# Appendix G

# Phase II Subsurface Investigation Report (August 29, 2018)

PARTNER

# PHASE II SUBSURFACE INVESTIGATION REPORT

Industrial Land
517 Shinohara Lane
Chula Vista, California 91911

August 29, 2018
Partner Project Number: 17-199602.5

Prepared for:

Encompass Health
9001 Liberty Parkway
Birmingham, Alabama 35242

Engineers who understand your business

PARTNER

August 29, 2018

Kellye Rohrabaugh
Encompass Health
9001 Liberty Parkway
Birmingham, Alabama 35242

Subject: Phase II Subsurface Investigation Report
Industrial Land
517 Shinohara Lane
Chula Vista, California 91911
Partner Project Number: 17-199602.5

Dear Ms. Rohrabaugh:

Partner Assessment Corporation (Partner) is pleased to provide the results of the assessment performed on the above-referenced property. The following report describes the field activities, methods, and findings of the Phase II Subsurface Investigation conducted at the above-referenced property.

This assessment was performed utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The independent conclusions represent Partner's best professional judgment based upon existing conditions and the information and data available to us during the course of this assignment.

We appreciate the opportunity to provide these services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact Mark Lambson at (619) 757-1119.

Sincerely,

Partner Engineering and Science, Inc.

Mark Bullivant
Project Manager

Samantha Fujita, PG
Regional Manager-Subsurface Investigation

Mark Lambson
National Client Manager

# TABLE OF CONTENTS



ATTACHMENTS

# 1.0 INTRODUCTION

## 1.1 Purpose

The purpose of the investigation was to evaluate the potential impact of volatile organic compounds (VOCs) to soil gas as a consequence of a release or releases from the former Omar Rendering Site to the east and former Otay Landfill to the northeast. Encompass Health provided project authorization of Partner Proposal Number P17-199602.5.

## 1.2 Limitations

This report presents a summary of work conducted by Partner. The work includes observations of site conditions encountered and the analytical results provided by an independent third party laboratory of samples collected during the course of the project. The number and location of samples were selected to provide the required information. However, it cannot be assumed that the limited available data are representative of subsurface conditions in areas not sampled.

Conclusions and/or recommendations are based on the observations, laboratory analyses, and the governing regulations. Conclusions and/or recommendations beyond those stated and reported herein should not be inferred from this document.

Partner warrants that the environmental consulting services contained herein were accomplished in accordance with generally-accepted practices in the environmental engineering, geology, and hydrogeology fields that existed at the time and location of work. No other warranties are implied or expressed.

## 1.3 User Reliance

Partner was engaged by Encompass Health (the Addressee), or their authorized representative, to perform this investigation. The engagement agreement specifically states the scope and purpose of the investigation, as well as the contractual obligations and limitations of both parties. This report and the information therein, are for the exclusive use of the Addressee. This report has no other purpose and may not be relied upon, or used, by any other person or entity without the written consent of Partner. Third parties that obtain this report, or the information therein, shall have no rights of recourse or recovery against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, the Addressee and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such use. Unauthorized use of this report shall constitute acceptance of, and commitment to, these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted Partner's standard Terms and Conditions, a copy of which can be found at http: / www.partneresi.com/terms-and-conditions.php

# 2.0 SITE BACKGROUND

## 2.1 Site Description

The subject property consists of one parcel of land comprising 9.56 acres located at the western terminus of Shinohara Lane within a mixed residential, commercial, and industrial area of San Diego County, California. The subject property is currently undeveloped, vacant land.

The subject property is bound by a residential condominium complex to the north, two light industrial properties and Shinohara Lane to the east, a light industrial property and an automotive repair facility to the south, and residential properties to the west. Refer to Figure 1 for a site plan showing site features and surrounding properties.

## 2.2 Site History

Partner completed a Phase I Environmental Site Assessment Report (Phase I), dated January 16, 2018, prepared on behalf of STOS Partners. According to historical sources, the subject property has been undeveloped since at least 1904.

The Phase I identified the following recognized environmental condition (REC):

- Based on subsurface investigations conducted at the east-adjacent Brandywine Distribution Center sites, it appears that chlorinated hydrocarbons [trichloroethylene (TCE) reported at concentrations of 1 micrograms per liter (µg/L) to 720 µg/L] potentially originating from the up-gradient former Omar Rendering site and the Otay Landfill have impacted the groundwater at the east-adjacent Brandywine Distribution Center sites and the potential exists that chlorinated hydrocarbons originating from the former Omar Rendering site and the Otay Landfill have impacted the subsurface of the subject property. The Regional Water Quality Control Board (RWQCB), the lead oversight agency, reviewed a 1996 Soil and Groundwater Investigation report for the Brandywine Distribution Center case and in a letter dated November 15, 1996, summarized that VOCs including TCE, tetrachloroethylene (PCE), and methylene chloride had been discovered at elevated concentrations in groundwater beneath the sites, but not in the unsaturated soil zone. Even though the RWQCB cited that the former Omar Rendering site and the former Otay Landfill had not been clearly identified as the sources of impacted groundwater beneath the Brandywine Distribution Center, the RWQCB appeared to concur with the consultant's findings including the determination that the source of the impact was not related to historical or present activities at the Brandywine Distribution Center but from up-gradient sources. In the 1996 letter, the RWQCB stated that No Further Action (NFA) was required and that the RWQCB did not intend to pursue regulatory action against the current or former owners of the Brandywine Distribution Center. The case was granted regulatory closure on May 3, 2017. Based on the aforementioned, the potential exists that chlorinated hydrocarbons originating from the former Omar Rendering site and the Otay Landfill have impacted the subsurface of the subject property. The likely presence of subsurface impacts at the subject property is considered a REC. Partner recommended a vapor encroachment survey to evaluate potential concerns to future developments.

## 2.3 Geology and Hydrogeology

Based on a review of the United States Geological Survey (USGS) Imperial Beach, California Quadrangle topographic map, the subject property is situated at an elevation approximately 200 feet above mean sea level, and the local topography is sloping gently to the south. Refer to Figure 2 for a topographic map of the site vicinity.

According to the California Geological Survey, the subject property is situated in the Peninsular Ranges which are a series of ranges separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault. The trend of topography is similar to the Coast Ranges, but the geology is more like the Sierra Nevada, with granitic rock intruding the older metamorphic rocks. The Peninsular Ranges extend into lower California and are bound on the east by the Colorado Desert. The Los Angeles Basin and the island group (Santa Catalina, Santa Barbara, and the distinctly terraced San Clemente and San Nicolas islands), together with the surrounding continental shelf (cut by deep submarine fault troughs), are included in the province.

Based on the lithologic profiling of one boring advanced during this investigation, the underlying subsurface consists predominantly of silty sand from the ground surface to approximately five feet below ground surface (bgs). Refer to Appendix A for the boring log from this investigation.

Groundwater was not encountered during this investigation and was not a part of the scope of work. According to the State Water Resources Control Board (SWRCB) Geotracker website, a nearby Leaking Underground Storage Tank (LUST) site is Shell at 4555 Auto Park Drive in the City of Chula Vista, which is approximately 0.24 mile southwest of the subject property and is overseen by the San Diego County Department of Environmental Health (DEH) as Case Number H02893-001. The site maintains seven groundwater monitoring wells in the area. The most recent monitoring data available on the GeoTracker Website was for March 27, 2012, with depth to groundwater ranging from 46.90 to 48.95 feet bgs with a direction of flow to the west.

