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By Alameda County Environmental Health 8:44 am, Oct 26, 2016

Mr. Jeremy Harris
1919 Crew LLC
Pier 54 Suite 202
San Francisco, CA 94158

Ms. Dilan Roe
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: 1919 Market Street
Oakland, California 94805
ACEH Case# RO0003205
APNs 5-410-13-1, 5-410-14, 5-410-25

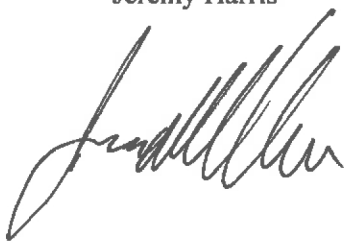
Dear Ms. Roe:

1919 Crew LLC has retained Pangea Environmental Services, Inc. (Pangea) as the environmental consultant for the project referenced above. Pangea is submitting the attached report on my behalf.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached report is true and correct to the best of my knowledge.

Sincerely,

Jeremy Harris



October 6, 2016

Mr. Danny Haber
1919 Crew LLC
Pier 54 Suite 202
San Francisco, CA 94158

Re: **Site Assessment Report**
1919 Market Street
Oakland, California 94607

Dear Mr. Haber:

Pangea Environmental Services, Inc. (Pangea) prepared this *Site Assessment Report* for the subject property. This assessment was performed to investigate subsurface conditions due to historical painting and bus repair operations at the site. This report provides extensive assessment data to help facilitate development at the subject site.

If you have any questions or comments, please call me at (510) 435-8664 or email briddell@pangeaenv.com.

Sincerely,
Pangea Environmental Services, Inc.

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Site Assessment Report*

SITE ASSESSMENT REPORT

1919 Market Street
Oakland, California 94607

October 6, 2016

Prepared for:

1919 Crew LLC
Pier 54, Suite 202
San Francisco, CA 94158

Prepared by:

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, California 94612

Written by:

Ron Scheele, P.G.
Principal Geologist

Bob Clark-Riddell, P.E.
Principal Engineer

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1.0 INTRODUCTION

On behalf of 1919 Crew LLC, Pangea Environmental Services, Inc. (Pangea) has prepared this Site Assessment Report for the subject property located at 1919 Market Street in Oakland, California (Site) (Figure 1). The purpose of this assessment is to investigate subsurface conditions relating to the onsite historical painting and bus repair operations. This assessment was performed to help facilitate development at the subject Site.

1.1 Project Work Scope

This assessment was scoped to delineate contaminants in subslab gas, shallow soil gas, and groundwater to facilitate Site development with the approval of Alameda County Environmental Health (ACEH). The dynamic Site assessment work scope evolved over several phases based on sampling data and field observations made by Pangea and previous consultants. Field activities conducted by Pangea included the following:

- Collection of *subslab gas* samples from nineteen (19) subslab soil gas probes to further delineate volatile organic compounds (VOCs) in a dynamic manner inside the building and beneath the concrete slab.

- Collection of *shallow soil gas* samples from three (3) soil gas wells to further delineate VOCs in soil gas beneath the northwest corner of the building.

- Geophysical surveying to identify potential underground utilities or conduits that could act as potential preferential pathways for VOC migration in soil.

- Collection of *grab groundwater* samples from two (2) soil borings to delineate tetrachloroethene (PCE) impact to groundwater.

2.0 SITE BACKGROUND

2.1 Site Description and History

The subject Site consists of three parcels of land comprising 1.457 acres located on the west side of Market Street and the east side of Myrtle Street within a mixed residential and commercial area of Alameda County, in Oakland, California (Figure 2). The Site's assessor parcel numbers (APN) are 5-410-13-1, 5-410-14, and 5-410-25. The property is owned and being redeveloped by 1919 Crew LLC into live-work residential apartment units. The Site is currently developed with one 70,000 square foot building, which was constructed in 1923 and is currently unoccupied with no onsite operations. In addition to the structure, the

Site is improved with asphalt-paved parking, perimeter fencing, and associated drainage features. The subject property is bound by residential housing to the north, Market Street to the east beyond which is residential housing, St. John Missionary Baptist Church and residential housing to the south, and Myrtle Street to the west beyond which is residential housing. A site plan showing site features and surrounding properties is shown on Figure 2.

The Site has historically housed both residential and commercial tenants. The Site was formerly occupied by Greyhound Bus Lines and a plumbing contractor warehouse, which included onsite operations such as motor repair and painting. Historical painting operations occurred in the northwest corner of the Site. The property was formerly equipped with two 10,000-gallon underground storage tanks (USTs), located within the sidewalk to the southwest side of the building, along Myrtle Street. The USTs were reportedly used by Greyhound Bus Lines to store diesel prior to the 1960s. The Site was occupied by Scott Company starting as early as 1957, who reportedly used the southwest UST to store gasoline. A former fuel dispenser was reportedly located on the southwest portion of the property, near the corner of the subject property building. The USTs and dispenser were removed in the early 1980s at a time when Myrtle Street was being repaved. On May 7, 1999, the Site received closure via Letter of No Further Action from the ACEH for the Leaking UST case.

2.2 Summary of Previous Site Investigations

The following is a Summary of previous environmental activities at the Site:

- **November 19, 2014, Phase I Environmental Site Assessment, AEI:** A Phase I ESA revealed that the Site was formerly occupied by Greyhound Bus Lines and a plumbing contractor warehouse, which included on-site operations such as motor repair and painting. The property was formerly equipped with two 10,000-gallon USTs, located within the sidewalk to the southwest side of the building, along Myrtle Street.

- **March 28, 2016, Phase II Subsurface Investigation Report, Partner Engineering & Science (Partner):** Three subslab samples (SS-3, SS-4 and SS-5) were collected on March 11, 2016. One of the subslab samples (SS-4) contained a detectable concentration of benzene which exceeded the residential Environmental Screening Level (ESL) established by the San Francisco Bay Regional Water Quality Control Board. No other VOCs detected in excess of applicable ESLs. Based on the results of this investigation, the report concluded that there has been a release of VOCs to the subsurface in the vicinity of the former painting area.

- **May 2, 2016, Additional Subsurface Investigation Report, Partner:** Five soil borings (B-1 through B-5) were advanced to a depth of 15 to 20 feet below grade surface (ft bgs) inside the

building. **S**oil, groundwater, and shallow soil gas at 5 ft bgs were sampled to identify potential concerns related to the aforementioned historic operations. No VOCs were detected in soil samples above the applicable laboratory reporting limits (RL). PCE was detected in one groundwater sample (B5-GW) at a concentration less than the applicable ESL. No other VOCs were detected in groundwater exceeding laboratory RLs and/or residential ESLs. One soil gas sample (B3-SG-5) contained PCE and TCE concentrations exceeding applicable ESLs. Two soil gas samples (B2-SG-5 and B4-SG-5) contained chloroform concentrations exceeding the applicable ESL.

2.3 Site Geology and Hydrogeology

The Site is situated within the Coast Range physiographic province of the State of California. The Coast Ranges are northwest-trending mountain ranges and narrow valleys, extending approximately 600 miles from the Oregon Border to the Santa Ynez River near Santa Barbara, sub-parallel to the Pacific coast and San Andreas Fault. Structural features including faults and synclinal folds largely control topography in the province and reflect both previous and existing regional tectonic regimes. The Coast Ranges are comprised of Mesozoic and Cenozoic aged sedimentary strata, dominated by the Franciscan Complex within the subject property vicinity.

The Site is located within the East Bay Plain subbasin, which is part of the larger Santa Clara Valley Groundwater Basin. The East Bay Plain subbasin is a northwest trending alluvial plain bounded to the north by San Pablo Bay, to the east by the contact with Franciscan Basement rock, and to the south by the Niles Cone Groundwater basin. The basin extends beneath San Francisco Bay to the west. Groundwater is generally found very near the surface throughout the basin. The East Bay Plain subbasin aquifer system consists of unconsolidated sediments of Quaternary age. The Early Holocene Temescal Formation is the most recently deposited and consists of primarily silts and clays with some gravel layers.

The relatively flat Site lies at an elevation of approximately 20 feet above mean sea level to the east of San Francisco Bay and to the north of the Oakland Inner Harbor (Figure 1). According to previous boring logs, soil beneath the Site consists of silty sand fill underlain by silty sand, clayey sand, and sandy clay to a total depth of 20 ft bgs. During previous drilling, groundwater was encountered at approximately 15.5 to 19.5 ft bgs and rose to approximately 12.5 to 15 ft bgs. Groundwater appears to be under semi-confined conditions. Based on historical well monitoring data from for the Site and Site vicinity, groundwater flows to the northwest. Lithologic and groundwater data is presented on geologic cross-section A-A' (Figure 3).

3.0 SITE ASSESSMENT

3.1 Pre-Drilling Activities

A Site-specific health and safety plan was prepared to protect Site workers and the plan was kept on-site during all field activities. Proposed drilling locations were marked and Underground Service Alert was notified before the proposed field activities. Boring permits were obtained from Alameda County Public Works Agency (ACPWA) (Appendix A).

3.2 Grab Groundwater Sampling

On September 1, 2016, two soil borings (B-6 and B-7) were advanced by Penecore Drilling of Woodland, California to a depth of 25 feet bgs (Figure 2). At each soil boring location, a dual-tube sample consisting of an outer core barrel and an inner sampling rod was used to retrieve soil cores for lithologic observation by a Pangea geologist. Each core was also field screened for VOCs using a photo-ionization detector (PID). Samples were taken from first encountered groundwater at approximately 21 to 25 ft bgs by placing 1" PVC with slotted screen downhole and retrieving water via bailer or peristaltic pump. The grab groundwater samples were decanted into laboratory provided 40 milliliter vials. The samples were placed in a cooler with ice for transport to state-certified Curtis and Tompkins Laboratories (C&T) of Berkeley, California following chain-of-custody protocol. Samples were analyzed for VOCs by EPA Method 8260 and total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015. Borings were grouted under the supervision of an ACPWA inspector. Standard operating procedures are included in Appendix B.

3.3 Subslab Soil Gas Sampling

To evaluate subslab conditions beneath concrete, nineteen subslab gas probes (SS-1, SS-2 and SSV-1 through SSV-20) were installed inside the building and sampled on February 5, August 1, August 17, and September 1, 2016. The subslab gas probe locations are shown on Figure 2. Note that some of the subslab probes were destroyed by demolition activities before they could be sampled.

Subslab gas probes were constructed by drilling a 5/8-inch dimeter hole through the concrete slab and installing a Vapor Pin® manufactured by Cox-Colvin & Associates. The probes were allowed to equilibrate with subslab gas for a minimum of 2 hours. Subslab gas samples were collected using laboratory-supplied manifolds and certified-clean Summa™ canisters. The Summa™ canisters were supplied with a vacuum of approximately 30 inches of mercury. Prior to sample collection from the probes, a shut in test was conducted on the Summa™ canisters and manifolds for a minimum of 10-15 minutes. A minimum of three casing volumes was purged from the probe by either a purge canister or syringe at a flow rate between 100-200 milliliters per minute. Upon completion of purging of approximately three or more times the ambient volume of air in the assembly/probe, the sampling Summa™ canister was opened for sample collection.

The pre-set valve regulated the vapor flow to approximately 150 milliliters of air per minute. After approximately 5 or more minutes, the vacuum within the Summa™ canisters decreased to 5 inches of mercury and the Summa™ canister valve was closed.

To further evaluate potential leakage within the sampling system, a leak-check enclosure was placed over the sampling assembly, and isopropyl alcohol gas was introduced into the leak-check enclosure/shroud. A PID was used to monitor the concentration of isopropyl alcohol within the enclosure during sample collection. After sample collection, the soil gas probes were removed and the void filled with cement. Field forms for soil gas purging and sampling are included in Appendix D.

Soil gas samples were transported to C&T following chain-of-custody protocol. Samples were analyzed for VOCs by Total Organics Method 15 (TO-15), and two samples (SS-1 and SS-2) were also sampled for TPHg and VOCs by TO-17.

3.4 Soil Gas Well Installation and Sampling

To evaluate shallow soil gas conditions beneath Site, three soil gas wells (SG-1 through SG-3) were installed on September 1, 2016, by Penecore Drilling to a depth of 5.5 feet bgs (Figure 2). Soil gas probe installation and sampling was conducted in general accordance with the DTSC's *Advisory: Active Soil Gas Investigation* dated April 2012. A 3-inch diameter boring was hand augered to 5.5 ft bgs and a soil gas probe was constructed with a stainless steel vapor implant connected to new ¼-inch diameter Teflon tubing and capped with a Swagelok® type fitting. The implant was placed at 5 ft bgs with 0.5 ft Monterey #3 sand pack above and below, followed by 0.5 ft of dry granular bentonite and 3.5 ft of hydrated bentonite. The Teflon™ tubing was set in a 5-inch flush-mounted well box.

On September 6, 2016, soil gas wells were sampled by Pangea field staff. Soil gas samples were collected using laboratory-supplied manifolds and certified-clean Summa™ canisters. The Summa™ canisters were supplied with a vacuum of approximately 30 inches of mercury. Prior to sample collection from the probes, a shut in test was conducted on the Summa™ canisters and manifolds for a minimum of 10-15 minutes. A minimum of three casing volumes was purged from the probe by either a purge canister or syringe at a flow rate between 100-200 milliliters per minute. Upon completion of purging of approximately three or more times the ambient volume of air in the assembly/probe, the sampling Summa™ canister was opened for sample collection. The pre-set valve regulated the vapor flow to approximately 150 milliliters of air per minute. After approximately 5 or more minutes, the vacuum within the Summa™ canisters decreased to 5 inches of mercury and the Summa™ canister valve was closed.

To further evaluate potential leakage within the sampling system, a leak-check enclosure was placed over the sampling assembly, and isopropyl alcohol gas was introduced into the leak-check enclosure/shroud. A

PID was used to monitor the concentration of isopropyl alcohol within the enclosure during sample collection. Field forms for soil gas purging and sampling are included in Appendix D.

Soil gas samples were transported to C&T following chain-of-custody protocol. Samples were analyzed for VOCs by EPA Method TO-15.

3.5 Underground Utility Study

An underground utility study was conducted by Safe2Core of San Jose, California. A mobile ground penetrating radar (GPR) cart was used to search for soil density anomalies that would indicate a hollow utility or trench in the subsurface. During the study, three sewer laterals were identified running north-south along the south and central portions of the Site. An 8-inch diameter water line was also identified running on a diagonal in the center of the Site. Both utilities were identified at a depth of approximately 2 ft bgs and encroached upon the southern extent of the VOC plumes. The location of the identified subsurface utilities are presented on Figure 2.

3.6 Waste Disposal

Soil cuttings and other investigation-derived waste were stored onsite in a DOT-approved, 55-gallon drum pending laboratory analytical results. Upon receipt of the analytical reports, the waste will be transported to an appropriate disposal/recycling facility.

4.0 SITE ASSESSMENT RESULTS

4.1 Field Observations

During drilling activities, soil beneath the Site consisted of approximately 4 feet of silty sand fill underlain by silt and clay to 21 ft bgs, sand from 21 to 24 ft bgs and clay to a total depth of 25 ft bgs. In the subgrade loading area in the northwest corner of the building, less fill was encountered and a silty sand was observed from 15.5 to 21 ft bgs. No odor or staining or PID readings were observed during drilling. Groundwater was encountered during drilling at approximately 21 feet bgs and based on previous drilling data, appears to be under semi-confined conditions. Boring logs from this investigation are included in Appendix C.

4.2 Groundwater Analytical Results

Two grab groundwater samples were collected from borings (B-6 and B-7) for analysis of VOCs. Samples were collected from first encountered groundwater at a depth of 21 to 25 ft bgs. No VOCs were detected above laboratory RLs. Groundwater sample results are shown in Figure 5 and summarized in Table 2. Groundwater analytical reports are presented in Appendix E.

4.3 Subslab Gas Analytical Results

A total of 19 subslab gas samples (SS-1, SS-2 and SSV-1 through SSV-20) were collected for analysis of VOCs and TPHg. (Note that samples SS-3 and SS-4 were collected by Partner as part of a previous investigation.) The following VOCs were detected in various subslab gas samples: benzene, toluene, ethylbenzene, xylenes, naphthalene, PCE, trichloroethene (TCE), 1,1,1-trichlorethane (1,1,1-TCA), carbon tetrachloride and chloroform. Subslab gas sample results are summarized in Table 3.

Only PCE, benzene, and carbon tetrachloride were detected above their respective residential ESLs for subslab gas. The distribution of PCE, benzene, carbon tetrachloride and chloroform in subslab gas is shown on Figures 6 through 9, respectively. A summary of these subslab gas plumes is shown on Figure 10. Analytical reports are presented in Appendix E.

PCE was detected in 13 of the subslab gas samples analyzed by Pangea at a maximum concentration of 790 micrograms per cubic meter ($\mu g/m^3$) in SSV-14: two of the 13 samples exceeded the residential ESL for PCE in soil gas of 240 $\mu g/m^3$. Benzene was detected in four samples analyzed by Pangea at a maximum concentration of 43 $\mu g/m^3$ in SSV-27, while benzene was detected previously detected by others at a maximum of 140 $\mu g/m^3$ in SS-4. Two samples exceeded the residential ESL for benzene in soil gas of 48 $\mu g/m^3$. Carbon tetrachloride was detected in 11 samples analyzed by Pangea at a maximum concentration of 390 ($\mu g/m^3$) in SSV-12; six of the 11 samples exceeded the residential ESL for carbon tetrachloride in soil gas of 33 $\mu g/m^3$.

Leak check compound isopropyl alcohol was detected at trace levels in some of the samples up to a maximum concentration of 320 $\mu g/m^3$. The levels of isopropyl alcohol in the samples where less than 0.5 % of the levels within the sampling shroud indicating that the sample results are indicative of subsurface conditions.

4.4 Soil Gas Analytical Results

Pangea coordinated the collection of three shallow soil gas samples from 5 ft bgs from soil gas wells SG-1 through SG-3 for VOC analysis. The following VOCs were detected in various soil gas samples: benzene, toluene, ethylbenzene, xylenes, PCE, TCE, 1,1,1-TCA, carbon tetrachloride, and chloroform. Soil gas sample results are summarized in Table 3.

Only PCE, TCE, benzene and chloroform were detected above their respective residential ESLs for soil gas. The distribution of PCE, TCE, benzene and chloroform in soil gas is shown on Figures 6 through 9, respectively. A summary of these soil gas plumes is shown on Figure 11. Analytical reports are presented in Appendix E.

PCE was detected in all 3 samples analyzed by Pangea at a maximum concentration of 55 (µg/m^3) in well SG-1, while PCE was detected by others at a maximum of 2,200 µg/m^3 in B-3. Sample B-3 was the only sample that exceeded the residential ESL for PCE in soil gas of 240 µg/m^3. TCE was also detected in sample B-3 by others, at a Site maximum of 880 µg/m^3. TCE is likely due to the degradation of PCE, and sample B-3 was only sample that exceeded the residential ESL for TCE in soil gas of 240 µg/m^3. Benzene was detected in all 3 Pangea samples, at a maximum concentration of 71 µg/m^3 in SG-2; only this sample of the 3 samples exceeded the residential ESL for benzene in soil gas of 48 µg/m^3. Note that previous soil gas samples from location B-3 and B-4 had elevated RLs above the residential ESL for benzene. Chloroform was detected in two samples analyzed by Pangea, at a maximum concentration of 15 µg/m^3 in SG-2, while chloroform was detected previously at a maximum of 910 µg/m^3 in soil gas from B-4. Two previous soil gas samples B-2 and B-4 exceeded the residential ESL for chloroform in soil gas of 61 µg/m^3.

Leak check compound isopropyl alcohol was not detected in any of the samples indicating that the sample results are indicative of subsurface conditions.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the above information, Pangea offers the following conclusions and recommendations:

- The Site has by 2 to 4 ft of fill (permeable silty sand) underlain by silt and clay to 21 ft bgs, sand from 21 to 24 ft bgs and clay to a total depth of 25 ft bgs. In the former loading area in the northwest corner of the building, less fill was encountered and a silty sand was observed from 15.5 to 21 ft bgs. Groundwater was encountered during drilling at approximately 21 feet bgs and based on previous drilling data, appears to be under semi-confined conditions.

- Based on recent and historical *soil* analytical data, Site soil has not been significantly impacted by VOCs, with no VOCs have been detected in soil above ESLs.

- Site *Groundwater* has not been significantly impacted by VOCs, with no VOCs detected in groundwater above ESLs. Historical well data from the former UST area located southwest of the Site showed trace levels of BTEX prior to the wells being destroyed in 1992.

- *Subslab gas* and *shallow soil gas* is impacted with concentrations of PCE, TCE, benzene, carbon tetrachloride and chloroform in excess respective residential ESLs for soil gas and/or subslab gas. This impact above ESLs is located in the northwest portion of the Site within the historical painting and bus repair areas. No VOCs were detected above ESLs in subslab gas and shallow soil gas adjacent the former UST area.

- The *primary VOC impact* above ESLs is present in soil gas about 5 ft below the concrete slab in the former loading dock and auto painting area within northwestern corner of the Site. The slab is approximately 3.5 ft lower in this approximate 50 ft by 35 ft area than the slab across the rest of the site. This impact is illustrated in cross-section view on Figure 3 and on plan view in Figure 11. The VOC impact in subslab gas is illustrated on Figure 10.

- Based on site conditions and the planned redevelopment schedule, Pangea recommends *soil vapor extraction (SVE)* for remediation of Site VOCs consistent with State guidance (CalEPA/DTSC, 2010). A *Pilot Study Workplan* will be submitted separately to propose pilot testing to facilitate design of an SVE approach for targeting VOCs in subslab and soil gas at this Site. The *Pilot Study Workplan* will propose test procedures and installation of SVE test wells/underground conveyance piping in conjunction with the ongoing building redevelopment. A *Corrective Action Plan* will be prepared to propose a final Site remediation approach.

6.0 REFERENCES

AEI Consultants, 2014, *Phase I Environmental Site Assessment*, (AEI, 2014) 1919 Market Street, Oakland California, November 19.

CalEPA/DTSC, 2010, *Proven Technologies and Remedies Guidance, Remediation of Chlorinated Volatile Organic Compounds in Vadose Zone Soil,* April 2010

CalEPA/DTSC, 2011, *Vapor Intrusion Mitigation Advisory (VIMA),* October 2011

CalEPA/DTSC, 2012, *Advisory – Active Soil Gas Investigations,* April 2012

Pangea Environmental Services, Inc., 2016, *Site Assessment Report*, 1919 Market Street, Oakland California, October 6.

Partner Engineering & Science, Inc., 2016, *Phase II Subsurface Investigation Report*, 1919 Market Street, Oakland California, March 28.

Partner Engineering & Science, Inc, 2016, *Additional Subsurface Investigation Report*, 1919 Market Street, Oakland California, May 2.

1919 Market Street
Oakland, California

PANGEA

Vicinity Map

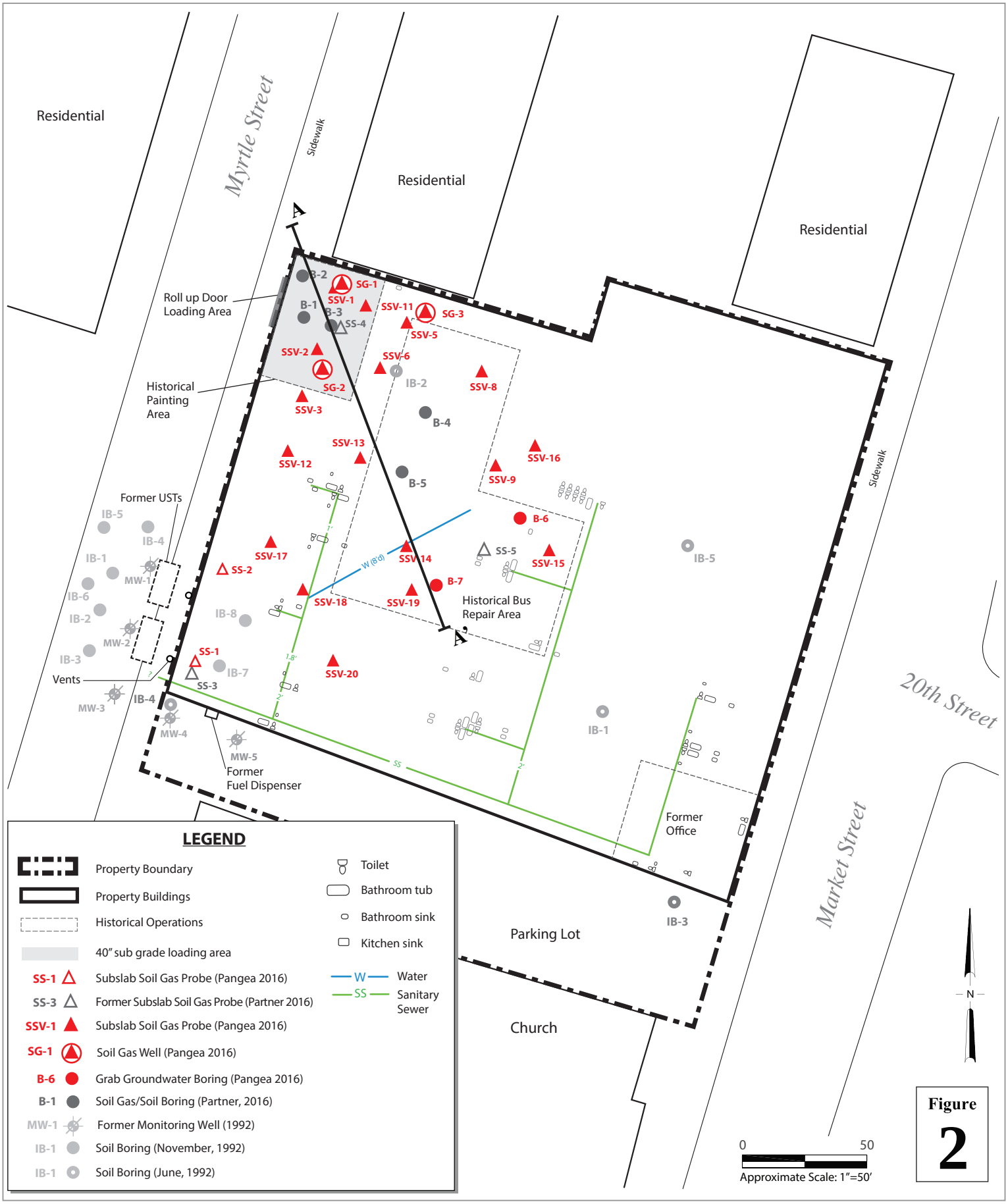


Figure 2

1919 Market Street
Oakland, California

PANGEA

Site Map

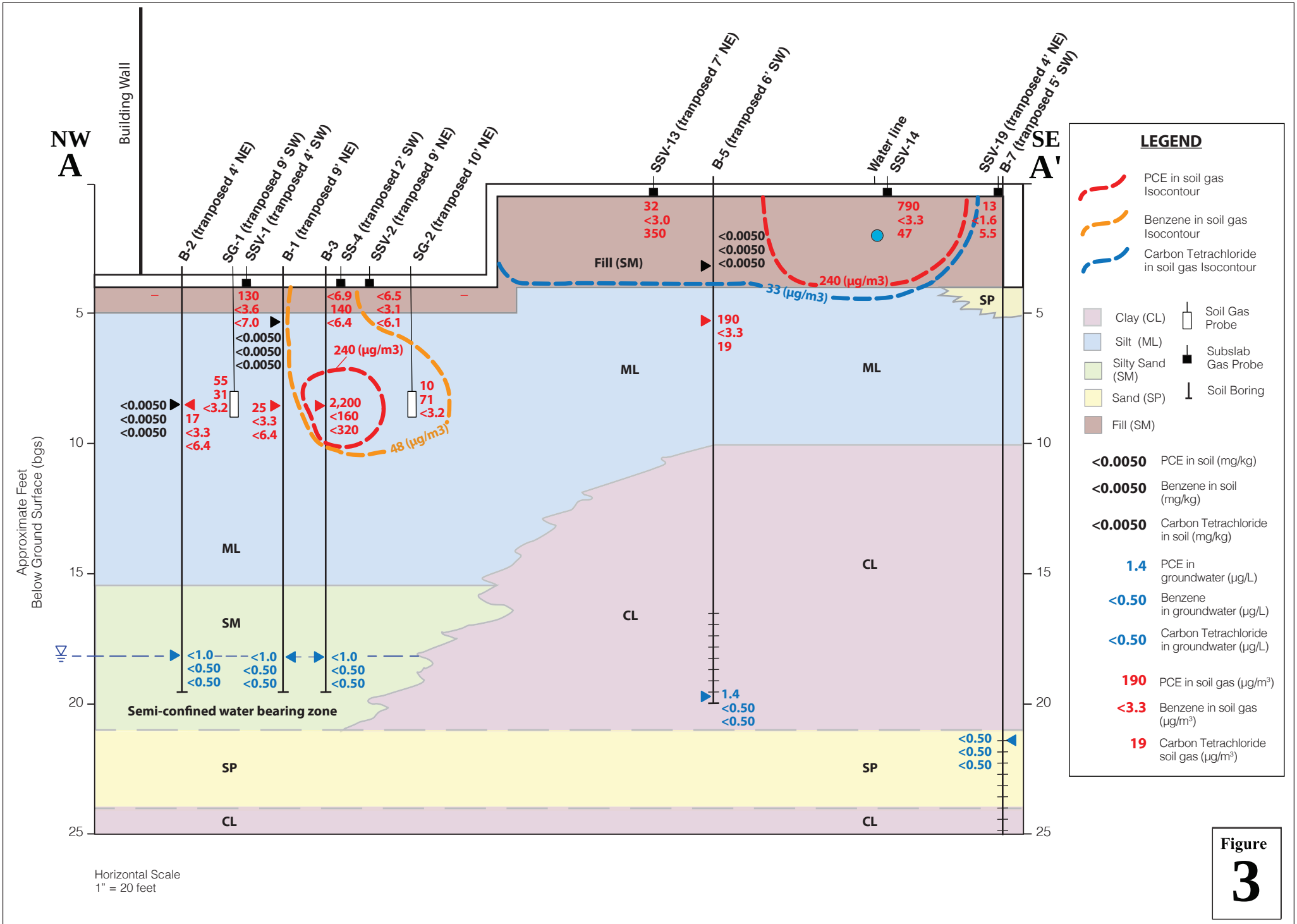
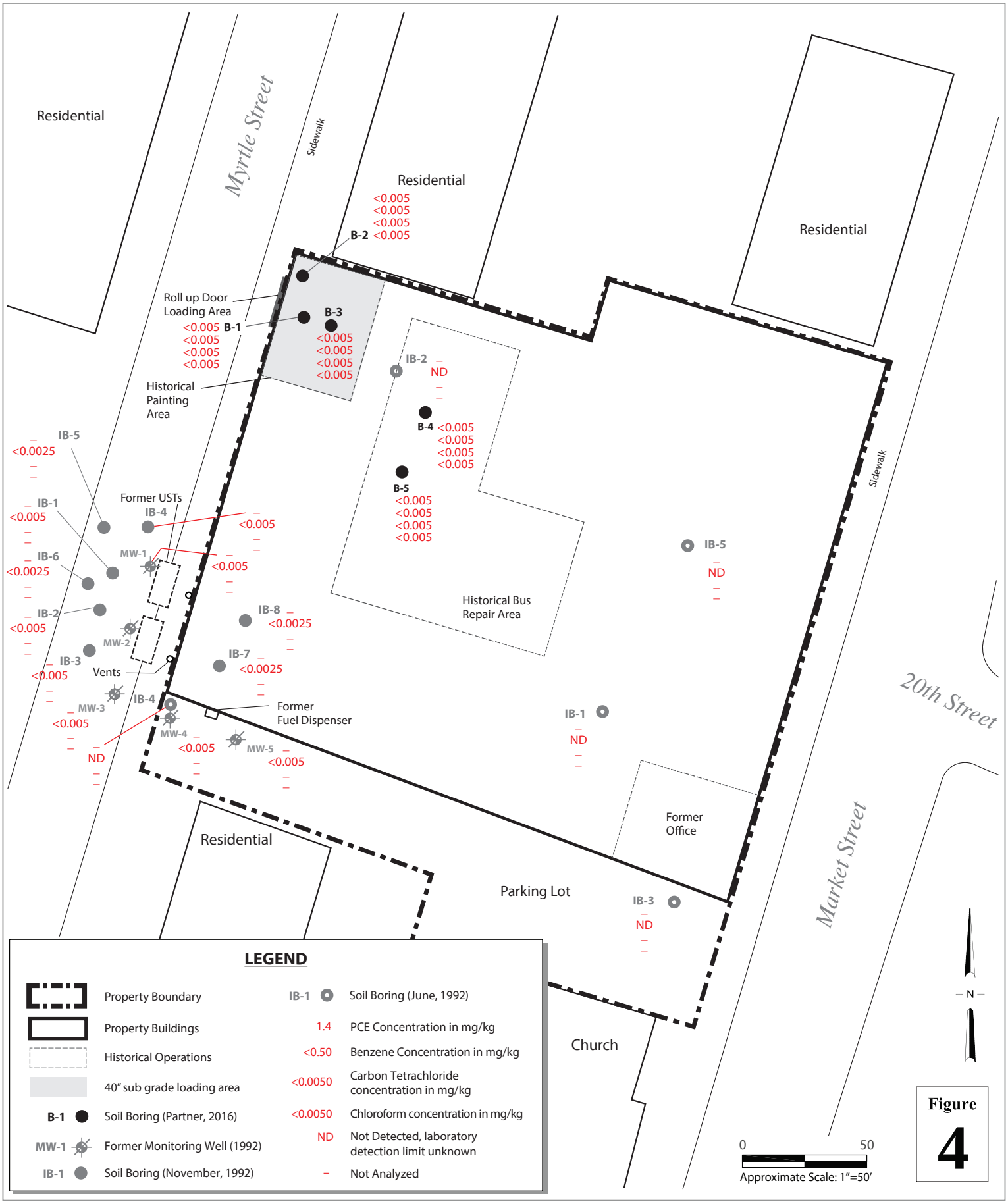


Figure 3

1919 Market Street
Oakland, California

PANGEA

Cross Section A- A'



