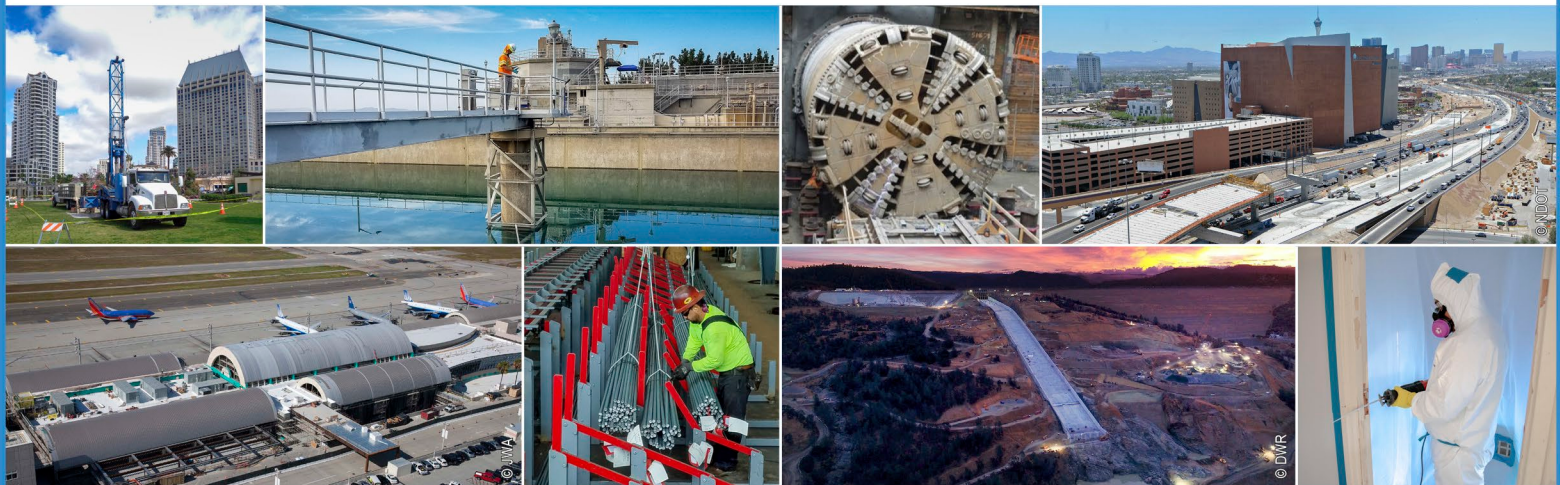


Soil Vapor Monitoring Report – Fourth Quarter 2024
City of South San Francisco
Municipal Services Building and Social Hall
33 Arroyo Drive
South San Francisco, California

City of South San Francisco
400 Grand Avenue | South San Francisco, California 94080

April 23, 2025 | Project No. 403151011



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

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1 INTRODUCTION

Ninyo & Moore has prepared this Soil Vapor Monitoring Report for the City of South San Francisco (City), relating to the property located at 33 Arroyo Drive, California (Site, Figure 1). In accordance with our recommendations from the May 17, 2024 Soil Vapor Monitoring Report – Second Quarter 2024, Ninyo & Moore conducted additional soil vapor sampling using standard soil vapor sampling procedures from the California Department of Toxic Substance Control (DTSC) guidance document *Advisory Active Soil Gas Investigations* (DTSC, 2015) to assess seasonal and temporal variability to confirm consistency in the results. The activities summarized in this report were performed in accordance with Ninyo & Moore's September 23, 2024 Proposal for Additional Soil Vapor Sampling and Reporting.

2 BACKGROUND

2.1 Site Description

The Site is located at 33 Arroyo Drive in South San Francisco, San Mateo County, California (Figure 1). It is situated on one parcel totaling approximately 1.87 acres of land designated by San Mateo County Assessor's Parcel Number 010400270. The Site is developed with the City of South San Francisco's (SSF) Municipal Services Building, which is occupied by the SSF Fire Department Station 63 (Figure 2). The exterior of the building consists of an asphalt parking area on the northeastern end of the building, parking areas on the northwestern exterior of the building, and access to the parking garage and fire department area on the southwestern end of the building.

2.2 Site Geology

In general, the soils observed beneath the Site during the Phase II Environmental Site Assessment (ESA) conducted on March 17, 2022 are primarily silty sand to approximately 5.5-feet below ground surface (bgs), which is the maximum depth explored. Two of the borings were also observed to contain a 1-ft interval of clayey sand and/or sandy silt at 4 feet bgs.

2.3 Previous Work

According to a Phase I ESA conducted by Ninyo & Moore, the Site has most recently been occupied by the South San Francisco Municipal Services Building and Social Hall (Ninyo & Moore, 2021). Available records indicated that a 2,500-gallon diesel underground storage tank (UST) was removed in 1998 from the exterior lot on the south end of the building, and there is an existing 2,000-gallon diesel above ground storage tank (AST) on the south end of the building.

(Ninyo & Moore, 2021). The Site is also adjacent to the former My Cleaners dry cleaning facility located at 1053 El Camino Real, South San Francisco. The former My Cleaners is considered a recognized environmental condition (REC) due to the reported release of dry-cleaning compounds into the subsurface. Based on the findings of the Phase I ESA, Ninyo & Moore recommended conducting a sub-slab soil vapor assessment inside the building as well as beneath the parking garage to assess potential vapor migration issues associated with the former southeast-adjointing My Cleaners facility.

Ninyo and Moore conducted a Phase II ESA in 2022 (Ninyo & Moore, 2022), collecting soil samples from four soil borings, installing four soil vapor wells (SV-1 through SV-4) to 5-feet bgs and collecting soil vapor samples. Based on the soil analytical results and visual observations during the field sampling, shallow Site soils do not appear to be impacted with volatile organic compounds (VOCs). Results from the soil vapor wells indicated that the concentration of cis-1,2-dichloroethene (cis-1,2-DCE), trichloroethene (TCE) and vinyl chloride in soil vapor probe SV-2 were above their respective San Francisco Bay Regional Water Quality Control Board (RWQCB) Tier 1 and Residential Environmental Screening Levels (ESLs; Ninyo & Moore, 2022). SV-2 is located directly north and adjacent to the former My Cleaners dry cleaning facility. Ninyo and Moore recommended additional soil vapor sampling to validate the exceedances.

On September 21, 2023, due to continued presence of water impacting vapor wells SV-2 and SV-3, Ninyo & Moore oversaw the destruction of these vapor wells, performed by VTS Drilling, LLC of Hayward, California, a C-57 licensed driller. Following the destruction of soil vapor wells SV-2 and SV-3, sub slab Vapor Pins® (SSV-2 and SSV-3) were installed approximately 1-ft away from the former soil vapor well locations, SV-2 and SV-3, respectively (Figure 2).

Additional soil vapor sampling was performed on September 29 and April 3, 2024 to evaluate potential contamination to shallow soil vapor and fill data gaps from the previous soil vapor sampling results at the Site. Results of the April 2024 soil vapor sampling, were:

- Benzene was reported at 9.3 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in vapor probe SV-4, which exceeds the 3.2 $\mu\text{g}/\text{m}^3$ Residential ESL and is below the 14 $\mu\text{g}/\text{m}^3$ Commercial ESL. The detection is also below State Water Resources Control Board (SWRCB) Low-Threat Underground Storage Tank Case Closure Policy (LTCP) criteria for residential use with no bioattenuation zone.
- Tetrachloroethene (PCE) was detected at 4.9 $\mu\text{g}/\text{m}^3$ in SV-1, 7.9 $\mu\text{g}/\text{m}^3$ in SSV-2, and 48 $\mu\text{g}/\text{m}^3$ in SSV-3. The concentration detected in SSV-3 exceeds the Residential ESL of 15 $\mu\text{g}/\text{m}^3$ but not the Commercial ESL of 67 $\mu\text{g}/\text{m}^3$.

Select soil vapor data from previous sampling events are graphically presented on Figure 3.

3 SOIL VAPOR SAMPLING ACTIVITIES

To evaluate potential seasonal and temporal variability to confirm consistency in the results, Ninyo & Moore conducted additional soil vapor sampling. On November 20, 2024, we collected soil vapor samples from the two soil vapor wells (SV-1 and SV-4) and two sub-slab soil vapor pins (SSV-2 and SSV-3) using laboratory-supplied sampling materials. Soil vapor sampling forms are presented in Appendix A.

3.1 Sampling Procedures

The soil vapor wells and pins were sampled according to standard soil vapor sampling procedures and the DTSC soil vapor investigation *Advisory* (DTSC, 2015), as described below.

- **Vapor Sampling Equipment and Manifold:** A stainless-steel sample-train was constructed, with a 1-liter stainless-steel Summa® sample canister connected by a stainless-steel sample manifold. For each soil vapor sample, the sample train was connected to the soil vapor probe tubing. The manifolds, filters, gauges, flow controllers and Summa® canisters were supplied by a state-certified laboratory. A new manifold was used for each soil vapor sampling. The flow controller was pre-set by the laboratory to a 150-milliliters-per-minute (mL/min) flow-rate.
- **Shut-In Test:** After connecting the Summa® canister and sample manifolds to the Teflon tubing, the Swagelok® ball valve was closed during shut-in test. Using a syringe to create a vacuum and then closed to start the shut-in test. At the onset of the shut-in test the initial vacuum and time was recorded on field notes. The shut-in test continued for approximately 2 to 5 minutes. If the vacuum pressure remained constant for the duration of the shut-in test, the test was considered successful (leak free). If the vacuum pressure changed, the shut-in test was discontinued, the manifold fittings were double checked and tightened, and the shut-in test was repeated until the vacuum pressure remained constant.
- **Leak Detection:** Leaks in the sampling system could cause the dilution of analytical samples with ambient air. The leak-detection compound helium was used to evaluate whether leaks are present in the sampling equipment. With the exception of the tubing connections and sampling port, all of the manifold connections were successfully leak tested prior to sampling; therefore, only the tubing connections and sampling port could be possible sources of leakage. A shroud enclosed the sample train and helium gas was pumped into the shroud for the duration of sample collection in order to test for sample-train leaks and the well-head integrity. The helium was maintained at a concentration of at least 20 percent (%) within the shroud. The shroud helium-concentrations were documented on field datasheets allowing for calculation of the magnitude of atmospheric leakage if needed. The RWQCB and the DTSC allow for a maximum 5% leakage of ambient air into a sample container before the results are considered to be compromised. For example, with 20% helium maintained within the shroud, any helium detection over 1% in the sample indicates the sample may be compromised.
- **Purge Volume – Vapor Probes:** Following the shut-in test, the tubing and filter-pack void space volume were purged of three volumes of vapor.
- **Purging:** Prior to sample collection, purging of the air within the manifold and tubing was performed in order to collect samples representative of the subsurface soil vapor conditions. Purging was conducted using either a Gillian Gilair pump or a syringe at a consistent flow

rate of 150 mL/min. Purge volume was monitored either by counting the number of syringe pulls or by reading the volume purged on the electric pump.

- **Sample Collection:** Subsequent to purging, the purge valve was closed and the sample canister valve opened to begin sample collection. The sampling was monitored by change in pressure. The sampling start time, initial sample canister vacuum, end time, and final vacuum were recorded on soil vapor sampling data sheets. Sample canister valves were closed when the remaining vacuum was approximately -5 in. Hg and prior to reaching 0 in. Hg, which would indicate that no vacuum remained in the canister.
- **Sample Handling:** Upon collection, each sample was labeled with the sample identification, date and time of collection, and analytical method requested. This information was also recorded on a chain of custody supplied by the laboratory. Samples were delivered to a state-certified analytical laboratory the day after sample collection.
- **Sample Identification:** Soil vapor probe samples were identified with letters SV (to denote soil vapor probe), and SSV (to denote sub-slab soil vapor probe) followed by a unique number for each probe.

3.2 Laboratory Analyses

Soil vapor samples were submitted to McCampbell Analytical, Inc. (MAI), a California-certified analytical laboratory. The laboratory analytical report is presented in Appendix B. The soil vapor samples were analyzed for VOCs using United States Environmental Protection Agency (US EPA) Method TO-15 and for fixed gas oxygen and tracer gas helium ASTM Method D 1946.

4 SOIL VAPOR SAMPLING RESULTS

Soil vapor analytical results are presented in Tables 1 and 2. Soil vapor results were compared to RWQCB Residential and Commercial ESLs for Subslab/Soil Vapor, and gasoline constituent results were also compared to the SWRCB LTCP criteria. Current select soil vapor data exceeding ESLs are graphically shown on Figure 4. The laboratory analytical report is provided in Appendix B, and a discussion of the analytical results is presented below.

4.1 Volatile Organic Compounds

During the November 20, 2024 soil vapor sampling event, twelve VOCs were detected above laboratory reporting limits (RLs). A detailed list of VOC detections is below:

- Bromomethane, carbon disulfide, cyclohexane, dichlorodifluoromethane, ethylbenzene, styrene, toluene, TCE, 1,2,4-trimethylbenzene, and total xylenes were detected at concentrations below their respective residential ESLs, if established.
- Benzene was detected at 7.8 $\mu\text{g}/\text{m}^3$ in the SV-4 sample, which exceeds the 3.2 $\mu\text{g}/\text{m}^3$ Residential ESL and is below the 14 $\mu\text{g}/\text{m}^3$ Commercial ESL. The detection is also below SWRCB LTCP criteria for residential or commercial use with no bioattenuation zone. Benzene was not detected in any other soil vapor samples collected in November 2024.

- PCE was detected at 7.7, 89, 190 and 5.1 $\mu\text{g}/\text{m}^3$ in SV-1, SSV-2, SSV-3 and SV-4, respectively. The concentrations detected in SSV-2 and SSV-3 exceed both the Residential ESL of 15 $\mu\text{g}/\text{m}^3$ and the Commercial ESL of 67 $\mu\text{g}/\text{m}^3$.

4.2 Leak Detection Agent

No helium was detected at or above the laboratory report limit in any soil vapor samples collected this event.

All soil vapor analytical results are considered valid.

4.3 Fixed Gases

Oxygen as a fixed gas was reported at 35% for all soil vapor samples collected this event. These concentrations exceed atmospheric oxygen levels and are considered anomalous.

5 CONCLUSIONS

Ninyo & Moore conducted additional soil vapor sampling on November 20, 2024 to evaluate potential contamination to shallow soil vapor and soil vapor concentration seasonal variability at the Site. Based on the results of the November 2024 soil vapor sampling, Ninyo & Moore presents the following conclusions:

- Benzene was detected in only one sample (soil vapor well SV-4), at a concentration that exceeded the Residential ESL, but is below the Commercial ESL. Current concentrations are consistent with concentrations detected in April 2024.

As noted in the Phase II ESA, the benzene exceedances may be related to a petroleum fuel release from the former UST located on the south side of the Site. Therefore, the benzene concentrations were also compared to the SWRCB LTCP. The detections are below the residential LTCP criteria. Based on these comparisons to the LTCP criteria, the benzene concentrations detected in Site soil vapor are unlikely to present a significant vapor intrusion risk to the current or future Site building occupants.

- PCE concentrations exceeded both the Residential and Commercial ESLs in SSV-2 and SSV-3, and have increased compared to concentrations from April 2024. Concentrations in SSV-2 appear to be fluctuating, and concentrations from SSV-3, are increasing.

The source of the PCE concentrations is likely the adjacent My Cleaners, which is an open case listed on the SWRCB GeoTracker database (Case No. 559210).

- As noted above, the fixed gas oxygen concentrations are anomalous. It is possible that remedial activities at the adjacent My Cleaners site may be affecting sub-slab and soil vapor conditions.

6 RECOMMENDATIONS

Ninyo & Moore recommends submitting this data to the San Mateo County Groundwater Protection Program (GPP) to assist in their evaluation of the adjacent My Cleaners open case under their oversight, especially as that site is undergoing remediation. If the City decides to redevelop the Site, we recommend meeting with the GPP to discuss the redevelopment plans and environmental data to develop a strategy to complete the redevelopment while protecting human health and the environment. Ninyo & Moore also recommends conducting additional soil vapor monitoring in April or May 2025 to continue to monitor VOC and oxygen concentrations; in particular at SSV-2 and SSV-3 to further assess PCE trends.

7 LIMITATIONS

The environmental services described in this report have been conducted in general accordance with current regulatory guidelines and the standard-of-care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report. Variations in Site conditions may exist and conditions not observed or described in this report may be encountered during subsequent activities. Please also note that this study did not include an evaluation of geotechnical conditions or potential geologic hazards.

Ninyo & Moore's opinions and recommendations regarding environmental conditions, as presented in this report, are based on limited subsurface assessment and chemical analysis. Further assessment of potential adverse environmental impacts from past on-Site and/or nearby use of hazardous materials may be accomplished by a more comprehensive assessment. The samples collected and used for testing, and the observations made, are believed to be representative of the area(s) evaluated; however, conditions can vary significantly between sampling locations. Variations in soil and/or groundwater conditions will exist beyond the points explored in this evaluation.

The environmental interpretations and opinions contained in this report are based on the results of laboratory tests and analyses intended to detect the presence and concentration of specific chemical or physical constituents in samples collected from the Site. The testing and analyses have been conducted by an independent laboratory that is certified by the State of California to conduct such tests. Ninyo & Moore has no involvement in, or control over, such testing and analysis. Ninyo & Moore, therefore, disclaims responsibility for any inaccuracy in such laboratory results.

Our conclusions, recommendations, and opinions are based on an analysis of the observed Site conditions. It should be understood that the conditions of a Site could change with time as a result of natural processes or the activities of man at the Site or nearby Sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information, or has questions regarding content, interpretations presented, or completeness of this document.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

8 REFERENCES

- Cal EPA / RWQCB / DTSC, 2015. Advisory, Active Soil Gas Investigations; California Environmental Protection Agency / Regional Water Quality Control Board/ California Department of Toxic Substance Control; dated July.
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- Ninyo & Moore, 2018. Phase II Environmental Site Assessment and Geophysical Survey Report, 1 Chestnut Avenue, 1010 El Camino Real, 33 Arroyo Drive and 81 Arroyo Drive Properties, South San Francisco, California. Dated January 15.
- Ninyo & Moore, 2021. Phase I Environmental Site Assessment, Municipal Services Building, South San Francisco, California. Dated April 20.
- Ninyo & Moore, 2022. Phase II Environmental Site Assessment, 33 Arroyo Drive, South San Francisco, California. Dated November 19.
- San Francisco Bay Area Regional Water Quality Control Board (RWQCB), 2019. Environmental Screening Levels, San Francisco Bay Regional Water Quality Control Board. Dated February.



TABLES

Table 1 – Soil Vapor Analytical Results - VOCs

Sample ID	Sample Date	Depth (feet bgs)	Acetone	Acrylonitrile	Benzene	Bromomethane	2-Butanone (MEK)	Carbon Disulfide	Chloroform	Chloromethane	Cyclohexane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Dichlorodifluoromethane	Ethanol	Ethylbenzene	4-Ethyltoluene	Heptane	Hexane	Methylene Chloride	4-Methyl-2-pentanone (MIBK)	Styrene	Tetrachloroethene (PCE)	Toluene	Trichloroethene (TCE)	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl Chloride	Xylenes, Total	Others VOCs
					µg/m³																										
SV-1	3/21/2022	5.0	ND<60	ND<1.1	4.3	6.8	ND<15	6.4	3.4	3.1	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	19	4.2	ND<21	ND<18	ND<8.8	2.8	ND<2.2	5.4	44	ND<2.8	17	8.3	ND<0.26	74	ND
SV-1	7/19/2022	5.0	ND<60	ND<1.1	ND<1.6	60	ND<15	ND<1.6	ND<2.5	7.5	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	7.4 B	ND<1.9	ND<2.8	ND<2.5	ND<2.5	ND<0.26	ND<2.2	ND
SV-1	5/17/2023	5.0	ND<60	ND<1.1	ND<1.6	120	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	ND<3.5	ND<1.9	ND<2.8	ND<2.5	ND<2.5	ND<0.26	ND<2.2	ND
SV-1	9/29/2023	5.0	ND<60	ND<1.1	ND<1.6	33	ND<15	ND<1.6	ND<2.5	1.7	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	6.5	ND<1.9	ND<2.8	ND<2.5	ND<2.5	ND<0.26	ND<2.2	ND
SV-1	4/3/2024	5.0	ND<61	ND<1.1	ND<1.6	11	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<96	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.9	ND<2.1	ND<2.2	4.9	ND<1.9	ND<2.8	ND<2.5	ND<2.5	ND<0.26	ND<2.2	ND
SV-1	11/20/2024	5.0	ND<60	ND<1.1	ND<1.6	2.7	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	7.7	ND<1.9	ND<2.8	ND<2.5	ND<2.5	ND<0.26	<4.4	ND
SV-2	3/21/2022	5.0	130	ND<1.1	25	ND<1.9	35	12	ND<2.5	ND<1.0	28	6.7	510	140	ND<2.5	ND<95	16	6.1	27	28	ND<8.8	8.7	ND<2.2	ND<3.5	35	17	22	9.8	74	70	ND
SV-2	7/19/2022	5.0	Not sampled due to high back pressure during purging																												
SV-2	5/17/2023	5.0	Not sampled due to high back pressure during purging																												
SSV-2	9/29/2023	sub-slab	ND<60	ND<1.1	ND<1.6	ND<1.9	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	180	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	72	10	12	ND<2.5	ND<2.5	ND<0.26	7	ND
SSV-2	4/3/2024	sub-slab	ND<61	ND<1.1	ND<1.6	ND<1.9	ND<15	ND<1.6	ND<2.6	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.6	160	ND<2.2	ND<2.6	ND<21	ND<18	15	ND<2.1	ND<2.2	7.9	ND<1.9	ND<2.9	ND<2.6	ND<2.6	ND<0.27	ND<2.2	ND
SSV-2	11/20/2024	sub-slab	ND<60	ND<1.1	ND<1.6	ND<1.9	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	2.5	ND<95	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	2.4	89	ND<1.9	13	ND<2.5	ND<2.5	ND<0.26	7.3	ND
SV-3	3/21/2022	5.0	Not sampled due to high back pressure during purging																												
SV-3	7/19/2022	5.0	Not sampled due to high back pressure during purging																												
SV-3	5/17/2023	5.0	Not sampled due to high back pressure during purging																												
SSV-3	9/29/2023	sub-slab	ND<60	ND<1.1	ND<1.6	ND<1.9	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	34	3.7	6.7	ND<2.5	ND<2.5	ND<0.26	ND<2.2	ND
SSV-3	4/3/2024	sub-slab	ND<62	ND<1.1	ND<1.7	ND<2.0	ND<16	ND<1.7	ND<2.6	ND<1.0	ND<19	ND<2.1	2.4	ND<2.1	ND<2.6	150	ND<2.3	ND<2.6	ND<22	ND<19	ND<9.1	ND<2.2	ND<2.3	48	ND<2.0	9.2	ND<2.6	ND<2.6	ND<0.27	ND<2.3	ND
SSV-3	11/20/2024	sub-slab	ND<61	ND<1.1	ND<1.6	ND<1.9	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	2.6	ND<96	ND<2.2	ND<2.5	ND<21	ND<18	ND<8.9	ND<2.1	ND<2.2	190	ND<1.9	13	ND<2.5	ND<2.5	ND<0.26	ND<4.5	ND
SV-4	3/21/2022	5.0	77	6.8	15	2.3	16	18	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	19	5	66	41	ND<8.8	ND<2.1	ND<2.2	ND<3.5	46	ND<2.8	16	8.2	ND<0.26	70	ND
SV-4	7/19/2022	5.0	ND<60	ND<1.1	11	ND<1.9	ND<15	3.5	ND<2.5	ND<1.0	66	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<96	13	ND<2.5	ND<21	29	ND<8.9	ND<2.1	ND<2.2	7.7 B	25	ND<2.8	14	7.9	ND<0.26	55	ND
SV-4	5/17/2023	5.0	ND<60	ND<1.1	7.7	86	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	7.2	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	ND<3.5	5.5	ND<2.8	5.4	ND<2.5	ND<0.26	23	ND
SV-4	9/29/2023	5.0	ND<60	ND<1.1	11	17	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	12	2.9	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	ND<3.5	7.7	ND<2.8	10	ND<2.5	ND<0.26	44	ND
SV-4	4/3/2024	5.0	ND<61	ND<1.1	9.3	25	ND<15	ND<1.6	ND<2.5	ND<1.0	ND<18	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<97	6	ND<2.5	ND<21	ND<18	ND<8.9	ND<2.1	ND<2.2	ND<3.6	3.4	ND<2.8	8.4	ND<2.5	ND<0.26	24	ND
SV-4	11/20/2024	5.0	ND<60	ND<1.1	7.8	4.0	ND<15	1.8	ND<2.5	ND<1.0	46	ND<2.0	ND<2.0	ND<2.0	ND<2.5	ND<95	5.6	ND<2.5	ND<21	ND<18	ND<8.8	ND<2.1	ND<2.2	5.1	3.1	ND<2.8	11	ND<2.5	ND<0.26	23	ND

Screening Criteria

Residential ESL ¹	1,100,000	NE	3.2	170	170,000	NE	4.1	3,100	NE	2,400	280	2,800	NE	NE	37	NE	NE	NE	NE	34	100,000	31,000	15	10,000	16	NE	NE	0.32	3,500	Various
Commercial ESL ²	4,500,000	NE	14	730	730,000	NE	18	13,000	NE	10,000	1,200	12,000	NE	NE	160	NE	NE	NE	NE	410	440,000	130,000	67	44,000	100	NE	NE	5.2	15,000	Various
LTCP Residential/Commercial ³	NE	NE	85/280	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	1,100/3,600	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

Notes:

VOCs - volatile organic compous analyzed using United States Environmental Protection Agency Method TO-15

ID - identification

bgs - below ground surface

µg/m³ - micrograms per cubic meter

ND<X - not detected at or above the laboratory reporting limit X

B - analyte detected in the associated Method Blank at a concentration greater than 1/10 the reported sample result

--- not analyzed

ESL - San Francisco Bay Regional Water Control Board (RWQCB) environmental screening level

LTCP - State Water Resources Control Board (SWRCB) Low-Threat Underground Storage Tank Case Closure Policy

NE - screening level not established

¹ = RWQCB Subslab/Soil Gas ESL, Vapor Intrusion: Human Health Risk Levels (Table SG-1), Residential, Cancer risk /non-cancer hazard, 2019 (Rev.2). Most conservative value shown.

² = RWQCB Subslab/Soil Gas ESL, Vapor Intrusion: Human Health Risk Levels (Table SG-1), Commercial, Cancer risk /non-cancer hazard, 2019 (Rev.2). Most conservative value shown.

³ = SWRCB LTCP, 2012. Petroleum Vapor Intrusion to Indoor Air, Scenario 4 with no bioattenuation zone, residential/commercial

Results in Bold equal or exceed ESLs

Table 2 – Soil Vapor Analytical Results - Fixed Gases

Sample ID	Sample Date	Depth (feet bgs)	Helium	Oxygen
			%	
SV-1	3/21/2022	5.0	ND<0.050	6.4
SV-1	7/19/2022	5.0	ND<0.050	5.0
SV-1	5/17/2023	5.0	ND<0.050	3.4
SV-1	9/29/2023	5.0	ND<0.050	6.6
SV-1	4/3/2024	5.0	ND<0.050	4.1
SV-1	11/20/2024	5.0	ND<0.050	35
SV-2	3/21/2022	5.0	ND<0.050	1.1
SV-2	7/19/2022	5.0	Not sampled due to high back pressure during purging	
SV-2	5/17/2023	5.0	Not sampled due to high back pressure during purging	
SSV-2	9/29/2023	sub-slab	ND<0.050	19
SSV-2	4/3/2024	sub-slab	0.13	28
SSV-2	11/20/2024	sub-slab	ND<0.050	35
SV-3	3/21/2022	5.0	Not sampled due to high back pressure during purging	
SV-3	7/19/2022	5.0	Not sampled due to high back pressure during purging	
SV-3	5/17/2023	5.0	Not sampled due to high back pressure during purging	
SSV-3	9/29/2023	sub-slab	ND<0.050	0.58
SSV-3	4/3/2024	sub-slab	ND<0.052	15
SSV-3	11/20/2024	sub-slab	ND<0.051	35
SV-4	3/21/2022	5.0	ND<0.050	0.98
SV-4	7/19/2022	5.0	ND<0.050	0.77
SV-4	5/17/2023	5.0	ND<0.050	0.44
SV-4	9/29/2023	5.0	ND<0.050	19
SV-4	4/3/2024	5.0	ND<0.051	0.9
SV-4	11/20/2024	5.0	ND<0.050	35

Notes:

Fixed gases analyzed using ASTM D 1946

ID - identification

bgs - below grou surface

% - percent

ND<X - not detected at or above the laboratory reporting limit X



FIGURES

403151011.dwg 01/15/2025 AEK



NOTE: DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE | REFERENCE: USGS, 2018

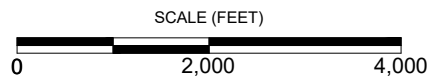


FIGURE 1

LEGEND

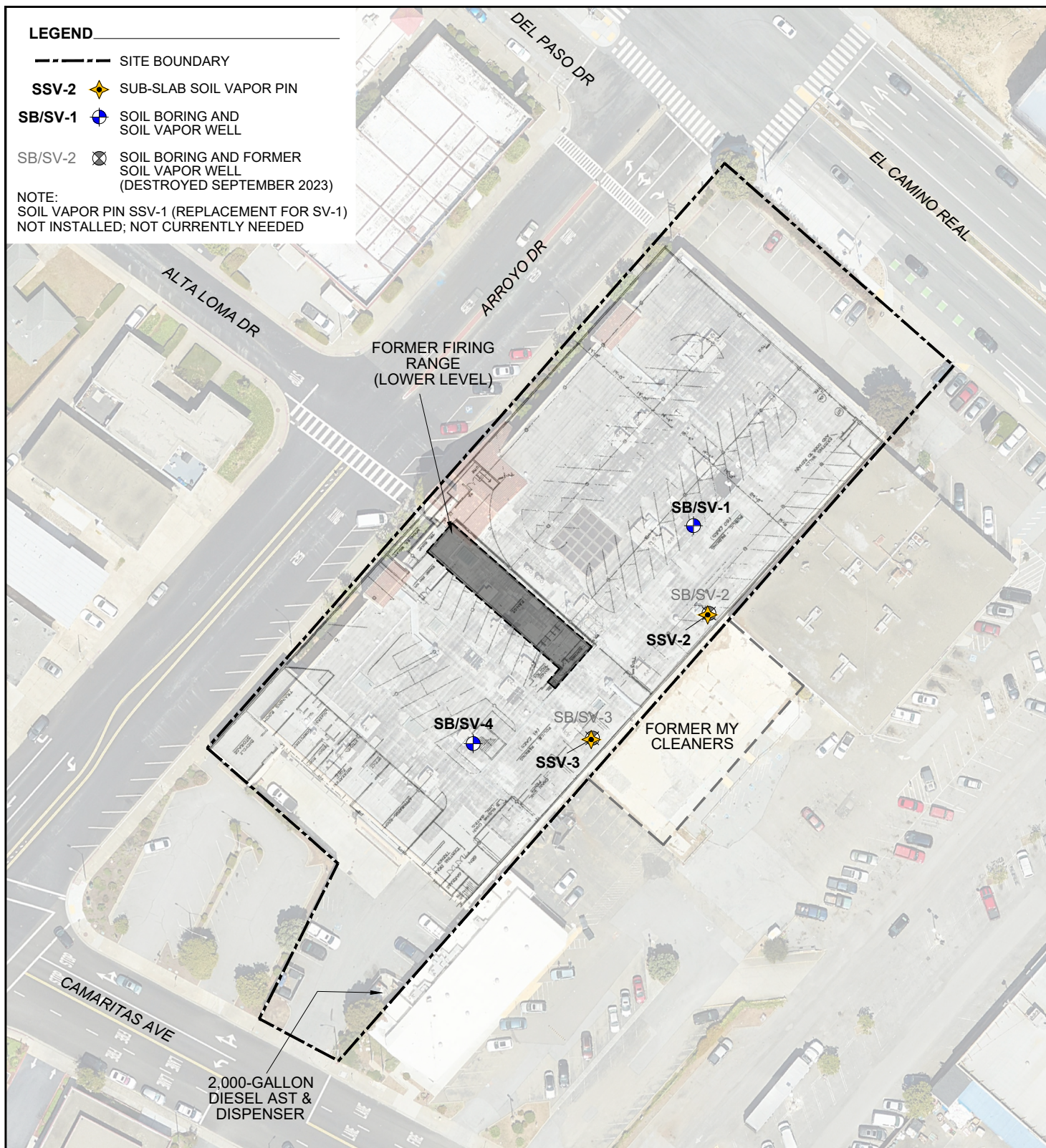
----- SITE BOUNDARY

SSV-2  SUB-SLAB SOIL VAPOR PIN

SB/SV-1  SOIL BORING AND SOIL VAPOR WELL

SB/SV-2  SOIL BORING AND FORMER SOIL VAPOR WELL (DESTROYED SEPTEMBER 2023)

NOTE:
SOIL VAPOR PIN SSV-1 (REPLACEMENT FOR SV-1)
NOT INSTALLED; NOT CURRENTLY NEEDED



NOTE: DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE
REFERENCES: GOODWIN B. STEINBERG ASSOCIATES, 1979; GOOGLE EARTH, 2023



SCALE (FEET)

0 80 160

FIGURE 2

LEGEND

----- SITE BOUNDARY

SSV-2  SUB-SLAB SOIL VAPOR PIN

SB/SV-1  SOIL BORING AND SOIL VAPOR WELL

SB/SV-2  SOIL BORING AND FORMER SOIL VAPOR WELL (DESTROYED SEPTEMBER 2023)

SAMPLE ID, DATE, DEPTH, AND RESULTS, IN MICROGRAMS PER CUBIC METER

SV-1				
DATE	04/03/24			
FT	5.0	R	C	
BENZ	<1.6	3.2	14	
cis	<2.0	280	1,200	
PCE	4.9	15	67	
TCE	<2.8	16	100	
VC	<0.26	0.32	5.2	

NOTES:

SS = SUB-SLAB
 BENZ = BENZENE
 CIS = cis-1,2-DICHLOROETHENE
 PCE = TETRACHLOROETHENE
 TCE = TRICHLOROETHENE
 VC = VINYL CHLORIDE
 NS = NOT SAMPLED; HIGH BACK PRESSURE DURING PURGING
 <X = NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
 B = ANALYTE DETECTED IN METHOD BLANK
 R = RESIDENTIAL ESL
 C = COMMERCIAL ESL
 RESULTS IN **BOLD** EQUAL OR EXCEED ESL

FORMER FIRING RANGE (LOWER LEVEL)

SV-1						
DATE	03/21/22	07/19/22	05/17/23	09/29/23	04/03/24	11/20/24
FT	5.0	5.0	5.0	5.0	5.0	5.0
BENZ	4.3	<1.6	<1.6	<1.6	<1.6	<1.6
cis	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PCE	5.4	7.4 B	<3.5	6.5	4.9	7.7
TCE	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
VC	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26

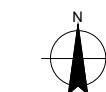
SV-2			
DATE	03/21/22	07/19/22	05/17/23
FT	5.0	5.0	5.0
BENZ	25		
cis	510		
PCE	<3.5	NS	NS
TCE	17		
VC	74		

SSV-2			
DATE	09/29/23	04/03/24	11/20/24
FT	SS	SS	SS
BENZ	<1.6	<1.6	<1.6
cis	<2.0	<2.0	<2.0
PCE	72	7.9	89
TCE	12	<2.9	13
VC	<0.26	<0.27	<0.26

SV-4						
DATE	03/21/22	07/19/22	05/17/23	09/29/23	04/03/24	11/20/24
FT	5.0	5.0	5.0	5.0	5.0	5.0
BENZ	15	11	7.7	11	9.3	9.3
cis	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
PCE	<3.5	7.7 B	<3.5	<3.5	<3.6	<3.6
TCE	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
VC	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26

SSV-3			
DATE	09/29/23	04/03/24	11/20/24
FT	SS	SS	SS
BENZ	<1.6	<1.7	<1.6
cis	<2.0	2.4	<2.0
PCE	34	48	190
TCE	6.7	9.2	13
VC	<0.26	<0.27	<0.26

SV-3			
DATE	03/21/22	07/19/22	05/17/23
FT	5.0	5.0	5.0
BENZ			
cis			
PCE	NS	NS	NS
TCE			
VC			



SCALE (FEET)

0 80 160

NOTE: DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE
 REFERENCES: GOODWIN B. STEINBERG ASSOCIATES, 1979; GOOGLE EARTH, 2023

FIGURE 3

LEGEND

----- SITE BOUNDARY

SSV-2  SUB-SLAB SOIL VAPOR PIN

SB/SV-1  SOIL BORING AND SOIL VAPOR WELL

SB/SV-2  SOIL BORING AND FORMER SOIL VAPOR WELL (DESTROYED SEPTEMBER 2023)

SAMPLE ID, DATE, DEPTH, AND RESULTS, IN MICROGRAMS PER CUBIC METER

SV-1				
DATE	04/03/24			
FT	5.0	R	C	
BENZ	<1.6	3.2	14	
cis	<2.0	280	1,200	
PCE	4.9	15	67	
TCE	<2.8	16	100	
VC	<0.26	0.32	5.2	

NOTES:

SS = SUB-SLAB

BENZ = BENZENE

CIS = cis-1,2-DICHLOROETHENE

PCE = TETRACHLOROETHENE

TCE = TRICHLOROETHENE

VC = VINYL CHLORIDE

<X = NOT DETECTED AT OR ABOVE

LABORATORY REPORTING LIMIT

R = RESIDENTIAL ESL

C = COMMERCIAL ESL

RESULTS IN **BOLD** EQUAL OR EXCEED ESL

FORMER FIRING RANGE (LOWER LEVEL)

SB/SV-1

SB/SV-2

SSV-2

SB/SV-4

SB/SV-3

SSV-3

FORMER MY CLEANERS

SV-1

DATE	11/20/24
FT	5.0
BENZ	<1.6
cis	<2.0
PCE	7.7
TCE	<2.8
VC	<0.26

SSV-2

DATE	11/20/24
FT	SS
BENZ	<1.6
cis	<2.0
PCE	89
TCE	13
VC	<0.26

SSV-3

DATE	11/20/24
FT	SS
BENZ	<1.6
cis	<2.0
PCE	190
TCE	13
VC	<0.26

SV-4

DATE	11/20/24
FT	5.0
BENZ	9.3
cis	<2.0
PCE	<3.6
TCE	<2.8
VC	<0.26

2,000-GALLON DIESEL AST & DISPENSER

NOTE: DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE
REFERENCES: GOODWIN B. STEINBERG ASSOCIATES, 1979; GOOGLE EARTH, 2023



SCALE (FEET)

0 80 160

FIGURE 4

SELECT SOIL VAPOR DATA

SOIL VAPOR SAMPLING REPORT - FOURTH QUARTER 2024

33 ARROYO DRIVE

SOUTH SAN FRANCISCO, CALIFORNIA

403151011 | 04/25

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants



APPENDIX A

Soil Vapor Sampling Sheets



Geotechnical & Environmental Sciences Consultants

SOIL VAPOR SAMPLING DATA SHEET

Client: <i>City of South SF</i>				Date: <i>11/20/24</i>		Personnel: <i>LXS</i>			
Project No.: <i>403151011</i>				Weather: <i>Low clouds / Rainy</i>					
Project Name: <i>SSF NSB</i>				Ambient Temp (°F): <i>58</i>					
Site Location: <i>33 Arroyo Drive, San Jose</i>				Ambient Barometric Pressure (inHg):					
Well Details	ID: <i>SV-1</i>				Calculations				
	Depth of Probe (ft.):	<i>5</i>	e. Tubing Length (ft.):	<i>7</i>	j. Tubing Vol. = (e * f)	ml			
	a. Probe Diameter (in.):	<i>0.15</i>	f. Conversion Factor [(a/2) ² * 617]:		k. Sand Pack Vol = (c * g * h)	ml			
	b. Boring Diameter (in.):	<i>2.25</i>	g. Conversion Factor [(b/2) ² * 617]:		l. Dry Bent. Vol = (d * g * i)	ml			
	c. Sand Pack Height (ft.):	<i>12</i>	h. Sand Porosity (%):		1-Purge Volume = (j + k + l)	<i>518</i> ml			
	d. Dry Bentonite Height (ft.):	<i>12</i>	i. Bentonite Porosity (%):		3-Purge Volumes =	<i>1556</i> ml			
Pre-Purge Checks	Pre-Purge check for presence of measurable water: <i>No water</i>								
	Leak Testing Compound: <i>Helium</i>			Leak Testing Meter (if applicable): <i>M6D 8002</i>					
	Pre-Purge Leak check using Helium Leak Detector (if applicable):			%	Helium Shroud Concentration: %				
	Vacuum Shut-In Test (1-5 minutes):	Start Time: <i>0739</i>	End Time: <i>0744</i>	Duration (min.): <i>5</i>					
	Start inHg: <i>-21.5</i>	End inHg: <i>-21.5</i>	Pass or Fail: <i>Pass</i>						
Sample Data	Sample ID:	<i>SV-1</i>	Duplicate ID:	<i>—</i>	Sample Date:	<i>11/20/24</i>			
	Canister ID:	<i>1915-2602</i>	Canister ID:	<i>—</i>	COA Serial #:	<i>316-1450</i>			
	Initial Canister Vacuum (inHg)	<i>-29</i>	Initial Canister Vacuum (inHg)	<i>—</i>	COA Flow Rate (ml/min.)	<i>150</i>			
Purge	Purge Method:	<i>Pump</i>	Purge Flow Rate (ml/min.):	<i>160</i>	Calculated Duration of Purge:	<i>10.5</i>			
	Start Purge Time:	<i>0723</i>	End Purge Time:	<i>0733</i>	Actual Duration of Purge:	<i>11</i>			
Sample Collection and Tracer Gas Monitoring	Time Canister Opened:		<i>0747</i>	Initial Canister Vacuum (inHg)		<i>-29</i>	Initial Helium % in Shroud	<i>22.3</i>	
	Interval	Time	Canister Vacuum (inHg)	Measured Helium % in Shroud	Interval	Time	Canister Vacuum (inHg)	Measured Helium % in Shroud	
	2 min.	<i>0749</i>	<i>-21</i>	<i>22.1%</i>	35 min.				
	4 min.	<i>0751</i>	<i>-12</i>	<i>21.8%</i>	40 min.				
	6 min.				45 min.				
	8 min.				50 min.				
	10 min.				55 min.				
	15 min.				60 min.				
	20 min.				__ min.				
	25 min.				__ min.				
	30 min.				__ min.				
	Comments:								
	Time Canister Closed:		<i>0753</i>	Final Canister Vacuum (inHg)		<i>-5</i>	Final Helium % in Shroud		<i>21.3</i>
	Time of Sample Collection:						End Sample Date		<i>11/20/24</i>
TO-17	TO-17 VI Tube ID:				Dup. TO-17 VI Tube ID:				
	Sample Start Time:				Sample Start Time:				
	Sample End Time:				Sample End Time:				
	Duration (min.):				Duration (min.):				
	Total Volume Sampled (ml.):				Total Volume Sampled (ml.):				
Laboratory:		<i>HAI</i>							
Analyzed for:		<i>VOC by Method TO-15 & Fixed Gases - ASTM-D-1996</i>							

SOIL VAPOR SAMPLING DATA SHEET

Client: <u>City of South SF</u>		Date: <u>11/20/24</u>		Personnel: <u>LKS</u>	
Project No.: <u>40315104</u>		Weather: <u>Cloudy / Rainy</u>			
Project Name: <u>South SF MSB</u>		Ambient Temp (°F): <u>58</u>			
Site Location: <u>33 Anoyo Drive, South SF</u>		Ambient Barometric Pressure (inHg):			
Well Details	ID: <u>SSV-2</u>		Calculations		
	Depth of Probe (ft.)	<u>Sub-slab</u>	e. Tubing Length (ft.):	<u>4</u>	j. Tubing Vol. = (e * f)
	a. Probe Diameter (in.):	<u>0.15</u>	f. Conversion Factor [(a/2) ² * 617]:		k. Sand Pack Vol = (c * g * h)
	b. Boring Diameter (in.):	<u>0.625</u>	g. Conversion Factor [(b/2) ² * 617]:		l. Dry Bent. Vol = (d * g * i)
	c. Sand Pack Height (ft.):		h. Sand Porosity (%):		1-Purge Volume = (j + k + l)
	d. Dry Bentonite Height (ft.):		i. Bentonite Porosity (%):		3-Purge Volumes =
		<u>21.7</u> ml <u>65</u> ml			
Pre-Purge Checks	Pre-Purge check for presence of measurable water: <u>No water</u>				
	Leak Testing Compound: <u>Helium</u>		Leak Testing Meter (if applicable): <u>MGB 2002</u>		
	Pre-Purge Leak check using Helium Leak Detector (if applicable):		%	Helium Shroud Concentration:	%
	Vacuum Shut-In Test (1-5 minutes):	Start Time: <u>0811</u>	End Time: <u>0818</u>	Duration (min.):	<u>5</u>
		Start inHg: <u>-19</u>	End inHg: <u>-19</u>	Pass or Fail:	<u>Pass</u>
Sample Data	Sample ID: <u>SSV-2</u>	Duplicate ID: <u>—</u>	Sample Date: <u>11/20/24</u>		
	Canister ID: <u>R 1992-2019</u>	Canister ID: <u>—</u>	COA Serial #: <u>316-1327</u>		
	Initial Canister Vacuum (inHg)	<u>—</u>	COA Flow Rate (ml/min.): <u>150</u>		
Purge	Purge Method: <u>Squeeze</u>	Purge Flow Rate (ml/min.): <u>150</u>	Calculated Duration of Purge: <u>1</u>		
	Start Purge Time: <u>0805</u>	End Purge Time: <u>0806</u>	Actual Duration of Purge: <u>1</u>		
Sample Collection and Tracer Gas Monitoring	Time Canister Opened: <u>0826</u>		Initial Canister Vacuum (inHg): <u>-29</u>		Initial Helium % in Shroud: <u>33.9</u>
	Interval	Time	Canister Vacuum (inHg)	Measured Helium % in Shroud	Interval
	2 min.	<u>0828</u>	<u>-20</u>	<u>26.6%</u>	35 min.
	4 min.	<u>0830</u>	<u>-13</u>	<u>28.0%</u>	40 min.
	6 min.				45 min.
	8 min.				50 min.
	10 min.				55 min.
	15 min.				60 min.
	20 min.				min.
	25 min.				min.
	30 min.				min.
	Comments:				
Time Canister Closed: <u>0832</u>		Final Canister Vacuum (inHg): <u>-5</u>		Final Helium % in Shroud: <u>26.5</u>	
Time of Sample Collection:				End Sample Date: <u>11/20/24</u>	
TO-17	TO-17 VI Tube ID:		Dup. TO-17 VI Tube ID:		Sample Flow Rate (ml/min.):
	Sample Start Time:		Sample Start Time:		Comments:
	Sample End Time:		Sample End Time:		
	Duration (min.):		Duration (min.):		
	Total Volume Sampled (ml.):		Total Volume Sampled (ml.):		
Laboratory: <u>MAI</u>					
Analyzed for: <u>VOC's by TO-15 & Fixed Gases by ASTM D-1946</u>					



Geotechnical & Environmental Sciences Consultants

SOIL VAPOR SAMPLING DATA SHEET

Client: <u>City of South SF</u>				Date: <u>11/20/24</u>		Personnel: <u>LKS</u>		
Project No.: <u>40315001</u>				Weather: <u>Cloudy / Rainy</u>				
Project Name: <u>South SF MSB</u>				Ambient Temp (°F): <u>59</u>				
Site Location: <u>33 Arroyo Pk, South SF</u>				Ambient Barometric Pressure (inHg):				
Well Details	ID: <u>SSV-2</u>			Calculations				
	Depth of Probe (ft.): <u>Sub-slab</u>		e. Tubing Length (ft.): <u>4</u>		j. Tubing Vol. = (e * f)		ml	
	a. Probe Diameter (in.): <u>0.15</u>		f. Conversion Factor [(a/2) ² * 617]:		k. Sand Pack Vol = (c * g * h)		ml	
	b. Boring Diameter (in.): <u>0.625</u>		g. Conversion Factor [(b/2) ² * 617]:		l. Dry Bent. Vol = (d * g * i)		ml	
	c. Sand Pack Height (ft.):		h. Sand Porosity (%):		1-Purge Volume = (j + k + l)		<u>21.7</u> ml	
	d. Dry Bentonite Height (ft.):		i. Bentonite Porosity (%):		3-Purge Volumes =		<u>65</u> ml	
Pre-Purge Checks	Pre-Purge check for presence of measurable water: <u>No water</u>							
	Leak Testing Compound: <u>Helium</u>			Leak Testing Meter (if applicable): <u>MCD 2002</u>				
	Pre-Purge Leak check using Helium Leak Detector (if applicable):			%	Helium Shroud Concentration:		%	
	Vaccum Shut-In Test (1-5 minutes):		Start Time:	End Time:	Duration (min.): <u>5</u>			
Sample Data	Sample ID: <u>SSV-3</u>		Duplicate ID: <u>—</u>		Sample Date: <u>11/20/24</u>			
	Canister ID: <u>R 2036-2660</u>		Canister ID: <u>—</u>		COA Serial #: <u>316-1324</u>			
	Initial Canister Vaccum (inHg):		Initial Canister Vaccum (inHg): <u>—</u>		COA Flow Rate (ml/min.): <u>150</u>			
Purge	Purge Method: <u>Synpge</u>		Purge Flow Rate (ml/min.): <u>150</u>		Calculated Duration of Purge:		<u>1</u>	
	Start Purge Time: <u>0854</u>		End Purge Time: <u>0855</u>		Actual Duration of Purge:		<u>1</u>	
Sample Collection and Tracer Gas Monitoring	Time Canister Opened: <u>0920</u>		Initial Canister Vaccum (inHg): <u>-20</u>		Initial Helium % in Shroud: <u>20.9</u>			
	Interval	Time	Canister Vaccum (inHg)	Measured Helium % in Shroud	Interval	Time	Canister Vaccum (inHg)	
	2 min.	<u>0922</u>	<u>-20</u>	<u>24.5%</u>	35 min.			
	4 min.	<u>0924</u>	<u>-12</u>	<u>27.3%</u>	40 min.			
	6 min.				45 min.			
	8 min.				50 min.			
	10 min.				55 min.			
	15 min.				60 min.			
	20 min.				__ min.			
	25 min.				__ min.			
30 min.				__ min.				
Comments:								
Time Canister Closed: <u>0926</u>		Final Canister Vaccum (inHg): <u>-5</u>		Final Helium % in Shroud: <u>26.8</u>				
Time of Sample Collection:				End Sample Date: <u>11/20/24</u>				
TO-17	TO-17 VI Tube ID:		Dup. TO-17 VI Tube ID:		Sample Flow Rate (ml/min.):			
	Sample Start Time:		Sample Start Time:		Comments:			
	Sample End Time:		Sample End Time:					
	Duration (min.):		Duration (min.):					
	Total Volume Sampled (ml.):		Total Volume Sampled (ml.):					
Laboratory: <u>MAI</u>								
Analyzed for: <u>VOC's by TO-15 & Fixed Gasses by ASTM D-1946</u>								



Geotechnical & Environmental Sciences Consultants

SOIL VAPOR SAMPLING DATA SHEET

Client: <i>City of South SF</i>			Date: <i>11/20/24</i>		Personnel: <i>LXS</i>	
Project No.: <i>603151011</i>			Weather: <i>Low Clouds / Rainy</i>			
Project Name: <i>S. San Francisco HSB</i>			Ambient Temp (°F): <i>56</i>			
Site Location: <i>33 Alvarado Dr, South SF</i>			Ambient Barometric Pressure (inHg):			
Well Details	ID: <i>SU-4</i>		Calculations			
	Depth of Probe (ft.): <i>5</i>	e. Tubing Length (ft.): <i>7</i>	j. Tubing Vol. = (e * f)		ml	
	a. Probe Diameter (in.): <i>0.15</i>	f. Conversion Factor [(a/2) ² * 617]:	k. Sand Pack Vol = (c * g * h)		ml	
	b. Boring Diameter (in.): <i>2.25</i>	g. Conversion Factor [(b/2) ² * 617]:	l. Dry Bent. Vol = (d * g * i)		ml	
	c. Sand Pack Height (ft.): <i>12</i>	h. Sand Porosity (%):	1-Purge Volume = (j + k + l)		ml	
	d. Dry Bentonite Height (ft.): <i>12</i>	i. Bentonite Porosity (%):	3-Purge Volumes =		ml	
Pre-Purge Checks	Pre-Purge check for presence of measurable water: <i>No water</i>					
	Leak Testing Compound: <i>Helium</i>			Leak Testing Meter (if applicable): <i>MCD 2002</i>		
	Pre-Purge Leak check using Helium Leak Detector (if applicable):			%	Helium Shroud Concentration:	%
	Vacuum Shut-In Test (1-5 minutes):	Start Time: <i>1008</i>	End Time: <i>1013</i>	Duration (min.): <i>5</i>		
		Start inHg: <i>-22</i>	End inHg: <i>-22</i>	Pass or Fail: <i>PASS</i>		
Sample Data	Sample ID: <i>SU-4</i>	Duplicate ID: <i>—</i>	Sample Date: <i>11/20/24</i>			
	Canister ID: <i>2011-2638</i>	Canister ID: <i>—</i>	COA Serial #: <i>316-675</i>			
	Initial Canister Vacuum (inHg): <i>-30</i>	Initial Canister Vacuum (inHg):	COA Flow Rate (ml/min.): <i>150</i>			
Purge	Purge Method: <i>Pump</i>	Purge Flow Rate (ml/min.): <i>150</i>	Calculated Duration of Purge: <i>10.5</i>			
	Start Purge Time: <i>0947</i>	End Purge Time: <i>0958</i>	Actual Duration of Purge: <i>11</i>			
Sample Collection and Tracer Gas Monitoring	Time Canister Opened: <i>1017</i>		Initial Canister Vacuum (inHg): <i>-30</i>		Initial Helium % in Shroud: <i>34.9</i>	
	Interval	Time	Canister Vacuum (inHg)	Measured Helium % in Shroud	Interval	Time
	2 min.	<i>1019</i>	<i>-22</i>	<i>80.5%</i>	35 min.	
	4 min.	<i>1021</i>	<i>-13</i>	<i>28.4%</i>	40 min.	
	6 min.				45 min.	
	8 min.				50 min.	
	10 min.				55 min.	
	15 min.				60 min.	
	20 min.				min.	
	25 min.				min.	
	30 min.				min.	
	Comments:					
	Time Canister Closed: <i>1022</i>		Final Canister Vacuum (inHg): <i>-5</i>		Final Helium % in Shroud: <i>26.9</i>	
Time of Sample Collection:				End Sample Date: <i>11/20/24</i>		
TO-17	TO-17 VI Tube ID:		Dup. TO-17 VI Tube ID:		Sample Flow Rate (ml/min.):	
	Sample Start Time:		Sample Start Time:		Comments:	
	Sample End Time:		Sample End Time:			
	Duration (min.):		Duration (min.):			
	Total Volume Sampled (ml.):		Total Volume Sampled (ml.):			
Laboratory: <i>NMI</i>						
Analyzed for: <i>VOC's by TO-15 & Fixed Gases - ASTM D-1946</i>						



APPENDIX B

Laboratory Analytical Report



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2411F09

Report Created for: Ninyo & Moore

1301 Marina Village Parkway, Suite 110
Alameda, CA 94501

Project Contact: Gregory Roberts

Project P.O.:

Project: 403151011; City of SSF-MSB

Project Location: 33 Arroyo Drive South SF

Project Received: 11/22/2024

Analytical Report reviewed & approved for release on 12/06/2024 by:

Jennifer Lagerbom

Project Manager

McC Campbell Analytical Inc. is not accredited for all the testing in this report. The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested.



Glossary of Terms & Qualifier Definitions

Client: Ninyo & Moore

WorkOrder: 2411F09

Project: 403151011; City of SSF-MSB

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CCV	Continuing Calibration Verification.
CCV REC (%)	% recovery of Continuing Calibration Verification.
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LCS2	Second LCS for the batch. Spike level is lower than that for the first LCS; applicable to method 1633.
LQL	Lowest Quantitation Level
MB	Method Blank
MB IS/SS % Rec	% Recovery of Internal Standard or Surrogate in Method Blank, if applicable
MB SS % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit ¹
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit ²
RPD	Relative Percent Difference
RRT	Relative Retention Time
RSD	Relative Standard Deviation
SNR	Surrogate is diluted out of the calibration range

¹ MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016. Values are based upon our default extraction volume/amount and are subject to change.

² RL is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.) Values are based upon our default extraction volume/amount and are subject to change.



Glossary of Terms & Qualifier Definitions

Client: Ninyo & Moore

WorkOrder: 2411F09

Project: 403151011; City of SSF-MSB

SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TNTC	"Too Numerous to Count;" greater than 250 colonies observed on the plate.
TZA	TimeZone Net Adjustment for sample collected outside of MAI's Coordinated Universal Time (UTC). (Adjustment for Daylight Saving is not accounted.)
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD/RSD is out of acceptance criteria.
F7	The LCS/LCSD recovery is above the upper control limit. The target analyte(s) were Not Detected (ND); therefore, the data is reportable.



Case Narrative

Client: Ninyo & Moore
Project: 403151011; City of SSF-MSB

Work Order: 2411F09
December 06, 2024

TO-15 ANALYSIS

McC Campbell Analytical Inc. is currently not accredited for TO15 and ASTM D 1946m.

All summa canisters are EVACUATED 5 days after the reporting of the results. Please call or email if a longer retention time is required.



Summary of Sample Pressure Report

Lab ID	Canister ID	Lab Prep Vacuum (psia)	Field Initial Vacuum (inHg)	Field Final Vacuum (inHg)	Lab Received Vacuum (psia)	Lab Received Vacuum (inHg)	Lab Final Vacuum / Pressure (psia)
2411F09-001A	1975-2602	0.22	-29	-5	13.01	-3.44	26.11
2411F09-002A	1992-2619	0.25	-29	-5	12.61	-4.26	25.3
2411F09-003A	2036-2660	0.24	-28	-5	12.16	-5.17	24.63
2411F09-004A	2011-2638	0.25	-30	-5	12.04	-5.42	24.14



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 11/26/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: ASTM D 1946-90
Analytical Method: ASTM D 1946-90
Unit: %

Atmospheric Gases

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-1	2411F09-001A	SoilGas	11/20/2024 07:53	GC51 2024-11-26 14-5	306790

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
NA	NA	PRE

Analytes	Result	RL	DE	Date Analyzed
Oxygen	35	0.40	1	11/26/2024 14:59

SSV-2	2411F09-002A	SoilGas	11/20/2024 08:32	GC51 2024-11-26 15-4	306790
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Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
NA	NA	PRE

Analytes	Result	RL	DE	Date Analyzed
Oxygen	35	0.40	1	11/26/2024 15:43

SSV-3	2411F09-003A	SoilGas	11/20/2024 09:26	GC51 2024-11-26 16-2	306790
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Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
NA	NA	PRE

Analytes	Result	RL	DE	Date Analyzed
Oxygen	35	0.40	1	11/26/2024 16:27



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 11/26/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: ASTM D 1946-90
Analytical Method: ASTM D 1946-90
Unit: %

Atmospheric Gases

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-4	2411F09-004A	SoilGas	11/20/2024 10:22	GC51 2024-11-26 17-1	306790

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
NA	NA	PRE

Analytes	Result	RL	DE	Date Analyzed
Oxygen	35	0.40	1	11/26/2024 17:12



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/02/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: ASTM D 1946-90
Analytical Method: ASTM D 1946-90
Unit: %

Helium

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-1	2411F09-001A	SoilGas	11/20/2024 07:53	GC26 1202240310.D	306976

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.01	26.11	PRE

Analytes	Result	RL	DE	Date Analyzed
Helium	ND	0.050	1	12/02/2024 17:58

SSV-2	2411F09-002A	SoilGas	11/20/2024 08:32	GC26 1202240311.D	306976
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Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.61	25.30	PRE

Analytes	Result	RL	DE	Date Analyzed
Helium	ND	0.050	1	12/02/2024 18:11

SSV-3	2411F09-003A	SoilGas	11/20/2024 09:26	GC26 1202240312.D	306976
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Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.16	24.63	PRE

Analytes	Result	RL	DE	Date Analyzed
Helium	ND	0.051	1	12/02/2024 18:24



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/02/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: ASTM D 1946-90
Analytical Method: ASTM D 1946-90
Unit: %

Helium

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-4	2411F09-004A	SoilGas	11/20/2024 10:22	GC26 1202240313.D	306976

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.04	24.14	PRE

Analytes	Result	RL	DE	Date Analyzed
Helium	ND	0.050	1	12/02/2024 18:36



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-1	2411F09-001A	SoilGas	11/20/2024 07:53	GC24 12022419.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.01	26.11	PRE

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	60	1	12/03/2024 03:01
Acrolein	ND	5.8	1	12/03/2024 03:01
Acrylonitrile	ND	1.1	1	12/03/2024 03:01
tert-Amyl methyl ether (TAME)	ND	2.1	1	12/03/2024 03:01
Benzene	ND	1.6	1	12/03/2024 03:01
Benzyl chloride	ND	2.7	1	12/03/2024 03:01
Bromodichloromethane	ND	1.4	1	12/03/2024 03:01
Bromoform	ND	5.3	1	12/03/2024 03:01
Bromomethane	2.7	1.9	1	12/03/2024 03:01
1,3-Butadiene	ND	1.1	1	12/03/2024 03:01
2-Butanone (MEK)	ND	15	1	12/03/2024 03:01
t-Butyl alcohol (TBA)	ND	16	1	12/03/2024 03:01
Carbon Disulfide	ND	1.6	1	12/03/2024 03:01
Carbon Tetrachloride	ND	1.3	1	12/03/2024 03:01
Chlorobenzene	ND	2.4	1	12/03/2024 03:01
Chloroethane	ND	1.3	1	12/03/2024 03:01
Chloroform	ND	2.5	1	12/03/2024 03:01
Chloromethane	ND	1.0	1	12/03/2024 03:01
Cyclohexane	ND	18	1	12/03/2024 03:01
Dibromochloromethane	ND	4.4	1	12/03/2024 03:01
1,2-Dibromo-3-chloropropane	ND	0.12	1	12/03/2024 03:01
1,2-Dibromoethane (EDB)	ND	0.078	1	12/03/2024 03:01
1,2-Dichlorobenzene	ND	3.0	1	12/03/2024 03:01
1,3-Dichlorobenzene	ND	3.0	1	12/03/2024 03:01
1,4-Dichlorobenzene	ND	3.0	1	12/03/2024 03:01
Dichlorodifluoromethane	ND	2.5	1	12/03/2024 03:01
1,1-Dichloroethane	ND	2.0	1	12/03/2024 03:01
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	12/03/2024 03:01
1,1-Dichloroethene	ND	2.0	1	12/03/2024 03:01
cis-1,2-Dichloroethene	ND	2.0	1	12/03/2024 03:01
trans-1,2-Dichloroethene	ND	2.0	1	12/03/2024 03:01
1,2-Dichloropropane	ND	2.4	1	12/03/2024 03:01
cis-1,3-Dichloropropene	ND	2.3	1	12/03/2024 03:01
trans-1,3-Dichloropropene	ND	2.3	1	12/03/2024 03:01

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-1	2411F09-001A	SoilGas	11/20/2024 07:53	GC24 12022419.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.01	26.11	PRE

Analytes	Result	RL	DF	Date Analyzed
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	12/03/2024 03:01
Diisopropyl ether (DIPE)	ND	2.1	1	12/03/2024 03:01
1,4-Dioxane	ND	1.9	1	12/03/2024 03:01
Ethanol	ND	95	1	12/03/2024 03:01
Ethyl acetate	ND	1.9	1	12/03/2024 03:01
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	12/03/2024 03:01
Ethylbenzene	ND	2.2	1	12/03/2024 03:01
4-Ethyltoluene	ND	2.5	1	12/03/2024 03:01
Freon 113	ND	3.9	1	12/03/2024 03:01
Heptane	ND	21	1	12/03/2024 03:01
Hexachlorobutadiene	ND	2.2	1	12/03/2024 03:01
Hexachloroethane	ND	4.9	1	12/03/2024 03:01
Hexane	ND	18	1	12/03/2024 03:01
2-Hexanone	ND	2.1	1	12/03/2024 03:01
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	12/03/2024 03:01
Methyl-t-butyl ether (MTBE)	ND	1.9	1	12/03/2024 03:01
Methylene chloride	ND	8.8	1	12/03/2024 03:01
Methyl methacrylate	ND	2.1	1	12/03/2024 03:01
Naphthalene	ND	2.7	1	12/03/2024 03:01
Styrene	ND	2.2	1	12/03/2024 03:01
1,1,1,2-Tetrachloroethane	ND	3.5	1	12/03/2024 03:01
1,1,2,2-Tetrachloroethane	ND	0.70	1	12/03/2024 03:01
Tetrachloroethene	7.7	3.5	1	12/03/2024 03:01
Tetrahydrofuran	ND	3.0	1	12/03/2024 03:01
Toluene	ND	1.9	1	12/03/2024 03:01
1,2,4-Trichlorobenzene	ND	3.8	1	12/03/2024 03:01
1,1,1-Trichloroethane	ND	2.8	1	12/03/2024 03:01
1,1,2-Trichloroethane	ND	2.8	1	12/03/2024 03:01
Trichloroethene	ND	2.8	1	12/03/2024 03:01
1,2,3-Trichloropropane	ND	3.1	1	12/03/2024 03:01
Trichlorofluoromethane	ND	2.9	1	12/03/2024 03:01
1,2,4-Trimethylbenzene	ND	2.5	1	12/03/2024 03:01
1,3,5-Trimethylbenzene	ND	2.5	1	12/03/2024 03:01
Vinyl Acetate	ND	18	1	12/03/2024 03:01

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-1	2411F09-001A	SoilGas	11/20/2024 07:53	GC24 12022419.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.01	26.11	PRE

Analytes	Result	RL	DE	Date Analyzed
Vinyl Chloride	ND	0.26	1	12/03/2024 03:01
m,p-Xylene	ND	4.4	1	12/03/2024 03:01
o-Xylene	ND	2.2	1	12/03/2024 03:01
Xylenes, Total	ND	4.4	1	12/03/2024 03:01
Surrogates	REC (%)	Limits		
1,2-DCA-d4	103	70-130		12/03/2024 03:01
Toluene-d8	96	70-130		12/03/2024 03:01
4-BFB	91	70-130		12/03/2024 03:01



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSV-2	2411F09-002A	SoilGas	11/20/2024 08:32	GC24 12022420.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.61	25.30	PRE

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	60	1	12/03/2024 03:40
Acrolein	ND	5.8	1	12/03/2024 03:40
Acrylonitrile	ND	1.1	1	12/03/2024 03:40
tert-Amyl methyl ether (TAME)	ND	2.1	1	12/03/2024 03:40
Benzene	ND	1.6	1	12/03/2024 03:40
Benzyl chloride	ND	2.7	1	12/03/2024 03:40
Bromodichloromethane	ND	1.4	1	12/03/2024 03:40
Bromoform	ND	5.3	1	12/03/2024 03:40
Bromomethane	ND	1.9	1	12/03/2024 03:40
1,3-Butadiene	ND	1.1	1	12/03/2024 03:40
2-Butanone (MEK)	ND	15	1	12/03/2024 03:40
t-Butyl alcohol (TBA)	ND	16	1	12/03/2024 03:40
Carbon Disulfide	ND	1.6	1	12/03/2024 03:40
Carbon Tetrachloride	ND	1.3	1	12/03/2024 03:40
Chlorobenzene	ND	2.4	1	12/03/2024 03:40
Chloroethane	ND	1.3	1	12/03/2024 03:40
Chloroform	ND	2.5	1	12/03/2024 03:40
Chloromethane	ND	1.0	1	12/03/2024 03:40
Cyclohexane	ND	18	1	12/03/2024 03:40
Dibromochloromethane	ND	4.4	1	12/03/2024 03:40
1,2-Dibromo-3-chloropropane	ND	0.12	1	12/03/2024 03:40
1,2-Dibromoethane (EDB)	ND	0.078	1	12/03/2024 03:40
1,2-Dichlorobenzene	ND	3.0	1	12/03/2024 03:40
1,3-Dichlorobenzene	ND	3.0	1	12/03/2024 03:40
1,4-Dichlorobenzene	ND	3.0	1	12/03/2024 03:40
Dichlorodifluoromethane	2.5	2.5	1	12/03/2024 03:40
1,1-Dichloroethane	ND	2.0	1	12/03/2024 03:40
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	12/03/2024 03:40
1,1-Dichloroethene	ND	2.0	1	12/03/2024 03:40
cis-1,2-Dichloroethene	ND	2.0	1	12/03/2024 03:40
trans-1,2-Dichloroethene	ND	2.0	1	12/03/2024 03:40
1,2-Dichloropropane	ND	2.4	1	12/03/2024 03:40
cis-1,3-Dichloropropene	ND	2.3	1	12/03/2024 03:40
trans-1,3-Dichloropropene	ND	2.3	1	12/03/2024 03:40

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSV-2	2411F09-002A	SoilGas	11/20/2024 08:32	GC24 12022420.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.61	25.30	PRE

Analytes	Result	RL	DF	Date Analyzed
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	12/03/2024 03:40
Diisopropyl ether (DIPE)	ND	2.1	1	12/03/2024 03:40
1,4-Dioxane	ND	1.9	1	12/03/2024 03:40
Ethanol	ND	95	1	12/03/2024 03:40
Ethyl acetate	ND	1.9	1	12/03/2024 03:40
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	12/03/2024 03:40
Ethylbenzene	ND	2.2	1	12/03/2024 03:40
4-Ethyltoluene	ND	2.5	1	12/03/2024 03:40
Freon 113	ND	3.9	1	12/03/2024 03:40
Heptane	ND	21	1	12/03/2024 03:40
Hexachlorobutadiene	ND	2.2	1	12/03/2024 03:40
Hexachloroethane	ND	4.9	1	12/03/2024 03:40
Hexane	ND	18	1	12/03/2024 03:40
2-Hexanone	ND	2.1	1	12/03/2024 03:40
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	12/03/2024 03:40
Methyl-t-butyl ether (MTBE)	ND	1.9	1	12/03/2024 03:40
Methylene chloride	ND	8.8	1	12/03/2024 03:40
Methyl methacrylate	ND	2.1	1	12/03/2024 03:40
Naphthalene	ND	2.7	1	12/03/2024 03:40
Styrene	2.4	2.2	1	12/03/2024 03:40
1,1,1,2-Tetrachloroethane	ND	3.5	1	12/03/2024 03:40
1,1,2,2-Tetrachloroethane	ND	0.70	1	12/03/2024 03:40
Tetrachloroethene	89	3.5	1	12/03/2024 03:40
Tetrahydrofuran	ND	3.0	1	12/03/2024 03:40
Toluene	ND	1.9	1	12/03/2024 03:40
1,2,4-Trichlorobenzene	ND	3.8	1	12/03/2024 03:40
1,1,1-Trichloroethane	ND	2.8	1	12/03/2024 03:40
1,1,2-Trichloroethane	ND	2.8	1	12/03/2024 03:40
Trichloroethene	13	2.8	1	12/03/2024 03:40
1,2,3-Trichloropropane	ND	3.1	1	12/03/2024 03:40
Trichlorofluoromethane	ND	2.9	1	12/03/2024 03:40
1,2,4-Trimethylbenzene	ND	2.5	1	12/03/2024 03:40
1,3,5-Trimethylbenzene	ND	2.5	1	12/03/2024 03:40
Vinyl Acetate	ND	18	1	12/03/2024 03:40

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSV-2	2411F09-002A	SoilGas	11/20/2024 08:32	GC24 12022420.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.61	25.30	PRE

Analytes	Result	RL	DE	Date Analyzed
Vinyl Chloride	ND	0.26	1	12/03/2024 03:40
m,p-Xylene	4.4	4.4	1	12/03/2024 03:40
o-Xylene	2.9	2.2	1	12/03/2024 03:40
Xylenes, Total	7.3	2.2	1	12/03/2024 03:40
Surrogates	REC (%)	Limits		
1,2-DCA-d4	104	70-130		12/03/2024 03:40
Toluene-d8	95	70-130		12/03/2024 03:40
4-BFB	101	70-130		12/03/2024 03:40



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSV-3	2411F09-003A	SoilGas	11/20/2024 09:26	GC24 12022421.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.16	24.63	PRE

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	61	1	12/03/2024 04:20
Acrolein	ND	5.9	1	12/03/2024 04:20
Acrylonitrile	ND	1.1	1	12/03/2024 04:20
tert-Amyl methyl ether (TAME)	ND	2.1	1	12/03/2024 04:20
Benzene	ND	1.6	1	12/03/2024 04:20
Benzyl chloride	ND	2.7	1	12/03/2024 04:20
Bromodichloromethane	ND	1.4	1	12/03/2024 04:20
Bromoform	ND	5.4	1	12/03/2024 04:20
Bromomethane	ND	1.9	1	12/03/2024 04:20
1,3-Butadiene	ND	1.1	1	12/03/2024 04:20
2-Butanone (MEK)	ND	15	1	12/03/2024 04:20
t-Butyl alcohol (TBA)	ND	16	1	12/03/2024 04:20
Carbon Disulfide	ND	1.6	1	12/03/2024 04:20
Carbon Tetrachloride	ND	1.3	1	12/03/2024 04:20
Chlorobenzene	ND	2.4	1	12/03/2024 04:20
Chloroethane	ND	1.3	1	12/03/2024 04:20
Chloroform	ND	2.5	1	12/03/2024 04:20
Chloromethane	ND	1.0	1	12/03/2024 04:20
Cyclohexane	ND	18	1	12/03/2024 04:20
Dibromochloromethane	ND	4.5	1	12/03/2024 04:20
1,2-Dibromo-3-chloropropane	ND	0.12	1	12/03/2024 04:20
1,2-Dibromoethane (EDB)	ND	0.079	1	12/03/2024 04:20
1,2-Dichlorobenzene	ND	3.0	1	12/03/2024 04:20
1,3-Dichlorobenzene	ND	3.0	1	12/03/2024 04:20
1,4-Dichlorobenzene	ND	3.0	1	12/03/2024 04:20
Dichlorodifluoromethane	2.6	2.5	1	12/03/2024 04:20
1,1-Dichloroethane	ND	2.0	1	12/03/2024 04:20
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	12/03/2024 04:20
1,1-Dichloroethene	ND	2.0	1	12/03/2024 04:20
cis-1,2-Dichloroethene	ND	2.0	1	12/03/2024 04:20
trans-1,2-Dichloroethene	ND	2.0	1	12/03/2024 04:20
1,2-Dichloropropane	ND	2.4	1	12/03/2024 04:20
cis-1,3-Dichloropropene	ND	2.3	1	12/03/2024 04:20
trans-1,3-Dichloropropene	ND	2.3	1	12/03/2024 04:20

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSV-3	2411F09-003A	SoilGas	11/20/2024 09:26	GC24 12022421.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.16	24.63	PRE

Analytes	Result	RL	DF	Date Analyzed
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	12/03/2024 04:20
Diisopropyl ether (DIPE)	ND	2.1	1	12/03/2024 04:20
1,4-Dioxane	ND	1.9	1	12/03/2024 04:20
Ethanol	ND	96	1	12/03/2024 04:20
Ethyl acetate	ND	1.9	1	12/03/2024 04:20
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	12/03/2024 04:20
Ethylbenzene	ND	2.2	1	12/03/2024 04:20
4-Ethyltoluene	ND	2.5	1	12/03/2024 04:20
Freon 113	ND	3.9	1	12/03/2024 04:20
Heptane	ND	21	1	12/03/2024 04:20
Hexachlorobutadiene	ND	2.2	1	12/03/2024 04:20
Hexachloroethane	ND	5.0	1	12/03/2024 04:20
Hexane	ND	18	1	12/03/2024 04:20
2-Hexanone	ND	2.1	1	12/03/2024 04:20
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	12/03/2024 04:20
Methyl-t-butyl ether (MTBE)	ND	1.9	1	12/03/2024 04:20
Methylene chloride	ND	8.9	1	12/03/2024 04:20
Methyl methacrylate	ND	2.1	1	12/03/2024 04:20
Naphthalene	ND	2.7	1	12/03/2024 04:20
Styrene	ND	2.2	1	12/03/2024 04:20
1,1,1,2-Tetrachloroethane	ND	3.5	1	12/03/2024 04:20
1,1,2,2-Tetrachloroethane	ND	0.71	1	12/03/2024 04:20
Tetrachloroethene	190	3.5	1	12/03/2024 04:20
Tetrahydrofuran	ND	3.0	1	12/03/2024 04:20
Toluene	ND	1.9	1	12/03/2024 04:20
1,2,4-Trichlorobenzene	ND	3.8	1	12/03/2024 04:20
1,1,1-Trichloroethane	ND	2.8	1	12/03/2024 04:20
1,1,2-Trichloroethane	ND	2.8	1	12/03/2024 04:20
Trichloroethene	13	2.8	1	12/03/2024 04:20
1,2,3-Trichloropropane	ND	3.1	1	12/03/2024 04:20
Trichlorofluoromethane	ND	2.9	1	12/03/2024 04:20
1,2,4-Trimethylbenzene	ND	2.5	1	12/03/2024 04:20
1,3,5-Trimethylbenzene	ND	2.5	1	12/03/2024 04:20
Vinyl Acetate	ND	18	1	12/03/2024 04:20

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSV-3	2411F09-003A	SoilGas	11/20/2024 09:26	GC24 12022421.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.16	24.63	PRE

Analytes	Result	RL	DE	Date Analyzed
Vinyl Chloride	ND	0.26	1	12/03/2024 04:20
m,p-Xylene	ND	4.5	1	12/03/2024 04:20
o-Xylene	ND	2.2	1	12/03/2024 04:20
Xylenes, Total	ND	4.5	1	12/03/2024 04:20
Surrogates	REC (%)	Limits		
1,2-DCA-d4	104	70-130		12/03/2024 04:20
Toluene-d8	95	70-130		12/03/2024 04:20
4-BFB	94	70-130		12/03/2024 04:20



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-4	2411F09-004A	SoilGas	11/20/2024 10:22	GC24 12022422.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.04	24.14	PRE

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	60	1	12/03/2024 05:00
Acrolein	ND	5.8	1	12/03/2024 05:00
Acrylonitrile	ND	1.1	1	12/03/2024 05:00
tert-Amyl methyl ether (TAME)	ND	2.1	1	12/03/2024 05:00
Benzene	7.8	1.6	1	12/03/2024 05:00
Benzyl chloride	ND	2.7	1	12/03/2024 05:00
Bromodichloromethane	ND	1.4	1	12/03/2024 05:00
Bromoform	ND	5.3	1	12/03/2024 05:00
Bromomethane	4.0	1.9	1	12/03/2024 05:00
1,3-Butadiene	ND	1.1	1	12/03/2024 05:00
2-Butanone (MEK)	ND	15	1	12/03/2024 05:00
t-Butyl alcohol (TBA)	ND	16	1	12/03/2024 05:00
Carbon Disulfide	1.8	1.6	1	12/03/2024 05:00
Carbon Tetrachloride	ND	1.3	1	12/03/2024 05:00
Chlorobenzene	ND	2.4	1	12/03/2024 05:00
Chloroethane	ND	1.3	1	12/03/2024 05:00
Chloroform	ND	2.5	1	12/03/2024 05:00
Chloromethane	ND	1.0	1	12/03/2024 05:00
Cyclohexane	46	18	1	12/03/2024 05:00
Dibromochloromethane	ND	4.4	1	12/03/2024 05:00
1,2-Dibromo-3-chloropropane	ND	0.12	1	12/03/2024 05:00
1,2-Dibromoethane (EDB)	ND	0.078	1	12/03/2024 05:00
1,2-Dichlorobenzene	ND	3.0	1	12/03/2024 05:00
1,3-Dichlorobenzene	ND	3.0	1	12/03/2024 05:00
1,4-Dichlorobenzene	ND	3.0	1	12/03/2024 05:00
Dichlorodifluoromethane	ND	2.5	1	12/03/2024 05:00
1,1-Dichloroethane	ND	2.0	1	12/03/2024 05:00
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	12/03/2024 05:00
1,1-Dichloroethene	ND	2.0	1	12/03/2024 05:00
cis-1,2-Dichloroethene	ND	2.0	1	12/03/2024 05:00
trans-1,2-Dichloroethene	ND	2.0	1	12/03/2024 05:00
1,2-Dichloropropane	ND	2.4	1	12/03/2024 05:00
cis-1,3-Dichloropropene	ND	2.3	1	12/03/2024 05:00
trans-1,3-Dichloropropene	ND	2.3	1	12/03/2024 05:00

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-4	2411F09-004A	SoilGas	11/20/2024 10:22	GC24 12022422.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.04	24.14	PRE

Analytes	Result	RL	DF	Date Analyzed
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	12/03/2024 05:00
Diisopropyl ether (DIPE)	ND	2.1	1	12/03/2024 05:00
1,4-Dioxane	ND	1.9	1	12/03/2024 05:00
Ethanol	ND	95	1	12/03/2024 05:00
Ethyl acetate	ND	1.9	1	12/03/2024 05:00
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	12/03/2024 05:00
Ethylbenzene	5.6	2.2	1	12/03/2024 05:00
4-Ethyltoluene	ND	2.5	1	12/03/2024 05:00
Freon 113	ND	3.9	1	12/03/2024 05:00
Heptane	ND	21	1	12/03/2024 05:00
Hexachlorobutadiene	ND	2.2	1	12/03/2024 05:00
Hexachloroethane	ND	4.9	1	12/03/2024 05:00
Hexane	ND	18	1	12/03/2024 05:00
2-Hexanone	ND	2.1	1	12/03/2024 05:00
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	12/03/2024 05:00
Methyl-t-butyl ether (MTBE)	ND	1.9	1	12/03/2024 05:00
Methylene chloride	ND	8.8	1	12/03/2024 05:00
Methyl methacrylate	ND	2.1	1	12/03/2024 05:00
Naphthalene	ND	2.7	1	12/03/2024 05:00
Styrene	ND	2.2	1	12/03/2024 05:00
1,1,1,2-Tetrachloroethane	ND	3.5	1	12/03/2024 05:00
1,1,2,2-Tetrachloroethane	ND	0.70	1	12/03/2024 05:00
Tetrachloroethene	5.1	3.5	1	12/03/2024 05:00
Tetrahydrofuran	ND	3.0	1	12/03/2024 05:00
Toluene	3.1	1.9	1	12/03/2024 05:00
1,2,4-Trichlorobenzene	ND	3.8	1	12/03/2024 05:00
1,1,1-Trichloroethane	ND	2.8	1	12/03/2024 05:00
1,1,2-Trichloroethane	ND	2.8	1	12/03/2024 05:00
Trichloroethene	ND	2.8	1	12/03/2024 05:00
1,2,3-Trichloropropane	ND	3.1	1	12/03/2024 05:00
Trichlorofluoromethane	ND	2.9	1	12/03/2024 05:00
1,2,4-Trimethylbenzene	11	2.5	1	12/03/2024 05:00
1,3,5-Trimethylbenzene	ND	2.5	1	12/03/2024 05:00
Vinyl Acetate	ND	18	1	12/03/2024 05:00

(Cont.)



Analytical Report

Client: Ninyo & Moore
Date Received: 11/22/2024 14:16
Date Prepared: 12/03/2024
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-4	2411F09-004A	SoilGas	11/20/2024 10:22	GC24 12022422.D	307071

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.04	24.14	PRE

Analytes	Result	RL	DE	Date Analyzed
Vinyl Chloride	ND	0.26	1	12/03/2024 05:00
m,p-Xylene	16	4.4	1	12/03/2024 05:00
o-Xylene	6.7	2.2	1	12/03/2024 05:00
Xylenes, Total	23	2.2	1	12/03/2024 05:00
Surrogates	REC (%)	Limits		
1,2-DCA-d4	104	70-130		12/03/2024 05:00
Toluene-d8	89	70-130		12/03/2024 05:00
4-BFB	125	70-130		12/03/2024 05:00



Quality Control Report

Client:	Ninyo & Moore	WorkOrder:	2411F09
Date Prepared:	11/26/2024	BatchID:	306790
Date Analyzed:	11/26/2024	Extraction Method:	ASTM D 1946-90
Instrument:	GC51	Analytical Method:	ASTM D 1946-90
Matrix:	SoilGas	Unit:	%
Project:	403151011; City of SSF-MSB	Sample ID:	MB/LCS/LCSD-306790

QC Summary Report for ASTM D1946-90

Analyte	MB Result	MDL	RL			
Oxygen	ND	0.027	0.40	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Oxygen	3.5	3.5	4.2	83	83	70-130	0.276	20



Quality Control Report

Client: Ninyo & Moore

Date Prepared: 12/02/2024

Date Analyzed: 12/02/2024

Instrument: GC26

Matrix: Soilgas

Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09

BatchID: 306976

Extraction Method: ASTM D 1946-90

Analytical Method: ASTM D 1946-90

Unit: %

Sample ID: MB/LCS/LCSD-306976

QC Summary Report for ASTM D1946-90

Analyte	MB Result	MDL	RL			
Helium	ND	0.050	0.050	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Helium	0.18	0.18	0.20	90	90	60-140	0.00955	20



Quality Control Report

Client: Ninyo & Moore
Date Prepared: 12/02/2024 - 12/03/2024
Date Analyzed: 12/02/2024 - 12/03/2024
Instrument: GC24
Matrix: SoilGas
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
BatchID: 307071
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³
Sample ID: MB/LCS/LCSD-307071

QC Summary Report for TO15

Analyte	MB Result	MDL	RL	SPK Val	MB IS/SS %REC	MB IS/SS Limits
Acetone	ND	4.3	60	-	-	-
Acrolein	ND	1.1	5.8	-	-	-
Acrylonitrile	ND	0.66	1.1	-	-	-
tert-Amyl methyl ether (TAME)	ND	1.3	2.1	-	-	-
Benzene	ND	0.79	1.6	-	-	-
Benzyl chloride	ND	1.7	2.7	-	-	-
Bromodichloromethane	ND	0.13	1.4	-	-	-
Bromoform	ND	1.1	5.3	-	-	-
Bromomethane	ND	0.41	1.9	-	-	-
1,3-Butadiene	ND	0.98	1.1	-	-	-
2-Butanone (MEK)	ND	2.0	15	-	-	-
t-Butyl alcohol (TBA)	ND	1.9	16	-	-	-
Carbon Disulfide	ND	1.1	1.6	-	-	-
Carbon Tetrachloride	ND	0.19	1.3	-	-	-
Chlorobenzene	ND	0.59	2.4	-	-	-
Chloroethane	ND	0.35	1.3	-	-	-
Chloroform	ND	0.58	2.5	-	-	-
Chloromethane	ND	0.52	1.0	-	-	-
Cyclohexane	ND	1.6	18	-	-	-
Dibromochloromethane	ND	1.1	4.4	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.074	0.12	-	-	-
1,2-Dibromoethane (EDB)	ND	0.025	0.078	-	-	-
1,2-Dichlorobenzene	ND	0.95	3.0	-	-	-
1,3-Dichlorobenzene	ND	0.94	3.0	-	-	-
1,4-Dichlorobenzene	ND	0.97	3.0	-	-	-
Dichlorodifluoromethane	ND	0.56	2.5	-	-	-
1,1-Dichloroethane	ND	0.50	2.0	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.58	2.0	-	-	-
1,1-Dichloroethene	ND	0.40	2.0	-	-	-
cis-1,2-Dichloroethene	ND	0.43	2.0	-	-	-
trans-1,2-Dichloroethene	ND	0.45	2.0	-	-	-
1,2-Dichloropropane	ND	0.59	2.4	-	-	-
cis-1,3-Dichloropropene	ND	0.71	2.3	-	-	-
trans-1,3-Dichloropropene	ND	0.86	2.3	-	-	-
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	1.8	3.6	-	-	-
Diisopropyl ether (DIPE)	ND	0.55	2.1	-	-	-
1,4-Dioxane	ND	0.71	1.9	-	-	-
Ethanol	ND	3.8	95	-	-	-

(Cont.)



Quality Control Report

Client: Ninyo & Moore
Date Prepared: 12/02/2024 - 12/03/2024
Date Analyzed: 12/02/2024 - 12/03/2024
Instrument: GC24
Matrix: SoilGas
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
BatchID: 307071
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³
Sample ID: MB/LCS/LCSD-307071

QC Summary Report for TO15

Analyte	MB Result	MDL	RL	SPK Val	MB IS/SS %REC	MB IS/SS Limits
Ethyl acetate	ND	0.63	1.9	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.68	2.1	-	-	-
Ethylbenzene	ND	0.51	2.2	-	-	-
4-Ethyltoluene	ND	0.61	2.5	-	-	-
Freon 113	ND	1.0	3.9	-	-	-
Heptane	ND	2.4	21	-	-	-
Hexachlorobutadiene	ND	0.38	2.2	-	-	-
Hexachloroethane	ND	2.7	4.9	-	-	-
Hexane	ND	2.2	18	-	-	-
2-Hexanone	ND	1.6	2.1	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	0.94	2.1	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.43	1.9	-	-	-
Methylene chloride	ND	0.82	8.8	-	-	-
Methyl methacrylate	ND	0.65	2.1	-	-	-
Naphthalene	ND	1.9	2.7	-	-	-
Styrene	ND	0.62	2.2	-	-	-
1,1,1,2-Tetrachloroethane	ND	1.2	3.5	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.10	0.70	-	-	-
Tetrachloroethene	ND	1.1	3.5	-	-	-
Tetrahydrofuran	ND	0.82	3.0	-	-	-
Toluene	ND	0.89	1.9	-	-	-
1,2,4-Trichlorobenzene	ND	2.7	3.8	-	-	-
1,1,1-Trichloroethane	ND	0.71	2.8	-	-	-
1,1,2-Trichloroethane	ND	0.85	2.8	-	-	-
Trichloroethene	ND	0.69	2.8	-	-	-
1,2,3-Trichloropropane	ND	0.89	3.1	-	-	-
Trichlorofluoromethane	ND	0.78	2.9	-	-	-
1,2,4-Trimethylbenzene	ND	1.2	2.5	-	-	-
1,3,5-Trimethylbenzene	ND	0.73	2.5	-	-	-
Vinyl Acetate	ND	1.1	18	-	-	-
Vinyl Chloride	ND	0.14	0.26	-	-	-
m,p-Xylene	ND	1.1	4.4	-	-	-
o-Xylene	ND	0.39	2.2	-	-	-

(Cont.)



Quality Control Report

Client: Ninyo & Moore
Date Prepared: 12/02/2024 - 12/03/2024
Date Analyzed: 12/02/2024 - 12/03/2024
Instrument: GC24
Matrix: SoilGas
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
BatchID: 307071
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³
Sample ID: MB/LCS/LCSD-307071

QC Summary Report for TO15

Analyte	MB Result	MDL	RL	SPK Val	MB IS/SS %REC	MB IS/SS Limits
Surrogate Recovery						
1,2-DCA-d4	1100			1000	106	70-130
Toluene-d8	980			1000	98	70-130
4-BFB	880			1000	88	70-130



Quality Control Report

Client: Ninyo & Moore
Date Prepared: 12/02/2024 - 12/03/2024
Date Analyzed: 12/02/2024 - 12/03/2024
Instrument: GC24
Matrix: SoilGas
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
BatchID: 307071
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³
Sample ID: MB/LCS/LCSD-307071

QC Summary Report for TO15

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acetone	19	16	12	157,F7	136	60-140	14.2	25
Acrolein	8.2	8.5	11.6	71	73	60-140	3.18	25
Acrylonitrile	14	13	11	125	120	60-140	4.42	25
tert-Amyl methyl ether (TAME)	19	20	21	90	95	60-140	4.66	25
Benzene	13	14	16	82	89	60-140	8.03	25
Benzyl chloride	29	25	26.6	110	95	60-140	14.9	25
Bromodichloromethane	38	41	35	108	117	60-140	7.81	25
Bromoform	57	59	52.6	108	112	60-140	3.49	25
Bromomethane	17	19	19.6	87	96	60-140	10.7	25
1,3-Butadiene	5.3	5.9	11	48,F2	54,F2	60-140	11.0	25
2-Butanone (MEK)	16	15	15	108	101	60-140	6.44	25
t-Butyl alcohol (TBA)	16	15	15.6	101	96	60-140	5.11	25
Carbon Disulfide	12	14	16	72	88	60-140	20.3	25
Carbon Tetrachloride	35	38	32	109	118	60-140	8.14	25
Chlorobenzene	26	27	23.6	108	113	60-140	3.84	25
Chloroethane	8.6	9.4	13.6	63	69	60-140	9.40	25
Chloroform	27	29	24.6	108	118	60-140	8.32	25
Chloromethane	9.2	9.8	10.6	87	92	60-140	5.87	25
Cyclohexane	16	17	17.6	89	95	60-140	6.18	25
Dibromochloromethane	44	46	43.6	100	105	60-140	4.73	25
1,2-Dibromo-3-chloropropane	86	76	49	175,F7	156,F7	60-140	11.7	25
1,2-Dibromoethane (EDB)	45	47	39	116	121	60-140	4.42	25
1,2-Dichlorobenzene	45	45	30.6	146,F7	147,F7	60-140	0.297	25
1,3-Dichlorobenzene	40	40	30.6	132	130	60-140	1.43	25
1,4-Dichlorobenzene	36	36	30.6	118	117	60-140	1.03	25
Dichlorodifluoromethane	25	27	25	100	109	60-140	7.89	25
1,1-Dichloroethane	19	21	20.6	93	103	60-140	9.89	25
1,2-Dichloroethane (1,2-DCA)	22	23	20.6	105	113	60-140	7.77	25
1,1-Dichloroethene	19	20	20	94	99	60-140	4.96	25
cis-1,2-Dichloroethene	19	21	20	95	104	60-140	8.73	25
trans-1,2-Dichloroethene	18	19	20	92	97	60-140	5.90	25
1,2-Dichloropropane	21	23	23.6	90	98	60-140	8.27	25
cis-1,3-Dichloropropene	24	25	23	102	108	60-140	5.29	25
trans-1,3-Dichloropropene	24	25	23	105	107	60-140	2.54	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	32	35	35.6	91	99	60-140	8.61	25
Diisopropyl ether (DIPE)	20	21	21	94	100	60-140	6.21	25
1,4-Dioxane	21	21	18.6	111	114	60-140	2.89	25
Ethanol	10	7.2	9.6	107	75	60-140	35.8,F2	25

(Cont.)



Quality Control Report

Client: Ninyo & Moore
Date Prepared: 12/02/2024 - 12/03/2024
Date Analyzed: 12/02/2024 - 12/03/2024
Instrument: GC24
Matrix: SoilGas
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
BatchID: 307071
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³
Sample ID: MB/LCS/LCSD-307071

QC Summary Report for TO15

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethyl acetate	20	21	18.6	108	112	60-140	3.49	25
Ethyl tert-butyl ether (ETBE)	19	21	21	93	98	60-140	5.40	25
Ethylbenzene	22	23	22	98	104	60-140	5.22	25
4-Ethyltoluene	26	27	25	103	107	60-140	3.62	25
Freon 113	37	40	39	94	103	60-140	8.93	25
Heptane	20	21	21	94	100	60-140	6.80	25
Hexachlorobutadiene	77	77	54	143,F7	143,F7	60-140	0.507	25
Hexachloroethane	52	50	49.2	105	102	60-140	3.51	25
Hexane	15	16	18	85	91	60-140	6.55	25
2-Hexanone	22	25	21	106	121	60-140	13.4	25
4-Methyl-2-pentanone (MIBK)	22	22	21	103	106	60-140	3.17	25
Methyl-t-butyl ether (MTBE)	16	17	18.6	87	94	60-140	7.47	25
Methylene chloride	18	19	17.6	101	107	60-140	6.10	25
Methyl methacrylate	20	21	20.8	96	99	60-140	2.76	25
Naphthalene	45	42	26.5	169,F7	160,F7	60-140	5.69	25
Styrene	24	24	21.6	110	111	60-140	0.613	25
1,1,1,2-Tetrachloroethane	41	43	35	117	123	60-140	5.03	25
1,1,2,2-Tetrachloroethane	36	38	35	104	108	60-140	4.18	25
Tetrachloroethene	35	38	34.4	102	110	60-140	7.63	25
Tetrahydrofuran	15	16	15	103	104	60-140	1.41	25
Toluene	18	19	19	96	101	60-140	4.84	25
1,2,4-Trichlorobenzene	72	67	37.6	193,F7	178,F7	60-140	7.79	25
1,1,1-Trichloroethane	27	30	27.6	98	108	60-140	9.09	25
1,1,2-Trichloroethane	29	30	27.6	103	110	60-140	6.43	25
Trichloroethene	26	28	27.6	94	103	60-140	8.86	25
1,2,3-Trichloropropane	36	36	30.64	118	118	60-140	0.676	25
Trichlorofluoromethane	35	38	28.6	121	133	60-140	9.67	25
1,2,4-Trimethylbenzene	28	29	25	112	115	60-140	2.25	25
1,3,5-Trimethylbenzene	25	26	25	101	104	60-140	2.74	25
Vinyl Acetate	19	19	18	103	108	60-140	4.11	25
Vinyl Chloride	7.2	7.8	13	56,F2	60	60-140	7.64	25
m,p-Xylene	42	43	44	95	99	60-140	3.73	25
o-Xylene	23	23	22	103	105	60-140	1.59	25

(Cont.)



Quality Control Report

Client: Ninyo & Moore
Date Prepared: 12/02/2024 - 12/03/2024
Date Analyzed: 12/02/2024 - 12/03/2024
Instrument: GC24
Matrix: SoilGas
Project: 403151011; City of SSF-MSB

WorkOrder: 2411F09
BatchID: 307071
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³
Sample ID: MB/LCS/LCSD-307071

QC Summary Report for TO15

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Surrogate Recovery								
1,2-DCA-d4	1100	1100	1000	105	107	70-130	1.74	25
Toluene-d8	940	930	1000	94	93	70-130	1.08	25
4-BFB	1100	1100	1000	111	107	70-130	3.28	25

☐ WaterTrax☐ CLIP☐ EDF**CHAIN-OF-CUSTODY RECORD****WorkOrder: 2411F09****ClientCode: NMO**☐ EQUIS☐ Dry-Weight☒ Email☐ HardCopy☐ ThirdParty☐ J-flag☐ Detection Summary☒ Excel [A1_Standard_QC]**Report to:**

Gregory Roberts

Ninyo & Moore

1301 Marina Village Parkway, Suite 110

Alameda, CA 94501

(408) 435-9000

FAX: (510) 633-5646

Email: groberts@ninyoandmoore.com

cc/3rd Party:

PO:

Project: 403151011; City of SSF-MSB

Bill to:

Accounts Payable

Ninyo & Moore

1301 Marina Village Parkway, Suite 110

Alameda, CA 94501

nmaccountspayable@ninyoandmoore.c

Requested TAT:**5 days;***Date Received:***11/22/2024***Date Logged:***11/22/2024**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
2411F09-001	SV-1	SoilGas	11/20/2024 07:53	☐	A	A		A								
2411F09-002	SSV-2	SoilGas	11/20/2024 08:32	☐	A	A		A								
2411F09-003	SSV-3	SoilGas	11/20/2024 09:26	☐	A	A		A								
2411F09-004	SV-4	SoilGas	11/20/2024 10:22	☐	A	A		A								
2411F09-005	Unused Summa	SoilGas	<Not Provided>	☐			A									

Test Legend:

1	ATMOSPHERICGAS_SG(%)
5	
9	

2	HELIUM_LC_SOILGAS(%)
6	
10	

3	PRUNUSEDSUMMA
7	
11	

4	TO15_Scan-SIM_SOIL(UG/M3)
8	
12	

Project Manager: Jennifer Lagerbom**Prepared by: Valerie Alfaro**

The following SampIDs: 001A, 002A, 003A, 004A contain testgroup TO15He__O2_SG(UG/M3).

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: NINYO & MOORE

Project: 403151011; City of SSF-MSB

Work Order: 2411F09

Client Contact: Gregory Roberts

QC Level: LEVEL 2

Contact's Email: groberts@ninyoandmoore.com

Comments:

Date Logged: 11/22/2024

☐ WaterTrax ☐ CLIP ☐ EDF ☒ Excel ☐ EQUIS ☒ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Cont./ Comp.	Bottle & Preservative	U**	Head Space	Dry- Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	SV-1	SoilGas	TO15 w/ Helium plus O2	1	1L Summa	☐	☐	☐	11/20/2024 7:53	5 days	12/3/2024		☐	☐
002A	SSV-2	SoilGas	TO15 w/ Helium plus O2	1	1L Summa	☐	☐	☐	11/20/2024 8:32	5 days	12/3/2024		☐	☐
003A	SSV-3	SoilGas	TO15 w/ Helium plus O2	1	1L Summa	☐	☐	☐	11/20/2024 9:26	5 days	12/3/2024		☐	☐
004A	SV-4	SoilGas	TO15 w/ Helium plus O2	1	1L Summa	☐	☐	☐	11/20/2024 10:22	5 days	12/3/2024		☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- ISM prep requires 5 to 10 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 6 to 11 days from sample submission). Due date listed on WO summary will not accurately reflect the time needed for sample preparation.

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U** = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.



main@mccampbell.com

Sampler Signature:

[illegible]

****MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.**

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time	Comments / Instructions
Lev Shnaider / Winxo and Moore	11/20/24	1425	Winxo and Moore Macomber office	11/20/24	1426	
Gwen Ramon / Winxo & Moore	11/22/24	11:25am	Mandana	11/22/24	1125	
Mandana	11/22/24	1416	John	11/22/24	1416	



Sample Receipt Checklist

Client Name: Ninyo & Moore
Project: 403151011; City of SSF-MSB

Date and Time Received: 11/22/2024 14:16

Date Logged: 11/22/2024

Received by: Valerie Alfaro

Logged by: Valerie Alfaro

WorkOrder No: 2411F09 Matrix: SoilGas
Carrier: Antonio Mason (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Sample IDs noted by Client on COC?	Yes ☒	No ☐	
Date and Time of collection noted by Client on COC?	Yes ☒	No ☐	
Sampler's name noted on COC?	Yes ☐	No ☒	
COC agrees with Quote?	Yes ☐	No ☐	NA ☒

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	NA ☒
Shipping container/cooler in good condition?	Yes ☒	No ☐	
Samples in proper containers/bottles?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	

Sample Preservation and Hold Time (HT) Information

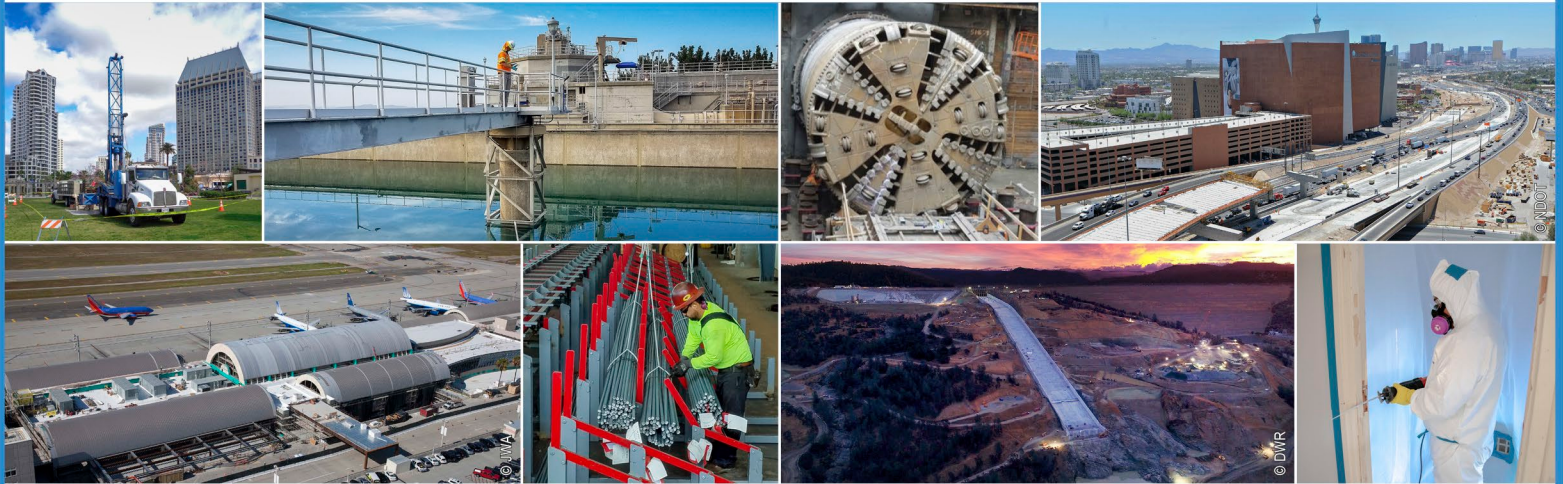
All samples received within holding time?	Yes ☒	No ☐	NA ☐
Samples Received on Ice?	Yes ☐	No ☒	

Sample/Temp Blank temperature	Temp:	NA ☒
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	Yes ☐ No ☐	NA ☒
Sample labels checked for correct preservation?	Yes ☒ No ☐	
pH acceptable upon receipt (Metal: <2)?	Yes ☐ No ☐	NA ☒

UCMR Samples:

pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	Yes ☐ No ☐	NA ☒
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	Yes ☐ No ☐	NA ☒

Comments:



1301 Marina Village Parkway, Suite 110 | Alameda, California 94501 | p. 510.343.3000

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ninyoandmoore.com

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants