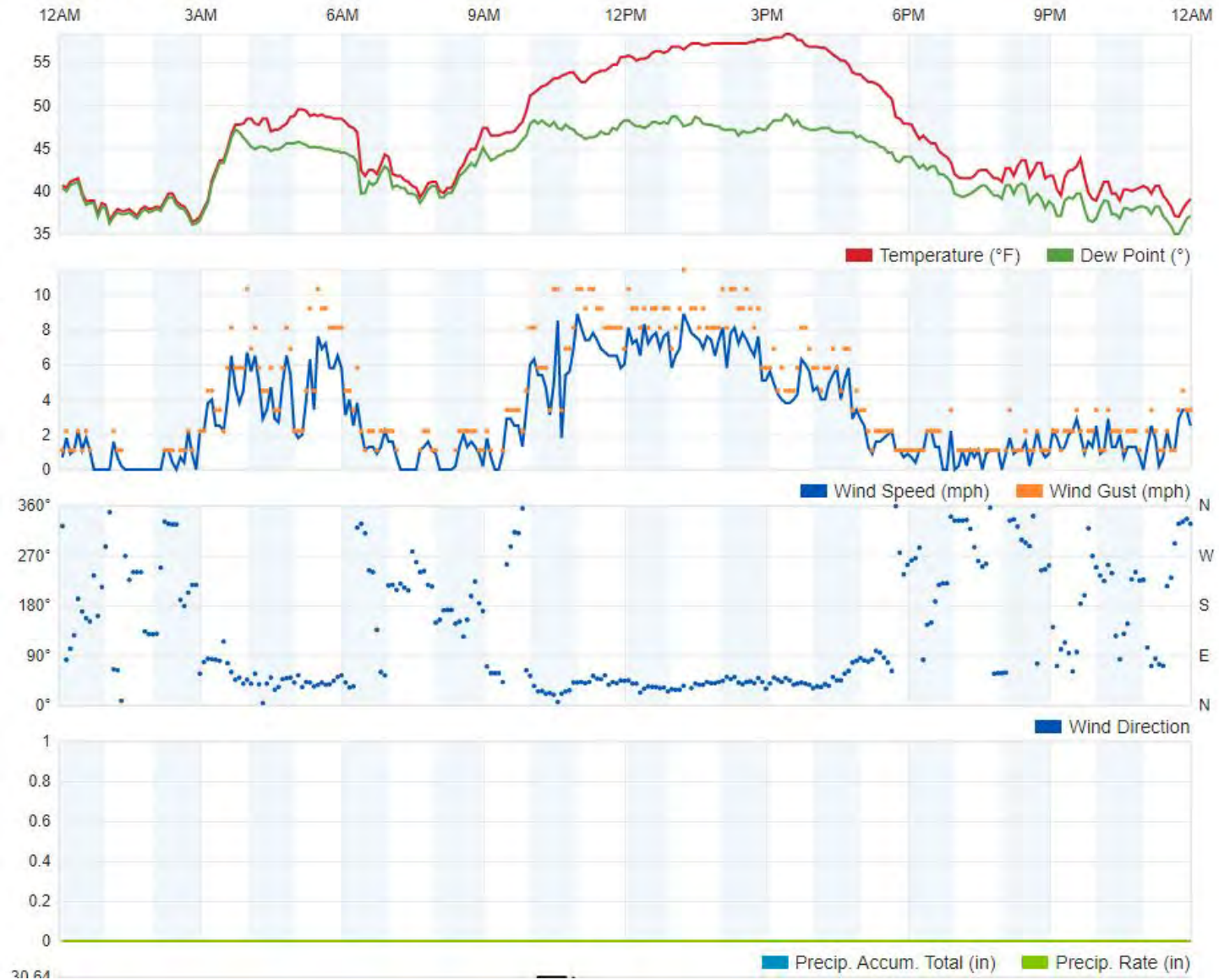
Upwind Location Description: Grid 192 Reading: 1.3 ppm
Downwind Location Description: Flare Reading: 1.4 ppm

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.

Attachment 6

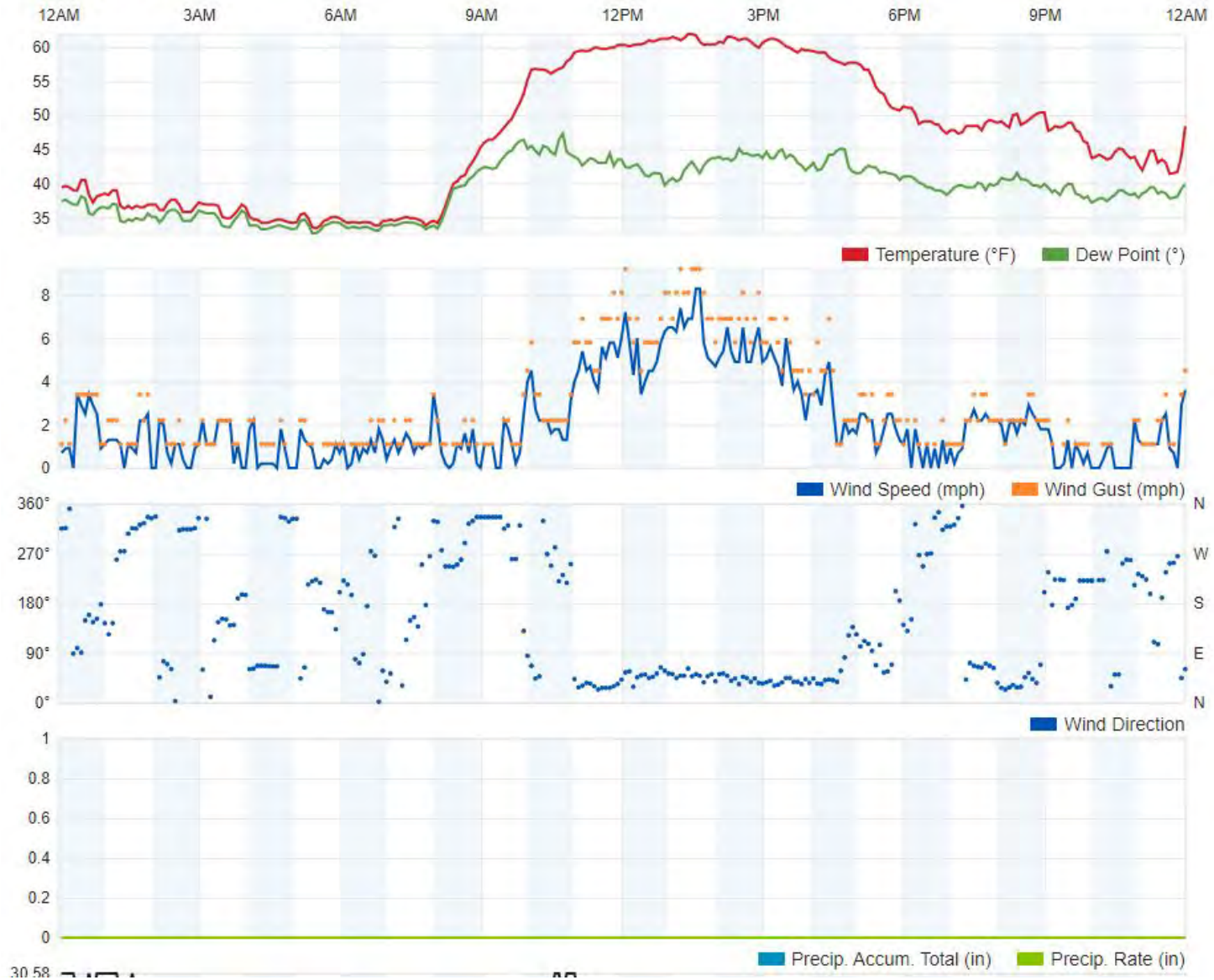
Weather Data

January 10, 2022



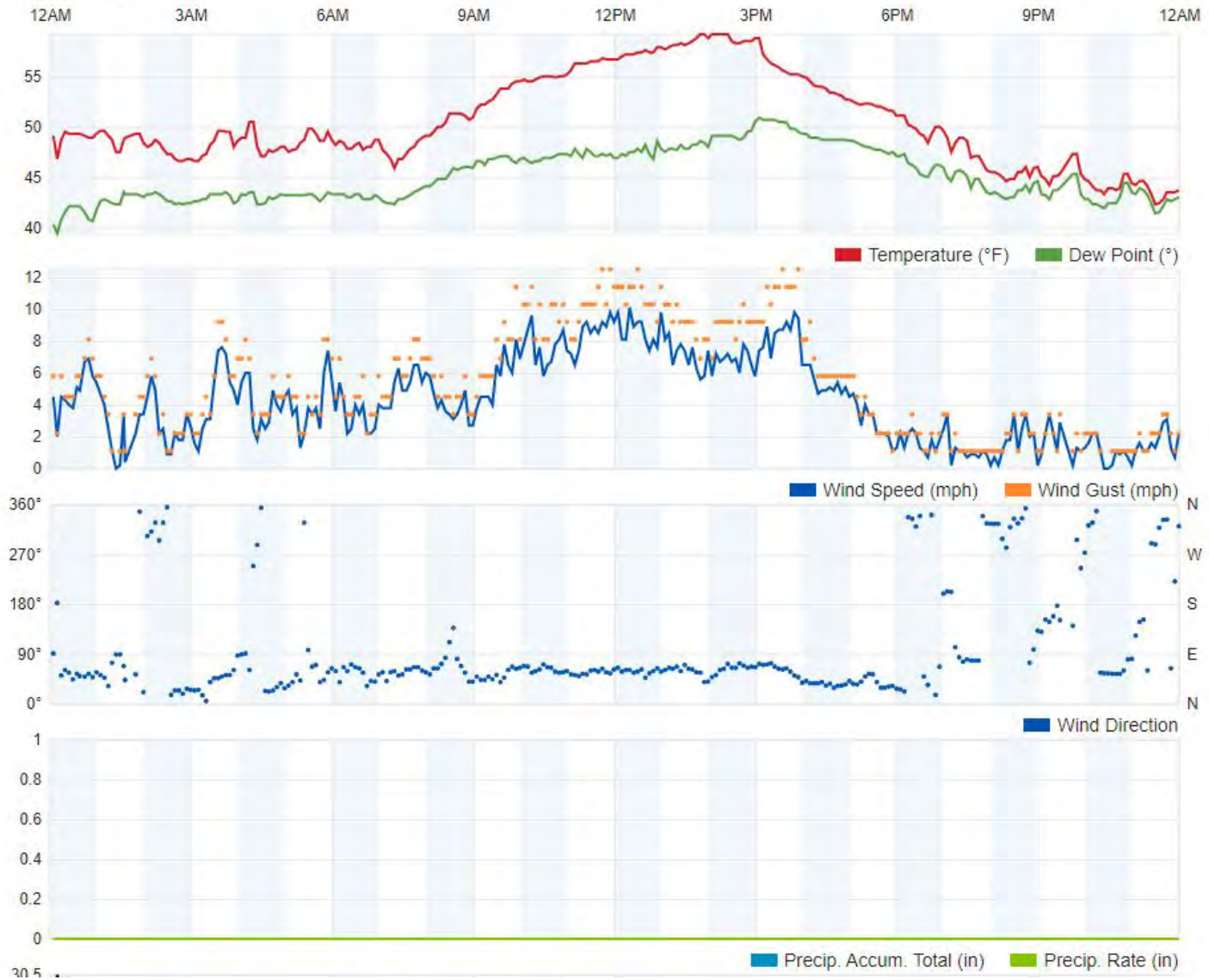
First Quarter 2022
Weather Data for January 10, 2022
Vasco Road Landfill, Livermore, California

January 11, 2022



First Quarter 2022
Weather Data for January 11, 2022
Vasco Road Landfill, Livermore, California

January 12, 2022



First Quarter 2022
Weather Data for January 12, 2022
Vasco Road Landfill, Livermore, California

August 9, 2022
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 2022.

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 2022. 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.

cc: Art Jones, SCS Field Services



Vasco Road Landfill

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

Second Quarter 2022

Presented to:



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

SCS FIELD SERVICES

File No. 07221004.01 | August 9, 2022

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 2022

INTRODUCTION

This letter provides results of the April 6, 7, 8, 12, 18 and May 5, 2022, 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 6, 7, 8, 12, 18 and May 5, 2022, 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 one (1) location exceeded the 500 ppmv maximum concentration during our monitoring (Table 1 in Attachment 3). The required 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring indicated that the location had returned to below regulatory compliance limits following system adjustments and remediation (installation of new bentonite plugs and cover soil compaction) by SCS personnel. Based on these monitoring results no additional follow up testing was required.

Also, during the instantaneous monitoring event, SCS performed concurrent integrated monitoring of the landfill surface. As required by the LMR, the landfill was divided into 50,000 square foot 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, two (2) 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 6, 7, 8, 12, 18 and May 5, 2022, 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 6, 7, 8, 12, 18 and May 5, 2022, SCS performed second 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 first 10-day (LMR/NSPS) and 30-day (NSPS) follow-up monitoring performed on April 18 and May 5, 2022, respectively, indicated that the location had returned to compliance following system adjustments and remediation (borehole repairs using bentonite and cover soil compaction) performed by SCS personnel. Based on these monitoring results no additional follow up testing was required. Results of the monitoring are shown in Attachments 2 and 3 (Table 1).

Additionally, no integrated exceedances (the calculated average of the instantaneous monitoring results) of the 25 ppmv requirement on April 6, 7, 8, 12, 18 and May 5, 2022, were observed, 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 2022.

PRESSURIZED PIPE AND COMPONENT LEAK MONITORING

On April 7, 2022, quarterly leak monitoring was performed in accordance with the LMR. SCS performed LFG pressurized pipe and component leak monitoring at the BFS and power generation facility (reported separately). 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 4.00 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

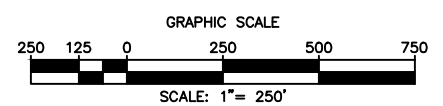
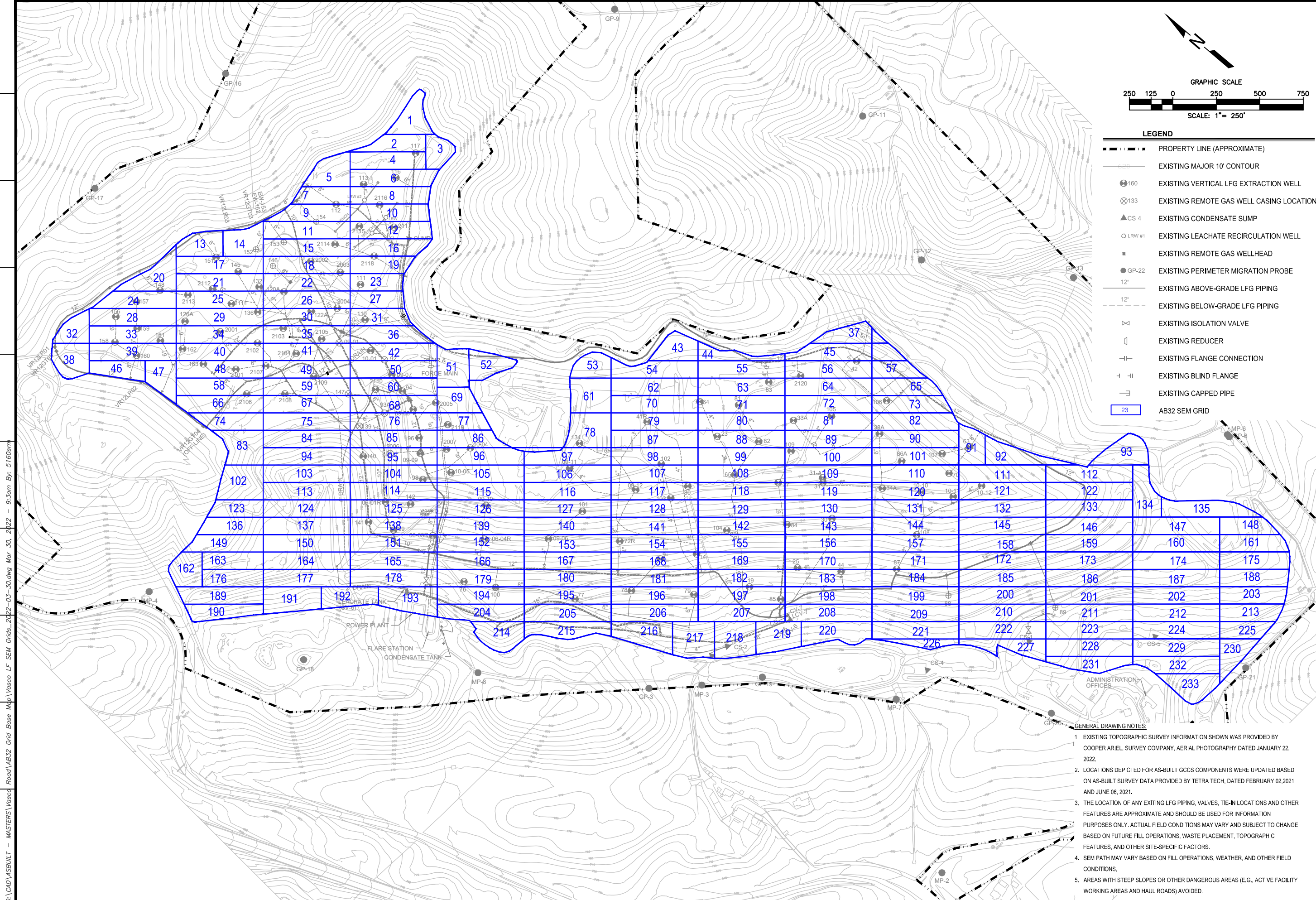
According to the LMR and NSPS, surface emissions monitoring at active landfills is required to be performed on a quarterly basis. Therefore, in accordance with our approved Work Scope, the third quarter 2022 (July through September) surface emissions testing event is scheduled to be performed by the end of August 2022 in accordance with the Republic SOP unless an alternative timeline is requested by site personnel.

STANDARD PROVISIONS

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

Attachment 1

Landfill Grid



LEGEND

- PROPERTY LINE (APPROXIMATE)
- EXISTING MAJOR 10' CONTOUR
- 160 EXISTING VERTICAL LFG EXTRACTION WELL
- ⊗133 EXISTING REMOTE GAS WELL CASING LOCATION
- ▲CS-4 EXISTING CONDENSATE SUMP
- LRW #1 EXISTING LEACHATE RECIRCULATION WELL
- EXISTING REMOTE GAS WELLHEAD
- GP-22 EXISTING PERIMETER MIGRATION PROBE
- 12" EXISTING ABOVE-GRADE LFG PIPING
- 12" EXISTING BELOW-GRADE LFG PIPING
- ⊗ EXISTING ISOLATION VALVE
- ∩ EXISTING REDUCER
- |— EXISTING FLANGE CONNECTION
- |- EXISTING BLIND FLANGE
- |— EXISTING CAPPED PIPE
- 23 AB32 SEM GRID

- GENERAL DRAWING NOTES:**
- EXISTING TOPOGRAPHIC SURVEY INFORMATION SHOWN WAS PROVIDED BY COOPER ARIEL, SURVEY COMPANY, AERIAL PHOTOGRAPHY DATED JANUARY 22, 2022.
 - LOCATIONS DEPICTED FOR AS-BUILT GCCS COMPONENTS WERE UPDATED BASED ON AS-BUILT SURVEY DATA PROVIDED BY TETRA TECH, DATED FEBRUARY 02, 2021 AND JUNE 06, 2021.
 - THE LOCATION OF ANY EXISTING LFG PIPING, VALVES, TIE-IN LOCATIONS AND OTHER FEATURES ARE APPROXIMATE AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY. ACTUAL FIELD CONDITIONS MAY VARY AND SUBJECT TO CHANGE BASED ON FUTURE FILL OPERATIONS, WASTE PLACEMENT, TOPOGRAPHIC FEATURES, AND OTHER SITE-SPECIFIC FACTORS.
 - SEM PATH MAY VARY BASED ON FILL OPERATIONS, WEATHER, AND OTHER FIELD CONDITIONS.
 - AREAS WITH STEEP SLOPES OR OTHER DANGEROUS AREAS (E.G., ACTIVE FACILITY WORKING AREAS AND HAUL ROADS) AVOIDED.

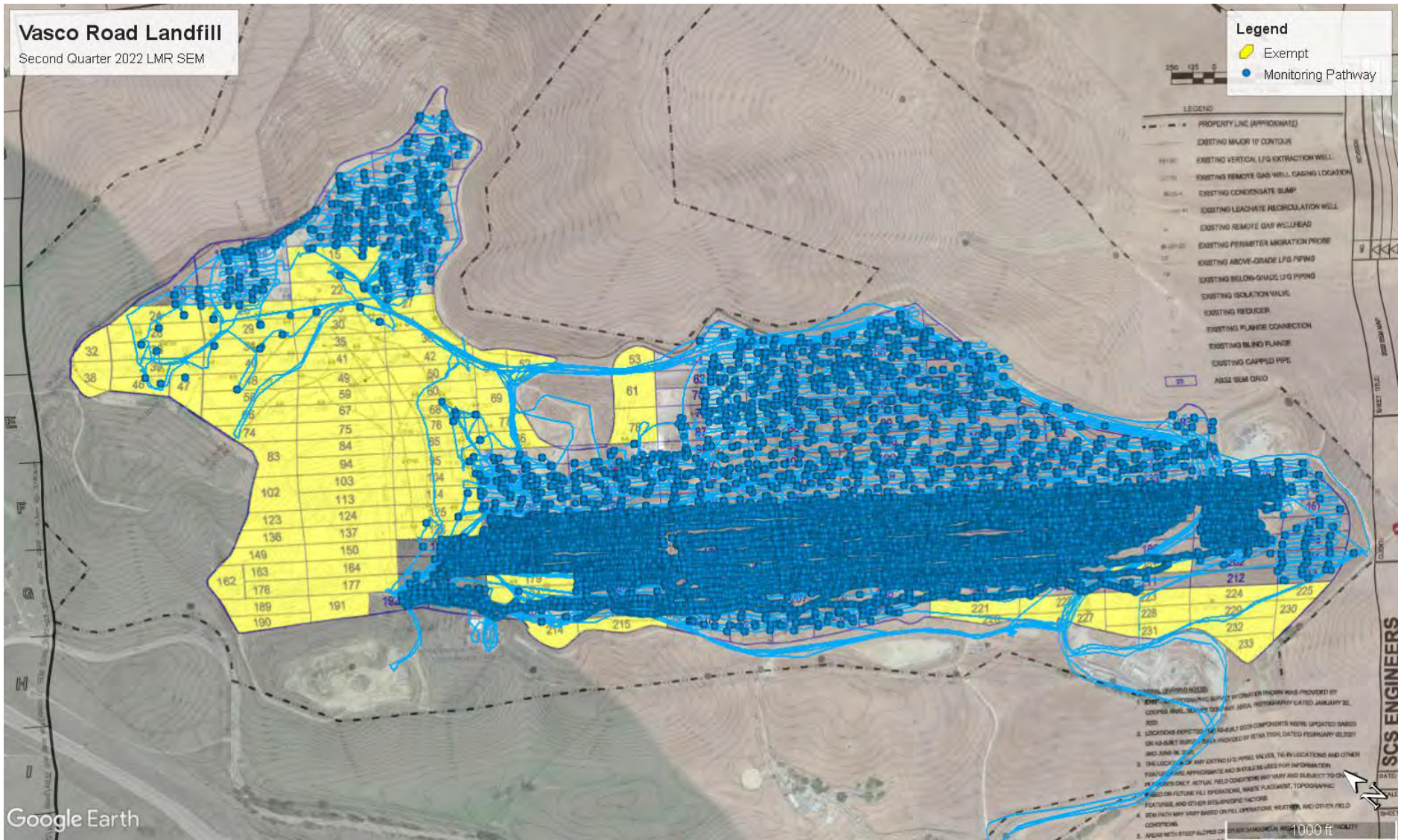
DATE	
REVISION	
NO.	
SHEET TITLE:	2022 SEM MAP
PROJECT TITLE:	VASCO ROAD LANDFILL LIVERMORE, CALIFORNIA
CLIENT:	REPUBLIC SERVICES
DATE:	3/30/2022
SCALE:	AS SHOWN
SHEET:	1

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS
 1799 CALA AVENUE, SUITE 200
 SAN RAFAEL, CA 94903 FAX: (415) 477-5500
 PROJ. NO. 07221004.02
 ACAD FILE: E:\ENGINEERS
 APP. BY: MD
 CHK. BY: MD
 DES. BY: ATY

C:\CADD\ASBUILT - MASTERS\Vasco Road\AB32 Grid Base Map\Vasco LF SEM Grids_2022-03-30.dwg Mar 30, 2022 - 9:30am By: 5160smr

Attachment 2

Surface Pathway



Second Quarter 2022
 Initial LMR Surface Emissions Monitoring Pathway
 Vasco Road Landfill, Livermore, California

Attachment 3

Instantaneous and Component Emissions Monitoring Results

Second Quarter 2022

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

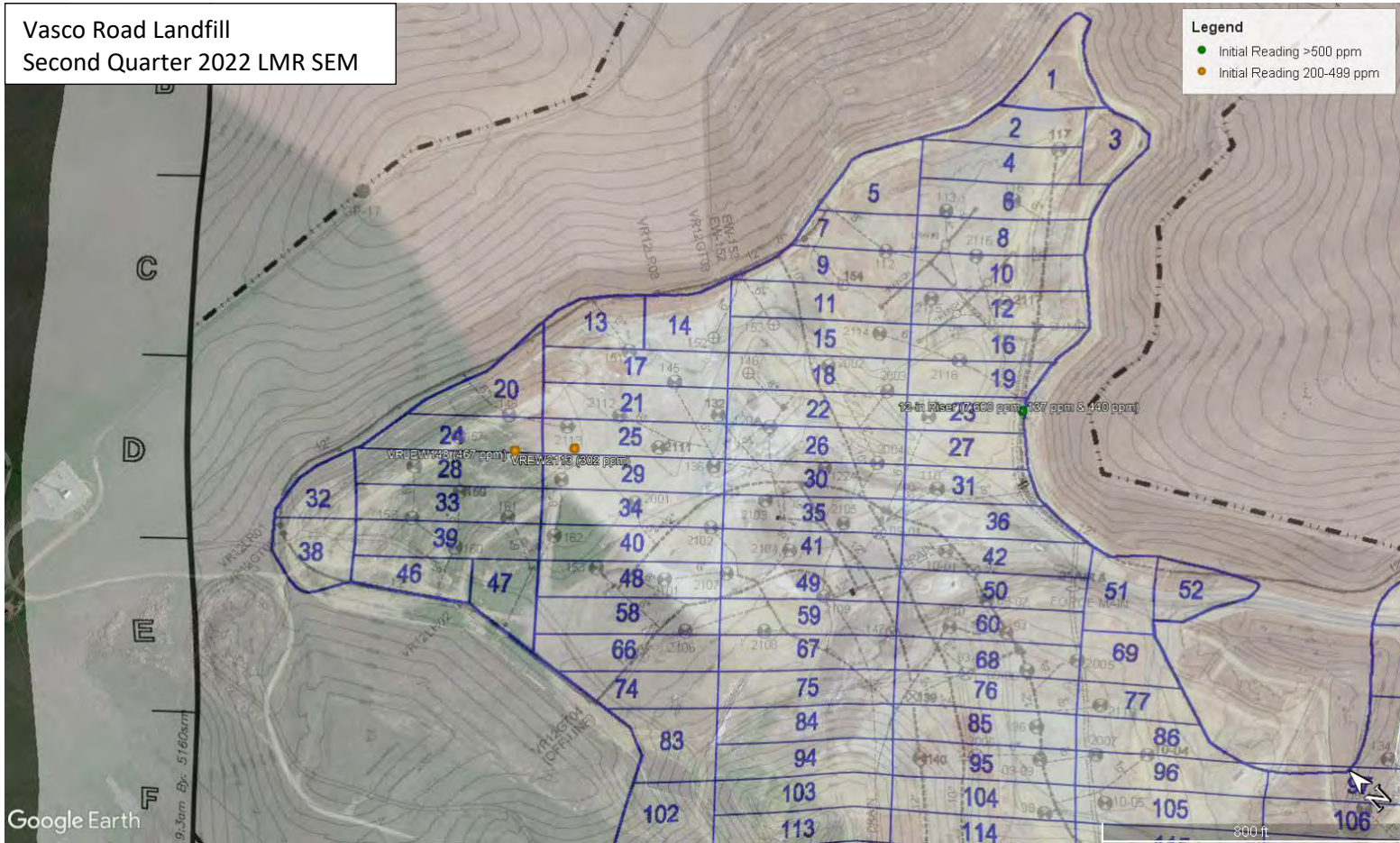
Instantaneous Data Report for April 6, 7, 8, 12, 18 and May 5, 2022

Location (Surface)	Initial Monitoring Results (ppmv) 4/8/2022	Initial Monitoring Results (ppmv) 4/12/2022	First 10-Day Follow Up Monitoring Results (ppmv) 4/18/2022	Second 10-Day Follow Up Monitoring Results (ppmv) NA	30-Day Follow Up Monitoring Results (ppmv) 5/5/2022	Latitude	Longitude
12-in Riser	7,600	--	137	NA	440	37.758867°	-121.724433°
VRLEW148	--	467	NA	NA	NA	37.761267°	-121.728167°
VREW2113	--	302	NA	NA	NA	37.760983°	-121.727750°

Pressurized Pipe and Component Results

Route	Date	Concentration (ppmv)
FLARE STATION	4/7/2022	4.00

No other exceedances of the 200 or 500 ppmv threshold were observed during the second quarter 2022 monitoring.



Second Quarter 2022
Initial Instantaneous Emissions Monitoring Location
Greater Than 200 ppm and 500 ppmv
Vasco Road Landfill, Livermore, California

Attachment 4

Integrated Monitoring Results

Second Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 001	4/7/2022 10:24	1.08	
VR 002	4/7/2022 10:44	0.90	
VR 003	4/7/2022 10:44	0.90	
VR 004	4/7/2022 11:27	1.37	
VR 005	4/7/2022 11:00	1.47	
VR 006	4/7/2022 11:16	1.96	
VR 007	4/7/2022 12:33	1.75	
VR 008	4/7/2022 12:48	2.32	
VR 009	4/7/2022 13:31	1.82	
VR 010	4/7/2022 13:30	2.08	
VR 011	4/7/2022 13:55	1.59	
VR 012	4/7/2022 13:59	1.42	
VR 013	4/8/2022 10:29	5.39	
VR 014	4/8/2022 10:28	2.31	
VR 015	--	--	Active
VR 016	4/8/2022 08:25	3.49	
VR 017	4/8/2022 10:43	1.84	
VR 018	--	--	Active
VR 019	4/8/2022 08:39	8.32	
VR 020	4/8/2022 11:05	1.44	
VR 021	4/8/2022 10:56	1.79	
VR 022	--	--	Active
VR 023	4/8/2022 09:01	7.01	
VR 024	--	--	Active
VR 025	--	--	Active
VR 026	--	--	Active
VR 027	--	--	Active
VR 028	--	--	Active
VR 029	--	--	Active
VR 030	--	--	Active
VR 031	--	--	Active
VR 032	--	--	Active
VR 033	--	--	Active
VR 034	--	--	Active
VR 035	--	--	Active
VR 036	--	--	Active
VR 037	4/7/2022 14:16	5.39	
VR 038	--	--	Active
VR 039	--	--	Active
VR 040	--	--	Active



Second Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 041	--	--	Active
VR 042	--	--	Active
VR 043	4/7/2022 13:32	2.76	
VR 044	4/7/2022 13:29	2.58	
VR 045	4/7/2022 13:47	3.31	
VR 046	--	--	Active
VR 047	--	--	Active
VR 048	--	--	Active
VR 049	--	--	Active
VR 050	--	--	Active
VR 051	--	--	Active
VR 052	--	--	Active
VR 053	--	--	Active
VR 054	4/7/2022 12:03	1.74	
VR 055	4/7/2022 12:12	1.77	
VR 056	4/7/2022 12:25	2.02	
VR 057	4/7/2022 12:24	1.99	
VR 058	--	--	Active
VR 059	--	--	Active
VR 060	--	--	Active
VR 061	--	--	Active
VR 062	4/7/2022 11:00	1.54	
VR 063	4/7/2022 11:01	1.51	
VR 064	4/7/2022 11:01	1.60	
VR 065	4/7/2022 11:01	1.64	
VR 066	--	--	Active
VR 067	--	--	Active
VR 068	--	--	Active
VR 069	--	--	Active
VR 070	4/7/2022 10:11	1.49	
VR 071	4/7/2022 10:00	1.37	
VR 072	4/7/2022 10:03	1.49	
VR 073	4/7/2022 10:11	1.57	
VR 074	--	--	Active
VR 075	--	--	Active
VR 076	--	--	Active
VR 077	--	--	Active
VR 078	--	--	Active
VR 079	4/7/2022 08:51	1.22	
VR 080	4/7/2022 08:50	1.25	



Second Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 081	4/7/2022 08:47	1.32	
VR 082	4/7/2022 08:49	1.31	
VR 083	--	--	Active
VR 084	--	--	Active
VR 085	--	--	Active
VR 086	--	--	Active
VR 087	4/7/2022 13:49	2.25	
VR 088	4/7/2022 14:20	2.00	
VR 089	4/7/2022 14:17	2.07	
VR 090	4/7/2022 14:27	2.04	
VR 091	4/7/2022 14:02	2.28	
VR 092	4/7/2022 12:40	1.92	
VR 093	4/12/2022 14:43	1.85	
VR 094	--	--	Active
VR 095	--	--	Active
VR 096	4/7/2022 12:20	1.89	
VR 097	4/7/2022 11:46	1.19	
VR 098	4/7/2022 12:38	1.73	
VR 099	4/7/2022 12:53	1.93	
VR 100	4/7/2022 12:34	1.74	
VR 101	4/7/2022 12:43	1.92	
VR 102	--	--	Active
VR 103	--	--	Active
VR 104	--	--	Active
VR 105	4/7/2022 09:35	2.14	
VR 106	4/7/2022 10:00	1.42	
VR 107	4/7/2022 09:47	1.56	
VR 108	4/7/2022 09:41	1.47	
VR 109	4/7/2022 09:48	1.49	
VR 110	4/7/2022 09:47	1.49	
VR 111	4/7/2022 09:51	1.53	
VR 112	4/7/2022 09:23	1.59	
VR 113	--	--	Active
VR 114	--	--	Active
VR 115	4/7/2022 11:25	3.42	
VR 116	4/7/2022 11:24	1.64	
VR 117	4/7/2022 11:30	1.71	
VR 118	4/7/2022 11:21	1.58	
VR 119	4/7/2022 11:24	1.61	
VR 120	4/7/2022 11:22	1.61	



Second Quarter 2022

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

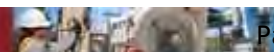
Point Name	Record Date	FID Concentration (ppm)	Comments
VR 121	4/7/2022 11:37	1.69	
VR 122	4/7/2022 11:27	2.28	
VR 123	--	--	Active
VR 124	--	--	Active
VR 125	--	--	Active
VR 126	4/7/2022 14:29	4.74	
VR 127	4/7/2022 14:25	2.28	
VR 128	4/7/2022 14:21	2.27	
VR 129	4/7/2022 14:16	2.30	
VR 130	4/7/2022 14:20	2.62	
VR 131	4/7/2022 14:41	2.66	
VR 132	4/7/2022 14:24	2.58	
VR 133	4/7/2022 14:44	3.64	
VR 134	4/12/2022 14:37	1.81	
VR 135	4/12/2022 14:21	2.14	
VR 136	--	--	Active
VR 137	--	--	Active
VR 138	--	--	Active
VR 139	4/12/2022 11:26	1.63	
VR 140	4/12/2022 11:33	1.52	
VR 141	4/12/2022 11:34	1.47	
VR 142	4/12/2022 11:37	1.49	
VR 143	4/12/2022 12:05	1.51	
VR 144	4/12/2022 11:31	1.51	
VR 145	4/12/2022 11:30	1.50	
VR 146	4/12/2022 11:30	1.50	
VR 147	4/12/2022 11:26	1.84	
VR 148	4/12/2022 15:38	1.96	
VR 149	--	--	Active
VR 150	--	--	Active
VR 151	4/12/2022 09:18	1.36	
VR 152	4/12/2022 09:12	1.39	
VR 153	4/12/2022 09:13	1.37	
VR 154	4/8/2022 09:59	1.13	
VR 155	4/8/2022 09:53	1.20	
VR 156	4/8/2022 09:47	1.13	
VR 157	4/8/2022 09:48	1.09	
VR 158	4/8/2022 09:50	1.26	
VR 159	4/8/2022 09:47	1.51	
VR 160	4/8/2022 15:15	3.57	



Second Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 161	4/12/2022 16:19	1.79	
VR 162	--	--	Active
VR 163	--	--	Active
VR 164	--	--	Active
VR 165	4/12/2022 10:23	1.39	
VR 166	4/12/2022 10:29	1.67	
VR 167	4/8/2022 11:15	1.76	
VR 167	4/12/2022 10:24	1.52	
VR 168	4/8/2022 12:49	0.64	
VR 169	4/8/2022 12:55	0.60	
VR 170	4/8/2022 12:38	0.74	
VR 171	4/8/2022 12:23	1.00	
VR 172	4/8/2022 12:20	1.07	
VR 173	4/8/2022 12:45	1.12	
VR 174	4/8/2022 15:32	4.97	
VR 175	4/12/2022 16:45	1.90	
VR 176	--	--	Active
VR 177	--	--	Active
VR 178	4/7/2022 14:58	5.00	
VR 179	--	--	Health and Safety Concern-Overgrown Vegetation
VR 180	4/8/2022 11:21	0.99	
VR 181	4/8/2022 11:27	1.05	
VR 182	4/8/2022 11:26	1.26	
VR 183	4/8/2022 11:23	1.18	
VR 184	4/8/2022 11:23	0.94	
VR 185	4/8/2022 11:19	1.18	
VR 186	4/8/2022 11:10	1.27	
VR 187	4/8/2022 15:43	3.77	
VR 188	4/12/2022 16:37	3.12	
VR 189	--	--	Active
VR 190	--	--	Active
VR 191	--	--	Active
VR 192	4/12/2022 09:42	0.86	
VR 193	4/12/2022 09:42	0.89	
VR 194	--	--	Health and Safety Concern-Overgrown Vegetation
VR 195	4/7/2022 15:37	3.83	
VR 196	4/8/2022 14:34	1.88	
VR 197	4/8/2022 14:45	1.37	
VR 198	4/8/2022 14:40	1.24	
VR 199	4/8/2022 14:42	1.24	



Second Quarter 2022

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

Point Name	Record Date	FID Concentration (ppm)	Comments
VR 200	4/8/2022 14:53	1.28	
VR 201	--	--	Health and Safety Concern-Overgrown Vegetation
VR 202	4/12/2022 14:48	3.02	
VR 203	4/12/2022 16:19	1.51	
VR 204	4/12/2022 11:59	1.20	
VR 205	4/12/2022 11:31	1.25	
VR 206	4/12/2022 11:15	1.23	
VR 207	4/12/2022 11:54	1.33	
VR 208	4/12/2022 11:00	1.28	
VR 209	4/12/2022 11:11	1.32	
VR 210	4/12/2022 11:12	1.34	
VR 211	4/12/2022 11:00	1.46	
VR 212	4/12/2022 08:42	12.46	
VR 213	4/12/2022 15:53	1.57	
VR 214	--	--	Health and Safety Concern-Overgrown Vegetation
VR 215	--	--	Health and Safety Concern-Overgrown Vegetation
VR 216	4/12/2022 13:20	1.03	
VR 217	4/12/2022 13:37	0.95	
VR 218	4/12/2022 13:30	0.98	
VR 219	4/12/2022 13:25	0.97	
VR 220	4/12/2022 13:26	0.96	
VR 221	--	--	Health and Safety Concern-Overgrown Vegetation
VR 222	--	--	Health and Safety Concern-Overgrown Vegetation
VR 223	--	--	Health and Safety Concern-Overgrown Vegetation
VR 224	--	--	Health and Safety Concern-Overgrown Vegetation
VR 225	--	--	Health and Safety Concern-High Traffic Area
VR 226	--	--	Health and Safety Concern-Overgrown Vegetation
VR 227	--	--	Health and Safety Concern-Overgrown Vegetation
VR 228	--	--	Health and Safety Concern-Overgrown Vegetation
VR 229	--	--	Health and Safety Concern-High Traffic Area
VR 230	--	--	Health and Safety Concern-High Traffic Area
VR 231	--	--	Health and Safety Concern-High Traffic Area
VR 232	--	--	Health and Safety Concern-High Traffic Area
VR 233	--	--	Health and Safety Concern-High Traffic Area



Attachment 5

Calibration Logs

SURFACE EMISSIONS MONITORING CALIBRATION AND PERTINENT DATA

Date: 4/6/22 Site Name: Vasco
 Inspector(s): Jeff Dore Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: _____ Barometric Pressure: 30.11 "Hg
 Air Temperature: 76 °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~~ 5421 Cal Gas Concentration: 500 ppm

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	0	500	0	2
2	0	497	3	1
3	-0.1	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%

$$= 100\% \cdot \frac{1.3}{500} \times 100\%$$

$$= \% \ 99.74$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>146268</u>	Counts Observed for the Span = <u>148476</u>
Counters Observed for the Zero = <u>3749</u>	Counters Observed for the Zero = <u>3655</u>
Trial 2:	
Counts Observed for the Span = <u>147088</u>	
Counters Observed for the Zero = <u>3666</u>	

Post Monitoring Calibration Check

Zero Air Reading: .6 ppm Cal Gas Reading: _____ ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: top deck Reading: 2.4 ppm
 Downwind Location Description: Flare Reading: 3.9 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: 4/16/22 Site Name: Vasco
 Inspector(s): ~~J. J. ...~~ bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: SW Barometric Pressure: 30.11 "Hg
 Air Temperature: 76 °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~~ 5415 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	0 0	503	3	1
2	0	499	1	1
3	0	500	0	1

Average Difference: 1.3
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{1.3}{500} \times 100\%$$

$$= \% \mathbf{99.74}$$

Span Sensitivity:

Trial 1:	Trial 2:	Trial 3:
Counts Observed for the Span = <u>124428</u>	Counts Observed for the Span = <u>127038</u>	Counts Observed for the Span = <u>127624</u>
Counters Observed for the Zero = <u>4437</u>	Counters Observed for the Zero = <u>4333</u>	Counters Observed for the Zero = <u>4293</u>

Post Monitoring Calibration Check

Zero Air Reading: 1.8 ppm Cal Gas Reading: 508 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: top deck Reading: 2.4 ppm
 Downwind Location Description: Flare Reading: 3.9 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: 4/6/22 Site Name: Vasco
 Inspector(s): Junior V Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: SW Barometric Pressure: 30.11 "Hg
 Air Temperature: 76 °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	<u>0</u>	<u>503</u>	<u>3</u>	<u>1</u>
2	<u>0</u>	<u>503</u>	<u>3</u>	<u>2</u>
3	<u>0</u>	<u>499</u>	<u>1</u>	<u>1</u>

Average Difference: 2.3
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{2.3}{500} \times 100\%$$

$$= \% \quad \mathbf{99.54}$$

Span Sensitivity:

Trial 1:	Trial 2:	Trial 3:
Counts Observed for the Span = <u>157028</u>	Counts Observed for the Span = <u>156340</u>	Counts Observed for the Span = <u>158308</u>
Counters Observed for the Zero = <u>4608</u>	Counters Observed for the Zero = <u>4560</u>	Counters Observed for the Zero = <u>4489</u>

Post Monitoring Calibration Check

Zero Air Reading: 0.4 ppm Cal Gas Reading: 448 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: top deck Reading: 2.4 ppm
 Downwind Location Description: Flare Reading: 3.9 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: 4/16/22 Site Name: Vasco
 Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH Wind Direction: SW Barometric Pressure: 30.4 "Hg
 Air Temperature: 76 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 1215 Cal Gas Concentration: 500ppm

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

Average Difference: 0.3
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{0.3}{500} \times 100\%$$

$$= \% \quad 99.94$$

Span Sensitivity:

Trial 1:	Trial 2:	Trial 3:
Counts Observed for the Span = <u>127668</u>	Counts Observed for the Span = <u>133504</u>	Counts Observed for the Span = <u>136012</u>
Counters Observed for the Zero = <u>2436</u>	Counters Observed for the Zero = <u>2430</u>	Counters Observed for the Zero = <u>2434</u>

Post Monitoring Calibration Check

Zero Air Reading: -0.21 ppm Cal Gas Reading: 487 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: top deck Reading: ~~2.4~~ ppm
 Downwind Location Description: Flare Reading: ~~3.9~~ 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: 4-7-22 Site Name: Vasco
 Inspector(s): Junior V Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: SW Barometric Pressure: 30.12 "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: 5419 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	8	498	2	2
2	8	498	2	1
3	0	499	1	1

Average Difference: 1.6
*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{1.6}{500} \times 100\%$$

$$= \% \underline{99.68}$$

Span Sensitivity:

Trial 1:	Counts Observed for the Span = <u>167616</u>	Trial 3:	Counts Observed for the Span = <u>164424</u>
	Counters Observed for the Zero = <u>4924</u>		Counters Observed for the Zero = <u>4836</u>
Trial 2:	Counts Observed for the Span = <u>166688</u>		
	Counters Observed for the Zero = <u>4899</u>		

Post Monitoring Calibration Check

Zero Air Reading: -0.1 ppm Cal Gas Reading: 474 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: 053 Reading: 5.6 ppm
 Downwind Location Description: 9214 Reading: 3.7 ppm

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

**SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4-7-22 Site Name: Vasco
 Inspector(s): Jeff Dove Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: SW Barometric Pressure: 30.12 "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: 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	1
2	0	498	2	2
3	0	501	1	1

Average Difference: 1

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{1}{500} \times 100\%$$

$$= \% \quad 99.8$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span= <u>138360</u>	Counts Observed for the Span= <u>142044</u>
Counters Observed for the Zero= <u>3949</u>	Counters Observed for the Zero= <u>3900</u>
Trial 2:	
Counts Observed for the Span= <u>140508</u>	
Counters Observed for the Zero= <u>3938</u>	

Post Monitoring Calibration Check

Zero Air Reading: 2.2 ppm Cal Gas Reading: 545 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: 953 Reading: 5.6 ppm
 Downwind Location Description: 9214 Reading: 3.7 ppm

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

**SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4-7-22 Site Name: Josco
 Inspector(s): Don Gibson Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: W Barometric Pressure: 30.10 "Hg
 Air Temperature: 50 °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	<u>0</u>	<u>501</u>	<u>1</u>	<u>4</u>
2	<u>0</u>	<u>500</u>	<u>0</u>	<u>3</u>
3	<u>0</u>	<u>500</u>	<u>0</u>	<u>3</u>

Average Difference: .6

*Perform recalibration if average difference is greater than 10

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

$$= 100\% \cdot \frac{.6}{500} \times 100\% = 99.8\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span= <u>128072</u>	Counts Observed for the Span= <u>134240</u>
Counters Observed for the Zero= <u>4920</u>	Counters Observed for the Zero= <u>4777</u>
Trial 2:	
Counts Observed for the Span= <u>129644</u>	
Counters Observed for the Zero= <u>4858</u>	

Post Monitoring Calibration Check

Zero Air Reading: 0.4 ppm Cal Gas Reading: 487 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: 253 Reading: 5.6 ppm
 Downwind Location Description: 214 Reading: 3.7 ppm

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

SURFACE EMISSIONS MONITORING CALIBRATION AND PERTINENT DATA

Date: 4-7-22 Site Name: Vasco
 Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 0 MPH Wind Direction: W Barometric Pressure: 30.11 "Hg
 Air Temperature: 50 °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	<u>0</u>	<u>499</u>	<u>1</u>	
2	<u>0</u>	<u>499</u>	<u>1</u>	
3		<u>499</u>	<u>1</u>	

Average Difference: 1
*Perform recalibration if average difference is greater than 10

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

$$= \frac{100\% - 1}{500} \times 100\%$$

$$= 99.8\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>146360</u>	Counts Observed for the Span = <u>143804</u>
Counters Observed for the Zero = <u>3018</u>	Counters Observed for the Zero = <u>2902</u>
Trial 2:	
Counts Observed for the Span = <u>149112</u>	
Counters Observed for the Zero = <u>2964</u>	

Post Monitoring Calibration Check

Zero Air Reading: 2.5 ppm Cal Gas Reading: 531 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: g 53 Reading: 5.6 ppm
 Downwind Location Description: g 214 Reading: 3.7 ppm

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

**SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4/8/22 Site Name: Vasco
 Inspector(s): Junior V Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: WN Barometric Pressure: 30.05 "Hg
 Air Temperature: 53 °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	0	494	603	5
2	0	497		4
3	0	499		4

Average Difference: *Perform recalibration if average difference is greater than 10

Calibration Precision = Average Difference / Cal Gas Conc. X 100%
 = 100% - / 500 x 100%
 = %

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>181996</u>	Counts Observed for the Span = <u>168488</u>
Counters Observed for the Zero = <u>4915</u>	Counters Observed for the Zero = <u>4787</u>
Trial 2:	
Counts Observed for the Span = <u>176244</u>	
Counters Observed for the Zero = <u>4833</u>	

Post Monitoring Calibration Check

Zero Air Reading: 29 ppm Cal Gas Reading: 493 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plant Reading: 2.4 ppm
 Downwind Location Description: G148 Reading: 2.1 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: 4/8/22 Site Name: Vasco
 Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: WN Barometric Pressure: 30.05 "Hg
 Air Temperature: 53 °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	<u>-0.01</u>	<u>501</u>	<u>1</u>	<u>1</u>
2	<u>0</u>	<u>501</u>	<u>1</u>	<u>5</u>
3	<u>.01</u>	<u>502</u>	<u>2</u>	<u>3</u>

Average Difference: 1.3

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{1.3}{500} \times 100\%$$

$$= 99.7\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>123672</u>	Counts Observed for the Span = <u>128396</u>
Counters Observed for the Zero = <u>4817</u>	Counters Observed for the Zero = <u>4634</u>
Trial 2:	
Counts Observed for the Span = <u>127780</u>	
Counters Observed for the Zero = <u>4711</u>	

Post Monitoring Calibration Check

Zero Air Reading: 1.1 ppm Cal Gas Reading: 536 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plant Reading: 1.8 ppm
 Downwind Location Description: G7148 Reading: 2.3 ppm

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

**SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4/8/22 Site Name: Vasco
 Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 2 MPH Wind Direction: WN Barometric Pressure: 30.05 "Hg
 Air Temperature: 53 °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	497	3	2
2	0	500	0	3
3	0	497	3	2

Average Difference: 2

*Perform recalibration if average difference is greater than 10

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

$$= 100\% \cdot \frac{2}{500} \times 100\% = 99.6\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span= <u>138580</u>	Counts Observed for the Span= <u>139464</u>
Counters Observed for the Zero= 3944 <u>3994</u>	Counters Observed for the Zero= <u>3889</u>
Trial 2:	
Counts Observed for the Span= <u>135832</u>	
Counters Observed for the Zero= <u>3944</u>	

Post Monitoring Calibration Check

Zero Air Reading: 6 ppm Cal Gas Reading: 586 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plant Reading: 1.8 ppm
 Downwind Location Description: G 148 Reading: 2.3 ppm

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

SURFACE EMISSIONS MONITORING CALIBRATION AND PERTINENT DATA

Date: 4.12.22 Site Name: VASCO
 Inspector(s): JR Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 506 MPH Wind Direction: W Barometric Pressure: 30 "Hg
 Air Temperature: 55 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 4106 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	0	500	0	4
3	0	500	0	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 = <u>192108</u>	Trial 3:	Counts Observed for the Span = <u>194936</u>
	Counters Observed for the Zero = <u>5449</u>		Counters Observed for the Zero = <u>5446</u>
Trial 2:	Counts Observed for the Span = 192108 → <u>191792</u>		
	Counters Observed for the Zero = 5449 → <u>5453</u>		

Post Monitoring Calibration Check

Zero Air Reading: -1.1 ppm Cal Gas Reading: 504 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm
 Downwind Location Description: Flare Reading: 2.4 ppm

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

**SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4.12.22 Site Name: VASCO
 Inspector(s): Don G Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH Wind Direction: W Barometric Pressure: 30 "Hg
 Air Temperature: 55 °F General Weather Conditions: Sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 5415 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	0	500	0	3
2	0	501	1	
3	0	503	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 = <u>133704</u>	Counts Observed for the Span = <u>134044</u>
Counters Observed for the Zero = <u>5019</u>	Counters Observed for the Zero = <u>4992</u>
Trial 2: Counts Observed for the Span = <u>134152</u>	→ <u>134152</u>
Counters Observed for the Zero = <u>5001</u>	

Post Monitoring Calibration Check

Zero Air Reading: -L ppm Cal Gas Reading: 498 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Entrance Reading: 1.3 ppm
 Downwind Location Description: Plow Reading: 2.4 ppm

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

**SURFACE EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4.12.22 Site Name: VASCO
 Inspector(s): Bryan O Instrument: TVA 2020

WEATHER OBSERVATIONS

Wind Speed: 6 MPH Wind Direction: W Barometric Pressure: 30 "Hg
 Air Temperature: 85 °F General Weather Conditions: sunny

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 5421 Cal Gas Concentration: 500ppm

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	0	498	2	3
2	0	498	2	3
3	0	501	1	4

Average Difference: 1.6
*Perform recalibration if average difference is greater than 10

Calibration Precision = Average Difference / Cal Gas Conc. X 100%
 = 100% - 1.6 / 500 x 100%
 = 99.6 %

Span Sensitivity:

Trial 1: Counts Observed for the Span= <u>148824</u> Counters Observed for the Zero= <u>4117</u>	Trial 3: Counts Observed for the Span= <u>149428</u> Counters Observed for the Zero= <u>4120</u>
Trial 2: Counts Observed for the Span= <u>149028</u> Counters Observed for the Zero= <u>4113</u>	

Post Monitoring Calibration Check

Zero Air Reading: -0.3 ppm Cal Gas Reading: 530 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: Plare Reading: 1.3 ppm
 Downwind Location Description: Entrance Reading: 2.4 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.

**SOIL GAS EMISSIONS MONITORING
CALIBRATION AND PERTINENT DATA**

Date: 4-18-22

Site Name: Vasco

Inspector(s): Jeff Dore

Instrument: TVAZ020

WEATHER OBSERVATIONS

Wind Speed: 8 MPH

Wind Direction: NE

Barometric Pressure: 30.11 "Hg

Air Temperature: 40 °F

General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 5420

Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc. - Cal Gas Reading	Response Time (seconds)
1	0	501	1	1
2	-0.1	499	1	2
3	0	500	0	1

Average Difference: 1.5

*Perform recalibration if average difference is greater than 10

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

= 100% - 1.5 / 500 x 100%

= % 99.7

Span Sensitivity:

Trial 1:	Trial 2:
Counts Observed for the Span = <u>13064</u>	Counts Observed for the Span = <u>135416</u>
Counters Observed for the Zero = <u>3805</u>	Counters Observed for the Zero = <u>3801</u>

Trial 3:
Counts Observed for the Span = <u>137609</u>
Counters Observed for the Zero = <u>3779</u>

Post Monitoring Calibration Check

Zero Air Reading: 7.5 ppm

Cal Gas Reading: 525 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: fordack

Reading: 2.3 ppm

Downwind Location Description: Flare

Reading: 2.8 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.

CALIBRATION AND PERTINENT DATA

Date: 5-5-22

Site Name: Vasco

Inspector(s): Junior V

Instrument: TVA7020

WEATHER OBSERVATIONS

Wind Speed: 10 MPH

Wind Direction: NE

Barometric Pressure: 30.03 "Hg

Air Temperature: 62 °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: 500

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

Average Difference: .3

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{.3}{500} \times 100\% = 99.7\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>171576</u>	Counts Observed for the Span = <u>158302</u>
Counters Observed for the Zero = <u>5111</u>	Counters Observed for the Zero = <u>4761</u>
Trial 2:	
Counts Observed for the Span = <u>1589888</u>	
Counters Observed for the Zero = <u>4847</u>	

Post Monitoring Calibration Check

Zero Air Reading: -0.4 ppm

Cal Gas Reading: 485 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: office Reading: 1.1 ppm

Downwind Location Description: C71 Reading: 2.8 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.

SCS Data Services - Secure Environmental Data

CALIBRATION AND PERTINENT DATA

Date: 5-5-22 Site Name: Vasco
 Inspector(s): RS Rashad Warren Instrument: TVA7020

WEATHER OBSERVATIONS

Wind Speed: 10 MPH Wind Direction: NE Barometric Pressure: 30.03 "Hg
 Air Temperature: 62 °F General Weather Conditions: Clear

CALIBRATION INFORMATION

Pre-monitoring Calibration Precision Check

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

Instrument Serial Number: 5420 Cal Gas Concentration: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>0.1</u>	<u>503</u>	<u>3</u>	<u>2</u>
2	<u>0</u>	<u>500</u>	<u>0</u>	<u>1</u>
3	<u>0</u>	<u>500</u>	<u>0</u>	<u>4</u>

Average Difference: 1

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{1}{500} \times 100\% = 99.8\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>124792</u>	Counts Observed for the Span = <u>129336</u>
Counters Observed for the Zero = <u>3654</u>	Counters Observed for the Zero = <u>3460</u>
Trial 2:	
Counts Observed for the Span = <u>132144</u>	
Counters Observed for the Zero = <u>3512</u>	

Post Monitoring Calibration Check

Zero Air Reading: -2.8 ppm Cal Gas Reading: 509 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: office Reading: 1.2 ppm
 Downwind Location Description: G1 Reading: 2.8 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.

CALIBRATION AND PERTINENT DATA

Date: 5-5-22

Site Name: Vasco

Inspector(s): Bryan O

Instrument: TVAZ020

WEATHER OBSERVATIONS

Wind Speed: 10 MPH

Wind Direction: NE

Barometric Pressure: 30.03 "Hg

Air Temperature: 62 °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: 500

Trial	Zero Air Reading	Cal Gas Reading	Cal Gas Conc.-Cal Gas Reading	Response Time (seconds)
1	<u>0</u>	<u>500</u>	<u>0</u>	<u>1</u>
2	<u>-0.1</u>	<u>500</u>	<u>0</u>	<u>2</u>
3	<u>0</u>	<u>500</u>	<u>0</u>	<u>1</u>

Average Difference: 0

*Perform recalibration if average difference is greater than 10

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

$$= 100\% - \frac{0}{500} \times 100\%$$

$$= 100\%$$

Span Sensitivity:

Trial 1:	Trial 3:
Counts Observed for the Span = <u>122096</u>	Counts Observed for the Span = <u>119944</u>
Counters Observed for the Zero = <u>5102</u>	Counters Observed for the Zero = <u>4766</u>
Trial 2:	
Counts Observed for the Span = <u>151672</u>	
Counters Observed for the Zero = <u>4949</u>	

Post Monitoring Calibration Check

Zero Air Reading: -0.8 ppm

Cal Gas Reading: 517 ppm

BACKGROUND CONCENTRATIONS CHECKS

Upwind Location Description: office Reading: 1.1 ppm

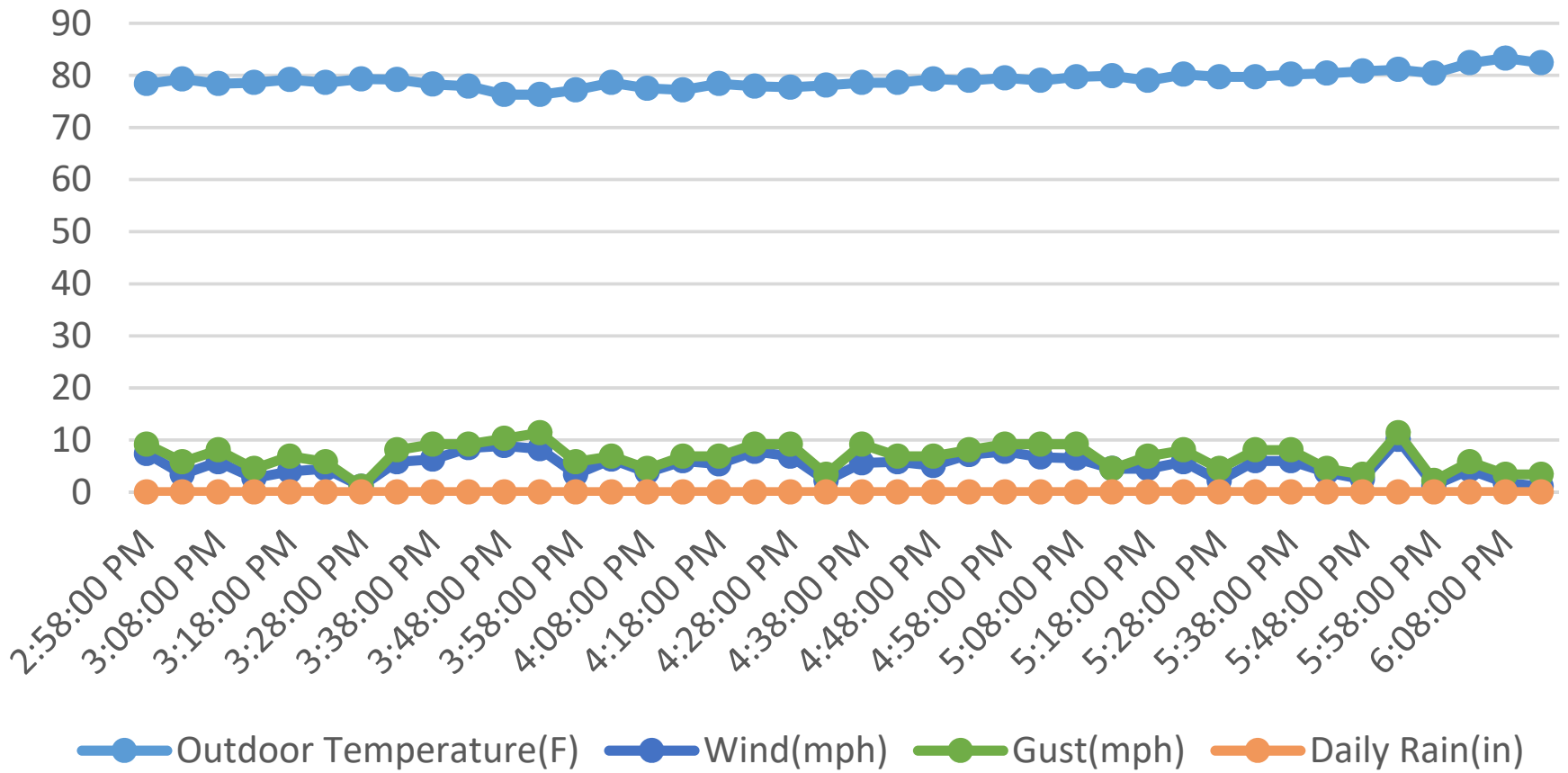
Downwind Location Description: CU Reading: 2.7 ppm

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.

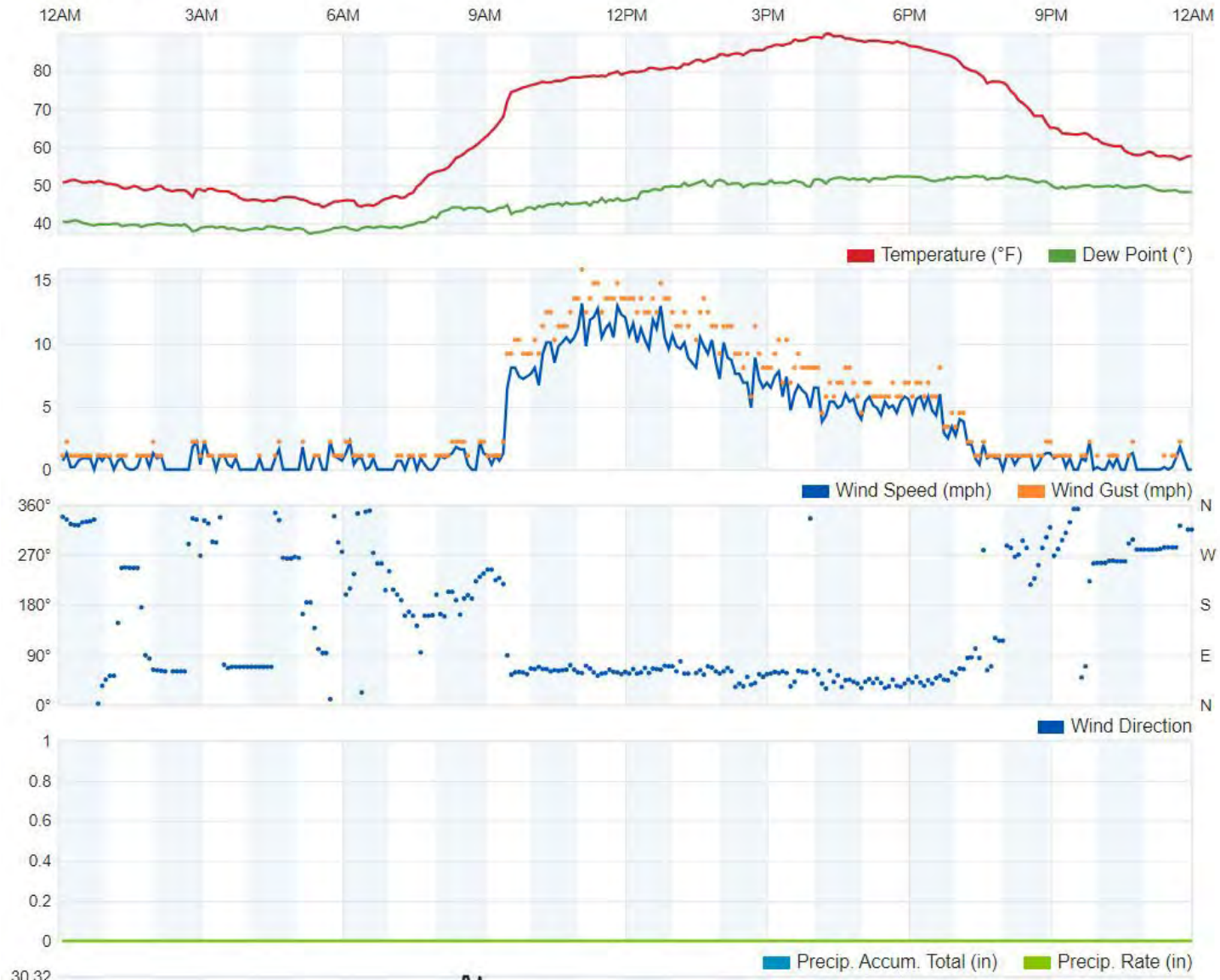
Attachment 6

Weather Data

Vasco Road Landfill Weather April 6, 2022

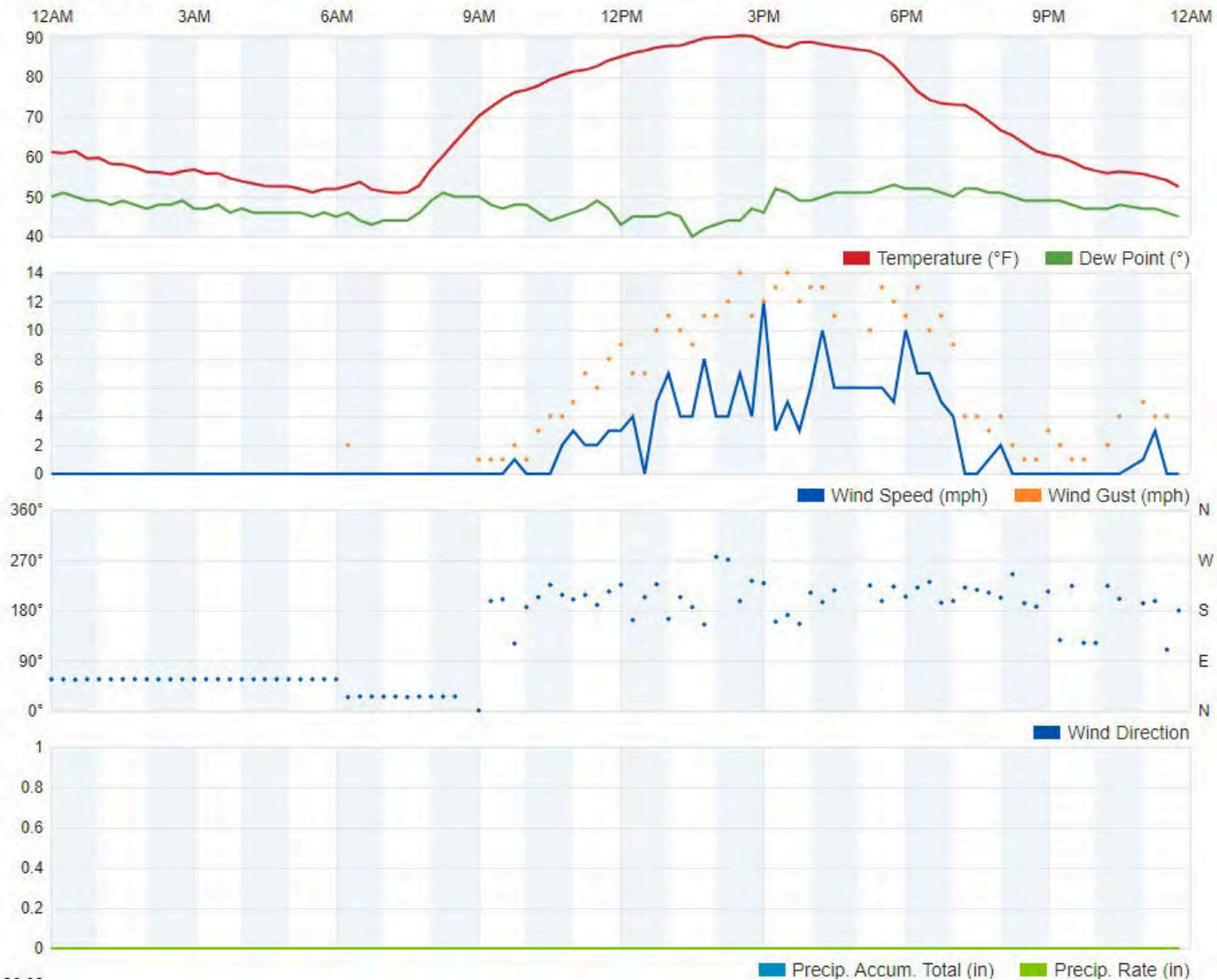


April 7, 2022



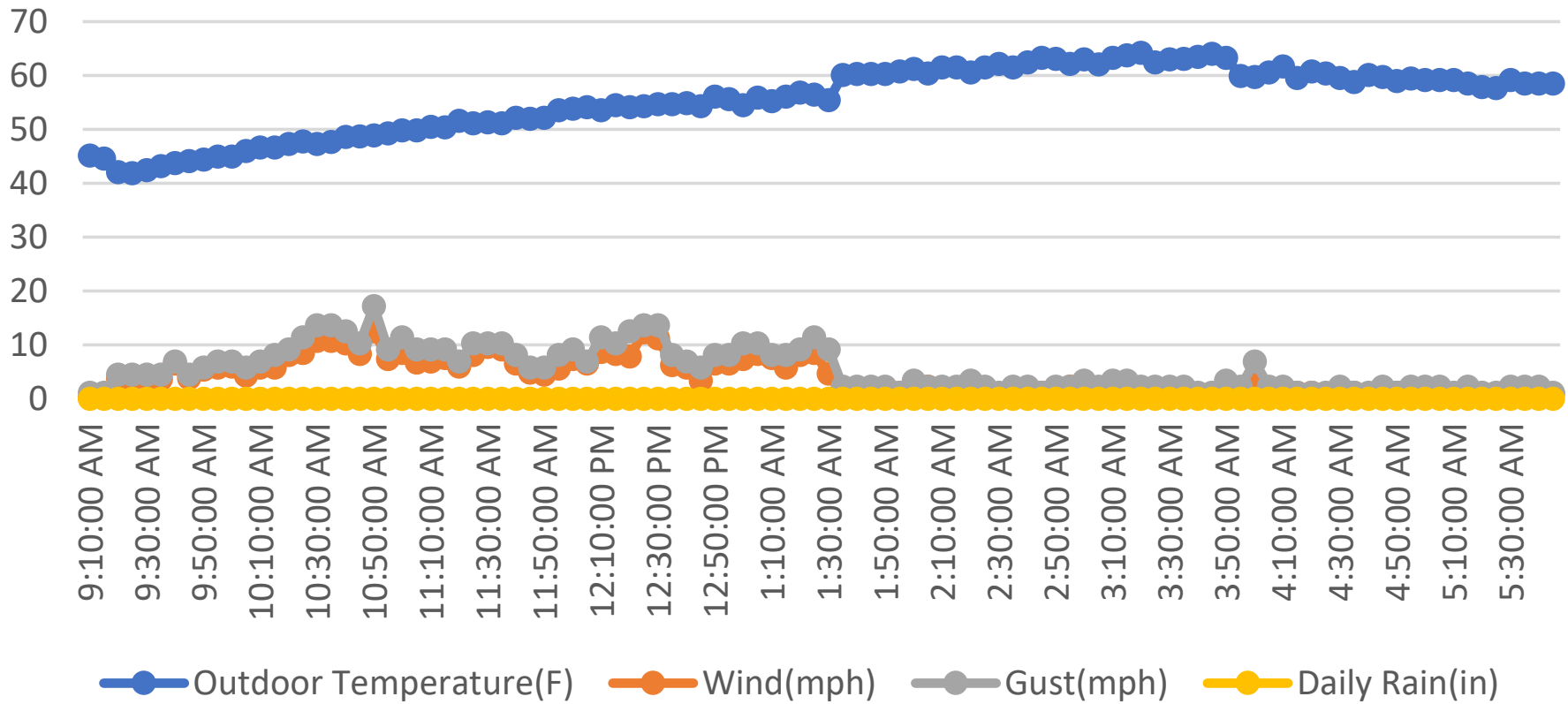
Second Quarter 2022
Weather Data for April 7, 2022
Vasco Road Landfill, Livermore, California

April 8, 2022

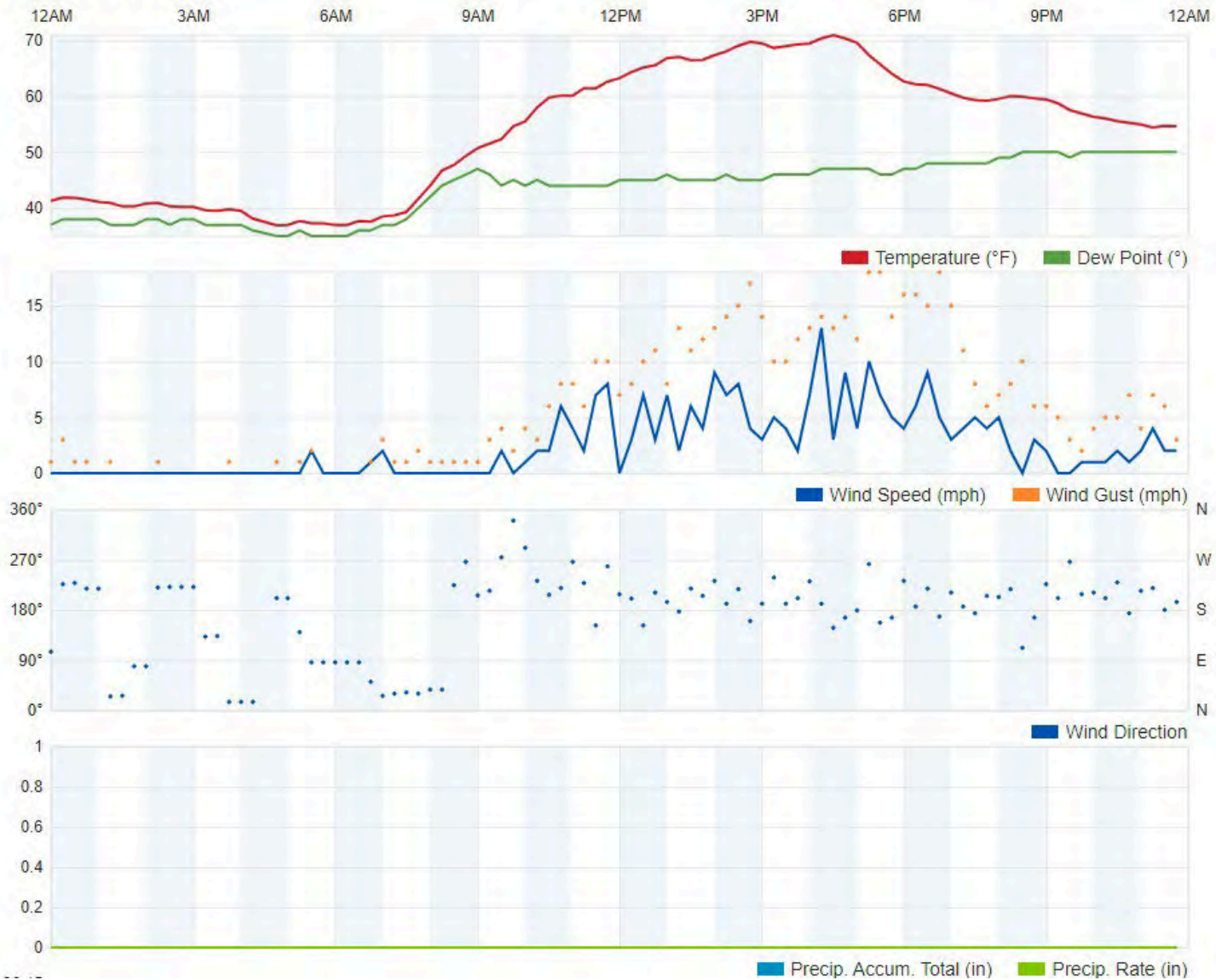


Second Quarter 2022
Weather Data for April 8, 2022
Vasco Road Landfill, Livermore, California

Vasco Landfill Weather April 12, 2022

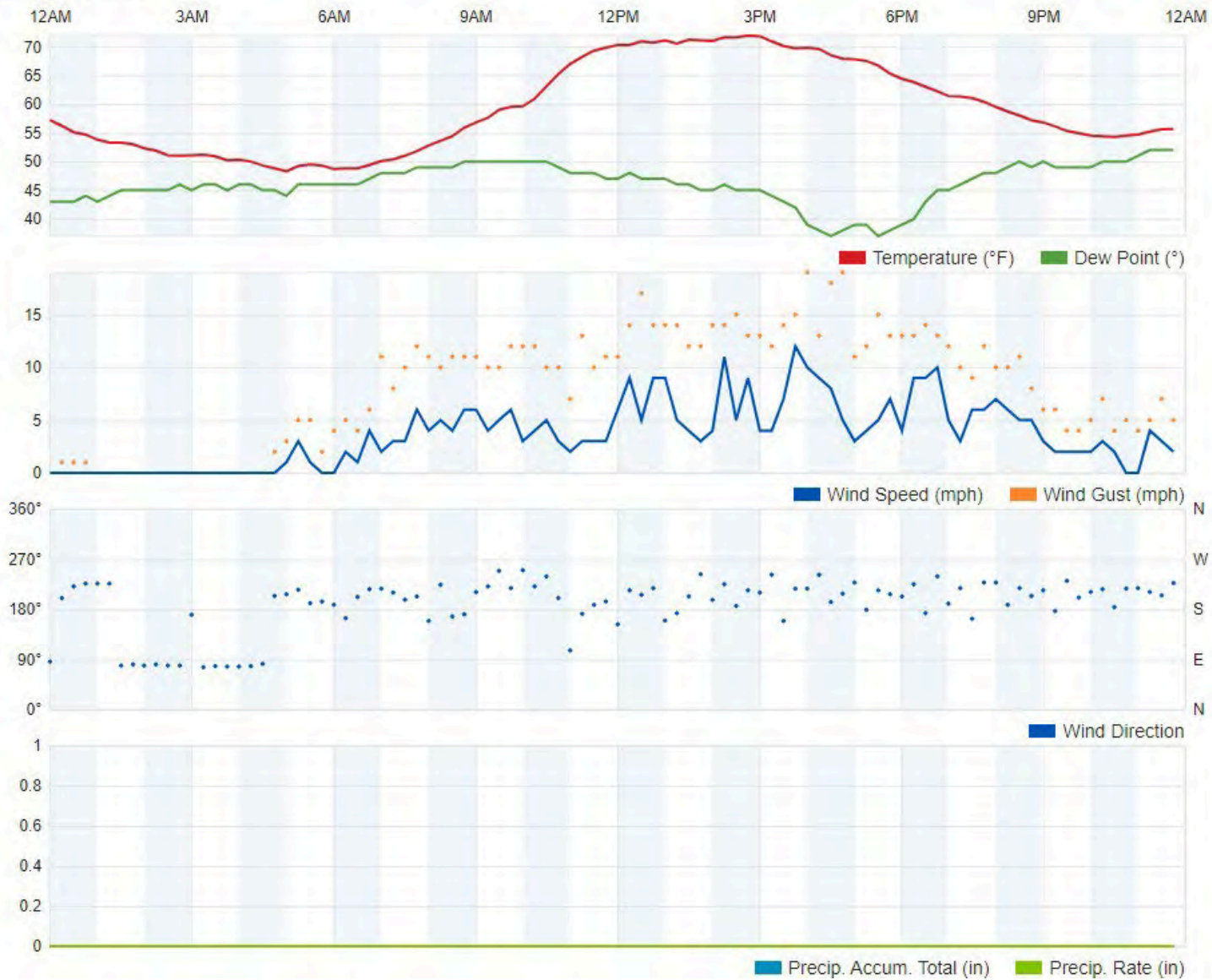


April 18, 2022



Second Quarter 2022
Weather Data for April 18, 2022
Vasco Road Landfill, Livermore, California

May 5, 2022



Second Quarter 2022
Weather Data for May 5, 2022
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 02/01/2022 through 07/31/2022	

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:



08/29/2022

Signature of Responsible Official

Date

Josh Mills

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: <i>from</i> 02/01/2022 <i>through</i> 07/31/2022	

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-13	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 02/01/2022 through 07/31/2022

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

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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	Continuous	N/A
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

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Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Collection and Control Systems Shutdown Time	BAAQMD 8-34-501.1	Operating Records	Periodic / Daily	BAAQMD 8-34-113.2	≤ 240 hours per year and ≤ 5 consecutive days	Continuous	N/A
Periods of Inoperation for Parametric Monitors	BAAQMD 1-523.4	Operating Records for All Parametric Monitors	Periodic / Daily	BAAQMD 1-523.2	≤ 15 consecutive days 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 °C (< 131 °F), except for components identified in Condition # 818, Part 3b(i)	Continuous	N/A

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Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
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 °F	Continuous	N/A
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)	O ₂ < 5% (by volume, dry basis) and CH ₄ > 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

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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 02/01/2022 through 07/31/2022

Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
Well Shutdown Limits	BAAQMD 8-34-116.5 and 501.1	Records	Periodic / Daily	BAAQMD 8-34-116.3	< 24 hours per well	Continuous	N/A
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

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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
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)	Continuous	N/A

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Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
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
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 NO _x @ 15% O ₂ , dry basis OR Flare Outlet Emission Rate: < 0.049 pounds of NO ₂ per MM BTU	Continuous	N/A

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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 H ₂ S (dry basis)	Continuous	N/A

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Type of Limit or Criteria	Monitoring Requirement Citation	Monitoring Type	Monitoring Frequency	Citation of Limit	Limit	Compliance	Corrective Actions Taken
H ₂ S	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

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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 yd ³ (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

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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

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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 Concentration 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

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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 02/01/2022 through 07/31/2022

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

VASCO ROAD LANDFILL

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Site: Vasco Road Landfill	Facility ID#: A5095
Permitted Unit: S-7 NON-RETAIL GASOLINE DISPENSING FACILITY #9551	Reporting Period: from 02/01/2022 through 07/31/2022

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

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Site: Vasco Road Landfill	Facility ID#: A5095
Permitted Unit: S-7 NON-RETAIL GASOLINE DISPENSING FACILITY #9551	Reporting Period: from 02/01/2022 through 07/31/2022

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 02/01/2022 through 07/31/2022

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 02/01/2022 through 07/31/2022

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

Appendix G – Well Exceedance Documentation

Root Cause Analysis and Corrective Analysis Forms



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	2/24/2022
Collection Device ID:	VREW2103
Temperature Reading:	133.3

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). If NO, continue the form. 	
Describe what was inspected.	
HOV Requested, CO testing and lab data previously pulled at startup. All components tested.	
Describe what was determined to be the root cause of the exceedance.	
In an area that has excessive heat, well is being adjusted to maximize LFG and heat extraction	
Determine the required next steps.	
HOV submitted to air board. Waiting approval.	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	2/24/2022
Collection Device ID:	VREW2106
Temperature Reading:	132.7

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). If NO, continue the form. 	
Describe what was inspected.	
HOV Requested, CO testing and lab data previously pulled at startup. All components tested	
Describe what was determined to be the root cause of the exceedance.	
In an area that has excessive heat, well is being adjusted to maximize LFG and heat extraction	
Determine the required next steps.	
HOV submitted to air board. Waiting approval.	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	4/25/2022
Collection Device ID:	VREW2103
Temperature Reading:	133.7

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). If NO, continue the form. 	
Describe what was inspected.	
All components tested. HOV needed	
Describe what was determined to be the root cause of the exceedance.	
Flow was adjusted – system expansion in process	
Determine the required next steps.	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Corrective Action Analysis and Implementation Schedule

Date of Initial Exceedance:	4/25/2022
Collection Device ID:	VREW2103
Temperature Reading:	133.7

Corrective Action Analysis	
Describe the corrective actions taken to remediate exceedance.	
Well has been adjusted and tested. It is in hot area that is showing signs of flipped reaction. All components have been tested and ground is secure.	

Implementation Schedule	
Expected Start Date:	4/25/2022
Expected Completion Date:	TBD; Date HOV Approved
Provide a description of proposed repairs and/or remedial action required and supporting information for implementation timeframe.	
HOV application was submitted September 1, 2021. Continued adjustment and monitoring of well for CO.	

Final Steps	
Determine the required next steps.	
Is the remediation expected to take less than 120 days since initial exceedance per implementation schedule?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, send notification to state agency within 75 days of initial exceedance. Include Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule in the next Annual Report. • If NO, send Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule to state agency within 75 days for approval and include in next Annual Report. 	



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	5/10/2022
Collection Device ID:	VREW2107
Temperature Reading:	135.0

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). If NO, continue the form. 	
Describe what was inspected.	
All components tested.	
Describe what was determined to be the root cause of the exceedance.	
Flow was adjusted – system expansion in process	
Determine the required next steps.	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Corrective Action Analysis and Implementation Schedule

Date of Initial Exceedance:	5/10/2022
Collection Device ID:	VREW2107
Temperature Reading:	135.0

Corrective Action Analysis	
Describe the corrective actions taken to remediate exceedance.	
Well has been adjusted and tested. It is in hot area that is showing signs of flipped reaction. All components have been tested and ground is secure.	

Implementation Schedule	
Expected Start Date:	5/10/2022
Expected Completion Date:	7/20/2022
Provide a description of proposed repairs and/or remedial action required and supporting information for implementation timeframe.	
Continued adjustment and monitoring of well for CO. Well was in compliance on 7/20/22 with temperature reading of 127.7 degrees fahrenheit.	

Final Steps	
Determine the required next steps.	
Is the remediation expected to take less than 120 days since initial exceedance per implementation schedule?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, send notification to state agency within 75 days of initial exceedance. Include Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule in the next Annual Report. • If NO, send Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule to state agency within 75 days for approval and include in next Annual Report. 	



PRESSURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	6/23/2022
Collection Device ID:	VEW2204B
Pressure Reading:	0.51

Root Cause Analysis	
Was the reason for the positive pressure due to one of the following:	
A fire or increased well temperature.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Use of a geomembrane or synthetic cover.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
A decommissioned well.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES to ANY of the above, exempt as per 40 CFR 62.16720(a)(3)(iii)/ 40 CFR §63.1958(b). If NO to ALL of the above, continue the form. 	
Describe what was inspected.	
Lateral lines were inspected	
Describe what was determined to be the root cause of the exceedance.	
Lateral failure below grade	
Determine the required next steps.	
New lateral pipeline will be installed upon fill activity	
Was the positive pressure remediated within 60 days since the initial exceedance?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	6/28/2022
Collection Device ID:	VREW2104
Temperature Reading:	134.7

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). If NO, continue the form. 	
Describe what was inspected.	
CO testing and lab data previously pulled at startup. All components tested.	
Describe what was determined to be the root cause of the exceedance.	
In an area that has excessive heat, well is being adjusted to maximize LFG and heat extraction	
Determine the required next steps.	
HOV request	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



PRESSURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	7/19/2022
Collection Device ID:	VRLRW003
Pressure Reading:	5.05

Root Cause Analysis	
Was the reason for the positive pressure due to one of the following:	
A fire or increased well temperature.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Use of a geomembrane or synthetic cover.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
A decommissioned well.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • If YES to ANY of the above, exempt as per 40 CFR 62.16720(a)(3)(iii)/ 40 CFR §63.1958(b). • If NO to ALL of the above, continue the form. 	
Describe what was inspected.	
Lateral lines were inspected	
Describe what was determined to be the root cause of the exceedance.	
Lateral failure below grade	
Determine the required next steps.	
New lateral pipeline will be installed upon fill activity	
Was the positive pressure remediated within 60 days since the initial exceedance?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, keep records of Root Cause Analysis. No reporting required. • If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



PRESSURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	7/19/2022
Collection Device ID:	VRLRW004
Pressure Reading:	5.12

Root Cause Analysis	
Was the reason for the positive pressure due to one of the following:	
A fire or increased well temperature.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Use of a geomembrane or synthetic cover.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
A decommissioned well.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES to ANY of the above, exempt as per 40 CFR 62.16720(a)(3)(iii)/ 40 CFR §63.1958(b). If NO to ALL of the above, continue the form. 	
Describe what was inspected.	
Inspected lateral pipeline	
Describe what was determined to be the root cause of the exceedance.	
Below grade Lateral pipeline failure	
Determine the required next steps.	
New lateral pipeline will be installed upon fill activity	
Was the positive pressure remediated within 60 days since the initial exceedance?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	

75-Day Notifications

July 8, 2022

Loi Chau
Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Re: 75-Day Request for Extended Implementation Schedule of Temperature Exceedance
Vasco Road Landfill, Livermore, California
Facility Number A5095

Dear Ms. Chau,

On behalf of Vasco Road Landfill (Vasco), SCS Engineers (SCS) hereby provides the Bay Area Air Quality Management District (BAAQMD) with a 75-day request for extended implementation schedule pursuant to the compliance provisions identified in 40 Code of Federal Regulations (CFR) 62.16724(k)(1) and 63.1960(a)(4) for temperature exceedance. On June 21, 2021, Vasco became subject to the California Emissions Guidelines (EG) Rule, which 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 000. The federal National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63, Subpart AAAA rule came into effect on September 27, 2021, superseding the major compliance provisions of the California EG Rule. This changed the wellhead temperature limit from 131 degrees Fahrenheit (°F) to 145°F. However, because Vasco is still subject to BAAQMD Regulation 8, Rule 34 as well as the site's permit to operate (PTO) which incorporate the outdated New Source Performance Standards (NSPS) wellhead requirements, the site must still operate wells below 131°F, and we are providing this notification out of an abundance of caution until the outdated requirements can be removed from the PTO.

Well VREW2103 had an initial temperature exceedance reading of 133.7 °F on April 25, 2022. Corrective actions were initiated within 5 days; however, the well could not be brought back into compliance within 15 days. As required under 40 CFR 62.16724(k)(1) and 63.1960(a)(4), a root cause analysis was completed within 60 days from the original exceedance. In addition, a corrective action analysis was conducted as required for wells that could not be remediated in 60 days. All the steps for compliance were conducted, however, the well will not be able to come back into compliance within the 120-day timeframe from the original exceedance (August 23, 2022). As such, this request for extended implementation schedule is required and Vasco requests an extended corrective action timeline beyond 120-days for well VREW2103. Additionally, SCS has performed carbon monoxide (CO) monitoring at the well, which showed normal landfill decomposition at the well. This notification is being submitted due to the 131°F limit in the BAAQMD rules and Permit to Operate. As the wellhead temperature is under 145°F, Vasco is in compliance with the federal NESHAP Subpart AAAA rule, which allows for wellhead temperatures of up to 145°F. As required under 40 CFR 62.16724(k)(1) and 63.1960(a)(4), this submittal contains the root cause analysis, corrective action analysis and proposed implementation schedule (see attached).

Please note that a Request for Higher Operating Value (HOV) for the aforementioned well was submitted to the BAAQMD for review and approval on September 1, 2021.

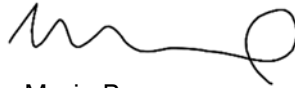
Loi Chau
July 8, 2022
Page 2

If you have any questions, please contact Maria Bowen of SCS at (619) 455-9518.

Sincerely,



Hannah Morse
Technical Associate
SCS Engineers



Maria Bowen
Project Manager
SCS Engineers

cc: Antonia Gunner, Vasco Road
Lochlin Caffey, Vasco Road
Art Jones, SCSFS
Michael Calmes, SCSFS
Administrator, U.S. EPA Region 9

Attachments Root Cause Analysis
Corrective Action Analysis and Implementation Schedule



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	4/25/2022
Collection Device ID:	VREW2103
Temperature Reading:	133.7

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). If NO, continue the form. 	
Describe what was inspected.	
All components tested. HOV needed	
Describe what was determined to be the root cause of the exceedance.	
Flow was adjusted – system expansion in process	
Determine the required next steps.	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> If YES, keep records of Root Cause Analysis. No reporting required. If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Corrective Action Analysis and Implementation Schedule

Date of Initial Exceedance:	4/25/2022
Collection Device ID:	VREW2103
Temperature Reading:	133.7

Corrective Action Analysis	
Describe the corrective actions taken to remediate exceedance.	
Well has been adjusted and tested. It is in hot area that is showing signs of flipped reaction. All components have been tested and ground is secure.	

Implementation Schedule	
Expected Start Date:	4/25/2022
Expected Completion Date:	TBD; Date HOV Approved
Provide a description of proposed repairs and/or remedial action required and supporting information for implementation timeframe.	
HOV application was submitted September 1, 2021. Continued adjustment and monitoring of well for CO.	

Final Steps	
Determine the required next steps.	
Is the remediation expected to take less than 120 days since initial exceedance per implementation schedule?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, send notification to state agency within 75 days of initial exceedance. Include Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule in the next Annual Report. • If NO, send Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule to state agency within 75 days for approval and include in next Annual Report. 	

August 31, 2022

Loi Chau
Air Quality Engineer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

Re: 75-Day Notification of Temperature Exceedance
Vasco Road Landfill, Livermore, California
Facility Number A5095

Dear Ms. Chau,

On behalf of Vasco Road Landfill (Vasco), SCS Engineers (SCS) hereby provides the Bay Area Air Quality Management District (BAAQMD) with a 75-day notification pursuant to the compliance provisions identified in 40 Code of Federal Regulations (CFR) 62.16724(k)(2) and 63.1960(a)(4) for temperature exceedance. On June 21, 2021, Vasco became subject to the California Emissions Guidelines (EG) Rule, which 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 000. The federal National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63, Subpart AAAA rule came into effect on September 27, 2021, superseding the major compliance provisions of the California EG Rule. This changed the wellhead temperature limit from 131 degrees Fahrenheit (°F) to 145°F. However, because Vasco is still subject to BAAQMD Regulation 8, Rule 34 as well as the site's permit to operate (PTO) which incorporate the outdated New Source Performance Standards (NSPS) wellhead requirements, the site must still operate wells below 131°F, and we are providing this notification out of an abundance of caution until the outdated requirements can be removed from the PTO.


Well VREW2107 had an initial temperature exceedance reading of 135.0 °F on May 10, 2022. Corrective actions were initiated within 5 days; however, the well could not be brought back into compliance within 15 days. As required under 40 CFR 62.16724(k)(1) and 63.1960(a)(4), a root cause analysis was completed within 60 days from the original exceedance. In addition, a corrective action analysis was conducted as required for wells that could not be remediated in 60 days. All the steps for compliance were conducted, and the well came back into compliance in 70 days, on July 20, 2022.

This notification is being submitted due to the 131°F limit in the BAAQMD rules and Permit to Operate. As the wellhead temperature is under 145°F, Vasco is in compliance with the federal NESHAP Subpart AAAA rule, which allows for wellhead temperatures of up to 145°F. As required under 40 CFR 62.16724(k)(1) and 63.1960(a)(4), this submittal contains the root cause analysis and corrective action analysis.

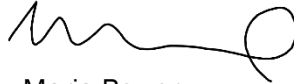
If you have any questions, please contact Maria Bowen of SCS at (619) 455-9518.

Loi Chau
August 31, 2022
Page 2

Sincerely,



Anne Liu
Project Professional
SCS Engineers



Maria Bowen
Project Manager
SCS Engineers

cc: Antonia Gunner, Vasco Road
Joshua Mills, Vasco Road
Art Jones, SCSFS
Michael Calmes, SCSFS
Administrator, U.S. EPA Region 9

Attachments Root Cause Analysis
Corrective Action Analysis and Implementation Schedule



TEMPERATURE EXCEEDANCE

Root Cause Analysis

Date of Initial Exceedance:	5/10/2022
Collection Device ID:	VREW2107
Temperature Reading:	135.0

Root Cause Analysis	
Has the owner/operator received approval from the state agency to operate at a temperature higher than 55°C (131°F) for this well?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, exempt as per 40 CFR 62.16720(a)(4)(iii)/ 40 CFR 63.1958(c). • If NO, continue the form. 	
Describe what was inspected.	
All components tested.	
Describe what was determined to be the root cause of the exceedance.	
Flow was adjusted – system expansion in process	
Determine the required next steps.	
Was the temperature exceedance remediated within 60 days since the initial exceedance?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, keep records of Root Cause Analysis. No reporting required. • If NO, continue with Corrective Action Analysis and Implementation Plan and submit Notification to state agency within 75 days of initial exceedance. 	



TEMPERATURE EXCEEDANCE

Corrective Action Analysis and Implementation Schedule

Date of Initial Exceedance:	5/10/2022
Collection Device ID:	VREW2107
Temperature Reading:	135.0

Corrective Action Analysis	
Describe the corrective actions taken to remediate exceedance.	
Well has been adjusted and tested. It is in hot area that is showing signs of flipped reaction. All components have been tested and ground is secure.	

Implementation Schedule	
Expected Start Date:	5/10/2022
Expected Completion Date:	7/20/2022
Provide a description of proposed repairs and/or remedial action required and supporting information for implementation timeframe.	
Continued adjustment and monitoring of well for CO. Well was in compliance on 7/20/22 with temperature reading of 127.7 degrees Fahrenheit.	

Final Steps	
Determine the required next steps.	
Is the remediation expected to take less than 120 days since initial exceedance per implementation schedule?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • If YES, send notification to state agency within 75 days of initial exceedance. Include Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule in the next Annual Report. • If NO, send Root Cause Analysis, Corrective Action Analysis, and Implementation Schedule to state agency within 75 days for approval and include in next Annual Report. 	