1919 Market Street
Oakland, California

PANGEA

Maximum VOCs in Soil

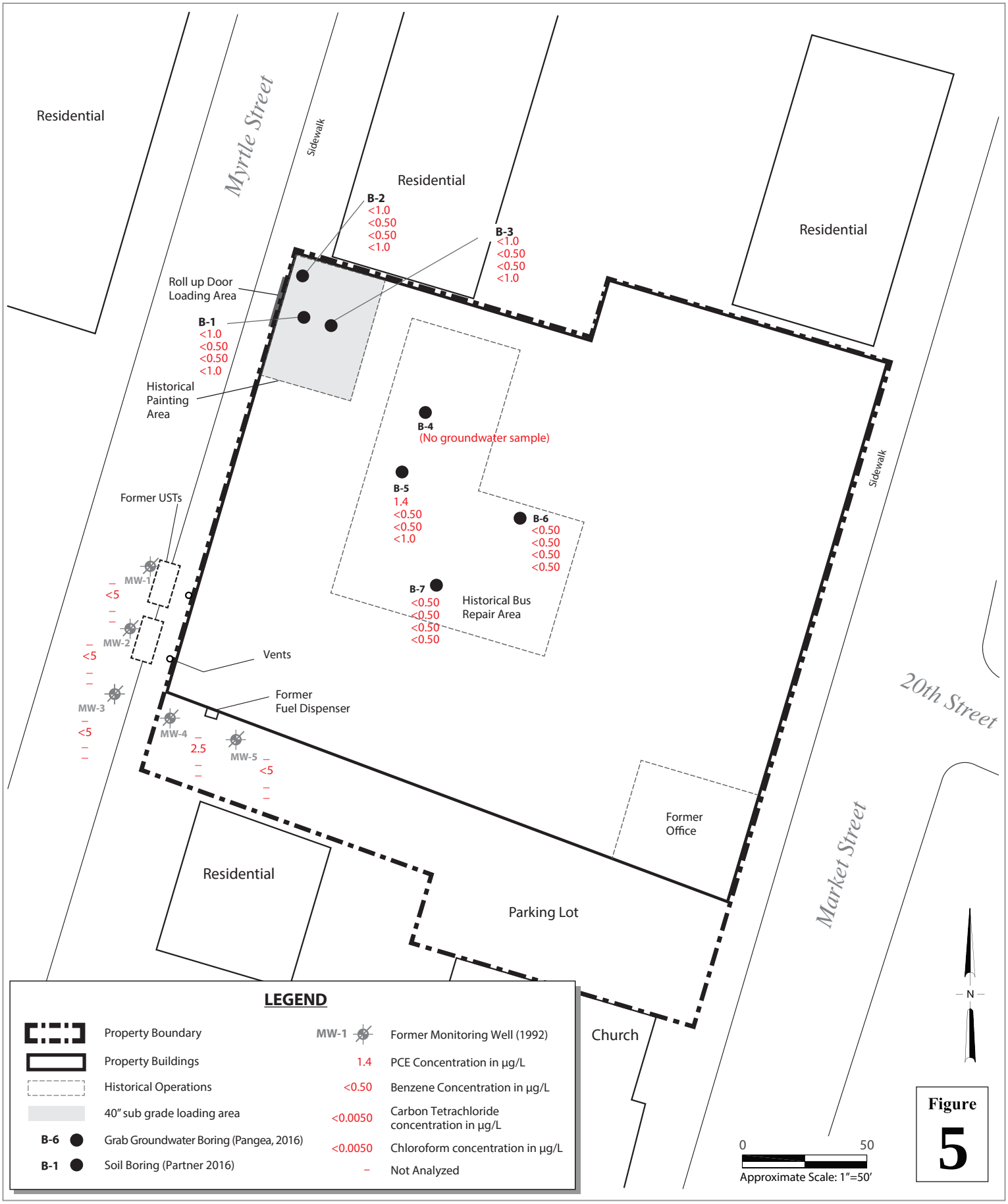


Figure 5

1919 Market Street
Oakland, California

PANGEA

Maximum VOCs in Groundwater

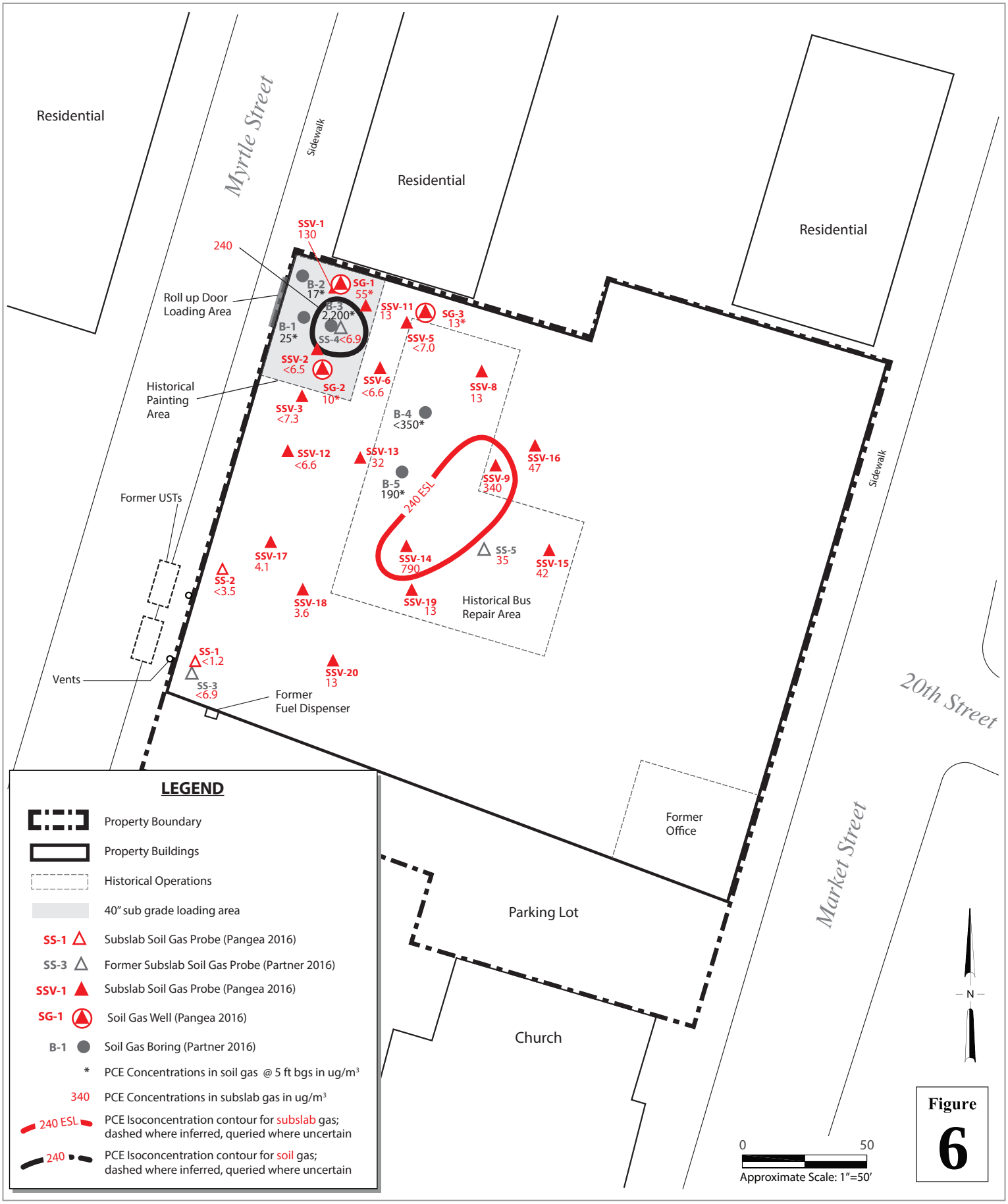


Figure
6

1919 Market Street
Oakland, California

PANGEA

PCE in Subslab Gas
and Soil Gas

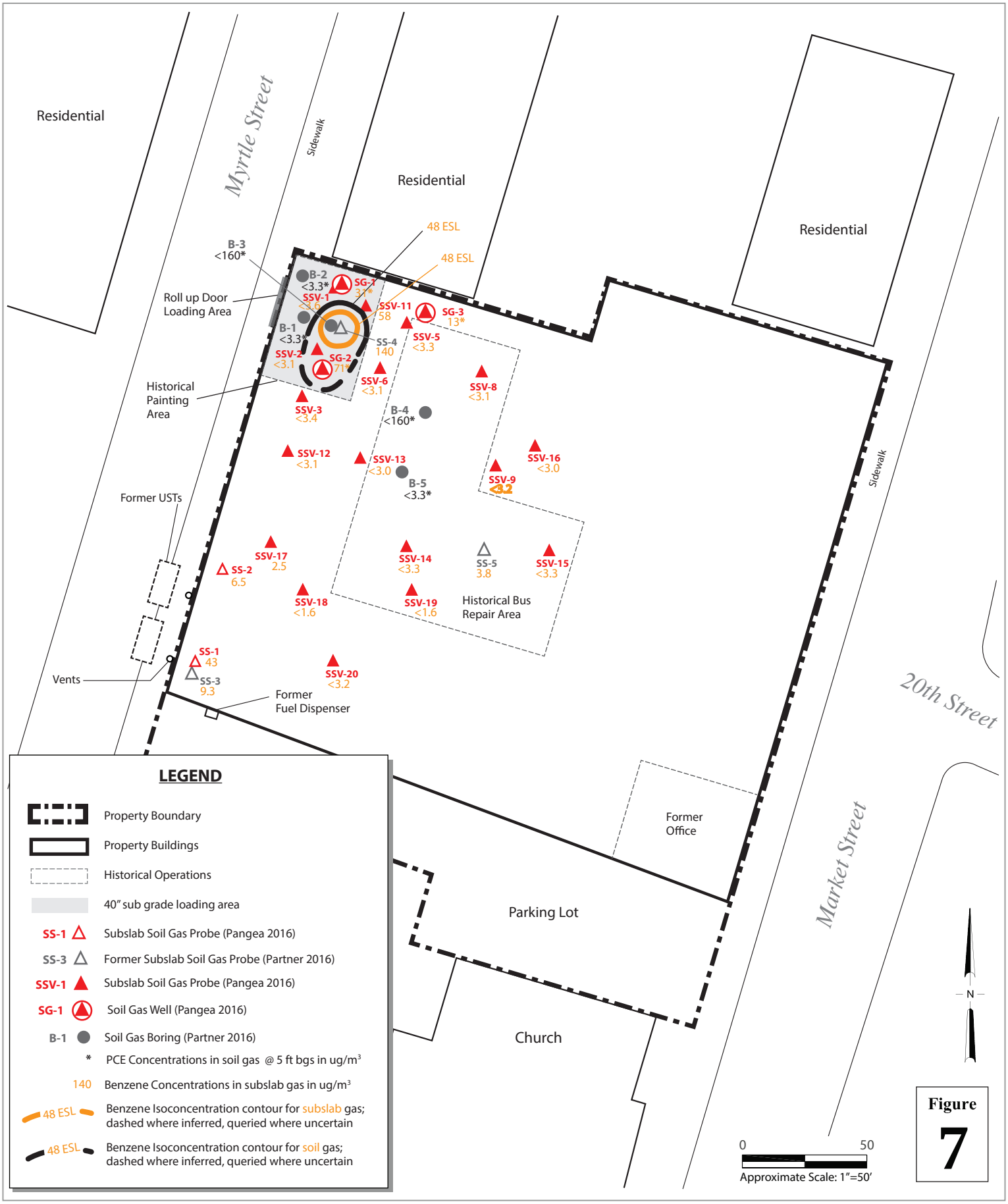
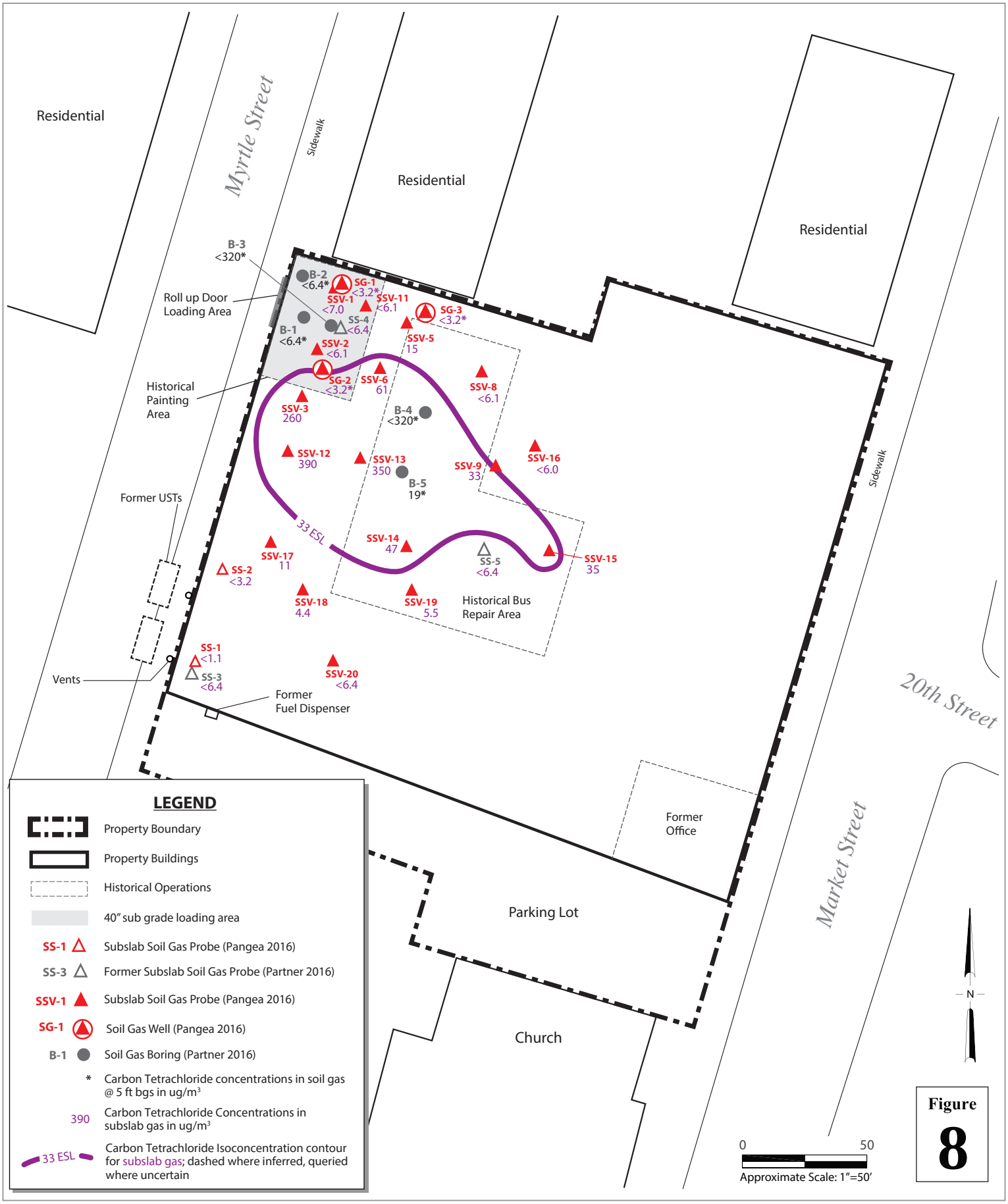


Figure
7

1919 Market Street
Oakland, California

PANGEA

Benzene in Subslab Gas
and Soil Gas



1919 Market Street
Oakland, California

PANGEA

Carbon Tetrachloride in Subslab Gas and Soil Gas

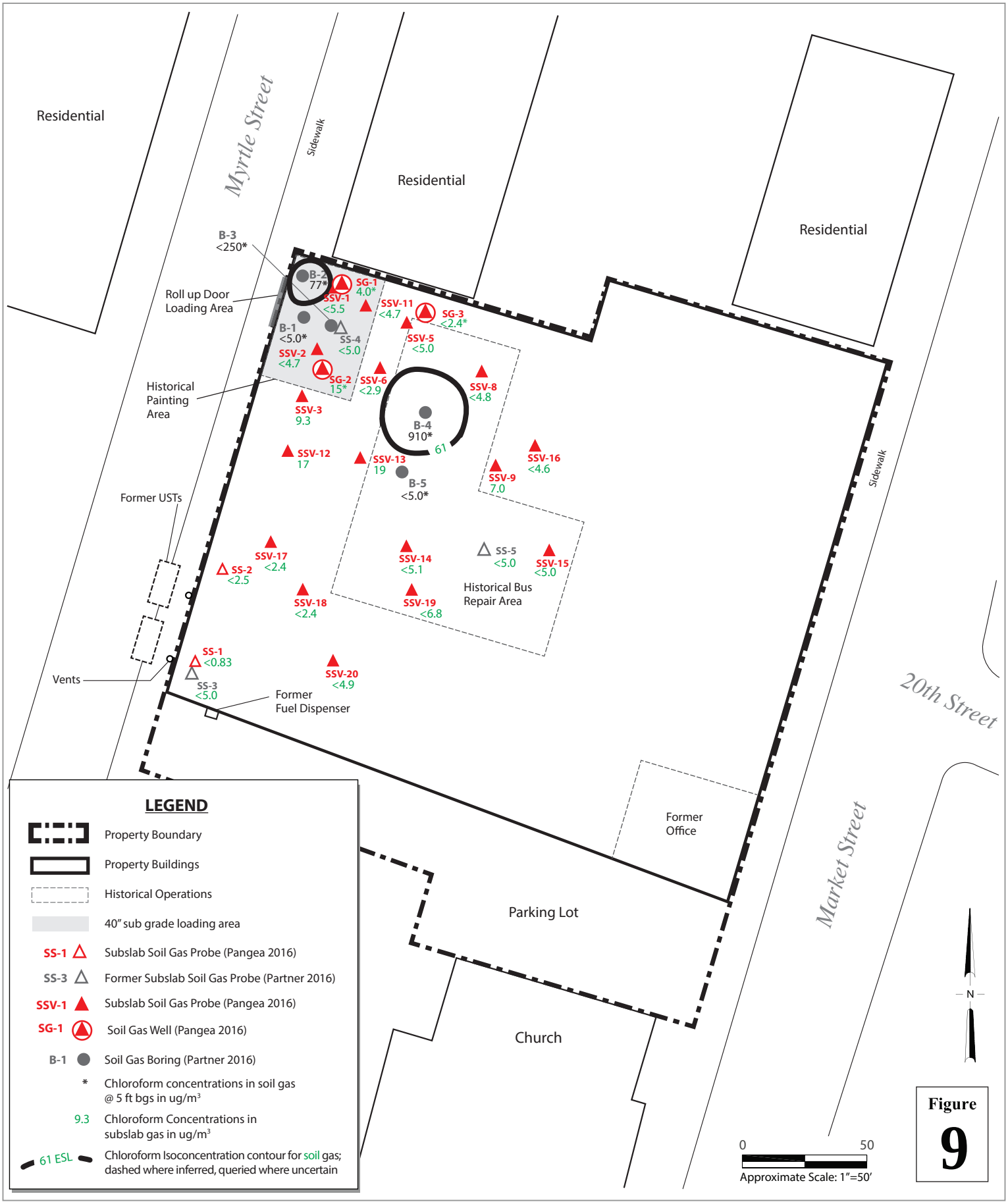


Figure
9

1919 Market Street
Oakland, California

PANGEA

Chloroform in Subslab Gas
and Soil Gas

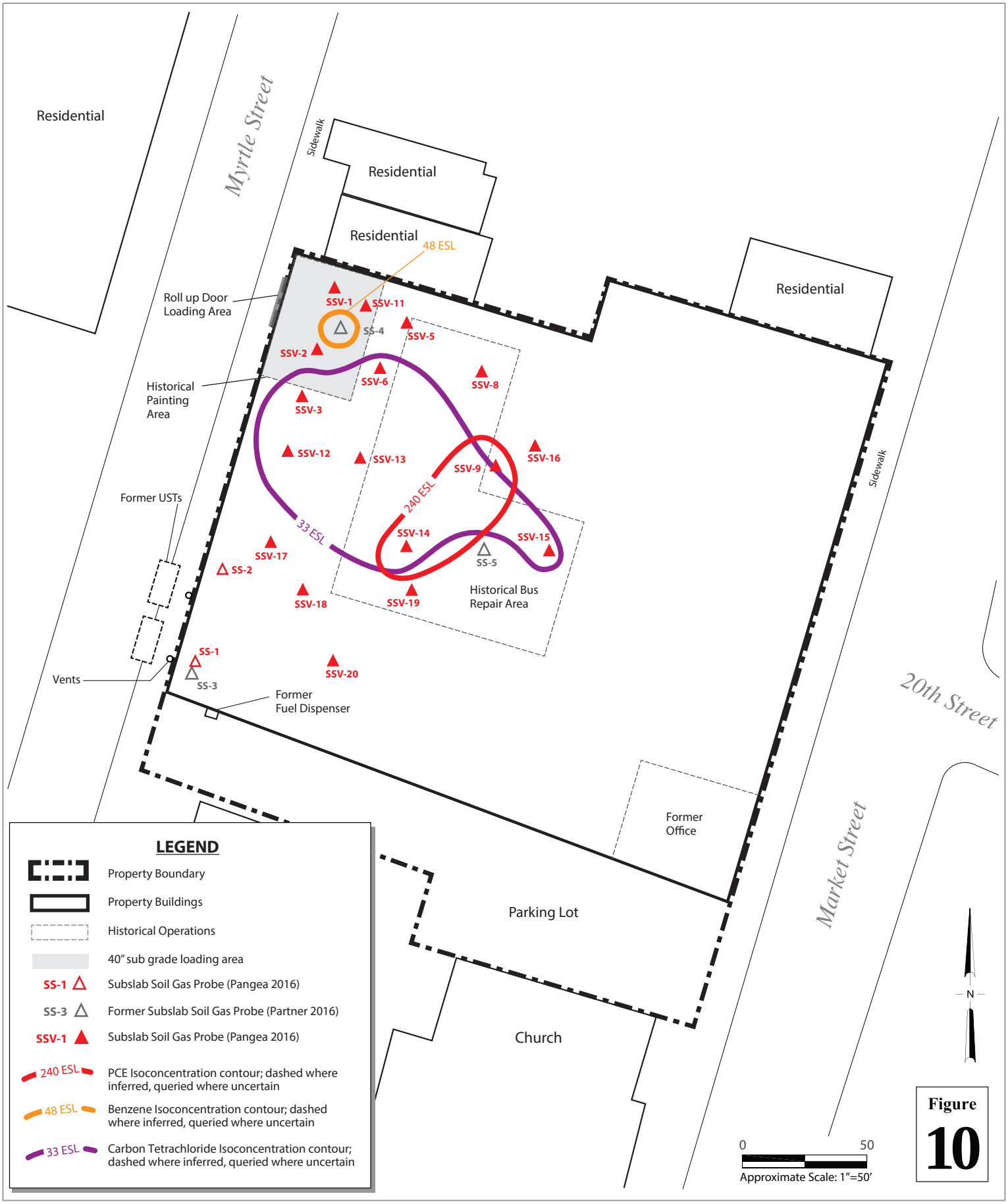


Figure
10

1919 Market Street
Oakland, California

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VOCs in Subslab Soil Gas
Plume Map

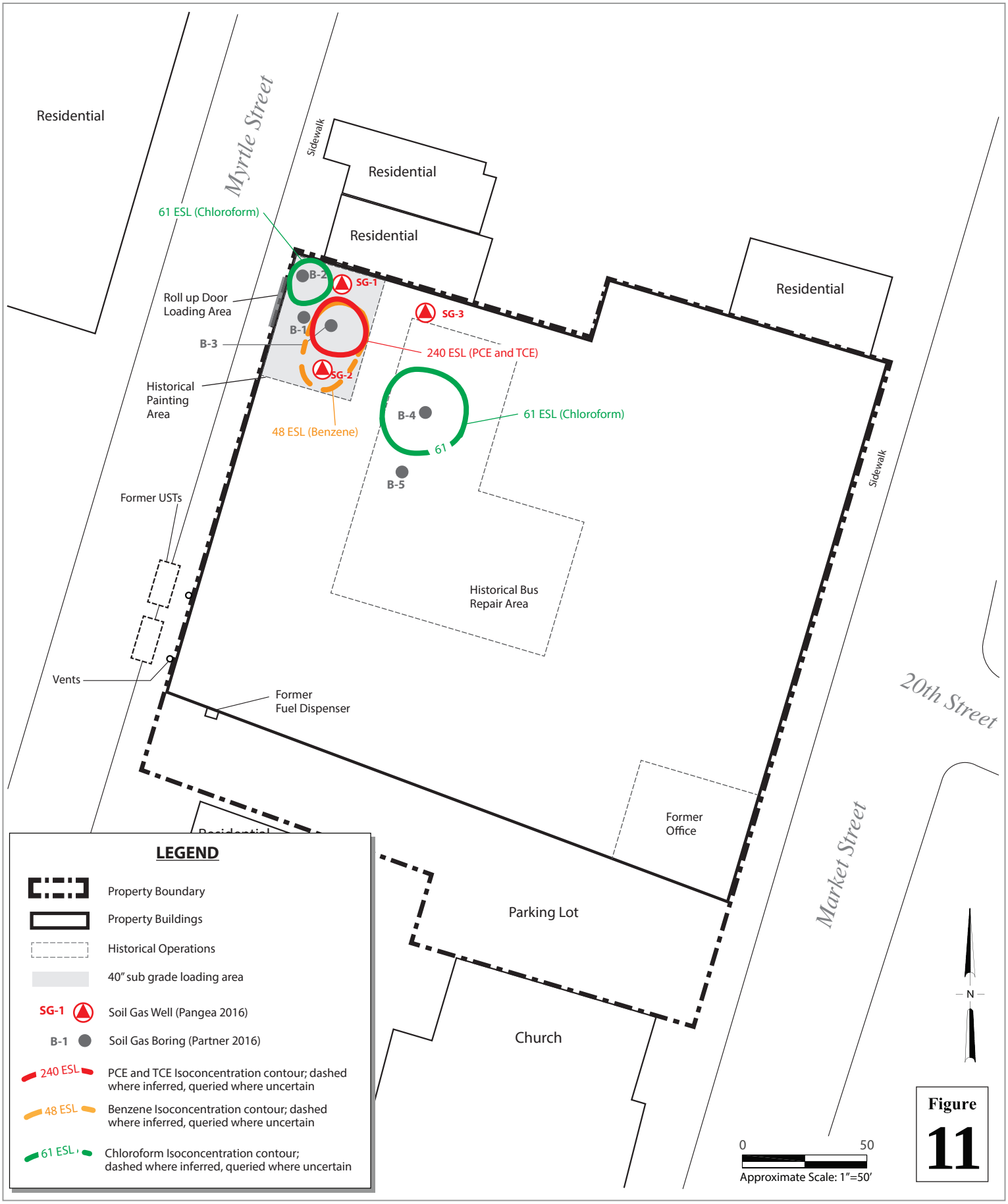

Figure 11

1919 Market Street
Oakland, California

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VOCs in Soil Gas
Plume Map

Pangea

Table 1. Soil Analytical Data - 1919 Market Street, Oakland, California

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			mg/Kg														
		Soil Tier 1 ESL:	100	230	5,100	0.044	2.9	1.4	2.3	0.033	0.0045	0.42	0.46	7.8	0.048	0.068	
Soil Samples: June, 1992																	
IB-1	June 1992	5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
IB-2	June 1992	5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
IB-3	June 1992	5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
IB-4	June 1992	5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
		15	2.5	--	--	ND	0.016	0.030	0.10	--	--	--	--	--	--	--	
IB-5	June 1992	5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	
Soil Samples: November, 1992																	
IB-1	11/25/1992	6	2.8	<10	<10 / 14[a]	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		11	87	**300**	<20	<0.005	<0.005	<0.005	0.030	--	--	--	--	--	--	--	
IB-2	11/25/1992	6	<0.50	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		11	23	<10 / 12[a]	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
IB-3	11/25/1992	6	<0.5	<10	13 / <10[a]	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		11	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
IB-4	11/25/1992	6	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		11.5	13	170	27	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	
IB-5	11/25/1992	7	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
		11.5	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
IB-6	11/25/1992	7	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
		11.5	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
IB-7	11/25/1992	5	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
		10	**560**	44	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
IB-8	11/25/1992	5	<1	<1	11	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	
		10	**160**	76	<10	<0.0025	<0.0025	1,100	<0.0025	--	--	--	--	--	--	--	
MW-1	1992	5	40	140	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	
		10.5	**430**	**1,100**	61	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	
		13	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
MW-2	1992	5.5	**120**	180	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	
		10.5	**310**	**1,200**	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	
		15.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
MW-3	1992	5.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		10.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		15.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005								

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Table 1. Soil Analytical Data - 1919 Market Street, Oakland, California

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			mg/Kg														
		Soil Tier 1 ESL:	100	230	5,100	0.044	2.9	1.4	2.3	0.033	0.0045	0.42	0.46	7.8	0.048	0.068	
MW-4	1992	8	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		12.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
MW-5	1992	8	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
		14.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	
Soil Samples: April, 2016																	
B-1	04/15/2016	2	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
B-2	04/15/2016	5	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
B-4	04/15/2016	3	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	
B-5	04/15/2016	3	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	

Legend:

TPHg = Total Petroleum Hydrocarbons as gasoline by EPA Method 8015.

TPHd = Total Petroleum Hydrocarbons as diesel by EPA Method 8015.

TPHmo = Total Petroleum Hydrocarbons as motor oil by EPA Method 8015.

Benzene, Toluene, Ethylbenzene and Xylenes by EPA Method 8021.

1,2-DCA = 1,2-Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

mg/Kg = milligrams per kilogram

ft bgs = Depth below ground surface in feet.

ND = analyte(s) not detected, detection limit unkowwn

< n = Chemical not present at a concentration in excess of detection limit shown.

-- = Not analyzed

ESL = Environmental Screening Level, from California Regional Water Quality Control Board - San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Revised February 2016 (Revision 3).

[a] = duplicate sample taken

contaminant detected above reporting limit

Bold concentrations exceed screening levels (Tier 1 ESLs)

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Table 2. Groundwater Analytical Data - 1919 Market St, Oakland, CA

Well ID	Date Sampled	Sample Depth (ft bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			µg/L														
VI ESL - Shallow GW, Residential (≤ 10 ft):			1.1	3,600	13	1,300	20	6.1	3.0	5.6	110	1,000	0.061	4,900	0.22	2.3	
Historical Monitoring Well Data																	
MW-1	8/7/1992	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.5	14	1.8	2.5	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/7/1992	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.5	14	1.9	2.5	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
MW-3	8/7/1992	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.5	16	2.4	3.5	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	8/7/1992	--	**20**	150	7.5	340	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	**13**	36	8.2	31	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	**25**	52	**43**	230	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	**5.2**	5.2	**30**	130	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	**17**	18	**110**	300	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	**8.8**	<0.5	9.9	22	--	--	--	--	--	--	--	--	--	--	
MW-5	8/7/1992	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.5	33	3.5	4.2	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

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Table 2. Groundwater Analytical Data - 1919 Market St, Oakland, CA

Well ID	Date Sampled	Sample Depth (ft bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			µg/L														
VI ESL - Shallow GW, Residential (≤ 10 ft):			1.1	3,600	13	1,300	20	6.1	3.0	5.6	110	1,000	0.061	4,900	0.22	2.3	
MW-5 cont.	10/22/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Groundwater Data																	
B-1-GW	4/11/2016	16*	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-2-GW	4/11/2016	16*	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-3-GW	4/11/2016	16*	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-5-GW	4/11/2016	20	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-6-GW	9/1/2016	21-25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
B-7-GW	9/1/2016	21-25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Legend:

TPHg = Total Petroleum Hydrocarbons as gasoline by EPA Method 8015.

TPHd = Total Petroleum Hydrocarbons as diesel by EPA Method 8015.

TPHmo = Total Petroleum Hydrocarbons as motor oil by EPA Method 8015.

1,2-DCA = 1,2-Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

1,1,1-TCA = 1,1,1-Trichloroethane

µg/L = Micrograms per Liter

ft bgs = feet below ground surface in feet

< n = Chemical not present at a concentration in excess of detection limit shown.

-- = Not analyzed

ESL = Environmental Screening Level, from California Regional Water Quality Control Board - San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Revised February 2016 (Revision 3).

***** = Surface elevation approximately 3.3 ft below other borings

contaminant detected above reporting limit

Bold concentrations exceed shown screening levels

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Table 3. Soil Gas Analytical Data - 1919 Market Street, Oakland, California

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Other VOCs	Isopropyl Alcohol (Leak Check Compound)	Oxygen	Methane [1]	Notes
			ug/m^3														%	%	
Residential ESL for soil/subslab gas:			300,000	48	160,000	560	52,000	41	54	240	240	520,000	33	61	Varies	NA	---	---	
Subslab Soil Gas Samples																			
SS-1	02/05/16	0.5	380	**43**	27	1.3	9.0	1.9	<0.70	<1.2	<0.93	2.3	<1.1	<0.83	*	12	17	<0.20	
SS-2	02/05/16	0.5	<1,000	6.5	16	<2.2	<6.6	5.3	<2.1	<3.5	<2.8	<2.8	<3.2	<2.5	--	16	17	<0.19	
SS-3[2]	03/11/16	0.5	--	9.3	140	19	100	--	<4.1	<6.9	<5.5	<5.6	<6.4	<5.0	--	--	--	--	
SS-4[2]	03/11/16	0.5	--	**140**	35	6.9	46	--	<4.1	<6.9	<5.5	<5.6	<6.4	<5.0	--	--	--	--	
SS-5	03/11/16	0.5	--	3.8	19	<4.4	25.6	--	<4.1	35	26	67	<6.4	<5.0	--	--	--	--	
SSV-1	08/01/16	0.5	--	<3.6	8.2	<4.9	9.7	<23	<4.5	130	<6.0	<6.1	<7.0	<5.5	*	14	--	--	
SSV-2	08/01/16	0.5	--	<3.1	8.1	<4.2	6.3	<20	<3.9	<6.5	<5.2	<5.3	<6.1	<4.7	--	--	--	--	
SSV-3	08/01/16	0.5	--	<3.4	4.2	<4.6	5.6	<22	<4.3	<7.3	<5.7	10	**260**	9.3	--	38	--	--	
SSV-5	08/01/16	0.5	--	<3.3	5.9	<4.5	7.5	<21	<4.1	<7.0	<5.5	<5.6	15	<5.0	--	21	--	--	
SSV-6	08/01/16	0.5	--	<3.1	4.5	<4.2	6.2	<20	<3.9	<6.6	<5.2	18	**61**	<4.8	*	13	--	--	
SSV-8	08/01/16	0.5	--	<3.1	<3.7	<4.2	<8.4	<20	<3.9	13	<5.2	80	<6.1	<4.8	*	--	--	--	
SSV-9	08/01/16	0.5	--	<3.2	<3.8	<4.4	<8.4	<21	<4.1	**340**	<5.5	220	33	7.0	*	--	--	--	
SSV-11	08/17/16	0.5	--	5.8	34	<4.2	15.3	<20	<3.9	13	<5.2	<5.3	<6.1	<4.7	--	10	--	--	
SSV-12	08/17/16	0.5	--	<3.1	<3.7	17	168	<20	<3.9	<6.6	<5.2	17	**390**	17	--	21	--	--	
SSV-13	08/17/16	0.5	--	<3.0	<3.5	<4.0	<8.0	<19	<3.7	32	<5.0	79	**350**	19	--	<9.1	--	--	
SSV-14	08/17/16	0.5	--	<3.3	<3.9	<4.5	<9.0	<22	<4.2	**790**	<5.6	240	**47**	<5.1	--	13	--	--	
SSV-15	08/17/16	0.5	--	<3.3	<3.9	<4.5	<9.0	<22	<4.2	42	<5.5	260	**35**	<5.0	--	15	--	--	
SSV-16	08/17/16	0.5	--	<3.0	<3.6	<4.1	<8.2	<20	<3.8	47	<5.1	52	<6.0	<4.6	--	20	--	--	
SSV-17	09/01/16	0.5	--	2.5	5.9	<2.2	<6.6	<5.3	<2.0	4.1	<2.8	5.3	11	<2.4	*	320	--	--	
SSV-18	09/01/16	0.5	--	<1.6	4.5	<2.2	<6.6	<5.3	<.20	3.6	<2.8	12	4.4	<2.4	*	150	--	--	

Pangea

Table 3. Soil Gas Analytical Data - 1919 Market Street, Oakland, California

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Other VOCs	Isopropyl Alcohol (Leak Check Compound)	Oxygen	Methane [1]	Notes
			ug/m^3														%	%	
Residential ESL for soil/subslab gas:			300,000	48	160,000	560	52,000	41	54	240	240	520,000	33	61	Varies	NA	---	---	
SSV-19	09/01/16	0.5	--	<1.6	3.1	<2.2	<6.6	<5.3	11	13	<2.8	160	5.5	6.8	*	110	--	--	
SSV-20	09/01/16	0.5	--	<3.2	6.4	<4.4	<13	13	<4.1	13	<5.5	13	<6.4	<4.9	*	<100	--	--	
Soil Gas Samples																			
B-1[2]	04/29/16	5.0	--	<3.3	<3.8	<4.4	<8.8	--	<4.1	25	150	<5.6	<6.4	<5.0	--	--	--	--	
B-2[2]	04/29/16	5.0	--	<3.3	<3.8	66	400	--	<4.1	17	5.5	<5.6	<6.4	**77**	--	--	--	--	
B-3[2]	04/29/16	5.0	--	<160	<190	<220	<220	--	<210	**2,200**	**880**	<280	<320	<250	--	--	--	--	
B-4[2]	04/29/16	5.0	--	<160	<190	<220	<220	--	<210	<350	<270	<280	<320	**910**	--	--	--	--	
B-5[2]	04/29/16	5.0	--	<3.3	<3.8	<4.4	<8.8	--	<4.1	190	<5.5	46	19	11	--	--	--	--	
SG-1	09/06/16	5.0	--	31	24	2.6	14	<5.3	<2.0	55	<2.8	<2.8	<3.2	4.0	*	<50	--	--	
SG-2	09/06/16	5.0	--	**71**	120	17	80	<5.3	<2.0	10	<2.8	<2.8	<3.2	15	*	<50	--	--	
SG-3	09/06/16	5.0	--	13	38	8.3	53	<5.3	<2.0	13	<2.8	3.4	<3.2	<2.4	*	<50	--	--	

Legend:

VOC = Volatile Organic Compounds

TPHg = Total Petroleum Hydrocarbons as gasoline

1,2-DCA = 1,2-dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

1,1,1-TCA = 1,1,1-trichloroethane

ug/m^3 = Micrograms per cubic meter of air.

ft bgs = Depth interval below ground surface in feet.

< n = Chemical not present at a concentration in excess of detection limit shown.

-- = not analyzed

ESL = Environmental Screening Level for Shallow Soil Gas for Evaluation of Potential Vapor Intrusion (Table E-2). Established by the SFBRWQCB, Interim Final - November 2007 (Revised February 2016).

[1] = The lower explosion limit for methane is 4.4 to 5%.

[2] = Samples collected by Partner Engineering and Science, Inc. as part of seperate investigation

contaminant detected above reporting limit

Bold concentrations exceed shown screening levels

APPENDIX A

Permits

Alameda County Public Works Agency - Water Resources Well Permit

Public Works Agency
Alameda County

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 08/24/2016 By jamesy

Permit Numbers: W2016-0619 to W2016-0620
Permits Valid from 08/29/2016 to 08/29/2016

Application Id: 1471994971919 **City of Project Site:** Oakland
Site Location: 1919 Market Street
Project Start Date: 08/29/2016 **Completion Date:** 08/29/2016
Assigned Inspector: Contact Marcelino Vialpando at (510) 670-5760 or Marcelino@acpwa.org

Applicant: Pangea Environmental Services, Inc. - Patrick Groff
1710 Franklin ST #200, Oakland, CA 94612 **Phone:** 925-818-0010

Property Owner: Danny Haber
1919 Bayside, Pier 54, Suite #202, San Francisco, CA 94158 **Phone:** --

Client: Danny Haber
1919 Bayside, Pier 54, Suite #202, San Francisco, CA 94158 **Phone:** --

Total Due: $530.00
Receipt Number: WR2016-0420 **Total Amount Paid:** $530.00
Payer Name : Robert-Clark Riddell Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Contamination Study - 2 Boreholes
Driller: Penecore Drilling - Lic #: 906899 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2016-0619	08/24/2016	11/27/2016	2	2.00 in.	15.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

Alameda County Public Works Agency - Water Resources Well Permit

5. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

7. Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site. Submission dates are set by a Regional Water Board or by a regulatory agency. Once a report/data is successfully uploaded, as required, you have met the reporting requirement (i.e. the compliance measure for electronic submittals is the actual upload itself). The upload date should be on or prior to the regulatory due date.

8. NOTE:
Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

9. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

Well Construction-Vapor monitoring well-Vapor monitoring well - 3 Wells
Driller: Penecore Drilling - Lic #: 906899 - Method: DP **Work Total: $265.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2016-0620	08/24/2016	11/27/2016	SG-1	2.50 in.	0.25 in.	1.00 ft	5.00 ft
W2016-0620	08/24/2016	11/27/2016	SG-2	2.50 in.	0.25 in.	1.00 ft	5.00 ft
W2016-0620	08/24/2016	11/27/2016	SG-3	2.50 in.	0.25 in.	1.00 ft	5.00 ft

Specific Work Permit Conditions

1. Drilling Permit(s) can be voided/ cancelled only in writing. It is the applicant's responsibility to notify Alameda County Public Works Agency, Water Resources Section in writing for an extension or to cancel the drilling permit application. No drilling permit application(s) shall be extended beyond ninety (90) days from the original start date. Applicants may not cancel a drilling permit application after the completion date of the permit issued has passed.

2. Compliance with the above well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate state reporting-requirements related to well destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 30 days, including permit number and site map.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

5. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

6. No changes in construction procedures or well type shall change, as described on this permit application. This permit may be voided if it contains incorrect information.

7. Applicant shall submit the copies of the approved encroachment permit to this office within 10 days.

8. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

9. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

10. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

11. Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site. Submission dates are set by a Regional Water Board or by a regulatory agency. Once a report/data is successfully uploaded, as required, you have met the reporting requirement (i.e. the compliance measure for electronic submittals is the actual upload itself). The upload date should be on or prior to the regulatory due date.

12. Vapor monitoring wells above water level constructed with tubing maybe be backfilled with pancake-batter consistency bentonite. Minimum surface seal thickness is two inches of cement grout around well box.

Vapor monitoring wells above water level constructed with pvc pipe shall have a minimum seal depth (Neat Cement Seal) of 2 feet below ground surface (BGS). Minimum surface seal thickness is two inches of cement grout around well box. All other conditions for monitoring well construction shall apply.

APPENDIX B

Standard Operating Procedures

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document describes Pangea Environmental Services' standard field methods for drilling and sampling soil borings. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality, and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist, scientist or engineer working under the supervision of a California Registered Engineer, California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic-push technologies. At least one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples are collected near the water table and at lithologic changes. With hollow-stem drilling, samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the borehole. With hydraulic-push drilling, samples are typically collected using acetate liners. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler or the acetate tube. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes or cut acetate liners chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

Soil samples collected during drilling will be analyzed in the field for ionizable organic compounds using a photo-ionization detector (PID) with a 10.2 eV lamp. The screening procedure will involve placing an undisturbed soil sample in a sealed container (either a zip-lock bag, glass jar, or a capped soil tube). The container will be set aside, preferably in the sun or warm location. After approximately fifteen minutes, the head space within the container will be tested for total organic vapor, measured in parts per million on a volume to volume basis (ppmv) by the PID. The PID instrument will be calibrated prior to boring using hexane or isobutylene. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples collected from borings are either collected from the open borehole, from within screened PVC inserted into the borehole, or from a driven Hydropunch-type sampler. Groundwater is typically extracted using a bailer, check valve and/or a peristaltic pump. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Pangea often performs electrical conductivity (EC) logging and/or continuous coring to identify potential water-bearing zones. Hydropunch-type sampling is then performed to provide discrete-depth grab groundwater sampling within potential water-bearing zones for vertical contaminant delineation. Hydropunch-type sampling typically involves driving a cylindrical sheath of hardened steel with an expendable drive point to the desired depth within undisturbed soil. The sheath is retracted to expose a stainless steel or PVC screen that is sealed inside the sheath with Neoprene O-rings to prevent infiltration of formation fluids until the desired depth is attained. The groundwater is extracted using tubing inserted down the center of the rods into the screened sampler.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55 gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

APPENDIX C

Soil Boring Logs

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-6** **Page: 1 of 2**

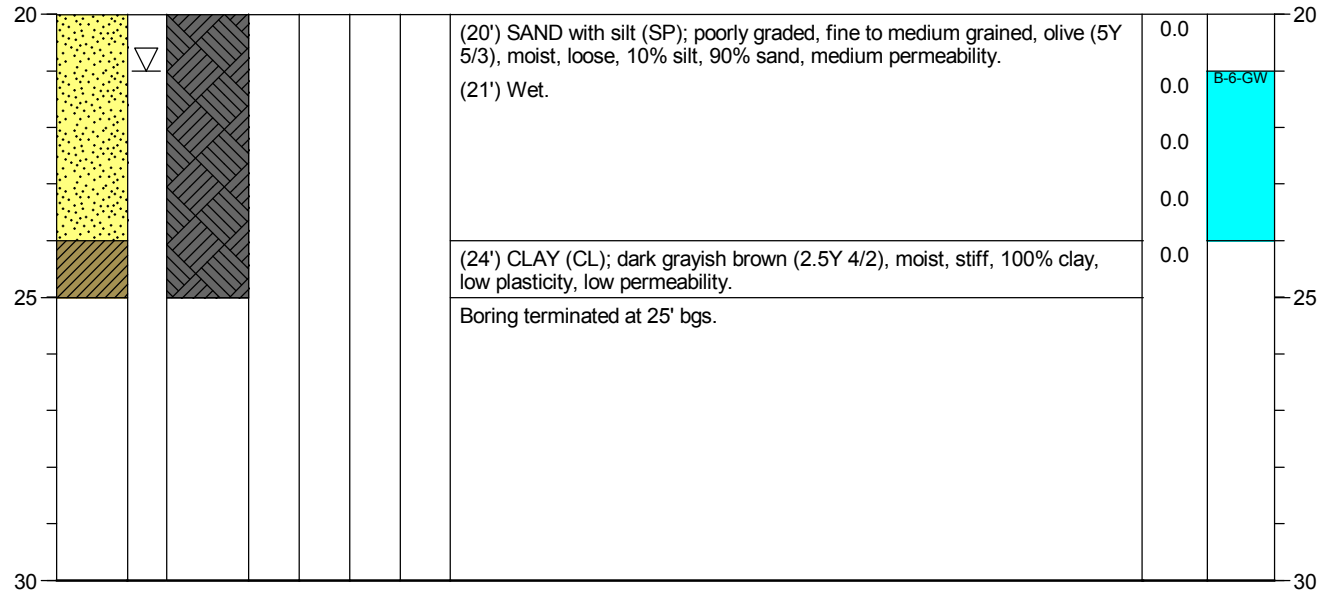
Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**25**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**2**
Drilling Company:	**Penecore**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**21**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:		Ground Surface Elev. (ft):	
Logged By:	**Patrick Groff**	Location (X,Y):	

DEPTH (ft)	LITHOLOGY	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE.	0.0		0
								(4") No Recovery.	0.0		
								(2') FILL: Silty SAND (SM); very dark brown (10YR 2/2), moist, compact, 40% silt, 60% sand, medium permeability.	0.0		
								(3') Silty SAND (SM); light olive brown (2.5Y 5/4), moist, dense, 30% silt, 70% sand, medium permeability.	0.0		
									0.0		
5								(5') SILT (ML); light olive brown (2.5Y 5/4), moist, stiff, 60% silt, 40% sand, low plasticity, low permeability.	0.0		5
								(6') As above: pale olive (5Y 6/4), 70% silt, 30% sand.	0.0		
									0.0		
									0.0		
									0.0		
10								(10') CLAY (CL); olive (5Y 5/3), black mottling, moist, stiff, 80% clay, 20% silt, low plasticity, low permeability.	0.0		10
									0.0		
									0.0		
								(13') SILT (ML); light olive brown (2.5Y 5/3), moist, stiff, 20% clay, 80% silt, low plasticity, low permeability.	0.0		
									0.0		
15									0.0		15
									0.0		
								(17') CLAY (CL); light yellowish brown (2.5Y 6/3), moist, soft, 80% clay, 20% sand, low plasticity, low permeability.	0.0		
									0.0		
									0.0		
20											20

NOTES:

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-6** **Page: 2 of 2**

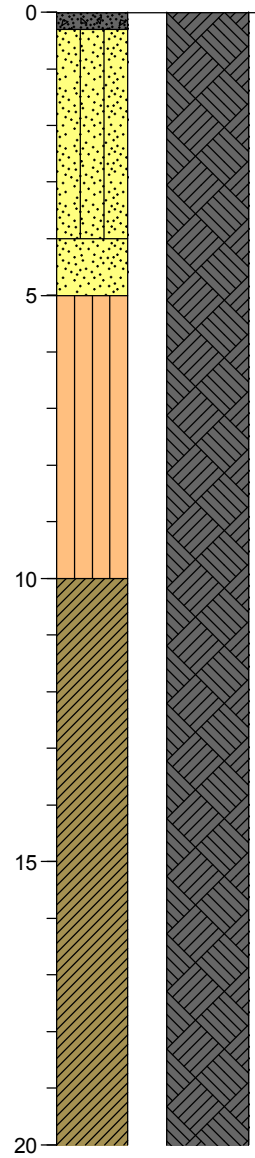
Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**25**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**2**
Drilling Company:	**Penecore**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**21**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:		Ground Surface Elev. (ft):	
Logged By:	**Patrick Groff**	Location (X,Y):	