# 3.0 FIELD ACTIVITIES

The scope of the Phase II Subsurface Investigation included the advancement of 10 borings (B1 through B10) for the collection of representative soil gas samples. Refer to Table 1 for a summary of the borings, sampling schedule and laboratory analyses for this investigation.

## 3.1 Preparatory Activities

Prior to the initiation of fieldwork, Partner completed the following activities.

### *3.1.1 Health and Safety Plan*

Partner prepared a site-specific Health and Safety Plan, which was reviewed with on-site personnel involved in the project prior to the commencement of drilling activities.

## 3.2 Drilling Equipment

On August 14, 2018, Partner subcontracted with Munoz Direct Push (MDP) to provide and operate drilling equipment. MDP, under the direction of Partner, advanced borings B1 through B10 with a truck-mounted Geoprobe Model 5400 direct push drill rig. Sampling equipment was decontaminated between sample intervals and boring locations to prevent cross-contamination.

## 3.3 Boring Locations

Borings B1 through B3 were advanced in the southeast area of the subject property. Borings B4 and B5 were advanced along the eastern boundary of the subject property. Borings B6 through B10 were advanced in the northern area of the subject property.

Refer to Figure 3 for a map indicating boring locations.

## 3.4 Soil Sampling

Borings B1 through B10 were unpaved and were advanced to a terminal depth of five feet bgs.

For the purposes of soil classification only, soil samples were collected from boring B1 using a two-foot long by 1.5-inch diameter sampler with a two-foot long acetate liner and sampling point. The sampler was advanced by the direct-push drill rig using three-foot long by 1.25-inch diameter hollow rods with the inner rods in place. At approximately one foot above the desired sampling depth, an inner rod was removed and the sampler was advanced to the desired sampling depth to allow undisturbed soil to enter the sampling liner. The sampler was retrieved from the subsurface and the soil-filled liner was removed. The soil in the liner was classified in accordance with the Unified Soil Classification System (USCS). Soil was sampled continuously in order to evaluate an appropriate soil gas sampling depth. The remainder of the borings were drilled using the same methodology with the inner rods in place to the terminal depth.

## 3.5 Soil Gas Sampling

Soil Gas Probe Construction

Soil gas probes were constructed within the boreholes at five feet bgs after drilling to the appropriate depth. A new section of ¼-inch diameter polyethylene tubing with a new ¼-inch diameter polypropylene filter at

the terminal end was inserted into the borehole to the desired sampling depth. One-inch diameter polyvinyl chloride (PVC) casing was used as a guide for the tubing to ensure that the desired sampling depth was achieved. Sand was poured into the boring annulus to form an approximately one-foot long sand pack around the polypropylene filter, at which time the PVC piping was withdrawn. Approximately one foot of dry, granular bentonite was placed atop the sand pack and the borehole was backfilled with hydrated bentonite to the ground surface to form a seal. The sampling end of the tubing was fitted with a valve and the probes were labeled for identification.

Soil Gas Sampling Methodology

Soil gas samples were collected in general accordance with the July 2015 Department of Toxic Substances Control (DTSC) and Los Angeles Regional Water Quality Control Board (LARWQCB) "Advisory – Active Soil Gas Investigations."

Soil gas samples were collected using one-liter, stainless-steel, cylindrical SUMMA canisters. The sampling containers were provided by Jones Environmental, Inc. (JEI) a state-certified laboratory [California Department of Public Health (CDPH) Environmental Laboratory Accreditation Program (ELAP) certificate number 6C73103] in Santa Fe Springs, California, which subjected each canister to a rigorous cleaning process using a combination of dilution, heat, and high vacuum. After cleaning, the canisters were batch certified to be free of target contaminants to a specified reporting limit via gas chromatography/mass spectroscopy prior to delivery.

Partner received the SUMMA canisters evacuated to approximately -30 inches of mercury. The SUMMA canisters were fitted with stainless-steel flow controllers, which JEI calibrated to maintain constant flow (approximately 0.1 liter per minute) for approximately five to 10 minutes of sampling time.

Each probe was allowed to equilibrate for a minimum of two hours after installation prior to sampling. After equilibration, the sample tubing and sampler screen were purged of three volumes of ambient air using a separate one-liter SUMMA purge volume canister evacuated to approximately -30 inches of mercury. A tracer mixture of n-pentane, n-heptane, and n-hexane was placed around each probe at the ground surface while sampling to detect ambient air intrusion. The tracer gas was not detected in any sample, indicating that the integrity of the bentonite seal was maintained. After purging, the sampling end of the tubing was fitted to the sampling canister and the port valve was opened, causing air to enter the sample container due to the pressure differential. Partner closed the valves after the canister was evacuated to approximately minus one to two inches of mercury, with pertinent data (e.g., time, canister vacuum) recorded at the start and end of sampling. Partner disconnected the SUMMA canisters from each sampling port and the SUMMA canisters were labeled for identification prior to analysis.

Soil gas samples were collected from borings B1 through B10 at five feet bgs.

## 3.6 Post-Sampling Activities

Probes were removed from the subsurface and the boreholes were backfilled with hydrated bentonite chips following sampling activities. No significant amounts of derived wastes were generated during this investigation.

# 4.0 LABORATORY ANALYSIS

## 4.1 Laboratory Analysis

Partner collected 10 soil gas samples on August 14, 2018, which were transported at room temperature under chain-of-custody protocol to JEI, a state-certified laboratory, for analysis on August 15, 2018. Each soil gas sample was analyzed for VOCs in accordance with EPA Method 8260B.

## 4.2 Laboratory Analytical Results

Laboratory analytical results are included in Appendix B and discussed below.

### *4.2.1 Soil Gas Sample Analytical Results*

Toluene and 4-isopropyltoluene were detected in eight of the analyzed soil gas samples (B1-SG through B8-SG) above laboratory practical quantitation limits (PQLs). Benzene was detected in six of the analyzed soil gas samples (B1-SG through B5-SG and B7-SG) above laboratory PQLs. n-Butylbenzene was detected in six of the analyzed soil gas samples (B3-SG through B8-SG) above laboratory PQLs. PCE was detected in six of the analyzed soil gas samples (B1-SG through B5-SG and B8-SG) above laboratory PQLs. 1,2,4-Trimethylbenzene (TMB) was detected in five of the analyzed soil gas samples (B2-SG through B6-SG) above laboratory PQLs. TCE was detected in four of the analyzed soil gas samples (B1-SG and B3-SG through B5-SG) above laboratory PQLs. sec-Butylbenzene was detected in three of the analyzed soil gas samples (B2-SG, B3-SG, and B4-SG) above laboratory PQLs. Styrene was detected in two of the analyzed soil gas samples (B3-SG and B4-SG) above laboratory PQLs. tert-Butylbenzene was detected in two of the analyzed soil gas samples (B3-SG and B6-SG) above laboratory PQLs. Chloroform, ethylbenzene, and m,p-xylene were detected in one of the analyzed soil gas samples (B4-SG) above laboratory PQLs. 1,3,5-TMB was detected in one of the analyzed soil gas samples (B3-SG) above laboratory PQLs. No other VOCs were detected in the analyzed soil gas samples at concentrations exceeding laboratory PQLs.

Refer to Table 2 for a summary of the soil gas sample VOCs laboratory analysis results.

# 5.0 DISCUSSION AND CONCLUSIONS

## 5.1 Regulatory Agency Guidance

Department of Toxic Substances Control Attenuation Factor and Regional Screening Levels

RSLs are generic, risk-based chemical concentrations developed by the EPA for use in initial screening-level evaluations. RSLs combine human health toxicity values with standard exposure factors to estimate contaminant concentrations that are considered to be health protective of human exposures over a lifetime through direct-contact exposure pathways (e.g., via inhalation and/or ingestion of and/or dermal contact with impacted soil and/or indoor air). RSLs are not legally enforceable standards, but rather are considered guidelines to evaluate if potential risks associated with encountered chemical impacts may warrant further evaluation.

The DTSC Office of Human and Ecological Risk (HERO) developed California-Modified RSLs based on a review of: 1) RSL concentrations; and 2) recent toxicity values.

While soil gas detections are not immediately comparable to the indoor air quality guidelines within the RSLs, the DTSC issued recommended default attenuation factors of 0.05 for sub-slab sampling locations, and 0.001 for current commercial use and future residential use for contaminant source sampling locations where the attenuation factor for the building slab is unknown or cannot be determined in the October 2011 document Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air. With the subsurface contaminant concentrations and default attenuation factors, the associated contaminant concentrations in indoor air can be estimated as Calculated Future Residential and Current Commercial/Industrial SGSLs.

## 5.2 Discussion

None of the detected concentrations of VOCs in the analyzed soil gas samples exceeded the calculated residential or commercial/industrial SGSLs. Based on the Subsurface Investigation, there does not appear to be a vapor intrusion concern to future occupants of the subject property as a result of the nearby release sites.

## 5.3 Summary and Conclusions

Partner conducted a Phase II Subsurface Investigation at the subject property to evaluate the potential impact of VOCs to soil gas as a consequence of a release or releases from the former Omar Rendering Site to the east and former Otay Landfill to the northeast. The scope of the Phase II Subsurface Investigation included the advancement of 10 borings to facilitate the collection of representative soil gas samples. Ten soil gas samples were analyzed for VOCs.

Subsurface lithology encountered in the upper five feet bgs consisted of silty sand (SM).

None of the detected concentrations of VOCs in the analyzed soil gas samples exceeded the calculated residential or commercial/industrial SGSLs. Based on the Subsurface Investigation, there does not appear to be a vapor intrusion concern to future occupants of the subject property as a result of the releases from the former Omar Rendering Site to the east and former Otay Landfill to the northeast. Partner recommends no further investigation for the subject property at this time.

# TABLES

Table 1: Summary of Investigation Scope
517 Shinohara Lane
Chula Vista, California 91911
Partner Project Number 17-199602.5
August 2018

| Boring Identification | Terminal Depth (feet bgs) | Matrix Sampled | Sampling Depths* (feet bgs) | Target Analytes |
|---|---|---|---|---|
| B1 | 5 | Soil Gas | 5 | VOCs |
| B2 | 5 | Soil Gas | 5 | VOCs |
| B3 | 5 | Soil Gas | 5 | VOCs |
| B4 | 5 | Soil Gas | 5 | VOCs |
| B5 | 5 | Soil Gas | 5 | VOCs |
| B6 | 5 | Soil Gas | 5 | VOCs |
| B7 | 5 | Soil Gas | 5 | VOCs |
| B8 | 5 | Soil Gas | 5 | VOCs |
| B9 | 5 | Soil Gas | 5 | VOCs |
| B10 | 5 | Soil Gas | 5 | VOCs |

Notes:

*Depths in bold analyzed for volatile organic compounds (VOCs) in accordance with United States Environmental Protection Agency (EPA) Method 8260B.

bgs = below ground surface

Table 2: Soil Gas Sample VOCs Laboratory Results
517 Shinohara Lane
Chula Vista, California 91911
Partner Project Number 17-199602.5
August 2018

| EPA Method | VOCs via 8260B | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Units | ($\mu g/m^3$) | | | | | | | | | | | |
| Analyte | Residential SGSL^ | Industrial SGSL^ | B1-SG | B2-SG | B3-SG | B4-SG | B5-SG | B6-SG | B7-SG | B8-SG | B9-SG | B10-SG |
| Benzene | 49 | 420 | 11 | 20 | 24 | 16 | 9.0 | < 8.0 | 13 | < 8.0 | < 8.0 | < 8.0 |
| n-Butylbenzene | 105,000 | 880,000 | < 8.0 | < 8.0 | 11 | 10 | 9.0 | 8.0 | 8.0 | 46 | < 8.0 | < 8.0 |
| sec-Butylbenzene | 210,000 | 1,800,000 | < 8.0 | 9.0 | 9.0 | 9.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| tert-Butylbenzene | 210 | 1,800,000 | < 8.0 | < 8.0 | 10 | < 8.0 | < 8.0 | 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| Chloroform | 60 | 530 | < 8.0 | < 8.0 | < 8.0 | 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| Ethylbenzene | 550 | 4,900 | < 8.0 | < 8.0 | < 8.0 | 9.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| 4-Isopropyltoluene | NA | NA | 10 | 11 | 15 | 14 | 12 | 11 | 12 | 61 | < 8.0 | < 8.0 |
| Styrene | 470,000 | 3,900,000 | < 8.0 | < 8.0 | 9.0 | 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| PCE | 230 | 2,000 | 16 | 16 | 16 | 20 | 20 | < 8.0 | < 8.0 | 14 | < 8.0 | < 8.0 |
| Toluene | 155,000 | 1,300,000 | 28 | 83 | 42 | 48 | 28 | 22 | 26 | 25 | < 8.0 | < 8.0 |
| TCE | 240 | 3,000 | 75 | < 8.0 | 73 | 119 | 91 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| 1,2,4-Trimethylbenzene | 31,500 | 260,000 | < 8.0 | 8.0 | 10 | 10 | 9.0 | 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| 1,3,5-Trimethylbenzene | 31,500 | 260,000 | < 8.0 | < 8.0 | 9.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| m,p-Xylene | 50,000 | 440,000 | < 8.0 | < 8.0 | < 8.0 | 16 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 | < 8.0 |
| Other VOCs | Varies | Varies | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

Notes:
^Calculated soil gas screening levels (SGSLs) for soil gas concentrations were derived by dividing the June 2018 Department of Toxic Substances Control (DTSC) or May 2018 United States Environmental Protection Agency (EPA) Regional Screening Level (RSL) for each compound with an attenuation factor of 0.002 for residential settings and 0.001 for commercial/industrial settings for soil gas samples deeper than sub-slab samples. DTSC RSLs are provided in the June 2018 DTSC Human and Ecological Risk Office (HERO) Human Health Risk Assessment (HHRA) Note 3. Where DTSC RSLs were not available, EPA RSLs were utilized.
VOCs = volatile organic compounds

EPA = United States Environmental Protection Agency

$\mu g/m^3$ = micrograms per cubic meter

PCE = tetrachloroethylene

TCE - trichloroethylene

< = not detected above indicated laboratory Practical Quantitation Limit (PQL)

NA = not applicable

ND = not detected above laboratory PQLs

Values in bold exceed laboratory PQLs

# FIGURES


PARTNER
Engineering and Science, Inc.
2154 Torrance Boulevard, Suite 200
Torrance, California 90501

Project Number: 17-199602.5

**Legend**

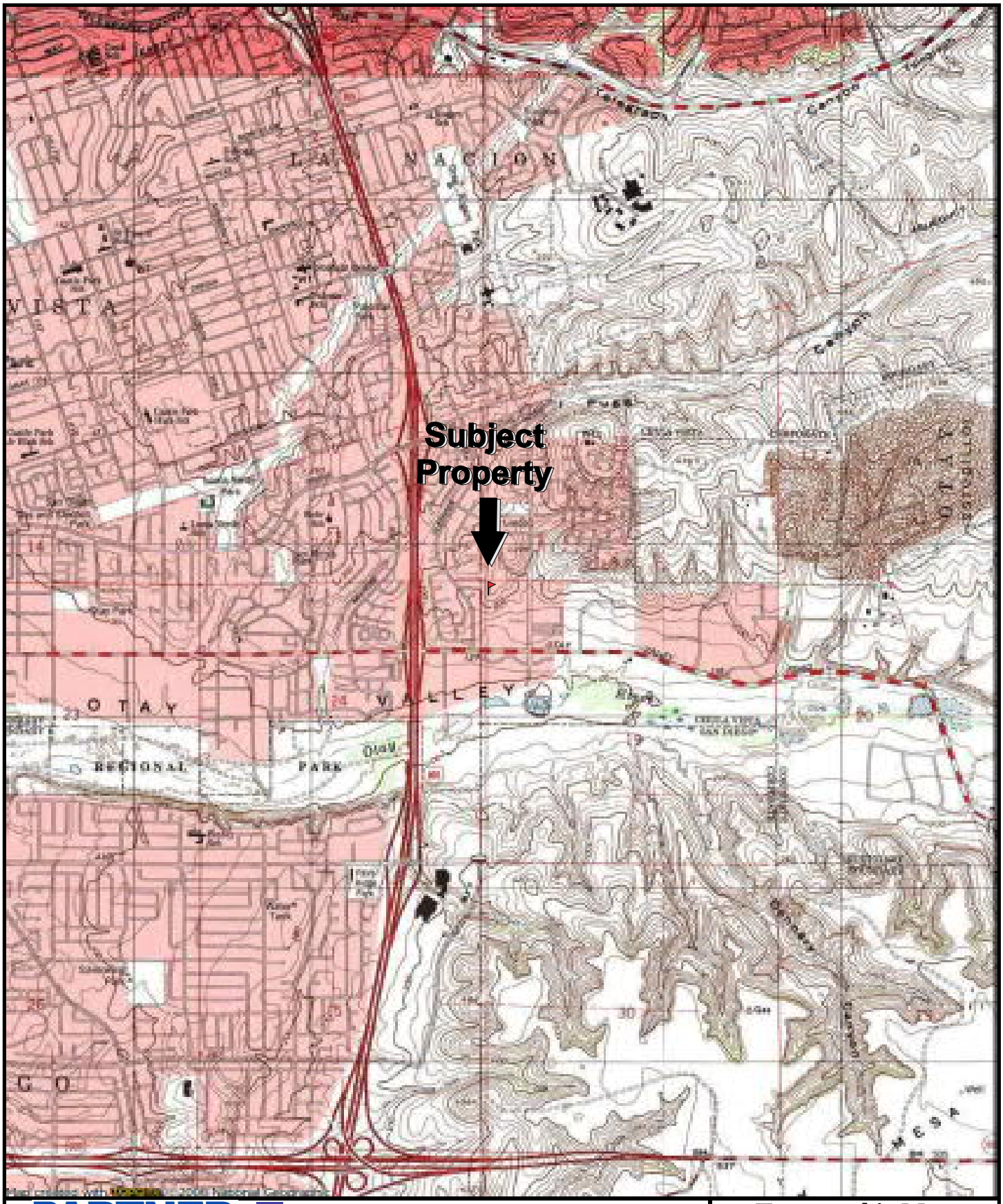
Subject Site

N

## Site Plan

| Figure | Prepared By | Date |
|---|---|---|
| 1 | M. Bullivant | August 2018 |

517 Shinohara Lane
Chula Vista, California 91911




PARTNER
Engineering and Science, Inc.
2154 Torrance Boulevard, Suite 200
Torrance, California 90501

Project Number: 17-199602.5

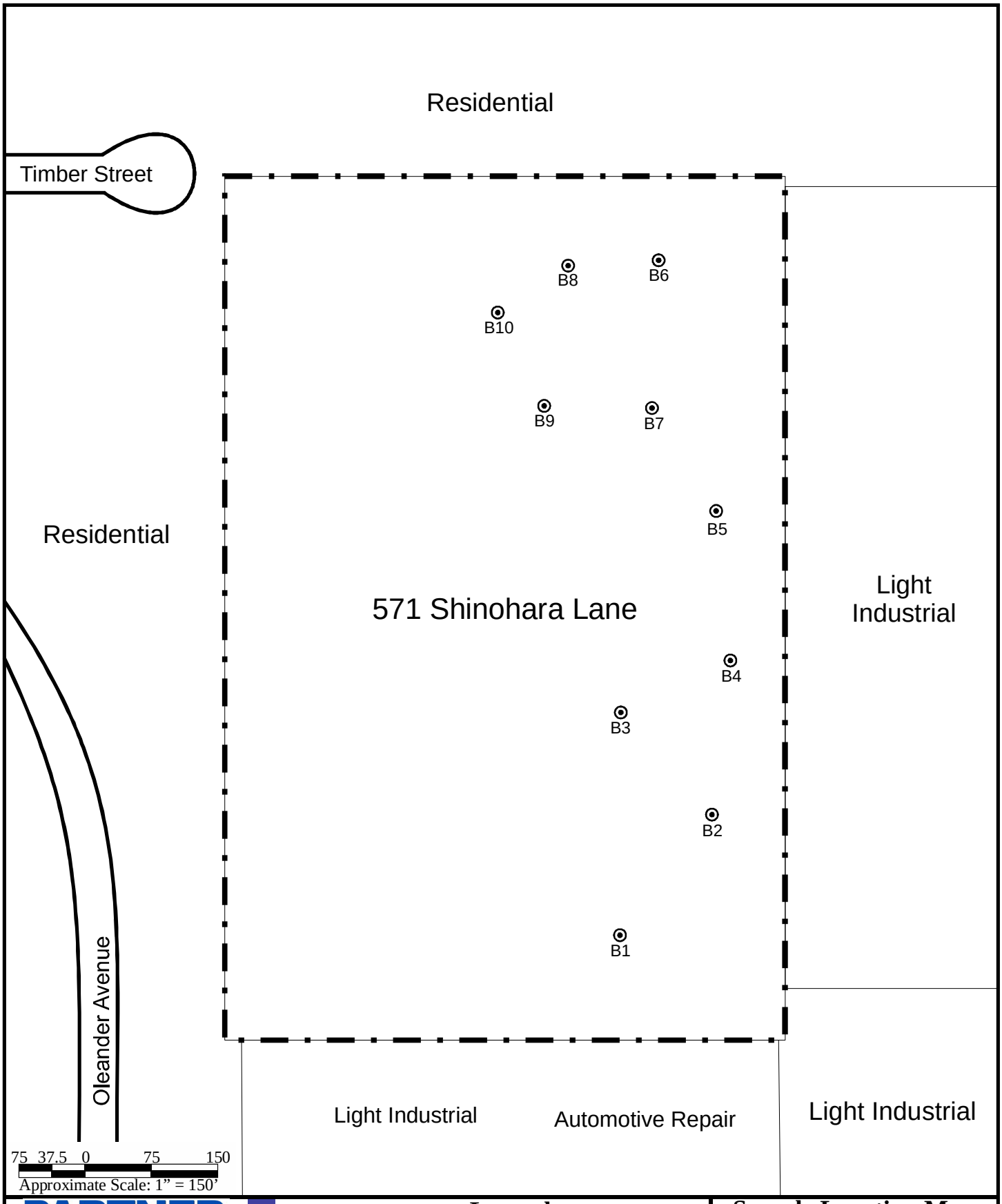
N

USGS Imperial Beach, California Quadrangle
Version: 1996 Current as of: 2000

## Topographic Map

| Figure | Prepared By | Date |
|---|---|---|
| 2 | M. Bullivant | August 2018 |

517 Shinohara Lane
Chula Vista, California 91911




PARTNER
Engineering and Science, Inc.
2154 Torrance Boulevard, Suite 200
Torrance, California 90501

Project Number: 17-199602.5

**Legend**

N

Subject Site

Boring Location

## Sample Location Map

| Figure | Prepared By | Date |
|---|---|---|
| 3 | M. Bullivant | August 2018 |

517 Shinohara Lane
Chula Vista, California 91911

# APPENDIX A: BORING LOG

PARTNER

| Boring Number: | B1 | | | | Page 1 of 1 |
|---|---|---|---|---|---|
| Location: | Southeast area of subject property | | | Date Started: | 8/14/2018 |
| Site Address: | 517 Shinohara Lane | | | Date Completed: | 8/14/2018 |
| | Chula Vista, California 91911 | | | Depth to Groundwater: | NA |
| Project Number: | 17-199602.5 | | | Field Technician: | M. Bullivant |
| Drill Rig Type: | Truck-mounted geoprobe model 5400 direct push drill rig | | | Partner Engineering and Science | |
| Sampling Equipment: | Acetate liners | | | 2154 Torrance Boulevard, Suite 200 | |
| Borehole Diameter: | 1.5" | | | Torrance, California 90501 | |

| Depth | Sample | PID | USCS | Description | Notes |
|---|---|---|---|---|---|
| 1 | | 0.4 | | | |
| 2 | | 0.0 | | | |
| 3 | | 0.3 | SM | Silty sand: Light olive brown (2.5Y 5/3), loose, dry. | |
| 4 | | 0.8 | | | |
| 5 | | 0.1 | | | Temporary soil gas probe installed |
| 6 | | | | | Boring terminated at 5 feet bgs. Temporary soil gas probe removed and boring backfiled with hydrated bentonite after sampling |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |

# APPENDIX B: LABORATORY ANALYTICAL REPORT

PARTNER

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

**JONES ENVIRONMENTAL**

**LABORATORY RESULTS**

| | | | |
|---|---|---|---|
| **Client:** | Partner Engineering and Science, Inc. | **Report date:** | 8/21/2018 |
| **Client Address:** | 2154 Torrance Blvd., Suite 200<br>Torrance, CA | **JEL Ref. No.:**<br>**Client Ref. No.:** | ST-12500<br>17-199602.5 |
| **Attn:** | Mark Bullivant | **Date Sampled:**<br>**Date Received:** | 8/14/2018<br>8/16/2018 |
| **Project Name:** | Chula Vista | **Date Analyzed:** | 8/18&20/2018 |
| **Project Address:** | 517 Shinoharo Ln.<br>Chula Vista, CA | **Physical State:** | Soil Gas |

**ANALYSES REQUESTED**

1. EPA 8260B – Volatile Organics by GC/MS + Oxygenates

Analytical – Soil Gas samples were analyzed using EPA Method 8260B that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) were analyzed with each batch of Soil Gas samples.

**Approval:**

David Mirakian, M.S.
Stationary Lab Chemist

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

# JONES ENVIRONMENTAL LABORATORY RESULTS

| | | | |
|---|---|---|---|
| **Client:** | Partner Engineering and Science, Inc. | **Report date:** | 8/21/2018 |
| **Client Address:** | 2154 Torrance Blvd., Suite 200<br>Torrance, CA | **Jones Ref. No.:**<br>**Client Ref. No.:** | ST-12500<br>17-199602.5 |
| **Attn:** | Mark Bullivant | **Date Sampled:**<br>**Date Received:** | 8/14/2018<br>8/16/2018 |
| **Project:** | Chula Vista | **Date Analyzed:** | 8/18&20/2018 |
| **Project Address:** | 517 Shinoharo Ln.<br>Chula Vista, CA | **Physical State:** | Soil Gas |

## EPA 8260B – Volatile Organics by GC/MS + Oxygenates

| **Sample ID:** | **B1-SG** | **B2-SG** | **B3-SG** | **B4-SG** | **B5-SG** | | |
|---|---|---|---|---|---|---|---|
| **Jones ID:** | **ST-12500-01** | **ST-12500-02** | **ST-12500-03** | **ST-12500-04** | **ST-12500-05** | **Reporting Limit** | **Units** |
| **Analytes:** | | | | | | | |
| Benzene | **11** | **20** | **24** | **16** | **9** | 8 | µg/m3 |
| Bromobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Bromodichloromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Bromoform | ND | ND | ND | ND | ND | 8 | µg/m3 |
| n-Butylbenzene | ND | ND | **11** | **10** | **9** | 8 | µg/m3 |
| sec-Butylbenzene | ND | **9** | **9** | **9** | ND | 8 | µg/m3 |
| tert-Butylbenzene | ND | ND | **10** | ND | ND | 8 | µg/m3 |
| Carbon tetrachloride | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Chlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Chloroform | ND | ND | ND | **8** | ND | 8 | µg/m3 |
| 2-Chlorotoluene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 4-Chlorotoluene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Dibromochloromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dibromo-3-chloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dibromoethane (EDB) | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Dibromomethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2- Dichlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Dichlorodifluoromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3-Dichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 2,2-Dichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloropropene | ND | ND | ND | ND | ND | 8 | µg/m3 |

## JONES ENVIRONMENTAL LABORATORY RESULTS

### EPA 8260B – Volatile Organics by GC/MS + Oxygenates

| **Sample ID:** | **B1-SG** | **B2-SG** | **B3-SG** | **B4-SG** | **B5-SG** | | |
|---|---|---|---|---|---|---|---|
| **Jones ID:** | **ST-12500-01** | **ST-12500-02** | **ST-12500-03** | **ST-12500-04** | **ST-12500-05** | **Reporting Limit** | **Units** |
| **Analytes:** | | | | | | | |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Ethylbenzene | ND | ND | ND | **9** | ND | 8 | µg/m3 |
| Freon 113 | ND | ND | ND | ND | ND | 40 | µg/m3 |
| Hexachlorobutadiene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Isopropylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 4-Isopropyltoluene | **10** | **11** | **15** | **14** | **12** | 8 | µg/m3 |
| Methylene chloride | ND | ND | ND | ND | ND | 150 | µg/m3 |
| Naphthalene | ND | ND | ND | ND | ND | 40 | µg/m3 |
| n-Propylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Styrene | ND | ND | **9** | **8** | ND | 8 | µg/m3 |
| 1,1,1,2-Tetrachloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Tetrachloroethene | **16** | **16** | **16** | **20** | **20** | 8 | µg/m3 |
| Toluene | **28** | **83** | **42** | **48** | **28** | 8 | µg/m3 |
| 1,2,3-Trichlorobenzene | ND | ND | ND | ND | ND | 40 | µg/m3 |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | ND | 16 | µg/m3 |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Trichloroethene | **75** | ND | **73** | **119** | **91** | 8 | µg/m3 |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,3-Trichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,4-Trimethylbenzene | ND | **8** | **10** | **10** | **9** | 8 | µg/m3 |
| 1,3,5-Trimethylbenzene | ND | ND | **9** | ND | ND | 8 | µg/m3 |
| Vinyl chloride | ND | ND | ND | ND | ND | 8 | µg/m3 |
| m,p-Xylene | ND | ND | ND | **16** | ND | 16 | µg/m3 |
| o-Xylene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| MTBE | ND | ND | ND | ND | ND | 40 | µg/m3 |
| Ethyl-tert-butylether | ND | ND | ND | ND | ND | 40 | µg/m3 |
| Di-isopropylether | ND | ND | ND | ND | ND | 40 | µg/m3 |
| tert-amylmethylether | ND | ND | ND | ND | ND | 40 | µg/m3 |
| tert-Butylalcohol | ND | ND | ND | ND | ND | 400 | µg/m3 |
| **TIC:** | | | | | | | |
| n-Pentane | ND | ND | ND | ND | ND | 400 | µg/m3 |
| n-Hexane | ND | ND | ND | ND | ND | 400 | µg/m3 |
| n-Heptane | ND | ND | ND | ND | ND | 400 | µg/m3 |
| **Dilution Factor** | 1 | 1 | 1 | 1 | 1 | | |
| **Surrogate Recoveries:** | | | | | | **QC Limits** | |
| Dibromofluoromethane | 94% | 95% | 93% | 93% | 96% | 60 - 140 | |
| Toluene-$d_8$ | 100% | 100% | 99% | 100% | 100% | 60 - 140 | |
| 4-Bromofluorobenzene | 86% | 86% | 86% | 85% | 85% | 60 - 140 | |
| | F1-081818-01 | F1-081818-01 | F1-081818-01 | F1-081818-01 | F1-081818-01 | | |

ND= Value less than reporting limit

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

# JONES ENVIRONMENTAL LABORATORY RESULTS

| | | | |
|---|---|---|---|
| **Client:** | Partner Engineering and Science, Inc. | **Report date:** | 8/21/2018 |
| **Client Address:** | 2154 Torrance Blvd., Suite 200<br>Torrance, CA | **Jones Ref. No.:**<br>**Client Ref. No.:** | ST-12500<br>17-199602.5 |
| **Attn:** | Mark Bullivant | **Date Sampled:**<br>**Date Received:** | 8/14/2018<br>8/16/2018 |
| **Project:** | Chula Vista | **Date Analyzed:** | 8/18&20/2018 |
| **Project Address:** | 517 Shinoharo Ln.<br>Chula Vista, CA | **Physical State:** | Soil Gas |

## EPA 8260B – Volatile Organics by GC/MS + Oxygenates

| **Sample ID:** | **B6-SG** | **B7-SG** | **B8-SG** | **B9-SG** | **B10-SG** | | |
|---|---|---|---|---|---|---|---|
| **Jones ID:** | **ST-12500-06** | **ST-12500-07** | **ST-12500-08** | **ST-12500-09** | **ST-12500-10** | **Reporting Limit** | **Units** |
| **Analytes:** | | | | | | | |
| Benzene | ND | **13** | ND | ND | ND | 8 | µg/m3 |
| Bromobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Bromodichloromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Bromoform | ND | ND | ND | ND | ND | 8 | µg/m3 |
| n-Butylbenzene | **8** | **8** | **46** | ND | ND | 8 | µg/m3 |
| sec-Butylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| tert-Butylbenzene | **8** | ND | ND | ND | ND | 8 | µg/m3 |
| Carbon tetrachloride | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Chlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Chloroform | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 2-Chlorotoluene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 4-Chlorotoluene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Dibromochloromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dibromo-3-chloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dibromoethane (EDB) | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Dibromomethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2- Dichlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Dichlorodifluoromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3-Dichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 2,2-Dichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloropropene | ND | ND | ND | ND | ND | 8 | µg/m3 |

## JONES ENVIRONMENTAL LABORATORY RESULTS

### EPA 8260B – Volatile Organics by GC/MS + Oxygenates

| **Sample ID:** | **B6-SG** | **B7-SG** | **B8-SG** | **B9-SG** | **B10-SG** | | |
|---|---|---|---|---|---|---|---|
| **Jones ID:** | **ST-12500-06** | **ST-12500-07** | **ST-12500-08** | **ST-12500-09** | **ST-12500-10** | **Reporting Limit** | **Units** |
| **Analytes:** | | | | | | | |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Ethylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Freon 113 | ND | ND | ND | ND | ND | 40 | µg/m3 |
| Hexachlorobutadiene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Isopropylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 4-Isopropyltoluene | **11** | **12** | **61** | ND | ND | 8 | µg/m3 |
| Methylene chloride | ND | ND | ND | ND | ND | 150 | µg/m3 |
| Naphthalene | ND | ND | ND | ND | ND | 40 | µg/m3 |
| n-Propylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Styrene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,1,2-Tetrachloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Tetrachloroethene | ND | ND | **14** | ND | ND | 8 | µg/m3 |
| Toluene | **22** | **26** | **25** | ND | ND | 8 | µg/m3 |
| 1,2,3-Trichlorobenzene | ND | ND | ND | ND | ND | 40 | µg/m3 |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | ND | 16 | µg/m3 |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Trichloroethene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Trichlorofluoromethane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,3-Trichloropropane | ND | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,4-Trimethylbenzene | **8** | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3,5-Trimethylbenzene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| Vinyl chloride | ND | ND | ND | ND | ND | 8 | µg/m3 |
| m,p-Xylene | ND | ND | ND | ND | ND | 16 | µg/m3 |
| o-Xylene | ND | ND | ND | ND | ND | 8 | µg/m3 |
| MTBE | ND | ND | ND | ND | ND | 40 | µg/m3 |
| Ethyl-tert-butylether | ND | ND | ND | ND | ND | 40 | µg/m3 |
| Di-isopropylether | ND | ND | ND | ND | ND | 40 | µg/m3 |
| tert-amylmethylether | ND | ND | ND | ND | ND | 40 | µg/m3 |
| tert-Butylalcohol | ND | ND | ND | ND | ND | 400 | µg/m3 |
| **TIC:** | | | | | | | |
| n-Pentane | ND | ND | ND | ND | ND | 400 | µg/m3 |
| n-Hexane | ND | ND | ND | ND | ND | 400 | µg/m3 |
| n-Heptane | ND | ND | ND | ND | ND | 400 | µg/m3 |
| **Dilution Factor** | 1 | 1 | 1 | 1 | 1 | | |
| **Surrogate Recoveries:** | | | | | | **QC Limits** | |
| Dibromofluoromethane | 93% | 94% | 104% | 105% | 105% | 60 - 140 | |
| Toluene-$d_8$ | 99% | 100% | 104% | 103% | 104% | 60 - 140 | |
| 4-Bromofluorobenzene | 84% | 87% | 103% | 97% | 98% | 60 - 140 | |
| | F1-081818-01 | F1-081818-01 | VOC3-082018-01 | VOC3-082018-01 | VOC3-082018-01 | | |

ND= Value less than reporting limit

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

## JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

| | | | |
|---|---|---|---|
| **Client:** | Partner Engineering and Science, Inc. | **Report date:** | 8/21/2018 |
| **Client Address:** | 2154 Torrance Blvd., Suite 200<br>Torrance, CA | **Jones Ref. No.:**<br>**Client Ref. No.:** | ST-12500<br>17-199602.5 |
| **Attn:** | Mark Bullivant | **Date Sampled:**<br>**Date Received:** | 8/14/2018<br>8/16/2018 |
| **Project:** | Chula Vista | **Date Analyzed:** | 8/18&20/2018 |
| **Project Address:** | 517 Shinoharo Ln.<br>Chula Vista, CA | **Physical State:** | Soil Gas |

### EPA 8260B – Volatile Organics by GC/MS + Oxygenates

| **Sample ID:** | METHOD BLANK | SAMPLING BLANK | METHOD BLANK | SAMPLING BLANK | | |
|---|---|---|---|---|---|---|
| **Jones ID:** | 081818-F1MD1 | 080818-F1SB1 | 082018-V3MB1 | 082018-V3SB1 | **Reporting Limit** | **Units** |
| **Analytes:** | | | | | | |
| Benzene | ND | ND | ND | ND | 8 | µg/m3 |
| Bromobenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Bromodichloromethane | ND | ND | ND | ND | 8 | µg/m3 |
| Bromoform | ND | ND | ND | ND | 8 | µg/m3 |
| n-Butylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| sec-Butylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| tert-Butylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Carbon tetrachloride | ND | ND | ND | ND | 8 | µg/m3 |
| Chlorobenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Chloroform | ND | ND | ND | ND | 8 | µg/m3 |
| 2-Chlorotoluene | ND | ND | ND | ND | 8 | µg/m3 |
| 4-Chlorotoluene | ND | ND | ND | ND | 8 | µg/m3 |
| Dibromochloromethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dibromo-3-chloropropane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dibromoethane (EDB) | ND | ND | ND | ND | 8 | µg/m3 |
| Dibromomethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2- Dichlorobenzene | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3-Dichlorobenzene | ND | ND | ND | ND | 8 | µg/m3 |
| 1,4-Dichlorobenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Dichlorodifluoromethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloroethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dichloroethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloroethene | ND | ND | ND | ND | 8 | µg/m3 |
| cis-1,2-Dichloroethene | ND | ND | ND | ND | 8 | µg/m3 |
| trans-1,2-Dichloroethene | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2-Dichloropropane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3-Dichloropropane | ND | ND | ND | ND | 8 | µg/m3 |
| 2,2-Dichloropropane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1-Dichloropropene | ND | ND | ND | ND | 8 | µg/m3 |

## JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

### EPA 8260B – Volatile Organics by GC/MS + Oxygenates

| Sample ID: | METHOD BLANK | SAMPLING BLANK | METHOD BLANK | SAMPLING BLANK | | |
|---|---|---|---|---|---|---|
| **Jones ID:** | **081818-F1MD1** | **080818-F1SB1** | **082018-V3MB1** | **082018-V3SB1** | **Reporting Limit** | **Units** |
| **Analytes:** | | | | | | |
| cis-1,3-Dichloropropene | ND | ND | ND | ND | 8 | µg/m3 |
| trans-1,3-Dichloropropene | ND | ND | ND | ND | 8 | µg/m3 |
| Ethylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Freon 113 | ND | ND | ND | ND | 40 | µg/m3 |
| Hexachlorobutadiene | ND | ND | ND | ND | 8 | µg/m3 |
| Isopropylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| 4-Isopropyltoluene | ND | ND | ND | ND | 8 | µg/m3 |
| Methylene chloride | ND | ND | ND | ND | 150 | µg/m3 |
| Naphthalene | ND | ND | ND | ND | 40 | µg/m3 |
| n-Propylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Styrene | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,1,2-Tetrachloroethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,2,2-Tetrachloroethane | ND | ND | ND | ND | 8 | µg/m3 |
| Tetrachloroethene | ND | ND | ND | ND | 8 | µg/m3 |
| Toluene | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,3-Trichlorobenzene | ND | ND | ND | ND | 40 | µg/m3 |
| 1,2,4-Trichlorobenzene | ND | ND | ND | ND | 16 | µg/m3 |
| 1,1,1-Trichloroethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,1,2-Trichloroethane | ND | ND | ND | ND | 8 | µg/m3 |
| Trichloroethene | ND | ND | ND | ND | 8 | µg/m3 |
| Trichlorofluoromethane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,3-Trichloropropane | ND | ND | ND | ND | 8 | µg/m3 |
| 1,2,4-Trimethylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| 1,3,5-Trimethylbenzene | ND | ND | ND | ND | 8 | µg/m3 |
| Vinyl chloride | ND | ND | ND | ND | 8 | µg/m3 |
| m,p-Xylene | ND | ND | ND | ND | 16 | µg/m3 |
| o-Xylene | ND | ND | ND | ND | 8 | µg/m3 |
| MTBE | ND | ND | ND | ND | 40 | µg/m3 |
| Ethyl-tert-butylether | ND | ND | ND | ND | 40 | µg/m3 |
| Di-isopropylether | ND | ND | ND | ND | 40 | µg/m3 |
| tert-amylmethylether | ND | ND | ND | ND | 40 | µg/m3 |
| tert-Butylalcohol | ND | ND | ND | ND | 400 | µg/m3 |
| **TIC:** | | | | | | |
| n-Pentane | ND | ND | ND | ND | 400 | µg/m3 |
| n-Hexane | ND | ND | ND | ND | 400 | µg/m3 |
| n-Heptane | ND | ND | ND | ND | 400 | µg/m3 |
| **Dilution Factor** | 1 | 1 | 1 | 1 | | |
| **Surrogate Recoveries:** | | | | | **QC Limits** | |
| Dibromofluoromethane | 106% | 104% | 101% | 108% | 60 - 140 | |
| Toluene-$d_8$ | 100% | 101% | 109% | 107% | 60 - 140 | |
| 4-Bromofluorobenzene | 84% | 85% | 99% | 94% | 60 - 140 | |
| | F1-081818-01 | F1-081818-01 | VOC3-082018-01 | VOC3-082018-01 | | |

ND= Value less than reporting limit

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

## JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

| | | | |
|---|---|---|---|
| **Client:** | Partner Engineering and Science, Inc. | **Report date:** | 8/21/2018 |
| **Client Address:** | 2154 Torrance Blvd., Suite 200<br>Torrance, CA | **Jones Ref. No.:**<br>**Client Ref. No.:** | ST-12500<br>17-199602.5 |
| **Attn:** | Mark Bullivant | **Date Sampled:**<br>**Date Received:** | 8/14/2018<br>8/16/2018 |
| **Project:** | Chula Vista | **Date Analyzed:** | 8/18&20/2018 |
| **Project Address:** | 517 Shinoharo Ln.<br>Chula Vista, CA | **Physical State:** | Soil Gas |

### EPA 8260B – Volatile Organics by GC/MS + Oxygenates

**Batch ID:** F1-081818-01

| **Jones ID:** | **081818-F1LCS1** | **081818-F1LCSD1** | | | **081818-F1CCV1** | |
|---|---|---|---|---|---|---|
| Parameter | LCS Recovery (%) | LCSD Recovery (%) | RPD | Acceptability Range (%) | CCV | Acceptability Range (%) |
| Vinyl chloride | 114% | 114% | 0.2% | 70 - 130 | 68% | 80 - 120 |
| 1,1-Dichloroethene | 99% | 95% | 4.6% | 70 - 130 | 77% | 80 - 120 |
| Cis-1,2-Dichloroethene | 113% | 108% | 5.0% | 70 - 130 | 89% | 80 - 120 |
| 1,1,1-Trichloroethane | 114% | 108% | 5.3% | 70 - 130 | 86% | 80 - 120 |
| Benzene | 106% | 101% | 4.4% | 70 - 130 | 81% | 80 - 120 |
| Trichloroethene | 111% | 107% | 4.2% | 70 - 130 | 86% | 80 - 120 |
| Toluene | 108% | 101% | 6.4% | 70 - 130 | 85% | 80 - 120 |
| Tetrachloroethene | 106% | 98% | 7.7% | 70 - 130 | 82% | 80 - 120 |
| Chlorobenzene | 113% | 106% | 6.6% | 70 - 130 | 92% | 80 - 120 |
| Ethylbenzene | 111% | 101% | 9.6% | 70 - 130 | 89% | 80 - 120 |
| 1,2,4 Trimethylbenzene | 106% | 95% | 11.0% | 70 - 130 | 87% | 80 - 120 |
| **Surrogate Recovery:** | | | | | | |
| Dibromofluoromethane | 98% | 101% | | 60 - 140 | 99% | 60 - 140 |
| Toluene-$d_8$ | 100% | 95% | | 60 - 140 | 105% | 60 - 140 |
| 4-Bromofluorobenzene | 99% | 95% | | 60 - 140 | 100% | 60 - 140 |

LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

JONES ENVIRONMENTAL, INC.

714-449-9937
562-646-1611
805-399-0060

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

## JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

| | | | |
|---|---|---|---|
| **Client:** | Partner Engineering and Science, Inc. | **Report date:** | 8/21/2018 |
| **Client Address:** | 2154 Torrance Blvd., Suite 200<br>Torrance, CA | **Jones Ref. No.:**<br>**Client Ref. No.:** | ST-12500<br>17-199602.5 |
| **Attn:** | Mark Bullivant | **Date Sampled:**<br>**Date Received:** | 8/14/2018<br>8/16/2018 |
| **Project:** | Chula Vista | **Date Analyzed:** | 8/18&20/2018 |
| **Project Address:** | 517 Shinoharo Ln.<br>Chula Vista, CA | **Physical State:** | Soil Gas |

### EPA 8260B – Volatile Organics by GC/MS + Oxygenates

**Batch ID:** VOC3-082018-01

| **Jones ID:** | **082018-V3LCS1** | **082018-V3LCSD1** | | | **082018-V3CCV1** | |
|---|---|---|---|---|---|---|
| Parameter | LCS Recovery (%) | LCSD Recovery (%) | RPD | Acceptability Range (%) | CCV | Acceptability Range (%) |
| Vinyl chloride | 105% | 108% | 3.2% | 70 - 130 | 119% | 80 - 120 |
| 1,1-Dichloroethene | 100% | 103% | 2.4% | 70 - 130 | 96% | 80 - 120 |
| Cis-1,2-Dichloroethene | 115% | 114% | 1.1% | 70 - 130 | 98% | 80 - 120 |
| 1,1,1-Trichloroethane | 108% | 109% | 0.6% | 70 - 130 | 91% | 80 - 120 |
| Benzene | 114% | 112% | 1.2% | 70 - 130 | 93% | 80 - 120 |
| Trichloroethene | 102% | 101% | 0.3% | 70 - 130 | 90% | 80 - 120 |
| Toluene | 114% | 111% | 2.6% | 70 - 130 | 101% | 80 - 120 |
| Tetrachloroethene | 104% | 99% | 5.3% | 70 - 130 | 91% | 80 - 120 |
| Chlorobenzene | 103% | 100% | 2.6% | 70 - 130 | 94% | 80 - 120 |
| Ethylbenzene | 104% | 97% | 6.3% | 70 - 130 | 93% | 80 - 120 |
| 1,2,4 Trimethylbenzene | 96% | 92% | 4.0% | 70 - 130 | 88% | 80 - 120 |
| **Surrogate Recovery:** | | | | | | |
| Dibromofluoromethane | 103% | 102% | | 60 - 140 | 92% | 60 - 140 |
| Toluene-$d_8$ | 101% | 99% | | 60 - 140 | 95% | 60 - 140 |
| 4-Bromofluorobenzene | 99% | 96% | | 60 - 140 | 99% | 60 - 140 |

LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

JONES ENVIRONMENTAL, INC.
11007 Forest Pl.
Santa Fe Springs, CA 90670
(714) 449-9937
Fax (714) 449-9685
www.jonesenv.com

# Soil-Gas Chain of Custody Record

Client: Partner Engineering
Project Name: Chula Vista
Project Address: 517 Shinoharo, Chula Vista, CA
Email: mbullivant@partneresi.com
Phone: 310-977-4625
Report To: MARK B. Sampler: MARK B.

Date: 8-14-18
Client Project #: 17-199602.5

Purge Number: □ 1P □ 3P □ 7P □ 10P
Shut-In Test: Y / N

Report Options: EDD ____ EDF* - 10% Surcharge____ *Global ID ____

Project #: ST12500
Page: 1 of 1
Lab Use Only
Sample Condition as Recieved: Sealed □ yes □ no

**Turn Around Requested:**
- □ Immediate Attention
- □ Rush 24 Hours
- □ Rush 48 Hours
- □ Rush 72 Hours
- ☑ Normal
- □ Mobile Lab

**Tracer:**
- ☑ n-pentane
- ☑ n-hexane
- ☑ n-heptane
- □ Helium
- □ 1,1-DFA
- □ _____

**Analysis Requested**

| Sample ID | Purge Number | Purge Volume | Date | Sample Collection Time | Sample Analysis Time | Laboratory Sample ID | Purge Rate | Pump Used | Magnehelic | Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG) | VOCs 8260 | | | | Magnehelic Vacuum (in/$H_2O$) | Number of Containers | Remarks & Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1-SG | | | 8/14 | | | 1585 | | | | | X | | | | | 1 | ST-12500-01 |
| B2-SG | | | | | | 1488 | | | | | X | | | | | | ST-12500-02 |
| B3-SG | | | | | | B2419 | | | | | X | | | | | | ST-12500-03 |
| B4-SG | | | | | | 01176 | | | | | X | | | | | | ST-12500-04 |
| B5-SG | | | | | | B2437 | | | | | X | | | | | | ST-12500-05 |
| B6-SG | | | | | | B2417 | | | | | X | | | | | | ST-12500-06 |
| B7-SG | | | | | | B2445 | | | | | X | | | | | | ST-12500-07 |
| B8-SG | | | | | | B2438 | | | | | X | | | | | | ST-12500-08 |
| B9-SG | | | | | | B2412 | | | | | X | | | | | | ST-12500-09 |
| B10-SG | | | ↓ | | | 0155 | | | | | X | | | | | ↓ | ST-12500-10 |

Total Number of Containers

| | Printed Name | Company | Date | Time |
|---|---|---|---|---|
| Relinquished By (Signature) | Mark B. | PARTNER | 8/16 | |
| Received By (Signature) | MARTIN YOUNG | JONES | 8/16/18 | 1230 |
| Relinquished By (Signature) | MARTIN YOUNG | JONES | | |
| Received By Laboratory (Signature) | Tania Camacho | Jones Env. | 8.16.18 | 1524 |

Client signature on this Chain of Custody form constitutes acknowledgement that the above analyses have been reqested, and the information provided herein is correct and accurate.