NOTES:

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-7** **Page: 1 of 2**

Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**25**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**2**
Drilling Company:	**Penecore**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**21**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:		Ground Surface Elev. (ft):	
Logged By:	**Patrick Groff**	Location (X,Y):	

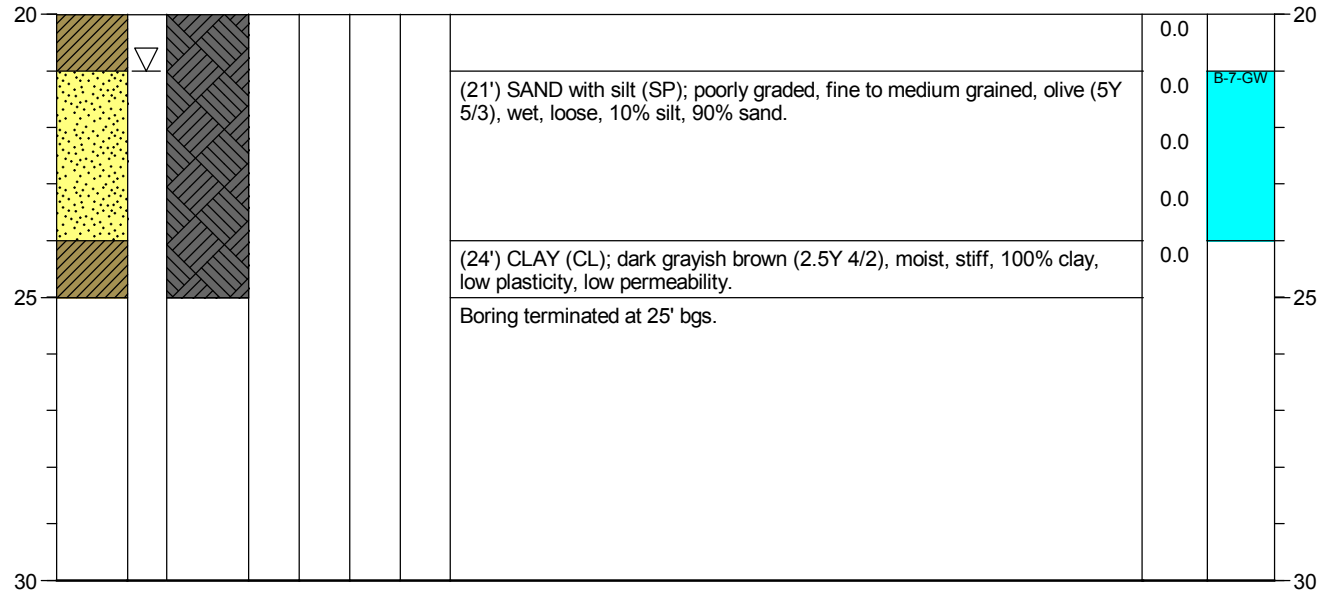


DEPTH (ft)	SOIL/ROCK VISUAL DESCRIPTION	PID (ppm)	Lab Sample	DEPTH (ft)
0	(0') 4" CONCRETE.	0.0		0
	(4") FILL: Silty SAND (SM); fine grained, very dark brown (10YR 2/2), moist, medium dense, 40% silt, 60% sand, medium permeability.	0.0		
		0.0		
		0.0		
	(4') SAND (SP); dark yellowish brown (10YR 4/6), moist, loose, 10% silt, 90% sand, high permeability.	0.0		
5	(5') SILT (ML); light olive brown (2.5Y 5/4), black mottling, moist, stiff, 70% silt, 30% sand, low plasticity, low permeability.	0.0		5
		0.0		
		0.0		
		0.0		
		0.0		
10	(10') CLAY (CL); light olive brown (2.5Y 5/4), black mottling, moist, stiff, 80% clay, 20% silt, low plasticity, low permeability.	0.0		10
		0.0		
		0.0		
		0.0		
	(14') As above: pale brown (10YR 6/3), 90% clay, 10% silt.	0.0		
15		0.0		15
		0.0		
		0.0		
		0.0		
	(19') As above: light olive brown (2.5Y 5/3), black mottling decreasing, 80% clay, 20% silt.	0.0		
20				20

NOTES:

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-7** **Page: 2 of 2**

Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**25**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**2**
Drilling Company:	**Penecore**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**21**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:		Ground Surface Elev. (ft):	
Logged By:	**Patrick Groff**	Location (X,Y):	



NOTES:

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-1 **Page:** 1 of 1

Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**3**	Well Diameter (in):	
Drilling Company:	**Penecore**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Bentonite Crumbles**
Logged By:	**Patrick Groff**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								Loading dock 3.5' below building grade.			0
								(3.5') 4" CONCRETE.	0.0		
								(3.8') FILL: Silty SAND (SM); very dark brown (10YR 2/2), moist, compact, 40% silt, 60% sand, medium permeability.	0.0		
5								(5') SILT (ML); olive (5Y 4/3), moist, stiff, 70% silt, 30% sand, low plasticity, low permeability.	0.0		5
								(6') As above: firm, 60% silt, 40% sand.	0.0		
									0.0		
									0.0		
								Boring terminated at 9' bgs.			
10											10

NOTES:

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-2 **Page:** 1 of 1

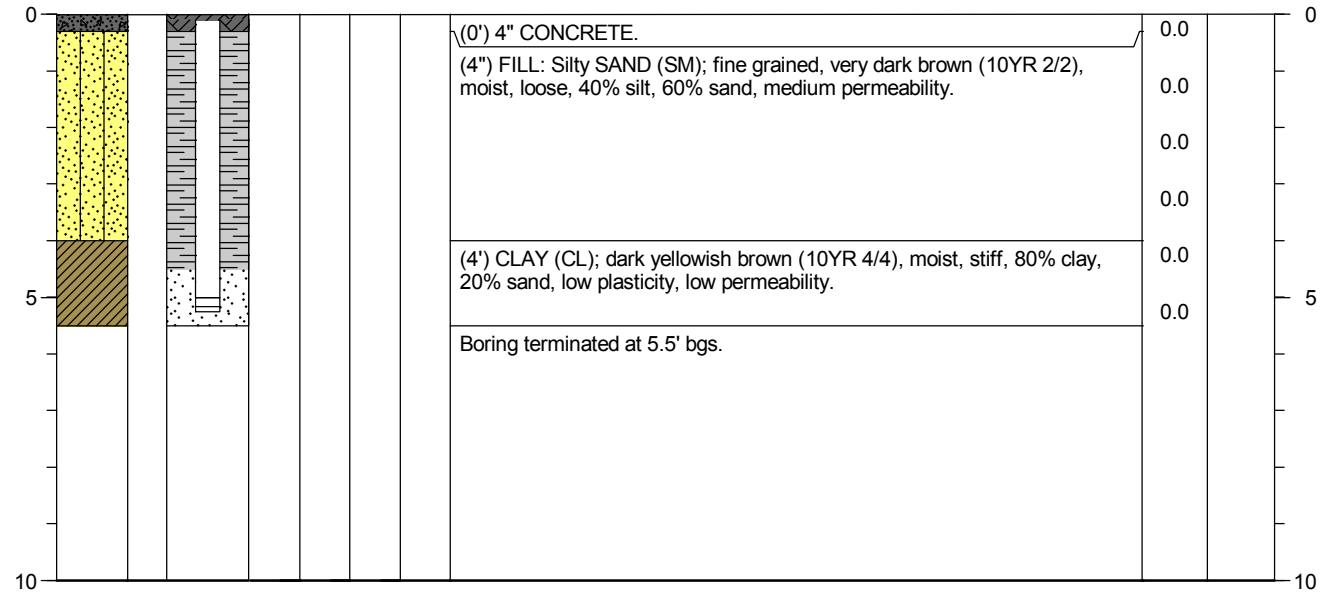
Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**3**	Well Diameter (in):	
Drilling Company:	**Penecore**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Bentonite Crumbles**
Logged By:	**Patrick Groff**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								Loading dock 3.5' below building grade.			0
								(3.5') 4" CONCRETE.	0.0		
5								(3.8') FILL: Silty SAND (SM); fine grained, very dark brown (10YR 2/2), moist, compact, 40% silt, 60% sand, medium permeability.	0.0		5
								(5') SILT (ML); light olive brown (2.5Y 5/3), black mottling, moist, stiff, 60% silt, 40% sand, low plasticity, low permeability.	0.0		
									0.0		
									0.0		
									0.0		
10								Boring terminated at 9' bgs.			10

NOTES:

PANGEA	**Client:** Danny Haber **Project:** 1919 Market **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-3 **Page:** 1 of 1

Drilling Start Date:	**09/01/2016**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**09/01/2016**	Boring Diameter (in):	**3**	Well Diameter (in):	
Drilling Company:	**Penecore**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Bentonite Crumbles**
Logged By:	**Patrick Groff**	Location (X,Y):		Filter Pack:	**#3 Sand**



NOTES:

APPENDIX D

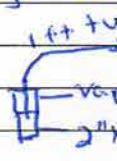
Soil Gas Sampling Field Forms

DAILY LOG

Date: 2.5.16	Site Address: 1919 Market St, Oakland
Task/Purpose: Purge Calc	Project Name:
Log Notes By: E. Lervaag	Project Number:

NOTES

Purge Calc.



tubing ~~5 ml per~~ 5ml/ft
pin similar

Volume TUBING

$\left(\frac{5\text{ ml}}{\text{ft}}\right)$(1 ft tubing + 3" vapor pin) = 6.75 ml

+

volume cavity

$(2") \times \frac{(5/8)^2}{4}\pi = .61\ in^3 \quad \frac{16.4\text{ ml}}{in^3} = 10\text{ ml}$

Total 17 ml
x 3 volumes = 51 ml
@ 15ml/min = 20 sec.

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St, OAKland
Job Number:
Date: 2/05/16
Sampler(s): E. Lerma
Sample ID and Time:
Notes:

Sub-Slab Probe ID: SS-1
Summa Can Serial #: 266
Flow Controller #: A09226
Initial Vacuum: 29
Final Vacuum: 5

Specifications

Tubing length: 15" cm
Tubing inner diameter: ____ cm
Boring diameter: ____ cm
Sandpack height: ____ cm
Probe length: ____ cm
Probe diameter: ____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min
IPA

5ml/ft for tubing
Void space

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= 6.75 cm3 ml + ~~10 ml~~
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= 10ml cm3
Single purge volume: 17 cm^3 Start Time: 0
Total purge volumes extracted: 3 Total Purge Time: 20 sec
PI = 3.1416 1 inch = 2.54 cm Est. max. porosity = 0.375
1 ml = 1 cm3

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	Fill #1 Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
227									28" Hg
229									24"
231									15"
233									10"
235									5"
320	Pump	start	time	for	TO-17	sorbent	tube		} Pump rate
420	Pump	stop	time						} 50 ml/min

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St.
Job Number:
Date: 2/5/16
Sampler(s): E. Lervaag
Sample ID and Time:
Notes:

Sub-Slab Probe ID: SS-2
Summa Can Serial #: 53
Flow Controller #: A00254
Initial Vacuum: 29
Final Vacuum:

Specifications

Tubing length: 15" cm similar calc
Tubing inner diameter: cm TO
Boring diameter: cm SS-1
Sandpack height: cm
Probe length: cm
Probe diameter: cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: 17 cm^3
Total purge volumes extracted: 3
PI = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 20
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppbv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
242									29" Hg
244									25"
246									20"
248									15"
250									10
									5
258	pump start time for TO-17 sorbent tube								} pump rate
318	pump stop time								} 50 ml/min

DAILY LOG

Date: 8.1.16	Site Address: 1919 Market St. Oakland
Task/Purpose: SSV - Testing/Sampling	Project Name:
Log Notes By: E. Lervaag	Project Number:

NOTES

Purge Calc.

- 6" conc Slab
- 1.5" Tubing

2' x 5 ml/ft = 10 ml x 3 purge volumes = 30 ml

flowrate > 150 ml/min ~~÷ 30~~

$\frac{30\ ml}{150\ ml/min} = 0.2\ min \Rightarrow 12\ sec\ purge$

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market
Job Number:
Date: 8.1.16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-1/1142
Notes:

Sub-Slab Probe ID: SSV-1
Summa Can Serial #: 416
Flow Controller #: A00270
Initial Vacuum: 29
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min
IPA

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
Pi = 3.1416
1 inch = 2.54 cm
1 ml = 1 cm3

Start Time: 0
Total Purge Time: 12 sec
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1140			0	Start Purge					
1140			12sec	Stop Purge					
1142		6.1	Start Sample						29
1144		23.6	removed rag						25
1146		14.8							20
1148		13.9							15
1149		13.1							10
1151		12.0	Stop Sample						5

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St, Oakland
Job Number:
Date: 8.1.16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-2 / 1204
Notes:

Sub-Slab Probe ID: SSV-2
Summa Can Serial #: 311
Flow Controller #: unreadable
Initial Vacuum: 29
Final Vacuum: 5

Specifications

Tubing length: ____ cm
Tubing inner diameter: ____ cm
Boring diameter: ____ cm
Sandpack height: ____ cm
Probe length: ____ cm
Probe diameter: ____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min
IPS

See Purge calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: ____ cm^3
Total purge volumes extracted: ____
Pi = 3.1416
1 inch = 2.54 cm
1 ml = 1 cm3

Start Time: 0
Total Purge Time: 12
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1202			0	Start Purge					
1202			12	Stop Purge					
1204		8.3		Start Sample					29" Hg
1205		11.3							25
1206		19.2							20
1208		20.2							15
1209		22.0							10
1211				Stop Sample					5 "Hg

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St
Job Number:
Date: 8.1.16
Sampler(s): E. Lovaas
Sample ID and Time: SSV-3 / 1228
Notes:

Sub-Slab Probe ID: SSV-3
Summa Can Serial #: 277
Flow Controller #: A09271
Initial Vacuum: 29
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min
JSA

See Purge calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
PI = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 12
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1225			0	Start Purge					
1225			12	Stop Purge					
1228		8.6		Start Sample					29
1230		11.9							25
1231		10.5							20
1232		20.2							15
1234		21.5							10
1236		19.2		Stop	Sample				5

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St, Oakland
Job Number:
Date: 8.1.16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-5/1250
Notes:

Sub-Slab Probe ID: SSV-5
Summa Can Serial #: 67
Flow Controller #: A00269
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 12 sec
Est. max. porosity = 0.375

IPA

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1249			0	Start Purge					
1249			12	Stop Purge					
1250		6.8							30
1252		20.0							25
1256		17.5		field vac <9" Hg					20
		12.2							15
		11.8							10
		9.3							5

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St, Oakland
Job Number:
Date: 8.1.16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-6/1342
Notes:

Sub-Slab Probe ID: SSV-6
Summa Can Serial #: 00079
Flow Controller #: A00233
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min
IPA

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
PI = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 12 sec
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1340			0	Start Purge					
1340			12	Stop Purge					
1342		9.2							30
1346		19.0	Field	vac <1" Hg					25
1349		18.3	Field	vac <1" Hg					~~30~~
1352		16.1	Field	vac <1" Hg					~~25~~ 20" Hg
1356		15.3	Field	vac <1" Hg					~~20~~
1358		14.7	Field	vac <1" Hg					~~15~~ 15" Hg
1401		13.6	Field	vac <1" Hg					
1405		13.3	Field	vac <1" Hg					10" Hg
1409		12.7	Field	vac <1" Hg					
1416		9.1	Field	vac <1" Hg					5" Hg

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St, Oakland
Job Number:
Date: 8.1.16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-8/1419
Notes:

Sub-Slab Probe ID: SSV-8
Summa Can Serial #: 00384
Flow Controller #: A00223
Initial Vacuum: 29.5
Final Vacuum: 5

Specifications

Tubing length: ____ cm
Tubing inner diameter: ____ cm
Boring diameter: ____ cm
Sandpack height: ____ cm
Probe length: ____ cm
Probe diameter: ____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Cales

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: ____ cm^3
Total purge volumes extracted: ____
PI = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3
Est. max. porosity = 0.375

Start Time: 0
Total Purge Time: 12s.

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1417			0	Start Purge					
1417			12s	Stop Purge					
1419		10.5	Start Sample						30
1421		12.1							25
1423		11.3	Field vac		<1" Hg				20
1426		10.5	Field vac		<1" Hg				12" Hg
1428		9.3							10" Hg
1430		8.6							5" Hg

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St
Job Number:
Date: 8-1-16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-9/1443
Notes:

Sub-Slab Probe ID: SSV-9
Summa Can Serial #: 00087
Flow Controller #: A00202
Initial Vacuum: 29.5
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 12sec
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
			0	Start Purge					
			12	Stop Purge					
1443		6.5		Start Sample					30
1444		11.4							25
1445		13.6							20
1447		14.0							15
1448		13.6							10
1450		12.4		Stop Sample					5

DAILY LOG

Date: 8.17.16	Site Address: 1919 Market St, Oakland
Task/Purpose: Install / Sample Sub Slab Probes	Project Name: 1919 Bayside
Log Notes By: E. Lervaag	Project Number: 1975.001

NOTES

Purge Calcs

- 6" slab thickness (Probe inner diameter = tubing ID
- 1.5' tubing above ground
- 5/8" diameter by 1" void space under probe (from core drill)

- tubing volume = 5 ml/ft
  = 2' Tubing ⇒ 10ml

- volume void space $\pi r^2 h$
  = r = 0.3125, h = 1" $\Big\}$ $(.3125)^2(3.14)(1" \times \frac{16.4 ml}{in^3}) = 5 ml$

- Total 1 purge volume = 15ml
- 3 volumes = 45ml

$\frac{45 ml}{150 \frac{ml}{min}}$ ⇒ purge rate = 18 sec

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market
Job Number: 1975.001
Date: 8/17/16
Sampler(s): JW/EL
Sample ID and Time: SSV-11 1301
Notes:

Sub-Slab Probe ID: SSV-11
Summa Can Serial #: 273
Flow Controller #:
Initial Vacuum: -30.0
Final Vacuum: -5.0

Specifications

Tubing length: ____ cm
Tubing inner diameter: ____ cm
Boring diameter: ____ cm
Sandpack height: ____ cm
Probe length: ____ cm
Probe diameter: ____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: ____ cm^3
Total purge volumes extracted: ____
PI = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 18
Est. max. porosity = 0.375

JM

Time	~~He Delivery~~ Pressure (psi)	~~IPA~~ He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1240			0						Begin Purge
1241			18						stop purge
1244	-30.0	31.3							
1249	-25	15.0							
1252	-20	12.8							
1254	-15	10.3							
1257	-10	16.5							
1301	-5	12.8							
									PID = ~~2.6~~ 0.9

Soil Vapor Probe Purging/Sampling Log

Project Name: 919 Market St.
Job Number: 1975.001
Date: 8/17/16
Sampler(s): JW
Sample ID and Time: SSV-12 1326
Notes:

Sub-Slab Probe ID: SSV-12
Summa Can Serial #: 281
Flow Controller #:
Initial Vacuum: -28.0
Final Vacuum: -5.0

Specifications

Tubing length: ____ cm
Tubing inner diameter: ____ cm
Boring diameter: ____ cm
Sandpack height: ____ cm
Probe length: ____ cm
Probe diameter: ____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: ____ cm^3
Total purge volumes extracted: ____
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: ____
Total Purge Time: 18 sec
Est. max. porosity = 0.375

Time	~~He Delivery~~ Pressure (psi)	~~He~~ in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppm/v)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1211			0						Begin purge
1212			18						Stop purge
1314	-28.0	21.9							
1318	-20	22.2							
1321	-15	15.8							
1323	-10	10.7							
1326	-5	11.4							
									PID = 0.5 ppm

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St
Job Number: 1975.001
Date: 8.17.16
Sampler(s): E. Lervaag
Sample ID and Time: SSV-13/1316
Notes:

Sub-Slab Probe ID: SSV-13
Summa Can Serial #: ~~00305~~ 00195
Flow Controller #: A00221
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 18
Est. max. porosity = 0.375

IPA

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
			0	Start Purge					
			18	Stop Purge					
1316		11.5		Start Sample					28 (gauge)
1317		13.4							25
1320		16.8							20
1321		13.1							15
1322		10.7							10
1325		11.2		Stop Sample					5

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market
Job Number: 1975.001
Date: 8.17.16
Sampler(s): E. Lervang
Sample ID and Time: SSV-14/ 1211
Notes:

Sub-Slab Probe ID: SSV-14
Summa Can Serial #: 00310
Flow Controller #: A00274
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 18 sec
Est. max. porosity = 0.375

IPA

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	He in Purge Sample (% or ppm)	VOCs (ppm/v)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
			0	Start Purge					
			18	Stop Purge					
1211		16.3							27 (gauge reading)
1213		13.4							25
1215		29.3	removed rag						20
1217		21.8							15
1219		21.6							10
1221		20.3							5
		XX	Final	PID	0.0 ppm	From	Field		

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market
Job Number: 1975.001
Date: 8/17/16
Sampler(s): Jake Wilson
Sample ID and Time: SSV-15 1228
Notes:

Sub-Slab Probe ID: SSV-15
Summa Can Serial #: 121
Flow Controller #: A00226
Initial Vacuum: -30.0
Final Vacuum: -7.0

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge calcs

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = Pi * (inner diameter/2)^2 * length
= cm3
Sandpack = Pi * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: _____
Total Purge Time: 18 sec.
Est. max. porosity = 0.375

Time	~~He Delivery~~ Pressure (psi)	IPA ~~He~~ in Shroud (% or ppm)	Purge Time (min./sec.)	~~Fill in~~ Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1213			0						start purge
1214			18						stop purge
1215	-30.0	100 ppm							
1218	-25.0	15							
12221	-20.0	46							
12264	-15.0	26							
1226	-10	22							
1228	-5	13							

Soil Vapor Probe Purging/Sampling Log

Project Name: 1919 Market St
Job Number: 1915.001
Date: 8.17.16
Sampler(s): E Lervaag
Sample ID and Time: SSV-16 / 1239
Notes:

Sub-Slab Probe ID: SSV-16
Suma Can Serial #: 00274
Flow Controller #: A02254
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: _____ cm
Tubing inner diameter: _____ cm
Boring diameter: _____ cm
Sandpack height: _____ cm
Probe length: _____ cm
Probe diameter: _____ cm
Summa flow rate: 150 mL/min
Purge flow rate: 25 mL/min

See Purge Calcs

IPA

Purge Volume Calculation

Purge volume = tubing + sandpack
Tubing = PI * (inner diameter/2)^2 * length
= cm3
Sandpack = PI * (boring diameter/2)^2 * sandpack height * porosity
= cm3
Single purge volume: _____ cm^3
Total purge volumes extracted: _____
PI = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time: 0
Total Purge Time: 18
Est. max. porosity = 0.375

Time	He Delivery Pressure (psi)	He in Shroud (% or ppm)	Purge Time (min./sec.)	Purge Sample (% or ppm)	VOCs (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
			0	Start Purge					
			18	Stop Purge					
1239		7.5	Start Sample						30" Hg
1241		12.4							25
1244		9.6	Field vac <1" Hg						20
1246		9.3							15
1248		10.9							10
1252		9.7	Field vac <1" Hg		Stop Sample				5 " Hg
		**	Final ~~PID~~ PID from probe 0.0 ppm						

SOIL GAS PURGING / SAMPLING LOG

Project Name: Market
Job Number:
Date: 9/1/16
Sampler(s): Jake Wilson
Sample ID / Time: SV-17 / 1209

Probe / Well ID: SV-17
Canister Serial #: CAN0877-2505
Flow Contoller #: MAN316-1348
Initial Vacuum: -29.0
Final Vacuum: -5.0

Notes:

SPECIFICATIONS

Tubing Length:	24	inches
Tubing Diameter:	1/4"	inches
Boring Diameter:	5/8"	inches
Sandpack height:	—	inches
Probe Length:	4	inches
Probe Diameter:	5/8	inches
Summa Flow Rate:	150	mL/min
Purge Flow Rate:	200	mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ inches^3
Sandpack = π x (boring diameter/2)^2 sandpack height x porosity
Sandpack = _____ inches^3
Single Purge Volume = _____ inches^3
Total Purge Volumes = _____
Start Time = _____
Total Purge Time = 18 sec.

π = 3.1416 1 inch^3 = 16.4 mL Estimated Max Porosity = 0.375

TIME	PURGE TIME (min./sec.)	He / PA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	VOCs (ppm)	COMMENTS
1155	18				Purge w/ syringe
1159		19.3	-29.0		
1201		10.3	-25.0		
1203		16.5	-20.0		
1205		27.4	-15.0		
1207		26.0	-10.0		
1209		23.4	-5.0		
				0	

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Job Number:
Date: 9/1/16
Sampler(s): Jake Wilson
Sample ID / Time: SV-18 / 1235

Probe / Well ID: SV-18
Canister Serial #: 6202-743
Flow Contoller #: MAN316-1334
Initial Vacuum: -30
Final Vacuum: -5

Notes:

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter: _____ inches
Boring Diameter: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ inches^3
Sandpack = π x (boring diameter/2)^2 sandpack height x porosity
Sandpack = _____ inches^3
Single Purge Volume = _____ inches^3
Total Purge Volumes = _____
Start Time = _____
Total Purge Time = 18 sec.

π = 3.1416 1 inch^3 = 16.4 mL Estimated Max Porosity = 0.375

TIME	PURGE TIME (min./sec.)	He / PA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	VOCs (ppm)	COMMENTS
1219	18				
1225		15.5	-30.0		
1227		23.2	-25		
1229		20.0	-20		
1231		36.1	-15		
1233		20.8	-10		
1235		16.8	-5		
				0	PID hooked up to probe.

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Job Number:
Date: 9/1/16
Sampler(s): Jake Wilson
Sample ID / Time: SV-19 / 1304

Probe / Well ID: SV-19
Canister Serial #: ~~A592~~ A7521-869
Flow Contoller #: MAN316-1343
Initial Vacuum: -27
Final Vacuum: -5

Notes:

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter: _____ inches
Boring Diameter: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ inches^3
Sandpack = π x (boring diameter/2)^2 sandpack height x porosity
Sandpack = _____ inches^3
Single Purge Volume = _____ inches^3
Total Purge Volumes = _____
Start Time = _____
Total Purge Time = 18 sec.

π = 3.1416 1 inch^3 = 16.4 mL Estimated Max Porosity = 0.375

TIME	PURGE TIME (min./sec.)	He / (PA) IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	VOCs (ppm)	COMMENTS
1250	18				Purge w/ syringe
1255		17.4	~~-3~~ -28		
1256		10.1	-25		
1258		13.5	-20		
1300		11.4	-15		
1302		10.9	-10		
1304		15.8	-5		
				0	

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Job Number:
Date: 9/1/16
Sampler(s): Patrick Groff/Jake
Sample ID / Time: SV-20 / 1328

PANGEA

Probe / Well ID: SV-20
Canister Serial #: CAN0898-2526
Flow Contoller #: MAN316-1320
Initial Vacuum: -28
Final Vacuum: -5

Notes:

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter: _____ inches
Boring Diameter: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ inches^3
Sandpack = π x (boring diameter/2)^2 sandpack height x porosity
Sandpack = _____ inches^3
Single Purge Volume = _____ inches^3
Total Purge Volumes = _____
Start Time = _____
Total Purge Time = 18 sec.

π = 3.1416 1 inch^3 = 16.4 mL Estimated Max Porosity = 0.375

TIME	PURGE TIME (min./sec.)	He / PAIN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	VOCs (ppm)	COMMENTS
1315	18				
1318		10.4	-28		
1320		10.6	-25		
1322		17.2	-20		
1324		25.6	-15		
1326		26.9	-10		
1328		19.2	-5		
				0	

APPENDIX E

Laboratory Analytical Reports

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1602247 **Amended:** 02/16/2016

Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Bob Clark-Riddell
Project P.O.:
Project Name: 1919 Market

Project Received: 02/05/2016

Analytical Report reviewed & approved for release on 02/12/2016 by:

Angela Rydelius,
Laboratory Manager

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. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

McCampbell Analytical, Inc.
"When Quality Counts"

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 1919 Market
WorkOrder: 1602247

Glossary Abbreviation

95% Interval	95% Confident Interval
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
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Received:	2/5/16 19:51	**Extraction Method:**	TO17
Date Prepared:	2/12/16	**Analytical Method:**	TO17
Project:	1919 Market	**Unit:**	µg/m³

Leak Check Compound

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-1	1602247-001A	Air	02/05/2016 16:20	GC37	116645

Analytes	Result	RL	DF	Volume (L)	Date Analyzed
Isopropyl Alcohol	**12**	1.7	1	3.00	02/12/2016 13:01

Surrogates	REC (%)	Limits	
1,2-DCA-d4	98	70-130	02/12/2016 13:01

Analyst(s): GM

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-2	1602247-002A	Air	02/05/2016 15:30	GC37	116645

Analytes	Result	RL	DF	Volume (L)	Date Analyzed
Isopropyl Alcohol	**16**	5.0	1	1.00	02/12/2016 12:09

Surrogates	REC (%)	Qualifiers	Limits	
1,2-DCA-d4	155	S	70-130	02/12/2016 12:09

Analyst(s): GM

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Received:	2/5/16 19:51	**Extraction Method:**	TO17
Date Prepared:	2/12/16	**Analytical Method:**	TO17
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-1	1602247-001A	Air	02/05/2016 16:20	GC37	116645

Analytes	Result	RL	DF	Volume (L)	Date Analyzed
1,1-Dichloropropene	ND	0.77	1	3.00	02/12/2016 13:01
1,2,3-Trichlorobenzene	ND	1.3	1	3.00	02/12/2016 13:01
1,2,3-Trichloropropane	ND	1.0	1	3.00	02/12/2016 13:01
1,3-Dichloropropane	ND	0.77	1	3.00	02/12/2016 13:01
2,2-Dichloropropane	ND	0.77	1	3.00	02/12/2016 13:01
2-Chlorotoluene	ND	0.87	1	3.00	02/12/2016 13:01
4-Chlorotoluene	ND	0.87	1	3.00	02/12/2016 13:01
4-Isopropyl toluene	ND	0.93	1	3.00	02/12/2016 13:01
Bromobenzene	ND	1.1	1	3.00	02/12/2016 13:01
Dibromomethane	ND	1.2	1	3.00	02/12/2016 13:01
n-Butyl benzene	ND	0.93	1	3.00	02/12/2016 13:01
n-Propyl benzene	ND	0.83	1	3.00	02/12/2016 13:01
sec-Butyl benzene	ND	0.93	1	3.00	02/12/2016 13:01
tert-Butyl benzene	ND	0.93	1	3.00	02/12/2016 13:01
TPH-Diesel (C10-C23)	ND	330	1	3.00	02/12/2016 13:01
Acrylonitrile	ND	0.37	1	3.00	02/12/2016 13:01
Benzene	**43**	0.53	1	3.00	02/12/2016 13:01
Bromodichloromethane	ND	1.2	1	3.00	02/12/2016 13:01
Bromoform	ND	1.8	1	3.00	02/12/2016 13:01
1,3-Butadiene	ND	0.37	1	3.00	02/12/2016 13:01
Carbon Disulfide	ND	0.53	1	3.00	02/12/2016 13:01
Carbon Tetrachloride	ND	1.1	1	3.00	02/12/2016 13:01
Chlorobenzene	ND	0.80	1	3.00	02/12/2016 13:01
Chloroform	ND	0.83	1	3.00	02/12/2016 13:01
Dibromochloromethane	ND	1.5	1	3.00	02/12/2016 13:01
1,2-Dibromo-3-chloropropane	ND	1.6	1	3.00	02/12/2016 13:01
1,2-Dibromoethane (EDB)	ND	1.3	1	3.00	02/12/2016 13:01
1,2-Dichlorobenzene	ND	1.0	1	3.00	02/12/2016 13:01
1,3-Dichlorobenzene	ND	1.0	1	3.00	02/12/2016 13:01
1,4-Dichlorobenzene	ND	1.0	1	3.00	02/12/2016 13:01
Dichlorodifluoromethane	ND	0.83	1	3.00	02/12/2016 13:01
1,1-Dichloroethane	ND	0.70	1	3.00	02/12/2016 13:01
1,2-Dichloroethane (1,2-DCA)	ND	0.70	1	3.00	02/12/2016 13:01
1,1-Dichloroethene	ND	0.67	1	3.00	02/12/2016 13:01
cis-1,2-Dichloroethene	ND	0.67	1	3.00	02/12/2016 13:01
trans-1,2-Dichloroethene	ND	0.67	1	3.00	02/12/2016 13:01
1,2-Dichloropropane	ND	0.80	1	3.00	02/12/2016 13:01

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Received:	2/5/16 19:51	**Extraction Method:**	TO17
Date Prepared:	2/12/16	**Analytical Method:**	TO17
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-1	1602247-001A	Air	02/05/2016 16:20	GC37	116645

Analytes	Result	RL	DF	Volume (L)	Date Analyzed
cis-1,3-Dichloropropene	ND	0.77	1	3.00	02/12/2016 13:01
trans-1,3-Dichloropropene	ND	0.77	1	3.00	02/12/2016 13:01
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	1.2	1	3.00	02/12/2016 13:01
Diisopropyl ether (DIPE)	ND	0.70	1	3.00	02/12/2016 13:01
Ethylbenzene	**1.3**	0.73	1	3.00	02/12/2016 13:01
4-Ethyltoluene	ND	0.83	1	3.00	02/12/2016 13:01
Freon 113	ND	1.3	1	3.00	02/12/2016 13:01
Heptane	ND	2.8	1	3.00	02/12/2016 13:01
Hexachlorobutadiene	ND	1.8	1	3.00	02/12/2016 13:01
Hexane	ND	2.4	1	3.00	02/12/2016 13:01
Isopropylbenzene	ND	0.83	1	3.00	02/12/2016 13:01
Methylene chloride	ND	0.60	1	3.00	02/12/2016 13:01
Naphthalene	**1.9**	0.90	1	3.00	02/12/2016 13:01
Styrene	ND	0.73	1	3.00	02/12/2016 13:01
1,1,1,2-Tetrachloroethane	ND	1.2	1	3.00	02/12/2016 13:01
1,1,2,2-Tetrachloroethane	ND	1.2	1	3.00	02/12/2016 13:01
Tetrachloroethene	ND	1.2	1	3.00	02/12/2016 13:01
Toluene	**27**	0.63	1	3.00	02/12/2016 13:01
TPH(g)	**380**	330	1	3.00	02/12/2016 13:01
1,2,4-Trichlorobenzene	ND	1.3	1	3.00	02/12/2016 13:01
1,1,1-Trichloroethane	**2.3**	0.93	1	3.00	02/12/2016 13:01
1,1,2-Trichloroethane	ND	0.93	1	3.00	02/12/2016 13:01
Trichloroethene	ND	0.93	1	3.00	02/12/2016 13:01
Trichlorofluoromethane	**1.0**	0.93	1	3.00	02/12/2016 13:01
1,2,4-Trimethylbenzene	**0.96**	0.83	1	3.00	02/12/2016 13:01
1,3,5-Trimethylbenzene	ND	0.83	1	3.00	02/12/2016 13:01
Vinyl Chloride	ND	0.43	1	3.00	02/12/2016 13:01
Xylenes, Total	**9.0**	2.2	1	3.00	02/12/2016 13:01

Surrogates	REC (%)	Limits	
1,2-DCA-d4	81	70-130	02/12/2016 13:01
toluene-d8	99	70-130	02/12/2016 13:01
4-BFB	108	70-130	02/12/2016 13:01

Analyst(s): KBO

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Received:	2/5/16 19:51	**Extraction Method:**	TO17
Date Prepared:	2/12/16	**Analytical Method:**	TO17
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-2	1602247-002A	Air	02/05/2016 15:30	GC37	116645

Analytes	Result	RL	DF	Volume (L)	Date Analyzed
1,1-Dichloropropene	ND	2.3	1	1.00	02/12/2016 12:09
1,2,3-Trichlorobenzene	ND	3.8	1	1.00	02/12/2016 12:09
1,2,3-Trichloropropane	ND	3.1	1	1.00	02/12/2016 12:09
1,3-Dichloropropane	ND	2.3	1	1.00	02/12/2016 12:09
2,2-Dichloropropane	ND	2.3	1	1.00	02/12/2016 12:09
2-Chlorotoluene	ND	2.6	1	1.00	02/12/2016 12:09
4-Chlorotoluene	ND	2.6	1	1.00	02/12/2016 12:09
4-Isopropyl toluene	ND	2.8	1	1.00	02/12/2016 12:09
Bromobenzene	ND	3.3	1	1.00	02/12/2016 12:09
Dibromomethane	ND	3.6	1	1.00	02/12/2016 12:09
n-Butyl benzene	ND	2.8	1	1.00	02/12/2016 12:09
n-Propyl benzene	ND	2.5	1	1.00	02/12/2016 12:09
sec-Butyl benzene	ND	2.8	1	1.00	02/12/2016 12:09
tert-Butyl benzene	ND	2.8	1	1.00	02/12/2016 12:09
TPH-Diesel (C10-C23)	ND	1000	1	1.00	02/12/2016 12:09
Acrylonitrile	ND	1.1	1	1.00	02/12/2016 12:09
Benzene	**6.5**	1.6	1	1.00	02/12/2016 12:09
Bromodichloromethane	ND	3.5	1	1.00	02/12/2016 12:09
Bromoform	ND	5.3	1	1.00	02/12/2016 12:09
1,3-Butadiene	ND	1.1	1	1.00	02/12/2016 12:09
Carbon Disulfide	ND	1.6	1	1.00	02/12/2016 12:09
Carbon Tetrachloride	ND	3.2	1	1.00	02/12/2016 12:09
Chlorobenzene	ND	2.4	1	1.00	02/12/2016 12:09
Chloroform	ND	2.5	1	1.00	02/12/2016 12:09
Dibromochloromethane	ND	4.4	1	1.00	02/12/2016 12:09
1,2-Dibromo-3-chloropropane	ND	4.9	1	1.00	02/12/2016 12:09
1,2-Dibromoethane (EDB)	ND	3.9	1	1.00	02/12/2016 12:09
1,2-Dichlorobenzene	ND	3.1	1	1.00	02/12/2016 12:09
1,3-Dichlorobenzene	ND	3.1	1	1.00	02/12/2016 12:09
1,4-Dichlorobenzene	ND	3.1	1	1.00	02/12/2016 12:09
Dichlorodifluoromethane	**3.1**	2.5	1	1.00	02/12/2016 12:09
1,1-Dichloroethane	ND	2.1	1	1.00	02/12/2016 12:09
1,2-Dichloroethane (1,2-DCA)	ND	2.1	1	1.00	02/12/2016 12:09
1,1-Dichloroethene	ND	2.0	1	1.00	02/12/2016 12:09
cis-1,2-Dichloroethene	ND	2.0	1	1.00	02/12/2016 12:09
trans-1,2-Dichloroethene	ND	2.0	1	1.00	02/12/2016 12:09
1,2-Dichloropropane	ND	2.4	1	1.00	02/12/2016 12:09

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Received:	2/5/16 19:51	**Extraction Method:**	TO17
Date Prepared:	2/12/16	**Analytical Method:**	TO17
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-2	1602247-002A	Air	02/05/2016 15:30	GC37	116645

Analytes	Result	RL	DF	Volume (L)	Date Analyzed
cis-1,3-Dichloropropene	ND	2.3	1	1.00	02/12/2016 12:09
trans-1,3-Dichloropropene	ND	2.3	1	1.00	02/12/2016 12:09
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	1.00	02/12/2016 12:09
Diisopropyl ether (DIPE)	ND	2.1	1	1.00	02/12/2016 12:09
Ethylbenzene	ND	2.2	1	1.00	02/12/2016 12:09
4-Ethyltoluene	ND	2.5	1	1.00	02/12/2016 12:09
Freon 113	ND	3.9	1	1.00	02/12/2016 12:09
Heptane	ND	8.4	1	1.00	02/12/2016 12:09
Hexachlorobutadiene	ND	5.4	1	1.00	02/12/2016 12:09
Hexane	ND	7.2	1	1.00	02/12/2016 12:09
Isopropylbenzene	ND	2.5	1	1.00	02/12/2016 12:09
Methylene chloride	ND	1.8	1	1.00	02/12/2016 12:09
Naphthalene	**5.3**	2.7	1	1.00	02/12/2016 12:09
Styrene	ND	2.2	1	1.00	02/12/2016 12:09
1,1,1,2-Tetrachloroethane	ND	3.5	1	1.00	02/12/2016 12:09
1,1,2,2-Tetrachloroethane	ND	3.5	1	1.00	02/12/2016 12:09
Tetrachloroethene	ND	3.5	1	1.00	02/12/2016 12:09
Toluene	**16**	1.9	1	1.00	02/12/2016 12:09
TPH(g)	ND	1000	1	1.00	02/12/2016 12:09
1,2,4-Trichlorobenzene	ND	3.8	1	1.00	02/12/2016 12:09
1,1,1-Trichloroethane	ND	2.8	1	1.00	02/12/2016 12:09
1,1,2-Trichloroethane	ND	2.8	1	1.00	02/12/2016 12:09
Trichloroethene	ND	2.8	1	1.00	02/12/2016 12:09
Trichlorofluoromethane	ND	2.8	1	1.00	02/12/2016 12:09
1,2,4-Trimethylbenzene	ND	2.5	1	1.00	02/12/2016 12:09
1,3,5-Trimethylbenzene	ND	2.5	1	1.00	02/12/2016 12:09
Vinyl Chloride	ND	1.3	1	1.00	02/12/2016 12:09
Xylenes, Total	ND	6.6	1	1.00	02/12/2016 12:09

Surrogates	REC (%)	Limits	
1,2-DCA-d4	106	70-130	02/12/2016 12:09
toluene-d8	101	70-130	02/12/2016 12:09
4-BFB	111	70-130	02/12/2016 12:09

Analyst(s): KBO

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Prepared:	2/12/16	**BatchID:**	116645
Date Analyzed:	2/12/16	**Extraction Method:**	TO17
Instrument:	GC37	**Analytical Method:**	TO17
Matrix:	Sorbent Tube	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-116645

QC Summary Report for TO17

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	4.56	2.3	5	-	91	60-140
1,2,3-Trichlorobenzene	ND	5.13	3.8	5	-	103	60-140
1,2,3-Trichloropropane	ND	4.90	3.1	5	-	98	60-140
1,3-Dichloropropane	ND	5.37	2.3	5	-	107	60-140
2,2-Dichloropropane	ND	3.17	2.3	5	-	63	60-140
2-Chlorotoluene	ND	4.98	2.6	5	-	100	60-140
4-Chlorotoluene	ND	4.92	2.6	5	-	98	60-140
4-Isopropyl toluene	ND	5.34	2.8	5	-	107	60-140
Bromobenzene	ND	4.89	3.3	5	-	98	60-140
Dibromomethane	ND	4.60	3.6	5	-	92	60-140
n-Butyl benzene	ND	5.50	2.8	5	-	110	60-140
n-Propyl benzene	ND	5.11	2.5	5	-	102	60-140
sec-Butyl benzene	ND	5.44	2.8	5	-	109	60-140
tert-Butyl benzene	ND	5.33	2.8	5	-	107	60-140
TPH-Diesel (C10-C23)	ND	10,500	1000	10000	-	105	60-140
Acrylonitrile	ND	3.95	1.1	5	-	79	60-140
Benzene	ND	4.41	1.6	5	-	88	60-140
Bromodichloromethane	ND	4.70	3.5	5	-	94	60-140
Bromoform	ND	ND	5.3	5	-	83	60-140
1,3-Butadiene	ND	3.71	1.1	5	-	74	60-140
Carbon Disulfide	ND	4.45	1.6	5	-	89	60-140
Carbon Tetrachloride	ND	4.58	3.2	5	-	92	60-140
Chlorobenzene	ND	5.19	2.4	5	-	104	60-140
Chloroform	ND	4.45	2.5	5	-	89	60-140
Dibromochloromethane	ND	4.74	4.4	5	-	95	60-140
1,2-Dibromo-3-chloropropane	ND	ND	4.9	5	-	89	60-140
1,2-Dibromoethane (EDB)	ND	5.10	3.9	5	-	102	60-140
1,2-Dichlorobenzene	ND	5.20	3.1	5	-	104	60-140
1,3-Dichlorobenzene	ND	5.00	3.1	5	-	100	60-140
1,4-Dichlorobenzene	ND	4.98	3.1	5	-	100	60-140
Dichlorodifluoromethane	ND	4.06	2.5	5	-	81	60-140
1,1-Dichloroethane	ND	4.25	2.1	5	-	85	60-140
1,2-Dichloroethane (1,2-DCA)	ND	4.37	2.1	5	-	87	60-140
1,1-Dichloroethene	ND	4.63	2.0	5	-	93	60-140
cis-1,2-Dichloroethene	ND	4.63	2.0	5	-	93	60-140
trans-1,2-Dichloroethene	ND	4.36	2.0	5	-	87	60-140
1,2-Dichloropropane	ND	4.01	2.4	5	-	80	60-140

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1602247
Date Prepared:	2/12/16	**BatchID:**	116645
Date Analyzed:	2/12/16	**Extraction Method:**	TO17
Instrument:	GC37	**Analytical Method:**	TO17
Matrix:	Sorbent Tube	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-116645

QC Summary Report for TO17

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
cis-1,3-Dichloropropene	ND	4.90	2.3	5	-	98	60-140
trans-1,3-Dichloropropene	ND	4.00	2.3	5	-	80	60-140
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.62	3.6	5	-	72	60-140
Diisopropyl ether (DIPE)	ND	5.02	2.1	5	-	100	60-140
Ethylbenzene	ND	5.53	2.2	5	-	111	60-140
4-Ethyltoluene	ND	5.41	2.5	5	-	108	60-140
Freon 113	ND	4.17	3.9	5	-	83	60-140
Heptane	ND	ND	8.4	5	-	93	60-140
Hexachlorobutadiene	ND	5.92	5.4	5	-	118	60-140
Hexane	ND	ND	7.2	5	-	84	60-140
Isopropylbenzene	ND	5.12	2.5	5	-	102	60-140
Methylene chloride	ND	4.10	1.8	5	-	82	60-140
Naphthalene	ND	5.38	2.7	5	-	108	60-140
Styrene	ND	5.09	2.2	5	-	102	60-140
1,1,1,2-Tetrachloroethane	ND	5.68	3.5	5	-	114	60-140
1,1,2,2-Tetrachloroethane	ND	4.81	3.5	5	-	96	60-140
Tetrachloroethene	ND	5.03	3.5	5	-	101	60-140
Toluene	ND	5.42	1.9	5	-	108	60-140
TPH(g)	ND	10,500	1000	10000	-	105	60-140
1,2,4-Trichlorobenzene	ND	5.76	3.8	5	-	115	60-140
1,1,1-Trichloroethane	ND	4.27	2.8	5	-	85	60-140
1,1,2-Trichloroethane	ND	5.23	2.8	5	-	105	60-140
Trichloroethene	ND	4.48	2.8	5	-	90	60-140
Trichlorofluoromethane	ND	4.66	0.90	5	-	93	60-140
1,2,4-Trimethylbenzene	ND	5.50	2.5	5	-	110	60-140
1,3,5-Trimethylbenzene	ND	5.39	2.5	5	-	108	60-140
Vinyl Chloride	ND	3.61	1.3	5	-	72	60-140
Xylenes, Total	ND	-	6.6	-	-	-	-
Surrogate Recovery							
1,2-DCA-d4	118	87.2		100	118	87	60-140
toluene-d8	103	90.3		100	103	90	60-140
4-BFB	107	101		100	107	101	60-140

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1602247 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612
(510) 836-3700 FAX: (510) 836-3709

Email: BRiddell@pangeaenv.com
cc/3rd Party:
PO:
ProjectNo: 1919 Market

Bill to:
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Requested TAT: 5 days;

Date Received: **02/05/2016**
Date Logged: **02/05/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1602247-001	SS-1	Air	2/5/2016 16:20	☐	A	A										
1602247-002	SS-2	Air	2/5/2016 15:30	☐		A										

Test Legend:

1	PRLOWPUMP	2	TO17_ST(UG/M3)	3		4	
5		6		7		8	
9		10		11		12	

Project Manager:

Prepared by: Briana Cutino

Comments: VOCs changed to full list per email 2/5/16 (except MTBE). -BB

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

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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1602247

Project: 1919 Market **Client Contact:** Bob Clark-Riddell **Date Logged:** 2/5/2016

Comments: VOCs changed to full list per email 2/5/16 (except MTBE). -BB **Contact's Email:** BRiddell@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1602247-001A	SS-1	Air	TO17 (VOCs) (µg/m³) <1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,1-Dichloropropene, 1,2,3-Trichlorobenzene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2,4-Trimethylbenzene, 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane (EDB), 1,2-Dichloro-1,1,2,2-tetrafluoroethane, 1,2-Dichlorobenzene, 1,2-Dichloroethane (1,2-DCA), 1,2-Dichloropropane, 1,3,5-Trimethylbenzene, 1,3-Butadiene, 1,3-Dichlorobenzene, 1,3-Dichloropropane, 1,4-Dichlorobenzene, 1,4-Dioxane, 2,2-Dichloropropane, 2-Butanone (MEK), 2-Chlorotoluene, 2-Hexanone, 4-Chlorotoluene, 4-Ethyltoluene, 4-Isopropyl toluene, 4-Methyl-2-pentanone (MIBK), Acetone, Acrylonitrile, Benzene, Bromobenzene, Bromodichloromethane, Bromoform,	1	Sorbent Tube	☐	2/5/2016 16:20	5 days		☐	

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).

- 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.

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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1602247

Project: 1919 Market **Client Contact:** Bob Clark-Riddell **Date Logged:** 2/5/2016

Comments: VOCs changed to full list per email 2/5/16 (except MTBE). -BB **Contact's Email:** BRiddell@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
			Carbon Disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroform, cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, Dibromochloromethane, Dibromomethane, Dichlorodifluoromethane, Diisopropyl ether (DIPE), Ethyl tert-butyl ether (ETBE), Ethylbenzene, Freon 113, Heptane, Hexachlorobutadiene, Hexane, Isopropylbenzene, Methylene chloride, Naphthalene, n-Butyl benzene, n-Propyl benzene, sec-Butyl benzene, Styrene, t-Butyl alcohol (TBA), tert-Amyl methyl ether (TAME), tert-Butyl benzene, Tetrachloroethene, Tetrahydrofuran, Toluene, TPH(g), TPH-Diesel (C10-C23), trans-1,2-Dichloroethene, trans-1,3-Dichloropropene, Trichloroethene, Trichlorofluoromethane, Vinyl Chloride, Xylenes, Total>							

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).

- 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.

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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1602247

Project: 1919 Market **Client Contact:** Bob Clark-Riddell **Date Logged:** 2/5/2016

Comments: VOCs changed to full list per email 2/5/16 (except MTBE). -BB **Contact's Email:** BRiddell@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1602247-002A	SS-2	Air	TO17 (VOCs) (µg/m³) <1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,1-Dichloropropene, 1,2,3-Trichlorobenzene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2,4-Trimethylbenzene, 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane (EDB), 1,2-Dichloro-1,1,2,2-tetrafluoroethane, 1,2-Dichlorobenzene, 1,2-Dichloroethane (1,2-DCA), 1,2-Dichloropropane, 1,3,5-Trimethylbenzene, 1,3-Butadiene, 1,3-Dichlorobenzene, 1,3-Dichloropropane, 1,4-Dichlorobenzene, 1,4-Dioxane, 2,2-Dichloropropane, 2-Butanone (MEK), 2-Chlorotoluene, 2-Hexanone, 4-Chlorotoluene, 4-Ethyltoluene, 4-Isopropyl toluene, 4-Methyl-2-pentanone (MIBK), Acetone, Acrylonitrile, Benzene, Bromobenzene, Bromodichloromethane, Bromoform,	1	Sorbent Tube	☐	2/5/2016 15:30	5 days		☐	

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).

- 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.

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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1602247

Project: 1919 Market **Client Contact:** Bob Clark-Riddell **Date Logged:** 2/5/2016

Comments: VOCs changed to full list per email 2/5/16 (except MTBE). -BB **Contact's Email:** BRiddell@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
			Carbon Disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroform, cis-1,2-Dichloroethene, cis-1,3-Dichloropropene, Dibromochloromethane, Dibromomethane, Dichlorodifluoromethane, Diisopropyl ether (DIPE), Ethyl tert-butyl ether (ETBE), Ethylbenzene, Freon 113, Heptane, Hexachlorobutadiene, Hexane, Isopropylbenzene, Methylene chloride, Naphthalene, n-Butyl benzene, n-Propyl benzene, sec-Butyl benzene, Styrene, t-Butyl alcohol (TBA), tert-Amyl methyl ether (TAME), tert-Butyl benzene, Tetrachloroethene, Tetrahydrofuran, Toluene, TPH(g), TPH-Diesel (C10-C23), trans-1,2-Dichloroethene, trans-1,3-Dichloropropene, Trichloroethene, Trichlorofluoromethane, Vinyl Chloride, Xylenes, Total>								

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).

- 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.

1602247

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Telephone: (877) 252-9262 / Fax: (925) 252-9269

RUSH

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH ☐ 1 DAY ☐ 2 DAY ☐ 3 DAY ☒ 5 DAY ☐
GeoTracker EDF ☐ PDF ☐ EDD ☐ EQuIS ☐ 10 DAY ☐
UST CLEAN UP FUND ☐ ; Claim #

Report To: Bob Clark-Riddell **Bill To:** Pangea
Company: Pangea Env. Svs.
1710 Franklin St. Oakland
E-Mail: briddell@pangeaenv.com
Tele: (510) 836-3700 **Fax:** ( )
Project #: **Project Name:** 1919 Market
Project Location: 1919 Market St, Oakland
Sampler Signature:

Field Sample ID (Location)	Collection Date	Collection Time	Tube # / ~~Canister SN#~~	Run Time / Flow Rate / ~~Sampler Kit SN#~~	VOCs by TO-15 (ug/m3) Full List + Neop	8010 by TO-15 (ug/m3)	TPH(g) (ug/m3) + Desc TO-17	LEED (inc. 4PCH, Formaldehyde, CO, Total VOCs)	Fixed Gas: CO2, Methane, Ethane, Ethylene, Acetylene, CO (please circle or indicate in notes) uL/L	Fixed Gas: O2, N2 (please circle) uL/L	Fixed Gas: Propane uL/L	Helium Leak Check (%)	Leak Check (IPA, Norflorane, 1,1-difluroethane) ug/m3	APH: Aliphatic and/or Aromatic (please circle) ug/m3	Other:	Matrix: Soilgas	Matrix: Indoor Air	Canister Pressure/ Vacuum: Initial	Canister Pressure/ Vacuum: Final
SS-1	2.5.16	1620	GO 149957	60 / 150 ml/min	X		X									X			
SS-2	2.5.16	1530	GO147729	20 min / 50ml/min	X		X									X			

Helium Shroud SN#
Other:
Notes: Please Specify units if different than default: VOCs is reported in ug/m3, fixed gas is reported in uL/L. Leak check default is IPA.

Relinquished By:	Date:	Time:	Received By:
	2/5/16	1945	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Temp (°C): 33 Work Order #:
Condition:
Custody Seals Intact?: Yes ____ No ____ None ____
Shipped Via:

*Changed to full list VOCs per email 2/5/16

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"When Quality Counts"

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**2/5/2016 19:45**
Project Name:	**1919 Market**	Date Logged:	**2/5/2016**
WorkOrder №:	**1602247** Matrix: Air	Received by:	Briana Cutino
Carrier:	Client Drop-In	Logged by:	Briana Cutino

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	☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	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	☐	
Sample/Temp Blank temperature	Temp: 3.3°C				NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes	☐	No	☐	NA ☑
Sample labels checked for correct preservation?	Yes	☑	No	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes	☐	No	☐	NA ☑
Samples Received on Ice?	Yes	☑	No	☐	
	(Ice Type: WET ICE)				

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes	☐	No	☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes	☐	No	☐	NA ☑

** NOTE: If the "No" box is checked, see comments below.*

Comments:

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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 273912
ANALYTICAL REPORT

Pangea Environmental	Project : STANDARD
1710 Franklin Street	Location : 1919 Market Street
Oakland, CA 94612	Level : II

Sample ID	Lab ID
SS-1	273912-001
SS-2	273912-002

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Mikelle Chong Date: 02/10/2016

Mikelle Chong
Project Manager
mikelle.chong@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**273912**
Client:	**Pangea Environmental**
Location:	**1919 Market Street**
Request Date:	**02/05/16**
Samples Received:	**02/05/16**

This data package contains sample and QC results for two air samples, requested for the above referenced project on 02/05/16. The samples were received intact.

Volatile Organics in Air GC (ASTM D1946):
No analytical problems were encountered.

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Berkeley, CA 94710
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(510)486-0532 Fax

AIR TESTING CHAIN OF CUSTODY
& PURCHASE ORDER

Page 1 of 1
Chain of Custody # : 1

C&T LOGIN # 273912

Project No:
Project Name: 1919 Market St
EDD Format: _____ Rpt Level: II III IV
Turnaround Time: ☒ RUSH 3 DAY ☐ Standard

Sampler: E. Lervaag
Report To: Bob Clark-Riddell
Company: Pangea Env. Svcs.
Telephone: 510-836-3700
Email: briddell@pangeaenv.com

Lab No.	Sample ID.	Sampling Information					TESTING REQUESTED				
		Date Collected	Time Collected	Canister ID (Bar Code #)	Flow Controller ID	Sample Volume (Gauge Reading)	TO-15	TO-3: C6-C12 GRO	TO-3M: C1-C6 Hydrocarbons	D1946: (Please Circle Targets) H_2 He N_2 O_2 CO CO_2 CH_4	
1	SS-1	2.5.16	1620	266	A00226	29/5	X				
2	SS-2	2.5.16	1530	55	A00254	29/5	X				

Notes:

RELIQUISHED BY: _____ 2/5/16 1650 DATE/TIME
DATE/TIME
DATE/TIME

RECEIVED BY: _____ 2/5/16 1650 DATE/TIME
DATE/TIME
DATE/TIME

273912

Subject: RE: 1919 Market Street - C&T Login Summary (273912)
From: Bob Clark-Riddell <briddell@pangeaenv.com>
Date: 2/8/2016 10:46 AM
To: Mikelle Chong <mikelle.chong@ctberk.com>

Oxygen and methane.

Bob Clark-Riddell, P.E.
Pangea Environmental Services, Inc.
510.435.8664 direct

From: Mikelle Chong [mailto:mikelle.chong@ctberk.com]
Sent: Monday, February 08, 2016 10:39 AM
To: Bob Clark-Riddell <briddell@pangeaenv.com>
Subject: Re: 1919 Market Street - C&T Login Summary (273912)

Hi Bob,
Do you have a target analyte list?

Mikelle Chong
Project Manager
Curtis & Tompkins
(510)204-2236
www.curtisandtompkins.com

On 2/5/2016 6:58 PM, Bob Clark-Riddell wrote:

> Sorry, we only want Light Gases!! Do NOT want TO-15. Technician mistake.
>
> Bob Clark-Riddell, P.E.
> Pangea Environmental Services, Inc.
> 510.435.8664 direct
>
> **From:** C&T Sample Control [mailto:sample.control@ctberk.com]
> **Sent:** Friday, February 05, 2016 6:37 PM
> **To:** Bob Clark-Riddell <briddell@pangeaenv.com>
> **Cc:** mikelle.chong@ctberk.com
> **Subject:** 1919 Market Street - C&T Login Summary (273912)

C&T Login Summary for 273912

Project: STANDARD	**Report To:** Pangea Environmental	**Bill To:** Pangea Environmental
Site: 1919 Market Street	1710 Franklin Street	1710 Franklin Street
Lab Login #: 273912	Suite 200	Suite 200
Report Level: II	Oakland, CA 94612	Oakland, CA 94612
PO#:	ATTN: Bob Clark-Riddell	ATTN: Zach Rawlins
C&T Proj Mgr: Mikelle Chong	(510) 435-8664	(510) 836-3700

Client ID	Lab ID	Sampled	Received	DueDate	Matrix	Dry	Analyses	COC #	Comments
SS-1	001	02/05/16 16:20	02/05/16			N			
				02/10	Air		SUMMA PREP		
				02/10	Air		TO15		
SS-2	002	02/05/16 15:30	02/05/16			N			
				02/10	Air		FLOW CONTROLLER		
				02/10	Air		FLOW CONTROLLER		
				02/10	Air		PURGE REGULATOR		
				02/10	Air		SUMMA 6		
				02/10	Air		SUMMA PREP		

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 273912 Date Received 2/5/16 Number of coolers 1
Client Pangea Project 1919 Market Street

Date Opened 2/5/16 By (print) AAL (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☒ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☒ None Temp(°C)

☐ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES (NO)
If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS

Rev 9, 10/11

Curtis & Tompkins, Ltd.

Detections Summary for 273912

Results for any subcontracted analyses are not included in this summary.

Client : Pangea Environmental
Project : STANDARD
Location : 1919 Market Street

Client Sample ID : SS-1 Laboratory Sample ID : 273912-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Oxygen	170,000		2,000	ppmv	As Recd	1.970	ASTM D1946	METHOD

Client Sample ID : SS-2 Laboratory Sample ID : 273912-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Oxygen	170,000		1,900	ppmv	As Recd	1.900	ASTM D1946	METHOD

Curtis & Tompkins, Ltd.

Fixed Gas Analysis

Lab #:	273912	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	ASTM D1946
Matrix:	Air	Sampled:	02/05/16
Units:	ppmv	Received:	02/05/16
Units (Mol %):	MOL %	Analyzed:	02/09/16
Batch#:	231865		

Field ID: SS-1 Lab ID: 273912-001
Type: SAMPLE Diln Fac: 1.970

Analyte	Result	RL	Result (Mol %)	RL
Oxygen	170,000	2,000	17	0.20
Methane	ND	2,000	ND	0.20

Field ID: SS-2 Lab ID: 273912-002
Type: SAMPLE Diln Fac: 1.900

Analyte	Result	RL	Result (Mol %)	RL
Oxygen	170,000	1,900	17	0.19
Methane	ND	1,900	ND	0.19

Type: BLANK Diln Fac: 1.000
Lab ID: QC822527

Analyte	Result	RL	Result (Mol %)	RL
Oxygen	ND	1,000	ND	0.10
Methane	ND	1,000	ND	0.10

ND= Not Detected
RL= Reporting Limit
Result Mol %= Result in Mole Percent

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	273912	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	ASTM D1946
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC822525	Batch#:	231865
Matrix:	Air	Analyzed:	02/09/16
Units:	ppmv		

Analyte	Spiked	Result	%REC	Limits
Oxygen	2,000	1,821	91	70-130
Methane	2,000	2,048	102	70-130

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Batch QC Report

Fixed Gas Analysis

Lab #:	273912	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	ASTM D1946
Field ID:	SS-1	Units (Mol %):	MOL %
Type:	SDUP	Diln Fac:	1.970
MSS Lab ID:	273912-001	Batch#:	231865
Lab ID:	QC822526	Sampled:	02/05/16
Matrix:	Air	Received:	02/05/16
Units:	ppmv	Analyzed:	02/09/16

Analyte	MSS Result	Result	RL	Result (Mol %)	RL	RPD	Lim
Oxygen	173,900	174,100	1,970	17.41	0.1970	0	30
Methane	<1,970	ND	1,970	ND	0.1970	NC	30

NC= Not Calculated
ND= Not Detected
RL= Reporting Limit
RPD= Relative Percent Difference
Result Mol %= Result in Mole Percent

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Laboratory Job Number 279208
ANALYTICAL REPORT

Pangea Environmental	Project : STANDARD
1710 Franklin Street	Location : 1919 Market
Oakland, CA 94612	Level : II

Sample ID	Lab ID
SSV-1	279208-001
SSV-2	279208-002
SSV-3	279208-003
SSV-5	279208-004
SSV-6	279208-005
SSV-8	279208-006
SSV-9	279208-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 08/05/2016

Will Rice
Project Manager
will.rice@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**279208**
Client:	**Pangea Environmental**
Location:	**1919 Market**
Request Date:	**08/01/16**
Samples Received:	**08/01/16**

This data package contains sample and QC results for seven air samples, requested for the above referenced project on 08/01/16. The samples were received on ice and intact, directly from the field.

Volatile Organics in Air by MS (EPA TO-15):

High responses were observed for many analytes in the CCV analyzed 08/02/16 12:32; affected data was qualified with "b". High recoveries were observed for many analytes in the BS/BSD for batch 237599; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated sample. No other analytical problems were encountered.

Volatile Organics in Air GC (ASTM D1946):

No analytical problems were encountered.

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(510)486-0532 Fax

AIR TESTING CHAIN OF CUSTODY
& PURCHASE ORDER

Chain of Custody # : _____

C&T LOGIN # 279208

Project No:
Project Name: 1919 Market
EDD Format: _____ Rpt Level: II III IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: E. Lervaag
Report To: Ron Scheele
Company : Pangea Env. Svs
Telephone: 510-836-3700
Email: rscheele@pangeaenv.com

Lab No.	Sample ID.	Sampling Information: Date Collected	Time Collected	Canister ID (Bar Code #)	Flow Controller ID	Sample Volume (Gauge Reading)	TESTING REQUESTED: TO-15	Leak check IPA	D1946 O2, CH4		
1	SSV-1	8.1.16	1142	00416	A00270	29/5	X	X			
2	SSV-2		1204	311	unregulated	29/5	X	X	X		
3	SSV-3		1228	277	A00271	29/5	X	X			
4	SSV-5		1250	67	A00269	30/5	X	X			
5	SSV-6		1342	79	A00233	32/5	X	X			
6	SSV-8		1419	384	A00223	29.5/5	X	X			
7	SSV-9	8.1.16	1443	87	A00202	29/5	X	X			

Notes:

RELINQUISHED BY: 8.1.16 1710 DATE/TIME

RECEIVED BY: 8/1/16 1410 DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 279208 Date Received 8/1/16 Number of coolers 0
Client Pangea Project 1919 Market

Date Opened 8/1/16 By (print) AH (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
   Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☒ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☒ None Temp(°C)_____

☐ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ YES (NO)
   If YES, what time were they transferred to freezer?_____
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
   If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____

_____

_____

Rev 9, 10/11

Curtis & Tompkins, Ltd.

Detections Summary for 279208

Results for any subcontracted analyses are not included in this summary.

Client : Pangea Environmental
Project : STANDARD
Location : 1919 Market

Client Sample ID : SSV-1 Laboratory Sample ID : 279208-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Trichlorofluoromethane	3.0		1.1	ppbv	As Recd	2.240	EPA TO-15	METHOD
Isopropanol	5.9		4.5	ppbv	As Recd	2.240	EPA TO-15	METHOD
Toluene	2.2		1.1	ppbv	As Recd	2.240	EPA TO-15	METHOD
Tetrachloroethene	19		1.1	ppbv	As Recd	2.240	EPA TO-15	METHOD
m,p-Xylenes	2.2		1.1	ppbv	As Recd	2.240	EPA TO-15	METHOD

Client Sample ID : SSV-2 Laboratory Sample ID : 279208-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Toluene	2.1		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
m,p-Xylenes	1.4		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
Oxygen	160,000		1,900	ppmv	As Recd	1.930	ASTM D1946	METHOD

Client Sample ID : SSV-3 Laboratory Sample ID : 279208-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Isopropanol	15		4.3	ppbv	As Recd	2.140	EPA TO-15	METHOD
Chloroform	1.9		1.1	ppbv	As Recd	2.140	EPA TO-15	METHOD
1,1,1-Trichloroethane	1.9		1.1	ppbv	As Recd	2.140	EPA TO-15	METHOD
Carbon Tetrachloride	42		1.1	ppbv	As Recd	2.140	EPA TO-15	METHOD
Toluene	1.1		1.1	ppbv	As Recd	2.140	EPA TO-15	METHOD
m,p-Xylenes	1.3		1.1	ppbv	As Recd	2.140	EPA TO-15	METHOD

Client Sample ID : SSV-5 Laboratory Sample ID : 279208-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	6.7		4.1	ppbv	As Recd	2.050	EPA TO-15	METHOD
Isopropanol	8.5		4.1	ppbv	As Recd	2.050	EPA TO-15	METHOD
Carbon Tetrachloride	2.3		1.0	ppbv	As Recd	2.050	EPA TO-15	METHOD
Toluene	1.6		1.0	ppbv	As Recd	2.050	EPA TO-15	METHOD
m,p-Xylenes	1.7		1.0	ppbv	As Recd	2.050	EPA TO-15	METHOD

Curtis & Tompkins, Ltd.

Client Sample ID : SSV-6 Laboratory Sample ID : 279208-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Trichlorofluoromethane	1.2		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD
Isopropanol	5.4		3.9	ppbv	As Recd	1.950	EPA TO-15	METHOD
1,1,1-Trichloroethane	3.3		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD
Carbon Tetrachloride	9.7		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD
Toluene	1.2		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD
m,p-Xylenes	1.4		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD

Client Sample ID : SSV-8 Laboratory Sample ID : 279208-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Carbon Disulfide	1.4		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD
1,1,1-Trichloroethane	15		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD
Tetrachloroethene	1.9		0.98	ppbv	As Recd	1.950	EPA TO-15	METHOD

Client Sample ID : SSV-9 Laboratory Sample ID : 279208-007

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Trichlorofluoromethane	1.5		1.0	ppbv	As Recd	2.030	EPA TO-15	METHOD
Chloroform	1.4		1.0	ppbv	As Recd	2.030	EPA TO-15	METHOD
1,1,1-Trichloroethane	40		1.0	ppbv	As Recd	2.030	EPA TO-15	METHOD
Carbon Tetrachloride	5.3		1.0	ppbv	As Recd	2.030	EPA TO-15	METHOD
Tetrachloroethene	50		1.0	ppbv	As Recd	2.030	EPA TO-15	METHOD

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-1	Diln Fac:	2.240
Lab ID:	279208-001	Batch#:	237599
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/02/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.1	ND	5.5
Freon 114	ND	1.1	ND	7.8
Chloromethane	ND	1.1	ND	2.3
Vinyl Chloride	ND	1.1	ND	2.9
1,3-Butadiene	ND	1.1	ND	2.5
Bromomethane	ND	1.1	ND	4.3
Chloroethane	ND	1.1	ND	3.0
Trichlorofluoromethane	3.0	1.1	17	6.3
Acrolein	ND	4.5	ND	10
1,1-Dichloroethene	ND	1.1	ND	4.4
Freon 113	ND	1.1	ND	8.6
Acetone	ND	4.5	ND	11
Carbon Disulfide	ND	1.1	ND	3.5
Isopropanol	5.9	4.5	14	11
Methylene Chloride	ND	1.1	ND	3.9
trans-1,2-Dichloroethene	ND	1.1	ND	4.4
MTBE	ND	1.1	ND	4.0
n-Hexane	ND	1.1	ND	3.9
1,1-Dichloroethane	ND	1.1	ND	4.5
Vinyl Acetate	ND	1.1	ND	3.9
cis-1,2-Dichloroethene	ND	1.1	ND	4.4
2-Butanone	ND	1.1	ND	3.3
Ethyl Acetate	ND	1.1	ND	4.0
Tetrahydrofuran	ND	1.1	ND	3.3
Chloroform	ND	1.1	ND	5.5
1,1,1-Trichloroethane	ND	1.1	ND	6.1
Cyclohexane	ND	1.1	ND	3.9
Carbon Tetrachloride	ND	1.1	ND	7.0
Benzene	ND	1.1	ND	3.6
1,2-Dichloroethane	ND	1.1	ND	4.5
n-Heptane	ND	1.1	ND	4.6
Trichloroethene	ND	1.1	ND	6.0
1,2-Dichloropropane	ND	1.1	ND	5.2
Bromodichloromethane	ND	1.1	ND	7.5
cis-1,3-Dichloropropene	ND	1.1	ND	5.1

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-1	Diln Fac:	2.240
Lab ID:	279208-001	Batch#:	237599
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/02/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.1	ND	4.6
Toluene	2.2	1.1	8.2	4.2
trans-1,3-Dichloropropene	ND	1.1	ND	5.1
1,1,2-Trichloroethane	ND	1.1	ND	6.1
Tetrachloroethene	19	1.1	130	7.6
2-Hexanone	ND	1.1	ND	4.6
Dibromochloromethane	ND	1.1	ND	9.5
1,2-Dibromoethane	ND	1.1	ND	8.6
Chlorobenzene	ND	1.1	ND	5.2
Ethylbenzene	ND	1.1	ND	4.9
m,p-Xylenes	2.2	1.1	9.7	4.9
o-Xylene	ND	1.1	ND	4.9
Styrene	ND	1.1	ND	4.8
Bromoform	ND	1.1	ND	12
1,1,2,2-Tetrachloroethane	ND	1.1	ND	7.7
4-Ethyltoluene	ND	1.1	ND	5.5
1,3,5-Trimethylbenzene	ND	1.1	ND	5.5
1,2,4-Trimethylbenzene	ND	1.1	ND	5.5
1,3-Dichlorobenzene	ND	1.1	ND	6.7
1,4-Dichlorobenzene	ND	1.1	ND	6.7
Benzyl chloride	ND	1.1	ND	5.8
1,2-Dichlorobenzene	ND	1.1	ND	6.7
1,2,4-Trichlorobenzene	ND	1.1	ND	8.3
Hexachlorobutadiene	ND	1.1	ND	12
Naphthalene	ND	4.5	ND	23

Surrogate	%REC	Limits
Bromofluorobenzene	84	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-2	Diln Fac:	1.930
Lab ID:	279208-002	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.97	ND	4.8
Freon 114	ND	0.97	ND	6.7
Chloromethane	ND	0.97	ND	2.0
Vinyl Chloride	ND	0.97	ND	2.5
1,3-Butadiene	ND	0.97	ND	2.1
Bromomethane	ND	0.97	ND	3.7
Chloroethane	ND	0.97	ND	2.5
Trichlorofluoromethane	ND	0.97	ND	5.4
Acrolein	ND	3.9	ND	8.9
1,1-Dichloroethene	ND	0.97	ND	3.8
Freon 113	ND	0.97	ND	7.4
Acetone	ND	3.9	ND	9.2
Carbon Disulfide	ND	0.97	ND	3.0
Isopropanol	ND	3.9	ND	9.5
Methylene Chloride	ND	0.97	ND	3.4
trans-1,2-Dichloroethene	ND	0.97	ND	3.8
MTBE	ND	0.97	ND	3.5
n-Hexane	ND	0.97	ND	3.4
1,1-Dichloroethane	ND	0.97	ND	3.9
Vinyl Acetate	ND	0.97	ND	3.4
cis-1,2-Dichloroethene	ND	0.97	ND	3.8
2-Butanone	ND	0.97	ND	2.8
Ethyl Acetate	ND	0.97	ND	3.5
Tetrahydrofuran	ND	0.97	ND	2.8
Chloroform	ND	0.97	ND	4.7
1,1,1-Trichloroethane	ND	0.97	ND	5.3
Cyclohexane	ND	0.97	ND	3.3
Carbon Tetrachloride	ND	0.97	ND	6.1
Benzene	ND	0.97	ND	3.1
1,2-Dichloroethane	ND	0.97	ND	3.9
n-Heptane	ND	0.97	ND	4.0
Trichloroethene	ND	0.97	ND	5.2
1,2-Dichloropropane	ND	0.97	ND	4.5
Bromodichloromethane	ND	0.97	ND	6.5
cis-1,3-Dichloropropene	ND	0.97	ND	4.4

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-2	Diln Fac:	1.930
Lab ID:	279208-002	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.97	ND	4.0
Toluene	2.1	0.97	8.1	3.6
trans-1,3-Dichloropropene	ND	0.97	ND	4.4
1,1,2-Trichloroethane	ND	0.97	ND	5.3
Tetrachloroethene	ND	0.97	ND	6.5
2-Hexanone	ND	0.97	ND	4.0
Dibromochloromethane	ND	0.97	ND	8.2
1,2-Dibromoethane	ND	0.97	ND	7.4
Chlorobenzene	ND	0.97	ND	4.4
Ethylbenzene	ND	0.97	ND	4.2
m,p-Xylenes	1.4	0.97	6.3	4.2
o-Xylene	ND	0.97	ND	4.2
Styrene	ND	0.97	ND	4.1
Bromoform	ND	0.97	ND	10
1,1,2,2-Tetrachloroethane	ND	0.97	ND	6.6
4-Ethyltoluene	ND	0.97	ND	4.7
1,3,5-Trimethylbenzene	ND	0.97	ND	4.7
1,2,4-Trimethylbenzene	ND	0.97	ND	4.7
1,3-Dichlorobenzene	ND	0.97	ND	5.8
1,4-Dichlorobenzene	ND	0.97	ND	5.8
Benzyl chloride	ND	0.97	ND	5.0
1,2-Dichlorobenzene	ND	0.97	ND	5.8
1,2,4-Trichlorobenzene	ND	0.97	ND	7.2
Hexachlorobutadiene	ND	0.97	ND	10
Naphthalene	ND	3.9	ND	20

Surrogate	%REC	Limits
Bromofluorobenzene	87	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-3	Diln Fac:	2.140
Lab ID:	279208-003	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.1	ND	5.3
Freon 114	ND	1.1	ND	7.5
Chloromethane	ND	1.1	ND	2.2
Vinyl Chloride	ND	1.1	ND	2.7
1,3-Butadiene	ND	1.1	ND	2.4
Bromomethane	ND	1.1	ND	4.2
Chloroethane	ND	1.1	ND	2.8
Trichlorofluoromethane	ND	1.1	ND	6.0
Acrolein	ND	4.3	ND	9.8
1,1-Dichloroethene	ND	1.1	ND	4.2
Freon 113	ND	1.1	ND	8.2
Acetone	ND	4.3	ND	10
Carbon Disulfide	ND	1.1	ND	3.3
Isopropanol	15	4.3	38	11
Methylene Chloride	ND	1.1	ND	3.7
trans-1,2-Dichloroethene	ND	1.1	ND	4.2
MTBE	ND	1.1	ND	3.9
n-Hexane	ND	1.1	ND	3.8
1,1-Dichloroethane	ND	1.1	ND	4.3
Vinyl Acetate	ND	1.1	ND	3.8
cis-1,2-Dichloroethene	ND	1.1	ND	4.2
2-Butanone	ND	1.1	ND	3.2
Ethyl Acetate	ND	1.1	ND	3.9
Tetrahydrofuran	ND	1.1	ND	3.2
Chloroform	1.9	1.1	9.3	5.2
1,1,1-Trichloroethane	1.9	1.1	10	5.8
Cyclohexane	ND	1.1	ND	3.7
Carbon Tetrachloride	42	1.1	260	6.7
Benzene	ND	1.1	ND	3.4
1,2-Dichloroethane	ND	1.1	ND	4.3
n-Heptane	ND	1.1	ND	4.4
Trichloroethene	ND	1.1	ND	5.7
1,2-Dichloropropane	ND	1.1	ND	4.9
Bromodichloromethane	ND	1.1	ND	7.2
cis-1,3-Dichloropropene	ND	1.1	ND	4.9

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-3	Diln Fac:	2.140
Lab ID:	279208-003	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.1	ND	4.4
Toluene	1.1	1.1	4.2	4.0
trans-1,3-Dichloropropene	ND	1.1	ND	4.9
1,1,2-Trichloroethane	ND	1.1	ND	5.8
Tetrachloroethene	ND	1.1	ND	7.3
2-Hexanone	ND	1.1	ND	4.4
Dibromochloromethane	ND	1.1	ND	9.1
1,2-Dibromoethane	ND	1.1	ND	8.2
Chlorobenzene	ND	1.1	ND	4.9
Ethylbenzene	ND	1.1	ND	4.6
m,p-Xylenes	1.3	1.1	5.6	4.6
o-Xylene	ND	1.1	ND	4.6
Styrene	ND	1.1	ND	4.6
Bromoform	ND	1.1	ND	11
1,1,2,2-Tetrachloroethane	ND	1.1	ND	7.3
4-Ethyltoluene	ND	1.1	ND	5.3
1,3,5-Trimethylbenzene	ND	1.1	ND	5.3
1,2,4-Trimethylbenzene	ND	1.1	ND	5.3
1,3-Dichlorobenzene	ND	1.1	ND	6.4
1,4-Dichlorobenzene	ND	1.1	ND	6.4
Benzyl chloride	ND	1.1	ND	5.5
1,2-Dichlorobenzene	ND	1.1	ND	6.4
1,2,4-Trichlorobenzene	ND	1.1	ND	7.9
Hexachlorobutadiene	ND	1.1	ND	11
Naphthalene	ND	4.3	ND	22

Surrogate	%REC	Limits
Bromofluorobenzene	87	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-5	Diln Fac:	2.050
Lab ID:	279208-004	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.0	ND	5.1
Freon 114	ND	1.0	ND	7.2
Chloromethane	ND	1.0	ND	2.1
Vinyl Chloride	ND	1.0	ND	2.6
1,3-Butadiene	ND	1.0	ND	2.3
Bromomethane	ND	1.0	ND	4.0
Chloroethane	ND	1.0	ND	2.7
Trichlorofluoromethane	ND	1.0	ND	5.8
Acrolein	ND	4.1	ND	9.4
1,1-Dichloroethene	ND	1.0	ND	4.1
Freon 113	ND	1.0	ND	7.9
Acetone	6.7	4.1	16	9.7
Carbon Disulfide	ND	1.0	ND	3.2
Isopropanol	8.5	4.1	21	10
Methylene Chloride	ND	1.0	ND	3.6
trans-1,2-Dichloroethene	ND	1.0	ND	4.1
MTBE	ND	1.0	ND	3.7
n-Hexane	ND	1.0	ND	3.6
1,1-Dichloroethane	ND	1.0	ND	4.1
Vinyl Acetate	ND	1.0	ND	3.6
cis-1,2-Dichloroethene	ND	1.0	ND	4.1
2-Butanone	ND	1.0	ND	3.0
Ethyl Acetate	ND	1.0	ND	3.7
Tetrahydrofuran	ND	1.0	ND	3.0
Chloroform	ND	1.0	ND	5.0
1,1,1-Trichloroethane	ND	1.0	ND	5.6
Cyclohexane	ND	1.0	ND	3.5
Carbon Tetrachloride	2.3	1.0	15	6.4
Benzene	ND	1.0	ND	3.3
1,2-Dichloroethane	ND	1.0	ND	4.1
n-Heptane	ND	1.0	ND	4.2
Trichloroethene	ND	1.0	ND	5.5
1,2-Dichloropropane	ND	1.0	ND	4.7
Bromodichloromethane	ND	1.0	ND	6.9
cis-1,3-Dichloropropene	ND	1.0	ND	4.7

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-5	Diln Fac:	2.050
Lab ID:	279208-004	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.0	ND	4.2
Toluene	1.6	1.0	5.9	3.9
trans-1,3-Dichloropropene	ND	1.0	ND	4.7
1,1,2-Trichloroethane	ND	1.0	ND	5.6
Tetrachloroethene	ND	1.0	ND	7.0
2-Hexanone	ND	1.0	ND	4.2
Dibromochloromethane	ND	1.0	ND	8.7
1,2-Dibromoethane	ND	1.0	ND	7.9
Chlorobenzene	ND	1.0	ND	4.7
Ethylbenzene	ND	1.0	ND	4.5
m,p-Xylenes	1.7	1.0	7.5	4.5
o-Xylene	ND	1.0	ND	4.5
Styrene	ND	1.0	ND	4.4
Bromoform	ND	1.0	ND	11
1,1,2,2-Tetrachloroethane	ND	1.0	ND	7.0
4-Ethyltoluene	ND	1.0	ND	5.0
1,3,5-Trimethylbenzene	ND	1.0	ND	5.0
1,2,4-Trimethylbenzene	ND	1.0	ND	5.0
1,3-Dichlorobenzene	ND	1.0	ND	6.2
1,4-Dichlorobenzene	ND	1.0	ND	6.2
Benzyl chloride	ND	1.0	ND	5.3
1,2-Dichlorobenzene	ND	1.0	ND	6.2
1,2,4-Trichlorobenzene	ND	1.0	ND	7.6
Hexachlorobutadiene	ND	1.0	ND	11
Naphthalene	ND	4.1	ND	21

Surrogate	%REC	Limits
Bromofluorobenzene	87	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-6	Diln Fac:	1.950
Lab ID:	279208-005	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.98	ND	4.8
Freon 114	ND	0.98	ND	6.8
Chloromethane	ND	0.98	ND	2.0
Vinyl Chloride	ND	0.98	ND	2.5
1,3-Butadiene	ND	0.98	ND	2.2
Bromomethane	ND	0.98	ND	3.8
Chloroethane	ND	0.98	ND	2.6
Trichlorofluoromethane	1.2	0.98	6.8	5.5
Acrolein	ND	3.9	ND	8.9
1,1-Dichloroethene	ND	0.98	ND	3.9
Freon 113	ND	0.98	ND	7.5
Acetone	ND	3.9	ND	9.3
Carbon Disulfide	ND	0.98	ND	3.0
Isopropanol	5.4	3.9	13	9.6
Methylene Chloride	ND	0.98	ND	3.4
trans-1,2-Dichloroethene	ND	0.98	ND	3.9
MTBE	ND	0.98	ND	3.5
n-Hexane	ND	0.98	ND	3.4
1,1-Dichloroethane	ND	0.98	ND	3.9
Vinyl Acetate	ND	0.98	ND	3.4
cis-1,2-Dichloroethene	ND	0.98	ND	3.9
2-Butanone	ND	0.98	ND	2.9
Ethyl Acetate	ND	0.98	ND	3.5
Tetrahydrofuran	ND	0.98	ND	2.9
Chloroform	ND	0.98	ND	4.8
1,1,1-Trichloroethane	3.3	0.98	18	5.3
Cyclohexane	ND	0.98	ND	3.4
Carbon Tetrachloride	9.7	0.98	61	6.1
Benzene	ND	0.98	ND	3.1
1,2-Dichloroethane	ND	0.98	ND	3.9
n-Heptane	ND	0.98	ND	4.0
Trichloroethene	ND	0.98	ND	5.2
1,2-Dichloropropane	ND	0.98	ND	4.5
Bromodichloromethane	ND	0.98	ND	6.5
cis-1,3-Dichloropropene	ND	0.98	ND	4.4

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-6	Diln Fac:	1.950
Lab ID:	279208-005	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.98	ND	4.0
Toluene	1.2	0.98	4.5	3.7
trans-1,3-Dichloropropene	ND	0.98	ND	4.4
1,1,2-Trichloroethane	ND	0.98	ND	5.3
Tetrachloroethene	ND	0.98	ND	6.6
2-Hexanone	ND	0.98	ND	4.0
Dibromochloromethane	ND	0.98	ND	8.3
1,2-Dibromoethane	ND	0.98	ND	7.5
Chlorobenzene	ND	0.98	ND	4.5
Ethylbenzene	ND	0.98	ND	4.2
m,p-Xylenes	1.4	0.98	6.2	4.2
o-Xylene	ND	0.98	ND	4.2
Styrene	ND	0.98	ND	4.2
Bromoform	ND	0.98	ND	10
1,1,2,2-Tetrachloroethane	ND	0.98	ND	6.7
4-Ethyltoluene	ND	0.98	ND	4.8
1,3,5-Trimethylbenzene	ND	0.98	ND	4.8
1,2,4-Trimethylbenzene	ND	0.98	ND	4.8
1,3-Dichlorobenzene	ND	0.98	ND	5.9
1,4-Dichlorobenzene	ND	0.98	ND	5.9
Benzyl chloride	ND	0.98	ND	5.0
1,2-Dichlorobenzene	ND	0.98	ND	5.9
1,2,4-Trichlorobenzene	ND	0.98	ND	7.2
Hexachlorobutadiene	ND	0.98	ND	10
Naphthalene	ND	3.9	ND	20

Surrogate	%REC	Limits
Bromofluorobenzene	88	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-8	Diln Fac:	1.950
Lab ID:	279208-006	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/04/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.98	ND	4.8
Freon 114	ND	0.98	ND	6.8
Chloromethane	ND	0.98	ND	2.0
Vinyl Chloride	ND	0.98	ND	2.5
1,3-Butadiene	ND	0.98	ND	2.2
Bromomethane	ND	0.98	ND	3.8
Chloroethane	ND	0.98	ND	2.6
Trichlorofluoromethane	ND	0.98	ND	5.5
Acrolein	ND	3.9	ND	8.9
1,1-Dichloroethene	ND	0.98	ND	3.9
Freon 113	ND	0.98	ND	7.5
Acetone	ND	3.9	ND	9.3
Carbon Disulfide	1.4	0.98	4.2	3.0
Isopropanol	ND	3.9	ND	9.6
Methylene Chloride	ND	0.98	ND	3.4
trans-1,2-Dichloroethene	ND	0.98	ND	3.9
MTBE	ND	0.98	ND	3.5
n-Hexane	ND	0.98	ND	3.4
1,1-Dichloroethane	ND	0.98	ND	3.9
Vinyl Acetate	ND	0.98	ND	3.4
cis-1,2-Dichloroethene	ND	0.98	ND	3.9
2-Butanone	ND	0.98	ND	2.9
Ethyl Acetate	ND	0.98	ND	3.5
Tetrahydrofuran	ND	0.98	ND	2.9
Chloroform	ND	0.98	ND	4.8
1,1,1-Trichloroethane	15	0.98	80	5.3
Cyclohexane	ND	0.98	ND	3.4
Carbon Tetrachloride	ND	0.98	ND	6.1
Benzene	ND	0.98	ND	3.1
1,2-Dichloroethane	ND	0.98	ND	3.9
n-Heptane	ND	0.98	ND	4.0
Trichloroethene	ND	0.98	ND	5.2
1,2-Dichloropropane	ND	0.98	ND	4.5
Bromodichloromethane	ND	0.98	ND	6.5
cis-1,3-Dichloropropene	ND	0.98	ND	4.4

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-8	Diln Fac:	1.950
Lab ID:	279208-006	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/04/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.98	ND	4.0
Toluene	ND	0.98	ND	3.7
trans-1,3-Dichloropropene	ND	0.98	ND	4.4
1,1,2-Trichloroethane	ND	0.98	ND	5.3
Tetrachloroethene	1.9	0.98	13	6.6
2-Hexanone	ND	0.98	ND	4.0
Dibromochloromethane	ND	0.98	ND	8.3
1,2-Dibromoethane	ND	0.98	ND	7.5
Chlorobenzene	ND	0.98	ND	4.5
Ethylbenzene	ND	0.98	ND	4.2
m,p-Xylenes	ND	0.98	ND	4.2
o-Xylene	ND	0.98	ND	4.2
Styrene	ND	0.98	ND	4.2
Bromoform	ND	0.98	ND	10
1,1,2,2-Tetrachloroethane	ND	0.98	ND	6.7
4-Ethyltoluene	ND	0.98	ND	4.8
1,3,5-Trimethylbenzene	ND	0.98	ND	4.8
1,2,4-Trimethylbenzene	ND	0.98	ND	4.8
1,3-Dichlorobenzene	ND	0.98	ND	5.9
1,4-Dichlorobenzene	ND	0.98	ND	5.9
Benzyl chloride	ND	0.98	ND	5.0
1,2-Dichlorobenzene	ND	0.98	ND	5.9
1,2,4-Trichlorobenzene	ND	0.98	ND	7.2
Hexachlorobutadiene	ND	0.98	ND	10
Naphthalene	ND	3.9	ND	20

Surrogate	%REC	Limits
Bromofluorobenzene	87	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-9	Diln Fac:	2.030
Lab ID:	279208-007	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/04/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.0	ND	5.0
Freon 114	ND	1.0	ND	7.1
Chloromethane	ND	1.0	ND	2.1
Vinyl Chloride	ND	1.0	ND	2.6
1,3-Butadiene	ND	1.0	ND	2.2
Bromomethane	ND	1.0	ND	3.9
Chloroethane	ND	1.0	ND	2.7
Trichlorofluoromethane	1.5	1.0	8.4	5.7
Acrolein	ND	4.1	ND	9.3
1,1-Dichloroethene	ND	1.0	ND	4.0
Freon 113	ND	1.0	ND	7.8
Acetone	ND	4.1	ND	9.6
Carbon Disulfide	ND	1.0	ND	3.2
Isopropanol	ND	4.1	ND	10
Methylene Chloride	ND	1.0	ND	3.5
trans-1,2-Dichloroethene	ND	1.0	ND	4.0
MTBE	ND	1.0	ND	3.7
n-Hexane	ND	1.0	ND	3.6
1,1-Dichloroethane	ND	1.0	ND	4.1
Vinyl Acetate	ND	1.0	ND	3.6
cis-1,2-Dichloroethene	ND	1.0	ND	4.0
2-Butanone	ND	1.0	ND	3.0
Ethyl Acetate	ND	1.0	ND	3.7
Tetrahydrofuran	ND	1.0	ND	3.0
Chloroform	1.4	1.0	7.0	5.0
1,1,1-Trichloroethane	40	1.0	220	5.5
Cyclohexane	ND	1.0	ND	3.5
Carbon Tetrachloride	5.3	1.0	33	6.4
Benzene	ND	1.0	ND	3.2
1,2-Dichloroethane	ND	1.0	ND	4.1
n-Heptane	ND	1.0	ND	4.2
Trichloroethene	ND	1.0	ND	5.5
1,2-Dichloropropane	ND	1.0	ND	4.7
Bromodichloromethane	ND	1.0	ND	6.8
cis-1,3-Dichloropropene	ND	1.0	ND	4.6

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-9	Diln Fac:	2.030
Lab ID:	279208-007	Batch#:	237637
Matrix:	Air	Sampled:	08/01/16
Units (V):	ppbv	Received:	08/01/16
Units (M):	ug/m3	Analyzed:	08/04/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.0	ND	4.2
Toluene	ND	1.0	ND	3.8
trans-1,3-Dichloropropene	ND	1.0	ND	4.6
1,1,2-Trichloroethane	ND	1.0	ND	5.5
Tetrachloroethene	50	1.0	340	6.9
2-Hexanone	ND	1.0	ND	4.2
Dibromochloromethane	ND	1.0	ND	8.6
1,2-Dibromoethane	ND	1.0	ND	7.8
Chlorobenzene	ND	1.0	ND	4.7
Ethylbenzene	ND	1.0	ND	4.4
m,p-Xylenes	ND	1.0	ND	4.4
o-Xylene	ND	1.0	ND	4.4
Styrene	ND	1.0	ND	4.3
Bromoform	ND	1.0	ND	10
1,1,2,2-Tetrachloroethane	ND	1.0	ND	7.0
4-Ethyltoluene	ND	1.0	ND	5.0
1,3,5-Trimethylbenzene	ND	1.0	ND	5.0
1,2,4-Trimethylbenzene	ND	1.0	ND	5.0
1,3-Dichlorobenzene	ND	1.0	ND	6.1
1,4-Dichlorobenzene	ND	1.0	ND	6.1
Benzyl chloride	ND	1.0	ND	5.3
1,2-Dichlorobenzene	ND	1.0	ND	6.1
1,2,4-Trichlorobenzene	ND	1.0	ND	7.5
Hexachlorobutadiene	ND	1.0	ND	11
Naphthalene	ND	4.1	ND	21

Surrogate	%REC	Limits
Bromofluorobenzene	86	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237599
Units (V):	ppbv	Analyzed:	08/02/16
Diln Fac:	1.000		

Type: BS Lab ID: QC845481

Analyte	Spiked	Result (V)	%REC	Limits
Freon 12	5.000	5.398	108	70-130
Freon 114	5.000	5.951	119	70-130
Chloromethane	5.000	4.117	82	70-130
Vinyl Chloride	5.000	4.824	96	70-130
1,3-Butadiene	5.000	4.945	99	70-130
Bromomethane	5.000	5.423	108	70-130
Chloroethane	5.000	4.313	86	70-130
Trichlorofluoromethane	5.000	5.592	112	70-130
Acrolein	5.000	4.614	92	70-130
1,1-Dichloroethene	5.000	5.675	114	70-130
Freon 113	5.000	5.673	113	70-130
Acetone	5.000	4.205	84	70-130
Carbon Disulfide	5.000	5.300	106	70-130
Isopropanol	5.000	5.130	103	70-130
Methylene Chloride	5.000	4.501	90	70-130
trans-1,2-Dichloroethene	5.000	5.922	118	70-130
MTBE	5.000	5.751	115	70-130
n-Hexane	5.000	6.046	121	70-130
1,1-Dichloroethane	5.000	5.268	105	70-130
Vinyl Acetate	5.000	4.377	88	70-130
cis-1,2-Dichloroethene	5.000	6.258	125	70-130
2-Butanone	5.000	5.393	108	70-130
Ethyl Acetate	5.000	6.727 b	135 *	70-130
Tetrahydrofuran	5.000	4.684	94	70-130
Chloroform	5.000	5.568	111	70-130
1,1,1-Trichloroethane	5.000	5.133	103	70-130
Cyclohexane	5.000	4.747	95	70-130
Carbon Tetrachloride	5.000	7.758 b	155 *	70-130
Benzene	5.000	5.151	103	70-130
1,2-Dichloroethane	5.000	4.562	91	70-130
n-Heptane	5.000	5.483	110	70-130
Trichloroethene	5.000	5.087	102	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237599
Units (V):	ppbv	Analyzed:	08/02/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
1,2-Dichloropropane	5.000	5.142	103	70-130
Bromodichloromethane	5.000	5.030	101	70-130
cis-1,3-Dichloropropene	5.000	5.231	105	70-130
4-Methyl-2-Pentanone	5.000	7.151 b	143 *	70-130
Toluene	5.000	5.775	116	70-130
trans-1,3-Dichloropropene	5.000	5.761	115	70-130
1,1,2-Trichloroethane	5.000	5.452	109	70-130
Tetrachloroethene	5.000	5.878	118	70-130
2-Hexanone	5.000	6.950 b	139 *	70-130
Dibromochloromethane	5.000	5.727	115	70-130
1,2-Dibromoethane	5.000	5.143	103	70-130
Chlorobenzene	5.000	5.856	117	70-130
Ethylbenzene	5.000	5.760	115	70-130
m,p-Xylenes	10.00	12.48	125	70-130
o-Xylene	5.000	6.363	127	70-130
Styrene	5.000	6.424	128	70-130
Bromoform	5.000	7.910 b	158 *	70-130
1,1,2,2-Tetrachloroethane	5.000	6.039	121	70-130
4-Ethyltoluene	5.000	6.126	123	70-130
1,3,5-Trimethylbenzene	5.000	5.527	111	70-130
1,2,4-Trimethylbenzene	5.000	5.546	111	70-130
1,3-Dichlorobenzene	5.000	6.838 b	137 *	70-130
1,4-Dichlorobenzene	5.000	6.902 b	138 *	70-130
Benzyl chloride	5.000	7.126 b	143 *	70-130
1,2-Dichlorobenzene	5.000	6.980 b	140 *	70-130
1,2,4-Trichlorobenzene	5.000	7.849 b	157 *	70-130
Hexachlorobutadiene	5.000	10.67 b	213 *	70-130
Naphthalene	5.000	8.901 b	178 *	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	98	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237599
Units (V):	ppbv	Analyzed:	08/02/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC845482

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Freon 12	5.000	5.334	107	70-130	1	25
Freon 114	5.000	5.845	117	70-130	2	25
Chloromethane	5.000	4.162	83	70-130	1	25
Vinyl Chloride	5.000	4.901	98	70-130	2	25
1,3-Butadiene	5.000	4.857	97	70-130	2	25
Bromomethane	5.000	5.419	108	70-130	0	25
Chloroethane	5.000	4.333	87	70-130	0	25
Trichlorofluoromethane	5.000	5.639	113	70-130	1	25
Acrolein	5.000	4.623	92	70-130	0	25
1,1-Dichloroethene	5.000	5.708	114	70-130	1	25
Freon 113	5.000	5.654	113	70-130	0	25
Acetone	5.000	4.242	85	70-130	1	25
Carbon Disulfide	5.000	5.312	106	70-130	0	25
Isopropanol	5.000	5.221	104	70-130	2	25
Methylene Chloride	5.000	4.452	89	70-130	1	25
trans-1,2-Dichloroethene	5.000	5.947	119	70-130	0	25
MTBE	5.000	5.917	118	70-130	3	25
n-Hexane	5.000	6.077	122	70-130	1	25
1,1-Dichloroethane	5.000	5.257	105	70-130	0	25
Vinyl Acetate	5.000	4.339	87	70-130	1	25
cis-1,2-Dichloroethene	5.000	6.272	125	70-130	0	25
2-Butanone	5.000	5.380	108	70-130	0	25
Ethyl Acetate	5.000	6.842 b	137 *	70-130	2	25
Tetrahydrofuran	5.000	4.515	90	70-130	4	25
Chloroform	5.000	5.582	112	70-130	0	25
1,1,1-Trichloroethane	5.000	5.022	100	70-130	2	25
Cyclohexane	5.000	4.652	93	70-130	2	25
Carbon Tetrachloride	5.000	7.606 b	152 *	70-130	2	25
Benzene	5.000	5.064	101	70-130	2	25
1,2-Dichloroethane	5.000	4.506	90	70-130	1	25
n-Heptane	5.000	5.567	111	70-130	2	25
Trichloroethene	5.000	4.987	100	70-130	2	25

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237599
Units (V):	ppbv	Analyzed:	08/02/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
1,2-Dichloropropane	5.000	4.957	99	70-130	4	25
Bromodichloromethane	5.000	4.881	98	70-130	3	25
cis-1,3-Dichloropropene	5.000	5.187	104	70-130	1	25
4-Methyl-2-Pentanone	5.000	7.131 b	143 *	70-130	0	25
Toluene	5.000	5.559	111	70-130	4	25
trans-1,3-Dichloropropene	5.000	5.671	113	70-130	2	25
1,1,2-Trichloroethane	5.000	5.060	101	70-130	7	25
Tetrachloroethene	5.000	5.832	117	70-130	1	25
2-Hexanone	5.000	6.663 b	133 *	70-130	4	25
Dibromochloromethane	5.000	5.389	108	70-130	6	25
1,2-Dibromoethane	5.000	4.881	98	70-130	5	25
Chlorobenzene	5.000	5.798	116	70-130	1	25
Ethylbenzene	5.000	5.712	114	70-130	1	25
m,p-Xylenes	10.00	12.19	122	70-130	2	25
o-Xylene	5.000	6.191	124	70-130	3	25
Styrene	5.000	6.443	129	70-130	0	25
Bromoform	5.000	7.612 b	152 *	70-130	4	25
1,1,2,2-Tetrachloroethane	5.000	5.726	115	70-130	5	25
4-Ethyltoluene	5.000	5.796	116	70-130	6	25
1,3,5-Trimethylbenzene	5.000	5.180	104	70-130	6	25
1,2,4-Trimethylbenzene	5.000	5.331	107	70-130	4	25
1,3-Dichlorobenzene	5.000	6.647 b	133 *	70-130	3	25
1,4-Dichlorobenzene	5.000	6.548 b	131 *	70-130	5	25
Benzyl chloride	5.000	7.050 b	141 *	70-130	1	25
1,2-Dichlorobenzene	5.000	6.550 b	131 *	70-130	6	25
1,2,4-Trichlorobenzene	5.000	7.708 b	154 *	70-130	2	25
Hexachlorobutadiene	5.000	10.26 b	205 *	70-130	4	25
Naphthalene	5.000	8.805 b	176 *	70-130	1	25

Surrogate	%REC	Limits
Bromofluorobenzene	96	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC845483	Diln Fac:	1.000
Matrix:	Air	Batch#:	237599
Units (V):	ppbv	Analyzed:	08/02/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.50	ND	2.5
Freon 114	ND	0.50	ND	3.5
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
1,3-Butadiene	ND	0.50	ND	1.1
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	0.50	ND	2.8
Acrolein	ND	2.0	ND	4.6
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Acetone	ND	2.0	ND	4.8
Carbon Disulfide	ND	0.50	ND	1.6
Isopropanol	ND	2.0	ND	4.9
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
MTBE	ND	0.50	ND	1.8
n-Hexane	ND	0.50	ND	1.8
1,1-Dichloroethane	ND	0.50	ND	2.0
Vinyl Acetate	ND	0.50	ND	1.8
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
2-Butanone	ND	0.50	ND	1.5
Ethyl Acetate	ND	0.50	ND	1.8
Tetrahydrofuran	ND	0.50	ND	1.5
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Cyclohexane	ND	0.50	ND	1.7
Carbon Tetrachloride	ND	0.50	ND	3.1
Benzene	ND	0.50	ND	1.6
1,2-Dichloroethane	ND	0.50	ND	2.0
n-Heptane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC845483	Diln Fac:	1.000
Matrix:	Air	Batch#:	237599
Units (V):	ppbv	Analyzed:	08/02/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.50	ND	2.0
Toluene	ND	0.50	ND	1.9
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
2-Hexanone	ND	0.50	ND	2.0
Dibromochloromethane	ND	0.50	ND	4.3
1,2-Dibromoethane	ND	0.50	ND	3.8
Chlorobenzene	ND	0.50	ND	2.3
Ethylbenzene	ND	0.50	ND	2.2
m,p-Xylenes	ND	0.50	ND	2.2
o-Xylene	ND	0.50	ND	2.2
Styrene	ND	0.50	ND	2.1
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
4-Ethyltoluene	ND	0.50	ND	2.5
1,3,5-Trimethylbenzene	ND	0.50	ND	2.5
1,2,4-Trimethylbenzene	ND	0.50	ND	2.5
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
Benzyl chloride	ND	0.50	ND	2.6
1,2-Dichlorobenzene	ND	0.50	ND	3.0
1,2,4-Trichlorobenzene	ND	0.50	ND	3.7
Hexachlorobutadiene	ND	0.50	ND	5.3
Naphthalene	ND	2.0	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	84	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237637
Units (V):	ppbv	Analyzed:	08/03/16
Diln Fac:	1.000		

Type: BS Lab ID: QC845642

Analyte	Spiked	Result (V)	%REC	Limits
Freon 12	10.00	11.66	117	70-130
Freon 114	10.00	12.34	123	70-130
Chloromethane	10.00	8.655	87	70-130
Vinyl Chloride	10.00	9.253	93	70-130
1,3-Butadiene	10.00	10.60	106	70-130
Bromomethane	10.00	10.12	101	70-130
Chloroethane	10.00	11.00	110	70-130
Trichlorofluoromethane	10.00	12.84	128	70-130
Acrolein	10.00	7.578	76	70-130
1,1-Dichloroethene	10.00	10.85	109	70-130
Freon 113	10.00	11.90	119	70-130
Acetone	10.00	9.759	98	70-130
Carbon Disulfide	10.00	9.138	91	70-130
Isopropanol	10.00	8.518	85	70-130
Methylene Chloride	10.00	9.386	94	70-130
trans-1,2-Dichloroethene	10.00	10.52	105	70-130
MTBE	10.00	9.554	96	70-130
n-Hexane	10.00	10.39	104	70-130
1,1-Dichloroethane	10.00	10.68	107	70-130
Vinyl Acetate	10.00	9.676	97	70-130
cis-1,2-Dichloroethene	10.00	9.138	91	70-130
2-Butanone	10.00	10.90	109	70-130
Ethyl Acetate	10.00	12.23	122	70-130
Tetrahydrofuran	10.00	9.042	90	70-130
Chloroform	10.00	9.697	97	70-130
1,1,1-Trichloroethane	10.00	10.04	100	70-130
Cyclohexane	10.00	9.579	96	70-130
Carbon Tetrachloride	10.00	9.069	91	70-130
Benzene	10.00	8.802	88	70-130
1,2-Dichloroethane	10.00	8.552	86	70-130
n-Heptane	10.00	9.024	90	70-130
Trichloroethene	10.00	9.800	98	70-130
1,2-Dichloropropane	10.00	8.755	88	70-130
Bromodichloromethane	10.00	9.164	92	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237637
Units (V):	ppbv	Analyzed:	08/03/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
cis-1,3-Dichloropropene	10.00	8.354	84	70-130
4-Methyl-2-Pentanone	10.00	9.333	93	70-130
Toluene	10.00	8.906	89	70-130
trans-1,3-Dichloropropene	10.00	8.301	83	70-130
1,1,2-Trichloroethane	10.00	10.27	103	70-130
Tetrachloroethene	10.00	10.34	103	70-130
2-Hexanone	10.00	7.656	77	70-130
Dibromochloromethane	10.00	9.232	92	70-130
1,2-Dibromoethane	10.00	9.563	96	70-130
Chlorobenzene	10.00	8.857	89	70-130
Ethylbenzene	10.00	8.427	84	70-130
m,p-Xylenes	20.00	16.98	85	70-130
o-Xylene	10.00	8.504	85	70-130
Styrene	10.00	9.031	90	70-130
Bromoform	10.00	9.470	95	70-130
1,1,2,2-Tetrachloroethane	10.00	8.290	83	70-130
4-Ethyltoluene	10.00	7.752	78	70-130
1,3,5-Trimethylbenzene	10.00	8.622	86	70-130
1,2,4-Trimethylbenzene	10.00	7.903	79	70-130
1,3-Dichlorobenzene	10.00	9.027	90	70-130
1,4-Dichlorobenzene	10.00	9.125	91	70-130
Benzyl chloride	10.00	7.282	73	70-130
1,2-Dichlorobenzene	10.00	8.658	87	70-130
1,2,4-Trichlorobenzene	10.00	9.405	94	70-130
Hexachlorobutadiene	10.00	8.732	87	70-130
Naphthalene	10.00	10.15	102	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	97	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237637
Units (V):	ppbv	Analyzed:	08/03/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC845643

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Freon 12	10.00	11.60	116	70-130	1	25
Freon 114	10.00	12.41	124	70-130	1	25
Chloromethane	10.00	8.528	85	70-130	1	25
Vinyl Chloride	10.00	9.372	94	70-130	1	25
1,3-Butadiene	10.00	10.78	108	70-130	2	25
Bromomethane	10.00	10.17	102	70-130	1	25
Chloroethane	10.00	10.84	108	70-130	1	25
Trichlorofluoromethane	10.00	12.91	129	70-130	1	25
Acrolein	10.00	7.403	74	70-130	2	25
1,1-Dichloroethene	10.00	10.99	110	70-130	1	25
Freon 113	10.00	12.02	120	70-130	1	25
Acetone	10.00	9.916	99	70-130	2	25
Carbon Disulfide	10.00	9.240	92	70-130	1	25
Isopropanol	10.00	9.260	93	70-130	8	25
Methylene Chloride	10.00	9.422	94	70-130	0	25
trans-1,2-Dichloroethene	10.00	10.77	108	70-130	2	25
MTBE	10.00	9.675	97	70-130	1	25
n-Hexane	10.00	10.26	103	70-130	1	25
1,1-Dichloroethane	10.00	10.88	109	70-130	2	25
Vinyl Acetate	10.00	9.692	97	70-130	0	25
cis-1,2-Dichloroethene	10.00	9.224	92	70-130	1	25
2-Butanone	10.00	11.18	112	70-130	2	25
Ethyl Acetate	10.00	12.21	122	70-130	0	25
Tetrahydrofuran	10.00	8.801	88	70-130	3	25
Chloroform	10.00	9.912	99	70-130	2	25
1,1,1-Trichloroethane	10.00	9.880	99	70-130	2	25
Cyclohexane	10.00	9.444	94	70-130	1	25
Carbon Tetrachloride	10.00	8.874	89	70-130	2	25
Benzene	10.00	8.739	87	70-130	1	25
1,2-Dichloroethane	10.00	8.510	85	70-130	0	25
n-Heptane	10.00	8.829	88	70-130	2	25
Trichloroethene	10.00	9.585	96	70-130	2	25
1,2-Dichloropropane	10.00	8.732	87	70-130	0	25
Bromodichloromethane	10.00	9.202	92	70-130	0	25

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	237637
Units (V):	ppbv	Analyzed:	08/03/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
cis-1,3-Dichloropropene	10.00	8.338	83	70-130	0	25
4-Methyl-2-Pentanone	10.00	9.232	92	70-130	1	25
Toluene	10.00	8.937	89	70-130	0	25
trans-1,3-Dichloropropene	10.00	8.169	82	70-130	2	25
1,1,2-Trichloroethane	10.00	10.36	104	70-130	1	25
Tetrachloroethene	10.00	10.42	104	70-130	1	25
2-Hexanone	10.00	7.984	80	70-130	4	25
Dibromochloromethane	10.00	9.261	93	70-130	0	25
1,2-Dibromoethane	10.00	9.713	97	70-130	2	25
Chlorobenzene	10.00	8.794	88	70-130	1	25
Ethylbenzene	10.00	8.565	86	70-130	2	25
m,p-Xylenes	20.00	16.93	85	70-130	0	25
o-Xylene	10.00	8.537	85	70-130	0	25
Styrene	10.00	8.866	89	70-130	2	25
Bromoform	10.00	9.446	94	70-130	0	25
1,1,2,2-Tetrachloroethane	10.00	8.125	81	70-130	2	25
4-Ethyltoluene	10.00	7.886	79	70-130	2	25
1,3,5-Trimethylbenzene	10.00	8.553	86	70-130	1	25
1,2,4-Trimethylbenzene	10.00	7.778	78	70-130	2	25
1,3-Dichlorobenzene	10.00	9.099	91	70-130	1	25
1,4-Dichlorobenzene	10.00	9.032	90	70-130	1	25
Benzyl chloride	10.00	7.315	73	70-130	0	25
1,2-Dichlorobenzene	10.00	8.745	87	70-130	1	25
1,2,4-Trichlorobenzene	10.00	9.284	93	70-130	1	25
Hexachlorobutadiene	10.00	8.816	88	70-130	1	25
Naphthalene	10.00	10.13	101	70-130	0	25

Surrogate	%REC	Limits
Bromofluorobenzene	97	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC845644	Diln Fac:	1.000
Matrix:	Air	Batch#:	237637
Units (V):	ppbv	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.50	ND	2.5
Freon 114	ND	0.50	ND	3.5
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
1,3-Butadiene	ND	0.50	ND	1.1
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	0.50	ND	2.8
Acrolein	ND	2.0	ND	4.6
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Acetone	ND	2.0	ND	4.8
Carbon Disulfide	ND	0.50	ND	1.6
Isopropanol	ND	2.0	ND	4.9
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
MTBE	ND	0.50	ND	1.8
n-Hexane	ND	0.50	ND	1.8
1,1-Dichloroethane	ND	0.50	ND	2.0
Vinyl Acetate	ND	0.50	ND	1.8
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
2-Butanone	ND	0.50	ND	1.5
Ethyl Acetate	ND	0.50	ND	1.8
Tetrahydrofuran	ND	0.50	ND	1.5
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Cyclohexane	ND	0.50	ND	1.7
Carbon Tetrachloride	ND	0.50	ND	3.1
Benzene	ND	0.50	ND	1.6
1,2-Dichloroethane	ND	0.50	ND	2.0
n-Heptane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC845644	Diln Fac:	1.000
Matrix:	Air	Batch#:	237637
Units (V):	ppbv	Analyzed:	08/03/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.50	ND	2.0
Toluene	ND	0.50	ND	1.9
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
2-Hexanone	ND	0.50	ND	2.0
Dibromochloromethane	ND	0.50	ND	4.3
1,2-Dibromoethane	ND	0.50	ND	3.8
Chlorobenzene	ND	0.50	ND	2.3
Ethylbenzene	ND	0.50	ND	2.2
m,p-Xylenes	ND	0.50	ND	2.2
o-Xylene	ND	0.50	ND	2.2
Styrene	ND	0.50	ND	2.1
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
4-Ethyltoluene	ND	0.50	ND	2.5
1,3,5-Trimethylbenzene	ND	0.50	ND	2.5
1,2,4-Trimethylbenzene	ND	0.50	ND	2.5
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
Benzyl chloride	ND	0.50	ND	2.6
1,2-Dichlorobenzene	ND	0.50	ND	3.0
1,2,4-Trichlorobenzene	ND	0.50	ND	3.7
Hexachlorobutadiene	ND	0.50	ND	5.3
Naphthalene	ND	2.0	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	90	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Fixed Gas Analysis

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	ASTM D1946
Field ID:	SSV-2	Batch#:	237609
Matrix:	Air	Sampled:	08/01/16
Units:	ppmv	Received:	08/01/16
Units (Mol %):	MOL %	Analyzed:	08/02/16

Type: SAMPLE Diln Fac: 1.930
Lab ID: 279208-002

Analyte	Result	RL	Result (Mol %)	RL
Oxygen	160,000	1,900	16	0.19
Methane	ND	1,900	ND	0.19

Type: BLANK Diln Fac: 1.000
Lab ID: QC845523

Analyte	Result	RL	Result (Mol %)	RL
Oxygen	ND	1,000	ND	0.10
Methane	ND	1,000	ND	0.10

ND= Not Detected
RL= Reporting Limit
Result Mol %= Result in Mole Percent

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	ASTM D1946
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC845522	Batch#:	237609
Matrix:	Air	Analyzed:	08/02/16
Units:	ppmv		

Analyte	Spiked	Result	%REC	Limits
Oxygen	2,000	1,782	89	70-130
Methane	2,000	1,784	89	70-130

Curtis & Tompkins, Ltd.

Batch QC Report

Fixed Gas Analysis

Lab #:	279208	Location:	1919 Market
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	ASTM D1946
Field ID:	SSV-2	Units (Mol %):	MOL %
Type:	SDUP	Diln Fac:	1.930
MSS Lab ID:	279208-002	Batch#:	237609
Lab ID:	QC845524	Sampled:	08/01/16
Matrix:	Air	Received:	08/01/16
Units:	ppmv	Analyzed:	08/02/16

Analyte	MSS Result	Result	RL	Result (Mol %)	RL	RPD	Lim
Oxygen	159,000	158,600	1,930	15.86	0.1930	0	30
Methane	<1,930	ND	1,930	ND	0.1930	NC	30

NC= Not Calculated
ND= Not Detected
RL= Reporting Limit
RPD= Relative Percent Difference
Result Mol %= Result in Mole Percent

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 279842
ANALYTICAL REPORT

Pangea Environmental	Project : STANDARD
1710 Franklin Street	Location : 1919 Market Street
Oakland, CA 94612	Level : II

Sample ID	Lab ID
SSV-11	279842-001
SSV-12	279842-002
SSV-13	279842-003
SSV-14	279842-004
SSV-15	279842-005
SSV-16	279842-006

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Will Rice Date: 08/22/2016

Will Rice
Project Manager
will.rice@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**279842**
Client:	**Pangea Environmental**
Location:	**1919 Market Street**
Request Date:	**08/17/16**
Samples Received:	**08/17/16**

This data package contains sample and QC results for six air samples, requested for the above referenced project on 08/17/16. The samples were received cold and intact.

Volatile Organics in Air by MS (EPA TO-15):

High responses were observed for trichlorofluoromethane and Freon 113 in the CCV analyzed 08/18/16 12:38; affected data was qualified with "b". High responses were observed for Freon 114, trichlorofluoromethane, and Freon 113 in the CCV analyzed 08/19/16 12:15; affected data was qualified with "b". High recoveries were observed for a number of analytes in the BS/BSD for batch 238193; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples. High recoveries were observed for a number of analytes in the BS/BSD for batch 238233; the associated RPDs were within limits, and these high recoveries were not associated with any reported results. No other analytical problems were encountered.

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510)486-0900 Phone
(510)486-0532 Fax

AIR TESTING CHAIN OF CUSTODY
& PURCHASE ORDER

Chain of Custody # : _____

C&T LOGIN # 279892

Project No: 1919 Market St
Project Name:
EDD Format: _____ Rpt Level: II III IV
Turnaround Time: ☐ RUSH 5 day ☒ Standard

Sampler: E. Lervang
Report To: Ron Scheele
Company: Pangea Env. Svs.
Telephone: 510·836 3700
Email: rscheele@pangeaenv.com

Lab No.	Sample ID.	Sampling Information: Date Collected	Time Collected	Canister ID (Bar Code #)	Flow Controller ID	Sample Volume (Gauge Reading)	TESTING REQUESTED: TO-15				
1	SSV-11	8·17·16	1244	00273		30/5	X				
2	SSV-12		1314	00281		28/5	X				
3	SSV-13		1316	00195	A00321	30/5	X				
4	SSV-14		1211	00310	A00274	30/5	X				
5	SSV-15		1215	00121	A00226	30/7	X				
6	SSV-16	8·17·16	1239	00274	A00254	30/5	X				

Notes:

RELINQUISHED BY: 8.17.16 1510 DATE/TIME

RECEIVED BY: 8/17/16 1510 DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 279842 Date Received 8/17/16 Number of coolers 0
Client Pangea Project 1919 Market Street

Date Opened 8/17/16 By (print) AM (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
   Shipping info
2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
☐ Cloth material ☒ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☐ Wet ☐ Blue/Gel ☒ None Temp(°C)

☐ Samples Received on ice & cold without a temperature blank

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? YES (NO)
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS

Rev 9, 10/11

Curtis & Tompkins, Ltd.

Detections Summary for 279842

Results for any subcontracted analyses are not included in this summary.

Client : Pangea Environmental
Project : STANDARD
Location : 1919 Market Street

Client Sample ID : SSV-11 Laboratory Sample ID : 279842-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	46		3.9	ppbv	As Recd	1.930	EPA TO-15	METHOD
Isopropanol	4.1		3.9	ppbv	As Recd	1.930	EPA TO-15	METHOD
2-Butanone	1.3		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
Tetrahydrofuran	1.3		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
Benzene	1.8		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
Toluene	9.1		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
Tetrachloroethene	1.9		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
m,p-Xylenes	2.5		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
o-Xylene	1.0		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD
1,2,4-Trimethylbenzene	2.0		0.97	ppbv	As Recd	1.930	EPA TO-15	METHOD

Client Sample ID : SSV-12 Laboratory Sample ID : 279842-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	86		3.9	ppbv	As Recd	1.940	EPA TO-15	METHOD
Isopropanol	8.3		3.9	ppbv	As Recd	1.940	EPA TO-15	METHOD
2-Butanone	2.0		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
Chloroform	3.6		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
1,1,1-Trichloroethane	3.2		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
Carbon Tetrachloride	62		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
Ethylbenzene	4.0		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
m,p-Xylenes	28		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
o-Xylene	11		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD
1,2,4-Trimethylbenzene	2.0		0.97	ppbv	As Recd	1.940	EPA TO-15	METHOD

Client Sample ID : SSV-13 Laboratory Sample ID : 279842-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	11		3.7	ppbv	As Recd	1.850	EPA TO-15	METHOD
2-Butanone	2.0		0.93	ppbv	As Recd	1.850	EPA TO-15	METHOD
Tetrahydrofuran	1.1		0.93	ppbv	As Recd	1.850	EPA TO-15	METHOD
Chloroform	3.9		0.93	ppbv	As Recd	1.850	EPA TO-15	METHOD
1,1,1-Trichloroethane	14		0.93	ppbv	As Recd	1.850	EPA TO-15	METHOD
Carbon Tetrachloride	55		0.93	ppbv	As Recd	1.850	EPA TO-15	METHOD
Tetrachloroethene	4.7		0.93	ppbv	As Recd	1.850	EPA TO-15	METHOD

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Client Sample ID : SSV-14 Laboratory Sample ID : 279842-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	37		4.2	ppbv	As Recd	2.090	EPA TO-15	METHOD
Isopropanol	5.3		4.2	ppbv	As Recd	2.090	EPA TO-15	METHOD
2-Butanone	1.9		1.0	ppbv	As Recd	2.090	EPA TO-15	METHOD
Tetrahydrofuran	1.3		1.0	ppbv	As Recd	2.090	EPA TO-15	METHOD
1,1,1-Trichloroethane	44		1.0	ppbv	As Recd	2.090	EPA TO-15	METHOD
Carbon Tetrachloride	7.5		1.0	ppbv	As Recd	2.090	EPA TO-15	METHOD
Tetrachloroethene	120		1.0	ppbv	As Recd	2.090	EPA TO-15	METHOD

Client Sample ID : SSV-15 Laboratory Sample ID : 279842-005

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	62		4.1	ppbv	As Recd	2.060	EPA TO-15	METHOD
Isopropanol	6.1		4.1	ppbv	As Recd	2.060	EPA TO-15	METHOD
2-Butanone	2.8		1.0	ppbv	As Recd	2.060	EPA TO-15	METHOD
1,1,1-Trichloroethane	48		1.0	ppbv	As Recd	2.060	EPA TO-15	METHOD
Carbon Tetrachloride	5.6		1.0	ppbv	As Recd	2.060	EPA TO-15	METHOD
Tetrachloroethene	6.2		1.0	ppbv	As Recd	2.060	EPA TO-15	METHOD

Client Sample ID : SSV-16 Laboratory Sample ID : 279842-006

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Freon 12	1.7		0.95	ppbv	As Recd	1.900	EPA TO-15	METHOD
Acetone	370		11	ppbv	As Recd	5.700	EPA TO-15	METHOD
Isopropanol	8.3		3.8	ppbv	As Recd	1.900	EPA TO-15	METHOD
2-Butanone	3.0		0.95	ppbv	As Recd	1.900	EPA TO-15	METHOD
Tetrahydrofuran	1.3		0.95	ppbv	As Recd	1.900	EPA TO-15	METHOD
1,1,1-Trichloroethane	9.5		0.95	ppbv	As Recd	1.900	EPA TO-15	METHOD
Tetrachloroethene	6.9		0.95	ppbv	As Recd	1.900	EPA TO-15	METHOD

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Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-11	Diln Fac:	1.930
Lab ID:	279842-001	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.97	ND	4.8
Freon 114	ND	0.97	ND	6.7
Chloromethane	ND	0.97	ND	2.0
Vinyl Chloride	ND	0.97	ND	2.5
1,3-Butadiene	ND	0.97	ND	2.1
Bromomethane	ND	0.97	ND	3.7
Chloroethane	ND	0.97	ND	2.5
Trichlorofluoromethane	ND	3.9	ND	22
Acrolein	ND	3.9	ND	8.9
1,1-Dichloroethene	ND	0.97	ND	3.8
Freon 113	ND	0.97	ND	7.4
Acetone	46	3.9	110	9.2
Carbon Disulfide	ND	0.97	ND	3.0
Isopropanol	4.1	3.9	10	9.5
Methylene Chloride	ND	0.97	ND	3.4
trans-1,2-Dichloroethene	ND	0.97	ND	3.8
MTBE	ND	0.97	ND	3.5
n-Hexane	ND	0.97	ND	3.4
1,1-Dichloroethane	ND	0.97	ND	3.9
Vinyl Acetate	ND	0.97	ND	3.4
cis-1,2-Dichloroethene	ND	0.97	ND	3.8
2-Butanone	1.3	0.97	3.9	2.8
Ethyl Acetate	ND	0.97	ND	3.5
Tetrahydrofuran	1.3	0.97	3.7	2.8
Chloroform	ND	0.97	ND	4.7
1,1,1-Trichloroethane	ND	0.97	ND	5.3
Cyclohexane	ND	0.97	ND	3.3
Carbon Tetrachloride	ND	0.97	ND	6.1
Benzene	1.8	0.97	5.8	3.1
1,2-Dichloroethane	ND	0.97	ND	3.9
n-Heptane	ND	0.97	ND	4.0
Trichloroethene	ND	0.97	ND	5.2
1,2-Dichloropropane	ND	0.97	ND	4.5
Bromodichloromethane	ND	0.97	ND	6.5
cis-1,3-Dichloropropene	ND	0.97	ND	4.4

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-11	Diln Fac:	1.930
Lab ID:	279842-001	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.97	ND	4.0
Toluene	9.1	0.97	34	3.6
trans-1,3-Dichloropropene	ND	0.97	ND	4.4
1,1,2-Trichloroethane	ND	0.97	ND	5.3
Tetrachloroethene	1.9	0.97	13	6.5
2-Hexanone	ND	0.97	ND	4.0
Dibromochloromethane	ND	0.97	ND	8.2
1,2-Dibromoethane	ND	0.97	ND	7.4
Chlorobenzene	ND	0.97	ND	4.4
Ethylbenzene	ND	0.97	ND	4.2
m,p-Xylenes	2.5	0.97	11	4.2
o-Xylene	1.0	0.97	4.3	4.2
Styrene	ND	0.97	ND	4.1
Bromoform	ND	0.97	ND	10
1,1,2,2-Tetrachloroethane	ND	0.97	ND	6.6
4-Ethyltoluene	ND	0.97	ND	4.7
1,3,5-Trimethylbenzene	ND	0.97	ND	4.7
1,2,4-Trimethylbenzene	2.0	0.97	9.8	4.7
1,3-Dichlorobenzene	ND	0.97	ND	5.8
1,4-Dichlorobenzene	ND	0.97	ND	5.8
Benzyl chloride	ND	0.97	ND	5.0
1,2-Dichlorobenzene	ND	0.97	ND	5.8
1,2,4-Trichlorobenzene	ND	0.97	ND	7.2
Hexachlorobutadiene	ND	0.97	ND	10
Naphthalene	ND	3.9	ND	20

Surrogate	%REC	Limits
Bromofluorobenzene	87	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-12	Diln Fac:	1.940
Lab ID:	279842-002	Sampled:	08/17/16
Matrix:	Air	Received:	08/17/16
Units (V):	ppbv	Analyzed:	08/19/16
Units (M):	ug/m3		

Analyte	Result (V)	RL	Result (M)	RL	Batch#
Freon 12	ND	0.97	ND	4.8	238193
Freon 114	ND	0.97	ND	6.8	238193
Chloromethane	ND	0.97	ND	2.0	238193
Vinyl Chloride	ND	0.97	ND	2.5	238193
1,3-Butadiene	ND	0.97	ND	2.1	238193
Bromomethane	ND	0.97	ND	3.8	238193
Chloroethane	ND	0.97	ND	2.6	238193
Trichlorofluoromethane	ND	3.9	ND	22	238193
Acrolein	ND	3.9	ND	8.9	238193
1,1-Dichloroethene	ND	0.97	ND	3.8	238193
Freon 113	ND	0.97	ND	7.4	238193
Acetone	86	3.9	210	9.2	238233
Carbon Disulfide	ND	0.97	ND	3.0	238193
Isopropanol	8.3	3.9	21	9.5	238193
Methylene Chloride	ND	0.97	ND	3.4	238193
trans-1,2-Dichloroethene	ND	0.97	ND	3.8	238193
MTBE	ND	0.97	ND	3.5	238193
n-Hexane	ND	0.97	ND	3.4	238193
1,1-Dichloroethane	ND	0.97	ND	3.9	238193
Vinyl Acetate	ND	0.97	ND	3.4	238193
cis-1,2-Dichloroethene	ND	0.97	ND	3.8	238193
2-Butanone	2.0	0.97	6.0	2.9	238193
Ethyl Acetate	ND	0.97	ND	3.5	238193
Tetrahydrofuran	ND	0.97	ND	2.9	238193
Chloroform	3.6	0.97	17	4.7	238193
1,1,1-Trichloroethane	3.2	0.97	17	5.3	238193
Cyclohexane	ND	0.97	ND	3.3	238193
Carbon Tetrachloride	62	0.97	390	6.1	238193
Benzene	ND	0.97	ND	3.1	238193
1,2-Dichloroethane	ND	0.97	ND	3.9	238193
n-Heptane	ND	0.97	ND	4.0	238193
Trichloroethene	ND	0.97	ND	5.2	238193
1,2-Dichloropropane	ND	0.97	ND	4.5	238193
Bromodichloromethane	ND	0.97	ND	6.5	238193
cis-1,3-Dichloropropene	ND	0.97	ND	4.4	238193

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-12	Diln Fac:	1.940
Lab ID:	279842-002	Sampled:	08/17/16
Matrix:	Air	Received:	08/17/16
Units (V):	ppbv	Analyzed:	08/19/16
Units (M):	ug/m3		

Analyte	Result (V)	RL	Result (M)	RL	Batch#
4-Methyl-2-Pentanone	ND	0.97	ND	4.0	238193
Toluene	ND	0.97	ND	3.7	238193
trans-1,3-Dichloropropene	ND	0.97	ND	4.4	238193
1,1,2-Trichloroethane	ND	0.97	ND	5.3	238193
Tetrachloroethene	ND	0.97	ND	6.6	238193
2-Hexanone	ND	0.97	ND	4.0	238193
Dibromochloromethane	ND	0.97	ND	8.3	238193
1,2-Dibromoethane	ND	0.97	ND	7.5	238193
Chlorobenzene	ND	0.97	ND	4.5	238193
Ethylbenzene	4.0	0.97	17	4.2	238193
m,p-Xylenes	28	0.97	120	4.2	238193
o-Xylene	11	0.97	48	4.2	238193
Styrene	ND	0.97	ND	4.1	238193
Bromoform	ND	0.97	ND	10	238193
1,1,2,2-Tetrachloroethane	ND	0.97	ND	6.7	238193
4-Ethyltoluene	ND	0.97	ND	4.8	238193
1,3,5-Trimethylbenzene	ND	0.97	ND	4.8	238193
1,2,4-Trimethylbenzene	2.0	0.97	10	4.8	238193
1,3-Dichlorobenzene	ND	0.97	ND	5.8	238193
1,4-Dichlorobenzene	ND	0.97	ND	5.8	238193
Benzyl chloride	ND	0.97	ND	5.0	238193
1,2-Dichlorobenzene	ND	0.97	ND	5.8	238193
1,2,4-Trichlorobenzene	ND	0.97	ND	7.2	238193
Hexachlorobutadiene	ND	0.97	ND	10	238193
Naphthalene	ND	3.9	ND	20	238193

Surrogate	%REC	Limits	Batch#
Bromofluorobenzene	108	80-121	238193

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-13	Diln Fac:	1.850
Lab ID:	279842-003	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.93	ND	4.6
Freon 114	ND	0.93	ND	6.5
Chloromethane	ND	0.93	ND	1.9
Vinyl Chloride	ND	0.93	ND	2.4
1,3-Butadiene	ND	0.93	ND	2.0
Bromomethane	ND	0.93	ND	3.6
Chloroethane	ND	0.93	ND	2.4
Trichlorofluoromethane	ND	3.7	ND	21
Acrolein	ND	3.7	ND	8.5
1,1-Dichloroethene	ND	0.93	ND	3.7
Freon 113	ND	0.93	ND	7.1
Acetone	11	3.7	27	8.8
Carbon Disulfide	ND	0.93	ND	2.9
Isopropanol	ND	3.7	ND	9.1
Methylene Chloride	ND	0.93	ND	3.2
trans-1,2-Dichloroethene	ND	0.93	ND	3.7
MTBE	ND	0.93	ND	3.3
n-Hexane	ND	0.93	ND	3.3
1,1-Dichloroethane	ND	0.93	ND	3.7
Vinyl Acetate	ND	0.93	ND	3.3
cis-1,2-Dichloroethene	ND	0.93	ND	3.7
2-Butanone	2.0	0.93	5.8	2.7
Ethyl Acetate	ND	0.93	ND	3.3
Tetrahydrofuran	1.1	0.93	3.2	2.7
Chloroform	3.9	0.93	19	4.5
1,1,1-Trichloroethane	14	0.93	79	5.0
Cyclohexane	ND	0.93	ND	3.2
Carbon Tetrachloride	55	0.93	350	5.8
Benzene	ND	0.93	ND	3.0
1,2-Dichloroethane	ND	0.93	ND	3.7
n-Heptane	ND	0.93	ND	3.8
Trichloroethene	ND	0.93	ND	5.0
1,2-Dichloropropane	ND	0.93	ND	4.3
Bromodichloromethane	ND	0.93	ND	6.2
cis-1,3-Dichloropropene	ND	0.93	ND	4.2

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-13	Diln Fac:	1.850
Lab ID:	279842-003	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.93	ND	3.8
Toluene	ND	0.93	ND	3.5
trans-1,3-Dichloropropene	ND	0.93	ND	4.2
1,1,2-Trichloroethane	ND	0.93	ND	5.0
Tetrachloroethene	4.7	0.93	32	6.3
2-Hexanone	ND	0.93	ND	3.8
Dibromochloromethane	ND	0.93	ND	7.9
1,2-Dibromoethane	ND	0.93	ND	7.1
Chlorobenzene	ND	0.93	ND	4.3
Ethylbenzene	ND	0.93	ND	4.0
m,p-Xylenes	ND	0.93	ND	4.0
o-Xylene	ND	0.93	ND	4.0
Styrene	ND	0.93	ND	3.9
Bromoform	ND	0.93	ND	9.6
1,1,2,2-Tetrachloroethane	ND	0.93	ND	6.4
4-Ethyltoluene	ND	0.93	ND	4.5
1,3,5-Trimethylbenzene	ND	0.93	ND	4.5
1,2,4-Trimethylbenzene	ND	0.93	ND	4.5
1,3-Dichlorobenzene	ND	0.93	ND	5.6
1,4-Dichlorobenzene	ND	0.93	ND	5.6
Benzyl chloride	ND	0.93	ND	4.8
1,2-Dichlorobenzene	ND	0.93	ND	5.6
1,2,4-Trichlorobenzene	ND	0.93	ND	6.9
Hexachlorobutadiene	ND	0.93	ND	9.9
Naphthalene	ND	3.7	ND	19

Surrogate	%REC	Limits
Bromofluorobenzene	87	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-14	Diln Fac:	2.090
Lab ID:	279842-004	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.0	ND	5.2
Freon 114	ND	1.0	ND	7.3
Chloromethane	ND	1.0	ND	2.2
Vinyl Chloride	ND	1.0	ND	2.7
1,3-Butadiene	ND	1.0	ND	2.3
Bromomethane	ND	1.0	ND	4.1
Chloroethane	ND	1.0	ND	2.8
Trichlorofluoromethane	ND	4.2	ND	23
Acrolein	ND	4.2	ND	9.6
1,1-Dichloroethene	ND	1.0	ND	4.1
Freon 113	ND	1.0	ND	8.0
Acetone	37	4.2	89	9.9
Carbon Disulfide	ND	1.0	ND	3.3
Isopropanol	5.3	4.2	13	10
Methylene Chloride	ND	1.0	ND	3.6
trans-1,2-Dichloroethene	ND	1.0	ND	4.1
MTBE	ND	1.0	ND	3.8
n-Hexane	ND	1.0	ND	3.7
1,1-Dichloroethane	ND	1.0	ND	4.2
Vinyl Acetate	ND	1.0	ND	3.7
cis-1,2-Dichloroethene	ND	1.0	ND	4.1
2-Butanone	1.9	1.0	5.7	3.1
Ethyl Acetate	ND	1.0	ND	3.8
Tetrahydrofuran	1.3	1.0	3.9	3.1
Chloroform	ND	1.0	ND	5.1
1,1,1-Trichloroethane	44	1.0	240	5.7
Cyclohexane	ND	1.0	ND	3.6
Carbon Tetrachloride	7.5	1.0	47	6.6
Benzene	ND	1.0	ND	3.3
1,2-Dichloroethane	ND	1.0	ND	4.2
n-Heptane	ND	1.0	ND	4.3
Trichloroethene	ND	1.0	ND	5.6
1,2-Dichloropropane	ND	1.0	ND	4.8
Bromodichloromethane	ND	1.0	ND	7.0
cis-1,3-Dichloropropene	ND	1.0	ND	4.7

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-14	Diln Fac:	2.090
Lab ID:	279842-004	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.0	ND	4.3
Toluene	ND	1.0	ND	3.9
trans-1,3-Dichloropropene	ND	1.0	ND	4.7
1,1,2-Trichloroethane	ND	1.0	ND	5.7
Tetrachloroethene	120	1.0	790	7.1
2-Hexanone	ND	1.0	ND	4.3
Dibromochloromethane	ND	1.0	ND	8.9
1,2-Dibromoethane	ND	1.0	ND	8.0
Chlorobenzene	ND	1.0	ND	4.8
Ethylbenzene	ND	1.0	ND	4.5
m,p-Xylenes	ND	1.0	ND	4.5
o-Xylene	ND	1.0	ND	4.5
Styrene	ND	1.0	ND	4.5
Bromoform	ND	1.0	ND	11
1,1,2,2-Tetrachloroethane	ND	1.0	ND	7.2
4-Ethyltoluene	ND	1.0	ND	5.1
1,3,5-Trimethylbenzene	ND	1.0	ND	5.1
1,2,4-Trimethylbenzene	ND	1.0	ND	5.1
1,3-Dichlorobenzene	ND	1.0	ND	6.3
1,4-Dichlorobenzene	ND	1.0	ND	6.3
Benzyl chloride	ND	1.0	ND	5.4
1,2-Dichlorobenzene	ND	1.0	ND	6.3
1,2,4-Trichlorobenzene	ND	1.0	ND	7.8
Hexachlorobutadiene	ND	1.0	ND	11
Naphthalene	ND	4.2	ND	22

Surrogate	%REC	Limits
Bromofluorobenzene	90	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-15	Diln Fac:	2.060
Lab ID:	279842-005	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/19/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.0	ND	5.1
Freon 114	ND	1.0	ND	7.2
Chloromethane	ND	1.0	ND	2.1
Vinyl Chloride	ND	1.0	ND	2.6
1,3-Butadiene	ND	1.0	ND	2.3
Bromomethane	ND	1.0	ND	4.0
Chloroethane	ND	1.0	ND	2.7
Trichlorofluoromethane	ND	4.1	ND	23
Acrolein	ND	4.1	ND	9.4
1,1-Dichloroethene	ND	1.0	ND	4.1
Freon 113	ND	1.0	ND	7.9
Acetone	62	4.1	150	9.8
Carbon Disulfide	ND	1.0	ND	3.2
Isopropanol	6.1	4.1	15	10
Methylene Chloride	ND	1.0	ND	3.6
trans-1,2-Dichloroethene	ND	1.0	ND	4.1
MTBE	ND	1.0	ND	3.7
n-Hexane	ND	1.0	ND	3.6
1,1-Dichloroethane	ND	1.0	ND	4.2
Vinyl Acetate	ND	1.0	ND	3.6
cis-1,2-Dichloroethene	ND	1.0	ND	4.1
2-Butanone	2.8	1.0	8.2	3.0
Ethyl Acetate	ND	1.0	ND	3.7
Tetrahydrofuran	ND	1.0	ND	3.0
Chloroform	ND	1.0	ND	5.0
1,1,1-Trichloroethane	48	1.0	260	5.6
Cyclohexane	ND	1.0	ND	3.5
Carbon Tetrachloride	5.6	1.0	35	6.5
Benzene	ND	1.0	ND	3.3
1,2-Dichloroethane	ND	1.0	ND	4.2
n-Heptane	ND	1.0	ND	4.2
Trichloroethene	ND	1.0	ND	5.5
1,2-Dichloropropane	ND	1.0	ND	4.8
Bromodichloromethane	ND	1.0	ND	6.9
cis-1,3-Dichloropropene	ND	1.0	ND	4.7

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-15	Diln Fac:	2.060
Lab ID:	279842-005	Batch#:	238193
Matrix:	Air	Sampled:	08/17/16
Units (V):	ppbv	Received:	08/17/16
Units (M):	ug/m3	Analyzed:	08/19/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.0	ND	4.2
Toluene	ND	1.0	ND	3.9
trans-1,3-Dichloropropene	ND	1.0	ND	4.7
1,1,2-Trichloroethane	ND	1.0	ND	5.6
Tetrachloroethene	6.2	1.0	42	7.0
2-Hexanone	ND	1.0	ND	4.2
Dibromochloromethane	ND	1.0	ND	8.8
1,2-Dibromoethane	ND	1.0	ND	7.9
Chlorobenzene	ND	1.0	ND	4.7
Ethylbenzene	ND	1.0	ND	4.5
m,p-Xylenes	ND	1.0	ND	4.5
o-Xylene	ND	1.0	ND	4.5
Styrene	ND	1.0	ND	4.4
Bromoform	ND	1.0	ND	11
1,1,2,2-Tetrachloroethane	ND	1.0	ND	7.1
4-Ethyltoluene	ND	1.0	ND	5.1
1,3,5-Trimethylbenzene	ND	1.0	ND	5.1
1,2,4-Trimethylbenzene	ND	1.0	ND	5.1
1,3-Dichlorobenzene	ND	1.0	ND	6.2
1,4-Dichlorobenzene	ND	1.0	ND	6.2
Benzyl chloride	ND	1.0	ND	5.3
1,2-Dichlorobenzene	ND	1.0	ND	6.2
1,2,4-Trichlorobenzene	ND	1.0	ND	7.6
Hexachlorobutadiene	ND	1.0	ND	11
Naphthalene	ND	4.1	ND	22

Surrogate	%REC	Limits
Bromofluorobenzene	88	80-121

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-16	Units (M):	ug/m3
Lab ID:	279842-006	Sampled:	08/17/16
Matrix:	Air	Received:	08/17/16
Units (V):	ppbv	Analyzed:	08/19/16

Analyte	Result (V)	RL	Result (M)	RL	Diln Fac	Batch#
Freon 12	1.7	0.95	8.3	4.7	1.900	238193
Freon 114	ND	0.95	ND	6.6	1.900	238193
Chloromethane	ND	0.95	ND	2.0	1.900	238193
Vinyl Chloride	ND	0.95	ND	2.4	1.900	238193
1,3-Butadiene	ND	0.95	ND	2.1	1.900	238193
Bromomethane	ND	0.95	ND	3.7	1.900	238193
Chloroethane	ND	0.95	ND	2.5	1.900	238193
Trichlorofluoromethane	ND	3.8	ND	21	1.900	238193
Acrolein	ND	3.8	ND	8.7	1.900	238193
1,1-Dichloroethene	ND	0.95	ND	3.8	1.900	238193
Freon 113	ND	0.95	ND	7.3	1.900	238193
Acetone	370	11	880	27	5.700	238233
Carbon Disulfide	ND	0.95	ND	3.0	1.900	238193
Isopropanol	8.3	3.8	20	9.3	1.900	238193
Methylene Chloride	ND	0.95	ND	3.3	1.900	238193
trans-1,2-Dichloroethene	ND	0.95	ND	3.8	1.900	238193
MTBE	ND	0.95	ND	3.4	1.900	238193
n-Hexane	ND	0.95	ND	3.3	1.900	238193
1,1-Dichloroethane	ND	0.95	ND	3.8	1.900	238193
Vinyl Acetate	ND	0.95	ND	3.3	1.900	238193
cis-1,2-Dichloroethene	ND	0.95	ND	3.8	1.900	238193
2-Butanone	3.0	0.95	8.9	2.8	1.900	238193
Ethyl Acetate	ND	0.95	ND	3.4	1.900	238193
Tetrahydrofuran	1.3	0.95	3.8	2.8	1.900	238193
Chloroform	ND	0.95	ND	4.6	1.900	238193
1,1,1-Trichloroethane	9.5	0.95	52	5.2	1.900	238193
Cyclohexane	ND	0.95	ND	3.3	1.900	238193
Carbon Tetrachloride	ND	0.95	ND	6.0	1.900	238193
Benzene	ND	0.95	ND	3.0	1.900	238193
1,2-Dichloroethane	ND	0.95	ND	3.8	1.900	238193
n-Heptane	ND	0.95	ND	3.9	1.900	238193
Trichloroethene	ND	0.95	ND	5.1	1.900	238193
1,2-Dichloropropane	ND	0.95	ND	4.4	1.900	238193
Bromodichloromethane	ND	0.95	ND	6.4	1.900	238193
cis-1,3-Dichloropropene	ND	0.95	ND	4.3	1.900	238193
4-Methyl-2-Pentanone	ND	0.95	ND	3.9	1.900	238193

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SSV-16	Units (M):	ug/m3
Lab ID:	279842-006	Sampled:	08/17/16
Matrix:	Air	Received:	08/17/16
Units (V):	ppbv	Analyzed:	08/19/16

Analyte	Result (V)	RL	Result (M)	RL	Diln Fac	Batch#
Toluene	ND	0.95	ND	3.6	1.900	238193
trans-1,3-Dichloropropene	ND	0.95	ND	4.3	1.900	238193
1,1,2-Trichloroethane	ND	0.95	ND	5.2	1.900	238193
Tetrachloroethene	6.9	0.95	47	6.4	1.900	238193
2-Hexanone	ND	0.95	ND	3.9	1.900	238193
Dibromochloromethane	ND	0.95	ND	8.1	1.900	238193
1,2-Dibromoethane	ND	0.95	ND	7.3	1.900	238193
Chlorobenzene	ND	0.95	ND	4.4	1.900	238193
Ethylbenzene	ND	0.95	ND	4.1	1.900	238193
m,p-Xylenes	ND	0.95	ND	4.1	1.900	238193
o-Xylene	ND	0.95	ND	4.1	1.900	238193
Styrene	ND	0.95	ND	4.0	1.900	238193
Bromoform	ND	0.95	ND	9.8	1.900	238193
1,1,2,2-Tetrachloroethane	ND	0.95	ND	6.5	1.900	238193
4-Ethyltoluene	ND	0.95	ND	4.7	1.900	238193
1,3,5-Trimethylbenzene	ND	0.95	ND	4.7	1.900	238193
1,2,4-Trimethylbenzene	ND	0.95	ND	4.7	1.900	238193
1,3-Dichlorobenzene	ND	0.95	ND	5.7	1.900	238193
1,4-Dichlorobenzene	ND	0.95	ND	5.7	1.900	238193
Benzyl chloride	ND	0.95	ND	4.9	1.900	238193
1,2-Dichlorobenzene	ND	0.95	ND	5.7	1.900	238193
1,2,4-Trichlorobenzene	ND	0.95	ND	7.1	1.900	238193
Hexachlorobutadiene	ND	0.95	ND	10	1.900	238193
Naphthalene	ND	3.8	ND	20	1.900	238193

Surrogate	%REC	Limits	Diln Fac	Batch#
Bromofluorobenzene	87	80-121	1.900	238193

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238193
Units (V):	ppbv	Analyzed:	08/18/16
Diln Fac:	1.000		

Type: BS Lab ID: QC847910

Analyte	Spiked	Result (V)	%REC	Limits
Freon 12	10.00	12.00	120	70-130
Freon 114	10.00	13.00	130	70-130
Chloromethane	10.00	7.436	74	70-130
Vinyl Chloride	10.00	8.490	85	70-130
1,3-Butadiene	10.00	10.55	106	70-130
Bromomethane	10.00	9.707	97	70-130
Chloroethane	10.00	9.965	100	70-130
Trichlorofluoromethane	10.00	14.22 b	142 *	70-130
Acrolein	10.00	7.907	79	70-130
1,1-Dichloroethene	10.00	11.11	111	70-130
Freon 113	10.00	13.24 b	132 *	70-130
Acetone	10.00	10.14	101	70-130
Carbon Disulfide	10.00	8.615	86	70-130
Isopropanol	10.00	8.759	88	70-130
Methylene Chloride	10.00	9.186	92	70-130
trans-1,2-Dichloroethene	10.00	10.82	108	70-130
MTBE	10.00	10.13	101	70-130
n-Hexane	10.00	11.43	114	70-130
1,1-Dichloroethane	10.00	11.02	110	70-130
Vinyl Acetate	10.00	12.08	121	70-130
cis-1,2-Dichloroethene	10.00	9.667	97	70-130
2-Butanone	10.00	12.25	122	70-130
Ethyl Acetate	10.00	12.89	129	70-130
Tetrahydrofuran	10.00	9.359	94	70-130
Chloroform	10.00	10.37	104	70-130
1,1,1-Trichloroethane	10.00	9.849	98	70-130
Cyclohexane	10.00	9.432	94	70-130
Carbon Tetrachloride	10.00	9.466	95	70-130
Benzene	10.00	8.326	83	70-130
1,2-Dichloroethane	10.00	8.065	81	70-130
n-Heptane	10.00	8.993	90	70-130
Trichloroethene	10.00	10.06	101	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238193
Units (V):	ppbv	Analyzed:	08/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
1,2-Dichloropropane	10.00	8.361	84	70-130
Bromodichloromethane	10.00	9.160	92	70-130
cis-1,3-Dichloropropene	10.00	7.951	80	70-130
4-Methyl-2-Pentanone	10.00	9.256	93	70-130
Toluene	10.00	9.113	91	70-130
trans-1,3-Dichloropropene	10.00	7.660	77	70-130
1,1,2-Trichloroethane	10.00	10.80	108	70-130
Tetrachloroethene	10.00	11.00	110	70-130
2-Hexanone	10.00	7.631	76	70-130
Dibromochloromethane	10.00	10.50	105	70-130
1,2-Dibromoethane	10.00	10.10	101	70-130
Chlorobenzene	10.00	9.240	92	70-130
Ethylbenzene	10.00	8.849	88	70-130
m,p-Xylenes	20.00	17.86	89	70-130
o-Xylene	10.00	9.082	91	70-130
Styrene	10.00	9.592	96	70-130
Bromoform	10.00	11.65	117	70-130
1,1,2,2-Tetrachloroethane	10.00	7.812	78	70-130
4-Ethyltoluene	10.00	7.836	78	70-130
1,3,5-Trimethylbenzene	10.00	8.819	88	70-130
1,2,4-Trimethylbenzene	10.00	7.779	78	70-130
1,3-Dichlorobenzene	10.00	9.195	92	70-130
1,4-Dichlorobenzene	10.00	9.115	91	70-130
Benzyl chloride	10.00	7.345	73	70-130
1,2-Dichlorobenzene	10.00	9.076	91	70-130
1,2,4-Trichlorobenzene	10.00	8.369	84	70-130
Hexachlorobutadiene	10.00	8.054	81	70-130
Naphthalene	10.00	8.204	82	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	96	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238193
Units (V):	ppbv	Analyzed:	08/18/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC847911

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Freon 12	10.00	12.32	123	70-130	3	25
Freon 114	10.00	13.44	134 *	70-130	3	25
Chloromethane	10.00	7.807	78	70-130	5	25
Vinyl Chloride	10.00	8.808	88	70-130	4	25
1,3-Butadiene	10.00	10.95	110	70-130	4	25
Bromomethane	10.00	10.02	100	70-130	3	25
Chloroethane	10.00	10.18	102	70-130	2	25
Trichlorofluoromethane	10.00	14.72 b	147 *	70-130	3	25
Acrolein	10.00	8.035	80	70-130	2	25
1,1-Dichloroethene	10.00	11.32	113	70-130	2	25
Freon 113	10.00	13.79 b	138 *	70-130	4	25
Acetone	10.00	10.23	102	70-130	1	25
Carbon Disulfide	10.00	8.748	87	70-130	2	25
Isopropanol	10.00	9.339	93	70-130	6	25
Methylene Chloride	10.00	9.487	95	70-130	3	25
trans-1,2-Dichloroethene	10.00	10.88	109	70-130	1	25
MTBE	10.00	10.30	103	70-130	2	25
n-Hexane	10.00	11.89	119	70-130	4	25
1,1-Dichloroethane	10.00	11.11	111	70-130	1	25
Vinyl Acetate	10.00	12.50	125	70-130	3	25
cis-1,2-Dichloroethene	10.00	9.886	99	70-130	2	25
2-Butanone	10.00	12.60	126	70-130	3	25
Ethyl Acetate	10.00	13.15	132 *	70-130	2	25
Tetrahydrofuran	10.00	8.987	90	70-130	4	25
Chloroform	10.00	10.73	107	70-130	3	25
1,1,1-Trichloroethane	10.00	9.835	98	70-130	0	25
Cyclohexane	10.00	9.268	93	70-130	2	25
Carbon Tetrachloride	10.00	9.315	93	70-130	2	25
Benzene	10.00	8.334	83	70-130	0	25
1,2-Dichloroethane	10.00	8.050	81	70-130	0	25
n-Heptane	10.00	9.096	91	70-130	1	25
Trichloroethene	10.00	9.926	99	70-130	1	25

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238193
Units (V):	ppbv	Analyzed:	08/18/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
1,2-Dichloropropane	10.00	8.266	83	70-130	1	25
Bromodichloromethane	10.00	9.024	90	70-130	1	25
cis-1,3-Dichloropropene	10.00	8.079	81	70-130	2	25
4-Methyl-2-Pentanone	10.00	9.361	94	70-130	1	25
Toluene	10.00	9.383	94	70-130	3	25
trans-1,3-Dichloropropene	10.00	7.862	79	70-130	3	25
1,1,2-Trichloroethane	10.00	10.80	108	70-130	0	25
Tetrachloroethene	10.00	11.19	112	70-130	2	25
2-Hexanone	10.00	7.790	78	70-130	2	25
Dibromochloromethane	10.00	10.52	105	70-130	0	25
1,2-Dibromoethane	10.00	10.15	101	70-130	0	25
Chlorobenzene	10.00	9.485	95	70-130	3	25
Ethylbenzene	10.00	8.664	87	70-130	2	25
m,p-Xylenes	20.00	17.74	89	70-130	1	25
o-Xylene	10.00	9.041	90	70-130	0	25
Styrene	10.00	9.686	97	70-130	1	25
Bromoform	10.00	11.75	118	70-130	1	25
1,1,2,2-Tetrachloroethane	10.00	8.122	81	70-130	4	25
4-Ethyltoluene	10.00	7.900	79	70-130	1	25
1,3,5-Trimethylbenzene	10.00	8.731	87	70-130	1	25
1,2,4-Trimethylbenzene	10.00	7.966	80	70-130	2	25
1,3-Dichlorobenzene	10.00	9.401	94	70-130	2	25
1,4-Dichlorobenzene	10.00	9.355	94	70-130	3	25
Benzyl chloride	10.00	7.233	72	70-130	2	25
1,2-Dichlorobenzene	10.00	8.966	90	70-130	1	25
1,2,4-Trichlorobenzene	10.00	8.372	84	70-130	0	25
Hexachlorobutadiene	10.00	8.075	81	70-130	0	25
Naphthalene	10.00	8.317	83	70-130	1	25

Surrogate	%REC	Limits
Bromofluorobenzene	99	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC847912	Diln Fac:	1.000
Matrix:	Air	Batch#:	238193
Units (V):	ppbv	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.50	ND	2.5
Freon 114	ND	0.50	ND	3.5
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
1,3-Butadiene	ND	0.50	ND	1.1
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	2.0	ND	11
Acrolein	ND	2.0	ND	4.6
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Acetone	ND	2.0	ND	4.8
Carbon Disulfide	ND	0.50	ND	1.6
Isopropanol	ND	2.0	ND	4.9
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
MTBE	ND	0.50	ND	1.8
n-Hexane	ND	0.50	ND	1.8
1,1-Dichloroethane	ND	0.50	ND	2.0
Vinyl Acetate	ND	0.50	ND	1.8
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
2-Butanone	ND	0.50	ND	1.5
Ethyl Acetate	ND	0.50	ND	1.8
Tetrahydrofuran	ND	0.50	ND	1.5
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Cyclohexane	ND	0.50	ND	1.7
Carbon Tetrachloride	ND	0.50	ND	3.1
Benzene	ND	0.50	ND	1.6
1,2-Dichloroethane	ND	0.50	ND	2.0
n-Heptane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC847912	Diln Fac:	1.000
Matrix:	Air	Batch#:	238193
Units (V):	ppbv	Analyzed:	08/18/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.50	ND	2.0
Toluene	ND	0.50	ND	1.9
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
2-Hexanone	ND	0.50	ND	2.0
Dibromochloromethane	ND	0.50	ND	4.3
1,2-Dibromoethane	ND	0.50	ND	3.8
Chlorobenzene	ND	0.50	ND	2.3
Ethylbenzene	ND	0.50	ND	2.2
m,p-Xylenes	ND	0.50	ND	2.2
o-Xylene	ND	0.50	ND	2.2
Styrene	ND	0.50	ND	2.1
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
4-Ethyltoluene	ND	0.50	ND	2.5
1,3,5-Trimethylbenzene	ND	0.50	ND	2.5
1,2,4-Trimethylbenzene	ND	0.50	ND	2.5
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
Benzyl chloride	ND	0.50	ND	2.6
1,2-Dichlorobenzene	ND	0.50	ND	3.0
1,2,4-Trichlorobenzene	ND	0.50	ND	3.7
Hexachlorobutadiene	ND	0.50	ND	5.3
Naphthalene	ND	2.0	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	88	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238233
Units (V):	ppbv	Analyzed:	08/19/16
Diln Fac:	1.000		

Type: BS Lab ID: QC848078

Analyte	Spiked	Result (V)	%REC	Limits
Freon 12	10.00	12.63	126	70-130
Freon 114	10.00	13.34 b	133 *	70-130
Chloromethane	10.00	9.019	90	70-130
Vinyl Chloride	10.00	9.839	98	70-130
1,3-Butadiene	10.00	11.89	119	70-130
Bromomethane	10.00	11.36	114	70-130
Chloroethane	10.00	10.92	109	70-130
Trichlorofluoromethane	10.00	14.74 b	147 *	70-130
Acrolein	10.00	7.685	77	70-130
1,1-Dichloroethene	10.00	11.76	118	70-130
Freon 113	10.00	13.43 b	134 *	70-130
Acetone	10.00	10.58	106	70-130
Carbon Disulfide	10.00	9.009	90	70-130
Isopropanol	10.00	8.487	85	70-130
Methylene Chloride	10.00	9.844	98	70-130
trans-1,2-Dichloroethene	10.00	11.13	111	70-130
MTBE	10.00	10.12	101	70-130
n-Hexane	10.00	10.95	110	70-130
1,1-Dichloroethane	10.00	11.37	114	70-130
Vinyl Acetate	10.00	12.13	121	70-130
cis-1,2-Dichloroethene	10.00	9.904	99	70-130
2-Butanone	10.00	12.61	126	70-130
Ethyl Acetate	10.00	12.95	130	70-130
Tetrahydrofuran	10.00	9.517	95	70-130
Chloroform	10.00	10.66	107	70-130
1,1,1-Trichloroethane	10.00	10.33	103	70-130
Cyclohexane	10.00	9.755	98	70-130
Carbon Tetrachloride	10.00	9.210	92	70-130
Benzene	10.00	8.279	83	70-130
1,2-Dichloroethane	10.00	8.314	83	70-130
n-Heptane	10.00	9.147	91	70-130
Trichloroethene	10.00	9.957	100	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238233
Units (V):	ppbv	Analyzed:	08/19/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
1,2-Dichloropropane	10.00	8.404	84	70-130
Bromodichloromethane	10.00	9.303	93	70-130
cis-1,3-Dichloropropene	10.00	7.909	79	70-130
4-Methyl-2-Pentanone	10.00	9.457	95	70-130
Toluene	10.00	8.920	89	70-130
trans-1,3-Dichloropropene	10.00	7.804	78	70-130
1,1,2-Trichloroethane	10.00	10.41	104	70-130
Tetrachloroethene	10.00	10.76	108	70-130
2-Hexanone	10.00	7.436	74	70-130
Dibromochloromethane	10.00	10.07	101	70-130
1,2-Dibromoethane	10.00	9.779	98	70-130
Chlorobenzene	10.00	9.143	91	70-130
Ethylbenzene	10.00	8.382	84	70-130
m,p-Xylenes	20.00	16.96	85	70-130
o-Xylene	10.00	8.521	85	70-130
Styrene	10.00	9.190	92	70-130
Bromoform	10.00	10.85	109	70-130
1,1,2,2-Tetrachloroethane	10.00	7.691	77	70-130
4-Ethyltoluene	10.00	7.739	77	70-130
1,3,5-Trimethylbenzene	10.00	8.508	85	70-130
1,2,4-Trimethylbenzene	10.00	7.614	76	70-130
1,3-Dichlorobenzene	10.00	9.034	90	70-130
1,4-Dichlorobenzene	10.00	9.069	91	70-130
Benzyl chloride	10.00	7.041	70	70-130
1,2-Dichlorobenzene	10.00	8.906	89	70-130
1,2,4-Trichlorobenzene	10.00	7.950	80	70-130
Hexachlorobutadiene	10.00	8.138	81	70-130
Naphthalene	10.00	8.129	81	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	96	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238233
Units (V):	ppbv	Analyzed:	08/19/16
Diln Fac:	1.000		

Type: BSD Lab ID: QC848079

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Freon 12	10.00	11.52	115	70-130	9	25
Freon 114	10.00	12.91 b	129	70-130	3	25
Chloromethane	10.00	7.407	74	70-130	20	25
Vinyl Chloride	10.00	8.528	85	70-130	14	25
1,3-Butadiene	10.00	10.87	109	70-130	9	25
Bromomethane	10.00	10.00	100	70-130	13	25
Chloroethane	10.00	10.20	102	70-130	7	25
Trichlorofluoromethane	10.00	14.24 b	142 *	70-130	3	25
Acrolein	10.00	8.083	81	70-130	5	25
1,1-Dichloroethene	10.00	11.10	111	70-130	6	25
Freon 113	10.00	13.37 b	134 *	70-130	0	25
Acetone	10.00	10.39	104	70-130	2	25
Carbon Disulfide	10.00	8.582	86	70-130	5	25
Isopropanol	10.00	9.293	93	70-130	9	25
Methylene Chloride	10.00	9.509	95	70-130	3	25
trans-1,2-Dichloroethene	10.00	10.74	107	70-130	4	25
MTBE	10.00	9.934	99	70-130	2	25
n-Hexane	10.00	11.14	111	70-130	2	25
1,1-Dichloroethane	10.00	11.15	112	70-130	2	25
Vinyl Acetate	10.00	12.25	123	70-130	1	25
cis-1,2-Dichloroethene	10.00	9.897	99	70-130	0	25
2-Butanone	10.00	12.28	123	70-130	3	25
Ethyl Acetate	10.00	13.09	131 *	70-130	1	25
Tetrahydrofuran	10.00	9.324	93	70-130	2	25
Chloroform	10.00	10.61	106	70-130	0	25
1,1,1-Trichloroethane	10.00	10.09	101	70-130	2	25
Cyclohexane	10.00	9.611	96	70-130	1	25
Carbon Tetrachloride	10.00	8.946	89	70-130	3	25
Benzene	10.00	8.308	83	70-130	0	25
1,2-Dichloroethane	10.00	8.220	82	70-130	1	25
n-Heptane	10.00	9.003	90	70-130	2	25
Trichloroethene	10.00	9.864	99	70-130	1	25

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	238233
Units (V):	ppbv	Analyzed:	08/19/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
1,2-Dichloropropane	10.00	8.365	84	70-130	0	25
Bromodichloromethane	10.00	9.303	93	70-130	0	25
cis-1,3-Dichloropropene	10.00	7.885	79	70-130	0	25
4-Methyl-2-Pentanone	10.00	9.274	93	70-130	2	25
Toluene	10.00	8.780	88	70-130	2	25
trans-1,3-Dichloropropene	10.00	7.608	76	70-130	3	25
1,1,2-Trichloroethane	10.00	10.28	103	70-130	1	25
Tetrachloroethene	10.00	10.68	107	70-130	1	25
2-Hexanone	10.00	7.513	75	70-130	1	25
Dibromochloromethane	10.00	10.20	102	70-130	1	25
1,2-Dibromoethane	10.00	9.725	97	70-130	1	25
Chlorobenzene	10.00	8.978	90	70-130	2	25
Ethylbenzene	10.00	8.276	83	70-130	1	25
m,p-Xylenes	20.00	16.73	84	70-130	1	25
o-Xylene	10.00	8.489	85	70-130	0	25
Styrene	10.00	9.049	90	70-130	2	25
Bromoform	10.00	10.79	108	70-130	1	25
1,1,2,2-Tetrachloroethane	10.00	7.719	77	70-130	0	25
4-Ethyltoluene	10.00	7.751	78	70-130	0	25
1,3,5-Trimethylbenzene	10.00	8.298	83	70-130	2	25
1,2,4-Trimethylbenzene	10.00	7.474	75	70-130	2	25
1,3-Dichlorobenzene	10.00	9.024	90	70-130	0	25
1,4-Dichlorobenzene	10.00	8.914	89	70-130	2	25
Benzyl chloride	10.00	6.967	70	70-130	1	25
1,2-Dichlorobenzene	10.00	8.573	86	70-130	4	25
1,2,4-Trichlorobenzene	10.00	7.959	80	70-130	0	25
Hexachlorobutadiene	10.00	7.812	78	70-130	4	25
Naphthalene	10.00	8.348	83	70-130	3	25

Surrogate	%REC	Limits
Bromofluorobenzene	95	70-130

*= Value outside of QC limits; see narrative
b= See narrative
RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC848080	Diln Fac:	1.000
Matrix:	Air	Batch#:	238233
Units (V):	ppbv	Analyzed:	08/19/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.50	ND	2.5
Freon 114	ND	0.50	ND	3.5
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
1,3-Butadiene	ND	0.50	ND	1.1
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	2.0	ND	11
Acrolein	ND	2.0	ND	4.6
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Acetone	ND	2.0	ND	4.8
Carbon Disulfide	ND	0.50	ND	1.6
Isopropanol	ND	2.0	ND	4.9
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
MTBE	ND	0.50	ND	1.8
n-Hexane	ND	0.50	ND	1.8
1,1-Dichloroethane	ND	0.50	ND	2.0
Vinyl Acetate	ND	0.50	ND	1.8
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
2-Butanone	ND	0.50	ND	1.5
Ethyl Acetate	ND	0.50	ND	1.8
Tetrahydrofuran	ND	0.50	ND	1.5
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Cyclohexane	ND	0.50	ND	1.7
Carbon Tetrachloride	ND	0.50	ND	3.1
Benzene	ND	0.50	ND	1.6
1,2-Dichloroethane	ND	0.50	ND	2.0
n-Heptane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	279842	Location:	1919 Market Street
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC848080	Diln Fac:	1.000
Matrix:	Air	Batch#:	238233
Units (V):	ppbv	Analyzed:	08/19/16

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	0.50	ND	2.0
Toluene	ND	0.50	ND	1.9
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
2-Hexanone	ND	0.50	ND	2.0
Dibromochloromethane	ND	0.50	ND	4.3
1,2-Dibromoethane	ND	0.50	ND	3.8
Chlorobenzene	ND	0.50	ND	2.3
Ethylbenzene	ND	0.50	ND	2.2
m,p-Xylenes	ND	0.50	ND	2.2
o-Xylene	ND	0.50	ND	2.2
Styrene	ND	0.50	ND	2.1
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
4-Ethyltoluene	ND	0.50	ND	2.5
1,3,5-Trimethylbenzene	ND	0.50	ND	2.5
1,2,4-Trimethylbenzene	ND	0.50	ND	2.5
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
Benzyl chloride	ND	0.50	ND	2.6
1,2-Dichlorobenzene	ND	0.50	ND	3.0
1,2,4-Trichlorobenzene	ND	0.50	ND	3.7
Hexachlorobutadiene	ND	0.50	ND	5.3
Naphthalene	ND	2.0	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	87	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609136

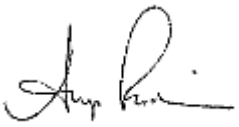
Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Jake Wilson
Project P.O.:
Project Name: 1919 Market

Project Received: 09/02/2016

Analytical Report reviewed & approved for release on 09/08/2016 by:



Angela Rydelius,
Laboratory Manager

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. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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CDPH ELAP 1644 ♦ NELAP 4033ORELAP

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 1919 Market
WorkOrder: 1609136

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

b1	aqueous sample that contains greater than ~1 vol. % sediment

McCampbell Analytical, Inc.
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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Received:	9/2/16 17:15	**Extraction Method:**	SW5030B
Date Prepared:	9/7/16-9/8/16	**Analytical Method:**	SW8260B
Project:	1919 Market	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-6-GW	1609136-001A	Water	09/01/2016 09:50	GC16	126282

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	09/07/2016 17:18
tert-Amyl methyl ether (TAME)	ND	0.50	1	09/07/2016 17:18
Benzene	ND	0.50	1	09/07/2016 17:18
Bromobenzene	ND	0.50	1	09/07/2016 17:18
Bromochloromethane	ND	0.50	1	09/07/2016 17:18
Bromodichloromethane	ND	0.50	1	09/07/2016 17:18
Bromoform	ND	0.50	1	09/07/2016 17:18
Bromomethane	ND	0.50	1	09/07/2016 17:18
2-Butanone (MEK)	ND	2.0	1	09/07/2016 17:18
t-Butyl alcohol (TBA)	ND	2.0	1	09/07/2016 17:18
n-Butyl benzene	ND	0.50	1	09/07/2016 17:18
sec-Butyl benzene	ND	0.50	1	09/07/2016 17:18
tert-Butyl benzene	ND	0.50	1	09/07/2016 17:18
Carbon Disulfide	ND	0.50	1	09/07/2016 17:18
Carbon Tetrachloride	ND	0.50	1	09/07/2016 17:18
Chlorobenzene	ND	0.50	1	09/07/2016 17:18
Chloroethane	ND	0.50	1	09/07/2016 17:18
Chloroform	ND	0.50	1	09/07/2016 17:18
Chloromethane	ND	0.50	1	09/07/2016 17:18
2-Chlorotoluene	ND	0.50	1	09/07/2016 17:18
4-Chlorotoluene	ND	0.50	1	09/07/2016 17:18
Dibromochloromethane	ND	0.50	1	09/07/2016 17:18
1,2-Dibromo-3-chloropropane	ND	0.20	1	09/07/2016 17:18
1,2-Dibromoethane (EDB)	ND	0.50	1	09/07/2016 17:18
Dibromomethane	ND	0.50	1	09/07/2016 17:18
1,2-Dichlorobenzene	ND	0.50	1	09/07/2016 17:18
1,3-Dichlorobenzene	ND	0.50	1	09/07/2016 17:18
1,4-Dichlorobenzene	ND	0.50	1	09/07/2016 17:18
Dichlorodifluoromethane	ND	0.50	1	09/07/2016 17:18
1,1-Dichloroethane	ND	0.50	1	09/07/2016 17:18
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	09/07/2016 17:18
1,1-Dichloroethene	ND	0.50	1	09/07/2016 17:18
cis-1,2-Dichloroethene	ND	0.50	1	09/07/2016 17:18
trans-1,2-Dichloroethene	ND	0.50	1	09/07/2016 17:18
1,2-Dichloropropane	ND	0.50	1	09/07/2016 17:18
1,3-Dichloropropane	ND	0.50	1	09/07/2016 17:18
2,2-Dichloropropane	ND	0.50	1	09/07/2016 17:18

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Received:	9/2/16 17:15	**Extraction Method:**	SW5030B
Date Prepared:	9/7/16-9/8/16	**Analytical Method:**	SW8260B
Project:	1919 Market	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-6-GW	1609136-001A	Water	09/01/2016 09:50	GC16	126282

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	09/07/2016 17:18
cis-1,3-Dichloropropene	ND	0.50	1	09/07/2016 17:18
trans-1,3-Dichloropropene	ND	0.50	1	09/07/2016 17:18
Diisopropyl ether (DIPE)	ND	0.50	1	09/07/2016 17:18
Ethylbenzene	ND	0.50	1	09/07/2016 17:18
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	09/07/2016 17:18
Freon 113	ND	0.50	1	09/07/2016 17:18
Hexachlorobutadiene	ND	0.50	1	09/07/2016 17:18
Hexachloroethane	ND	0.50	1	09/07/2016 17:18
2-Hexanone	ND	0.50	1	09/07/2016 17:18
Isopropylbenzene	ND	0.50	1	09/07/2016 17:18
4-Isopropyl toluene	ND	0.50	1	09/07/2016 17:18
Methyl-t-butyl ether (MTBE)	ND	0.50	1	09/07/2016 17:18
Methylene chloride	ND	0.50	1	09/07/2016 17:18
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	09/07/2016 17:18
Naphthalene	ND	0.50	1	09/07/2016 17:18
n-Propyl benzene	ND	0.50	1	09/07/2016 17:18
Styrene	ND	0.50	1	09/07/2016 17:18
1,1,1,2-Tetrachloroethane	ND	0.50	1	09/07/2016 17:18
1,1,2,2-Tetrachloroethane	ND	0.50	1	09/07/2016 17:18
Tetrachloroethene	ND	0.50	1	09/07/2016 17:18
Toluene	ND	0.50	1	09/07/2016 17:18
1,2,3-Trichlorobenzene	ND	0.50	1	09/07/2016 17:18
1,2,4-Trichlorobenzene	ND	0.50	1	09/07/2016 17:18
1,1,1-Trichloroethane	ND	0.50	1	09/07/2016 17:18
1,1,2-Trichloroethane	ND	0.50	1	09/07/2016 17:18
Trichloroethene	ND	0.50	1	09/07/2016 17:18
Trichlorofluoromethane	ND	0.50	1	09/07/2016 17:18
1,2,3-Trichloropropane	ND	0.50	1	09/07/2016 17:18
1,2,4-Trimethylbenzene	ND	0.50	1	09/07/2016 17:18
1,3,5-Trimethylbenzene	ND	0.50	1	09/07/2016 17:18
Vinyl Chloride	ND	0.50	1	09/07/2016 17:18
Xylenes, Total	ND	0.50	1	09/07/2016 17:18

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Received:	9/2/16 17:15	**Extraction Method:**	SW5030B
Date Prepared:	9/7/16-9/8/16	**Analytical Method:**	SW8260B
Project:	1919 Market	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-6-GW	**1609136-001A**	**Water**	**09/01/2016 09:50**	**GC16**	**126282**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	107	70-130		09/07/2016 17:18
Toluene-d8	109	70-130		09/07/2016 17:18
4-BFB	99	70-130		09/07/2016 17:18

Analyst(s): HK Analytical Comments: b1

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Received:	9/2/16 17:15	**Extraction Method:**	SW5030B
Date Prepared:	9/7/16-9/8/16	**Analytical Method:**	SW8260B
Project:	1919 Market	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-7-GW	1609136-002A	Water	09/01/2016 10:00	GC16	126282

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	09/08/2016 02:14
tert-Amyl methyl ether (TAME)	ND	0.50	1	09/08/2016 02:14
Benzene	ND	0.50	1	09/08/2016 02:14
Bromobenzene	ND	0.50	1	09/08/2016 02:14
Bromochloromethane	ND	0.50	1	09/08/2016 02:14
Bromodichloromethane	ND	0.50	1	09/08/2016 02:14
Bromoform	ND	0.50	1	09/08/2016 02:14
Bromomethane	ND	0.50	1	09/08/2016 02:14
2-Butanone (MEK)	ND	2.0	1	09/08/2016 02:14
t-Butyl alcohol (TBA)	ND	2.0	1	09/08/2016 02:14
n-Butyl benzene	ND	0.50	1	09/08/2016 02:14
sec-Butyl benzene	ND	0.50	1	09/08/2016 02:14
tert-Butyl benzene	ND	0.50	1	09/08/2016 02:14
Carbon Disulfide	ND	0.50	1	09/08/2016 02:14
Carbon Tetrachloride	ND	0.50	1	09/08/2016 02:14
Chlorobenzene	ND	0.50	1	09/08/2016 02:14
Chloroethane	ND	0.50	1	09/08/2016 02:14
Chloroform	ND	0.50	1	09/08/2016 02:14
Chloromethane	ND	0.50	1	09/08/2016 02:14
2-Chlorotoluene	ND	0.50	1	09/08/2016 02:14
4-Chlorotoluene	ND	0.50	1	09/08/2016 02:14
Dibromochloromethane	ND	0.50	1	09/08/2016 02:14
1,2-Dibromo-3-chloropropane	ND	0.20	1	09/08/2016 02:14
1,2-Dibromoethane (EDB)	ND	0.50	1	09/08/2016 02:14
Dibromomethane	ND	0.50	1	09/08/2016 02:14
1,2-Dichlorobenzene	ND	0.50	1	09/08/2016 02:14
1,3-Dichlorobenzene	ND	0.50	1	09/08/2016 02:14
1,4-Dichlorobenzene	ND	0.50	1	09/08/2016 02:14
Dichlorodifluoromethane	ND	0.50	1	09/08/2016 02:14
1,1-Dichloroethane	ND	0.50	1	09/08/2016 02:14
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	09/08/2016 02:14
1,1-Dichloroethene	ND	0.50	1	09/08/2016 02:14
cis-1,2-Dichloroethene	ND	0.50	1	09/08/2016 02:14
trans-1,2-Dichloroethene	ND	0.50	1	09/08/2016 02:14
1,2-Dichloropropane	ND	0.50	1	09/08/2016 02:14
1,3-Dichloropropane	ND	0.50	1	09/08/2016 02:14
2,2-Dichloropropane	ND	0.50	1	09/08/2016 02:14

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Received:	9/2/16 17:15	**Extraction Method:**	SW5030B
Date Prepared:	9/7/16-9/8/16	**Analytical Method:**	SW8260B
Project:	1919 Market	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-7-GW	1609136-002A	Water	09/01/2016 10:00	GC16	126282

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	09/08/2016 02:14
cis-1,3-Dichloropropene	ND	0.50	1	09/08/2016 02:14
trans-1,3-Dichloropropene	ND	0.50	1	09/08/2016 02:14
Diisopropyl ether (DIPE)	ND	0.50	1	09/08/2016 02:14
Ethylbenzene	ND	0.50	1	09/08/2016 02:14
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	09/08/2016 02:14
Freon 113	ND	0.50	1	09/08/2016 02:14
Hexachlorobutadiene	ND	0.50	1	09/08/2016 02:14
Hexachloroethane	ND	0.50	1	09/08/2016 02:14
2-Hexanone	ND	0.50	1	09/08/2016 02:14
Isopropylbenzene	ND	0.50	1	09/08/2016 02:14
4-Isopropyl toluene	ND	0.50	1	09/08/2016 02:14
Methyl-t-butyl ether (MTBE)	ND	0.50	1	09/08/2016 02:14
Methylene chloride	ND	0.50	1	09/08/2016 02:14
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	09/08/2016 02:14
Naphthalene	ND	0.50	1	09/08/2016 02:14
n-Propyl benzene	ND	0.50	1	09/08/2016 02:14
Styrene	ND	0.50	1	09/08/2016 02:14
1,1,1,2-Tetrachloroethane	ND	0.50	1	09/08/2016 02:14
1,1,2,2-Tetrachloroethane	ND	0.50	1	09/08/2016 02:14
Tetrachloroethene	ND	0.50	1	09/08/2016 02:14
Toluene	ND	0.50	1	09/08/2016 02:14
1,2,3-Trichlorobenzene	ND	0.50	1	09/08/2016 02:14
1,2,4-Trichlorobenzene	ND	0.50	1	09/08/2016 02:14
1,1,1-Trichloroethane	ND	0.50	1	09/08/2016 02:14
1,1,2-Trichloroethane	ND	0.50	1	09/08/2016 02:14
Trichloroethene	ND	0.50	1	09/08/2016 02:14
Trichlorofluoromethane	ND	0.50	1	09/08/2016 02:14
1,2,3-Trichloropropane	ND	0.50	1	09/08/2016 02:14
1,2,4-Trimethylbenzene	ND	0.50	1	09/08/2016 02:14
1,3,5-Trimethylbenzene	ND	0.50	1	09/08/2016 02:14
Vinyl Chloride	ND	0.50	1	09/08/2016 02:14
Xylenes, Total	ND	0.50	1	09/08/2016 02:14

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Received:	9/2/16 17:15	**Extraction Method:**	SW5030B
Date Prepared:	9/7/16-9/8/16	**Analytical Method:**	SW8260B
Project:	1919 Market	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
B-7-GW	1609136-002A	Water	09/01/2016 10:00	GC16	126282

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	107	70-130		09/08/2016 02:14
Toluene-d8	110	70-130		09/08/2016 02:14
4-BFB	102	70-130		09/08/2016 02:14

Analyst(s): HK

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Prepared:	9/7/16	**BatchID:**	126282
Date Analyzed:	9/7/16	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	1919 Market	**Sample ID:**	MB/LCS-126282 1609136-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	6.97	0.50	10	-	70	54-140
Benzene	ND	8.82	0.50	10	-	88	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	19.5	2.0	40	-	49	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	8.78	0.50	10	-	88	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	7.70	0.50	10	-	77	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	7.23	0.50	10	-	72	66-125
1,1-Dichloroethene	ND	9.17	0.50	10	-	92	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Prepared:	9/7/16	**BatchID:**	126282
Date Analyzed:	9/7/16	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	1919 Market	**Sample ID:**	MB/LCS-126282 1609136-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
Diisopropyl ether (DIPE)	ND	8.21	0.50	10	-	82	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	7.47	0.50	10	-	75	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	6.96	0.50	10	-	70	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	8.67	0.50	10	-	87	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	8.46	0.50	10	-	85	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609136
Date Prepared:	9/7/16	**BatchID:**	126282
Date Analyzed:	9/7/16	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	1919 Market	**Sample ID:**	MB/LCS-126282 1609136-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	26.1	25.7		25	105	103	70-130
Toluene-d8	26.8	26.6		25	107	107	70-130
4-BFB	2.47	2.69		2.5	99	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	9.77	9.45	10	ND	98	94	69-139	3.38	20
Benzene	10.8	10.0	10	ND	108	100	69-141	7.44	20
t-Butyl alcohol (TBA)	36.6	37.1	40	ND	92	93	41-152	1.23	20
Chlorobenzene	10.6	9.93	10	ND	107	99	77-120	6.96	20
1,2-Dibromoethane (EDB)	10.5	10.3	10	ND	105	103	76-135	1.95	20
1,2-Dichloroethane (1,2-DCA)	9.54	9.29	10	ND	95	93	73-139	2.65	20
1,1-Dichloroethene	11.5	10.7	10	ND	115	107	59-140	7.81	20
Diisopropyl ether (DIPE)	10.6	10.1	10	ND	106	101	72-140	5.11	20
Ethyl tert-butyl ether (ETBE)	10.1	9.76	10	ND	101	98	71-140	2.97	20
Methyl-t-butyl ether (MTBE)	9.97	9.75	10	ND	100	97	73-139	2.25	20
Toluene	10.4	9.59	10	ND	103	95	71-128	7.84	20
Trichloroethene	10.4	9.70	10	ND	104	97	64-132	6.82	20
Surrogate Recovery									
Dibromofluoromethane	26.5	26.7	25		106	107	73-131	0.733	20
Toluene-d8	26.3	26.3	25		105	105	72-117	0	20
4-BFB	2.42	2.69	2.5		97	107	74-116	10.6	20

McCampbell Analytical, Inc.
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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609136 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Jake Wilson
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612
(510) 836-3700 FAX: (510) 836-3709

Email: jwilson@pangeaenv.com
cc/3rd Party: Rscheele@pangeaenv.com;
PO:
ProjectNo: 1919 Market

Bill to:
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Requested TAT: **5 days;**

Date Received: **09/02/2016**
Date Logged: **09/02/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1609136-001	B-6-GW	Water	9/1/2016 9:50	☐	A											
1609136-002	B-7-GW	Water	9/1/2016 10:00	☐	A											

Test Legend:

1	8260B_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

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

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1609136
Project: 1919 Market **Client Contact:** Jake Wilson **Date Logged:** 9/2/2016
Comments: **Contact's Email:** jwilson@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609136-001A	B-6-GW	Water	SW8260B (VOCs)	3	VOA w/ HCl	☐	9/1/2016 9:50	5 days	4%+	☐	
1609136-002A	B-7-GW	Water	SW8260B (VOCs)	3	VOA w/ HCl	☐	9/1/2016 10:00	5 days	Present	☐	

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).

- 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.

General COC

MAI Work Order # 160936

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush | 2 Day Rush | 3 Day Rush | STD ● | Quote #
J-Flag / MDL | ESL | Cleanup Approved | Bottle Order #
Delivery Format: GeoTracker EDF | PDF | EDD | Write On (DW) | EQuIS

Report To: **Ron Scheele, Jake Wilson** Bill To: **Jake Wilson**
Company: **Pangea Environmental**
Email: **RScheele@pangeaenv.com**
Email: **JWilson@Pangeaenv.com** Tele: **415-259-8860**
Project Name/#: **1919 Market**
Project Location: **1919 Market Ave., Oakland, CA** PO #
Sampler Signature:

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	BTEX & TPH as Gas (8021/8015) MTBE	TPH as Diesel (8015) + Motor Oil	Oil & Grease Total Petroleum (1664 / 9071)	Oil & Grease Total Petroleum Hydrocarbons (418.1)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ; Aroclors only	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.8 / 6020)***	LUFT 5 Metals (200.8 / 6020)***	Metals (200.8 / 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis
A B-6-GW	9/1/16	0950	3	water	HCl									●							
Y B-7-GW	9/1/16	1000	3	water	HCl									●							

**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.

*** If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample for testing being submitted. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
Jake Wilson / Pangea	9/2/16	0900		9-2-16	1430
	9-2-16	1715		9/2	1715

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other
Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp 4.3 °C Initials

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**9/2/2016 17:15**
Project Name:	**1919 Market**	Date Logged:	**9/2/2016**
WorkOrder №:	**1609136** Matrix: Water	Received by:	Agustina Venegas
Carrier:	Bernie Cummins (MAI Courier)	Logged by:	Agustina Venegas

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	☑	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	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	☐	
Sample/Temp Blank temperature	Temp: 4.3°C				NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes	☑	No	☐	NA ☐
Sample labels checked for correct preservation?	Yes	☑	No	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes	☐	No	☐	NA ☑
Samples Received on Ice?	Yes	☑	No	☐	
(Ice Type: WET ICE)					

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes	☐	No	☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes	☐	No	☐	NA ☑

Comments:

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Analytical Report

WorkOrder: 1609137

Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Ron Scheele
Project P.O.:
Project Name: 1919 Market

Project Received: 09/02/2016

Analytical Report reviewed & approved for release on 09/09/2016 by:

Angela Rydelius,
Laboratory Manager

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. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 1919 Market
WorkOrder: 1609137

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.

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Case Narrative

Client: Pangea Environmental Svcs., Inc. **Work Order:** 1609137
Project: 1919 Market September 08, 2016

TO-15 ANALYSIS

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

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The disadvantages are listed in Appendix B of the DTSC Active Soil Gas Advisory of July 2015.

CDPH ELAP 1644 ♦ NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Leak Check Compound

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-17	1609137-001A	SoilGas	09/01/2016 12:09	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.72	29.37	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	**320**	50	1	09/07/2016 00:37

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-18	1609137-002A	SoilGas	09/01/2016 12:35	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.32	24.63	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	**150**	50	1	09/07/2016 01:23

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-19	1609137-003A	SoilGas	09/01/2016 13:04	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.58	29.06	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	**110**	50	1	09/07/2016 02:08

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Leak Check Compound

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-20	1609137-004A	SoilGas	09/01/2016 13:28	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.19	24.35	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	ND	100	2	09/06/2016 23:51

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-17	1609137-001A	SoilGas	09/01/2016 12:09	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.72	29.37	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	**160**	60	1	09/07/2016 00:37
Acrolein	ND	5.8	1	09/07/2016 00:37
Acrylonitrile	ND	1.1	1	09/07/2016 00:37
tert-Amyl methyl ether (TAME)	ND	2.1	1	09/07/2016 00:37
Benzene	**2.5**	1.6	1	09/07/2016 00:37
Benzyl chloride	ND	2.6	1	09/07/2016 00:37
Bromodichloromethane	ND	3.5	1	09/07/2016 00:37
Bromoform	ND	5.2	1	09/07/2016 00:37
Bromomethane	ND	2.0	1	09/07/2016 00:37
1,3-Butadiene	ND	1.1	1	09/07/2016 00:37
2-Butanone (MEK)	ND	75	1	09/07/2016 00:37
t-Butyl alcohol (TBA)	ND	31	1	09/07/2016 00:37
Carbon Disulfide	ND	1.6	1	09/07/2016 00:37
Carbon Tetrachloride	**11**	3.2	1	09/07/2016 00:37
Chlorobenzene	ND	2.4	1	09/07/2016 00:37
Chloroethane	ND	1.3	1	09/07/2016 00:37
Chloroform	ND	2.4	1	09/07/2016 00:37
Chloromethane	ND	1.0	1	09/07/2016 00:37
Cyclohexane	ND	18	1	09/07/2016 00:37
Dibromochloromethane	ND	4.4	1	09/07/2016 00:37
1,2-Dibromo-3-chloropropane	ND	0.12	1	09/07/2016 00:37
1,2-Dibromoethane (EDB)	ND	3.9	1	09/07/2016 00:37
1,2-Dichlorobenzene	ND	3.0	1	09/07/2016 00:37
1,3-Dichlorobenzene	**3.8**	3.0	1	09/07/2016 00:37
1,4-Dichlorobenzene	ND	3.0	1	09/07/2016 00:37
Dichlorodifluoromethane	**4.3**	2.5	1	09/07/2016 00:37
1,1-Dichloroethane	ND	2.0	1	09/07/2016 00:37
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	09/07/2016 00:37
1,1-Dichloroethene	ND	2.0	1	09/07/2016 00:37
cis-1,2-Dichloroethene	ND	2.0	1	09/07/2016 00:37
trans-1,2-Dichloroethene	ND	2.0	1	09/07/2016 00:37
1,2-Dichloropropane	ND	2.4	1	09/07/2016 00:37
cis-1,3-Dichloropropene	ND	2.3	1	09/07/2016 00:37

(Cont.)

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-17	1609137-001A	SoilGas	09/01/2016 12:09	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.72	29.37	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	2.3	1	09/07/2016 00:37
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	09/07/2016 00:37
Diisopropyl ether (DIPE)	ND	2.1	1	09/07/2016 00:37
1,4-Dioxane	ND	1.8	1	09/07/2016 00:37
Ethanol	**130**	96	1	09/07/2016 00:37
Ethyl acetate	ND	1.8	1	09/07/2016 00:37
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	09/07/2016 00:37
Ethylbenzene	ND	2.2	1	09/07/2016 00:37
4-Ethyltoluene	ND	2.5	1	09/07/2016 00:37
Freon 113	ND	3.9	1	09/07/2016 00:37
Heptane	ND	21	1	09/07/2016 00:37
Hexachlorobutadiene	ND	5.4	1	09/07/2016 00:37
Hexane	ND	18	1	09/07/2016 00:37
2-Hexanone	ND	2.1	1	09/07/2016 00:37
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	09/07/2016 00:37
Methyl-t-butyl ether (MTBE)	ND	1.8	1	09/07/2016 00:37
Methylene chloride	ND	8.8	1	09/07/2016 00:37
Methyl methacrylate	ND	2.1	1	09/07/2016 00:37
Naphthalene	ND	5.3	1	09/07/2016 00:37
Propene	ND	88	1	09/07/2016 00:37
Styrene	ND	2.2	1	09/07/2016 00:37
1,1,1,2-Tetrachloroethane	ND	3.5	1	09/07/2016 00:37
1,1,2,2-Tetrachloroethane	ND	3.5	1	09/07/2016 00:37
Tetrachloroethene	**4.1**	3.4	1	09/07/2016 00:37
Tetrahydrofuran	ND	3.0	1	09/07/2016 00:37
Toluene	**5.9**	1.9	1	09/07/2016 00:37
1,2,4-Trichlorobenzene	ND	3.8	1	09/07/2016 00:37
1,1,1-Trichloroethane	**5.3**	2.8	1	09/07/2016 00:37
1,1,2-Trichloroethane	ND	2.8	1	09/07/2016 00:37
Trichloroethene	ND	2.8	1	09/07/2016 00:37
Trichlorofluoromethane	ND	2.8	1	09/07/2016 00:37
1,2,4-Trimethylbenzene	ND	2.5	1	09/07/2016 00:37
1,3,5-Trimethylbenzene	ND	2.5	1	09/07/2016 00:37

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-17	1609137-001A	SoilGas	09/01/2016 12:09	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.72	29.37	AK

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	18	1	09/07/2016 00:37
Vinyl Chloride	ND	1.3	1	09/07/2016 00:37
Xylenes, Total	ND	6.6	1	09/07/2016 00:37
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	101	70-130		09/07/2016 00:37
Toluene-d8	94	70-130		09/07/2016 00:37
4-BFB	97	70-130		09/07/2016 00:37

(Cont.)

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Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-18	1609137-002A	SoilGas	09/01/2016 12:35	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.32	24.63	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	**86**	60	1	09/07/2016 01:23
Acrolein	ND	5.8	1	09/07/2016 01:23
Acrylonitrile	ND	1.1	1	09/07/2016 01:23
tert-Amyl methyl ether (TAME)	ND	2.1	1	09/07/2016 01:23
Benzene	ND	1.6	1	09/07/2016 01:23
Benzyl chloride	ND	2.6	1	09/07/2016 01:23
Bromodichloromethane	ND	3.5	1	09/07/2016 01:23
Bromoform	ND	5.2	1	09/07/2016 01:23
Bromomethane	ND	2.0	1	09/07/2016 01:23
1,3-Butadiene	ND	1.1	1	09/07/2016 01:23
2-Butanone (MEK)	ND	75	1	09/07/2016 01:23
t-Butyl alcohol (TBA)	ND	31	1	09/07/2016 01:23
Carbon Disulfide	ND	1.6	1	09/07/2016 01:23
Carbon Tetrachloride	**4.4**	3.2	1	09/07/2016 01:23
Chlorobenzene	ND	2.4	1	09/07/2016 01:23
Chloroethane	ND	1.3	1	09/07/2016 01:23
Chloroform	ND	2.4	1	09/07/2016 01:23
Chloromethane	ND	1.0	1	09/07/2016 01:23
Cyclohexane	ND	18	1	09/07/2016 01:23
Dibromochloromethane	ND	4.4	1	09/07/2016 01:23
1,2-Dibromo-3-chloropropane	ND	0.12	1	09/07/2016 01:23
1,2-Dibromoethane (EDB)	ND	3.9	1	09/07/2016 01:23
1,2-Dichlorobenzene	ND	3.0	1	09/07/2016 01:23
1,3-Dichlorobenzene	**5.3**	3.0	1	09/07/2016 01:23
1,4-Dichlorobenzene	ND	3.0	1	09/07/2016 01:23
Dichlorodifluoromethane	**4.5**	2.5	1	09/07/2016 01:23
1,1-Dichloroethane	ND	2.0	1	09/07/2016 01:23
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	09/07/2016 01:23
1,1-Dichloroethene	ND	2.0	1	09/07/2016 01:23
cis-1,2-Dichloroethene	ND	2.0	1	09/07/2016 01:23
trans-1,2-Dichloroethene	ND	2.0	1	09/07/2016 01:23
1,2-Dichloropropane	ND	2.4	1	09/07/2016 01:23
cis-1,3-Dichloropropene	ND	2.3	1	09/07/2016 01:23

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-18	1609137-002A	SoilGas	09/01/2016 12:35	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.32	24.63	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	2.3	1	09/07/2016 01:23
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	09/07/2016 01:23
Diisopropyl ether (DIPE)	ND	2.1	1	09/07/2016 01:23
1,4-Dioxane	ND	1.8	1	09/07/2016 01:23
Ethanol	**110**	96	1	09/07/2016 01:23
Ethyl acetate	ND	1.8	1	09/07/2016 01:23
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	09/07/2016 01:23
Ethylbenzene	ND	2.2	1	09/07/2016 01:23
4-Ethyltoluene	ND	2.5	1	09/07/2016 01:23
Freon 113	ND	3.9	1	09/07/2016 01:23
Heptane	ND	21	1	09/07/2016 01:23
Hexachlorobutadiene	ND	5.4	1	09/07/2016 01:23
Hexane	ND	18	1	09/07/2016 01:23
2-Hexanone	ND	2.1	1	09/07/2016 01:23
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	09/07/2016 01:23
Methyl-t-butyl ether (MTBE)	ND	1.8	1	09/07/2016 01:23
Methylene chloride	ND	8.8	1	09/07/2016 01:23
Methyl methacrylate	ND	2.1	1	09/07/2016 01:23
Naphthalene	ND	5.3	1	09/07/2016 01:23
Propene	ND	88	1	09/07/2016 01:23
Styrene	ND	2.2	1	09/07/2016 01:23
1,1,1,2-Tetrachloroethane	ND	3.5	1	09/07/2016 01:23
1,1,2,2-Tetrachloroethane	ND	3.5	1	09/07/2016 01:23
Tetrachloroethene	**3.6**	3.4	1	09/07/2016 01:23
Tetrahydrofuran	ND	3.0	1	09/07/2016 01:23
Toluene	**4.5**	1.9	1	09/07/2016 01:23
1,2,4-Trichlorobenzene	ND	3.8	1	09/07/2016 01:23
1,1,1-Trichloroethane	**12**	2.8	1	09/07/2016 01:23
1,1,2-Trichloroethane	ND	2.8	1	09/07/2016 01:23
Trichloroethene	ND	2.8	1	09/07/2016 01:23
Trichlorofluoromethane	**3.5**	2.8	1	09/07/2016 01:23
1,2,4-Trimethylbenzene	ND	2.5	1	09/07/2016 01:23
1,3,5-Trimethylbenzene	ND	2.5	1	09/07/2016 01:23

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-18	1609137-002A	SoilGas	09/01/2016 12:35	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.32	24.63	AK

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	18	1	09/07/2016 01:23
Vinyl Chloride	ND	1.3	1	09/07/2016 01:23
Xylenes, Total	ND	6.6	1	09/07/2016 01:23
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	100	70-130		09/07/2016 01:23
Toluene-d8	91	70-130		09/07/2016 01:23
4-BFB	99	70-130		09/07/2016 01:23

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-19	1609137-003A	SoilGas	09/01/2016 13:04	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.58	29.06	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	**160**	60	1	09/07/2016 02:08
Acrolein	ND	5.8	1	09/07/2016 02:08
Acrylonitrile	ND	1.1	1	09/07/2016 02:08
tert-Amyl methyl ether (TAME)	ND	2.1	1	09/07/2016 02:08
Benzene	ND	1.6	1	09/07/2016 02:08
Benzyl chloride	ND	2.6	1	09/07/2016 02:08
Bromodichloromethane	ND	3.5	1	09/07/2016 02:08
Bromoform	ND	5.2	1	09/07/2016 02:08
Bromomethane	ND	2.0	1	09/07/2016 02:08
1,3-Butadiene	ND	1.1	1	09/07/2016 02:08
2-Butanone (MEK)	ND	75	1	09/07/2016 02:08
t-Butyl alcohol (TBA)	ND	31	1	09/07/2016 02:08
Carbon Disulfide	ND	1.6	1	09/07/2016 02:08
Carbon Tetrachloride	**5.5**	3.2	1	09/07/2016 02:08
Chlorobenzene	ND	2.4	1	09/07/2016 02:08
Chloroethane	ND	1.3	1	09/07/2016 02:08
Chloroform	**6.8**	2.4	1	09/07/2016 02:08
Chloromethane	ND	1.0	1	09/07/2016 02:08
Cyclohexane	ND	18	1	09/07/2016 02:08
Dibromochloromethane	ND	4.4	1	09/07/2016 02:08
1,2-Dibromo-3-chloropropane	ND	0.12	1	09/07/2016 02:08
1,2-Dibromoethane (EDB)	ND	3.9	1	09/07/2016 02:08
1,2-Dichlorobenzene	ND	3.0	1	09/07/2016 02:08
1,3-Dichlorobenzene	**4.6**	3.0	1	09/07/2016 02:08
1,4-Dichlorobenzene	ND	3.0	1	09/07/2016 02:08
Dichlorodifluoromethane	**3.7**	2.5	1	09/07/2016 02:08
1,1-Dichloroethane	ND	2.0	1	09/07/2016 02:08
1,2-Dichloroethane (1,2-DCA)	**11**	2.0	1	09/07/2016 02:08
1,1-Dichloroethene	ND	2.0	1	09/07/2016 02:08
cis-1,2-Dichloroethene	ND	2.0	1	09/07/2016 02:08
trans-1,2-Dichloroethene	ND	2.0	1	09/07/2016 02:08
1,2-Dichloropropane	ND	2.4	1	09/07/2016 02:08
cis-1,3-Dichloropropene	ND	2.3	1	09/07/2016 02:08

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-19	1609137-003A	SoilGas	09/01/2016 13:04	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.58	29.06	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	2.3	1	09/07/2016 02:08
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	09/07/2016 02:08
Diisopropyl ether (DIPE)	ND	2.1	1	09/07/2016 02:08
1,4-Dioxane	**4.7**	1.8	1	09/07/2016 02:08
Ethanol	ND	96	1	09/07/2016 02:08
Ethyl acetate	ND	1.8	1	09/07/2016 02:08
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	09/07/2016 02:08
Ethylbenzene	ND	2.2	1	09/07/2016 02:08
4-Ethyltoluene	ND	2.5	1	09/07/2016 02:08
Freon 113	ND	3.9	1	09/07/2016 02:08
Heptane	ND	21	1	09/07/2016 02:08
Hexachlorobutadiene	ND	5.4	1	09/07/2016 02:08
Hexane	ND	18	1	09/07/2016 02:08
2-Hexanone	ND	2.1	1	09/07/2016 02:08
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	09/07/2016 02:08
Methyl-t-butyl ether (MTBE)	ND	1.8	1	09/07/2016 02:08
Methylene chloride	ND	8.8	1	09/07/2016 02:08
Methyl methacrylate	ND	2.1	1	09/07/2016 02:08
Naphthalene	ND	5.3	1	09/07/2016 02:08
Propene	ND	88	1	09/07/2016 02:08
Styrene	ND	2.2	1	09/07/2016 02:08
1,1,1,2-Tetrachloroethane	ND	3.5	1	09/07/2016 02:08
1,1,2,2-Tetrachloroethane	ND	3.5	1	09/07/2016 02:08
Tetrachloroethene	**13**	3.4	1	09/07/2016 02:08
Tetrahydrofuran	**4.0**	3.0	1	09/07/2016 02:08
Toluene	**3.1**	1.9	1	09/07/2016 02:08
1,2,4-Trichlorobenzene	ND	3.8	1	09/07/2016 02:08
1,1,1-Trichloroethane	**160**	2.8	1	09/07/2016 02:08
1,1,2-Trichloroethane	ND	2.8	1	09/07/2016 02:08
Trichloroethene	ND	2.8	1	09/07/2016 02:08
Trichlorofluoromethane	**19**	2.8	1	09/07/2016 02:08
1,2,4-Trimethylbenzene	ND	2.5	1	09/07/2016 02:08
1,3,5-Trimethylbenzene	ND	2.5	1	09/07/2016 02:08

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-19	1609137-003A	SoilGas	09/01/2016 13:04	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.58	29.06	AK

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	18	1	09/07/2016 02:08
Vinyl Chloride	ND	1.3	1	09/07/2016 02:08
Xylenes, Total	ND	6.6	1	09/07/2016 02:08
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	98	70-130		09/07/2016 02:08
Toluene-d8	91	70-130		09/07/2016 02:08
4-BFB	93	70-130		09/07/2016 02:08

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-20	1609137-004A	SoilGas	09/01/2016 13:28	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.19	24.35	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	**250**	120	2	09/06/2016 23:51
Acrolein	ND	12	2	09/06/2016 23:51
Acrylonitrile	ND	2.2	2	09/06/2016 23:51
tert-Amyl methyl ether (TAME)	ND	4.2	2	09/06/2016 23:51
Benzene	ND	3.2	2	09/06/2016 23:51
Benzyl chloride	ND	5.3	2	09/06/2016 23:51
Bromodichloromethane	ND	7.0	2	09/06/2016 23:51
Bromoform	ND	10	2	09/06/2016 23:51
Bromomethane	ND	3.9	2	09/06/2016 23:51
1,3-Butadiene	ND	2.2	2	09/06/2016 23:51
2-Butanone (MEK)	ND	150	2	09/06/2016 23:51
t-Butyl alcohol (TBA)	ND	62	2	09/06/2016 23:51
Carbon Disulfide	ND	3.2	2	09/06/2016 23:51
Carbon Tetrachloride	ND	6.4	2	09/06/2016 23:51
Chlorobenzene	ND	4.7	2	09/06/2016 23:51
Chloroethane	ND	2.7	2	09/06/2016 23:51
Chloroform	ND	4.9	2	09/06/2016 23:51
Chloromethane	ND	2.1	2	09/06/2016 23:51
Cyclohexane	ND	35	2	09/06/2016 23:51
Dibromochloromethane	ND	8.7	2	09/06/2016 23:51
1,2-Dibromo-3-chloropropane	ND	0.25	2	09/06/2016 23:51
1,2-Dibromoethane (EDB)	ND	7.8	2	09/06/2016 23:51
1,2-Dichlorobenzene	ND	6.1	2	09/06/2016 23:51
1,3-Dichlorobenzene	**7.7**	6.1	2	09/06/2016 23:51
1,4-Dichlorobenzene	ND	6.1	2	09/06/2016 23:51
Dichlorodifluoromethane	ND	5.0	2	09/06/2016 23:51
1,1-Dichloroethane	ND	4.1	2	09/06/2016 23:51
1,2-Dichloroethane (1,2-DCA)	ND	4.1	2	09/06/2016 23:51
1,1-Dichloroethene	ND	4.0	2	09/06/2016 23:51
cis-1,2-Dichloroethene	ND	4.0	2	09/06/2016 23:51
trans-1,2-Dichloroethene	ND	4.0	2	09/06/2016 23:51
1,2-Dichloropropane	ND	4.7	2	09/06/2016 23:51
cis-1,3-Dichloropropene	ND	4.6	2	09/06/2016 23:51

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-20	1609137-004A	SoilGas	09/01/2016 13:28	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.19	24.35	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	4.6	2	09/06/2016 23:51
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	7.1	2	09/06/2016 23:51
Diisopropyl ether (DIPE)	ND	4.2	2	09/06/2016 23:51
1,4-Dioxane	**13**	3.7	2	09/06/2016 23:51
Ethanol	ND	190	2	09/06/2016 23:51
Ethyl acetate	ND	3.7	2	09/06/2016 23:51
Ethyl tert-butyl ether (ETBE)	ND	4.2	2	09/06/2016 23:51
Ethylbenzene	ND	4.4	2	09/06/2016 23:51
4-Ethyltoluene	ND	5.0	2	09/06/2016 23:51
Freon 113	ND	7.8	2	09/06/2016 23:51
Heptane	ND	42	2	09/06/2016 23:51
Hexachlorobutadiene	ND	11	2	09/06/2016 23:51
Hexane	ND	36	2	09/06/2016 23:51
2-Hexanone	**4.7**	4.2	2	09/06/2016 23:51
4-Methyl-2-pentanone (MIBK)	ND	4.2	2	09/06/2016 23:51
Methyl-t-butyl ether (MTBE)	ND	3.7	2	09/06/2016 23:51
Methylene chloride	ND	18	2	09/06/2016 23:51
Methyl methacrylate	ND	4.2	2	09/06/2016 23:51
Naphthalene	**13**	11	2	09/06/2016 23:51
Propene	ND	180	2	09/06/2016 23:51
Styrene	ND	4.3	2	09/06/2016 23:51
1,1,1,2-Tetrachloroethane	ND	7.0	2	09/06/2016 23:51
1,1,2,2-Tetrachloroethane	ND	7.0	2	09/06/2016 23:51
Tetrachloroethene	**13**	6.9	2	09/06/2016 23:51
Tetrahydrofuran	ND	6.0	2	09/06/2016 23:51
Toluene	**6.4**	3.8	2	09/06/2016 23:51
1,2,4-Trichlorobenzene	ND	7.5	2	09/06/2016 23:51
1,1,1-Trichloroethane	**13**	5.5	2	09/06/2016 23:51
1,1,2-Trichloroethane	ND	5.5	2	09/06/2016 23:51
Trichloroethene	ND	5.5	2	09/06/2016 23:51
Trichlorofluoromethane	**13**	5.7	2	09/06/2016 23:51
1,2,4-Trimethylbenzene	ND	5.0	2	09/06/2016 23:51
1,3,5-Trimethylbenzene	ND	5.0	2	09/06/2016 23:51

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Received:	9/2/16 17:15	**Extraction Method:**	TO15
Date Prepared:	9/6/16-9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV-20	1609137-004A	SoilGas	09/01/2016 13:28	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.19	24.35	AK

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	36	2	09/06/2016 23:51
Vinyl Chloride	ND	2.6	2	09/06/2016 23:51
Xylenes, Total	ND	13	2	09/06/2016 23:51
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	100	70-130		09/06/2016 23:51
Toluene-d8	91	70-130		09/06/2016 23:51
4-BFB	99	70-130		09/06/2016 23:51

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Prepared:	9/6/16	**BatchID:**	126286
Date Analyzed:	9/6/16	**Extraction Method:**	TO15
Instrument:	GC29	**Analytical Method:**	TO15
Matrix:	SoilGas	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-126286

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	55.9	30	60	-	93	60-140
Acrolein	ND	58.0	2.9	58.25	-	100	60-140
Acrylonitrile	ND	55.9	0.55	55	-	102	60-140
tert-Amyl methyl ether (TAME)	ND	86.0	1.0	105	-	82	60-140
Benzene	ND	67.1	0.80	80	-	84	60-140
Benzyl chloride	ND	126	1.3	132.5	-	95	60-140
Bromodichloromethane	ND	128	1.8	175	-	73	60-140
Bromoform	ND	286	2.6	262.5	-	109	60-140
Bromomethane	ND	57.9	1.0	97.5	-	59, F2	60-140
1,3-Butadiene	ND	52.7	0.55	55	-	96	60-140
2-Butanone (MEK)	ND	75.6	38	75	-	101	60-140
t-Butyl alcohol (TBA)	ND	74.7	16	77.5	-	96	60-140
Carbon Disulfide	ND	79.2	0.80	80	-	99	60-140
Carbon Tetrachloride	ND	125	1.6	160	-	78	60-140
Chlorobenzene	ND	113	1.2	117.5	-	96	60-140
Chloroethane	ND	34.3	0.65	67.5	-	51, F2	60-140
Chloroform	ND	106	1.2	122.5	-	86	60-140
Chloromethane	ND	51.3	0.50	52.5	-	98	60-140
Cyclohexane	ND	80.0	9.0	87.5	-	91	60-140
Dibromochloromethane	ND	183	2.2	217.5	-	84	60-140
1,2-Dibromo-3-chloropropane	ND	241	0.060	245	-	98	60-140
1,2-Dibromoethane (EDB)	ND	153	2.0	195	-	79	60-140
1,2-Dichlorobenzene	ND	150	1.5	152.5	-	98	60-140
1,3-Dichlorobenzene	ND	148	1.5	152.5	-	97	60-140
1,4-Dichlorobenzene	ND	147	1.5	152.5	-	96	60-140
Dichlorodifluoromethane	ND	117	1.2	125	-	94	60-140
1,1-Dichloroethane	ND	93.7	1.0	102.5	-	91	60-140
1,2-Dichloroethane (1,2-DCA)	ND	86.2	1.0	102.5	-	84	60-140
1,1-Dichloroethene	ND	87.2	1.0	100	-	87	60-140
cis-1,2-Dichloroethene	ND	94.3	1.0	100	-	94	60-140
trans-1,2-Dichloroethene	ND	94.6	1.0	100	-	95	60-140
1,2-Dichloropropane	ND	89.4	1.2	117.5	-	76	60-140
cis-1,3-Dichloropropene	ND	93.2	1.2	115	-	81	60-140
trans-1,3-Dichloropropene	ND	93.5	1.2	115	-	81	60-140
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	173	1.8	177.5	-	97	60-140
Diisopropyl ether (DIPE)	ND	96.2	1.0	105	-	92	60-140
1,4-Dioxane	ND	79.7	0.90	92.5	-	86	60-140

(Cont.)

QA/QC Officer

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Prepared:	9/6/16	**BatchID:**	126286
Date Analyzed:	9/6/16	**Extraction Method:**	TO15
Instrument:	GC29	**Analytical Method:**	TO15
Matrix:	SoilGas	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-126286

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ethanol	ND	ND	48	47.5	-	48, F2	60-140
Ethyl acetate	ND	87.8	0.90	92.5	-	95	60-140
Ethyl tert-butyl ether (ETBE)	ND	95.2	1.0	105	-	91	60-140
Ethylbenzene	ND	105	1.1	110	-	96	60-140
4-Ethyltoluene	ND	125	1.2	125	-	100	60-140
Freon 113	ND	181	2.0	195	-	93	60-140
Heptane	ND	85.4	10	105	-	81	60-140
Hexachlorobutadiene	ND	297	2.7	270	-	110	60-140
Hexane	ND	84.4	9.0	90	-	94	60-140
2-Hexanone	ND	93.1	1.0	105	-	89	60-140
Isopropyl Alcohol	ND	61.4	25	62.5	-	98	60-140
4-Methyl-2-pentanone (MIBK)	ND	92.1	1.0	105	-	88	60-140
Methyl-t-butyl ether (MTBE)	ND	85.4	0.90	92.5	-	92	60-140
Methylene chloride	ND	80.0	4.4	87.5	-	91	60-140
Methyl methacrylate	ND	89.0	1.0	104	-	86	60-140
Naphthalene	ND	270	2.6	265	-	102	60-140
Propene	ND	ND	44	42.5	-	85	60-140
Styrene	ND	106	1.1	107.5	-	99	60-140
1,1,1,2-Tetrachloroethane	ND	162	1.8	175	-	93	60-140
1,1,2,2-Tetrachloroethane	ND	164	1.8	175	-	94	60-140
Tetrachloroethene	ND	149	1.7	172	-	87	60-140
Tetrahydrofuran	ND	72.3	1.5	75	-	96	60-140
Toluene	ND	76.9	0.95	95	-	81	60-140
1,2,4-Trichlorobenzene	ND	216	1.9	187.5	-	115	60-140
1,1,1-Trichloroethane	ND	110	1.4	137.5	-	80	60-140
1,1,2-Trichloroethane	ND	109	1.4	137.5	-	79	60-140
Trichloroethene	ND	109	1.4	137.5	-	79	60-140
Trichlorofluoromethane	ND	134	1.4	142.5	-	94	60-140
1,2,4-Trimethylbenzene	ND	124	1.2	125	-	99	60-140
1,3,5-Trimethylbenzene	ND	130	1.2	125	-	104	60-140
Vinyl Acetate	ND	80.7	9.0	90	-	90	60-140
Vinyl Chloride	ND	60.9	0.65	65	-	94	60-140
Xylenes, Total	ND	317	3.3	330	-	96	60-140

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609137
Date Prepared:	9/6/16	**BatchID:**	126286
Date Analyzed:	9/6/16	**Extraction Method:**	TO15
Instrument:	GC29	**Analytical Method:**	TO15
Matrix:	SoilGas	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-126286

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
1,2-DCA-d4	486	488		500	97	98	70-130
Toluene-d8	462	429		500	92	86	70-130
4-BFB	482	489		500	96	98	70-130

QA/QC Officer

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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609137 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Ron Scheele
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612
(510) 836-3700 FAX: (510) 836-3709

Email: Rscheele@pangeaenv.com
cc/3rd Party: jwilson@pangeaenv.com;
PO:
ProjectNo: 1919 Market

Bill to:
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Requested TAT: 5 days;

Date Received: **09/02/2016**
Date Logged: **09/02/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1609137-001	SV-17	SoilGas	9/1/2016 12:09	☐	A	A	A	A								
1609137-002	SV-18	SoilGas	9/1/2016 12:35	☐	A	A	A	A								
1609137-003	SV-19	SoilGas	9/1/2016 13:04	☐	A	A	A	A								
1609137-004	SV-20	SoilGas	9/1/2016 13:28	☐	A	A	A	A								

Test Legend:

1	TO15_Scan-SIM_SOIL(UG/M3)	2	TO15-8260_SOIL(UG/M3)	3	TO15-LC_SOIL(UG/M3)	4	TO15-LC8260_SOIL(UG/M3)
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A, 004A contain testgroup TO15_SG(UG/M3).

Comments:

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

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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1609137
Project: 1919 Market **Client Contact:** Ron Scheele **Date Logged:** 9/2/2016
Comments: **Contact's Email:** Rscheele@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609137-001A	SV-17	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/1/2016 12:09	5 days		☐	
1609137-002A	SV-18	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/1/2016 12:35	5 days		☐	
1609137-003A	SV-19	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/1/2016 13:04	5 days		☐	
1609137-004A	SV-20	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/1/2016 13:28	5 days		☐	

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).

- 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.

Summa COC

MAI Work Order # 1609137

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush | 2 Day Rush | 3 Day Rush | STD ● | Quote #
J-Flag / MDL | ESL | Cleanup Approved | Bottle Order #
Delivery Format: GeoTracker EDF | PDF ● | EDD | Write On (DW) | EQuIS

Report To: **Ron Scheele, Jake Wilson** Bill To: **Jake Wilson**
Company: **Pangea Environmental**
Email: **RScheele@pangeaenv.com**
Email: **JWilson@pangeaenv.com** Tele: **415-259-8860**
Project Name/#: **1919 Market**
Project Location: **1919 Market Ave., Oakland** PO #
Sampler Signature:

Helium Shroud SN#

Leak Check Default is IPA

Notes: Please specify units if different than default: VOCs is reported in µg/m³, fixed is reported in %.

SAMPLE ID Location / Field Point	Sampling Start Date	Sampling Start Time	End Time	Canister SN#	Sample Kit / Manifold #	VOCs TO-15 (µg/m³) - See Notes	8010 by TO-15 (µg/m³)	TPH(g) (µg/m³)	LEED: (inc. 4PCH, Formaldehyde, CO, Total VOCs)	Fixed Gas (CO_2, Methane, Ethane, Ethylene, Acetylene,Propane, CO) %	Fixed Gas: (O_2, N_2) %	APH: Aliphatic and/or Aromatic (circle one) µg/m³	Helium Leak Check %	Leak Check (IPA, Norflurane, 1,1-difluroethane) µg/m³			Matrix: Soilgas	Matrix: Indoor Air	Matrix:	Canister Pressure / Vacuum: Initial	Canister Pressure / Vacuum: Final
SV-17	9/1/16	1159	1209	CAN0877-2505	MAN316-1348	●											●			-29	-5
SV-18	9/1/16	1225	1235	6202-743	MAN316-1334	●											●			-30	-5
SV-19	9/1/16	1255	1304	A7521-869	MAN316-1343	●											●			-27	-5
SV-20	9/1/16	1318	1328	CAN0898-2526	MAN316-1320	●											●			-28	-5

Analysis Requested

**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
Jake Wilson / Pangea	9/1/16	0905		9-2-16	1430	leak check compound used was IPA
	9-2-16	1715		9/2/16	1715	

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**9/2/2016 17:15**
Project Name:	**1919 Market**	Date Logged:	**9/2/2016**
WorkOrder №:	**1609137** Matrix: SoilGas	Received by:	Jena Alfaro
Carrier:	Bernie Cummins (MAI Courier)	Logged by:	Jena Alfaro

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	☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	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	☐	
Sample/Temp Blank temperature	Temp:				NA ☑
Water - VOA vials have zero headspace / no bubbles?	Yes	☐	No	☐	NA ☑
Sample labels checked for correct preservation?	Yes	☑	No	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes	☐	No	☐	NA ☑
Samples Received on Ice?	Yes	☐	No	☑	

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes	☐	No	☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes	☐	No	☐	NA ☑

Comments:

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609187

Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Ron Scheele
Project P.O.:
Project Name: 1919 Market

Project Received: 09/06/2016

Analytical Report reviewed & approved for release on 09/12/2016 by:

Angela Rydelius,
Laboratory Manager

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. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 1919 Market
WorkOrder: 1609187

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.

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Case Narrative

Client: Pangea Environmental Svcs., Inc. **Work Order:** 1609187
Project: 1919 Market September 09, 2016

TO-15 ANALYSIS

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

In an effort to attain the lowest reporting limits possible for the majority of the TO-15 target list, high level compounds may be analyzed using EPA Method 8260B.

Polymer (Tedlar) bags are not recommended for TO15 samples. The disadvantages are listed in Appendix B of the DTSC Active Soil Gas Advisory of July 2015.

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Leak Check Compound

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-1	1609187-001A	SoilGas	09/06/2016 11:03	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.31	24.56	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	ND	50	1	09/07/2016 09:18

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-2	1609187-002A	SoilGas	09/06/2016 11:42	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.18	24.28	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	ND	50	1	09/07/2016 10:03

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-3	1609187-003A	SoilGas	09/06/2016 12:05	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.14	24.20	AK

Analytes	Result	RL	DF	Date Analyzed
Isopropyl Alcohol	ND	50	1	09/07/2016 10:49

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-1	1609187-001A	SoilGas	09/06/2016 11:03	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.31	24.56	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	60	1	09/07/2016 09:18
Acrolein	ND	5.8	1	09/07/2016 09:18
Acrylonitrile	ND	1.1	1	09/07/2016 09:18
tert-Amyl methyl ether (TAME)	ND	2.1	1	09/07/2016 09:18
Benzene	**31**	1.6	1	09/07/2016 09:18
Benzyl chloride	ND	2.6	1	09/07/2016 09:18
Bromodichloromethane	ND	3.5	1	09/07/2016 09:18
Bromoform	ND	5.2	1	09/07/2016 09:18
Bromomethane	ND	2.0	1	09/07/2016 09:18
1,3-Butadiene	ND	1.1	1	09/07/2016 09:18
2-Butanone (MEK)	ND	75	1	09/07/2016 09:18
t-Butyl alcohol (TBA)	ND	31	1	09/07/2016 09:18
Carbon Disulfide	**93**	1.6	1	09/07/2016 09:18
Carbon Tetrachloride	ND	3.2	1	09/07/2016 09:18
Chlorobenzene	ND	2.4	1	09/07/2016 09:18
Chloroethane	ND	1.3	1	09/07/2016 09:18
Chloroform	**4.0**	2.4	1	09/07/2016 09:18
Chloromethane	ND	1.0	1	09/07/2016 09:18
Cyclohexane	**33**	18	1	09/07/2016 09:18
Dibromochloromethane	ND	4.4	1	09/07/2016 09:18
1,2-Dibromo-3-chloropropane	ND	0.12	1	09/07/2016 09:18
1,2-Dibromoethane (EDB)	ND	3.9	1	09/07/2016 09:18
1,2-Dichlorobenzene	ND	3.0	1	09/07/2016 09:18
1,3-Dichlorobenzene	ND	3.0	1	09/07/2016 09:18
1,4-Dichlorobenzene	ND	3.0	1	09/07/2016 09:18
Dichlorodifluoromethane	**4.2**	2.5	1	09/07/2016 09:18
1,1-Dichloroethane	ND	2.0	1	09/07/2016 09:18
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	09/07/2016 09:18
1,1-Dichloroethene	ND	2.0	1	09/07/2016 09:18
cis-1,2-Dichloroethene	ND	2.0	1	09/07/2016 09:18
trans-1,2-Dichloroethene	ND	2.0	1	09/07/2016 09:18
1,2-Dichloropropane	ND	2.4	1	09/07/2016 09:18
cis-1,3-Dichloropropene	ND	2.3	1	09/07/2016 09:18

(Cont.)

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-1	1609187-001A	SoilGas	09/06/2016 11:03	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.31	24.56	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	2.3	1	09/07/2016 09:18
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	09/07/2016 09:18
Diisopropyl ether (DIPE)	ND	2.1	1	09/07/2016 09:18
1,4-Dioxane	ND	1.8	1	09/07/2016 09:18
Ethanol	ND	96	1	09/07/2016 09:18
Ethyl acetate	ND	1.8	1	09/07/2016 09:18
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	09/07/2016 09:18
Ethylbenzene	**2.6**	2.2	1	09/07/2016 09:18
4-Ethyltoluene	ND	2.5	1	09/07/2016 09:18
Freon 113	ND	3.9	1	09/07/2016 09:18
Heptane	ND	21	1	09/07/2016 09:18
Hexachlorobutadiene	ND	5.4	1	09/07/2016 09:18
Hexane	**35**	18	1	09/07/2016 09:18
2-Hexanone	**2.7**	2.1	1	09/07/2016 09:18
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	09/07/2016 09:18
Methyl-t-butyl ether (MTBE)	ND	1.8	1	09/07/2016 09:18
Methylene chloride	ND	8.8	1	09/07/2016 09:18
Methyl methacrylate	ND	2.1	1	09/07/2016 09:18
Naphthalene	ND	5.3	1	09/07/2016 09:18
Propene	ND	88	1	09/07/2016 09:18
Styrene	ND	2.2	1	09/07/2016 09:18
1,1,1,2-Tetrachloroethane	ND	3.5	1	09/07/2016 09:18
1,1,2,2-Tetrachloroethane	ND	3.5	1	09/07/2016 09:18
Tetrachloroethene	**55**	3.4	1	09/07/2016 09:18
Tetrahydrofuran	ND	3.0	1	09/07/2016 09:18
Toluene	**24**	1.9	1	09/07/2016 09:18
1,2,4-Trichlorobenzene	ND	3.8	1	09/07/2016 09:18
1,1,1-Trichloroethane	ND	2.8	1	09/07/2016 09:18
1,1,2-Trichloroethane	ND	2.8	1	09/07/2016 09:18
Trichloroethene	ND	2.8	1	09/07/2016 09:18
Trichlorofluoromethane	**23**	2.8	1	09/07/2016 09:18
1,2,4-Trimethylbenzene	ND	2.5	1	09/07/2016 09:18
1,3,5-Trimethylbenzene	ND	2.5	1	09/07/2016 09:18

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-1	**1609187-001A**	**SoilGas**	**09/06/2016 11:03**	**GC29**	**126286**

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.31	**24.56**	**AK**

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	18	1	09/07/2016 09:18
Vinyl Chloride	ND	1.3	1	09/07/2016 09:18
Xylenes, Total	**14**	6.6	1	09/07/2016 09:18
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	102	70-130		09/07/2016 09:18
Toluene-d8	92	70-130		09/07/2016 09:18
4-BFB	100	70-130		09/07/2016 09:18

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-2	1609187-002A	SoilGas	09/06/2016 11:42	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.18	24.28	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	60	1	09/07/2016 10:03
Acrolein	ND	5.8	1	09/07/2016 10:03
Acrylonitrile	ND	1.1	1	09/07/2016 10:03
tert-Amyl methyl ether (TAME)	ND	2.1	1	09/07/2016 10:03
Benzene	**71**	1.6	1	09/07/2016 10:03
Benzyl chloride	ND	2.6	1	09/07/2016 10:03
Bromodichloromethane	ND	3.5	1	09/07/2016 10:03
Bromoform	ND	5.2	1	09/07/2016 10:03
Bromomethane	ND	2.0	1	09/07/2016 10:03
1,3-Butadiene	ND	1.1	1	09/07/2016 10:03
2-Butanone (MEK)	ND	75	1	09/07/2016 10:03
t-Butyl alcohol (TBA)	ND	31	1	09/07/2016 10:03
Carbon Disulfide	**370**	1.6	1	09/07/2016 10:03
Carbon Tetrachloride	ND	3.2	1	09/07/2016 10:03
Chlorobenzene	ND	2.4	1	09/07/2016 10:03
Chloroethane	ND	1.3	1	09/07/2016 10:03
Chloroform	**15**	2.4	1	09/07/2016 10:03
Chloromethane	ND	1.0	1	09/07/2016 10:03
Cyclohexane	**71**	18	1	09/07/2016 10:03
Dibromochloromethane	ND	4.4	1	09/07/2016 10:03
1,2-Dibromo-3-chloropropane	ND	0.12	1	09/07/2016 10:03
1,2-Dibromoethane (EDB)	ND	3.9	1	09/07/2016 10:03
1,2-Dichlorobenzene	ND	3.0	1	09/07/2016 10:03
1,3-Dichlorobenzene	ND	3.0	1	09/07/2016 10:03
1,4-Dichlorobenzene	ND	3.0	1	09/07/2016 10:03
Dichlorodifluoromethane	**4.0**	2.5	1	09/07/2016 10:03
1,1-Dichloroethane	ND	2.0	1	09/07/2016 10:03
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	09/07/2016 10:03
1,1-Dichloroethene	ND	2.0	1	09/07/2016 10:03
cis-1,2-Dichloroethene	ND	2.0	1	09/07/2016 10:03
trans-1,2-Dichloroethene	ND	2.0	1	09/07/2016 10:03
1,2-Dichloropropane	ND	2.4	1	09/07/2016 10:03
cis-1,3-Dichloropropene	ND	2.3	1	09/07/2016 10:03

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-2	1609187-002A	SoilGas	09/06/2016 11:42	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.18	24.28	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	2.3	1	09/07/2016 10:03
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	09/07/2016 10:03
Diisopropyl ether (DIPE)	ND	2.1	1	09/07/2016 10:03
1,4-Dioxane	ND	1.8	1	09/07/2016 10:03
Ethanol	ND	96	1	09/07/2016 10:03
Ethyl acetate	**3.6**	1.8	1	09/07/2016 10:03
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	09/07/2016 10:03
Ethylbenzene	**17**	2.2	1	09/07/2016 10:03
4-Ethyltoluene	**4.5**	2.5	1	09/07/2016 10:03
Freon 113	ND	3.9	1	09/07/2016 10:03
Heptane	**52**	21	1	09/07/2016 10:03
Hexachlorobutadiene	ND	5.4	1	09/07/2016 10:03
Hexane	**70**	18	1	09/07/2016 10:03
2-Hexanone	ND	2.1	1	09/07/2016 10:03
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	09/07/2016 10:03
Methyl-t-butyl ether (MTBE)	ND	1.8	1	09/07/2016 10:03
Methylene chloride	ND	8.8	1	09/07/2016 10:03
Methyl methacrylate	ND	2.1	1	09/07/2016 10:03
Naphthalene	ND	5.3	1	09/07/2016 10:03
Propene	ND	88	1	09/07/2016 10:03
Styrene	ND	2.2	1	09/07/2016 10:03
1,1,1,2-Tetrachloroethane	ND	3.5	1	09/07/2016 10:03
1,1,2,2-Tetrachloroethane	ND	3.5	1	09/07/2016 10:03
Tetrachloroethene	**10**	3.4	1	09/07/2016 10:03
Tetrahydrofuran	ND	3.0	1	09/07/2016 10:03
Toluene	**120**	1.9	1	09/07/2016 10:03
1,2,4-Trichlorobenzene	ND	3.8	1	09/07/2016 10:03
1,1,1-Trichloroethane	ND	2.8	1	09/07/2016 10:03
1,1,2-Trichloroethane	ND	2.8	1	09/07/2016 10:03
Trichloroethene	ND	2.8	1	09/07/2016 10:03
Trichlorofluoromethane	**9.5**	2.8	1	09/07/2016 10:03
1,2,4-Trimethylbenzene	**12**	2.5	1	09/07/2016 10:03
1,3,5-Trimethylbenzene	**4.8**	2.5	1	09/07/2016 10:03

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-2	**1609187-002A**	**SoilGas**	**09/06/2016 11:42**	**GC29**	**126286**

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.18	**24.28**	**AK**

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	18	1	09/07/2016 10:03
Vinyl Chloride	ND	1.3	1	09/07/2016 10:03
Xylenes, Total	**80**	6.6	1	09/07/2016 10:03
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	99	70-130		09/07/2016 10:03
Toluene-d8	93	70-130		09/07/2016 10:03
4-BFB	97	70-130		09/07/2016 10:03

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-3	1609187-003A	SoilGas	09/06/2016 12:05	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.14	24.20	AK

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	60	1	09/07/2016 10:49
Acrolein	ND	5.8	1	09/07/2016 10:49
Acrylonitrile	ND	1.1	1	09/07/2016 10:49
tert-Amyl methyl ether (TAME)	ND	2.1	1	09/07/2016 10:49
Benzene	**13**	1.6	1	09/07/2016 10:49
Benzyl chloride	ND	2.6	1	09/07/2016 10:49
Bromodichloromethane	ND	3.5	1	09/07/2016 10:49
Bromoform	ND	5.2	1	09/07/2016 10:49
Bromomethane	ND	2.0	1	09/07/2016 10:49
1,3-Butadiene	ND	1.1	1	09/07/2016 10:49
2-Butanone (MEK)	ND	75	1	09/07/2016 10:49
t-Butyl alcohol (TBA)	ND	31	1	09/07/2016 10:49
Carbon Disulfide	**40**	1.6	1	09/07/2016 10:49
Carbon Tetrachloride	ND	3.2	1	09/07/2016 10:49
Chlorobenzene	ND	2.4	1	09/07/2016 10:49
Chloroethane	ND	1.3	1	09/07/2016 10:49
Chloroform	ND	2.4	1	09/07/2016 10:49
Chloromethane	ND	1.0	1	09/07/2016 10:49
Cyclohexane	ND	18	1	09/07/2016 10:49
Dibromochloromethane	ND	4.4	1	09/07/2016 10:49
1,2-Dibromo-3-chloropropane	ND	0.12	1	09/07/2016 10:49
1,2-Dibromoethane (EDB)	ND	3.9	1	09/07/2016 10:49
1,2-Dichlorobenzene	ND	3.0	1	09/07/2016 10:49
1,3-Dichlorobenzene	ND	3.0	1	09/07/2016 10:49
1,4-Dichlorobenzene	ND	3.0	1	09/07/2016 10:49
Dichlorodifluoromethane	**3.6**	2.5	1	09/07/2016 10:49
1,1-Dichloroethane	ND	2.0	1	09/07/2016 10:49
1,2-Dichloroethane (1,2-DCA)	ND	2.0	1	09/07/2016 10:49
1,1-Dichloroethene	ND	2.0	1	09/07/2016 10:49
cis-1,2-Dichloroethene	ND	2.0	1	09/07/2016 10:49
trans-1,2-Dichloroethene	ND	2.0	1	09/07/2016 10:49
1,2-Dichloropropane	ND	2.4	1	09/07/2016 10:49
cis-1,3-Dichloropropene	ND	2.3	1	09/07/2016 10:49

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-3	1609187-003A	SoilGas	09/06/2016 12:05	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.14	24.20	AK

Analytes	Result	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	2.3	1	09/07/2016 10:49
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	3.6	1	09/07/2016 10:49
Diisopropyl ether (DIPE)	ND	2.1	1	09/07/2016 10:49
1,4-Dioxane	ND	1.8	1	09/07/2016 10:49
Ethanol	ND	96	1	09/07/2016 10:49
Ethyl acetate	ND	1.8	1	09/07/2016 10:49
Ethyl tert-butyl ether (ETBE)	ND	2.1	1	09/07/2016 10:49
Ethylbenzene	**8.3**	2.2	1	09/07/2016 10:49
4-Ethyltoluene	ND	2.5	1	09/07/2016 10:49
Freon 113	ND	3.9	1	09/07/2016 10:49
Heptane	ND	21	1	09/07/2016 10:49
Hexachlorobutadiene	ND	5.4	1	09/07/2016 10:49
Hexane	ND	18	1	09/07/2016 10:49
2-Hexanone	**2.9**	2.1	1	09/07/2016 10:49
4-Methyl-2-pentanone (MIBK)	ND	2.1	1	09/07/2016 10:49
Methyl-t-butyl ether (MTBE)	ND	1.8	1	09/07/2016 10:49
Methylene chloride	ND	8.8	1	09/07/2016 10:49
Methyl methacrylate	ND	2.1	1	09/07/2016 10:49
Naphthalene	ND	5.3	1	09/07/2016 10:49
Propene	ND	88	1	09/07/2016 10:49
Styrene	ND	2.2	1	09/07/2016 10:49
1,1,1,2-Tetrachloroethane	ND	3.5	1	09/07/2016 10:49
1,1,2,2-Tetrachloroethane	ND	3.5	1	09/07/2016 10:49
Tetrachloroethene	**13**	3.4	1	09/07/2016 10:49
Tetrahydrofuran	ND	3.0	1	09/07/2016 10:49
Toluene	**38**	1.9	1	09/07/2016 10:49
1,2,4-Trichlorobenzene	ND	3.8	1	09/07/2016 10:49
1,1,1-Trichloroethane	**3.4**	2.8	1	09/07/2016 10:49
1,1,2-Trichloroethane	ND	2.8	1	09/07/2016 10:49
Trichloroethene	ND	2.8	1	09/07/2016 10:49
Trichlorofluoromethane	**7.9**	2.8	1	09/07/2016 10:49
1,2,4-Trimethylbenzene	**7.1**	2.5	1	09/07/2016 10:49
1,3,5-Trimethylbenzene	**3.1**	2.5	1	09/07/2016 10:49

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Received:	9/6/16 14:40	**Extraction Method:**	TO15
Date Prepared:	9/7/16	**Analytical Method:**	TO15
Project:	1919 Market	**Unit:**	µg/m³

Volatile Organic Compounds

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-3	1609187-003A	SoilGas	09/06/2016 12:05	GC29	126286

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.14	24.20	AK

Analytes	Result	RL	DF	Date Analyzed
Vinyl Acetate	ND	18	1	09/07/2016 10:49
Vinyl Chloride	ND	1.3	1	09/07/2016 10:49
Xylenes, Total	**53**	6.6	1	09/07/2016 10:49
Surrogates	**REC (%)**	**Limits**		
1,2-DCA-d4	97	70-130		09/07/2016 10:49
Toluene-d8	93	70-130		09/07/2016 10:49
4-BFB	97	70-130		09/07/2016 10:49

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Prepared:	9/6/16	**BatchID:**	126286
Date Analyzed:	9/6/16	**Extraction Method:**	TO15
Instrument:	GC29	**Analytical Method:**	TO15
Matrix:	SoilGas	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-126286

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	55.9	30	60	-	93	60-140
Acrolein	ND	58.0	2.9	58.25	-	100	60-140
Acrylonitrile	ND	55.9	0.55	55	-	102	60-140
tert-Amyl methyl ether (TAME)	ND	86.0	1.0	105	-	82	60-140
Benzene	ND	67.1	0.80	80	-	84	60-140
Benzyl chloride	ND	126	1.3	132.5	-	95	60-140
Bromodichloromethane	ND	128	1.8	175	-	73	60-140
Bromoform	ND	286	2.6	262.5	-	109	60-140
Bromomethane	ND	57.9	1.0	97.5	-	59, F2	60-140
1,3-Butadiene	ND	52.7	0.55	55	-	96	60-140
2-Butanone (MEK)	ND	75.6	38	75	-	101	60-140
t-Butyl alcohol (TBA)	ND	74.7	16	77.5	-	96	60-140
Carbon Disulfide	ND	79.2	0.80	80	-	99	60-140
Carbon Tetrachloride	ND	125	1.6	160	-	78	60-140
Chlorobenzene	ND	113	1.2	117.5	-	96	60-140
Chloroethane	ND	34.3	0.65	67.5	-	51, F2	60-140
Chloroform	ND	106	1.2	122.5	-	86	60-140
Chloromethane	ND	51.3	0.50	52.5	-	98	60-140
Cyclohexane	ND	80.0	9.0	87.5	-	91	60-140
Dibromochloromethane	ND	183	2.2	217.5	-	84	60-140
1,2-Dibromo-3-chloropropane	ND	241	0.060	245	-	98	60-140
1,2-Dibromoethane (EDB)	ND	153	2.0	195	-	79	60-140
1,2-Dichlorobenzene	ND	150	1.5	152.5	-	98	60-140
1,3-Dichlorobenzene	ND	148	1.5	152.5	-	97	60-140
1,4-Dichlorobenzene	ND	147	1.5	152.5	-	96	60-140
Dichlorodifluoromethane	ND	117	1.2	125	-	94	60-140
1,1-Dichloroethane	ND	93.7	1.0	102.5	-	91	60-140
1,2-Dichloroethane (1,2-DCA)	ND	86.2	1.0	102.5	-	84	60-140
1,1-Dichloroethene	ND	87.2	1.0	100	-	87	60-140
cis-1,2-Dichloroethene	ND	94.3	1.0	100	-	94	60-140
trans-1,2-Dichloroethene	ND	94.6	1.0	100	-	95	60-140
1,2-Dichloropropane	ND	89.4	1.2	117.5	-	76	60-140
cis-1,3-Dichloropropene	ND	93.2	1.2	115	-	81	60-140
trans-1,3-Dichloropropene	ND	93.5	1.2	115	-	81	60-140
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	173	1.8	177.5	-	97	60-140
Diisopropyl ether (DIPE)	ND	96.2	1.0	105	-	92	60-140
1,4-Dioxane	ND	79.7	0.90	92.5	-	86	60-140

(Cont.)

QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Prepared:	9/6/16	**BatchID:**	126286
Date Analyzed:	9/6/16	**Extraction Method:**	TO15
Instrument:	GC29	**Analytical Method:**	TO15
Matrix:	SoilGas	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-126286

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ethanol	ND	ND	48	47.5	-	48, F2	60-140
Ethyl acetate	ND	87.8	0.90	92.5	-	95	60-140
Ethyl tert-butyl ether (ETBE)	ND	95.2	1.0	105	-	91	60-140
Ethylbenzene	ND	105	1.1	110	-	96	60-140
4-Ethyltoluene	ND	125	1.2	125	-	100	60-140
Freon 113	ND	181	2.0	195	-	93	60-140
Heptane	ND	85.4	10	105	-	81	60-140
Hexachlorobutadiene	ND	297	2.7	270	-	110	60-140
Hexane	ND	84.4	9.0	90	-	94	60-140
2-Hexanone	ND	93.1	1.0	105	-	89	60-140
Isopropyl Alcohol	ND	61.4	25	62.5	-	98	60-140
4-Methyl-2-pentanone (MIBK)	ND	92.1	1.0	105	-	88	60-140
Methyl-t-butyl ether (MTBE)	ND	85.4	0.90	92.5	-	92	60-140
Methylene chloride	ND	80.0	4.4	87.5	-	91	60-140
Methyl methacrylate	ND	89.0	1.0	104	-	86	60-140
Naphthalene	ND	270	2.6	265	-	102	60-140
Propene	ND	ND	44	42.5	-	85	60-140
Styrene	ND	106	1.1	107.5	-	99	60-140
1,1,1,2-Tetrachloroethane	ND	162	1.8	175	-	93	60-140
1,1,2,2-Tetrachloroethane	ND	164	1.8	175	-	94	60-140
Tetrachloroethene	ND	149	1.7	172	-	87	60-140
Tetrahydrofuran	ND	72.3	1.5	75	-	96	60-140
Toluene	ND	76.9	0.95	95	-	81	60-140
1,2,4-Trichlorobenzene	ND	216	1.9	187.5	-	115	60-140
1,1,1-Trichloroethane	ND	110	1.4	137.5	-	80	60-140
1,1,2-Trichloroethane	ND	109	1.4	137.5	-	79	60-140
Trichloroethene	ND	109	1.4	137.5	-	79	60-140
Trichlorofluoromethane	ND	134	1.4	142.5	-	94	60-140
1,2,4-Trimethylbenzene	ND	124	1.2	125	-	99	60-140
1,3,5-Trimethylbenzene	ND	130	1.2	125	-	104	60-140
Vinyl Acetate	ND	80.7	9.0	90	-	90	60-140
Vinyl Chloride	ND	60.9	0.65	65	-	94	60-140
Xylenes, Total	ND	317	3.3	330	-	96	60-140

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1609187
Date Prepared:	9/6/16	**BatchID:**	126286
Date Analyzed:	9/6/16	**Extraction Method:**	TO15
Instrument:	GC29	**Analytical Method:**	TO15
Matrix:	SoilGas	**Unit:**	µg/m³
Project:	1919 Market	**Sample ID:**	MB/LCS-126286

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
1,2-DCA-d4	486	488		500	97	98	70-130
Toluene-d8	462	429		500	92	86	70-130
4-BFB	482	489		500	96	98	70-130

QA/QC Officer

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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609187 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Ron Scheele
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612
(510) 836-3700 FAX: (510) 836-3709

Email: Rscheele@pangeaenv.com
cc/3rd Party:
PO:
ProjectNo: 1919 Market

Bill to:
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Requested TAT: 5 days;

Date Received: **09/06/2016**
Date Logged: **09/06/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1609187-001	SG-1	SoilGas	9/6/2016 11:03	☐		A	A	A	A							
1609187-002	SG-2	SoilGas	9/6/2016 11:42	☐		A	A	A	A							
1609187-003	SG-3	SoilGas	9/6/2016 12:05	☐		A	A	A	A							
1609187-004	Unused Summa	SoilGas	<Not Provided>	☐	A					A						

Test Legend:

1	PRUNUSEDSUMMA	2	TO15_Scan-SIM_SOIL(UG/M3)	3	TO15-8260_SOIL(UG/M3)	4	TO15-LC_SOIL(UG/M3)
5	TO15-LC8260_SOIL(UG/M3)	6	UNUSED_SUMMA	7		8	
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A contain testgroup TO15_SG(UG/M3).

Comments:

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

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WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC. **QC Level:** LEVEL 2 **Work Order:** 1609187
Project: 1919 Market **Client Contact:** Ron Scheele **Date Logged:** 9/6/2016
Comments: **Contact's Email:** Rscheele@pangeaenv.com

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609187-001A	SG-1	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/6/2016 11:03	5 days		☐	
1609187-002A	SG-2	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/6/2016 11:42	5 days		☐	
1609187-003A	SG-3	SoilGas	TO15 for Soil Vapor (Scan-SIM)	1	1L Summa	☐	9/6/2016 12:05	5 days		☐	
1609187-004A	Unused Summa	SoilGas	Unused Summa	1	1L Summa	☐	<Not Provided>	5 days		☐	

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).

- 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.

Summa COC

MAI Work Order # 160987

McCAMPBELL ANALYTICAL, INC.

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush | 2 Day Rush | 3 Day Rush | STD X | Quote #

J-Flag / MDL | ESL | Cleanup Approved | Bottle Order #

Delivery Format: GeoTracker EDF | PDF | EDD | Write On (DW) | EQuIS

Report To: Ron Scheele Bill To: Pangea

Company: Pangea Env. Svs.

Email: rscheele@pangeaenv.com

Email: Jwilson@pangeaenv.com Tele: 510-836-3700

Project Name/#: 1919 Market

Project Location: 1919 Market St, Oakland PO #

Sampler Signature:

Analysis Requested

Helium Shroud SN#

Leak Check Default is IPA

Notes: Please specify units if different than default: VOCs is reported in $\mu g/m^3$, fixed is reported in %.

SAMPLE ID Location / Field Point	Sampling Start Date	Sampling Start Time	End Time	Canister SN#	Sample Kit / Manifold #	VOCs TO-15 ($\mu g/m^3$) - See Notes	8010 by TO-15 ($\mu g/m^3$)	TPH(g) ($\mu g/m^3$)	LEED: (inc. 4PCH, Formaldehyde, CO, Total VOCs)	Fixed Gas (CO_2, Methane, Ethane, Ethylene, Acetylene, Propane, CO) %	Fixed Gas: (O_2, N_2) %	APH: Aliphatic and/or Aromatic (circle one) $\mu g/m^3$	Helium Leak Check %	Leak Check (IPA, Norflorane, 1,1-difluroethane) $\mu g/m^3$			Matrix: Soilgas	Matrix: Indoor Air	Matrix:	Canister Pressure / Vacuum: Initial	Canister Pressure / Vacuum: Final
SG-1	9.6.16	1058	1103	0876-2504	MAN316-771	X								X							
SG-2	9.6.16	1117	1142	0881-2509	316-1318	X								X							
SG-3	9.6.16	1200	1205	7515-863	316-843	X								X							

**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
	9.6.16	1440		9/6/16	1440	

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**9/6/2016 14:40**
Project Name:	**1919 Market**	Date Logged:	**9/6/2016**
WorkOrder №:	**1609187** Matrix: SoilGas	Received by:	Jena Alfaro
Carrier:	Client Drop-In	Logged by:	Jena Alfaro

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	☐	

Sample Receipt Information

Custody seals intact on shipping container/cooler?	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	☐	
Sample/Temp Blank temperature	Temp:				NA ☑
Water - VOA vials have zero headspace / no bubbles?	Yes	☐	No	☐	NA ☑
Sample labels checked for correct preservation?	Yes	☑	No	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes	☐	No	☐	NA ☑
Samples Received on Ice?	Yes	☐	No	☑	

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes	☐	No	☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes	☐	No	☐	NA ☑

Comments: