Steve Wolmark
Amelia Oakland, LLC
5821 Pinewood Road
Oakland, California 94611

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

Re: 8410 Amelia Street
Oakland, California
ACEH Case No. RO00002991

Dear Ms. Roe:

Amelia Oakland, LLC, has retained Pangea Environmental Services, Inc. (Pangea) for environmental consulting services 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,

Steve Wolmark
Amelia Oakland, LLC

October 26, 2016

Steve Wolmark
Amelia Oakland LLC
5821 Pinewood Road
Oakland CA 94611

Re: **Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan**
8410 Amelia Street, Oakland, CA
GeoTracker Global ID T1000000434
ACDEH Site Cleanup Program RO2991

Dear Mr. Wolmark:

Pangea Environmental Services, Inc. (Pangea) prepared this *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan* for the subject property. The site assessment was performed to investigate subsurface and indoor air conditions due to chlorinated volatile organic compounds (VOCs) associated with the open regulatory case for the subject site. The site assessment was also performed to evaluate site conditions beyond the extent of prior investigation, which would address historic site use identified in Pangea's *Phase I Environmental Site Assessment* dated August 10, 2016. Vapor mitigation testing was also conducted to evaluate potential methods for mitigation of subsurface VOCs that represent a vapor intrusion concern. This report includes a workplan to further evaluate vapor intrusion concerns as required during an agency meeting on August 12, 2016.

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 and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan*

SITE ASSESSMENT AND VAPOR MITIGATION TEST REPORT AND VAPOR INTRUSION ASSESSMENT WORKPLAN

8410 Amelia Street
Oakland, CA

October 26, 2016

Prepared for:

Steve Wolmark
Amelia Oakland LLC
5821 Pinewood Road
Oakland CA 94611

Prepared by:

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

Written by:

Morgan Gillies
Project Scientist

Bob Clark-Riddell, P.E.
Principal Engineer

PANGEA Environmental Services, Inc.

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INTRODUCTION

Pangea Environmental Services, Inc. (Pangea) prepared this *Site Assessment and Vapor Mitigation Test Report and Vapor Intrusion Assessment Workplan* for the subject property. The site assessment was performed to investigate subsurface and indoor air conditions due to chlorinated volatile organic compounds (VOCs) associated with the open regulatory case for the subject site. The site assessment was also performed to evaluate site conditions beyond the extent of prior investigation, which would address historic site use identified in Pangea's *Phase I Environmental Site Assessment* dated August 10, 2016. Vapor mitigation testing was also conducted to evaluate potential methods for mitigation of subsurface VOCs that represent a vapor intrusion concern. This report includes a workplan to further evaluate vapor intrusion concerns as required during an agency meeting on August 12, 2016.

SITE BACKGROUND

The site is located in an industrial area with residences on the south and east. The site is currently used as an active warehouse that has been subdivided into multiple tenant spaces. Figure 1 shows Building A and Building B present on the north portion of the property. Building A and Building B (north) are used by NIMBY for light industrial use. The south, southeast portion of Building B is used for light industrial use, including plastic injection molding, by Wayt Technologies. The southern portion of the property is occupied by Building C (NIMBY), Building D (storage), and Building E (V&U Towing). All site buildings are slab on grab except Building C with a crawl space.

Site assessment commenced in February 2008 during a Phase I Environmental Site Assessment (ESA) by Basics Environmental, who performed a Phase II ESA to evaluate subsurface conditions in soil and groundwater May 2008. The Phase II ESA documented the presence of subsurface volatile organic compounds. P&D Environmental completed a conduit study and additional subsurface assessment, including sampling of subslab soil gas at select locations at the site, primarily under Building B.

Assessment discovered a 1,1,1-trichloroethene (TCE) groundwater plume present on the east side of the subject site and extends westward partially beneath the site and near the sanitary sewer coming on to the site. ACDEH has reportedly acknowledged that the plume originates from an offsite former plating shop that is now covered by the Tassafaronga Village and Recreation Center, 975 85th Avenue. Select data from the Tassafaronga site is included in Appendix A, which documents up to 220 µg/L TCE in groundwater upgradient and east of site Building B. Based on the orientation of the TCE plume, the groundwater flow direction in the vicinity of the site is to the southwest. The depth to groundwater is approximately 5.5 to 7 ft below grade surface (bgs) based on former monitoring well data for the LUST case at the subject site. The depth to groundwater shown on borings by others (Appendix F) ranged from approximately 4.5 to 8 ft bgs.

P&D assessment also identified and evaluated PCE found in subslab gas at the site, under Building B. Recent efforts focused on delineation and evaluation of tetrachloroethene (PCE) and TCE in subslab gas and the potential for vapor intrusion into Building B. No significant soil impact has been identified at the site. The groundwater impact is relatively limited in concentrations, but TCE concentrations do exceed Environmental Screening Levels (ESLs) established by the Regional Water Quality Control Board (RWQCB) near the east side of the site.

In September 2011, a geophysical survey and exploratory excavation identified a former fuel dispenser pedestal associated with a former gasoline UST on the east side of the property adjacent to G Street and Buildings D and E. The UST was closed-in-place in 2013 due to structural concerns. The closure-in-place report recommended that no further action be performed based on the absence of petroleum hydrocarbons in soil at concentrations of concern for commercial/industrial land use and based on the limited extent of petroleum hydrocarbons in groundwater at the UST pit.

A detailed discussion of the site background and documentation of site investigations are provided in the following documents.

- Basic Environmental, Inc. (Basics) February 29, 2008 Phase I Environmental Site Assessment Report identified Recognized Environmental Conditions (RECs) at the site.

- Basics May 7, 2008 Limited Phase II Environmental Site Sampling Report documented the drilling of six boreholes for collection of soil and groundwater samples to investigate RECs identified in the February 29, 2008 report.

- P&D October 12, 2011 Conduit Study and Work Plan documented a magnetometer survey associated with a former fuel dispenser pedestal and exploratory excavation in September 2011 which identified a former gasoline UST on the east side of the property adjacent to G Street. P&D's October 12, 2011 Conduit Study and Work Plan also documents a TCE groundwater plume that originates at an offsite source that has extended beneath the east side of the subject site. Based on the orientation of the TCE plume, the groundwater flow direction in the vicinity of the site is to the southwest.

- P&D July 15, 2013 UST In-Place Closure Report (document 0453.R1). At the time of in-place UST closure in 2013 it was determined that the UST was oriented perpendicular to the orientation identified in the September 2011 investigation. The report recommended that no further action be performed based on the absence of petroleum hydrocarbons in soil at concentrations of concern for

commercial/industrial land use and based on the limited extent of petroleum hydrocarbons in groundwater at the UST pit.

Historical onsite data and offsite information is presented in Appendix A. Cross sections by others are presented in Appendix B.

SITE ASSESSMENT SCOPE OF WORK

In June 2016, Pangea performed additional site assessment to further evaluate known conditions under Building B, and to evaluate subsurface conditions beneath other site buildings. Indoor air sampling was also conducted to evaluate potential vapor intrusion concerns.

The assessment work scope involved sampling of soil, groundwater, subslab gas, and indoor air as follows:

- Subslab gas sampling of two existing probe locations in Building B.
- Installation of three subslab probes in Building A, and six probes Building E. Following field screening of all subslab probes, subslab gas samples were collected and analyzed from the three subslab probes in Building A and three probes in Building E.
- Indoor air sampling within Buildings A, B, C and D. Indoor air sampling was not conducted in Building E due to limited subslab gas concentrations tested by Pangea, and due to ongoing vehicle maintenance and painting in this building.
- Soil and/or groundwater sampling at two locations in or near Building A.
- Installation of two shallow soil vapor extraction wells for vapor mitigation testing.

The site assessment was conducted in two phases. The first phase involved subslab gas sampling at three locations to screen for subsurface chemical impact in Buildings A and E. The second phase involved additional subslab gas sampling, plus sampling of indoor air, soil and groundwater. Field measurements were used to help select locations for the two completed soil borings.

Pre-Drilling Activities

A comprehensive site safety plan was prepared to protect site workers and the plan was kept onsite during all field activities. The proposed drilling locations were marked and Underground Service Alert was notified at least 48 hours before the proposed field activities. A boring permit was obtained from Alameda County Public Works Agency (Appendix C).

Subslab Gas Sampling Procedures

To assess subslab gas conditions, Pangea collected subslab gas samples from two existing probes in Building B and seven new subslab probes in Buildings A and E. The subslab probe locations are shown on Figure 1. Prior subslab gas probes by *P&D Environmental* were identified using nomenclature of 'SS1 through SS21". To help differentiate probe nomenclature, *Pangea* probes initially labeled as SS-1 through SS-7 (laboratory report) are summarized herein as "SS-1P through SS-9P".

The subslab gas sampling was conducted on June 3 and 16, 2016.The subslab sampling was conducted in general accordance with the guidelines outlined in *Advisory: Active Soil Gas Investigations* by the DTSC (October 2011). During the first assessment phase, Pangea collected subslab gas samples using Tedlar bags for initial screening. For the subsequent assessment phase, Pangea used 1-liter Summa canisters and laboratory-supplied manifolds to provide lower reporting limits. Tedlar bag samples were collected using a vacuum chamber and vacuum pump. The vacuum chamber was connected to the probe using new Teflon tubing and a Swagelok fitting. After purging approximately five or more times the ambient volume of air in the assembly/probe, each sample was collected in a new Tedlar Bag.

Summa canisters were supplied by the laboratory under a vacuum of approximately 30 inches of mercury. Prior to sample collection from the probes, a shut in test was conducted on the laboratory supplied summa canisters and manifolds. After a minimum of 1 minute of shut in testing, the purging summa canister was opened to purge the manifold/probe assembly. Upon completion of purging of approximately one 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 below 5 inches of mercury but not below 4 inches of mercury and the canister valve was closed.

To further evaluate potential leakage within the sampling system, a leak-check enclosure was placed over the subslab probe, and isopropyl alcohol was introduced into the leak-check enclosure. A PID was used to monitor the concentration of isopropyl alcohol within the enclosure during sample collection. After sample collection, subslab probes were capped and left for future sampling, as merited.

Subslab gas samples were collected in Tedlar bags and submitted for analysis to Eurofins Air Toxics of Folsom, California, a State-certified laboratory. The samples were analyzed for volatile organic compounds (VOCs) by Total Organics Method 15 (TO-15).

Indoor Air Sampling

Indoor air sample collection on June 15 and 16, 2016, generally coincided with the subslab gas sample collection. Indoor air testing required coordination with the building tenants. The indoor air testing involved the following:

- Building A: an approximate 12-hour sample was collected overnight when the building doors were primarily closed.

- Building B: an approximate 12-hour sample was collected overnight when the building doors were primarily closed.

- Building C: a discrete sample was collected over a few seconds within this building due to limited access by the tenant. The building was apparently well equilibrated, with no use of the building during sampling time and with all doors and windows closed.

- Building D: a discrete sample was collected over a few seconds within this building due to limited access by the tenant. The building was apparently well equilibrated, with no use of the building during sampling time and with all doors and windows closed.

- One ambient air sample was collected up wind of Building A. The sample was collected over an approximate 12-hour period overnight simultaneously with other overnight sampling.

Indoor air samples collected within 6-liter SIM-certified Summa canisters were submitted for analysis to Eurofins Air Toxics of Folsom, California, a State-certified laboratory. The samples were analyzed for volatile organic compounds (VOCs) by Total Organics Method 15 (TO-15).

Pangea was unable to do a chemical survey of the building. However, Pangea noted that Building A is occupied by a woodshop with machine tools; Building B (north) is occupied by vehicles; Building B (south) contained machine tools and various supplies (including gasoline cans); and Building D was apparently occupied by a motorhome, motorcycle, and storage materials.

Soil and Groundwater Sampling

On June 17, 2016, Pangea coordinated the drilling of two soil borings (P-1 and P-2) to assess subsurface conditions. Boring P-1 was located outside Building A to evaluate conditions north of Building A. Boring P-2 was located inside Building A to evaluate conditions near subslab gas probe SS-7 where elevated VOC concentrations were detected. Boring P-1 was advanced to approximately 15 ft bgs. Boring P-2 was advanced to approximately 20 ft bgs and left overnight to allow water infiltration to approximately 17 ft depth. The boring locations are shown on Figure 1.

The borings were drilled in general accordance with the Pangea's Standard Operating Procedures in Appendix D. Select soil and groundwater samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260B (Method 8010 Target List). All soil and groundwater samples were shipped under chain of custody to McCampbell Analytical Laboratories, Inc., of Pittsburg, California, a California-certified laboratory.

Pangea retained Confluence Environmental of Woodland, California to drill the borings. Borings were hand augered to 4 ft bgs and then advanced with a Geoprobe™ drill rig using direct-push drilling methods to collect continuously cored soil samples. Select soil samples were collected from each boring for laboratory analysis in acetate liners, and capped with Teflon tape and plastic end caps. Soil samples were collected at approximately four ft intervals and/or at lithologic changes.

A grab groundwater sample was collected from temporary PVC casing installed in borings using a disposable bailer. The groundwater samples were then decanted into the appropriate laboratory supplied containers.

The drilling was observed in the field by Pangea staff and supervised by Bob Clark-Riddell, a California Registered Professional Civil Engineer (P.E.). Soil characteristics such as color, texture, and relative water content were noted in the field using the USCS classification system and entered onto a field boring log. Field screening of soil samples for potential volatile organic compounds included phot-ionization detector (PID) readings, and visual and olfactory observations.

Soil Vapor Extraction Test Wells

On June 20, 2016, Pangea coordinated the installation of two shallow soil vapor extraction wells for vapor mitigation testing. Wells SVE-1 and SVE-2 were installed by Confluence Environmental. Both wells were constructed with 4-inch diameter PVC and screened from approximately 8 to 12 in below grade surface (bgs) within loose sand (apparent fill/bedding material). To enhance vapor extraction, three 1-inch diameter, slotted

PVC pipes (each approximately 1 ft long) were inserted horizontally into the 4-inch PVC section approximately 10 inches bgs. The well was constructed within a 10-inch diameter concrete core opening.

SITE ASSESSMENT RESULTS

The site assessment found VOC concentrations in groundwater, subslab gas, and indoor air. No VOCs were found in the one analyzed soil sample. VOC concentrations exceeded applicable RWQCB environmental screening levels (ESLs) at select locations as described below. The laboratory analytical reports are included in Appendix G.

Field Observations

Based on soil logging during drilling of borings P-1 and P-2, site soil generally consists of black silty/clayey sand to a depth of approximately 5 ft, underlain by primarily brown silty clay with increasing sand with depth to the total explored depth. Boring P-1, installed in the yard north of Building A, was advanced to approximately 15 ft bgs and water rose to approximately 10 ft bgs. Boring P-2, installed within Building A, was advanced to approximately 20 ft bgs and left overnight to allow water infiltration to approximately 17 ft depth. No odors or staining were observed during drilling. At boring P-2, about 1 ft thick of sand was observed beneath the floor slab. Borings logs were apparently lost during our office move, so select prior boring logs are included in Appendix F.

During installation of wells VE-1 and VE-2, sand/fill material was encountered between the floor slab and a secondary deeper slab found beneath the building to a depth of approximately 1 ft bgs. Field notes are presented in Appendix E.

Soil Analytical Results

One soil sample was taken from boring P-2 at 5 ft bgs. All VOCs were below reporting limits.

Based on historic data (Appendix A), only limited VOC concentrations have been detected in site soil. The VOC impact was primarily detected in clayey soil about 3 to 5 ft bgs, present below more permeable material reportedly located approximately 1.0 to 2 ft bgs. The low PCE concentrations detected included 0.019 mg/kg (3 ft bgs, SB-9), 0.022 mg/kg (2.5 ft bgs, SB-11), and 0.0066 mg/kg (1 ft bgs, SB-14). Low concentrations of acetone and MEK were detected in soil from 2.5 ft bgs in borings SB-10 (0.14 mg/kg acetone, 0.022 mg/kg MEK) and SB-13 (0.15 mg/kg acetone, 0.026 mg/kg MEK). Bunker oil (TPHbo) was detected in soil from 4.5 ft bgs in boring SB-5 at a concentration of 4.2 mg/kg.

Groundwater Analytical Results

For the current assessment involving grab groundwater sampling of boring P-1, the only detected VOCs were TCE (0.79 µg/L) and methyl tert-butyl ether (MTBE, 0.83 µg/L). Both of these concentrations are *below* the Tier 1 ESL for groundwater, which is 5.0 µg/L for both TCE and MTBE. Groundwater analytical results from current and historic assessment are summarized and compared to ESLs on Table 2.

The distribution of TCE in groundwater from recent and historic data is summarized on Figure 2. As shown on Figure 2, the TCE impact in groundwater is highest near the eastern boundary where a maximum of 100 µg/L was detected in boring SB-6. The TCE impact above the Tier 1 ESL of 5 µg/L apparently extends westward under most of Building B and beneath Building A. The TCE groundwater plume apparently originates at an offsite source near Tassafaronga Recreation Center, 975 85th Avenue. Select historic data for the upgradient Tassafaronga site is included in Appendix A, which documents up to 220 µg/L TCE in groundwater upgradient and east of site Building B. Historic data for the subject site is included in Appendix A.

As summarized on Table 2, other VOCs detected in site *grab* groundwater have been below Tier 1 ESLs. The other detected VOCs include: cis-1,2-dichloroethene (cis-1,2-DCA) and 1,1-dichoroethene (1,1-DCE)(both degradation products of PCE and TCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichoroethane (1,1-DCA, a degradation product of 1,1,1-TCA), and MTBE.

Monitoring wells MW-1 through MW-4 were former located near the northwest corner of the site on Amelia Street, adjacent the former UST for the closed LUFT case. Well MW-1 was located in the northwest corner of the former UST excavation, while wells MW-2, MW-3 and MW-4 were installed crossgradient and downgradient for plume delineation. Historic monitoring data from 1988 to April 1997 is summarized on Table 2. Petroleum hydrocarbons, including TPHg, benzene, ethylbenzene, toluene and MTBE were detected primarily in wells MW-1 and MW-2 located closest to the former UST. The historic maximum hydrocarbon concentrations were 8,500 µg/L TPHg, 2,100 µg/L benzene, 660 µg/L toluene, 400 µg/L ethylbenzene, 780 µg/L xylenes, 60 µg/L MTBE. Figure 3 shows the benzene distribution in groundwater in April 1997. Petroleum hydrocarbons have likely further attenuated since case closure many years ago.

Subslab Gas Analytical Results

Recent subslab gas analytical results are summarized on Table 2 and Figure 4. Table 2 compares subslab gas concentrations to commercial ESLs. VOCs detected in subslab gas included PCE, TCE, 1,1-DCE, 1,1-DCA, 1,1,1-TCA, chloroform, and 1,1,2,2-tetrachlorethane. Historic subslab gas data is included in Appendix A. Select historic TCE data in subslab gas is also shown on Figure 4. (Prior subslab gas probes by *P&D Environmental* are labeled 'SS1 through SS21", while *Pangea* probes are summarized as "SS-1P through SS-9P".)

For Pangea's assessment, the maximum PCE concentration detected in subslab gas was 5,300 µg/m^3 in P&D probe SS15 located in Building B. This PCE concentration exceeds the commercial ESL of 2,100 µg/m^3. TCE concentrations of 3,200 µg/m^3 and 9,400 µg/m^3 were detected in subslab gas from Pangea probes SS-7P and SS-9P, respectively, in Building A, which exceed the commercial ESL of 3,000 µg/m^3. Also in Pangea probes SS-7P in Building A, a concentration of 1,100 µg/m^3 1,1,2,2-tetrachloroethane was detected, which exceeds the commercial ESL of 210 µg/m^3. All other VOCs detected were below applicable ESLs. The maximum 1,1,1-TCA concentration of 880 µg/m^3 detected in Building E is very well below the ESL of 4,400,000 µg/m^3. (Note that the PCE results of <7.5 µg/m^3 for SS8 was significantly lower than the recent historic data of 8,900 µg/m^3 from February 27, 2014 by P&D.)

According to Wikipedia, 1,1,2,2-tetrachloroethane is a chlorinated derivative of ethane, and has the highest solvent power of any chlorinated hydrocarbon. It was once widely used as a solvent and as an intermediate in the industrial production of trichloroethylene, tetrachloroethylene, and 1,2-dichloroethylene. However, 1,1,2,2-tetrachloroethane is no longer used much in the United States due to concerns about its toxicity. 1,1,2,2-tetrachloroethane is also uses as a refrigerant under the name R-130.

During sampling of Pangea probes SS-3P, SS-6, SS-8P, SS-9P and P&D probes SS8 and SS-15, Pangea put a shroud over the sampling assembly/probe and placed a small container of isopropyl alcohol (IPA) under the shroud. Before and during sampling, Pangea monitored the concentration of IPA with a photo-ionization detector (PID) to ensure sufficient concentration within the shroud. No IPA was detected in samples SS-9P, SS8 or SS-15, and low IPA concentrations were detected in samples SS-3P, SS-6P, and SS-8P. This information suggests the subslab probes did not 'short circuit' to surface air and that the results are likely representative of subslab gas conditions.

Indoor Air Analytical Results

Indoor air sampling results are summarized on Table 3 and Figure 5. The following compounds were detected above indoor air ESLs: PCE, carbon tetrachloride, benzene and ethylbenzene. The most relevant VOC concerns for indoor air compared to subsurface conditions was PCE and TCE.

TCE Below ESLs: As shown on Table 2, the only TCE concentrations detected in indoor air were 0.43 µg/m^3 in Building B and 0.16 µg/m^3 in Building C, which are well below the commercial ESL of 3.0 µg/m^3. No TCE was detected in indoor air in Buildings A and D. This suggests that the TCE impact in subslab gas and groundwater, which is apparently emanating from the documented offsite and upgradient source, does not pose a significant vapor intrusion risk for the subject site.

PCE: As shown on Figure 4, PCE concentrations in indoor air in Buildings B and C exceeded the commercial ESL of 2.1 µg/m^3. PCE concentrations in indoor air in Buildings A and D were well below commercial ESLs. This suggests that the subslab PCE vapor plume beneath Building B likely represents a vapor intrusion concern for Building B, and may pose a concern for Building C.

Benzene, Ethylbenzene and Carbon Tetrachloride: These other VOCs were detected above commercial ESLs in indoor air in Buildings A, B, C and/or D. However, as shown on Figure 4, the VOCs were detected at relatively similar concentrations or similar percentages of total VOCs. Excluding Building C with limited benzene and ethylbenzene, benzene concentrations in indoor air for these buildings ranged from to 0.97 µg/m^3 to 12 µg/m^3, while ethylbenzene concentrations ranged from to 1.4 µg/m^3 to 16 µg/m^3. Benzene and ethylbenzene are components of gasoline, and could represent volatilization from observed site vehicle use or other onsite chemical use in Buildings A, B and D. For Building C with no vehicle use, benzene and ethylbenzene in indoor air was well below ESLs. Carbon tetrachloride concentrations in indoor air for these buildings ranged from to 0.42 µg/m^3 to 1.4 µg/m^3. Carbon tetrachloride (0.41 µg/m^3) was detected above the commercial ESLs of 0.29 µg/m^3. Carbon tetrachloride is a common industrial solvent, and is frequently detected in ambient air above screening levels based on Pangea's experience. Since none of these VOCs have been detected in the site subsurface (except for very limited benzene and ethylbenzene impact beneath Amelia Street), these other VOCs do not likely represent a vapor intrusion concern from the subsurface.

1,1,2,2-Tetrachloroethane: This compound was not detected in indoor air in any indoor air samples. The lack of 1,1,2,2-tetrachloroethane in indoor air for Building A suggests that the subslab impact (1,100 µg/m^3, probe SS-7P) does not pose a significant vapor intrusion risk for the subject site.

VAPOR MITIGATION TESTING

On June 20, 2016, Pangea conducted a brief vapor extraction/mitigation test to evaluate the extent of vacuum influence during short-term vapor extraction from test wells VE-1 and VE-2. The testing also evaluated vapor extraction flow rates and applied vacuum, vacuum influence, and VOC recovery rates. These vapor extraction wells were screened into more permeable materials present about 8 to 12 inches ft bgs. Well VE-1 was installed near the bathroom sink and adjacent subslab gas probe SS3 with historic elevated PCE concentration. Well VE-2 was installed approximately 20 ft southeast of VE-1 to allow extraction and vacuum influence monitoring.

Mitigation Test Procedures

The brief (ten minute) vapor extraction test on each well was conducted using a blower capable of applying a vacuum of approximately 50 inches of water and 25 cubic feet per minute (cfm). Vapor flow rate was measured using a hot-wire anemometer. Vacuum influence was measured in subslab gas probes using Magnehelic gauges. Near the completion of each ten minute test, an influent vapor sample was collected in a 1-liter Tedlar™ bag and submitted for VOC analysis by EPA Method 8260 (8010 Basic Target List) to McCampbell Analytical Laboratories of Pittsburg, California.

Mitigation Test Results

Test results during testing of VE-1 and VE-2 are summarized below on Tables A and B, respectively. The applied wellhead vacuum of approximately 40 inches of water induced a vapor extraction flow rate of approximately 24 cfm. The vacuum influence measured during testing of VE-1 and VE-2 is summarized below and illustrated on Figures 5 and 6, respectively. As shown on these figures, the applied vacuum induced vacuum influence of 0.01 inches of water approximately 30 to 45 ft from each extraction location. Field data is included in Appendix E.

Table A –Vapor Mitigation Test Data for VE-1

Extraction Location	Test Duration (hours)	Applied Vacuum at Wellhead ("H_2O)	PCE Conc. in Vapor (ug/m3)	Vapor Flow (cfm)	Vacuum Influence ("H_2O) (Probe and Distance from Extraction Well)				
					SS-3	SS-14	SS-15	SS-17	SS-19
					11’	38’	25’	34’	36’
VE-1	0.20	40	380	22.5	0.50	0.00	0.03	0.01	0.005

Table B – Vapor Mitigation Test Data for VE-2

Extraction Location	Test Duration (hours)	Applied Vacuum at Wellhead ("H_2O)	PCE Conc. in Vapor (ug/m3)	Vapor Flow (cfm)	Vacuum Influence ("H_2O) (Probe and Distance from Extraction Well)				
					SS-3	SS-14	SS-15	SS-17	SS-19
					11'	38'	25'	34'	36'
VE-2	0.2	32	280	24.3	0.015	0.00	0.46	0.20	0.18

PCE concentrations in extracted vapor were 380 µg/m^3 in VE-1 and 280 µg/m^3 in VE-2. PCE concentrations in extracted vapor from SVE-2 were 280 µg/m^3. No other VOCs were detected in the influent gas samples. The laboratory analytical reports are included in Appendix G.

Based on measured vapor flow rates, the estimated PCE removal rate during testing was 0.0008 lbs/day PCE for VE-1 and 0.0006 lbs/day PCE.

Tentative Vapor Intrusion Mitigation System

The brief test demonstrates that vapor extraction can provide vapor intrusion mitigation at this site. Based on the observed vacuum influence and achievable flow rates, Pangea presents tentative vapor extraction well locations on Figure 8. The estimated vacuum influence area would influence the primary areas of concern beneath Buildings A and B. Additional assessment is merited to determine if vapor intrusion mitigation is appropriate for Building C or other site buildings.

CONCLUSIONS AND RECOMMENDATIONS

Based on recent and historic site assessment and Pangea's vapor mitigation test, Pangea offers the following conclusions and recommendations:

- The site subsurface is impacted by select VOCs (PCE, TCE and 1,1,2,2-tetrachloroethane) in subslab gas and/or groundwater in excess of select applicable environmental screening levels (ESLs) established by the San Francisco Bay Regional Water Quality Control Board. Available information suggests an offsite source is fully or primarily responsible for the TCE discovered in site groundwater and soil gas, an onsite historic releases may be responsible for subslab gas PCE beneath Building B and for subslab gas TCE and 1,1,2,2-tetrachloroethane beneath Building A.

- The historic petroleum hydrocarbon release associated with the closed LUST case, with limited residual impact possible beneath Amelia Street, does not likely represent a significant risk to human health at this site. Site data

- The subsurface VOC impact above ESLs is primarily present beneath the *northern* portion of the site (Buildings A and B), with no subsurface VOC impact above ESLs found beneath the *southern* portion of the site (Buildings C, D and E) where significant tenant improvements are planned in the near future.

- Limited VOC impact has been detected in site *soil*, suggesting a significant VOC source in soil not likely present at the site. Therefore, physical removal (e.g, excavation) to target the limited VOC soil impact offers limited practicality.

- The primary VOC impact detected in *groundwater* is relatively low concentrations of TCE, which is reportedly emanating from an upgradient, offsite source (the documented Tassafaronga site). The TCE impact exceeding commercial ESLs is present beneath Buildings A and B, with highest concentrations detected along the upgradient, eastern boundary (Figure 2). The limited TCE concentrations detected in indoor air (well below ESLs) suggests that the TCE plume does *not* pose a significant vapor intrusion risk to site buildings. Nonetheless, the planned vapor extraction system for vapor intrusion mitigation will likely improve groundwater quality and reduce the TCE plume in groundwater.

- The *primary* subsurface VOC impact of concern is PCE in *subslab gas* in excess of commercial ESLs within Building B (Figure 4). PCE detected in *indoor air* above ESLs suggests that PCE poses a risk to human health via vapor intrusion at the site (Figure 5). Planned vapor extraction will help mitigation potential vapor intrusion of PCE. Based on PCE detection above ESLs in indoor air in Building C, additional assessment is planned to further investigate potential vapor intrusion into this building, and to determine if expansion of the vapor mitigation system to this building is merited. The lack of documented subsurface PCE near Building C and the presence of a crawl space under the building suggest that recent indoor air results may not be representative of vapor intrusion.

- TCE and 1,1,2,2-tetrachloroethane site impact does not appear to represent a vapor intrusion concern given the low or non-detect concentrations of these compounds in indoor air; nonetheless, planned vapor extraction will help mitigation potential vapor intrusion associated with these compounds. The presence of 1,1,1-TCA in subslab gas beneath Building E suggests a historic release occurred near this building. However, the 1,1,1-TCA concentrations well below applicable ESLs suggests this chemical release does not pose a significant vapor intrusion concern.

- Additional assessment is merited to investigate the potential source of *other VOCs* (benzene, ethylbenzene, and carbon tetrachloride) detected in *indoor air* above ESLs. These other VOCs are apparently not present within the site subsurface, or at concentrations that would represent a vapor intrusion concern. Benzene and ethylbenzene are components of gasoline, and could represent volatilization from observed *onsite vehicle use* or other documented chemical use in Buildings A, B and D. (For Building C with no vehicle use, benzene and ethylbenzene in indoor air was well *below* ESLs). Carbon tetrachloride is a common industrial solvent, and is frequently detected in ambient air above screening levels based on Pangea's experience. Since none of these VOCs have been detected in the site subsurface (except for very limited benzene and ethylbenzene impact beneath Amelia Street), these other VOCs do not likely represent a vapor intrusion concern from the subsurface. In summary, concentrations of these VOCs in indoor air may be due to material storage in these buildings or due to background conditions.

- Pangea's brief test demonstrates that vapor extraction can mitigate potential vapor intrusion concerns for Building A and Building B. A tentative vapor intrusion mitigation system layout is presented on Figure 8. Additional assessment is merited to determine if vapor intrusion mitigation is appropriate for Building C or other site buildings.

VAPOR INTRUSION ASSESSMENT WORKPLAN

With property owner authorization, Pangea met with Alameda County Environmental Health (ACDEH) on August 12, 2016 to discuss recent assessment and vapor mitigation test data obtained on behalf of the prospective purchaser. Caseworker Karel Detterman and Chief Dilan Roe appreciated the new site data. Based on the new site information, ACDEH requested the following information:

- Copies of all completed Phase I Environmental Site Assessment Reports.

- A technical report documenting recent site assessment and vapor mitigation testing (subject report).

- A workplan to further evaluate potential vapor intrusion within site buildings. ACDEH requested the workplan include additional indoor air sampling, delineation of subslab conditions, resampling of subslab probe SS8, and soil gas sampling south of Building B near Building C and Building D.

Consistent with the agency meeting on August 12, 2016, Pangea proposed to perform the site assessment activities described herein. Proposed subslab and soil gas sampling location are shown on Figure 9.

Building and Utility Inspection

To help obtain representative data and mitigate potential vapor intrusion, Pangea will prepare for indoor air sampling as described herein. Pangea will evaluate the type and extent of the building foundation for Building C (crawl space) and Building D (slab on grade), and will look for possible penetrations through the building flooring. A contractor may be used to expose plumbing or other conduits in walls or flooring. Pangea will also coordinate any sealing of floor penetrations. If merited, a blower-door test will be performed to further identify potential air pathways between the buildings and ambient air of the floor penetrations.

Pangea will review available information about the sanitary sewer piping shown on site figures. A video of the sanitary sewer may be conducted to verify the sewer location(s) and condition. If deemed appropriate before or after testing, a clay plug may be installed along the sanitary sewers near Buildings A and Building C.

To the extent feasible and practical with the numerous tenants, Pangea will coordinate completion of a building survey of onsite chemical use, chemical storage, building conditions, and building systems for heating, ventilation, and air conditioning (HVAC) systems. Pangea or a professional shall review the chemical inventory and conduct interviews of the building occupants, property owner and/or person completing the survery forms. In conjunction with the survey, Pangea will request that any VOCs present at the site be removed (to the extent practical) from the premises in advance of the air sampling.

Subslab Gas Assessment

The proposed subslab sampling locations are shown on Figure 9. Our justification for these sampling location is as follows:

- Building A: Sampling of two proposed new subslab probes and existing probe SS-11P will further delineate the extent of TCE and 1,1,2,2-tetrachloroethane in subslab gas. Resampling of existing probes SS-7P and SS-9 will provide a second round of data, and help confirm the presence of TCE and 1,1,2,2-tetrachloroethane in these probes.

- Building B: Sampling of existing probe SS8 will help evaluate the significant variation of PCE in subslab gas over the past two sampling events. Sampling of the proposed new subslab probe in the northeast corner will further delineate the extent of TCE and 1,1,2,2-tetrachloroethane in adjacent Building A. Sampling of the proposed new subslab probe in the northwest corner will help confirm that the former benzene groundwater plume from 1997 does not pose a vapor intrusion concern.

- Building C: Soil gas sampling is proposed in lieu of subslab sampling due to the presence of a crawl space.

- Building D: Sampling of the proposed two new subslab probes will evaluate conditions with respect to the PCE vapor plume in Building B, the former gasoline UST, piping and possible former dispenser located northeast of this building. These probes will also help determine if subsurface benzene or ethylbenzene are responsible for detection of these compounds in indoor air in Building D.

- Building E: No subslab gas sampling is proposed due to no significant VOC concentrations in subslab gas during two sampling events. Two sampling events were conducted on probe SS-6, which contained the highest PID readings during probe screening during and after probe installation and sampling.

In a similar manner to the subslab gas sampling described above, the subslab sampling will be conducted in general accordance with the guidelines outlined in the October 2011 *Vapor Intrusion Mitigation Advisory* (Cal/EPA 2011) and Cal/EPA's April 2012 *Advisory Active Soil Gas Investigations* (Cal/EPA 2012). Pangea will use 1-liter Summa canisters, a leak check compound, and a shroud.

Soil Gas Assessment

Proposed soil gas monitoring wells are shown on Figure 9. Our justification for these sampling location is as follows:

- As required by ACDEH, soil gas sampling will be performed at three locations south of Building B near Building C and Building D. The western most location will evaluate soil gas conditions near the sanitary sewer exiting Building C, which may represent a preferential pathway for PCE vapor from Building B.

- Soil gas sampling east of Building C will further investigate potential vapor pathways that could explain the PCE detection in indoor air in Building C.

- Three soil gas sampling locations are proposed within Building B to provide vertical delineation of VOCs in soil gas. Two soil gas wells are proposed beneath the known PCE subslab gas plume. The eastern soil gas well will help evaluate if TCE in groundwater (possibly migrating from offsite along the sanitary sewer) is contributing to TCE subslab gas found under Building A. The soil gas wells will help evaluate vacuum influence in deeper soil from shallow vapor extraction wells VE-1 and VE-2 and future extraction wells. Deeper vacuum influence and soil gas data will help determine if

deeper vapor extraction wells would expedite vapor mitigation and remediation under Buildings A and B.

- Similarly, one soil gas monitoring well is proposed in Building A beneath the subslab gas TCE impact.

In a similar manner to the subslab gas sampling described above, the soil gas sampling will be conducted in general accordance with the guidelines outlined in the October 2011 *Vapor Intrusion Mitigation Advisory* (Cal/EPA 2011) and Cal/EPA's July 2015 *Advisory Active Soil Gas Investigations* (Cal/EPA 2015). Semi-permanent soil vapor monitoring wells will be permitted and installed at the proposed locations. Additional deeper concrete coring may be required at select location due to secondary floor slabs or other subsurface features. Pangea will use 1-liter Summa canisters, a leak check compound, and a shroud.

Soil logging during vapor well installation will be used to select well depth, with probe installation planned within the relatively most permeable soil near or above 5 ft depth. Deeper probe installation is not recommended based on depth to water information from former site monitoring well and borings indicating groundwater depth ranging from 4.5 to 8 ft bgs. Due to clayey soil, Pangea plans to use at least 1 ft of sand pack to facilitate soil gas sample collection.

Indoor Air Assessment

For comparison to prior indoor air data, Pangea plans the following indoor air assessment:

- Indoor air sampling preparation described above (chemical survey, building inspection, etc) to help obtain representative data.

- Sampling of each building at the site (Buildings A through E).

- Approximately three ambient air samples will be collected and analyzes.

- 24-hour sample collection will be used for all buildings, rather than the shorter duration used in June 2016.

- Sampling will be conducted during typical building ventilation, rather than more conservative sample collection in June 2016 when building doors were primarily closed.

Indoor air samples will be collected within 6-liter SIM-certified Summa canisters. The samples will be analyzed for volatile organic compounds (VOCs) by Total Organics Method 15 (TO-15).

Vapor Mitigation Planning

The conceptual vapor intrusion mitigation plan shown on Figure 8 involves soil vapor extraction to remove subsurface VOCs that would otherwise pose a potential risk to human health via vapor intrusion. This vapor mitigation approach is also known as active subslab ventilation, subslab depressurization, or a vapor intrusion/soil vapor extraction (VI/SVE) system. The tentative vapor mitigation plan consists of active mitigation under the northern buildings (Buildings A and B) to provide mitigation and to safeguard human health during ongoing light industrial use. Active vapor mitigation can be discontinued in the future upon satisfactory reduction of subsurface VOCs. Contingency measures to further mitigate potential vapor intrusion include passive subslab ventilation and chemical vapor barriers. During our August 12, 2016 meeting, the County generally concurred with the tentative plan.

Data obtained from workplan implementation will be used to develop a final vapor intrusion mitigation plan. Future SVE wells will be constructed to provide VOC vapor capture within the permeable sand/gravel fill materials found beneath the slab(s). Following installation of the soil gas monitoring wells, Pangea may perform an additional vacuum influence test to consider expansion of the conceptual VI/SVE system. The conceptual plan primarily mitigates conditions for the northern buildings (Buildings A and B).

The VI/SVE system can be expanded to the buildings on the *southern* portion of the site, if required based on results of the planned additional assessment of subsurface and indoor air conditions in Buildings C, D and E.

REFERENCES

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

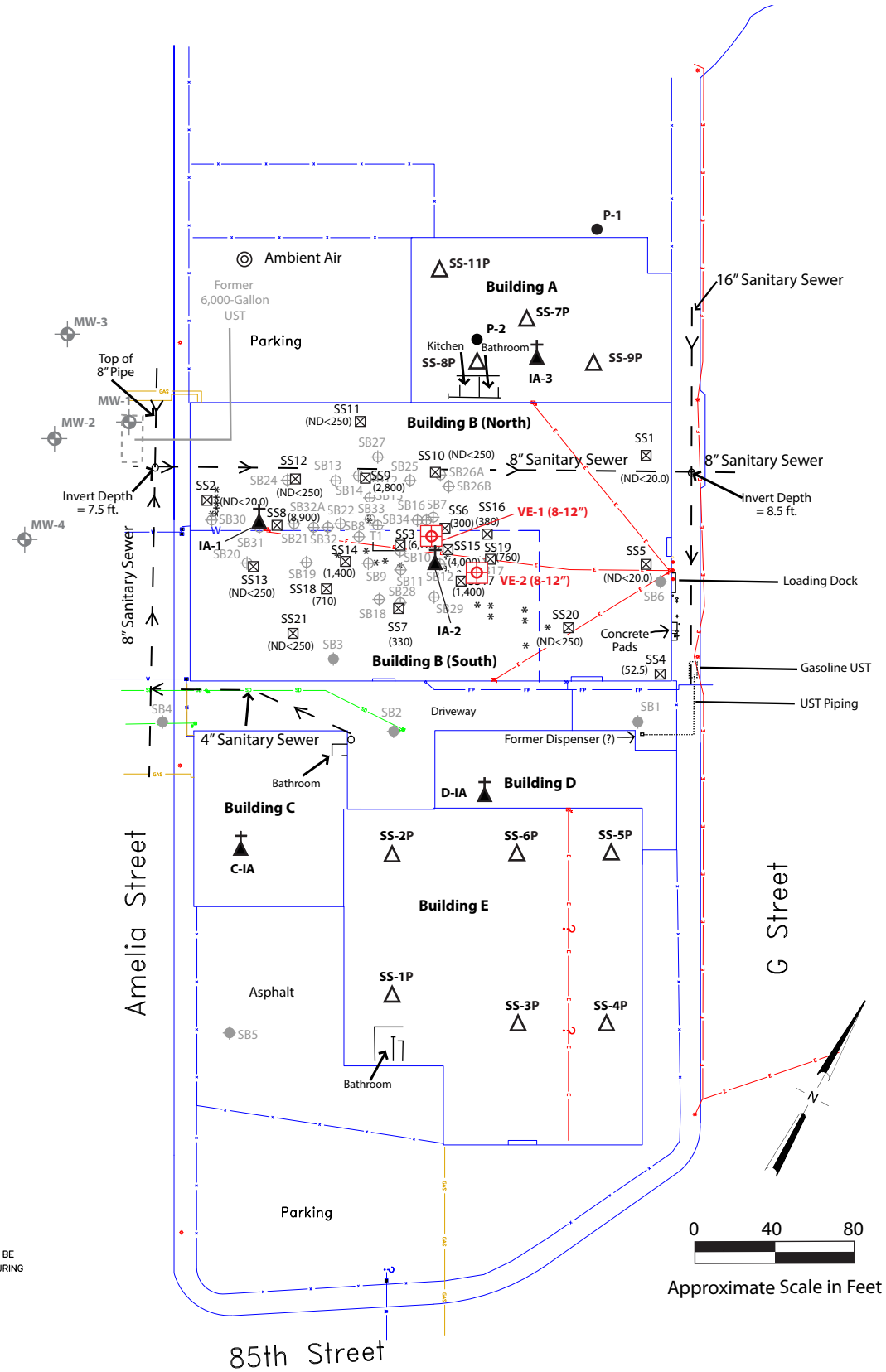
CalEPA/DTSC, 2015, (CalEPA, 2015) *Advisory – Active Soil Gas Investigations,* July 2015

ATTACHMENTS

Figure 1 – Site Map
Figure 2 – PCE in Groundwater
Figure 3 – Benzene in Groundwater
Figure 4 – VOCs in Subslab Gas
Figure 5 – VOCs in Indoor Air
Figure 6 – Vacuum Influence in VE-1, June 2016
Figure 7 – Vacuum Influence in VE-2, June 2016
Figure 8 – Conceptual Vapor Mitigation System
Figure 9 – Proposed Subslab and Soil Gas Sampling Locations

Table 1 – Groundwater Analytical Data
Table 2 – Subslab Gas Analytical Data
Table 3 – Indoor Air Analytical Data

Appendix A – Historical Onsite and Offsite Data
Appendix B – Cross Sections
Appendix C – Boring Permits
Appendix D – Standard Operating Procedures
Appendix E – Field Data Sheets
Appendix F – Boring Logs by Others
Appendix G – Laboratory Analytical Reports



Base Map From:
P& D Environment, Inc.
Basics Environmental, Inc., May 2008,
JR Associates, September 2011,
The Plumbing Ministry, October 2011,
P&D Environmental, Inc., October 2011

Figure 1

8410 Amelia Street
Oakland, California

PANGEA

Site Map

LEGEND

- VE-1 — Shallow Vapor Extraction Well
- P-1 — Boring
- SS-1P — Subslab Soil Gas Probe (Pangea)
- IA-1 — Indoor Air Sampling
- AA1 — Ambient Air
- SS21 — Subslab Soil Gas Sample Location (others)
- (6,780) — PCE Concentration in Subslab Soil Gas (ug/m3)
- (ND<250) — Not Detected
- 50 — TCE Isoconcentration contour in groundwater (µg/L), dashed where inferred; queried where uncertain
- 5 ESL — RWQCB Tier 1 Environmental Screening Level for groundwater (µg/L)
- 100 — TCE concentration in groundwater, (µg/L), **Bold** concentrations exceed ESL
- GW — Estimated Groundwater Flow Direction
- MW-1 — Former Monitoring Well
- SB6 SB34 — Historical Borehole Locations
- * — Drilling Refusal Location

Sanitary Sewer
UNK — UNKNOWN PIPE
CTV — CABLE TV
CW — CITY WATER
E — ELECTRIC
FP — FIRE PROTECTION
FO — FIBEROPTIC
GAS — GAS
IR — IRRIGATION
OIL — PETROLEUM
SS — SEWER
SD — STORM DRAIN
SLE — STREET/TRAFFIC LIGHT ELECTRICAL
T — TELECOMMUNICATIONS
W — WATER
PIPE TERMINATED OR SIGNAL WAS LOST
POSSIBLE PIPE OR SIGNAL WAS LOST OR NOT CONCLUSIVE
CATCH BASIN
CLEANOUT
ELECTRICAL BOX
ELECTRICAL MANHOLE
FIRE HYDRANT
GAS VALVE
ROOF DRAIN
SEWER MANHOLE
STORM MANHOLE
STREET LIGHT
TELEPHONE/SIGNAL BOX
TELEPHONE MANHOLE
UTILITY POLE
WATER VALVE

NOTE: THIS DRAWING SHOWS THE APPROXIMATE LOCATIONS OF UTILITIES FOUND DURING OUR INVESTIGATION. THERE MAY BE ADDITIONAL UTILITIES AND PIPES THAT WERE NOT DETECTED DURING OUR INVESTIGATION AND ARE NOT SHOWN ON THIS DRAWING. DEPTHS ARE APPROXIMATE.

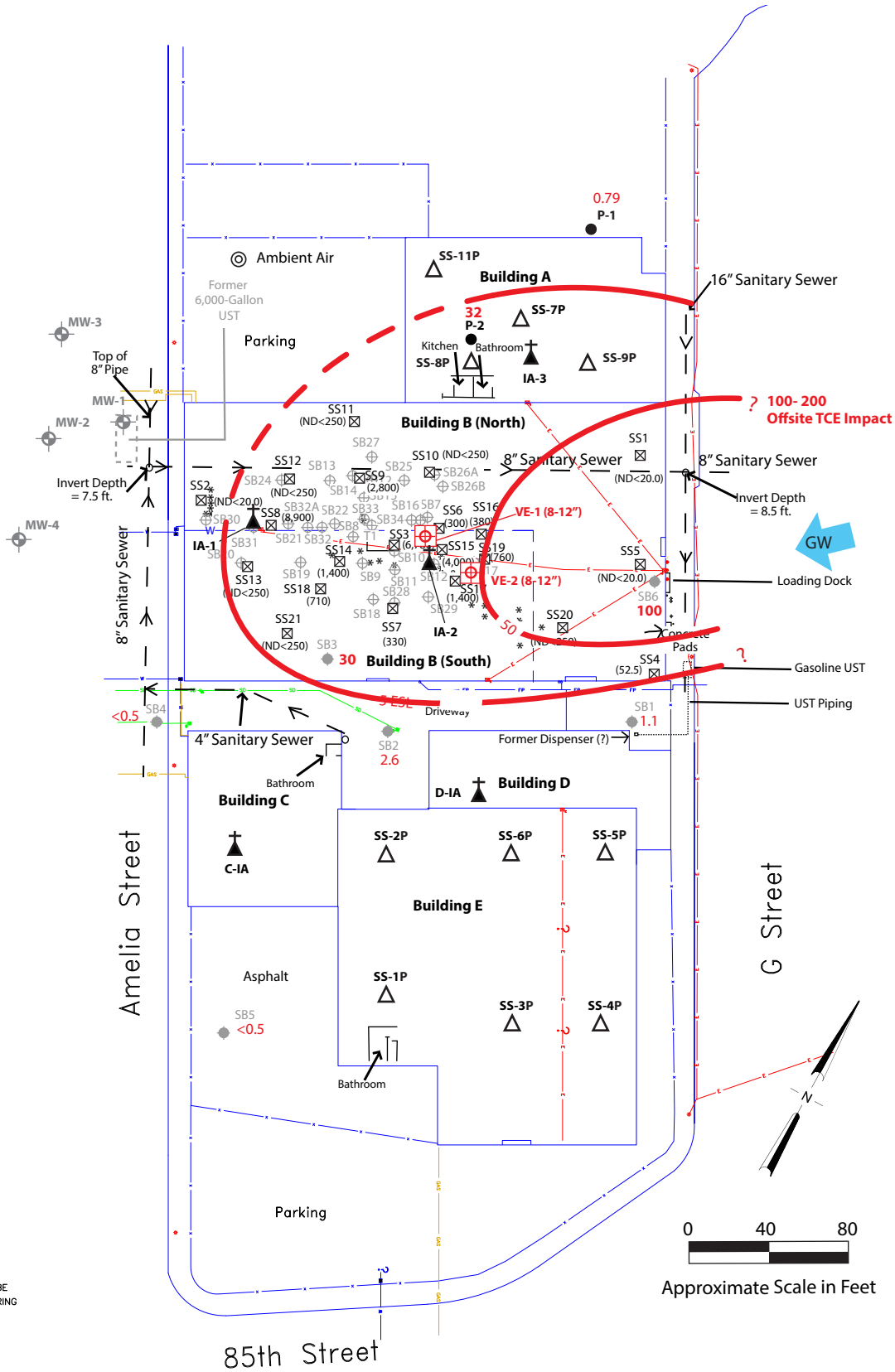


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Figure 2

8410 Amelia Street
Oakland, California

PANGEA

TCE Concentrations in Groundwater

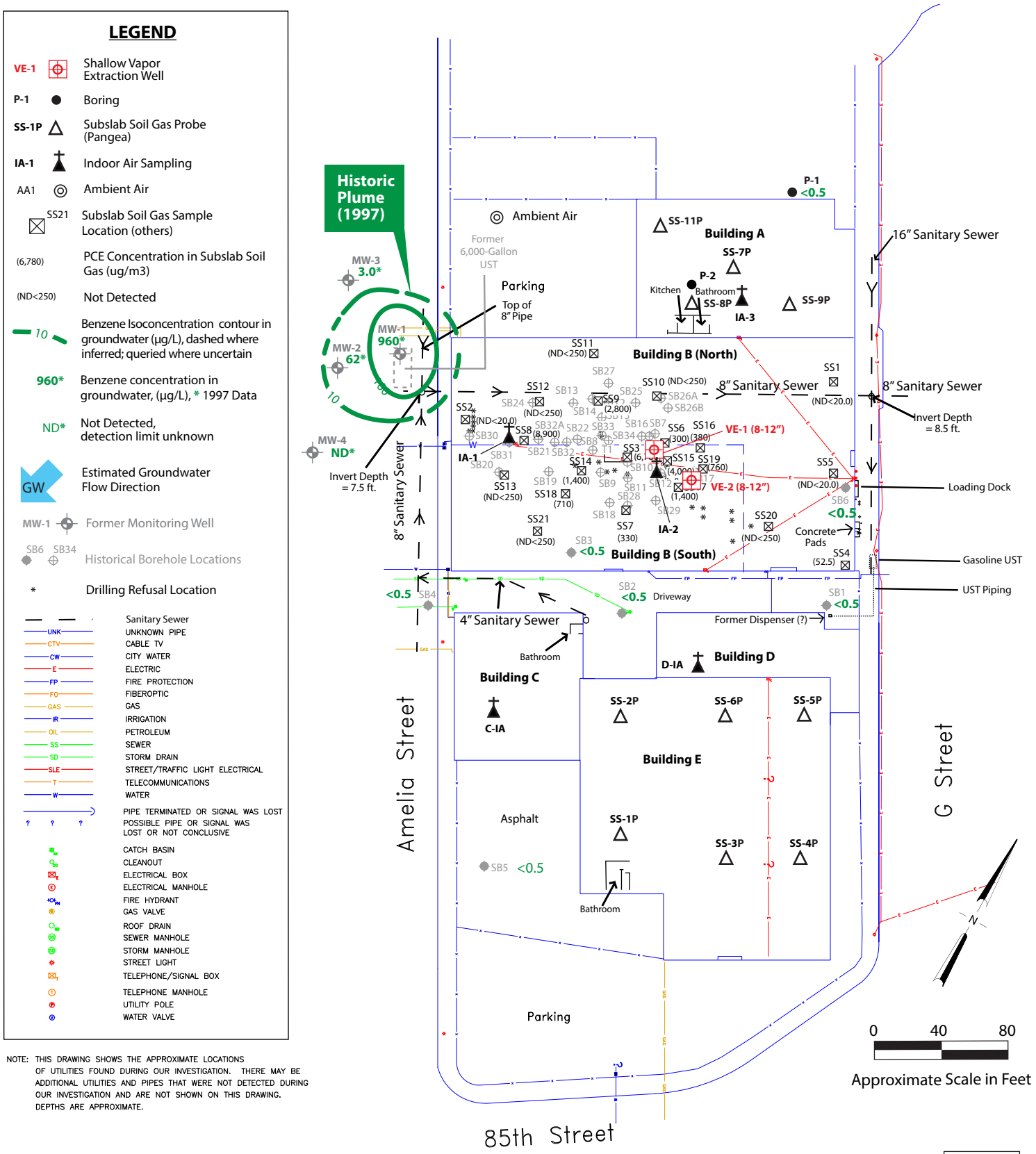

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Figure 3

8410 Amelia Street
Oakland, California

PANGEA

Benzene Concentrations in Groundwater

LEGEND

VE-1	Shallow Vapor Extraction Well
P-1	Boring
SS-1P	Subslab Soil Gas Probe (Pangea)
IA-1	Indoor Air Sampling
AA1	Ambient Air
SS21	Subslab Soil Gas Sample Location (others)
(6,780)	PCE Concentration in Subslab Soil Gas (ug/m3)
(ND<250)	Not Detected
3,200	VOC Concentration (µg/m³). **Bold** Concentrations exceed Commercial ESL.
PCE	Tetrachloroethene (2,100 ESL)
TCE	Trichloroethene (3,000 ESL)
CT	Carbon Tetrachloride
1,1,1-TCA	Trichloroethane
1,1,2,2-PCA	Tetrachloroethane (210 ESL)
	VOCs above ESLs in Subslab Gas
MW-1	Former Monitoring Well
SB6 SB34	Historical Borehole Locations
*	Drilling Refusal Location

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WATER
PIPE TERMINATED OR SIGNAL WAS LOST
POSSIBLE PIPE OR SIGNAL WAS LOST OR NOT CONCLUSIVE

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FIRE HYDRANT
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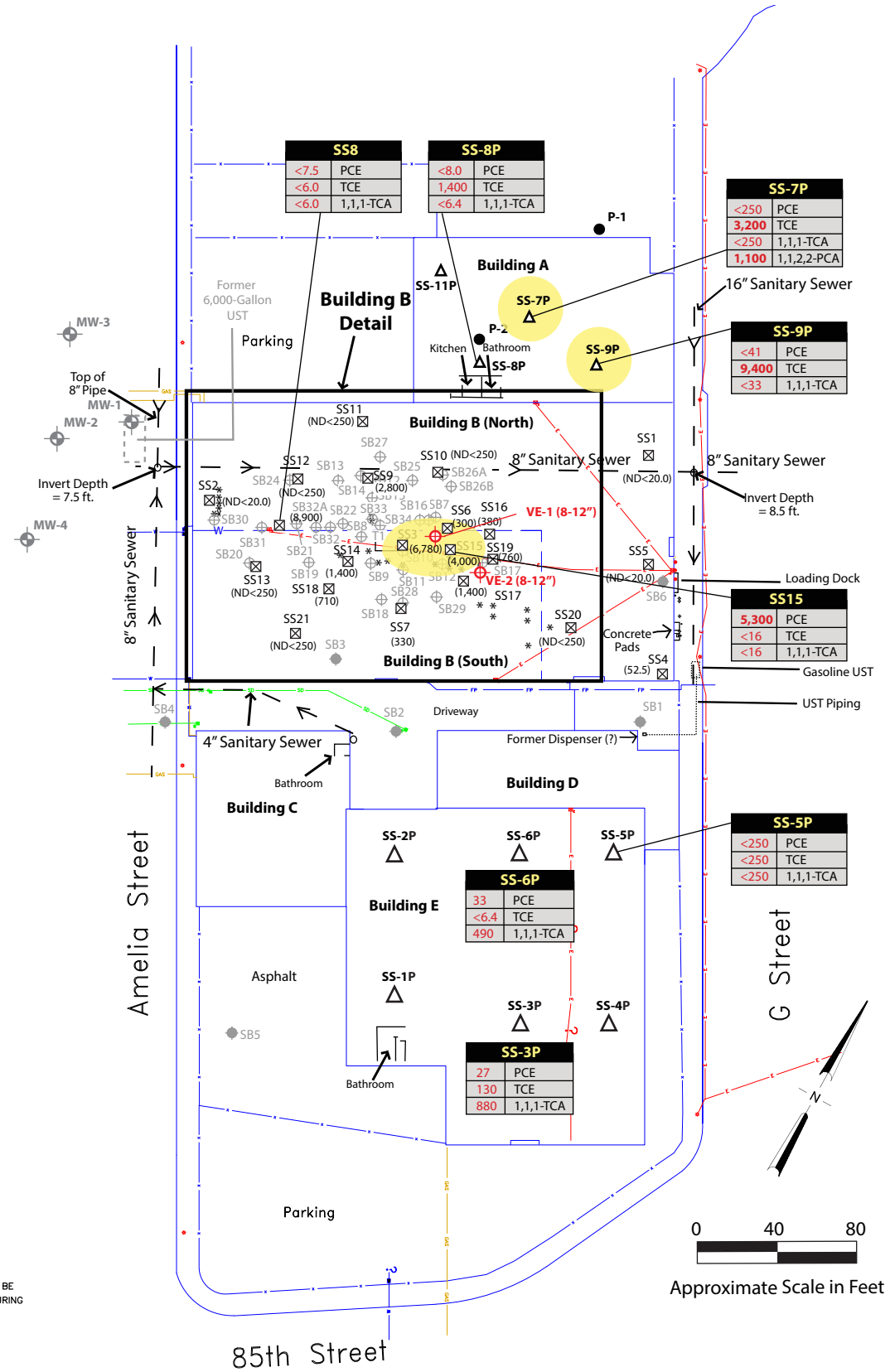

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Figure 4

8410 Amelia Street
Oakland, California

PANGEA

VOCs in Subslab Gas, June 2016

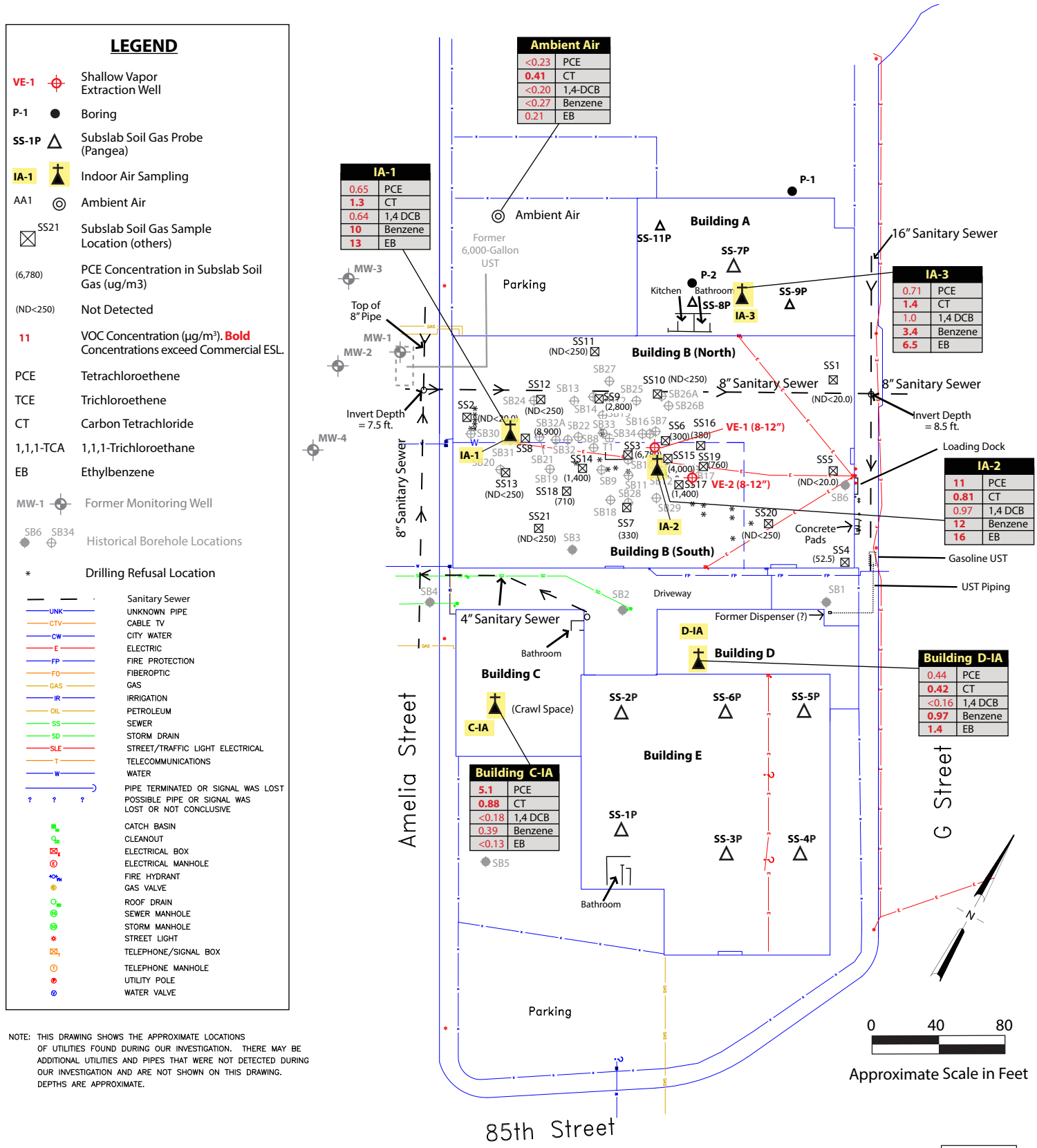

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Figure 5

8410 Amelia Street
Oakland, California

PANGEA

PCE in Indoor Air, June 2016

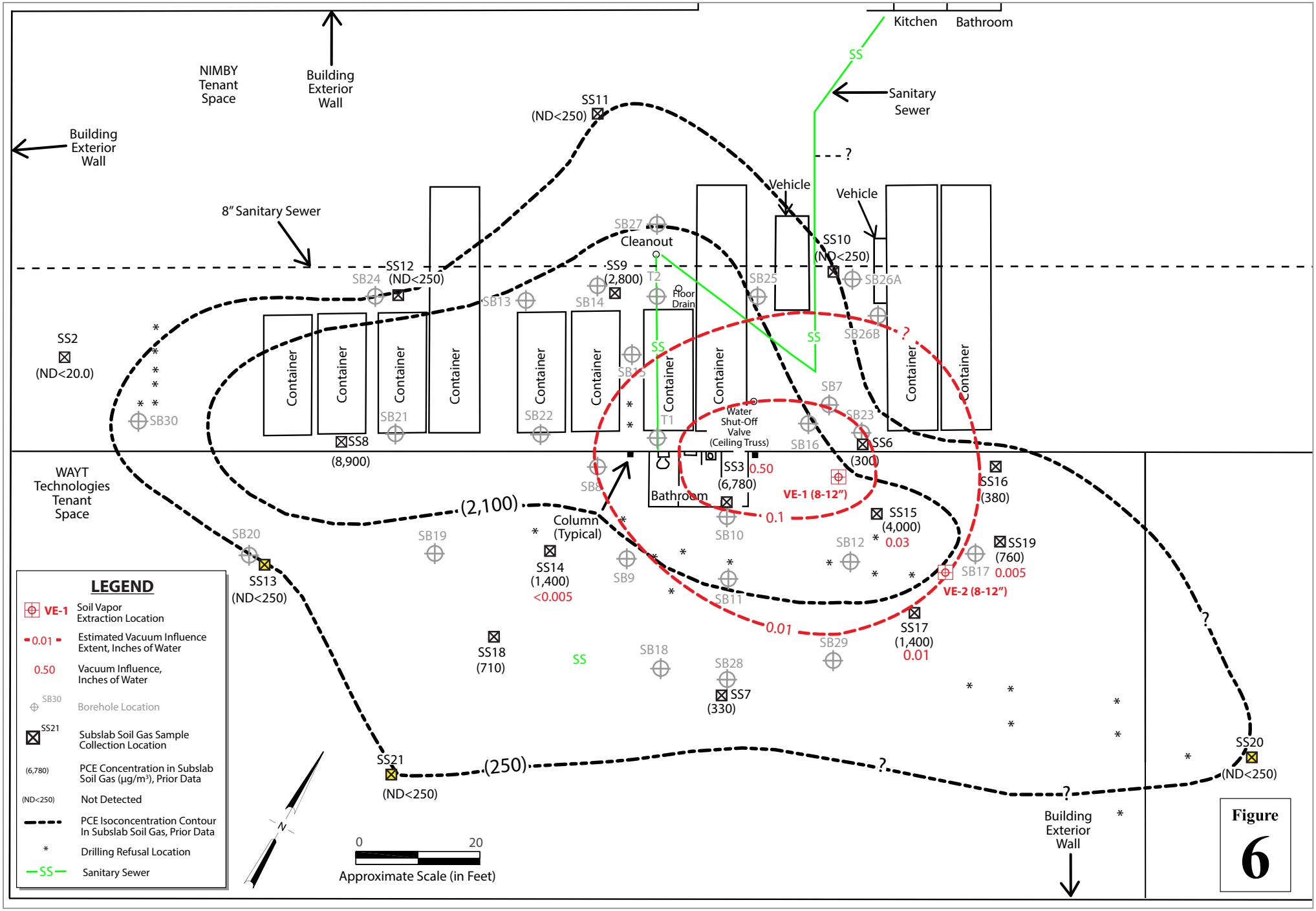
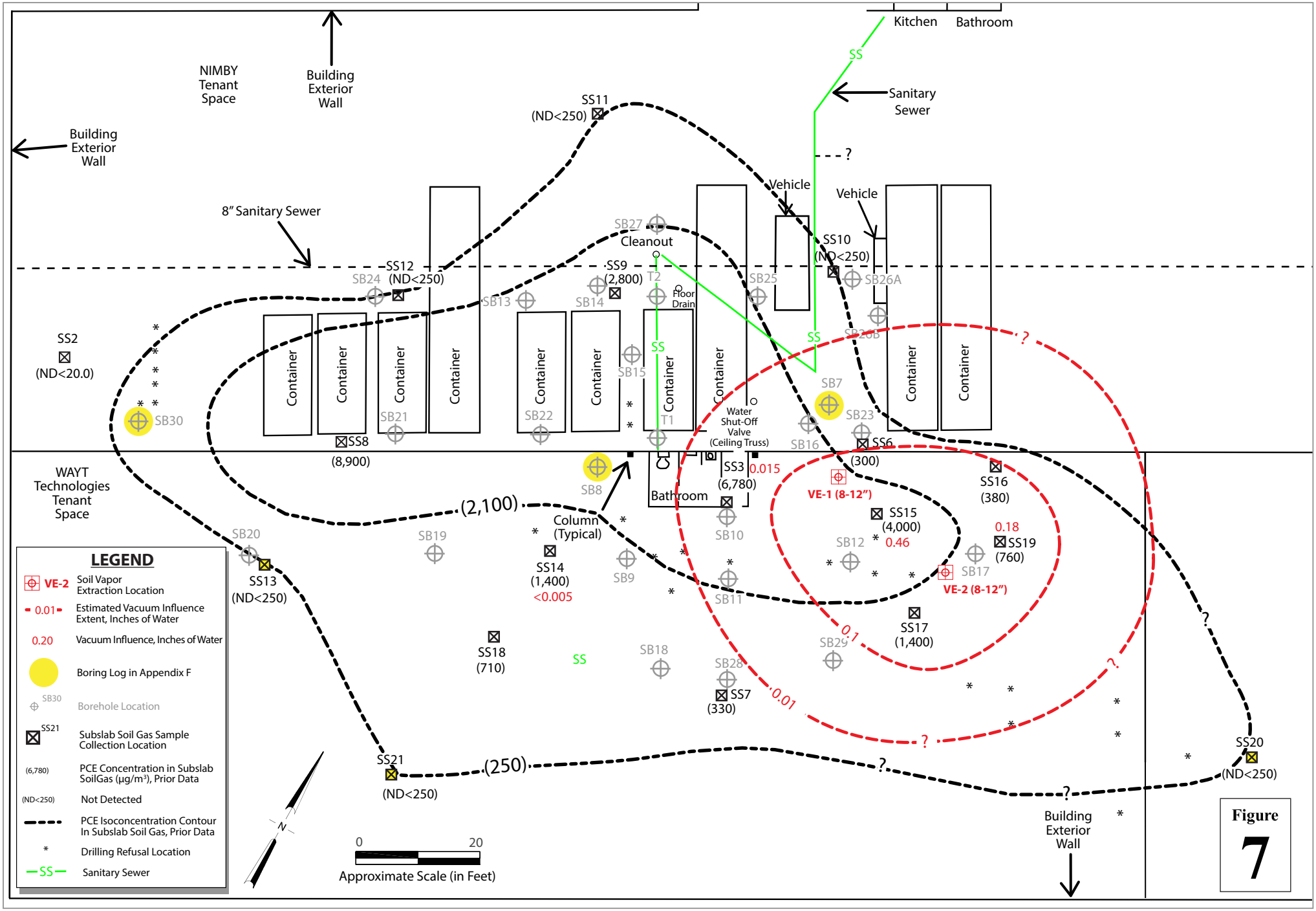


Figure 6

8410 Amelia Street
Oakland, California

PANGEA

Vacuum Influence for VE-1, June 2016



8410 Amelia Street
Oakland, California

PANGEA

Vacuum Influence for VE-2, June 2016

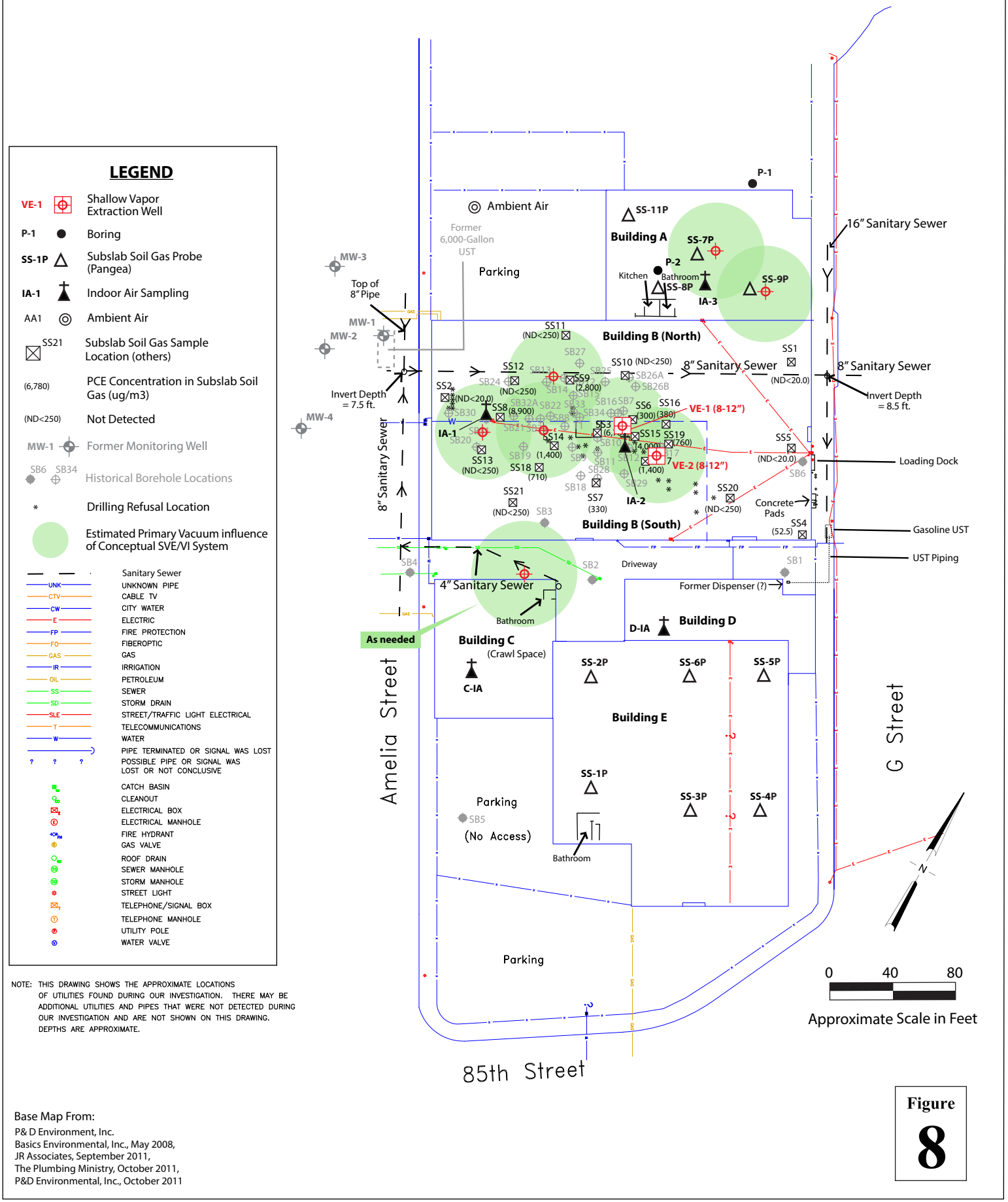


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Figure 8

8410 Amelia
Oakland, California

PANGEA

Conceptual Vapor Intrusion Mitigation System

LEGEND

- Proposed Subslab Gas Probe
- Proposed Soil Gas Probe
- VE-1 — Shallow Vapor Extraction Well
- P-1 — Boring
- SS-1P — Subslab Soil Gas Probe (Pangea)
- IA-1 — Indoor Air Sampling
- AA1 — Ambient Air
- SS21 — Subslab Soil Gas Sample Location (others)
- (6,780) — PCE Concentration in Subslab Soil Gas (ug/m3)
- (ND<250) — Not Detected
- 3,200 — VOC Concentration (µg/m³). **Bold** Concentrations exceed Commercial ESL.
- PCE — Tetrachloroethene (2,100 ESL)
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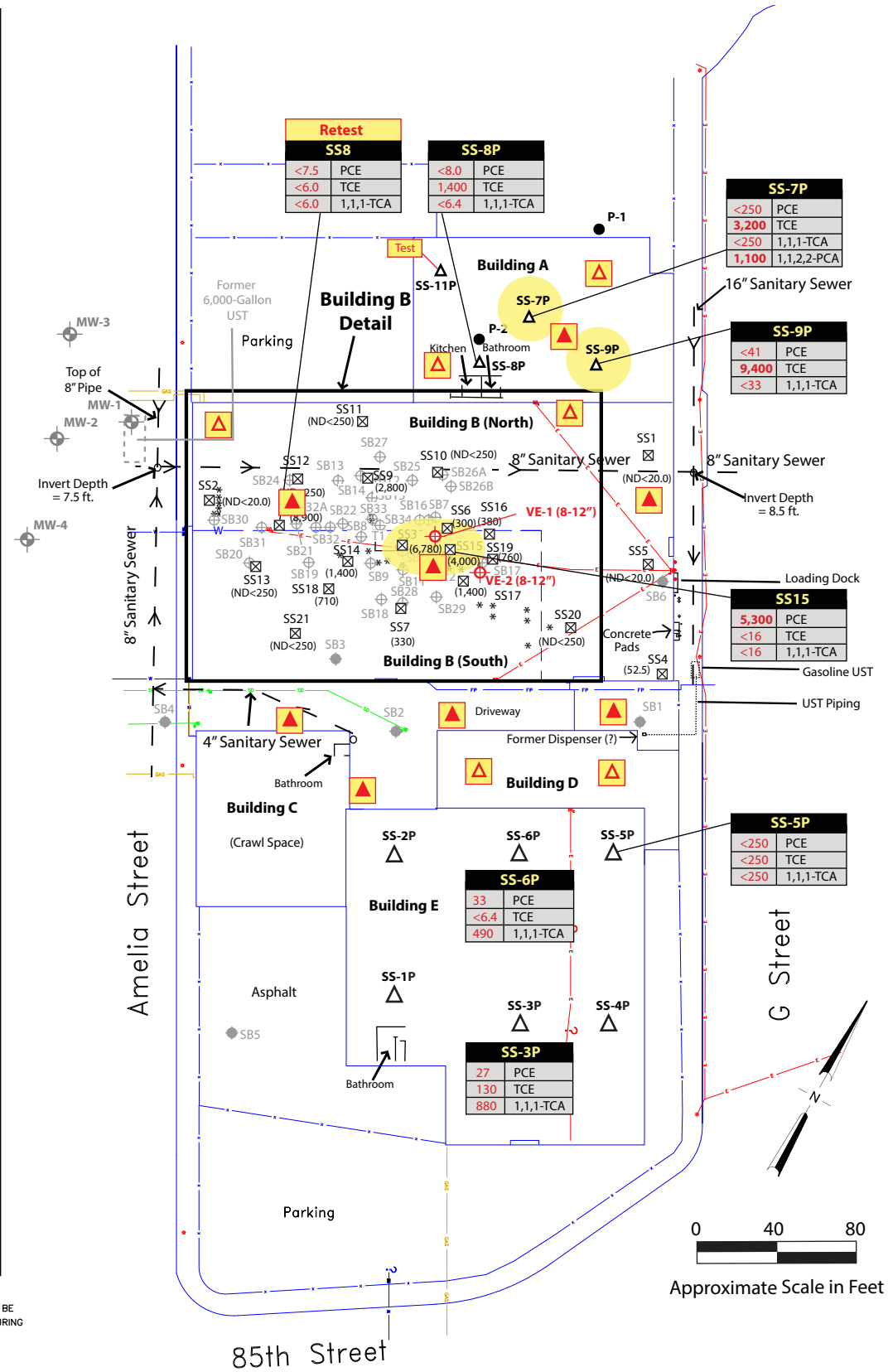

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Figure 9

8410 Amelia Street
Oakland, California

PANGEA

Proposed Subslab and Soil Gas Sampling Locations

Pangea

Table 1. Groundwater Data - 8410 Amelia Street, Oakland, California

Sample Location	Date	PCE	TCE	c-1,2-DCE	VC	1,1-DCE	1,1-DCA	1,1,1-TCA	1,1,2,2-PCA	Chloroform	Chloroethane	Chloromethane	TPHg	Benzene	Toluene	EB	Xylenes	MTBE	Other VOCs
GW Tier 1 ESL		3.0	**5.0**	6.0	0.061	3.2	5.0	62	1.0	2.3	16	190	**100**	**1.0**	40	**13**	**20**	**5.0**	varies
VI ESL - Shallow GW, Residential (≤ 10 ft)		3.0	5.6	110	0.061	170	20	4,900	NE	2.3	47,000	440	NE	1.1	3,600	13	1,300.0	1,200	varies
VI ESL - Shallow GW, Commercial (≤ 10 ft)		26	49	950	0.53	1,400	180	42,000	NE	20	400,000	3,700	NE	9.7	30,000	110	11,000.0	11,000	varies
ESL for aquatic habitat goal: fresh water		120	360	590	780	25	47	62	420	620	NE	1,100	440	46	130	290	NE	66,000	varies
ESL for aquatic habitat goal: salt water		230	200	22,000	NE	22,000	NE	3,100	900	3,200	NE	3,200	3,700	350	2,500	43	100	8,000	varies
LTCP Criteria		--	--	--	--	--	--	--	--	--	--	--	--	3,000	--	--	--	1,000	varies
Grab Groundwater Data																			
SB1-W	4/24/2008	<0.5	**1.1**	**1.3**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	**2.2**	ND
SB2-W	4/24/2008	<0.5	**2.6**	**0.68**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	**2.9**	ND
SB3-W	4/24/2008	<0.5	**30**	**1.3**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	**1.4**	ND
SB4-W	4/24/2008	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	**2.9**	ND
SB5-W	4/24/2008	<0.5	<0.5	<0.5	<0.5	**1.4**	**0.68**	**1.0**	<0.5	<0.5	<0.5	<0.5	<50	<0.5	<0.5	<0.5	<0.5	**1.4**	ND
SB6-W	4/24/2008	<2.5	**100**	**4.3**	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<50	<0.5	<0.5	<0.5	<2.5	<2.5	ND
SB7-W	11/5/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	a
SB8-W	11/25/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	ND
SB30-W	3/7/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	ND
P-1-W	6/17/2016	<0.5	**0.79**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	**0.83**	ND
Monitoring Well Data																			
MW-1	7/28/1988	--	--	--	--	--	--	--	--	--	--	--	ND	**0.6**	ND	ND	ND	--	--
	11/28/1988	--	--	--	--	--	--	--	--	--	--	--	**130**	**8.2**	**0.6**	ND	**5.0**	--	--
	2/16/1989	--	--	--	--	--	--	--	--	--	--	--	**120**	**3.2**	ND	**2.4**	**17**	--	--
	5/26/1989	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	**0.5**	**0.6**	--	--
	7/20/1989	--	--	--	--	--	--	--	--	--	--	--	**180**	**7.2**	ND	ND	**5.7**	--	--
	10/27/1989	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--
	12/8/1993	--	--	--	--	--	--	--	--	--	--	--	**200**	**52**	ND	ND	ND	--	--
	3/18/1994	--	--	--	--	--	--	--	--	--	--	--	**1,100**	**430**	**9.3**	**17**	**18**	--	--
	6/30/1994	--	--	--	--	--	--	--	--	--	--	--	**800**	**160**	**4.0**	**29**	**27**	--	--
	10/3/1994	--	--	--	--	--	--	--	--	--	--	--	**1,400**	**430**	**4.0**	**34**	**14**	--	--
	3/11/1996	--	--	--	--	--	--	--	--	--	--	--	**1,400**	**360**	**4.1**	**12**	**2.1**	--	--
	9/18/1996	--	--	--	--	--	--	--	--	--	--	--	**540**	**220**	**1.0**	**3.5**	ND	**14**	--
	4/2/1997	--	--	--	--	--	--	--	--	--	--	--	**2,400**	**960**	**10**	**7.0**	ND	**60**	--
MW-2	12/8/1993	--	--	--	--	--	--	--	--	--	--	--	**8,500**	**2,100**	**660**	**400**	**780**	--	--
	3/18/1994	--	--	--	--	--	--	--	--	--	--	--	**700**	**160**	**40**	**71**	**68**	--	--
	6/30/1994	--	--	--	--	--	--	--	--	--	--	--	**1,700**	**340**	**78**	**110**	**150**	--	--
	10/3/1994	--	--	--	--	--	--	--	--	--	--	--	**3,900**	**1,100**	**190**	**290**	**330**	--	--
	3/11/1996	--	--	--	--	--	--	--	--	--	--	--	**1,800**	**200**	**93**	**110**	**230**	--	--
	9/18/1996	--	--	--	--	--	--	--	--	--	--	--	**2,900**	**410**	**11**	**310**	**87**	**57**	--
	4/2/1997	--	--	--	--	--	--	--	--	--	--	--	**340**	**62**	**9**	**21**	**33**	**14**	--
MW-3	12/8/1993	--	--	--	--	--	--	--	--	--	--	--	ND	**3.0**	**1.6**	**1.6**	**3.9**	--	--
	3/18/1994	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--
	6/30/1994	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--
	10/3/1994	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--
	3/11/1996	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--
MW-4	3/11/1996	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	--	--
	9/18/1996	--	--	--	--	--	--	--	--	--	--	--	ND	**1.7**	ND	**1.4**	ND	ND	--
	12/17/1996	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--
	4/2/1997	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--

Notes:

Results reported in micrograms per cubic meter (µg/L).

Samples analyzed for VOCs by USEPA Method 8260.

Samples analyzed for MTBE, Benzene, Toluene, Ethylbenzene, and Xylenes by USEPA Method 8021 or 8260.

ESL = Environmental Screening Level established by San Francisco Bay Regional Water Quality Control Board, Interim Final February 2016 (Revision 3).

Bold values indicate concentrations detected above reporting limits.

Concentrations outlined with black border exceed Tier 1 groundwater ESLs (grab data and most recent data only).

< 0.5 = Compound not detected at or above the laboratory method detection limit

NE = ESL not established

-- = Not analyzed

bgs = Below ground surface

a=sec-Butyl benzene (0.66), tert-Butyl benzene (1.4), carbon disulfide (4.3), isopropylbenzene (0.64), and n-Propyl benzene (0.80)

PCE = Tetrachloroethene

TCE = Trichloroethene

VC = Vinyl chloride

DCE = Dichloroethene

DCA = Dichloroethane

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

1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane

MTBE = Methyl tert-butyl ether

EB = Ethylbenzene

Pangea

Table 2. Subslab Gas Data - 8410 Amelia Street, Oakland, California

Sample Location	Date	PCE	TCE	c-1,2-DCE	VC	1,1-DCE	1,1-DCA	1,1,1-TCA	1,1,2,2-PCA	Chloroform	Chloroethane	Chloromethane	EB	Toluene	Xylenes	Other VOCs	2-Propanol
ESL for Subslab/Soili Gas, Commercial Land Use (µg/m3):		**2,100**	**3,000**	35,000	160	310,000	7,700	4,400,000	**210**	530	44,000,000	390,000	4,900	1,300,000	440,000	varies	NE
ESL for Subslab/Soili Gas, Residential Exposure (µg/m3):		240	340	4,200	18	37,000	880	520,000	24	61	5,200,000	47,000	560	160,000	52,000	varies	NE
PANGEA																	
Building A																	
SS-7P	6/3/2015	<250	**3,200**	<250	<250	<250	<250	<250	**1,100**	<250	<250	<250	<250	<250	<250	a	--
SS-8P	6/15/2016	<8	**1,400**	**6**	<3	<4.7	<4.8	<6.4	<8.1	**20**	<12	<24	<5.1	**6.9**	<5.1	b	22
SS-9P	6/15/2016	<41	**9,400**	**110**	<15	<24	<24	<33	<42	**51**	<64	<120	<26	<23	<26	b	<59
Building B																	
SS8 (P&D Probe)	6/15/2016	<7.5	<6	<4.4	<2.8	<4.4	<4.5	<6	<7.6	<5.4	<12	<23	<4.8	<4.2	<4.8	b	<11
SS15 (P&D Probe)	6/15/2016	**5,300**	<16	<12	<7.4	<12	<12	<16	<20	<14	<31	<60	<13	<11	<13	b	<28
Building E																	
SS-3P	6/15/2016	**27**	**130**	<4.5	<2.9	**230**	**12**	**880**	<7.8	**5.7**	<12	<23	<4.9	<4.3	<4.9	b	13
SS-5P	6/3/2016	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	b	--
SS-6P	6/3/2016	<250	<250	<250	<250	<250	<250	**550**	<250	<250	<250	<250	<250	<250	<250	b	--
SS-6P	6/15/2016	**33**	<6.4	<4.7	<3.0	<4.7	<4.8	**490**	<8.1	<5.8	<12	<24	<5.1	<4.5	<5.1	b	12

Notes:

Results reported in micrograms per cubic meter (µg/m^3).

Samples analyzed for VOCs by USEPA Method TO-15 or 8260 (EPA 8010 Basic Target List).

ESL = Environmental Screening Level established by San Francisco Bay Regional Water Quality Control Board, Interim Final February 2016 (Revision 3).

Bold values indicate concentrations detected above method reporting limits.

Concentrations outlined with **black border** exceed commercial land use ESLs.

< 0.5 = Compound not detected at or above the laboratory method detection limit

NE = ESL not established

NA = Not analyzed

a = SS-7P also contained n-Butyl benzene (380 µg/m3), sec-Butyl benzene (360 µg/m3), 2-Chlorotoluene (640 µg/m3), 4-Chlorotoluene (690 µg/m3), 4-Isopropyl toluene (420 µg/m3), 1,2,3-Trichloropropane (940 µg/m3), 1,2,4-Trimethylbenzene (830 µg/m3), and 1,3,5-Trimethylbenzene (1,300 µg/m3)

b= The following other VOCs were detected in select samples: n-Butyl benzene, sec-Butyl benzene, 2-Chlorotoluene, 4-Chlorotoluene, 4-Isopropyl toluene, 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene. See lab report for full reporting of VOC concentrations.

bgs = Below ground surface.

PCE = Tetrachloroethene

TCE = Trichloroethene

VC = Vinyl chloride

DCE = Dichloroethene

DCA = Dichloroethane

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

1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane

EB = Ethylbenzene

Pangea

Table 3. Indoor Air Analytical Data - 8410 Amelia Street, Oakland, California

Sample ID	Sample Date	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC	1,1-DCE	1,4-DCB	CT	Chloroform	Chloro-methane	MEK	Benzene	EB	Toluene	m,p-Xylene	o-Xylene	Acetone	Ethanol	Other VOCs
Indoor Air ESL, Commercial Land Use (µg/m3):		**2.1**	**3.0**	35	350	0.16	310	1.1	**0.29**	0.53	390	22,000	**0.42**	**4.9**	1,300	440[c]	440[c]	140,000	NE	varies
Indoor Air ESL, Residential Exposure (µg/m3):		0.48	0.68	8.3	83.0	0.036	73	0.26	0.067	0.12	94	5,200	0.097	1.1	310	100[c]	100[c]	32,000	NE	varies
Building A																				
IA-3	6/16/2016	**0.71**	<0.17	<0.12	<0.62	<0.040	<0.062	**1.0**	**1.4**	<0.15	**1.2**	**11**	**3.4**	**6.5**	**63**	**25**	**7.1**	**46**	**94**	a
Building B																				
IA-1	6/16/2016	**0.65**	<0.18	<0.13	<0.67	<0.043	<0.067	**0.64**	**1.3**	**0.18**	**1.2**	**13**	**10**	**13**	**110**	**51**	**15**	**62**	**260**	a
IA-2	6/16/2016	**11**	**0.43**	**0.35**	<0.74	<0.048	<0.074	**0.97**	**0.81**	<0.18	**1.1**	**8.4**	**12**	**16**	**100**	**60**	**19**	**71**	**300**	a
Building C																				
C-IA	6/16/2016	**5.1**	**0.16**	<0.12	<0.59	<0.038	<0.059	<0.18	**0.88**	**0.36**	**1.1**	**7.2**	**0.39**	**1.4**	**16**	**4.8**	**2.2**	**88**	**66**	a
Building D																				
D-IA	6/16/2016	**0.44**	<0.15	<0.11	<0.55	<0.035	<0.055	<0.16	**0.42**	<0.13	**1.1**	**2.2**	**0.97**	**1.4**	**18**	**5.4**	**1.7**	**23**	**13**	a
Ambient Air																				
Ambient Air	6/16/2016	<0.23	<0.18	<0.13	<0.66	<0.043	<0.066	<0.20	**0.41**	<0.16	**1.0**	<2.5	<0.27	**0.21**	**1.1**	**0.75**	**0.26**	**6.7**	**4.9**	a, Freon 12

Notes:

Results reported in micrograms per cubic meter (µg/m^3).

Samples analyzed for VOCs by USEPA Method TO-15 or 8260 (EPA 8010 Basic Target List).

ESL = Environmental Screening Level established by San Francisco Bay Regional Water Quality Control Board, Interim Final February 2016 (Revision 3).

Bold values indicate concentrations detected above the laboratory method detection limit.

Concentrations outlined with black border exceed commercial land use ESLs.

< 0.5 = Compound not detected at or above the laboratory method detection limit

NE = ESL not established

NA = Not analyzed

ND = Not Detected above laboratory reporting limit

a= The following other VOCs were detected in select samples: 4-ethyltoluene, chloroethane, hexane, cyclohexane, and heptane. See lab report for full reporting of VOC concentrations.

[c] ESL for total xylenes.

bgs = Below ground surface.

PCE = Tetrachloroethene

TCE = Trichloroethene

VC = Vinyl chloride

DCE = Dichloroethene

DCB = Dichlorobenzene

EB = Ethylbenzene

MEK = Methyl ethyl ketone

CT = Carbon Tetrachloride

APPENDIX A

Historical Onsite and Offsite Data

Onsite Data

TABLE 1

Summary of Soil Sample Analytical Results - Organic Compounds

Sample ID	Sample Depth	Sample Date	TPH-G	TPH-SS	TPH-D	TPH-BO	TPH-K	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Other VOCs by EPA 8260
SB1-4.5	4.5	4/24/2008	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	All ND
SB2-4.5	4.5	4/24/2008	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	All ND
SB3-4.5	4.5	4/24/2008	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	All ND
SB4-4.5	4.5	4/24/2008	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	All ND
SB5-4.5	4.5	4/24/2008	ND<1.0	ND<1.0	ND<1.0, a	4.2	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	All ND
SB6-4.5	4.5	4/24/2008	ND<1.0	ND<1.0	ND<1.0	ND<2.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	All ND
ESL [1]			*83*	*83*	*83*	*370*	*370*	*0.023*	*0.044*	*2.9*	*2.3*	*2.3*	*Various*
ESL [2]			*83*	*83*	*83*	*2,500*	*2,500*	*0.023*	*0.044*	*2.9*	*3.3*	*2.3*	*Various*

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline.

TPH-SS = Total Petroleum Hydrocarbons as Stoddard solvent.

TPH-D = Total Petroleum Hydrocarbons as Diesel.

TPH-BO = Total Petroleum Hydrocarbons as Bunker oil.

TPH-K = Total Petroleum Hydrocarbons as Kerosene.

MTBE = Methyl-tert-Butyl Ether.

VOCs = Volatile Organic Compounds.

ND = Not Detected.

a = Laboratory analytical note: oil range compounds.

ESL [1] =Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table A – Shallow Soils, groundwater is a current or potential source of drinking water. Residential land use.

ESL [2] = Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table A – Shallow Soils, groundwater is a current or potential source of drinking water. Commercial/Industrial Land Use.

Values in BOLD indicate concentrations that exceed the respective ESL value.

Results in milligrams per kilogram (mg/kg) unless otherwise indicated.

TABLE 1

Summary of Soil Sample Analytical Results - Inorganic Compounds

Sample ID	Sample Depth	Sample Date	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
SB1-4.5	4.5	4/24/2008	0.50	**6.3**	240	0.86	ND<0.25	**79**	9.0	38	11	ND<0.05	ND<0.5	60	ND<0.5	ND<0.5	ND<0.5	**74**	83
SB2-4.5	4.5	4/24/2008	0.52	**12**	330	0.75	ND<0.25	**67**	32	33	12	ND<0.05	ND<0.5	68	ND<0.5	ND<0.5	ND<0.5	**70**	72
SB3-4.5	4.5	4/24/2008	ND<0.5	**5.4**	290	0.79	ND<0.25	**67**	7.8	34	10	ND<0.05	ND<0.5	49	ND<0.5	ND<0.5	ND<0.5	**60**	74
SB4-4.5	4.5	4/24/2008	ND<0.5	**6.0**	290	0.78	ND<0.25	**69**	10	34	9.9	ND<0.05	ND<0.5	58	ND<0.5	ND<0.5	ND<0.5	**63**	75
SB5-4.5	4.5	4/24/2008	ND<0.5	**4.5**	190	0.63	ND<0.25	**55**	5.9	25	7.6	ND<0.05	ND<0.5	43	ND<0.5	ND<0.5	ND<0.5	**57**	59
SB6-4.5	4.5	4/24/2008	ND<0.5	**3.6**	270	0.82	ND<0.25	**76**	7.0	38	9.4	ND<0.05	ND<0.5	55	ND<0.5	ND<0.5	ND<0.5	**67**	76
ESL[1]			*6.3*	*0.39*	*750*	*4.0*	*1.7*	*8.0*	*40*	*230*	*200*	*1.3*	*40*	150	10	20	1.3	16	600
ESL[2]			*40*	*1.6*	*1,500*	*8.0*	*7.4*	*8.0*	*80*	*230*	*750*	*10*	*40*	150	10	40	16	200	600

NOTES:

Sb = Antimony; As = Arsenic; Ba = Barium; Be = Beryllium; Cd = Cadmium; Cr = Chromium; Co = Cobalt; Cu = Copper; Pb = Lead; Hg = Mercury; Mo = Molybdenum; Ni = Nickel; Se = Selenium; Ag = Silver; Tl = Thallium; V = Vanadium; Zn = Zinc

ND = Not Detected.

ESL[1] =Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table A – Shallow Soils, groundwater is a current or potential source of drinking water. Residential land use.

ESL[2] = Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table A – Shallow Soils, groundwater is a current or potential source of drinking water. Commercial/Industrial Land Use.

Cr = Used ESL values for hexavalent chromium.

Values in BOLD indicate concentrations that exceed the respective ESL[1] value.

Underlined values indicate concentrations that exceed the respective ESL[2] value.

Results in milligrams per kilogram (mg/kg) unless otherwise indicated.

Table 2
Summary of Soil Sample Analytical Results

Sample ID	Sample Depth (Feet)	Sample Date	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs by EPA Method 8260B
SB9-3.0	3.0	1/27/2014	0.019	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
SB10-2.5	2.5	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND, except Acetone = 0.14, MEK = 0.022
SB11-2.5	2.5	1/27/2014	0.022	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
SB12-3.0	3.0	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
SB13-2.5	2.5	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND, except Acetone = 0.15, MEK = 0.026
SB14-1.0	1.0	1/27/2014	0.0066	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
SB14-2.5	2.5	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
SB16-2.5	2.5	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
T1-2.5	2.5	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
T2-2.5	2.5	1/27/2014	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	All ND
ESL[1]			0.55	0.46	0.19	0.67	0.032	Acetone = 0.5, MEK = 4.5
ESL[2]			0.70	0.46	0.19	0.67	0.085	Acetone = 0.5, MEK = 4.5

NOTES:

PCE = Tetrachloroethylene

TCE = Trichloroethylene

cis-1,2-DCE = cis-1,2-Dichloroethylene

trans-1,2-DCE = trans-1,2-Dichloroethylene

VOCs = Volatile Organic Compounds.

MEK = Methyl Ethyl Ketone (2-Butanone)

ND = Not Detected.

ESL[1] = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board, Updated December 2013, from Table A-1–Shallow Soil Screening Levels, Groundwater is a Current or Potential Drinking Water Resource, Residential Land Use.

ESL[2] = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board, Updated December 2013, from Table A-2–Shallow Soil Screening Levels, Groundwater is a Current or Potential Drinking Water Resource, Commercial/Industrial Land Use.

Values in BOLD exceed their respective ESL values.

Results and ESLs reported in milligrams per kilogram (mg/kg) unless otherwise indicated.

3.0 CHEMICAL ANALYSES AND RESULTS

3.1 Chemical Analyses

All of the soil samples retained from all of the soil borings for laboratory analysis at a depth of 4.5 feet bgs and the ground water samples retrieved from all of the soil borings were analyzed for the following:

- Multi-Range Total Petroleum Hydrocarbons as gasoline, diesel, keresone, bunker oil and Stoddard solvent (TRPH-g/d/k/bo/ss) (EPA Method SW8015C); and
- Volatile Organic Compounds (VOCs) (EPA Method SW8260B)

In addition, the soil samples collected at a depth of 4.5 feet bgs were analyzed for:

- CAM 17 Metals (EPA Method SW6020A)

3.2 Analytical Results

Results of chemical analyses on the samples collected on April 24, 2008 are presented in Tables 1 through 5. Certified laboratory reports are presented in Appendix B, including chain-of-custody documentation.

Table 1. Soil Analytical Results - Petroleum Hydrocarbons

Sample ID	Depth Feet	TPH-g mg/kg	TPH-d mg/kg	TPH-k mg/kg	TPH-bo mg/kg	TPH-ss mg/kg
SB1	4.5	ND	ND	ND	ND	ND
SB2	4.5	ND	ND	ND	ND	ND
SB3	4.5	ND	ND	ND	ND	ND
SB4	4.5	ND	ND	ND	ND	ND
SB5	4.5	ND	ND	ND	4.2	ND
SB6	4.5	ND	ND	ND	ND	ND
ESL[1]		83	83	83	410	83

ND means not detected above the reporting limit. Bold means levels above respective ESLs. [(1)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water – Residential Land Use. Values in mg/kg, Updated November 2007.

Table 2. Soil Analytical Results –Volatile Organic Compounds

Sample ID	Depth Feet	VOCs mg/kg
SB1	4.5	ND
SB2	4.5	ND
SB3	4.5	ND
SB4	4.5	ND
SB5	4.5	ND
SB6	4.5	ND

ND means not detected above the reporting limit. Bold means levels above respective ESLs. No detectable amounts of volatile organic compounds (VOCs) analyzed as part of EPA 8260B were detected.

Table 3. Soil Analytical Results - Inorganic Constituents (TTLC Extraction)

Sample ID	Depth Feet	Sb mg/kg	As mg/kg	Ba mg/kg	Be mg/kg	Cd mg/kg	Cr[(2)] mg/kg	Co mg/kg	Cu mg/kg	Pb mg/kg
SB1	4.5	0.50	**6.3**	240	0.86	ND	79	9.0	38	11
SB2	4.5	0.52	**12**	330	0.75	ND	67	32	33	12
SB3	4.5	ND	**5.4**	290	0.79	ND	67	7.8	34	10
SB4	4.5	ND	**6.0**	290	0.78	ND	69	10	34	9.9
SB5	4.5	ND	**4.5**	190	0.63	ND	55	5.9	25	7.6
SB6	4.5	ND	**3.6**	270	0.82	ND	76	7.0	38	9.4
ESL[1]		6.1	0.38	750	4.0	1.7	None	4.0	230	200

ND means not detected above the reporting limit. Bold means levels above respective ESLs. [(2)]Note: These soil samples were analyzed for total chromium detected (assumes 6:1 ratio of Chromium III to Chromium VI within these samples). [(1)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water – Residential Land Use. Values in mg/kg, Updated November 2007.

Table 3. Soil Analytical Results - Inorganic Constituents (TTLC Extraction) (cont.)

Sample ID	Depth Feet	Hg mg/kg	Mo mg/kg	Ni mg/kg	Se mg/kg	Ag mg/kg	Tl mg/kg	V mg/kg	Zn mg/kg
SB1	4.5	ND	ND	60	ND	ND	ND	74	83
SB2	4.5	ND	ND	68	ND	ND	ND	70	72
SB3	4.5	ND	ND	49	ND	ND	ND	60	74
SB4	4.5	ND	ND	58	ND	ND	ND	63	75
SB5	4.5	ND	ND	43	ND	ND	ND	57	59
SB6	4.5	ND	ND	55	ND	ND	ND	67	76
ESL[1]		1.0	40	150	10	20	1.2	15	600

ND means not detected above the reporting limit. Bold means levels above respective ESLs. [(1)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water – Residential Land Use. Values in mg/kg, Updated November 2007.

Table 4. Grab Water Analytical Results - Petroleum Hydrocarbons

Sample ID	Depth Feet	TPH-g µg/L	TPH-d µg/L	TPH-k µg/L	TPH-bo µg/L	TPH-ss µg/L
SB1	-	ND	ND	ND	ND	ND
SB2	-	ND	ND	ND	ND	ND
SB3	-	ND	ND	ND	ND	ND
SB4	-	ND	ND	ND	ND	ND
SB5	-	ND	ND	ND	ND	ND
SB6	-	ND	ND	ND	ND	ND
ESL[3]		100	100	100	100	100

ND means not detected above the reporting limit. Bold means levels above respective ESLs. [(3)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water. Values in µg/L, Updated November 2007.

TABLE 2

Summary of Groundwater Sample Analytical Results

Sample ID	Sample Date	TPH-G	TPH-SS	TPH-D	TPH-BO	MTBE by EPA 8021B	Benzene by EPA 8021B	Toluene by EPA 8021B	Ethylbenzene by EPA 8021B	VOCs by EPA 8260
SB1-W	4/24/2008	ND<50	ND<50	ND<50	ND<100	ND<5.0	ND<0.5	ND<0.5	ND<0.5	All ND except, MTBE = 2.2, TCE = 1.1, cis-1,2-DCE = 1.3
SB2-W	4/24/2008	ND<50	ND<50	ND<50	ND<100	ND<5.0	ND<0.5	ND<0.5	ND<0.5	All ND except, MTBE = 2.9, TCE = 2.6, cis-1,2-DCE = 0.68
SB3-W	4/24/2008	ND<50	ND<50	ND<50	ND<100	ND<5.0	ND<0.5	ND<0.5	ND<0.5	All ND except, MTBE = 1.4, TCE = **30**, cis-1,2-DCE = 1.3
SB4-W	4/24/2008	ND<50	ND<50	ND<50	ND<100	ND<5.0	ND<0.5	ND<0.5	ND<0.5	All ND except, MTBE = 2.9,
SB5-W	4/24/2008	ND<50	ND<50	ND<50	ND<100	ND<5.0	ND<0.5	ND<0.5	ND<0.5	All ND except, MTBE = 1.4, 1,1,1-TCA = 1.0, 1,1-DCE = 1.4, 1,1-DCA = 0.68
SB6-W	4/24/2008	ND<50	ND<50	ND<50	ND<100	ND<5.0	ND<0.5	ND<0.5	ND<0.5	All ND except, TCE = **100**, cis-1,2-DCE = 4.3
ESL [1]		*100*	*100*	*100*	*100*	*5.0*	*1.0*	*40*	*30*	*MTBE = 5.0, TCE = 5.0, cis-1,2-DCE = 6.0, 1 ,1,1-TCA = 62, 1,1-DCE = 6.0, 1,1-DCA = 5.0*
ESL [2]		*10,000*	*10,000*	*10,000*	*None*	*24,000*	*540*	*380,000*	*170,000*	*MTBE = 24,000, TCE = 530, cis-1,2-DCE = 6,200, 1 ,1,1-TCA = 130,000, 1,1-DCE = 6,300, 1,1-DCA = 1,000*
ESL [3]		*29,000*	*29,000*	*29,000*	*None*	*80,000*	*1,800*	*530,000*	*170,000*	*MTBE = 80,000, TCE = 1,800, cis-1,2-DCE = 17,000, 1 ,1,1-TCA = 360,000, 1,1-DCE = 18,000, 1,1-DCA = 3,400*

NOTES:

TPH-G = Total Petroleum Hydrocarbons as Gasoline.

TPH-SS = Total Petroleum Hydrocarbons as Stoddard solvent.

TPH-D = Total Petroleum Hydrocarbons as Diesel.

TPH-BO = Total Petroleum Hydrocarbons as Bunker oil.

MTBE = Methyl-tert-Butyl Ether.

VOCs = Volatile Organic Compounds.

TCE = Trichloroethene.

cis-1,2-DCE = cis-1,2-Dichloroethene.

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

1,1-DCE = 1,1-Dichloroethene.

1,1-DCA = 1,1-Dichloroethane.

ND = Not Detected.

ESL [1] =Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table A – Shallow Soils, groundwater is a current or potential source of drinking water.

ESL [2] = Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table E1 – Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns. Residential Land Use.

ESL [3] = Environmental Screening Level, developed by San Francisco Bay – Regional Water Quality Control Board (SF-RWQCB), updated May 2008, from Table E1 – Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Concerns. Commercial/Industrial Land Use.

Values in BOLD indicate concentrations that exceed the respective Table A ESL value.

Results in micrograms per liter (µg/L) unless otherwise indicated.

Table 3

Summary of Borehole Groundwater Sample Analytical Results

Sample ID	Sample Date	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs by EPA Method 8260B
SB7-W	11/5/2013	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND, except
							sec-Butyl benzene = 0.66,
							tert-Butyl benzene = 1.4,
							Carbon Disulfide = 4.3,
							Isopropylbenzene = 0.64,
							n-Propyl benzene = 0.80
SB8-W	11/25/2013	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND
SB30-W	3/7/2014	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND
ESL[1]		5.0	5.0	6.0	10	0.5	sec-Butyl benzene = None,
							tert-Butyl benzene = None,
							Carbon Disulfide = None,
							Isopropylbenzene = None,
							n-Propyl benzene = None,
ESL [2]		640	1,300	26,000	120,000	18	sec-Butyl benzene = None,
							tert-Butyl benzene = None,
							Carbon Disulfide = None,
							Isopropylbenzene = None,
							n-Propyl benzene = None,

NOTES:

PCE = Tetrachloroethene.

TCE = Trichloroethene.

TAME = tert-Amyl methyl ether

cis-1,2-DCE = cis-1,2-Dichloroethene

trans-1,2-DCE = trans-1,2-Dichloroethene

VOCs = Volatile Organic Compounds

ND = Not Detected.

ESL[1] = Environmental Screening Level, by San Francisco Bay- Regional Water Quality Control Board Updated December 2013, from Table F-1a - Groundwater Screening Levels, Groundwater is a Current or Potential Source of Drinking Water.

ESL[2] = Environmental Screening Level, by San Francisco Bay- Regional Water Quality Control Board Updated December 2013, from Table E-1 - Groundwater Screening Levels for Evaluation of Potential Vapor Intrusion Fine-Coarse Mix. Commercial/Industrial Land Use.

Values in BOLD exceed their respective ESL values.

Results and ESLs reported in micrograms per Liter (µg/L) unless otherwise noted.

Table 3. Soil Analytical Results - Inorganic Constituents (TTLC Extraction) (cont.)

Sample ID	Depth Feet	Hg mg/kg	Mo mg/kg	Ni mg/kg	Se mg/kg	Ag mg/kg	Tl mg/kg	V mg/kg	Zn mg/kg
SB1	4.5	ND	ND	60	ND	ND	ND	74	83
SB2	4.5	ND	ND	68	ND	ND	ND	70	72
SB3	4.5	ND	ND	49	ND	ND	ND	60	74
SB4	4.5	ND	ND	58	ND	ND	ND	63	75
SB5	4.5	ND	ND	43	ND	ND	ND	57	59
SB6	4.5	ND	ND	55	ND	ND	ND	67	76
ESL[1]		1.0	40	150	10	20	1.2	15	600

ND means not detected above the reporting limit. Bold means levels above respective ESLs. [(1)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water – Residential Land Use. Values in mg/kg, Updated November 2007.

Table 4. Grab Water Analytical Results - Petroleum Hydrocarbons

Sample ID	Depth Feet	TPH-g µg/L	TPH-d µg/L	TPH-k µg/L	TPH-bo µg/L	TPH-ss µg/L
SB1	-	ND	ND	ND	ND	ND
SB2	-	ND	ND	ND	ND	ND
SB3	-	ND	ND	ND	ND	ND
SB4	-	ND	ND	ND	ND	ND
SB5	-	ND	ND	ND	ND	ND
SB6	-	ND	ND	ND	ND	ND
ESL[3]		100	100	100	100	100

ND means not detected above the reporting limit. Bold means levels above respective ESLs. [(3)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water. Values in µg/L, Updated November 2007.

Table 5. Grab Water Analytical Results – Volatile Organic Constituents

Sample ID	Depth Feet	MTBE µg/L	TCE µg/L	Cis-1,2-DCE µg/L	1,1-DCA µg/L	1,1,1-TCA µg/L
SB1	-	2.2	1.1	1.3	ND	ND
SB2	-	2.9	2.6	0.68	ND	ND
SB3	-	1.4	**30**	1.3	ND	ND
SB4	-	2.9	ND	ND	ND	ND
SB5	-	1.4	ND	ND	1.4	1.0
SB6	-	ND	**100**	4.3	ND	ND
ESL[3]		5.0	5.0	6.0	5.0	200

ND means not detected above the reporting limit. Bold means levels above respective ESLs. No other detectable amounts of volatile organic compounds (VOCs) analyzed as part of EPA 8260B were detected in the grab water samples. . [(3)]ESL = San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Table A – Shallow Soils (≤3m bgs) Groundwater IS Current or Potential Source of Drinking Water. Values in µg/L, Updated November 2007.

TCE = Trichloroethene
Cis-1,2-DCE = Cis-1,2-Dichloroethene
1,1-DCA = 1,1-Dichloroethane
1,1,1-TCA = 1,1,1-Trichloroethane

TABLE 1. CUMULATIVE GROUND WATER SAMPLE RESULTS

WELL	DATE	TPHg (mg/L)	benzene (µg/L)	toluene (µg/L)	ethyl-benzene (µg/L)	xylenes (µg/L)	MTBE (µg/L)
MW1	4/2/97	2.4	960	10	7	ND	60
MW1	9/18/96	0.54	220	1	3.5	ND	14
MW1	3/11/96	1.4	360	4.1	12	2.1	--
MW1	10/3/94	1.4	430	4	34	14	--
MW1	6/30/94	0.8	160	4	29	27	--
MW1	3/18/94	1.1	430	9.3	17	18	--
MW1	12/8/93	0.2	52	ND	ND	ND	--
MW1	10/27/89	ND	ND	ND	ND	ND	--
MW1	7/20/89	0.18	7.2	ND	ND	5.7	--
MW1	5/26/89	ND	ND	ND	0.53	0.57	--
MW1	2/16/89	0.12	3.2	ND	2.4	17	--
MW1	11/28/88	0.13	8.2	0.6	ND	5.0	--
MW1	7/28/88	ND	0.6	ND	ND	ND	--
MW2	4/2/97	0.34	62	9	21	33	14
MW2	9/18/96	2.9	410	11	310	87	57
MW2	3/11/96	1.8	200	93	110	230	--
MW2	10/3/94	3.9	1,100	190	290	330	--
MW2	6/30/94	1.7	340	78	110	150	--
MW2	3/18/94	0.7	160	40	71	68	--
MW2	12/8/93	8.5	2,100	660	400	780	--
MW3	3/11/96	ND	3.0	1.6	1.6	3.9	--
MW3	10/3/94	ND	ND	ND	ND	ND	--
MW3	6/30/94	ND	ND	ND	ND	ND	--
MW3	3/18/94	ND	ND	ND	ND	ND	--
MW3	12/8/93	ND	ND	ND	ND	ND	--
MW4	4/2/97	ND	ND	ND	ND	ND	ND
MW4	12/17/96	ND	ND	ND	ND	ND	ND
MW4	9/18/96	ND	1.7	ND	1.4	ND	ND
MW4	3/11/96	ND	ND	ND	ND	ND	--

NOTES

ND: Analyte not detected above stated limits.
TPHg: Total petroleum hydrocarbons as gasoline.
MTBE: Methyl t-butyl ether.
--: Not Analyzed
mg/L: Milligrams per liter.
µg/L: Micrograms per liter.
Results reported prior to 12/8/93 reported by Uriah
See laboratory reports for individual detection limits used.

TABLE 2. MEASUREMENTS OF PURGED WELL WATER

WELL	VOLUME PURGED (gallons)	pH (Standard Units)	TEMPERATURE (Fahrenheit)	CONDUCTIVITY µmho ($x10^2$)
MW1	15	7.5	64.8	8.89
	30	7.3	65.8	8.70
	45	7.3	66.0	8.56
	60	7.3	66.1	8.54
MW2	12	7.6	66.0	8.61
	24	7.6	65.6	8.50
	36	7.6	65.3	8.37
	48	7.6	65.3	8.37
MW4	2	7.7	69.1	10.93
	4	7.6	67.2	7.98
	6	7.6	66.3	7.70
	8	7.6	66.1	7.69

TABLE 3: WELL ELEVATION DATA

WELL ID	DATE	DEPTH TO WATER (feet)	TOP OF CASING ELEVATION[1] (feet)	GROUND WATER ELEVATION[1] (feet)
MW1	4/2/97	6.28	12.62	6.34
" "	12/17/96	5.49	" "	7.13
" "	9/18/96	6.77	" "	5.85
" "	3/11/96	5.53	" "	7.10
" "	10/3/94	6.97	" "	5.66
" "	6/30/94	6.93	" "	5.70
" "	3/18/94	6.62	" "	6.01
" "	12/8/93	6.84	" "	5.79
MW2	4/2/97	6.51	12.79	6.28
" "	12/17/96	5.72	" "	7.07
" "	9/18/96	6.96	" "	5.83
" "	3/11/96	5.78	" "	7.01
" "	10/3/94	7.18	" "	5.61
" "	6/30/93	7.02	" "	5.77
" "	3/18/93	6.83	" "	5.96
" "	12/8/93	7.13	" "	5.66
MW3	4/2/97	6.45	12.75	6.30
" "	12/17/96	5.64	" "	7.11
" "	9/18/96	6.88	" "	5.87
" "	3/11/96	5.68	" "	7.07
" "	10/3/94	7.11	" "	5.64
" "	6/30/93	7.03	" "	5.72
" "	3/18/93	6.77	" "	5.98
" "	12/8/93	7.12	" "	5.63
MW4	4/2/97	7.99	14.26	6.27
" "	12/17/96	7.20	" "	7.06
" "	9/18/96	8.44	" "	5.82
" "	3/11/96	7.26	" "	7.00

Notes:

[1] Measured relative to mean sea level.

Table 1
Summary of Sub-Slab Soil Gas Sample Analytical Results

Sample ID	Sample Date	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs by EPA Method 8260B
Mobile Lab							
SS1 (5P)	10/24/2013	ND<20.0	30.0	ND<20.0	ND<20.0	ND<20.0	ND
SS1 (10P)	10/24/2013	ND<20.0	33.0	ND<20.0	ND<20.0	ND<20.0	ND
SS2 1P	10/24/2013	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND
SS2 5P	10/24/2013	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND
SS2 10P	10/24/2013	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND
SS3 1P	10/24/2013	**6,080**	63.5	ND<20.0	ND<20.0	ND<20.0	ND, except 1,1,1-TCA = 18.5
SS3 5P	10/24/2013	**6,500**	61.0	ND<20.0	ND<20.0	ND<20.0	ND, except 1,1,1-TCA = 38.0
SS3 10P	10/24/2013	**6,780**	62.5	ND<20.0	ND<20.0	ND<20.0	ND, except 1,1,1-TCA = 31.0
SS4 (10P)	10/24/2013	52.5	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND
SS5 (5P)	10/24/2013	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND
SS5 10P	10/25/2013	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND<20.0	ND
Stationary Lab							
SS6	10/31/2013	300	ND<250	ND<250	ND<250	ND<250	ND, except TBA = 9,100
SS7	2/26/2014	330	ND<250	ND<250	ND<250	ND<250	ND
SS7	10/31/2013	ND<250	ND<250	ND<250	ND<250	ND<250	ND
SS8	2/27/2014	**8,900**	**1,700**	280	ND<250	ND<250	ND
SS8	10/31/2013	ND<250	ND<250	ND<250	ND<250	ND<250	ND
SS9	10/31/2013	**2,800**	ND<250	ND<250	ND<250	ND<250	ND
SS10	11/25/2013	ND<250	ND<250	ND<250	ND<250	ND<250	ND
SS11	11/25/2013	ND<250	ND<250	ND<250	ND<250	ND<250	ND
SS12	11/25/2013	ND<250	ND<250	ND<250	ND<250	ND<250	ND
SS13	3/4/2014	ND<250	ND<250	ND<250	ND<250	ND<250	ND
SS14	3/4/2014	1,400	ND<250	ND<250	ND<250	ND<250	ND
SS15	3/4/2014	**4,000**	ND<250	ND<250	ND<250	ND<250	ND
SS16	3/6/2014	380	ND<250	ND<250	ND<250	ND<250	ND, except TBA = 32,000
SS17	3/6/2014	1,400	ND<250	ND<250	ND<250	ND<250	ND

Table 1
Summary of Sub-Slab Soil Gas Sample Analytical Results

Sample ID	Sample Date	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs by EPA Method 8260B
SS18	3/6/2014	710	ND<250	ND<250	ND<250	ND<250	ND
SS19	3/12/2014	760	ND<250	ND<250	ND<250	ND<250	ND
SS20	3/12/2014	ND<250	ND<250	ND<250	ND<250	ND<250	ND, except TBA = 6,700
SS21	3/12/2014	ND<250	ND<250	ND<250	ND<250	ND<250	ND
ESL[1]		2,100	3,000	31,000	260,000	160	1,1,1-TCA = 22,000,000 TBA = No Value
ESL[2]		2.1	3.0	31	260	0.16	1,1,1-TCA = 22,000 TBA = No Value
20 X ESL[2]		42	60	620	5,200	3	1,1,1-TCA = 440,000 TBA = No Value

NOTES:

PCE = Tetrachloroethene.
TCE = Trichloroethene.
TAME = tert-Amyl methyl ether
cis-1,2-DCE = cis-1,2-Dichloroethene
trans-1,2-DCE = trans-1,2-Dichloroethene
VOCs = Volatile Organic Compounds
1,1,1-TCA = 1,1,1-Trichloroethane
TBA = tert-Butyl alcohol
ND = Not detected.

ESL[1] = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board updated December 2013, from Table E-2 - Soil Gas (Vapor Intrusion Concerns). Commercial/Industrial Land Use.

ESL[2] = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board, Updated December 2013, from Table E-3 – Ambient and Indoor Air Screening Levels for Commercial/Industrial Land Use.

Values in BOLD exceed their respective ESL[1] values.

Results and ESLs reported in micrograms per cubic meter ($\mu g/m^3$) unless otherwise specified.

Offsite Data

TABLE 3
Summary of Offsite Potential TCE Sources

SITE NAME	ADDRESS	DISTANCE & DIRECTION FROM SUBJECT SITE
FORMER D. MERLINO & SONS / FORMER ALITA BRAND MACARONI	968, 976 81ST AVENUE 1001 83RD AVENUE	200 FEET EAST-NOETHEAST
FORMER ELMHURST ANODIZING	910 81ST AVENUE	50 FEET NORTH-NORTHWEST
CONTINENTAL PLATING	995 85TH AVENUE	500 FEET EAST-NORTHEAST
AMERICAN CHROME	932 86TH AVENUE	440 FEET SOUTHEAST

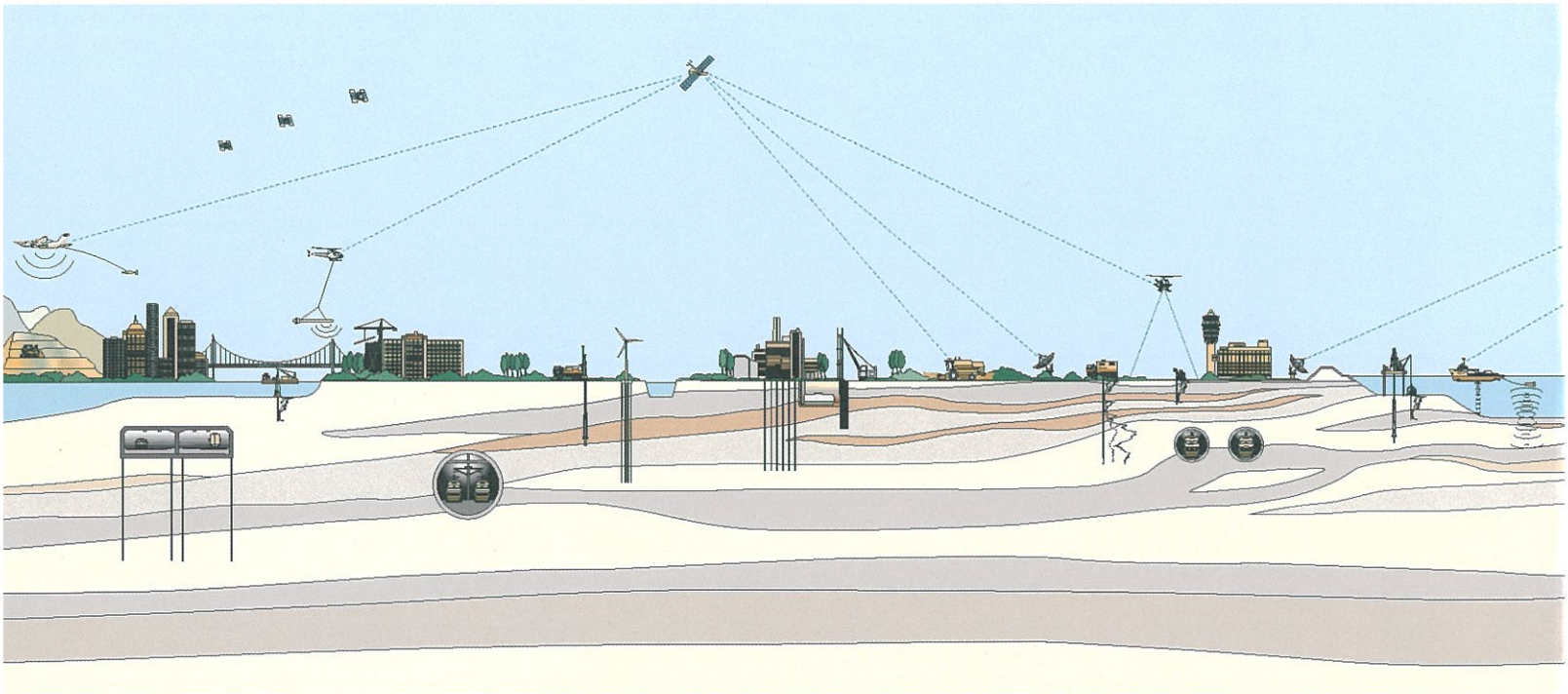
FUGRO WEST, INC.

FINAL
REMOVAL ACTION WORKPLAN
TASSAFARONGA VILLAGE
OAKLAND, CALIFORNIA

Prepared for:
OAKLAND HOUSING AUTHORITY

September 2008

Prepared by:
Fugro West, Inc.
1000 Broadway, Suite 440
Oakland, California 94607
Fugro Project No. 1541.004



PUBLIC HOUSING COMPLEX

'G' STREET

85TH AVENUE

PRIVATE ROAD

'E' STREET

84TH AVENUE

FORMER PASTA FACTORY AND RAILROAD PARCELS

B-5	Dec 05	
TPHg	<50	µg/L
TPHd	<50	µg/L
TPHmo	<0.05	µg/L
Dieldrin	0.13	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	<0.5	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	<0.5	µg/L
VC	<0.5	µg/L

B-6	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	1.1	µg/L
cis-1,2-DCE	11	µg/L
PCE	<1.0	µg/L
trans-1,2-DCE	2.7	µg/L
TCE	110	µg/L
VC	<1.0	µg/L

B-4	Dec 05	
TPHg	120	µg/L
TPHd	<50	µg/L
TPHmo	<0.05	µg/L
Dieldrin	<0.05	µg/L
Acetone	NA	µg/L
1,1-DCE	0.64	µg/L
cis-1,2-DCE	8.0	µg/L
PCE	<0.5	µg/L
trans-1,2-DCE	2.3	µg/L
TCE	120	µg/L
VC	<0.5	µg/L

B-7	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.50	µg/L
cis-1,2-DCE	12	µg/L
PCE	<0.50	µg/L
trans-1,2-DCE	3.5	µg/L
TCE	93	µg/L
VC	<0.50	µg/L

B-10	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.50	µg/L
cis-1,2-DCE	4.9	µg/L
PCE	<0.50	µg/L
trans-1,2-DCE	2	µg/L
TCE	18	µg/L
VC	<0.50	µg/L

B-9	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.50	µg/L
cis-1,2-DCE	1.5	µg/L
PCE	4.4	µg/L
trans-1,2-DCE	<0.50	µg/L
TCE	8.4	µg/L
VC	<0.50	µg/L

B-3	Dec 05	
TPHg	190	µg/L
TPHd	<50	µg/L
TPHmo	<0.05	µg/L
Dieldrin	<0.05	µg/L
Acetone	NA	µg/L
1,1-DCE	0.63	µg/L
cis-1,2-DCE	44	µg/L
PCE	<0.5	µg/L
trans-1,2-DCE	18	µg/L
TCE	220	µg/L
VC	1.8	µg/L

B-12	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<2.0	µg/L
cis-1,2-DCE	47	µg/L
PCE	<2.0	µg/L
trans-1,2-DCE	15	µg/L
TCE	160	µg/L
VC	<2.0	µg/L

B-12 dUP	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<2.0	µg/L
cis-1,2-DCE	51	µg/L
PCE	<2.0	µg/L
trans-1,2-DCE	17	µg/L
TCE	190	µg/L
VC	<2.0	µg/L

B-11	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.50	µg/L
cis-1,2-DCE	<0.50	µg/L
PCE	<0.50	µg/L
trans-1,2-DCE	<0.50	µg/L
TCE	<0.50	µg/L
VC	<0.50	µg/L

B-13	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	23	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	2.1	µg/L
VC	<0.50	µg/L

TSI-G6	May 06	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	1.9	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	<0.5	µg/L
VC	<0.5	µg/L

DP8-W	Mar 05	
TPHg	<50	µg/L
TPHd	190	µg/L
TPHmo	1,400	µg/L
Dieldrin	NA	µg/L
Acetone	36	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	<0.5	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	<0.5	µg/L
VC	<0.5	µg/L

B-1	Dec 05	
TPHg	95	µg/L
TPHd	<50	µg/L
TPHmo	<0.05	µg/L
Dieldrin	<0.062	µg/L
Acetone	NA	µg/L
1,1-DCE	0.54	µg/L
cis-1,2-DCE	1.4	µg/L
PCE	130	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	3.0	µg/L
VC	<0.5	µg/L

B-2	Dec 05	
TPHg	<0.50	µg/L
TPHd	61	µg/L
TPHmo	<0.05	µg/L
Dieldrin	<0.05	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	0.8	µg/L
PCE	<0.5	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	4.8	µg/L
VC	<0.5	µg/L

B-8	Oct 07	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	NA	µg/L
1,1-DCE	<0.50	µg/L
cis-1,2-DCE	3.3	µg/L
PCE	<0.50	µg/L
trans-1,2-DCE	0.92	µg/L
TCE	20	µg/L
VC	<0.50	µg/L

TDP-2	Jun 06	
TPHg	60	µg/L
TPHd	<62	µg/L
TPHmo	<62	µg/L
Dieldrin	NA	µg/L
Acetone	<0.5	µg/L
1,1-DCE	0.56	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	6.8	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	3.4	µg/L
VC	<0.5	µg/L

TDP-1	Jun 06	
TPHg	50	µg/L
TPHd	<62	µg/L
TPHmo	<62	µg/L
Dieldrin	NA	µg/L
Acetone	<0.5	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	37	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	2.1	µg/L
VC	<0.5	µg/L

TSI-G5	May 06	
TPHg	<50	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	33	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	2.0	µg/L
VC	<0.5	µg/L

DP7-W	Mar 05	
TPHg	57	µg/L
TPHd	180	µg/L
TPHmo	<250	µg/L
Dieldrin	NA	µg/L
Acetone	65	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	0.52	µg/L
PCE	27	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	1.7	µg/L
VC	<0.5	µg/L

TSI-G2	May 06	
TPHg	NA	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	23	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	2.0	µg/L
VC	<0.5	µg/L

DP2-W	Mar 05	
TPHg	<50	µg/L
TPHd	160	µg/L
TPHmo	690	µg/L
Dieldrin	NA	µg/L
Acetone	<5.0	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	0.76	µg/L
PCE	13	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	1.7	µg/L
VC	<0.5	µg/L

TSI-G1	May 06	
TPHg	50	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	3.3	µg/L
PCE	45	µg/L
trans-1,2-DCE	0.59	µg/L
TCE	5.2	µg/L
VC	<0.5	µg/L

DP1-W	Mar 05	
TPHg	<50	µg/L
TPHd	210	µg/L
TPHmo	1,200	µg/L
Dieldrin	NA	µg/L
Acetone	<10	µg/L
1,1-DCE	<1.0	µg/L
cis-1,2-DCE	5.2	µg/L
PCE	44	µg/L
trans-1,2-DCE	<1.0	µg/L
TCE	3.4	µg/L
VC	<1.0	µg/L

TSI-G4	May 06	
TPHg	<50	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	25	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	1.2	µg/L
VC	<0.5	µg/L

TSI-G4 (Duplicate)	May 06	
TPHg	<50	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	25	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	1.2	µg/L
VC	<0.5	µg/L

TSI-G3	May 06	
TPHg	<50	µg/L
TPHd	NA	µg/L
TPHmo	NA	µg/L
Dieldrin	NA	µg/L
Acetone	<50	µg/L
1,1-DCE	<0.5	µg/L
cis-1,2-DCE	<0.5	µg/L
PCE	3.0	µg/L
trans-1,2-DCE	<0.5	µg/L
TCE	1.7	µg/L
VC	<0.5	µg/L

LEGEND

- DP-15 — APPROXIMATE LOCATION OF AEI BORING (COMPLETED BY MARCH 4, 2005)
- TSI-S12 — APPROIXMATE LOCATION OF WEISS DTSC (COMPLETED BY MAY 10, 2006)
- TDP-4 — APPROXIMATE LOCATION OF FUGRO BORING (COMPLETED IN DECEMBER 2005 AND JUNE 2006)
- HA-8 — APPROXIMATE LOCATION OF HAND-AUGERED BORING
- B-5 — APPROXIMATE LOCATION OF DRILLED BORING
- CPT-3 — APPROXIMATE LOCATION OF PIEZOMETER
- HA-40 — APPROXIMATE LOCATION OF FUGRO HAND-AUGERED BORING (COMPLETED IN SEPTEMBER 2007)
- TSI-SG5 — APPROXIMATE LOCATION OF WEISS DTSC SOIL GAS BORING
- SG-2 — APPROXIMATE LOCATION OF FUGRO SOIL GAS BORING

NORTH

0 80 160

FEET

FUGRO WEST, INC.
1000 Broadway, Suite 440, Oakland, California, 94607
Tel.: (510) 268-0461; FAX: (510) 268-0545

GROUNDWATER CONCENTRATIONS
Tassafaronga Village
Oakland, California

Project No. 1541.004 July 2008 PLATE 9

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PUBLIC HOUSING COMPLEX

FORMER PASTA FACTORY AND RAILROAD PARCELS

'G' STREET

'E' STREET

85TH AVENUE

84TH AVENUE

PRIVATE ROAD

2.5'		
Chromium	56	mg/kg
Lead	2.2	mg/kg
Zinc	63	mg/kg
4.0'		
Chromium	50	mg/kg
Lead	7.8	mg/kg
Zinc	53	mg/kg

1.5'		
Chromium	25	mg/kg
Lead	11	mg/kg
Zinc	47	mg/kg
3.0'		
Chromium	53	mg/kg
Lead	8.9	mg/kg
Zinc	51	mg/kg
6.5'		
Chromium	56	mg/kg
Lead	9.4	mg/kg
Zinc	57	mg/kg

3.0'		
Chromium	49	mg/kg
Lead	7.5	mg/kg
Zinc	47	mg/kg
4.5'		
Chromium	12	mg/kg
Lead	5.9	mg/kg
Zinc	40	mg/kg

2.5'		
Lead	4.6	mg/kg

2.5'		
Lead	24	mg/kg
4.5'		
Chromium	39	mg/kg
Lead	4.5	mg/kg
Zinc	40	mg/kg

3.0'		
Chromium	28	mg/kg
Lead	4.8	mg/kg
Zinc	29	mg/kg

2.0'		
Lead	1.8	mg/kg
3.0'		
Chromium	36	mg/kg
Lead	56	mg/kg
Zinc	75	mg/kg
4.5'		
Lead	5.5	mg/kg

1.5'		
Lead	14	mg/kg

3.5'		
Chromium	69	mg/kg
Lead	9.3	mg/kg
Zinc	58	mg/kg

2.0'		
Lead	18	mg/kg

4.0'		
Chromium	47	mg/kg
Lead	7.5	mg/kg
Zinc	44	mg/kg
1.5'		
Chromium	48	mg/kg
Lead	15	mg/kg
Zinc	56	mg/kg

2.0'		
Chromium	42	mg/kg
Lead	8.6	mg/kg
Zinc	43	mg/kg

2.0'		
Chromium	44	mg/kg
Lead	8.2	mg/kg
Zinc	45	mg/kg

2.0'		
Chromium	46	mg/kg
Lead	9.4	mg/kg
Zinc	61	mg/kg

3.5'		
Lead	12	mg/kg

2.0'		
Chromium	44	mg/kg
Lead	8.2	mg/kg
Zinc	45	mg/kg

3.5'		
Chromium	65	mg/kg
Lead	12	mg/kg
Zinc	62	mg/kg

2.0'		
Lead	13	mg/kg

2.0'		
Lead	12	mg/kg

2.0'		
Chromium	36	mg/kg
Lead	37	mg/kg
Zinc	80	mg/kg

2.0'		
Chromium	85	mg/kg
Lead	55	mg/kg
Zinc	270	mg/kg

2.0'		
Lead	7.9	mg/kg

2.0'		
Chromium	38	mg/kg
Lead	55	mg/kg
Zinc	59	mg/kg

2.0'		
Chromium	41	mg/kg
Lead	62	mg/kg
Zinc	92	mg/kg

2.0'		
Lead	5.4	mg/kg

4.0'		
Chromium	79	mg/kg
Lead	17	mg/kg
Zinc	62	mg/kg

2.0'		
Chromium	22	mg/kg
Lead	66	mg/kg
Zinc	270	mg/kg

3.5'		
Chromium	86	mg/kg
Lead	7.8	mg/kg
Zinc	58	mg/kg

4.0'		
Lead	46	mg/kg
Zinc	2,200	mg/kg

3.0'		
Chromium	56	mg/kg
Lead	9.0	mg/kg
Zinc	48	mg/kg
4.5'		
Chromium	31	mg/kg
Lead	6.0	mg/kg
Zinc	55	mg/kg

2.0'		
Chromium	4.3	mg/kg
Lead	2.9	mg/kg
Zinc	110	mg/kg

2.0'		
Chromium	1.8	mg/kg
Lead	27	mg/kg
Zinc	38	mg/kg

2.0'		
Chromium	36	mg/kg
Lead	12	mg/kg
Zinc	41	mg/kg

2.0'		
Chromium	40	mg/kg
Lead	11	mg/kg
Zinc	45	mg/kg

2.0'		
Lead	5.2	mg/kg

2.0'		
Chromium	37	mg/kg
Lead	13	mg/kg
Zinc	61	mg/kg

2.0'		
Lead	15	mg/kg

LEGEND

- DP-15 — APPROXIMATE LOCATION OF AEI BORING (COMPLETED BY MARCH 4, 2005)
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NORTH

0 80 160

FEET

FUGRO WEST, INC.
1000 Broadway, Suite 440, Oakland, California, 94607
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METALS CONCENTRATIONS DEEPER THAN 1'

Tassafaronga Village
Oakland, California

Project No. 1541.004 July 2008 PLATE 4

Table 1B
Summary of Analytical Results - Grab Groundwater
Tassafaronga Village Housing Development Project
Oakland, California

Analyte		Regulatory Criteria: ESL (Table F-1b)	Regulatory Criteria: MCLs	Tassafaronga Housing Complex: B-2[2]	B-3[2]	B-4[2]	B-5[2]	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-12 (DUP)	B-13
				8-Dec-05	8-Dec-05	7-Dec-05	8-Dec-05	9-Oct-07	9-Oct-07	9-Oct-07	9-Oct-07	9-Oct-07	9-Oct-07	9-Oct-07	9-Oct-07	9-Oct-07
Hydrocarbons														B-3	B-3	**background**
TVHg	ug/L	5,000	NE	<50	**190**	**120**	<50	--	--	--	--	--	--	--	--	--
TPHd	ug/L	2,500	NE	**61**	<50	<50	<50	--	--	--	--	--	--	--	--	--
TPHmo	ug/L	2,500	NE	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	--	--
Benzene	ug/L	NA	1	<0.5	<0.5	<0.5	<0.5	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
Toluene	ug/L	NA	150	<0.5	<0.5	<0.5	<0.5	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
Ethylbenzene	ug/L	NA	300	<0.5	<0.5	<0.5	<0.5	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
Xylenes	ug/L	NA	1,800	<1.5	<1.5	<1.5	<1.5	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<4.0	<1.0
MTBE	ug/L	NA	13	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--
VOCs		NA	varies	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]
Acetone	ug/L	NA	6,300	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene (1,1-DCE)	ug/L	NA	6	<0.5	**0.63**	**0.64**	<0.5	**1.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
cis-1,2-Dichloroethene (cis-1,2-DCE)	ug/L	NA	6	**0.8**	**44**	**8.0**	<0.5	**11**	**12**	**3.3**	**1.5**	**4.9**	<0.50	**47**	**51**	<0.50
Tetrachloroethene (PCE)	ug/L	NA	5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.50	<0.50	**4.4**	<0.50	<0.50	<2.0	<2.0	**23**
trans-1,2-Dichloroethene (trans-1,2-DCE)	ug/L	NA	10	<0.5	**18**	**2.3**	<0.5	**2.7**	**3.5**	**0.92**	<0.50	**2**	<0.50	**15**	**17**	<0.50
Trichloroethene (TCE)	ug/L	NA	5	**4.8**	**220**	**120**	<0.5	**110**	**93**	**20**	**8.4**	**18**	<0.50	**160**	**190**	**2.1**
Vinyl Chloride (VC)	ug/L	NA	0.5	<0.5	**1.8**	<0.5	<0.5	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
Pesticides				ND	ND	ND	ND[4]	--	--	--	--	--	--	--	--	--
Dieldrin	ug/L	NA	0.0022	<0.050	<0.050	<0.050	**0.13**[5]	--	--	--	--	--	--	--	--	--
Lead	ug/L	NA	15	--	--	--	--	--	--	--	--	--	--	--	--	--
Asbestos	%	NA	NE	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

TPH = Total Petroleum Hydrocarbons
TVHg = Total Volatile Hydrocarbons as gasoline
TPHd = Total Petroleum Hydrocarbons as diesel
Detected concentrations are shown in **Bold**
< = not detected at or above the listed analytical reporting limit
-- = Not Analyzed
ug/L = micrograms per liter
ND = Not Detected
NE = Not Established
NA= Not Applicable

[1] = samples collected by AEI Consultants
[2] = samples collected by Fugro West, Inc.
[3] = Samples collected by Weiss Associates
[4] = Not Detected except for constituents listed below
[5] = Sampled was not filtered prior to analyses
[6] = Sampled was filtered prior to analyses
Table F-1b:Groundwater Screening Levels for groundwater that is not a drinking water source
ESL= Environmental Screening Levels Established by The Regional Water Quality Control Board and updated 2007
MCL =Maximum Contaminant Levels Established by the Environmental Protection Agency

Table 2B
Summary of Analytical Results - Grab Groundwater
Tassafaronga Village Housing Development Project
Oakland, California

Analyte		Regulatory Criteria		Former Pasta Factory and Industrial Rail Spurs													
		ESL (Table F-1b)	MCLs	DP1-W[1]	DP2-W[1]	DP7-W[1]	DP8-W[1]	B-1[2]	TSI-G1[3]	TSI-G2[3]	TSI-G3[3]	TSI-G4[3]	TSI-G4[3] (dup)	TSI-G5[3]	TSI-G6[3]	TDP-1[2]	TDP-2[2]
				4-Mar-05	4-Mar-05	4-Mar-05	4-Mar-05	7-Dec-05	9-May-06	9-May-06	9-May-06	9-May-06	9-May-06	9-May-06	10-May-06	10-Jun-06	10-Jun-06
Hydrocarbons															offsite	offsite	
TVHg	ug/L	5,000	NE	<50	<50	**57**	<50	**95**	**50**	--	<50	<50	<50	<50	--	**50**	**60**
TPHd	ug/L	2,500	NE	**210**	**160**	**180**	**190**	<50	--	--	--	--	--	--	--	<62	<62
TPHmo	ug/L	2,500	NE	**1,200**	**690**	<250	**1,400**	<0.05	--	--	--	--	--	--	--	<62	<62
Benzene	ug/L	NA	1	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	NA	150	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	NA	300	<1.0	<0.5	**1.4**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes	ug/L	NA	1,800	<1.0	<0.5	**11**	<0.5	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.5	<1.5
MTBE	ug/L	NA	13	<1.0	**1.0**	**0.68**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
VOCs		NA	varies	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]	ND[4]
Acetone	ug/L	NA	6,300	<10	<5.0	**65**	**36**	--	<50	<50	<50	<50	<50	<50	<50	<0.5	<0.5
1,1-Dichloroethene (1,1-DCE)	ug/L	NA	6	<1.0	<0.5	<0.5	<0.5	**0.54**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.56**
cis-1,2-Dichloroethene (cis-1,2-DCE)	ug/L	NA	6	**5.2**	**0.76**	**0.52**	<0.5	**1.4**	**3.3**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	ug/L	NA	5	**44**	**13**	**27**	<0.5	**130**	**45**	**23**	**3.0**	**27**	**25**	**33**	**1.9**	**37**	**6.8**
trans-1,2-Dichloroethene (trans-1,2-DCE)	ug/L	NA	10	<1.0	<0.5	<0.5	<0.5	<0.5	**0.59**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene (TCE)	ug/L	NA	5	**3.4**	**1.7**	**1.7**	<0.5	**3.0**	**5.2**	**2.0**	**1.7**	**1.2**	**1.2**	**2.0**	<0.5	**2.1**	**3.4**
Vinyl Chloride (VC)	ug/L	NA	0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Pesticides				--	--	--	--	ND	--	--	--	--	--	--	--		
Dieldrin	ug/L	NA	0.0022	--	--	--	--	<0.062	--	--	--	--	--	--	--	--	--
Lead	ug/L	NA	15	--	--	--	--	--	**2.7**[6]	<2.0	<2.0	<2.0	<2.0	<2.0	--	--	--
Asbestos	%	NA	NE	--	--	--	--	--	ND	--	--	--	--	--	--	--	--

Notes:

TPH = Total Petroleum Hydrocarbons
TVHg = Total Volatile Hydrocarbons as gasoline
TPHd = Total Petroleum Hydrocarbons as diesel
Detected concentrations are shown in **Bold**
< = not detected at or above the listed analytical reporting limit
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ug/L = micrograms per liter
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[1] = samples collected by AEI Consultants
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[3] = Samples collected by Weiss Associates
[4] = Not Detected except for constituents listed below
[5] = Sampled was not filtered prior to analyses
[6] = Sampled was filtered prior to analyses
Table F-1b:Groundwater Screening Levels for groundwater that is not a drinking water source
ESL= Environmental Screening Levels Established by The Regional Water Quality Control Board and updated 2007
MCL =Maximum Contaminant Levels Established by the Environmental Protection Agency

Table 1C
Summary of Analytical Results - Soil Gas
Tassafaronga Village Housing Development Project
Oakland, California

	Regulatory Criteria		Tassafaronga Housing Complex																		
	CHHSLS's Table 2	ESLs Table E-2																	Quality Control		
Analyte	**Residential (ug/m^3)**	**Residential (ug/m^3)**	**SG-1**		**SG-2**		**SG-3**		**SG-4**		**SG-5**		**SG-6**		**SG-7**		**SG-8**		**SG-7 Duplicate**		**Trip Blank**
Depth			**5'**		**5'**		**5'**		**5'**		**5'**		**5'**		**5'**		**5'**		**5'**		**--**
Date			8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07		8-Oct-07
			ppbv	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ug/m3**
Acetone	NE	660,000	**94**	**223.29**	**15**	**35.63**	**140**	**332.56**	**480**	**1,140.22**	**350**	**831.41**	**280**	**665.13**	**76**	**180.53**	**140**	**332.56**	**78**	**185.29**	< 23.75
Carbon Disulfide	NE	NE	< 10	< 31.14	< 10	< 31.14	< 10	< 31.14	< 41	< 127.68	< 10	< 31.14	< 12	< 37.37	< 10	< 31.14	< 11	< 34.26	< 10	< 31.14	< 31.14
Methylene Chloride	NE	5,200	**2.2**	**7.64**	< 2.0	< 6.95	**2.5**	**8.69**	< 8.3	< 28.83	**2.4**	**8.34**	< 2.4	< 8.34	**2.5**	**8.69**	**2.6**	**9.03**	**2.1**	**7.3**	< 6.95
Bromomethane	NE	1,000	**5.0**	**19.42**	< 4.0	< 15.53	**5.6**	**21.75**	< 17	< 66.02	**5.2**	**20.19**	**6.4**	**24.85**	< 4.0	< 15.53	**5.6**	**21.75**	**4.4**	**17.09**	< 15.53
cis-1,2-Dichloroethene	15,900	7,300	<2.0	<7.93	<2.0	<7.93	<2.0	<7.93	<8.3	<32.91	<2.0	<7.93	<2.4	<9.52	<2.0	<7.93	<2.2	<8.72	<2.0	<7.93	<7.93
Chloromethane	NE	19,000	<4.0	<8.26	<4.0	<8.26	<4.0	<8.26	<17	<35.11	<4.0	<8.26	<4.7	<9.71	<4.0	<8.26	<4.4	<9.09	<4.0	<8.26	<8.26
2-Butanone (Methyl Ethyl Ketone)	NE	1,000,000	< 10	< 29.49	< 10	< 29.49	**20**	**58.98**	< 41	< 120.9	**19**	**56.03**	**28**	**82.57**	**13**	**38.34**	**16**	**47.18**	**10**	**29.49**	< 29.49
Benzene	36.2	84	< 3.0	< 9.58	< 3.0	< 9.58	< 3.0	< 9.58	< 12	< 38.34	< 3.0	< 9.58	< 3.5	< 11.18	< 3.0	< 9.58	< 3.3	< 10.54	< 3.0	< 9.58	< 9.58
Toluene	135,000	63,000	**2.4**	**9.04**	< 2.0	< 7.54	**2.4**	**9.04**	< 8.3	< 31.28	**3.4**	**12.81**	**4.0**	**15.07**	**2.2**	**8.29**	**2.7**	**10.17**	**2.2**	**8.29**	< 7.54
Ethylbenzene	NE	210,000	< 2.0	< 8.68	< 2.0	< 8.68	< 2.0	< 8.68	< 8.3	< 36.04	< 2.0	< 8.68	< 2.4	< 10.42	< 2.0	< 8.68	< 2.2	< 9.55	< 2.0	< 8.68	< 8.68
m,p-xylene	317,000	NE	< 4.0	< 17.37	< 4.0	< 17.37	< 4.0	< 17.37	< 17	< 73.82	< 4.0	< 17.37	< 4.7	< 20.41	< 4.0	< 17.37	< 4.4	< 19.11	< 4.0	< 17.37	< 17.37
Total xylenes	NE	21,000	<4.0	<17.37	<4.0	<17.37	<4.0	<17.37	<17	<73.82	<4.0	<17.37	<4.7	<20.41	<4.0	<17.37	<4.4	<19.11	<4.0	<17.37	<17.37
o-xylene	315,000	NE	< 2.0	< 8.68	< 2.0	< 8.68	< 2.0	< 8.68	< 8.3	< 36.04	< 2.0	< 8.68	< 2.4	< 10.42	< 2.0	< 8.68	< 2.2	< 9.55	< 2.0	< 8.68	< 8.68
Styrene	NE	190,000	<2.0	<8.52	<2.0	<8.52	<2.0	<8.52	<8.3	<35.35	<2.0	<8.52	<2.4	<10.22	<2.0	<8.52	<2.2	<9.37	<2.0	<8.52	<8.52
Trichloroethene (TCE)	528	1,200	< 2.0	< 10.75	**9.6**	**51.59**	< 2.0	< 10.75	< 8.3	< 44.61	**4.2**	**22.57**	< 2.4	< 12.9	**5.0**	**26.87**	< 2.2	< 11.82	**8.1**	**43.53**	< 10.75
1,1,2-Trichlor-1,2,2-Trifluoroethane	NE	NE	<2.0	<15.33	<2.0	<15.33	<2.0	<15.33	<8.3	<63.61	<2.0	<15.33	<2.4	<18.39	<2.0	<15.33	<2.2	<16.86	<2.0	<15.33	<15.33
1,1-Dichloroethane	NE	1,500	<2.0	<8.1	<2.0	<8.1	<2.0	<8.1	<8.3	<33.6	<2.0	<8.1	<2.4	<9.71	<2.0	<8.1	<2.2	<8.91	<2.0	<8.1	<8.1
1,1-Dichloroethene	NE	49	<2.0	<7.93	<2.0	<7.93	<2.0	<7.93	<8.3	<32.91	<2.0	<7.93	<2.4	<9.52	<2.0	<7.93	<2.2	<8.72	<2.0	<7.93	<7.93
Trichlorofluoromethane	NE	NE	<2.0	NE	<2.0	NE	<2.0	NE	<8.3	NE	<2.0	NE	<2.4	NE	<2.0	NE	<2.2	NE	<2.0	NE	<2.0
4-Methyl-2-pentanone	NE	NE	<10	<40.97	<10	<40.97	<10	<40.97	<41	<167.96	<10	<40.97	<12	<49.16	<10	<40.97	<11	<45.06	<10	<40.97	<40.97
Other VOCs	varies	varies	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Leak Check Compound																					
Isopropylalchohol (2-Propanol)	NE	NE	< 10	< 24.58	< 10	< 24.58	< 10	< 24.58	< 41	< 100.76	< 10	< 24.58	**15**	**36.87**	< 10	< 24.58	**13**	**31.95**	< 10	< 24.58	<4.9

	Tassafaronga Housing Complex										
									Quality Control		
Analyte	**SG-1**	**SG-2**	**SG-3**	**SG-4**	**SG-5**	**SG-6**	**SG-7**	**SG-8**	**SG-7 Duplicate**	**Trip Blank**	**Ambient Air***
Depth	**5'**	**5'**	**5'**	**5'**	**5'**	**5'**	**5'**	**5'**	**5'**	**--**	
Date	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	8-Oct-07	
	%	%	%	%	%	%	%	%	%	%	%
Oxygen	**19**	**20**	**19**	**21**	**19**	**19**	**20**	**20**	**20**	--	20.95
Carbon Dioxide	**0.19**	**1.4**	**1.9**	**0.31**	**2.5**	**2.5**	**1.1**	**1.1**	**1.1**	--	0.03
Methane	**0.00052**	< 0.00038	< 0.00038	**0.00380**	< 0.00038	< 0.00038	< 0.00038	< 0.00038	< 0.00038	--	0.00
Nitrogen	**1.9**	**82**	**82**	**81**	**81**	**82**	**83**	**82**	**83**	**100**	78.08

Notes

Detected Concentration shown in bold
NE = Not established
ND = Not detected above laboratory reporting limits

-- = Not Analyzed
NA = Not Applicable
* Composition of dry unpolluted air by composition
Table E-2: Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns
CHHSLs = California Human Screening Levels (Janurary 2005)
ESL = Environmental Screening Levels Established by the Regional Water Quality Control Board and updated in November 2007.

Table 2C
Summary of Analytical Results - Soil Gas
Tassafaronga Village Housing Development Project
Oakland, California

	Regulatory Criteria		Former Pasta Factory and Industrial Railroad Spur													
	CHHSLS's Table 2	ESLs Table E-2													Quality Control	
Analyte	**Residential (ug/m^3)**	**Residential (ug/m^3)**	**TSI-SG1**		**TSI-SG2**		**TSI-SG3**		**TSI-SG4**		**TSI-SG5**		**TSI-SG6**		**TSI-SG7[1]**	
Depth			**5'**		**5'**		**5'**		**5'**		**5'**		**5'**		**5'**	
Date			8-May-06		8-May-06		8-May-06		8-May-06		8-May-06		8-May-06		8-May-06	
			ppbv	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	NE	660,000	**530**	**1258.99**	**250**	**593.87**	**230**	**546.36**	**370**	**878.92**	**170**	**403.83**	**160**	**380.07**	**160**	**380.07**
Carbon Disulfide	NE	NE	<10	<31.14	<10	<31.14	<10	<31.14	<10	<31.14	**16**	**49.83**	**17**	**52.94**	<10	<31.14
Methylene Chloride	NE	5,200	<2.0	<6.95	<2.0	<6.95	<2.0	<6.95	<2.0	<6.95	<2.0	<6.95	<2.0	<6.95	<2.0	<6.95
Bromomethane	NE	1,000	<2.0	<7.77	<2.0	<7.77	<2.0	<7.77	<2.0	<7.77	<2.0	<7.77	<2.0	<7.77	<2.0	<7.77
cis-1,2-Dichloroethene	15,900	7,300	<2.0	<7.93	<2.0	<7.93	<2.0	<7.93	**9.3**	**36.87**	<2.0	<7.93	<2.0	<7.93	<2.0	<7.93
Chloromethane	NE	19,000	**5.0**	**10.33**	<4.0	<8.26	<4.0	<8.26	<4.0	<8.26	<4.0	<8.26	<4.0	<8.26	<4.0	<8.26
2-Butanone (Methyl Ethyl Ketone)	NE	1,000,000	**100**	**294.89**	**37**	**109.11**	**23**	**67.82**	**27**	**79.62**	**12**	**35.39**	**12**	**35.39**	**25**	**73.72**
Benzene	36.2	84	**35**	**111.81**	**31**	**99.04**	**13**	**41.53**	**7.2**	**23**	**3.8**	**12.14**	**7.4**	**23.64**	**7.4**	**23.64**
Toluene	135,000	63,000	**25**	**94.20**	**22**	**82.90**	**13**	**48.99**	**12**	**45.22**	**8.8**	**33.16**	**9.3**	**35.04**	**11**	**41.45**
Ethylbenzene	NE	210,000	**6.1**	**26.49**	**4.1**	**17.8**	**16**	**69.47**	**2.1**	**9.12**	<2.0	<8.68	<2.0	<8.68	**3.0**	**13.03**
m,p-xylene	317,000	NE	**12**	**52.11**	**12**	**52.11**	**43**	**186.72**	**6.2**	**26.92**	**5.0**	**21.71**	**5.3**	**23.01**	**11**	**47.77**
Total xylenes	NE	21,000	**17**	**73.82**	**17**	**73.82**	**62**	**269.22**	**8.3**	**36.04**	**5.0**	**21.71**	**7.4**	**32.13**	**16**	**69.48**
o-xylene	315,000	NE	**5.1**	**22.15**	**5.0**	**21.71**	**18**	**78.16**	**2.1**	**9.12**	<2.0	<8.68	**2**	**8.68**	**4.9**	**21.28**
styrene	NE	190,000	**2**	**8.52**	<2.0	<8.52	<2.0	<8.52	<2.0	<8.52	<2.0	<8.52	<2.0	<8.52	<2.0	<8.52
Trichloroethene (TCE)	528	1,200	<2.0	<10.75	<2.0	<10.75	<2.0	<10.75	<2.0	<10.75	<2.0	<10.75	<2.0	<10.75	<2.0	<10.75
1,1,2-Trichlor-1,2,2-Trifluoroethane	NE	NE	**25**	**191.61**	**43**	**329.56**	**4.4**	**33.72**	**2.5**	**19.16**	<2.0	<15.33	**4.8**	**36.79**	**3.6**	**27.59**
1,1-Dichloroethane	NE	1,500	<2.0	<8.1	<2.0	<8.1	<2.0	<8.1	**2.2**	**8.91**	<2.0	<8.1	<2.0	<8.1	<2.0	<8.1
1,1-Dichloroethene	NE	49	<2.0	<7.93	<2.0	<7.93	<2.0	<7.93	**3.3**	**13.09**	<2.0	<7.93	<2.0	<7.93	<2.0	<7.93
Trichlorofluoromethane	NE	NE	**120**	NE	**25**	NE	<2.0	NE	**3.1**	NE	<2.0	NE	**2.3**	NE	**2.0**	NE
4-Methyl-2-pentanone	NE	NE	**10**	**40.97**	<10	<40.97	<10	<40.97	<10	<40.97	<10	<40.97	<10	<40.97	<10	<40.97
Other VOCs	varies	varies	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Leak Check Compound																
Isopropylalchohol (2-Propanol)	NE	NE	**13**	**31.95**	<10	<24.58	**62**	**152.38**	<10	<24.58	<10	<24.58	<10	<24.58	<10	<24.58

Notes
Detected Concentration shown in bold
NE = Not established
ND = Not detected above laboratory reporting limits

-- = Not Analyzed
NA = Not Applicable
* Composition of dry unpolluted air by composition
Table E-2: Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns
CHHSLs = California Human Screening Levels (Janurary 2005)
ESL = Environmental Screening Levels Established by the Regional Water Quality Control Board and updated in November 2007.

APPENDIX B

Cross Sections

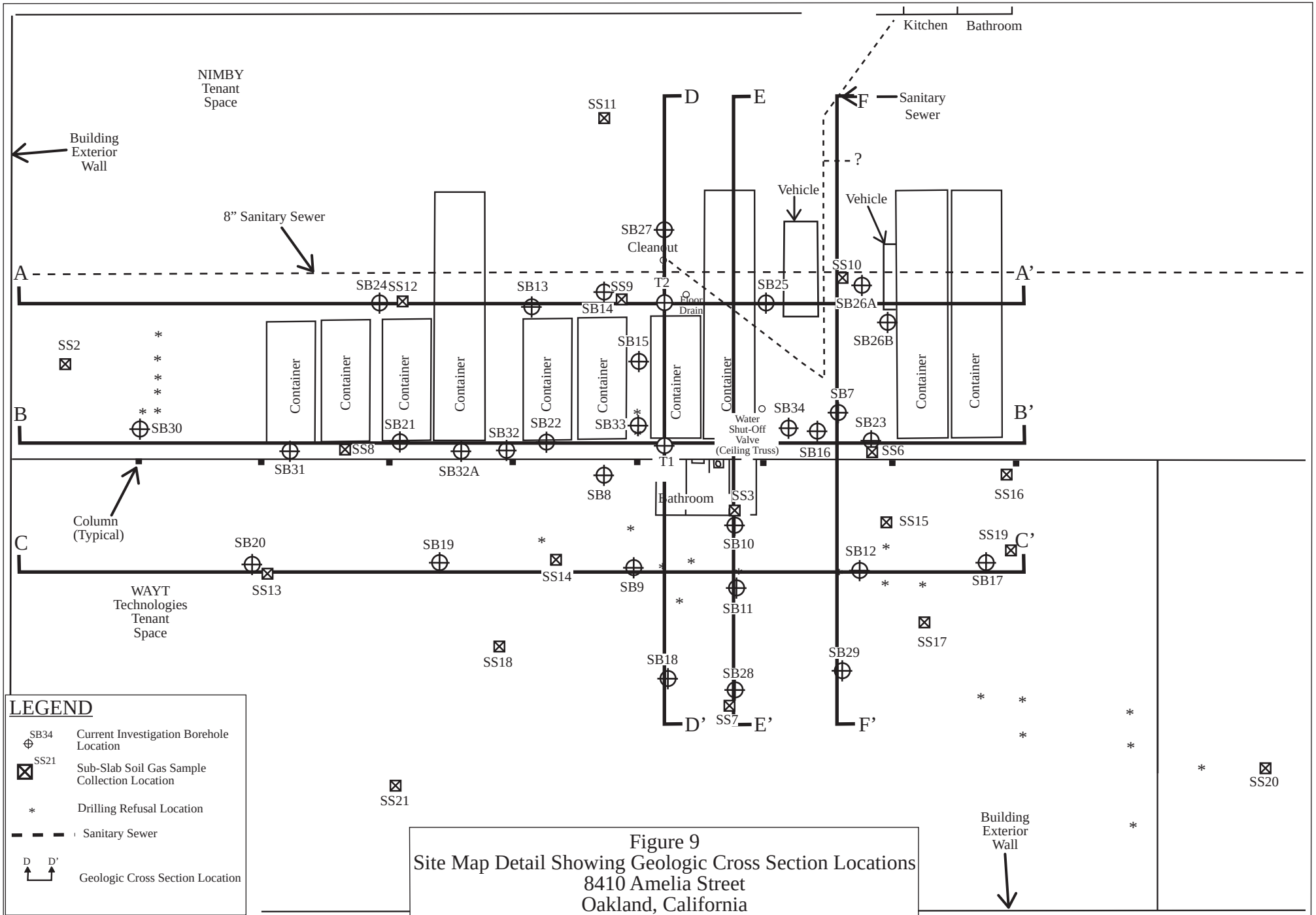


Figure 9
Site Map Detail Showing Geologic Cross Section Locations
8410 Amelia Street
Oakland, California

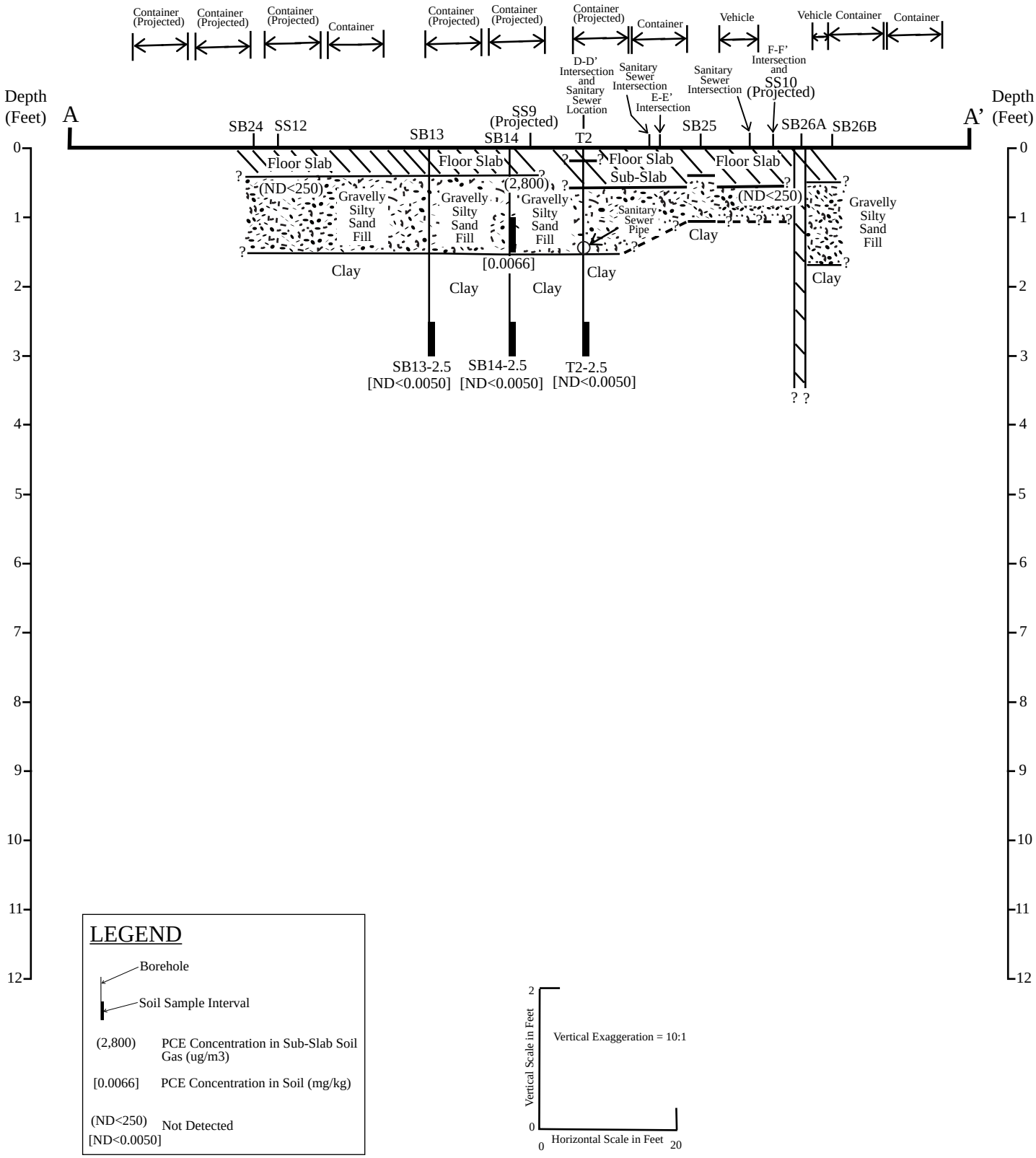
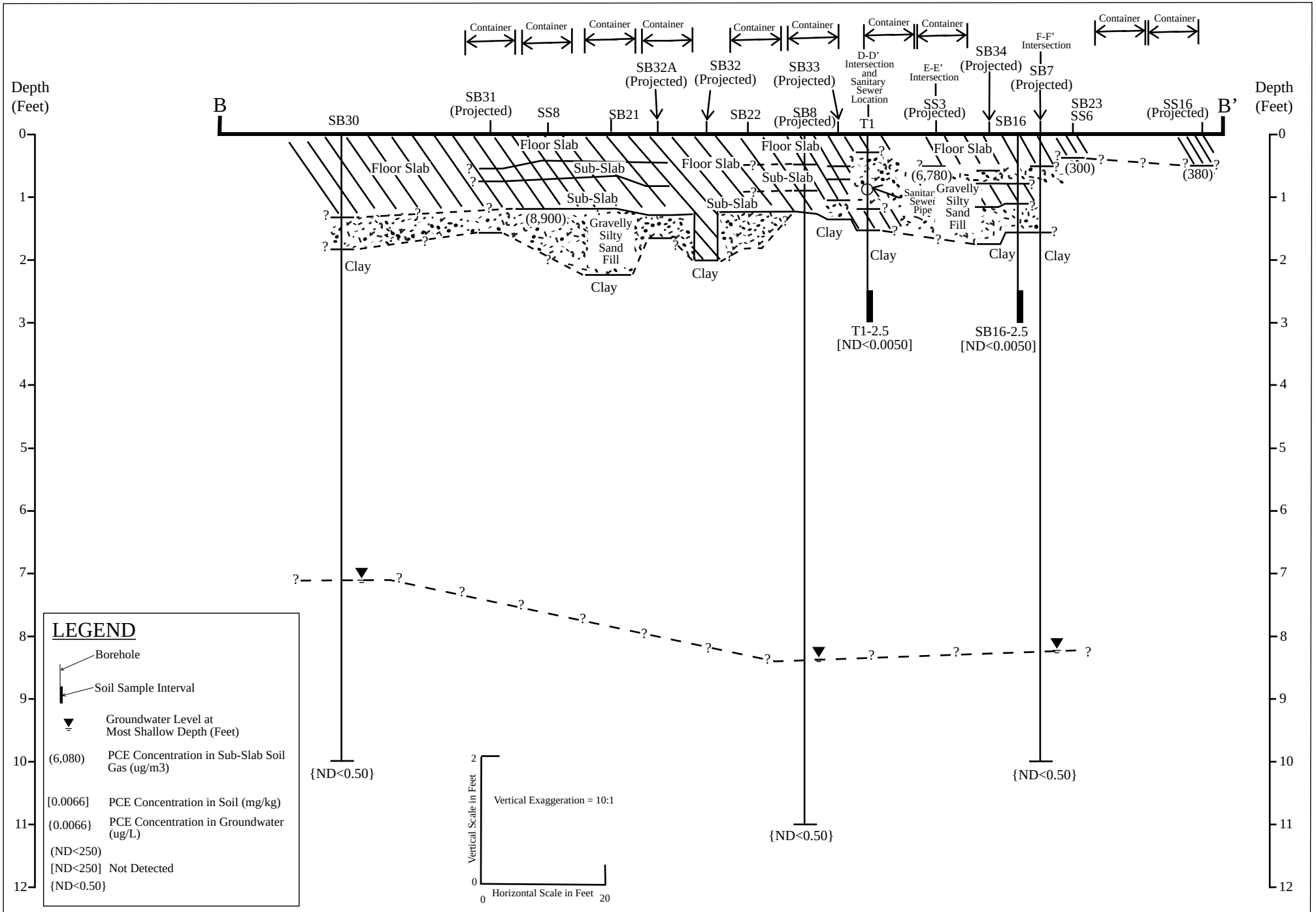


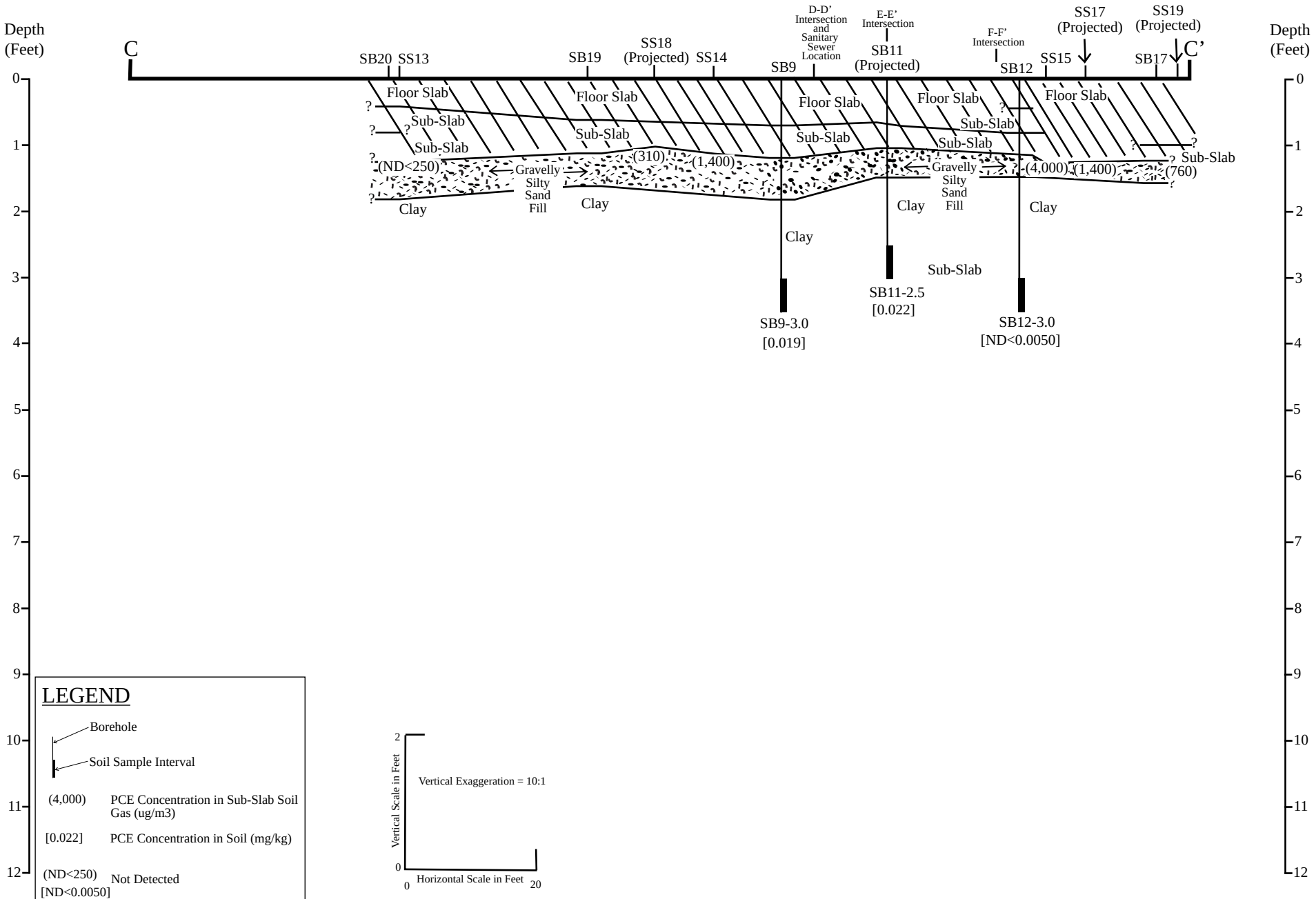
Figure 10
Geologic Cross Section A-A'
8410 Amelia Street
Oakland, California

P&D Environmental, Inc.
55 Santa Clara Avenue
Oakland, CA 94610



P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

Figure 11
Geologic Cross Section B-B'
8410 Amelia Street
Oakland, California



P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

Figure 12
Geologic Cross Section C-C'
8410 Amelia Street
Oakland, California

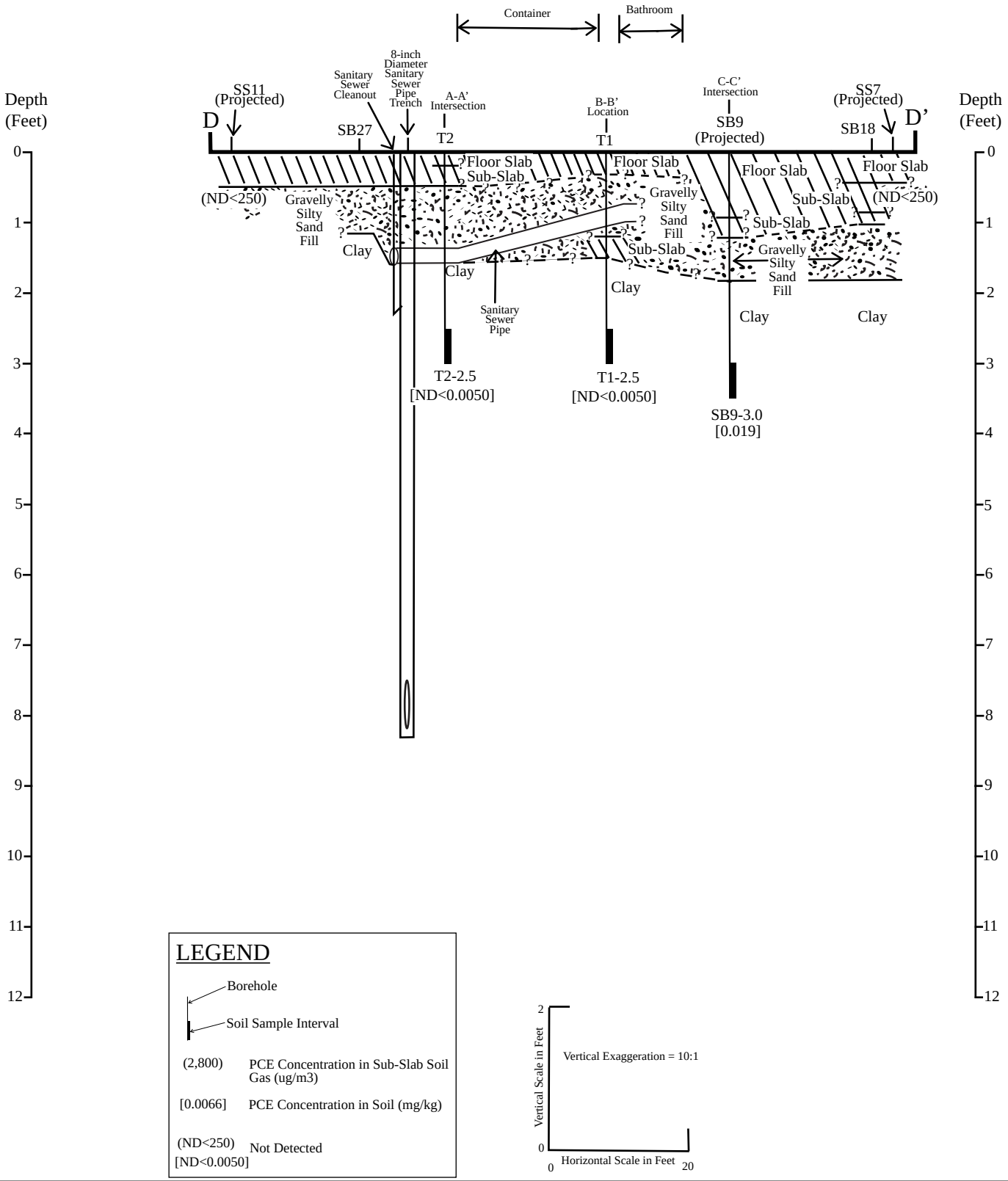


Figure 13
Geologic Cross Section D-D'
8410 Amelia Street
Oakland, California

P&D Environmental, Inc.
55 Santa Clara Avenue
Oakland, CA 94610

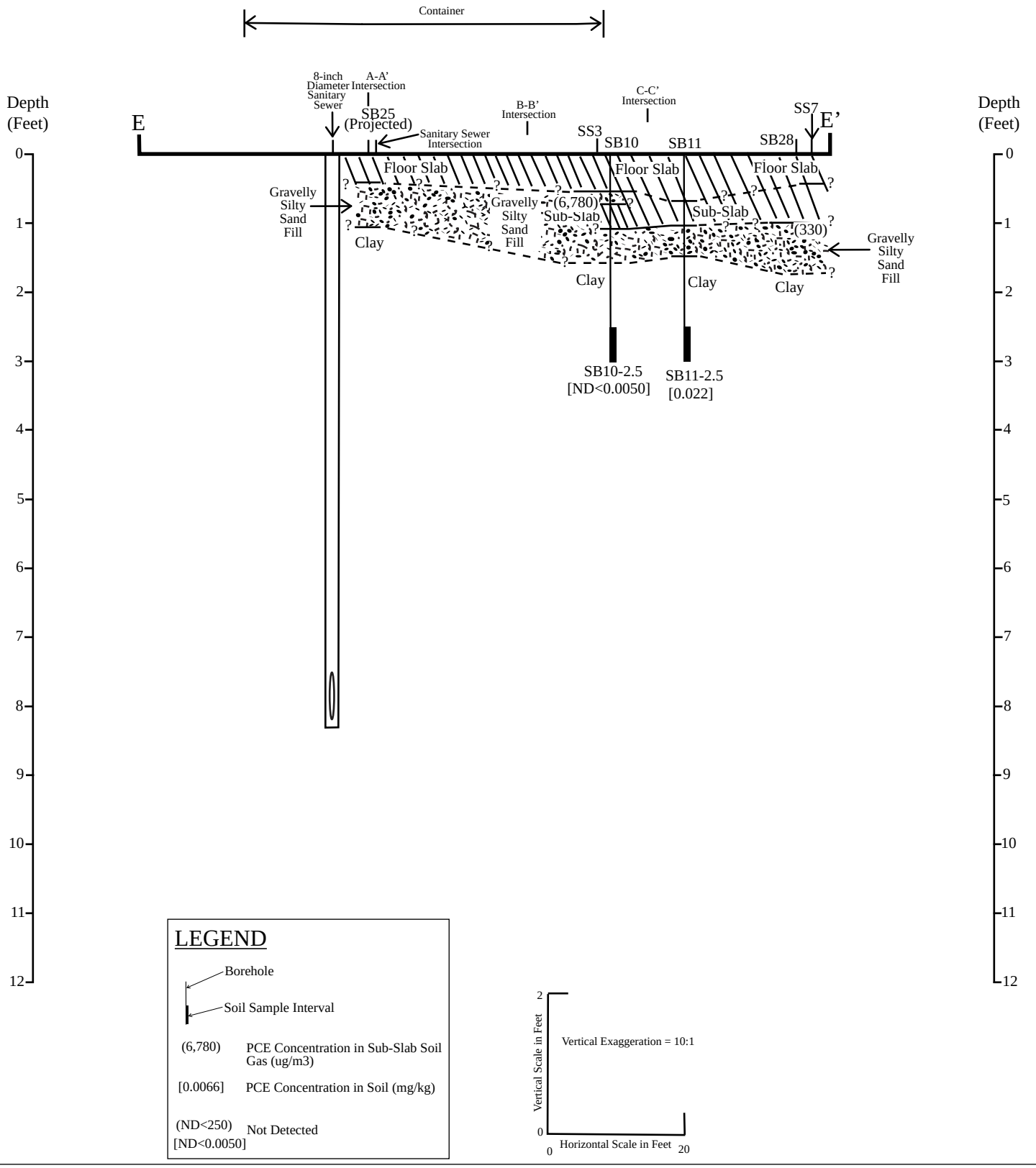


Figure 14
Geologic Cross Section E-E'
8410 Amelia Street
Oakland, California

P&D Environmental, Inc.
55 Santa Clara Avenue
Oakland, CA 94610

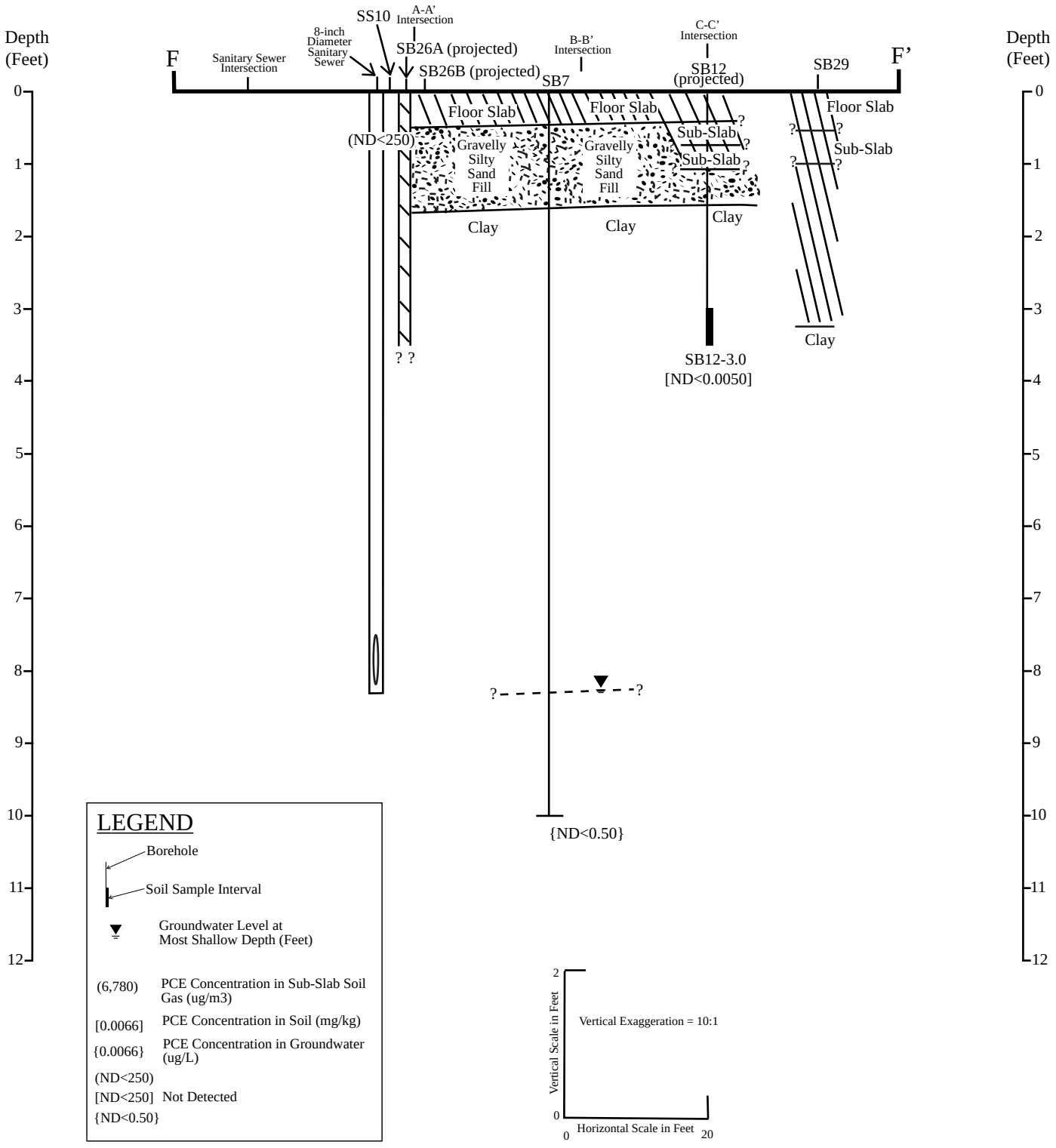


Figure 15
Geologic Cross Section F-F'
8410 Amelia Street
Oakland, California

P&D Environmental, Inc.
55 Santa Clara Avenue
Oakland, CA 94610

APPENDIX C

Boring 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: 06/10/2016 By jamesy

Permit Numbers: W2016-0403
Permits Valid from 06/17/2016 to 06/17/2016

Application Id: 1465512252731 **City of Project Site:** Oakland
Site Location: 8410 Amelia Street
Project Start Date: 06/17/2016 **Completion Date:** 06/17/2016
Assigned Inspector: Contact Lindsay Furuyama at (925) 956-2311 or Lfuruyama@groundzonees.com

Applicant: Pangea Environmental - Morgan Gillies **Phone:** 510-836-3700
1710 Franklin St, #200, Oakland, CA 94612
Property Owner: Amelia Street Partners, LLC **Phone:** --
c/o Libitzky Prop Companies, 1475 Powell St, #200, Emeryville, CA 94608
Client: Murray Hill Partners, LLC **Phone:** --
5821 Pinewood Road, Oakland, CA 94611

Total Due: $265.00
Receipt Number: WR2016-0282 **Total Amount Paid:** $265.00
Payer Name : Robert Clark-Riddell Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Contamination Study - 2 Boreholes
Driller: Confluence Environmental - Lic #: 913194 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2016-0403	06/10/2016	09/15/2016	2	3.25 in.	10.00 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.

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.

APPENDIX D

Standard Operating Procedures

STANDARD FIELD PROCEDURES FOR MONITORING WELLS

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

Well Construction and Surveying

Groundwater monitoring wells are installed in soil borings to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 feet below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I, II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security. The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. Wells may be surged prior to installation of the well seal to ensure that there are no voids in the sand pack. Development occurs 48 to 72 hours after seal installation to ensure that the Portland cement has set up correctly. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 72 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and 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. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

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 E

Field Data Sheets

Soil Vapor Probe Purging/Sampling Log

Project Name: 8410 Amelia
Job Number:
Date: 6.15.16
Sampler(s): E. Lervaag
Sample ID and Time: SS-3 / 1720
Notes:

Sub-Slab Probe ID: SS-3
Summa Can Serial #: 1715
Flow Controller #:
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: 15 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: 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 (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1705				Start	shut-in	14.0			
1715				Stop	shut-in	14.0			
1719			0	Start Purge					
1719			18 sec	Stop Purge					
1720		2.8		Start Sample					30
1721		8.6		~~Stop Sample~~					25
1723		13.1							20
1725		9.5							15
1727		10.4							10
1730		8.7		Stop Sample					5

Soil Vapor Probe Purging/Sampling Log

Project Name: 3410 Amelia St
Job Number:
Date: 6.15.16
Sampler(s): E. Lerrang
Sample ID and Time: SS-6/ 1652
Notes:

Sub-Slab Probe ID: SS-6
Suma Can Serial #: 0 0229
Flow Controller #:
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: ____ cm (See Purge Calcs)
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

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: 15 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: 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 (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1635				Start	Shut-in test		12.5		
1645				Stop	shut-in test		12.5		
1651		4.5	0	Start	Purge				
1651		5.1	18 sec.	Stop	Purge				
1652		6.5		Start	Sample				30
1653		8.9							25
1654		10.3							20
1655		8.5							15
1657		9.1							10
1659		10.6		Stop	Sample				5

Soil Vapor Probe Purging/Sampling Log

Project Name: 8410 Amelia
Job Number:
Date: 6.15.16
Sampler(s): E. Lervaag
Sample ID and Time: SS-8(new) / 1801
Notes:

Sub-Slab Probe ID: SS-8 (new)
Summa Can Serial #: 50096
Flow Controller #: 40979
Initial Vacuum: 30
Final Vacuum: 5

Specifications

Tubing length: _____ cm See Purge Cales
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

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: 15 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: 18sec.
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
1745				Start	shutin	11.0			
1755				Stop	shut in	11.0			
1800			0.	Start	Purge				
1800			18sec	Stop	Purge				
1801		4.9		Start	Sample				30
1802		7.8							25
1803		9.3							20
1805		8.4							15
1806		9.9							10
1808		7.8		Stop	Sample				5

Soil Vapor Probe Purging/Sampling Log

Project Name: 3410 Amelia St
Job Number:
Date: 6.15.16
Sampler(s): E. Lervang
Sample ID and Time: SS-8(old)/1613
Notes:

Sub-Slab Probe ID: SS-8(old)
Suma Can Serial #: 37547
Flow Controller #:
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: 15mL 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: 18sec
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
1355				Start	shut-in test		16.0		
1405				Stop	shut-in test		16.0		
1612		8.3	0.	Start Purge					
1612		11.6	18sec	Stop Purge					
1613		12.3		Start Sample					30
1614		15.7							25
1615		19.3		(-lifted box to dilute)					20
1617		8.1							15
1618		9.8							10
1621		8.7		Stop Sample					5

Soil Vapor Probe Purging/Sampling Log

Project Name: 8410 Amelia
Job Number:
Date: 6.15.16
Sampler(s): E. Lervaag
Sample ID and Time: SS-9 / 1744
Notes:

Sub-Slab Probe ID: SS-9
Suma Can Serial #: 50102
Flow Controller #:
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
JBA

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: 15 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: 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 (ppmv)	O_2 (%)	CO_2 (%)	CH_4 (%)	Comments
1733				Start	Shut-in	13.0			
1743				Stop	Shut-in	13.0			
1744			0	Start	Purge				
1744			18 sec	Stop	Purge				
1744		3.6		Start	Sample				30
1745		8.5							25
1746		11.7							20
1747		6.3		lifted cover					15
1749		8.1							10
1751		7.3		Stop	Sample				5

Soil Vapor Probe Purging/Sampling Log

Project Name: 8410 Amelia St
Job Number:
Date: 6.15.16
Sampler(s): E. Lervang
Sample ID and Time: SS15/1549
Notes:

Sub-Slab Probe ID: SS-15
Summa Can Serial #: A8995
Flow Controller #:
Initial Vacuum: 30
Final Vacuum: 5

Specifications (See Purge Calcs)

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

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: 15 mL cm^3
Total purge volumes extracted: 3
Pi = 3.1416 1 inch = 2.54 cm 1 ml = 1 cm3

Start Time:
Total Purge Time: 18sec
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
1530			Start	shut-in	test -	17.5"			
1540			Stop	shut-in	test -	17.5			
1548		3.7	0	Start	Purge				
1548		4.1	18sec	Stop	Purge				
1549		6.8		Start	Sample				30
1550		9.3							25
1551		11.6							20
1553		8.9							15
1554		9.2							10
1556		7.3		Stop	Sample				5

DAILY LOG

Date: 6.20.16	Site Address: 8410 Amelia St
Task/Purpose: SVE Install/Testing	Project Name:
Log Notes By: E. Lervaag	Project Number:

NOTES SVE WELL INSTALL/Testing Data

SVE-2

Construction - 4" PVC 12" deep
- screened 8"-12" bgs
- sand pack 7"-12" bgs
- concrete 0-7" bgs

Test data

Location	Vacuum (inches H_2O)	Distance from wellhead
wellhead	32"	0'
SS-15	0.46	15'
SS-17	0.20	15'
SS-19	0.18	11'
SS-3	0.015	36'
SS-14	0.00	

Flow rate - 24.3 cfm
Temp - 83.4
- Sample collected after 10 minutes operating time.

SVE-1 similar construction to SVE-1

Test data - Wellhead Vacuum 40" H_2O

Location	Vacuum	Distance from wellhead
SS-3	0.50	11'
SS-14	0.00	38'
SS-15	0.03	25.5'
SS-17	0.01	34'
SS-19	0.005	36'

Flow rate 22.5 cfm
Temp 78.4 °F
Sample collected after 10 minutes operating time

APPENDIX F

Boring Logs by Others

P&D ENVIRONMENTAL, INC.

BORING NO.: SB1	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: In driveway at end closest to street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex	DRILLER: Ed	DATE & TIME STARTED: 4/24/08 1000	DATE & TIME FINISHED: 4/24/08 1025
DRILLING EQUIPMENT: Geoprobe 6600			
COMPLETION DEPTH: 15.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: SF	CHECKED BY:
FIRST WATER DEPTH: 14 Feet	NO. OF SAMPLES: 3 Soil, 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	Concrete and gravel base rock		No Well Constructed		0	Borehole continuously cored using a 5-foot long 2-inch O.D. Geoprobe Macrocore barrel sampler. The sampler was lined with 4.8-foot long 1 1/2 inch O.D. cellulose acetate tubes.
	Black clay (CH); medium stiff, moist. No Petroleum Hydrocarbon (PHC) odor.	CH				
5	Lightening with depth. 6.0 ft. Dark gray.	X	SB1-4.5		0	0 to 5 ft. 3.4 ft. recovery
	7.5 ft. Gray-brown, with fine sand, and fine black and orange mottling.					5 to 10 ft. 4.5 ft. recovery
10	Gray-brown sandy clay (CL); soft, wet, with sand content increasing with depth. No PHC odor.	X CL / / / SC	SB1-9.5		0	10 to 15 ft. 2.5 ft. recovery
	Light brown clayey fine sand (SC); medium dense, wet. No PHC odor. 12.9 ft. 2-inch interval of gravel and coarse sand, saturated, with gravel to 0.5 in. diameter.	SM			0	First water encountered at 14 feet depth, 4/24/08 1015.
15	Brown fine to medium silty sand (SM); medium dense, saturated. No PHC odor.	X	SB1-14.5			Borehole terminated at 15.0 ft. on 4/24/08. Temporary 1-in. diameter slotted PVC casing placed in borehole. Water at 4.8 feet depth; sample SB1-W collected at 1025, no odor or sheen on sample.
20						Borehole grouted on 4/24/08 using tremie pipe and neat cement grout.
25						
30						

P&D ENVIRONMENTAL, INC.

BORING NO.: SB2	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: In driveway mid-way between Amelia and G Streets		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex	DRILLER: Ed	DATE & TIME STARTED: 4/24/08 1045	DATE & TIME FINISHED: 4/24/08 1110
DRILLING EQUIPMENT: Geoprobe 6600			
COMPLETION DEPTH: 20.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: SF	CHECKED BY:
FIRST WATER DEPTH: 15 Feet	NO. OF SAMPLES: 4 Soil, 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	Concrete and gravel base rock		No Well Constructed		0	Borehole continuously cored using a 5-foot long 2-inch O.D. Geoprobe Macrocore barrel sampler. The sampler was lined with 4.8-foot long 1 1/2 inch O.D. cellulose acetate tubes.
	Black clay (CH); medium stiff, moist. No Petroleum Hydrocarbon (PHC) odor.	CH				
5	X	▼	SB2-4.5		0	0 to 5 ft. 4.5 ft. recovery
	7.5 ft. Lightening with depth, with fine black and orange mottling.					
	Light brown clay (CL); medium stiff, moist to wet, with fine sand. No PHC odor.				0	5 to 10 ft. 4.3 ft. recovery
10	X Wet at 9.5 feet.	CL	SB2-9.5			
	Brown silty clayey sand (SC); medium dense, wet, with orange and black mottling. No PHC odor.				0	10 to 15 ft. 4.5 ft. recovery
15	X	▽	SB2-14.5			
	15.5 ft. Soft, decreased mottling. 16.0 ft. Loose, saturated, clayey sand to clayey silty sand.	SC			0	15 to 20 ft. 4.5 ft. recovery
	Brown gravel with medium and coarse silty sand (GW); saturated, gravel to 0.5 in. diameter. No PHC odor.	GW				First water encountered at 15 feet depth, 4/24/08 1100.
20	X Brown medium sand (SW); loose, saturated. No PHC odor.	SW	SB2-19.5			Borehole terminated at 20.0 ft. on 4/24/08. Temporary 1-in. diameter slotted PVC casing placed in borehole. Water at 4.6 feet depth; sample SB2-W collected at 1110, no odor or sheen on sample.
25						Borehole grouted on 4/24/08 using tremie pipe and neat cement grout.
30						

P&D ENVIRONMENTAL, INC.

BORING NO.: SB3	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: Inside building of D&J International by driveway		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex	DRILLER: Ed	DATE & TIME STARTED: 4/24/08 1315	DATE & TIME FINISHED: 4/24/08 1350
DRILLING EQUIPMENT: Geoprobe 6600			
COMPLETION DEPTH: 20.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: SF	CHECKED BY:
FIRST WATER DEPTH: 15 Feet	NO. OF SAMPLES: 3 Soil, 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	Concrete and gravel base rock		No Well Constructed		0	Borehole continuously cored using a 5-foot long 2-inch O.D. Geoprobe Macrocore barrel sampler. The sampler was lined with 4.8-foot long 1 1/2 inch O.D. cellulose acetate tubes.
	Brown sandy gravel (GW); moist to wet. No Petroleum Hydrocarbon (PHC) odor.	GW				
	Dark brown to black clay (CH); stiff, moist. No PHC odor.					
5		X	SB3-4.5		0	0 to 5 ft. 3.2 ft. recovery
		CH				
	8.0 ft. Dark gray, lightening with depth, with fine black and orange mottling.					5 to 10 ft. 2.1 ft. recovery
	9.3 ft. Light brown.				0	
10		X	SB3-9.5			
	Light brown silty sandy clay (CL); medium stiff, wet, with fine sand. No PHC odor.	CL				
	Brown silty clayey sand (SC); medium dense, wet to saturated, with black mottling. No PHC odor.				0	10 to 15 ft. 4.0 ft. recovery
15		X	SB3-14.5			
		SC				
	16.9 to 17.2 ft. With abundant gravel to 0.5 in. diameter.					
	Gray-brown silty fine sand (SM); loose, saturated, with some clay. No PHC odor.				0	15 to 20 ft. 4.3 ft. recovery
		SM				
	19.2 to 20.0 ft. With abundant gravel and coarse sand, gravel to 1 in. diameter.					First water encountered at 15 feet depth, 4/24/08 1335.
20						
						Borehole terminated at 20.0 ft. on 4/24/08. Temporary 1-in. diameter slotted PVC casing placed in borehole. Water at 4.3 feet depth; sample SB3-W collected at 1350, no odor or sheen on sample.
25						Borehole grouted on 4/24/08 using tremie pipe and neat cement grout.
30						

P&D ENVIRONMENTAL, INC.

BORING NO.: SB4	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: In driveway at end closest to Amelia Street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex	DRILLER: Ed	DATE & TIME STARTED: 4/24/08 1425	DATE & TIME FINISHED: 4/24/08 1450
DRILLING EQUIPMENT: Geoprobe 6600			
COMPLETION DEPTH: 20.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: SF	CHECKED BY:
FIRST WATER DEPTH: 16 Feet	NO. OF SAMPLES: 3 Soil, 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	Concrete and gravel base rock		No Well Constructed		0	Borehole continuously cored using a 5-foot long 2-inch O.D. Geoprobe Macrocore barrel sampler. The sampler was lined with 4.8-foot long 1 1/2 inch O.D. cellulose acetate tubes.
	Brown sandy gravel (GW); moist to wet. No Petroleum Hydrocarbon (PHC) odor.	GW				
	Black clay (CH); stiff, moist. No PHC odor.					
5		X	SB4-4.5		0	0 to 5 ft. 2.4 ft. recovery
		CH				
	7.9 ft. Dark gray, with some black and orange mottling.					
	8.0 to 10.0 ft. Lightening and softening with depth.				0	5 to 10 ft. 2.9 ft. recovery
10		X	SB4-9.5			
	Light brown silty clay (CL); medium stiff to soft, wet, with fine sand, with fine black mottling. No PHC odor.	CL				
	Brown silty clayey fine sand (SC); medium dense, wet, with black and orange mottling. No PHC odor.	SC			0	10 to 15 ft. 4.5 ft. recovery
	Brown silty fine sand (SM); loose, wet to saturated, with 1- to 2-in. intervals of clayey sand (SC). No PHC odor.	X	SB4-14.5			
15		SM				
					0	15 to 20 ft. 3.5 ft. recovery
	Light brown silty coarse sand and gravel (GM); saturated, with gravel abundant to 0.5 in. diameter. No PHC odor.	GM				First water encountered at 16 feet depth, 4/24/08 1335.
20		SM				
	Brown silty fine sand (SM); medium dense, saturated. No PHC odor.					Borehole terminated at 20.0 ft. on 4/24/08. Temporary 1-in. diameter slotted PVC casing placed in borehole. Water at 5.3 feet depth; sample SB4-W collected at 1450, no odor or sheen on sample.
25						Borehole grouted on 4/24/08 using tremie pipe and neat cement grout.
30						

P&D ENVIRONMENTAL, INC.

BORING NO.: SB5	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: In yard adjacent to Amelia Street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex	DRILLER: Ed	DATE & TIME STARTED: 4/24/08 0820	DATE & TIME FINISHED: 4/24/08 0900
DRILLING EQUIPMENT: Geoprobe 6600			
COMPLETION DEPTH: 15.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: SF	CHECKED BY:
FIRST WATER DEPTH: 14 Feet	NO. OF SAMPLES: 3 Soil, 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	Concrete and gravel base rock		No Well Constructed		0	Borehole continuously cored using a 5-foot long 2-inch O.D. Geoprobe Macrocore barrel sampler. The sampler was lined with 4.8-foot long 1 1/2 inch O.D. cellulose acetate tubes.
	Dark gray to black clay (CH); medium stiff, moist. No Petroleum Hydrocarbon (PHC) odor.	CH				
5		X	SB5-4.5		0	0 to 5 ft. 4.8 ft. recovery
	7.5 to 9.0 ft. Lightening to gray-brown, with some fine orange mottling.	▼				5 to 10 ft. 4.5 ft. recovery
10		X	SB5-9.5		0	10 to 15 ft. 4.3 ft. recovery
	12.0 ft. Soft, wet, with fine sand, no mottling.					
	Gray-brown silty sandy clay (CL); soft, wet. No PHC odor.	CL				
	Gray-brown silty fine sand (SM); medium dense, saturated, with clay. No PHC odor.	▽ SM			0	First water encountered at 14 feet depth, 4/24/08 0845.
15		X	SB5-14.5			
						Borehole terminated at 15.0 ft. on 4/24/08. Temporary 1-in. diameter slotted PVC casing placed in borehole. Water at 7.3 feet depth; sample SB5-W collected at 0900, no odor or sheen on sample.
20						Borehole grouted on 4/24/08 using tremie pipe and neat cement grout.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SB6	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: In building of Shred Works by G Street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex	DRILLER: Ed	DATE & TIME STARTED: 4/24/08 1150	DATE & TIME FINISHED: 4/24/08 1220
DRILLING EQUIPMENT: Geoprobe 6600			
COMPLETION DEPTH: 20.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: SF	CHECKED BY:
FIRST WATER DEPTH: 15 Feet	NO. OF SAMPLES: 3 Soil, 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	BLOW COUNT PER 6"	PID	REMARKS
	Concrete and gravel base rock		No Well Constructed		0	Borehole continuously cored using a 5-foot long 2-inch O.D. Geoprobe Macrocore barrel sampler. The sampler was lined with 4.8-foot long 1 1/2 inch O.D. cellulose acetate tubes.
	Brown sandy silty gravel (GM); moist to wet, gravel to 0.5 in. diameter. No Petroleum Hydrocarbon (PHC) odor.	GM				
	Black clay (CH); stiff, moist to wet. No (PHC) odor.					
5		X	SB6-4.5		0	0 to 5 ft. 1.5 ft. recovery
		CH				
	8.0 ft. Lightens to dark gray.					
	9.0 ft. Gray-brown with some black and orange mottling.				0	5 to 10 ft. 4.5 ft. recovery
10	10.0 ft. Wet.	X	SB6-9.5			
	Light brown silty clay (CL); medium stiff, wet, with fine sand increasing in abundance with depth, and orange mottling. No PHC odor.	CL				
	Brown clayey fine sand (SC); medium dense, wet, with orange and black mottling. No PHC odor.	SC			0	10 to 15 ft. 3.3 ft. recovery
15	Brown silty fine sand (SM); medium dense, saturated, with some clay. No PHC odor.	X	SB6-14.5			
	17.5 ft. 17.9 ft. 1-inch-thick gravel-rich intervals, with gravel to 0.25 in. diameter.	SM			0	15 to 20 ft. 4.5 ft. recovery
	Thin clayey intervals present to 20.0 ft.					First water encountered at 15 feet depth, 4/24/08 1205.
20						Borehole terminated at 20.0 ft. on 4/24/08. Temporary 1-in. diameter slotted PVC casing placed in borehole. Water at 7.6 feet depth; sample SB6-W collected at 1220, no odor or sheen on sample.
25						Borehole grouted on 4/24/08 using tremie pipe and neat cement grout.
30						

P&D ENVIRONMENTAL, INC.

BORING NO.: SB7	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: Approximately 131 ft. east and 8 ft. north of southwest corner of NIMBY Space		ELEVATION AND DATUM: None	
DRILLING AGENCY: IMX, Inc.	DRILLER: Omar	DATE & TIME STARTED: 11/5/13 1030	DATE & TIME FINISHED: 11/5/13 1400
DRILLING EQUIPMENT: 3.0-inch O.D. Hand Auger			
COMPLETION DEPTH: 10.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: 9.5 Feet	NO. OF SAMPLES: 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.5 ft. Concrete (5-inch).	Concrete		No Well Constructed		Borehole hand augered from 0.5 to 10.0 ft. using a 3.0-inch O.D. hand auger.
	0.5 to 1.5 ft. Brown gravelly silty sand (FILL); loose, dry. No Petroleum Hydrocarbon (PHC) or solvent odor.	FILL			0	
	1.5 to 3.5 ft. Dark brown clay (CL); medium stiff, moist. No PHC or solvent odor. (0,0,100)	CL			0	Water encountered during hand augering at 9.5 ft. at 1140.
5	3.5 to 10.0 ft. Dark brown to black clay (CH); stiff, moist. No PHC or solvent odor. (0,0,100)	CH			0	Temporary 1.0-inch diameter slotted PVC casing placed in borehole. Water level was measured at 9.3 ft. at 1157 and at 8.6 ft. at 1207. Approximately 0.2-gallon purged from borehole prior to groundwater sample collection using new unused disposable polyethylene tubing attached to a peristaltic pump. Water sample SB7-W collected at 1340 directly from the discharge tubing. No odor or sheen on sample. Water level subsequently measured at 8.2 ft. at 1349.
	7.5 to 10.0 ft. Color change to dark grayish-brown.					
10	Wet at 9.0 ft. Saturated at 9.5 ft.			▼ ▽	0	
15						Borehole grouted on 11/5/13 using neat cement grout and a tremie pipe. Mr. Steve Miller with Alameda County Public Works Agency onsite to observe and document grouting of the borehole. <u>Drilling Notes:</u> 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SB8	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: Approx. 8 ft. west and 2 ft. south of northwest corner of bathroom at WAYT Technologies		ELEVATION AND DATUM: None	
DRILLING AGENCY: IMX, Inc.	DRILLER: Omar	DATE & TIME STARTED: 11/25/13 1000	DATE & TIME FINISHED: 11/25/13 1200
DRILLING EQUIPMENT: 3.0-inch O.D. Hand Auger			
COMPLETION DEPTH: 11.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: 9.5 Feet	NO. OF SAMPLES: 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.3 ft. Concrete (15-inch).	Concrete		No Well Constructed	0	Borehole hand augered from 1.5 to 11.0 ft. using a 3.0-inch O.D. hand auger.
	1.3 to 11.0 ft. Dark brown clay (CH); medium stiff, moist. No Petroleum Hydrocarbon (PHC) or solvent odor. (0,0,100)				0	Water encountered during hand augering at 9.5 ft. at 1045.
5		CH			0	Temporary 1.0-inch diameter slotted PVC casing placed in borehole. Water level was measured at 9.6 ft. at 1105 and at 9.4 ft. at 1115. Approximately 0.1-gallon purged from borehole prior to groundwater sample collection using new unused disposable polyethylene tubing attached to a peristaltic pump. Water sample SB8-W collected at 1130 directly from the discharge tubing. No odor or sheen on sample. Water level subsequently measured at 8.3 ft. at 1140.
	9.0 to 11.0 ft. Color change to light brown. (0,0,100) Wet at 9.0 ft. Saturated at 9.5 ft.			▼ ▽	0	
10						
15						Borehole grouted on 11/25/13 using neat cement grout and a tremie pipe. Mr. James Yoo with Alameda County Public Works Agency onsite to observe and document grouting of the borehole. Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
20						
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P&D ENVIRONMENTAL, INC.

BORING NO.: SB30	PROJECT NO.: 0453	PROJECT NAME: 8410 Amelia Street, Oakland	
BORING LOCATION: Approximately 20 ft. east and 5 ft. north of southwest corner of NIMBY Space		ELEVATION AND DATUM: None	
DRILLING AGENCY: IMX, Inc.	DRILLER: Juan	DATE & TIME STARTED: 3/7/14 0800	DATE & TIME FINISHED: 3/7/14 1100
DRILLING EQUIPMENT: 3.0-inch O.D. Hand Auger			
COMPLETION DEPTH: 10.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: 9.5 Feet	NO. OF SAMPLES: 1 Water		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.5 ft. Concrete (16-inch).	Concrete		No Well Constructed		Borehole hand augered from 1.5 to 10.0 ft. using a 3.0-inch O.D. hand auger.
	1.5 to 2.0 ft. Brown gravelly silty sand (FILL); medium dense, moist. No Petroleum Hydrocarbon (PHC) or solvent odor.	FILL			0	Water encountered during hand augering at 9.5 ft. at 0939.
5	2.0 to 7.5 ft. Dark brown to black clay (CH); stiff, moist. No PHC or solvent odor. (0,0,100)				0	Temporary 1.0-inch diameter slotted PVC casing placed in borehole. Water level was measured at 7.2 ft. at 0950 and at 7.1 ft. at 1000. Approximately 0.2-gallon purged from borehole prior to groundwater sample collection using new unused disposable polyethylene tubing attached to a peristaltic pump. Water sample SB30-W collected at 1020 directly from the discharge tubing. No odor or sheen on sample. Water level subsequently measured at 7.1 ft. at 1035.
		CH		▼	0	
	7.5 to 10.0 ft. Color change to dark grayish-brown with light gray mottling. (0,0,100) Wet at 9.0 ft. Saturated at 9.5 ft.			▽	0	
10						Borehole grouted on 03/07/14 using neat cement grout and a tremie pipe.
						Mr. Steve Miller with Alameda County Public Works Agency gave verbal permission to grout borehole without his presence.
15						Drilling Notes:
						1) Field estimates of percent gravel, sand, and fines are shown in parentheses.
20						2) Density determinations are qualitative and are not based on quantitative evaluation.
25						
30						

APPENDIX G

Laboratory Analytical Reports

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1606158 **Amended:** 06/07/2016

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: 8410 Amelia

Project Received: 06/03/2016

Analytical Report reviewed & approved for release on 06/06/2016 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.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CDPH ELAP 1644 ♦ NELAP 4033ORELAP

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

Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 8410 Amelia
WorkOrder: 1606158

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)

McCampbell Analytical, Inc.
"When Quality Counts"

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 8410 Amelia
WorkOrder: 1606158

Analytical Qualifiers

H	samples were analyzed out of holding time
S	Surrogate spike recovery outside accepted recovery limits
c2	surrogate recovery outside of the control limits due to matrix interference.

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Case Narrative

Client: Pangea Environmental Svcs., Inc.
Project: 8410 Amelia

Work Order: 1606158
June 07, 2016

Iso-Propyl Alcohol (IPA) estimated values by EPA 8260 Open Scan:

All three air samples (SS-5, SS-6 & SS-7) were found to contain no IPA at a reporting limit of ~25 ug/L (or 25,000 ug/M3)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-5	1606158-001A	Air	06/03/2016 16:00	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	0.25	1	06/04/2016 11:46
Benzene	ND	H	0.25	1	06/04/2016 11:46
Bromobenzene	ND	H	0.25	1	06/04/2016 11:46
Bromochloromethane	ND	H	0.25	1	06/04/2016 11:46
Bromodichloromethane	ND	H	0.25	1	06/04/2016 11:46
Bromoform	ND	H	0.25	1	06/04/2016 11:46
Bromomethane	ND	H	0.25	1	06/04/2016 11:46
t-Butyl alcohol (TBA)	ND	H	2.5	1	06/04/2016 11:46
n-Butyl benzene	ND	H	0.25	1	06/04/2016 11:46
sec-Butyl benzene	ND	H	0.25	1	06/04/2016 11:46
tert-Butyl benzene	ND	H	0.25	1	06/04/2016 11:46
Carbon Disulfide	ND	H	0.25	1	06/04/2016 11:46
Carbon Tetrachloride	ND	H	0.25	1	06/04/2016 11:46
Chlorobenzene	ND	H	0.25	1	06/04/2016 11:46
Chloroethane	ND	H	0.25	1	06/04/2016 11:46
Chloroform	ND	H	0.25	1	06/04/2016 11:46
Chloromethane	ND	H	0.25	1	06/04/2016 11:46
2-Chlorotoluene	ND	H	0.25	1	06/04/2016 11:46
4-Chlorotoluene	ND	H	0.25	1	06/04/2016 11:46
Dibromochloromethane	ND	H	0.25	1	06/04/2016 11:46
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	06/04/2016 11:46
1,2-Dibromoethane (EDB)	ND	H	0.25	1	06/04/2016 11:46
Dibromomethane	ND	H	0.25	1	06/04/2016 11:46
1,2-Dichlorobenzene	ND	H	0.25	1	06/04/2016 11:46
1,3-Dichlorobenzene	ND	H	0.25	1	06/04/2016 11:46
1,4-Dichlorobenzene	ND	H	0.25	1	06/04/2016 11:46
Dichlorodifluoromethane	ND	H	0.25	1	06/04/2016 11:46
1,1-Dichloroethane	ND	H	0.25	1	06/04/2016 11:46
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	06/04/2016 11:46
1,1-Dichloroethene	ND	H	0.25	1	06/04/2016 11:46
cis-1,2-Dichloroethene	ND	H	0.25	1	06/04/2016 11:46
trans-1,2-Dichloroethene	ND	H	0.25	1	06/04/2016 11:46
1,2-Dichloropropane	ND	H	0.25	1	06/04/2016 11:46
1,3-Dichloropropane	ND	H	0.25	1	06/04/2016 11:46
2,2-Dichloropropane	ND	H	0.25	1	06/04/2016 11:46
1,1-Dichloropropene	ND	H	0.25	1	06/04/2016 11:46
cis-1,3-Dichloropropene	ND	H	0.25	1	06/04/2016 11:46

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-5	1606158-001A	Air	06/03/2016 16:00	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	0.25	1	06/04/2016 11:46
Diisopropyl ether (DIPE)	ND	H	0.25	1	06/04/2016 11:46
Ethylbenzene	ND	H	0.25	1	06/04/2016 11:46
Ethyl tert-butyl ether (ETBE)	ND	H	0.25	1	06/04/2016 11:46
Freon 113	ND	H	5.0	1	06/04/2016 11:46
Hexachlorobutadiene	ND	H	0.25	1	06/04/2016 11:46
Hexachloroethane	ND	H	0.25	1	06/04/2016 11:46
2-Hexanone	ND	H	0.25	1	06/04/2016 11:46
Isopropylbenzene	ND	H	0.25	1	06/04/2016 11:46
4-Isopropyl toluene	ND	H	0.25	1	06/04/2016 11:46
Methyl-t-butyl ether (MTBE)	ND	H	0.25	1	06/04/2016 11:46
Methylene chloride	ND	H	0.25	1	06/04/2016 11:46
n-Propyl benzene	ND	H	0.25	1	06/04/2016 11:46
Styrene	ND	H	0.25	1	06/04/2016 11:46
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	06/04/2016 11:46
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	06/04/2016 11:46
Tetrachloroethene	ND	H	0.25	1	06/04/2016 11:46
Toluene	ND	H	0.25	1	06/04/2016 11:46
1,2,3-Trichlorobenzene	ND	H	0.25	1	06/04/2016 11:46
1,2,4-Trichlorobenzene	ND	H	0.25	1	06/04/2016 11:46
1,1,1-Trichloroethane	ND	H	0.25	1	06/04/2016 11:46
1,1,2-Trichloroethane	ND	H	0.25	1	06/04/2016 11:46
Trichloroethene	ND	H	0.25	1	06/04/2016 11:46
Trichlorofluoromethane	ND	H	0.25	1	06/04/2016 11:46
1,2,3-Trichloropropane	ND	H	0.25	1	06/04/2016 11:46
1,2,4-Trimethylbenzene	ND	H	0.25	1	06/04/2016 11:46
1,3,5-Trimethylbenzene	ND	H	0.25	1	06/04/2016 11:46
Vinyl Chloride	ND	H	0.25	1	06/04/2016 11:46
Xylenes, Total	ND	H	0.25	1	06/04/2016 11:46

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	86	H	70-130	06/04/2016 11:46
Toluene-d8	91	H	70-130	06/04/2016 11:46
4-BFB	86	H	70-130	06/04/2016 11:46

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-6	1606158-002A	Air	06/03/2016 15:40	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	0.25	1	06/04/2016 12:30
Benzene	ND	H	0.25	1	06/04/2016 12:30
Bromobenzene	ND	H	0.25	1	06/04/2016 12:30
Bromochloromethane	ND	H	0.25	1	06/04/2016 12:30
Bromodichloromethane	ND	H	0.25	1	06/04/2016 12:30
Bromoform	ND	H	0.25	1	06/04/2016 12:30
Bromomethane	ND	H	0.25	1	06/04/2016 12:30
t-Butyl alcohol (TBA)	ND	H	2.5	1	06/04/2016 12:30
n-Butyl benzene	ND	H	0.25	1	06/04/2016 12:30
sec-Butyl benzene	ND	H	0.25	1	06/04/2016 12:30
tert-Butyl benzene	ND	H	0.25	1	06/04/2016 12:30
Carbon Disulfide	ND	H	0.25	1	06/04/2016 12:30
Carbon Tetrachloride	ND	H	0.25	1	06/04/2016 12:30
Chlorobenzene	ND	H	0.25	1	06/04/2016 12:30
Chloroethane	ND	H	0.25	1	06/04/2016 12:30
Chloroform	ND	H	0.25	1	06/04/2016 12:30
Chloromethane	ND	H	0.25	1	06/04/2016 12:30
2-Chlorotoluene	ND	H	0.25	1	06/04/2016 12:30
4-Chlorotoluene	ND	H	0.25	1	06/04/2016 12:30
Dibromochloromethane	ND	H	0.25	1	06/04/2016 12:30
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	06/04/2016 12:30
1,2-Dibromoethane (EDB)	ND	H	0.25	1	06/04/2016 12:30
Dibromomethane	ND	H	0.25	1	06/04/2016 12:30
1,2-Dichlorobenzene	ND	H	0.25	1	06/04/2016 12:30
1,3-Dichlorobenzene	ND	H	0.25	1	06/04/2016 12:30
1,4-Dichlorobenzene	ND	H	0.25	1	06/04/2016 12:30
Dichlorodifluoromethane	ND	H	0.25	1	06/04/2016 12:30
1,1-Dichloroethane	ND	H	0.25	1	06/04/2016 12:30
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	06/04/2016 12:30
1,1-Dichloroethene	ND	H	0.25	1	06/04/2016 12:30
cis-1,2-Dichloroethene	ND	H	0.25	1	06/04/2016 12:30
trans-1,2-Dichloroethene	ND	H	0.25	1	06/04/2016 12:30
1,2-Dichloropropane	ND	H	0.25	1	06/04/2016 12:30
1,3-Dichloropropane	ND	H	0.25	1	06/04/2016 12:30
2,2-Dichloropropane	ND	H	0.25	1	06/04/2016 12:30
1,1-Dichloropropene	ND	H	0.25	1	06/04/2016 12:30
cis-1,3-Dichloropropene	ND	H	0.25	1	06/04/2016 12:30

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-6	1606158-002A	Air	06/03/2016 15:40	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	0.25	1	06/04/2016 12:30
Diisopropyl ether (DIPE)	ND	H	0.25	1	06/04/2016 12:30
Ethylbenzene	ND	H	0.25	1	06/04/2016 12:30
Ethyl tert-butyl ether (ETBE)	ND	H	0.25	1	06/04/2016 12:30
Freon 113	ND	H	5.0	1	06/04/2016 12:30
Hexachlorobutadiene	ND	H	0.25	1	06/04/2016 12:30
Hexachloroethane	ND	H	0.25	1	06/04/2016 12:30
2-Hexanone	ND	H	0.25	1	06/04/2016 12:30
Isopropylbenzene	ND	H	0.25	1	06/04/2016 12:30
4-Isopropyl toluene	ND	H	0.25	1	06/04/2016 12:30
Methyl-t-butyl ether (MTBE)	ND	H	0.25	1	06/04/2016 12:30
Methylene chloride	ND	H	0.25	1	06/04/2016 12:30
n-Propyl benzene	ND	H	0.25	1	06/04/2016 12:30
Styrene	ND	H	0.25	1	06/04/2016 12:30
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	06/04/2016 12:30
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	06/04/2016 12:30
Tetrachloroethene	ND	H	0.25	1	06/04/2016 12:30
Toluene	ND	H	0.25	1	06/04/2016 12:30
1,2,3-Trichlorobenzene	ND	H	0.25	1	06/04/2016 12:30
1,2,4-Trichlorobenzene	ND	H	0.25	1	06/04/2016 12:30
1,1,1-Trichloroethane	**0.55**	H	0.25	1	06/04/2016 12:30
1,1,2-Trichloroethane	ND	H	0.25	1	06/04/2016 12:30
Trichloroethene	ND	H	0.25	1	06/04/2016 12:30
Trichlorofluoromethane	ND	H	0.25	1	06/04/2016 12:30
1,2,3-Trichloropropane	ND	H	0.25	1	06/04/2016 12:30
1,2,4-Trimethylbenzene	ND	H	0.25	1	06/04/2016 12:30
1,3,5-Trimethylbenzene	ND	H	0.25	1	06/04/2016 12:30
Vinyl Chloride	ND	H	0.25	1	06/04/2016 12:30
Xylenes, Total	ND	H	0.25	1	06/04/2016 12:30

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	87	H	70-130	06/04/2016 12:30
Toluene-d8	90	H	70-130	06/04/2016 12:30
4-BFB	87	H	70-130	06/04/2016 12:30

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-7	1606158-003A	Air	06/03/2016 16:32	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	0.25	1	06/04/2016 13:15
Benzene	ND	H	0.25	1	06/04/2016 13:15
Bromobenzene	ND	H	0.25	1	06/04/2016 13:15
Bromochloromethane	ND	H	0.25	1	06/04/2016 13:15
Bromodichloromethane	ND	H	0.25	1	06/04/2016 13:15
Bromoform	ND	H	0.25	1	06/04/2016 13:15
Bromomethane	ND	H	0.25	1	06/04/2016 13:15
t-Butyl alcohol (TBA)	ND	H	2.5	1	06/04/2016 13:15
n-Butyl benzene	**0.38**	H	0.25	1	06/04/2016 13:15
sec-Butyl benzene	**0.36**	H	0.25	1	06/04/2016 13:15
tert-Butyl benzene	ND	H	0.25	1	06/04/2016 13:15
Carbon Disulfide	ND	H	0.25	1	06/04/2016 13:15
Carbon Tetrachloride	ND	H	0.25	1	06/04/2016 13:15
Chlorobenzene	ND	H	0.25	1	06/04/2016 13:15
Chloroethane	ND	H	0.25	1	06/04/2016 13:15
Chloroform	ND	H	0.25	1	06/04/2016 13:15
Chloromethane	ND	H	0.25	1	06/04/2016 13:15
2-Chlorotoluene	**0.64**	H	0.25	1	06/04/2016 13:15
4-Chlorotoluene	**0.69**	H	0.25	1	06/04/2016 13:15
Dibromochloromethane	ND	H	0.25	1	06/04/2016 13:15
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	06/04/2016 13:15
1,2-Dibromoethane (EDB)	ND	H	0.25	1	06/04/2016 13:15
Dibromomethane	ND	H	0.25	1	06/04/2016 13:15
1,2-Dichlorobenzene	ND	H	0.25	1	06/04/2016 13:15
1,3-Dichlorobenzene	ND	H	0.25	1	06/04/2016 13:15
1,4-Dichlorobenzene	ND	H	0.25	1	06/04/2016 13:15
Dichlorodifluoromethane	ND	H	0.25	1	06/04/2016 13:15
1,1-Dichloroethane	ND	H	0.25	1	06/04/2016 13:15
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	06/04/2016 13:15
1,1-Dichloroethene	ND	H	0.25	1	06/04/2016 13:15
cis-1,2-Dichloroethene	ND	H	0.25	1	06/04/2016 13:15
trans-1,2-Dichloroethene	ND	H	0.25	1	06/04/2016 13:15
1,2-Dichloropropane	ND	H	0.25	1	06/04/2016 13:15
1,3-Dichloropropane	ND	H	0.25	1	06/04/2016 13:15
2,2-Dichloropropane	ND	H	0.25	1	06/04/2016 13:15
1,1-Dichloropropene	ND	H	0.25	1	06/04/2016 13:15
cis-1,3-Dichloropropene	ND	H	0.25	1	06/04/2016 13:15

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-7	1606158-003A	Air	06/03/2016 16:32	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	0.25	1	06/04/2016 13:15
Diisopropyl ether (DIPE)	ND	H	0.25	1	06/04/2016 13:15
Ethylbenzene	ND	H	0.25	1	06/04/2016 13:15
Ethyl tert-butyl ether (ETBE)	ND	H	0.25	1	06/04/2016 13:15
Freon 113	ND	H	5.0	1	06/04/2016 13:15
Hexachlorobutadiene	ND	H	0.25	1	06/04/2016 13:15
Hexachloroethane	ND	H	0.25	1	06/04/2016 13:15
2-Hexanone	ND	H	0.25	1	06/04/2016 13:15
Isopropylbenzene	ND	H	0.25	1	06/04/2016 13:15
4-Isopropyl toluene	**0.42**	H	0.25	1	06/04/2016 13:15
Methyl-t-butyl ether (MTBE)	ND	H	0.25	1	06/04/2016 13:15
Methylene chloride	ND	H	0.25	1	06/04/2016 13:15
n-Propyl benzene	ND	H	0.25	1	06/04/2016 13:15
Styrene	ND	H	0.25	1	06/04/2016 13:15
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	06/04/2016 13:15
1,1,2,2-Tetrachloroethane	**1.1**	H	0.25	1	06/04/2016 13:15
Tetrachloroethene	ND	H	0.25	1	06/04/2016 13:15
Toluene	ND	H	0.25	1	06/04/2016 13:15
1,2,3-Trichlorobenzene	ND	H	0.25	1	06/04/2016 13:15
1,2,4-Trichlorobenzene	ND	H	0.25	1	06/04/2016 13:15
1,1,1-Trichloroethane	ND	H	0.25	1	06/04/2016 13:15
1,1,2-Trichloroethane	ND	H	0.25	1	06/04/2016 13:15
Trichloroethene	**3.2**	H	0.25	1	06/04/2016 13:15
Trichlorofluoromethane	ND	H	0.25	1	06/04/2016 13:15
1,2,3-Trichloropropane	**0.94**	H	0.25	1	06/04/2016 13:15
1,2,4-Trimethylbenzene	**0.83**	H	0.25	1	06/04/2016 13:15
1,3,5-Trimethylbenzene	**1.3**	H	0.25	1	06/04/2016 13:15
Vinyl Chloride	ND	H	0.25	1	06/04/2016 13:15
Xylenes, Total	ND	H	0.25	1	06/04/2016 13:15

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	86	H	70-130	06/04/2016 13:15
Toluene-d8	89	H	70-130	06/04/2016 13:15
4-BFB	643	SH	70-130	06/04/2016 13:15

Analyst(s): MW Analytical Comments: c2

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-5	1606158-001A	Air	06/03/2016 16:00	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	250	1	06/04/2016 11:46
Benzene	ND	H	250	1	06/04/2016 11:46
Bromobenzene	ND	H	250	1	06/04/2016 11:46
Bromochloromethane	ND	H	250	1	06/04/2016 11:46
Bromodichloromethane	ND	H	250	1	06/04/2016 11:46
Bromoform	ND	H	250	1	06/04/2016 11:46
Bromomethane	ND	H	250	1	06/04/2016 11:46
t-Butyl alcohol (TBA)	ND	H	2500	1	06/04/2016 11:46
n-Butyl benzene	ND	H	250	1	06/04/2016 11:46
sec-Butyl benzene	ND	H	250	1	06/04/2016 11:46
tert-Butyl benzene	ND	H	250	1	06/04/2016 11:46
Carbon Disulfide	ND	H	250	1	06/04/2016 11:46
Carbon Tetrachloride	ND	H	250	1	06/04/2016 11:46
Chlorobenzene	ND	H	250	1	06/04/2016 11:46
Chloroethane	ND	H	250	1	06/04/2016 11:46
Chloroform	ND	H	250	1	06/04/2016 11:46
Chloromethane	ND	H	250	1	06/04/2016 11:46
2-Chlorotoluene	ND	H	250	1	06/04/2016 11:46
4-Chlorotoluene	ND	H	250	1	06/04/2016 11:46
Dibromochloromethane	ND	H	250	1	06/04/2016 11:46
1,2-Dibromo-3-chloropropane	ND	H	250	1	06/04/2016 11:46
1,2-Dibromoethane (EDB)	ND	H	250	1	06/04/2016 11:46
Dibromomethane	ND	H	250	1	06/04/2016 11:46
1,2-Dichlorobenzene	ND	H	250	1	06/04/2016 11:46
1,3-Dichlorobenzene	ND	H	250	1	06/04/2016 11:46
1,4-Dichlorobenzene	ND	H	250	1	06/04/2016 11:46
Dichlorodifluoromethane	ND	H	250	1	06/04/2016 11:46
1,1-Dichloroethane	ND	H	250	1	06/04/2016 11:46
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	06/04/2016 11:46
1,1-Dichloroethene	ND	H	250	1	06/04/2016 11:46
cis-1,2-Dichloroethene	ND	H	250	1	06/04/2016 11:46
trans-1,2-Dichloroethene	ND	H	250	1	06/04/2016 11:46
1,2-Dichloropropane	ND	H	250	1	06/04/2016 11:46
1,3-Dichloropropane	ND	H	250	1	06/04/2016 11:46
2,2-Dichloropropane	ND	H	250	1	06/04/2016 11:46
1,1-Dichloropropene	ND	H	250	1	06/04/2016 11:46
cis-1,3-Dichloropropene	ND	H	250	1	06/04/2016 11:46

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-5	1606158-001A	Air	06/03/2016 16:00	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	250	1	06/04/2016 11:46
Diisopropyl ether (DIPE)	ND	H	250	1	06/04/2016 11:46
Ethylbenzene	ND	H	250	1	06/04/2016 11:46
Ethyl tert-butyl ether (ETBE)	ND	H	250	1	06/04/2016 11:46
Freon 113	ND	H	5000	1	06/04/2016 11:46
Hexachlorobutadiene	ND	H	250	1	06/04/2016 11:46
Hexachloroethane	ND	H	250	1	06/04/2016 11:46
2-Hexanone	ND	H	250	1	06/04/2016 11:46
Isopropylbenzene	ND	H	250	1	06/04/2016 11:46
4-Isopropyl toluene	ND	H	250	1	06/04/2016 11:46
Methyl-t-butyl ether (MTBE)	ND	H	250	1	06/04/2016 11:46
Methylene chloride	ND	H	250	1	06/04/2016 11:46
n-Propyl benzene	ND	H	250	1	06/04/2016 11:46
Styrene	ND	H	250	1	06/04/2016 11:46
1,1,1,2-Tetrachloroethane	ND	H	250	1	06/04/2016 11:46
1,1,2,2-Tetrachloroethane	ND	H	250	1	06/04/2016 11:46
Tetrachloroethene	ND	H	250	1	06/04/2016 11:46
Toluene	ND	H	250	1	06/04/2016 11:46
1,2,3-Trichlorobenzene	ND	H	250	1	06/04/2016 11:46
1,2,4-Trichlorobenzene	ND	H	250	1	06/04/2016 11:46
1,1,1-Trichloroethane	ND	H	250	1	06/04/2016 11:46
1,1,2-Trichloroethane	ND	H	250	1	06/04/2016 11:46
Trichloroethene	ND	H	250	1	06/04/2016 11:46
Trichlorofluoromethane	ND	H	250	1	06/04/2016 11:46
1,2,3-Trichloropropane	ND	H	250	1	06/04/2016 11:46
1,2,4-Trimethylbenzene	ND	H	250	1	06/04/2016 11:46
1,3,5-Trimethylbenzene	ND	H	250	1	06/04/2016 11:46
Vinyl Chloride	ND	H	250	1	06/04/2016 11:46
Xylenes, Total	ND	H	250	1	06/04/2016 11:46

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	86	H	70-130	06/04/2016 11:46
Toluene-d8	91	H	70-130	06/04/2016 11:46
4-BFB	86	H	70-130	06/04/2016 11:46

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-6	1606158-002A	Air	06/03/2016 15:40	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	250	1	06/04/2016 12:30
Benzene	ND	H	250	1	06/04/2016 12:30
Bromobenzene	ND	H	250	1	06/04/2016 12:30
Bromochloromethane	ND	H	250	1	06/04/2016 12:30
Bromodichloromethane	ND	H	250	1	06/04/2016 12:30
Bromoform	ND	H	250	1	06/04/2016 12:30
Bromomethane	ND	H	250	1	06/04/2016 12:30
t-Butyl alcohol (TBA)	ND	H	2500	1	06/04/2016 12:30
n-Butyl benzene	ND	H	250	1	06/04/2016 12:30
sec-Butyl benzene	ND	H	250	1	06/04/2016 12:30
tert-Butyl benzene	ND	H	250	1	06/04/2016 12:30
Carbon Disulfide	ND	H	250	1	06/04/2016 12:30
Carbon Tetrachloride	ND	H	250	1	06/04/2016 12:30
Chlorobenzene	ND	H	250	1	06/04/2016 12:30
Chloroethane	ND	H	250	1	06/04/2016 12:30
Chloroform	ND	H	250	1	06/04/2016 12:30
Chloromethane	ND	H	250	1	06/04/2016 12:30
2-Chlorotoluene	ND	H	250	1	06/04/2016 12:30
4-Chlorotoluene	ND	H	250	1	06/04/2016 12:30
Dibromochloromethane	ND	H	250	1	06/04/2016 12:30
1,2-Dibromo-3-chloropropane	ND	H	250	1	06/04/2016 12:30
1,2-Dibromoethane (EDB)	ND	H	250	1	06/04/2016 12:30
Dibromomethane	ND	H	250	1	06/04/2016 12:30
1,2-Dichlorobenzene	ND	H	250	1	06/04/2016 12:30
1,3-Dichlorobenzene	ND	H	250	1	06/04/2016 12:30
1,4-Dichlorobenzene	ND	H	250	1	06/04/2016 12:30
Dichlorodifluoromethane	ND	H	250	1	06/04/2016 12:30
1,1-Dichloroethane	ND	H	250	1	06/04/2016 12:30
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	06/04/2016 12:30
1,1-Dichloroethene	ND	H	250	1	06/04/2016 12:30
cis-1,2-Dichloroethene	ND	H	250	1	06/04/2016 12:30
trans-1,2-Dichloroethene	ND	H	250	1	06/04/2016 12:30
1,2-Dichloropropane	ND	H	250	1	06/04/2016 12:30
1,3-Dichloropropane	ND	H	250	1	06/04/2016 12:30
2,2-Dichloropropane	ND	H	250	1	06/04/2016 12:30
1,1-Dichloropropene	ND	H	250	1	06/04/2016 12:30
cis-1,3-Dichloropropene	ND	H	250	1	06/04/2016 12:30

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-6	1606158-002A	Air	06/03/2016 15:40	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	250	1	06/04/2016 12:30
Diisopropyl ether (DIPE)	ND	H	250	1	06/04/2016 12:30
Ethylbenzene	ND	H	250	1	06/04/2016 12:30
Ethyl tert-butyl ether (ETBE)	ND	H	250	1	06/04/2016 12:30
Freon 113	ND	H	5000	1	06/04/2016 12:30
Hexachlorobutadiene	ND	H	250	1	06/04/2016 12:30
Hexachloroethane	ND	H	250	1	06/04/2016 12:30
2-Hexanone	ND	H	250	1	06/04/2016 12:30
Isopropylbenzene	ND	H	250	1	06/04/2016 12:30
4-Isopropyl toluene	ND	H	250	1	06/04/2016 12:30
Methyl-t-butyl ether (MTBE)	ND	H	250	1	06/04/2016 12:30
Methylene chloride	ND	H	250	1	06/04/2016 12:30
n-Propyl benzene	ND	H	250	1	06/04/2016 12:30
Styrene	ND	H	250	1	06/04/2016 12:30
1,1,1,2-Tetrachloroethane	ND	H	250	1	06/04/2016 12:30
1,1,2,2-Tetrachloroethane	ND	H	250	1	06/04/2016 12:30
Tetrachloroethene	ND	H	250	1	06/04/2016 12:30
Toluene	ND	H	250	1	06/04/2016 12:30
1,2,3-Trichlorobenzene	ND	H	250	1	06/04/2016 12:30
1,2,4-Trichlorobenzene	ND	H	250	1	06/04/2016 12:30
1,1,1-Trichloroethane	**550**	H	250	1	06/04/2016 12:30
1,1,2-Trichloroethane	ND	H	250	1	06/04/2016 12:30
Trichloroethene	ND	H	250	1	06/04/2016 12:30
Trichlorofluoromethane	ND	H	250	1	06/04/2016 12:30
1,2,3-Trichloropropane	ND	H	250	1	06/04/2016 12:30
1,2,4-Trimethylbenzene	ND	H	250	1	06/04/2016 12:30
1,3,5-Trimethylbenzene	ND	H	250	1	06/04/2016 12:30
Vinyl Chloride	ND	H	250	1	06/04/2016 12:30
Xylenes, Total	ND	H	250	1	06/04/2016 12:30

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	87	H	70-130	06/04/2016 12:30
Toluene-d8	90	H	70-130	06/04/2016 12:30
4-BFB	87	H	70-130	06/04/2016 12:30

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-7	1606158-003A	Air	06/03/2016 16:32	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	250	1	06/04/2016 13:15
Benzene	ND	H	250	1	06/04/2016 13:15
Bromobenzene	ND	H	250	1	06/04/2016 13:15
Bromochloromethane	ND	H	250	1	06/04/2016 13:15
Bromodichloromethane	ND	H	250	1	06/04/2016 13:15
Bromoform	ND	H	250	1	06/04/2016 13:15
Bromomethane	ND	H	250	1	06/04/2016 13:15
t-Butyl alcohol (TBA)	ND	H	2500	1	06/04/2016 13:15
n-Butyl benzene	**380**	H	250	1	06/04/2016 13:15
sec-Butyl benzene	**360**	H	250	1	06/04/2016 13:15
tert-Butyl benzene	ND	H	250	1	06/04/2016 13:15
Carbon Disulfide	ND	H	250	1	06/04/2016 13:15
Carbon Tetrachloride	ND	H	250	1	06/04/2016 13:15
Chlorobenzene	ND	H	250	1	06/04/2016 13:15
Chloroethane	ND	H	250	1	06/04/2016 13:15
Chloroform	ND	H	250	1	06/04/2016 13:15
Chloromethane	ND	H	250	1	06/04/2016 13:15
2-Chlorotoluene	**640**	H	250	1	06/04/2016 13:15
4-Chlorotoluene	**690**	H	250	1	06/04/2016 13:15
Dibromochloromethane	ND	H	250	1	06/04/2016 13:15
1,2-Dibromo-3-chloropropane	ND	H	250	1	06/04/2016 13:15
1,2-Dibromoethane (EDB)	ND	H	250	1	06/04/2016 13:15
Dibromomethane	ND	H	250	1	06/04/2016 13:15
1,2-Dichlorobenzene	ND	H	250	1	06/04/2016 13:15
1,3-Dichlorobenzene	ND	H	250	1	06/04/2016 13:15
1,4-Dichlorobenzene	ND	H	250	1	06/04/2016 13:15
Dichlorodifluoromethane	ND	H	250	1	06/04/2016 13:15
1,1-Dichloroethane	ND	H	250	1	06/04/2016 13:15
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	06/04/2016 13:15
1,1-Dichloroethene	ND	H	250	1	06/04/2016 13:15
cis-1,2-Dichloroethene	ND	H	250	1	06/04/2016 13:15
trans-1,2-Dichloroethene	ND	H	250	1	06/04/2016 13:15
1,2-Dichloropropane	ND	H	250	1	06/04/2016 13:15
1,3-Dichloropropane	ND	H	250	1	06/04/2016 13:15
2,2-Dichloropropane	ND	H	250	1	06/04/2016 13:15
1,1-Dichloropropene	ND	H	250	1	06/04/2016 13:15
cis-1,3-Dichloropropene	ND	H	250	1	06/04/2016 13:15

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Received:	6/3/16 18:05	**Extraction Method:**	SW5030B
Date Prepared:	6/4/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SS-7	1606158-003A	Air	06/03/2016 16:32	GC10	121861

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	250	1	06/04/2016 13:15
Diisopropyl ether (DIPE)	ND	H	250	1	06/04/2016 13:15
Ethylbenzene	ND	H	250	1	06/04/2016 13:15
Ethyl tert-butyl ether (ETBE)	ND	H	250	1	06/04/2016 13:15
Freon 113	ND	H	5000	1	06/04/2016 13:15
Hexachlorobutadiene	ND	H	250	1	06/04/2016 13:15
Hexachloroethane	ND	H	250	1	06/04/2016 13:15
2-Hexanone	ND	H	250	1	06/04/2016 13:15
Isopropylbenzene	ND	H	250	1	06/04/2016 13:15
4-Isopropyl toluene	**420**	H	250	1	06/04/2016 13:15
Methyl-t-butyl ether (MTBE)	ND	H	250	1	06/04/2016 13:15
Methylene chloride	ND	H	250	1	06/04/2016 13:15
n-Propyl benzene	ND	H	250	1	06/04/2016 13:15
Styrene	ND	H	250	1	06/04/2016 13:15
1,1,1,2-Tetrachloroethane	ND	H	250	1	06/04/2016 13:15
1,1,2,2-Tetrachloroethane	**1100**	H	250	1	06/04/2016 13:15
Tetrachloroethene	ND	H	250	1	06/04/2016 13:15
Toluene	ND	H	250	1	06/04/2016 13:15
1,2,3-Trichlorobenzene	ND	H	250	1	06/04/2016 13:15
1,2,4-Trichlorobenzene	ND	H	250	1	06/04/2016 13:15
1,1,1-Trichloroethane	ND	H	250	1	06/04/2016 13:15
1,1,2-Trichloroethane	ND	H	250	1	06/04/2016 13:15
Trichloroethene	**3200**	H	250	1	06/04/2016 13:15
Trichlorofluoromethane	ND	H	250	1	06/04/2016 13:15
1,2,3-Trichloropropane	**940**	H	250	1	06/04/2016 13:15
1,2,4-Trimethylbenzene	**830**	H	250	1	06/04/2016 13:15
1,3,5-Trimethylbenzene	**1300**	H	250	1	06/04/2016 13:15
Vinyl Chloride	ND	H	250	1	06/04/2016 13:15
Xylenes, Total	ND	H	250	1	06/04/2016 13:15

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	86	H	70-130	06/04/2016 13:15
Toluene-d8	89	H	70-130	06/04/2016 13:15
4-BFB	643	SH	70-130	06/04/2016 13:15

Analyst(s): MW Analytical Comments: c2

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Prepared:	6/4/16	**BatchID:**	121861
Date Analyzed:	6/4/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/L
Project:	8410 Amelia	**Sample ID:**	MB/LCS/LCSD-121861

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
tert-Amyl methyl ether (TAME)	ND	0.25	-	-	-
Benzene	ND	0.25	-	-	-
Bromobenzene	ND	0.25	-	-	-
Bromochloromethane	ND	0.25	-	-	-
Bromodichloromethane	ND	0.25	-	-	-
Bromoform	ND	0.25	-	-	-
Bromomethane	ND	0.25	-	-	-
t-Butyl alcohol (TBA)	ND	2.5	-	-	-
n-Butyl benzene	ND	0.25	-	-	-
sec-Butyl benzene	ND	0.25	-	-	-
tert-Butyl benzene	ND	0.25	-	-	-
Carbon Disulfide	ND	0.25	-	-	-
Carbon Tetrachloride	ND	0.25	-	-	-
Chlorobenzene	ND	0.25	-	-	-
Chloroethane	ND	0.25	-	-	-
Chloroform	ND	0.25	-	-	-
Chloromethane	ND	0.25	-	-	-
2-Chlorotoluene	ND	0.25	-	-	-
4-Chlorotoluene	ND	0.25	-	-	-
Dibromochloromethane	ND	0.25	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.25	-	-	-
1,2-Dibromoethane (EDB)	ND	0.25	-	-	-
Dibromomethane	ND	0.25	-	-	-
1,2-Dichlorobenzene	ND	0.25	-	-	-
1,3-Dichlorobenzene	ND	0.25	-	-	-
1,4-Dichlorobenzene	ND	0.25	-	-	-
Dichlorodifluoromethane	ND	0.25	-	-	-
1,1-Dichloroethane	ND	0.25	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.25	-	-	-
1,1-Dichloroethene	ND	0.25	-	-	-
cis-1,2-Dichloroethene	ND	0.25	-	-	-
trans-1,2-Dichloroethene	ND	0.25	-	-	-
1,2-Dichloropropane	ND	0.25	-	-	-
1,3-Dichloropropane	ND	0.25	-	-	-
2,2-Dichloropropane	ND	0.25	-	-	-
1,1-Dichloropropene	ND	0.25	-	-	-
cis-1,3-Dichloropropene	ND	0.25	-	-	-
trans-1,3-Dichloropropene	ND	0.25	-	-	-
Diisopropyl ether (DIPE)	ND	0.25	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Prepared:	6/4/16	**BatchID:**	121861
Date Analyzed:	6/4/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/L
Project:	8410 Amelia	**Sample ID:**	MB/LCS/LCSD-121861

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Ethylbenzene	ND	0.25	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.25	-	-	-
Freon 113	ND	5.0	-	-	-
Hexachlorobutadiene	ND	0.25	-	-	-
Hexachloroethane	ND	0.25	-	-	-
2-Hexanone	ND	0.25	-	-	-
Isopropylbenzene	ND	0.25	-	-	-
4-Isopropyl toluene	ND	0.25	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.25	-	-	-
Methylene chloride	ND	0.25	-	-	-
n-Propyl benzene	ND	0.25	-	-	-
Styrene	ND	0.25	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.25	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.25	-	-	-
Tetrachloroethene	ND	0.25	-	-	-
Toluene	ND	0.25	-	-	-
1,2,3-Trichlorobenzene	ND	0.25	-	-	-
1,2,4-Trichlorobenzene	ND	0.25	-	-	-
1,1,1-Trichloroethane	ND	0.25	-	-	-
1,1,2-Trichloroethane	ND	0.25	-	-	-
Trichloroethene	ND	0.25	-	-	-
Trichlorofluoromethane	ND	0.25	-	-	-
1,2,3-Trichloropropane	ND	0.25	-	-	-
1,2,4-Trimethylbenzene	ND	0.25	-	-	-
1,3,5-Trimethylbenzene	ND	0.25	-	-	-
Vinyl Chloride	ND	0.25	-	-	-
Xylenes, Total	ND	0.25	-	-	-
Surrogate Recovery					
Dibromofluoromethane	10.8		12.5	87	70-130
Toluene-d8	11.3		12.5	90	70-130
4-BFB	1.10		1.25	88	70-130

(Cont.)

NELAP 4033ORELAP

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606158
Date Prepared:	6/4/16	**BatchID:**	121861
Date Analyzed:	6/4/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/L
Project:	8410 Amelia	**Sample ID:**	MB/LCS/LCSD-121861

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	4.83	5.32	5	97	106	60-140	9.66	30
Benzene	4.39	4.93	5	88	99	60-140	11.5	30
t-Butyl alcohol (TBA)	22.6	23.8	20	113	119	60-140	5.39	30
Chlorobenzene	4.35	4.84	5	87	97	60-140	10.6	30
1,2-Dibromoethane (EDB)	4.86	5.27	5	97	105	60-140	8.03	30
1,2-Dichloroethane (1,2-DCA)	4.55	5.06	5	91	101	60-140	10.6	30
1,1-Dichloroethene	4.26	4.76	5	85	95	60-140	10.9	30
Diisopropyl ether (DIPE)	4.72	5.21	5	94	104	60-140	9.91	30
Ethylbenzene	4.50	5.10	5	90	102	60-140	12.4	30
Ethyl tert-butyl ether (ETBE)	4.79	5.30	5	96	106	60-140	10.1	30
Methyl-t-butyl ether (MTBE)	4.63	5.12	5	93	102	60-140	9.96	30
Toluene	4.51	5.02	5	90	100	60-140	10.8	30
Trichloroethene	4.49	5.03	5	90	101	60-140	11.4	30
Xylenes, Total	13.6	15.2	15	90	101	60-140	11.6	30
Surrogate Recovery								
Dibromofluoromethane	11.3	11.2	12.5	90	89	70-130	0.970	30
Toluene-d8	11.3	11.4	12.5	91	91	70-130	0	30
4-BFB	1.08	1.08	1.25	87	87	70-130	0	30

McCampbell Analytical, Inc.
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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1606158 **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: 8410 Amelia

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

Requested TATs: **1 day; 2 days;**

Date Received: **06/03/2016**
Date Logged: **06/03/2016**

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
1606158-001	SS-5	Air	6/3/2016 16:00	☐	A	A										
1606158-002	SS-6	Air	6/3/2016 15:40	☐	A	A										
1606158-003	SS-7	Air	6/3/2016 16:32	☐	A	A										

Test Legend:

1	8260B_A	2	8260B_A(UG/M3)	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

The following SampIDs: 001A, 002A, 003A contain testgroup.

Comments: changed -002 & -003 to a 1 day rush on 06/5/16 per email

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: 1606158
Project: 8410 Amelia
Client Contact: Bob Clark-Riddell
Date Logged: 6/3/2016
Comments: changed -002 & -003 to a 1 day rush on 06/5/16 per email
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
1606158-001A	SS-5	Air	VOCs by PT & GCMS	1	Tedlar	☐	6/3/2016 16:00	2 days		☐	
1606158-002A	SS-6	Air	VOCs by PT & GCMS	1	Tedlar	☐	6/3/2016 15:40	1 day		☐	
1606158-003A	SS-7	Air	VOCs by PT & GCMS	1	Tedlar	☐	6/3/2016 16:32	1 day		☐	

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.

McCampbell Analytical, Inc. RUSH

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

1606158

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH ☐ 1 DAY ☐ 2 DAY ☒ 3 DAY ☐ 5 DAY ☐

GeoTracker EDF ☐ PDF ☐ EDD ☐ Write On (DW) ☐ EQuIS ☐ 10 DAY ☐

Effluent Sample Requiring "J" flag ☐ **UST Clean Up Fund Project** ☐ ; **Claim #**_____

Report To: Bob Clark-Riddell	**Bill To:** Pangea
Company: Pangea Env. Svs. 1710 Franklin St. Oakland	
Tele: (510) 836-3700	**E-Mail:** briddell@pangeaenv.com
Project #:	**Project Name:**
Project Location: 8410 Amelia	**Purchase Order#**
Sampler Signature:	

SAMPLE ID	Location/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	MATRIX: Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	METHOD PRESERVED: HCL	HNO_3	Other	BTEX & TPH as Gas (8021/ 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	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)***	Lab to Filter sample for Dissolved metals analysis
SS-5		6.3.16	1600	1						X														X						
SS-6		1	1540	1						X														X						
SS-7		6.3.16	1632	1						X														X						

3 Std TAT 10 DAY on 6/5/16

**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 is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By:	Date:	Time:	Received By:
	6.3.16	1805	
Relinquished By:	Date:	Time:	Received By:
			6/3/16 18:05
Relinquished By:	Date:	Time:	Received By:

ICE/t°_____
GOOD CONDITION_____
HEAD SPACE ABSENT_____
DECHLORINATED IN LAB_____
APPROPRIATE CONTAINERS_____
PRESERVED IN LAB_____

COMMENTS:

VOAS O&G METALS OTHER HAZARDOUS:
PRESERVATION_____ pH<2_____

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**6/3/2016 18:05**
Project Name:	**8410 Amelia**	Date Logged:	**6/3/2016**
WorkOrder №:	**1606158** Matrix: Air	Received by:	Briana Cutino
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:

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6/21/2016

Mr. Morgan Gillies
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 8410 Amelia
Project #:
Workorder #: 1606349

Dear Mr. Morgan Gillies

The following report includes the data for the above referenced project for sample(s) received on 6/16/2016 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1606349

Work Order Summary

CLIENT:	Mr. Morgan Gillies Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Morgan Gillies Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	8410 Amelia
DATE RECEIVED:	06/16/2016	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/21/2016		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SS-15	TO-15	4.1 "Hg	14.8 psi
02A	SS-8(old)	TO-15	2.6 "Hg	15.1 psi
03A	SS-6	TO-15	4.3 "Hg	15.1 psi
04A	SS-3	TO-15	2.8 "Hg	15.6 psi
05A	SS-9	TO-15	4.9 "Hg	15.1 psi
06A	SS-8(new)	TO-15	4.5 "Hg	14.8 psi
07A	Lab Blank	TO-15	NA	NA
07B	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
08B	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA
09B	LCS	TO-15	NA	NA
09BB	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 06/21/16

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Pangea Environmental Services, Inc.
Workorder# 1606349

Six 1 Liter Summa Canister samples were received on June 16, 2016. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for 1,1,2,2-Tetrachloroethane that are below the Reporting Limit but greater than the Method Detection Limit. Results are reported as qualified with high probability for false positive.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Dilution was performed on samples SS-15 and SS-9 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SS-15

Lab ID#: 1606349-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	2.9	780	20	5300

Client Sample ID: SS-8(old)

Lab ID#: 1606349-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.4	4.4 J	8.4	8.3 J

Client Sample ID: SS-6

Lab ID#: 1606349-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.7	9.0	8.9	17
2-Propanol	4.7	4.9	12	12
1,1,1-Trichloroethane	1.2	90	6.5	490
Tetrachloroethene	1.2	4.9	8.0	33

Client Sample ID: SS-3

Lab ID#: 1606349-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Dichloroethene	1.1	58	4.5	230
2-Propanol	4.5	5.2	11	13
1,1-Dichloroethane	1.1	3.0	4.6	12
Chloroform	1.1	1.2	5.5	5.7
1,1,1-Trichloroethane	1.1	160	6.2	880
Trichloroethene	1.1	24	6.1	130
Tetrachloroethene	1.1	4.0	7.7	27

Client Sample ID: SS-9

Lab ID#: 1606349-05A

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SS-9

Lab ID#: 1606349-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	24	100	46	200
cis-1,2-Dichloroethene	6.0	27	24	110
Chloroform	6.0	10	30	51
Trichloroethene	6.0	1700	32	9400

Client Sample ID: SS-8(new)

Lab ID#: 1606349-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.7	250	8.9	460
Acetone	12	42	28	100
2-Propanol	4.7	8.9	12	22
cis-1,2-Dichloroethene	1.2	1.5	4.7	6.0
Chloroform	1.2	4.2	5.8	20
Trichloroethene	1.2	260	6.3	1400
Toluene	1.2	1.8	4.4	6.9

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Client Sample ID: SS-15

Lab ID#: 1606349-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061717**	**Date of Collection:**	**6/15/16 3:49:00 PM**
Dil. Factor:	**5.81**	**Date of Analysis:**	**6/17/16 07:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.9	Not Detected	14	Not Detected
Freon 114	2.9	Not Detected	20	Not Detected
Chloromethane	29	Not Detected	60	Not Detected
Vinyl Chloride	2.9	Not Detected	7.4	Not Detected
1,3-Butadiene	2.9	Not Detected	6.4	Not Detected
Bromomethane	29	Not Detected	110	Not Detected
Chloroethane	12	Not Detected	31	Not Detected
Freon 11	2.9	Not Detected	16	Not Detected
Ethanol	12	Not Detected	22	Not Detected
Freon 113	2.9	Not Detected	22	Not Detected
1,1-Dichloroethene	2.9	Not Detected	12	Not Detected
Acetone	29	Not Detected	69	Not Detected
2-Propanol	12	Not Detected	28	Not Detected
Carbon Disulfide	12	Not Detected	36	Not Detected
3-Chloropropene	12	Not Detected	36	Not Detected
Methylene Chloride	29	Not Detected	100	Not Detected
Methyl tert-butyl ether	2.9	Not Detected	10	Not Detected
trans-1,2-Dichloroethene	2.9	Not Detected	12	Not Detected
Hexane	2.9	Not Detected	10	Not Detected
1,1-Dichloroethane	2.9	Not Detected	12	Not Detected
2-Butanone (Methyl Ethyl Ketone)	12	Not Detected	34	Not Detected
cis-1,2-Dichloroethene	2.9	Not Detected	12	Not Detected
Tetrahydrofuran	2.9	Not Detected	8.6	Not Detected
Chloroform	2.9	Not Detected	14	Not Detected
1,1,1-Trichloroethane	2.9	Not Detected	16	Not Detected
Cyclohexane	2.9	Not Detected	10	Not Detected
Carbon Tetrachloride	2.9	Not Detected	18	Not Detected
2,2,4-Trimethylpentane	2.9	Not Detected	14	Not Detected
Benzene	2.9	Not Detected	9.3	Not Detected
1,2-Dichloroethane	2.9	Not Detected	12	Not Detected
Heptane	2.9	Not Detected	12	Not Detected
Trichloroethene	2.9	Not Detected	16	Not Detected
1,2-Dichloropropane	2.9	Not Detected	13	Not Detected
1,4-Dioxane	12	Not Detected	42	Not Detected
Bromodichloromethane	2.9	Not Detected	19	Not Detected
cis-1,3-Dichloropropene	2.9	Not Detected	13	Not Detected
4-Methyl-2-pentanone	2.9	Not Detected	12	Not Detected
Toluene	2.9	Not Detected	11	Not Detected
trans-1,3-Dichloropropene	2.9	Not Detected	13	Not Detected
1,1,2-Trichloroethane	2.9	Not Detected	16	Not Detected
Tetrachloroethene	2.9	780	20	5300
2-Hexanone	12	Not Detected	48	Not Detected

eurofins | Air Toxics

Client Sample ID: SS-15

Lab ID#: 1606349-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061717**	**Date of Collection:**	**6/15/16 3:49:00 PM**
Dil. Factor:	**5.81**	**Date of Analysis:**	**6/17/16 07:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.9	Not Detected	25	Not Detected
1,2-Dibromoethane (EDB)	2.9	Not Detected	22	Not Detected
Chlorobenzene	2.9	Not Detected	13	Not Detected
Ethyl Benzene	2.9	Not Detected	13	Not Detected
m,p-Xylene	2.9	Not Detected	13	Not Detected
o-Xylene	2.9	Not Detected	13	Not Detected
Styrene	2.9	Not Detected	12	Not Detected
Bromoform	2.9	Not Detected	30	Not Detected
Cumene	2.9	Not Detected	14	Not Detected
1,1,2,2-Tetrachloroethane	2.9	Not Detected	20	Not Detected
Propylbenzene	2.9	Not Detected	14	Not Detected
4-Ethyltoluene	2.9	Not Detected	14	Not Detected
1,3,5-Trimethylbenzene	2.9	Not Detected	14	Not Detected
1,2,4-Trimethylbenzene	2.9	Not Detected	14	Not Detected
1,3-Dichlorobenzene	2.9	Not Detected	17	Not Detected
1,4-Dichlorobenzene	2.9	Not Detected	17	Not Detected
alpha-Chlorotoluene	2.9	Not Detected	15	Not Detected
1,2-Dichlorobenzene	2.9	Not Detected	17	Not Detected
1,2,4-Trichlorobenzene	12	Not Detected	86	Not Detected
Hexachlorobutadiene	12	Not Detected	120	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SS-8(old)

Lab ID#: 1606349-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061718**	**Date of Collection:**	**6/15/16 4:13:00 PM**
Dil. Factor:	**2.22**	**Date of Analysis:**	**6/17/16 07:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	4.4	4.4 J	8.4	8.3 J
Freon 113	1.1	Not Detected	8.5	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	26	Not Detected
2-Propanol	4.4	Not Detected	11	Not Detected
Carbon Disulfide	4.4	Not Detected	14	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	Not Detected	18	Not Detected

eurofins | Air Toxics

Client Sample ID: SS-8(old)

Lab ID#: 1606349-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061718**	**Date of Collection:**	**6/15/16 4:13:00 PM**
Dil. Factor:	**2.22**	**Date of Analysis:**	**6/17/16 07:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.5	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected

J = Estimated value.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: SS-6

Lab ID#: 1606349-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061719**	**Date of Collection:**	**6/15/16 1:52:00 PM**
Dil. Factor:	**2.37**	**Date of Analysis:**	**6/17/16 08:05 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.9	Not Detected
Freon 114	1.2	Not Detected	8.3	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	46	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.6	Not Detected
Ethanol	4.7	9.0	8.9	17
Freon 113	1.2	Not Detected	9.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Acetone	12	Not Detected	28	Not Detected
2-Propanol	4.7	4.9	12	12
Carbon Disulfide	4.7	Not Detected	15	Not Detected
3-Chloropropene	4.7	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Hexane	1.2	Not Detected	4.2	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	1.2	Not Detected	5.8	Not Detected
1,1,1-Trichloroethane	1.2	90	6.5	490
Cyclohexane	1.2	Not Detected	4.1	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.5	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.5	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.9	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Tetrachloroethene	1.2	4.9	8.0	33
2-Hexanone	4.7	Not Detected	19	Not Detected

eurofins | Air Toxics

Client Sample ID: SS-6

Lab ID#: 1606349-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061719**	**Date of Collection:**	**6/15/16 1:52:00 PM**
Dil. Factor:	**2.37**	**Date of Analysis:**	**6/17/16 08:05 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.1	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.8	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.1	Not Detected
Propylbenzene	1.2	Not Detected	5.8	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.8	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.1	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	35	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: SS-3

Lab ID#: 1606349-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061720**	**Date of Collection:**	**6/15/16 5:20:00 PM**
Dil. Factor:	**2.27**	**Date of Analysis:**	**6/17/16 08:31 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.6	Not Detected
Freon 114	1.1	Not Detected	7.9	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.4	Not Detected
Ethanol	4.5	Not Detected	8.6	Not Detected
Freon 113	1.1	Not Detected	8.7	Not Detected
1,1-Dichloroethene	1.1	58	4.5	230
Acetone	11	Not Detected	27	Not Detected
2-Propanol	4.5	5.2	11	13
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	3.0	4.6	12
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	1.2	5.5	5.7
1,1,1-Trichloroethane	1.1	160	6.2	880
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.1	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.3	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	24	6.1	130
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.6	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	1.1	Not Detected	4.3	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	4.0	7.7	27
2-Hexanone	4.5	Not Detected	18	Not Detected

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Client Sample ID: SS-3

Lab ID#: 1606349-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061720**	**Date of Collection:**	**6/15/16 5:20:00 PM**
Dil. Factor:	**2.27**	**Date of Analysis:**	**6/17/16 08:31 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.7	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.7	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	4.9	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.6	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.8	Not Detected
Propylbenzene	1.1	Not Detected	5.6	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.6	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.9	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	34	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: SS-9

Lab ID#: 1606349-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061818**	**Date of Collection:**	**6/15/16 5:44:00 PM**
Dil. Factor:	**12.1**	**Date of Analysis:**	**6/18/16 07:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	6.0	Not Detected	30	Not Detected
Freon 114	6.0	Not Detected	42	Not Detected
Chloromethane	60	Not Detected	120	Not Detected
Vinyl Chloride	6.0	Not Detected	15	Not Detected
1,3-Butadiene	6.0	Not Detected	13	Not Detected
Bromomethane	60	Not Detected	230	Not Detected
Chloroethane	24	Not Detected	64	Not Detected
Freon 11	6.0	Not Detected	34	Not Detected
Ethanol	24	100	46	200
Freon 113	6.0	Not Detected	46	Not Detected
1,1-Dichloroethene	6.0	Not Detected	24	Not Detected
Acetone	60	Not Detected	140	Not Detected
2-Propanol	24	Not Detected	59	Not Detected
Carbon Disulfide	24	Not Detected	75	Not Detected
3-Chloropropene	24	Not Detected	76	Not Detected
Methylene Chloride	60	Not Detected	210	Not Detected
Methyl tert-butyl ether	6.0	Not Detected	22	Not Detected
trans-1,2-Dichloroethene	6.0	Not Detected	24	Not Detected
Hexane	6.0	Not Detected	21	Not Detected
1,1-Dichloroethane	6.0	Not Detected	24	Not Detected
2-Butanone (Methyl Ethyl Ketone)	24	Not Detected	71	Not Detected
cis-1,2-Dichloroethene	6.0	27	24	110
Tetrahydrofuran	6.0	Not Detected	18	Not Detected
Chloroform	6.0	10	30	51
1,1,1-Trichloroethane	6.0	Not Detected	33	Not Detected
Cyclohexane	6.0	Not Detected	21	Not Detected
Carbon Tetrachloride	6.0	Not Detected	38	Not Detected
2,2,4-Trimethylpentane	6.0	Not Detected	28	Not Detected
Benzene	6.0	Not Detected	19	Not Detected
1,2-Dichloroethane	6.0	Not Detected	24	Not Detected
Heptane	6.0	Not Detected	25	Not Detected
Trichloroethene	6.0	1700	32	9400
1,2-Dichloropropane	6.0	Not Detected	28	Not Detected
1,4-Dioxane	24	Not Detected	87	Not Detected
Bromodichloromethane	6.0	Not Detected	40	Not Detected
cis-1,3-Dichloropropene	6.0	Not Detected	27	Not Detected
4-Methyl-2-pentanone	6.0	Not Detected	25	Not Detected
Toluene	6.0	Not Detected	23	Not Detected
trans-1,3-Dichloropropene	6.0	Not Detected	27	Not Detected
1,1,2-Trichloroethane	6.0	Not Detected	33	Not Detected
Tetrachloroethene	6.0	Not Detected	41	Not Detected
2-Hexanone	24	Not Detected	99	Not Detected

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Client Sample ID: SS-9

Lab ID#: 1606349-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061818**	**Date of Collection:**	**6/15/16 5:44:00 PM**
Dil. Factor:	**12.1**	**Date of Analysis:**	**6/18/16 07:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	6.0	Not Detected	52	Not Detected
1,2-Dibromoethane (EDB)	6.0	Not Detected	46	Not Detected
Chlorobenzene	6.0	Not Detected	28	Not Detected
Ethyl Benzene	6.0	Not Detected	26	Not Detected
m,p-Xylene	6.0	Not Detected	26	Not Detected
o-Xylene	6.0	Not Detected	26	Not Detected
Styrene	6.0	Not Detected	26	Not Detected
Bromoform	6.0	Not Detected	62	Not Detected
Cumene	6.0	Not Detected	30	Not Detected
1,1,2,2-Tetrachloroethane	6.0	Not Detected	42	Not Detected
Propylbenzene	6.0	Not Detected	30	Not Detected
4-Ethyltoluene	6.0	Not Detected	30	Not Detected
1,3,5-Trimethylbenzene	6.0	Not Detected	30	Not Detected
1,2,4-Trimethylbenzene	6.0	Not Detected	30	Not Detected
1,3-Dichlorobenzene	6.0	Not Detected	36	Not Detected
1,4-Dichlorobenzene	6.0	Not Detected	36	Not Detected
alpha-Chlorotoluene	6.0	Not Detected	31	Not Detected
1,2-Dichlorobenzene	6.0	Not Detected	36	Not Detected
1,2,4-Trichlorobenzene	24	Not Detected	180	Not Detected
Hexachlorobutadiene	24	Not Detected	260	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SS-8(new)

Lab ID#: 1606349-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061819**	**Date of Collection: 6/15/16 6:01:00 PM**	
Dil. Factor:	**2.36**	**Date of Analysis: 6/18/16 07:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.8	Not Detected
Freon 114	1.2	Not Detected	8.2	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	46	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.6	Not Detected
Ethanol	4.7	250	8.9	460
Freon 113	1.2	Not Detected	9.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Acetone	12	42	28	100
2-Propanol	4.7	8.9	12	22
Carbon Disulfide	4.7	Not Detected	15	Not Detected
3-Chloropropene	4.7	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Hexane	1.2	Not Detected	4.2	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	1.5	4.7	6.0
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	1.2	4.2	5.8	20
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Cyclohexane	1.2	Not Detected	4.1	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.5	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	260	6.3	1400
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.9	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	1.8	4.4	6.9
trans-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
2-Hexanone	4.7	Not Detected	19	Not Detected

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Client Sample ID: SS-8(new)

Lab ID#: 1606349-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061819**	**Date of Collection:**	**6/15/16 6:01:00 PM**
Dil. Factor:	**2.36**	**Date of Analysis:**	**6/18/16 07:27 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.1	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.8	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.1	Not Detected
Propylbenzene	1.2	Not Detected	5.8	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.8	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.1	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	35	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1606349-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061706a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 11:16 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1606349-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061706a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 11:16 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1606349-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061805a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 10:19 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1606349-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061805a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 10:19 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: CCV

Lab ID#: 1606349-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 08:38 AM**	

Compound	%Recovery
Freon 12	84
Freon 114	88
Chloromethane	80
Vinyl Chloride	85
1,3-Butadiene	78
Bromomethane	91
Chloroethane	85
Freon 11	84
Ethanol	79
Freon 113	87
1,1-Dichloroethene	78
Acetone	77
2-Propanol	74
Carbon Disulfide	83
3-Chloropropene	79
Methylene Chloride	85
Methyl tert-butyl ether	76
trans-1,2-Dichloroethene	85
Hexane	84
1,1-Dichloroethane	88
2-Butanone (Methyl Ethyl Ketone)	81
cis-1,2-Dichloroethene	83
Tetrahydrofuran	83
Chloroform	88
1,1,1-Trichloroethane	85
Cyclohexane	80
Carbon Tetrachloride	86
2,2,4-Trimethylpentane	88
Benzene	93
1,2-Dichloroethane	86
Heptane	84
Trichloroethene	89
1,2-Dichloropropane	92
1,4-Dioxane	92
Bromodichloromethane	95
cis-1,3-Dichloropropene	88
4-Methyl-2-pentanone	80
Toluene	93
trans-1,3-Dichloropropene	85
1,1,2-Trichloroethane	91
Tetrachloroethene	95
2-Hexanone	80

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Client Sample ID: CCV

Lab ID#: 1606349-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 08:38 AM**	

Compound	%Recovery
Dibromochloromethane	95
1,2-Dibromoethane (EDB)	94
Chlorobenzene	95
Ethyl Benzene	90
m,p-Xylene	89
o-Xylene	89
Styrene	88
Bromoform	96
Cumene	91
1,1,2,2-Tetrachloroethane	91
Propylbenzene	89
4-Ethyltoluene	91
1,3,5-Trimethylbenzene	93
1,2,4-Trimethylbenzene	88
1,3-Dichlorobenzene	94
1,4-Dichlorobenzene	93
alpha-Chlorotoluene	87
1,2-Dichlorobenzene	93
1,2,4-Trichlorobenzene	100
Hexachlorobutadiene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV

Lab ID#: 1606349-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 08:53 AM**	

Compound	%Recovery
Freon 12	84
Freon 114	90
Chloromethane	77
Vinyl Chloride	83
1,3-Butadiene	79
Bromomethane	90
Chloroethane	82
Freon 11	85
Ethanol	76
Freon 113	88
1,1-Dichloroethene	77
Acetone	76
2-Propanol	72
Carbon Disulfide	82
3-Chloropropene	79
Methylene Chloride	83
Methyl tert-butyl ether	75
trans-1,2-Dichloroethene	84
Hexane	83
1,1-Dichloroethane	88
2-Butanone (Methyl Ethyl Ketone)	80
cis-1,2-Dichloroethene	82
Tetrahydrofuran	84
Chloroform	90
1,1,1-Trichloroethane	85
Cyclohexane	81
Carbon Tetrachloride	87
2,2,4-Trimethylpentane	89
Benzene	96
1,2-Dichloroethane	88
Heptane	86
Trichloroethene	92
1,2-Dichloropropane	95
1,4-Dioxane	92
Bromodichloromethane	97
cis-1,3-Dichloropropene	90
4-Methyl-2-pentanone	83
Toluene	96
trans-1,3-Dichloropropene	86
1,1,2-Trichloroethane	91
Tetrachloroethene	95
2-Hexanone	81

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Client Sample ID: CCV

Lab ID#: 1606349-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 08:53 AM**	

Compound	%Recovery
Dibromochloromethane	95
1,2-Dibromoethane (EDB)	95
Chlorobenzene	96
Ethyl Benzene	91
m,p-Xylene	90
o-Xylene	89
Styrene	88
Bromoform	97
Cumene	91
1,1,2,2-Tetrachloroethane	92
Propylbenzene	89
4-Ethyltoluene	91
1,3,5-Trimethylbenzene	93
1,2,4-Trimethylbenzene	88
1,3-Dichlorobenzene	94
1,4-Dichlorobenzene	94
alpha-Chlorotoluene	88
1,2-Dichlorobenzene	94
1,2,4-Trichlorobenzene	99
Hexachlorobutadiene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCS

Lab ID#: 1606349-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:04 AM**	

Compound	%Recovery	Method Limits
Freon 12	87	70-130
Freon 114	94	70-130
Chloromethane	75	70-130
Vinyl Chloride	87	70-130
1,3-Butadiene	77	70-130
Bromomethane	91	70-130
Chloroethane	87	70-130
Freon 11	88	70-130
Ethanol	82	70-130
Freon 113	87	70-130
1,1-Dichloroethene	80	70-130
Acetone	79	70-130
2-Propanol	75	70-130
Carbon Disulfide	74	70-130
3-Chloropropene	76	70-130
Methylene Chloride	85	70-130
Methyl tert-butyl ether	76	70-130
trans-1,2-Dichloroethene	87	70-130
Hexane	85	70-130
1,1-Dichloroethane	87	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
cis-1,2-Dichloroethene	81	70-130
Tetrahydrofuran	81	70-130
Chloroform	89	70-130
1,1,1-Trichloroethane	85	70-130
Cyclohexane	83	70-130
Carbon Tetrachloride	85	70-130
2,2,4-Trimethylpentane	90	70-130
Benzene	94	70-130
1,2-Dichloroethane	87	70-130
Heptane	86	70-130
Trichloroethene	92	70-130
1,2-Dichloropropane	95	70-130
1,4-Dioxane	83	70-130
Bromodichloromethane	98	70-130
cis-1,3-Dichloropropene	84	70-130
4-Methyl-2-pentanone	78	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	84	70-130
1,1,2-Trichloroethane	88	70-130
Tetrachloroethene	94	70-130
2-Hexanone	71	70-130

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Client Sample ID: LCS

Lab ID#: 1606349-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:04 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	94	70-130
1,2-Dibromoethane (EDB)	92	70-130
Chlorobenzene	93	70-130
Ethyl Benzene	89	70-130
m,p-Xylene	88	70-130
o-Xylene	89	70-130
Styrene	79	70-130
Bromoform	95	70-130
Cumene	88	70-130
1,1,2,2-Tetrachloroethane	88	70-130
Propylbenzene	87	70-130
4-Ethyltoluene	86	70-130
1,3,5-Trimethylbenzene	89	70-130
1,2,4-Trimethylbenzene	83	70-130
1,3-Dichlorobenzene	90	70-130
1,4-Dichlorobenzene	90	70-130
alpha-Chlorotoluene	78	70-130
1,2-Dichlorobenzene	91	70-130
1,2,4-Trichlorobenzene	105	70-130
Hexachlorobutadiene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: LCSD

Lab ID#: 1606349-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:47 AM**	

Compound	%Recovery	Method Limits
Freon 12	87	70-130
Freon 114	93	70-130
Chloromethane	70	70-130
Vinyl Chloride	88	70-130
1,3-Butadiene	79	70-130
Bromomethane	91	70-130
Chloroethane	89	70-130
Freon 11	88	70-130
Ethanol	81	70-130
Freon 113	87	70-130
1,1-Dichloroethene	80	70-130
Acetone	80	70-130
2-Propanol	75	70-130
Carbon Disulfide	74	70-130
3-Chloropropene	78	70-130
Methylene Chloride	86	70-130
Methyl tert-butyl ether	75	70-130
trans-1,2-Dichloroethene	87	70-130
Hexane	86	70-130
1,1-Dichloroethane	89	70-130
2-Butanone (Methyl Ethyl Ketone)	80	70-130
cis-1,2-Dichloroethene	80	70-130
Tetrahydrofuran	81	70-130
Chloroform	89	70-130
1,1,1-Trichloroethane	84	70-130
Cyclohexane	83	70-130
Carbon Tetrachloride	85	70-130
2,2,4-Trimethylpentane	89	70-130
Benzene	95	70-130
1,2-Dichloroethane	87	70-130
Heptane	88	70-130
Trichloroethene	91	70-130
1,2-Dichloropropane	95	70-130
1,4-Dioxane	82	70-130
Bromodichloromethane	97	70-130
cis-1,3-Dichloropropene	84	70-130
4-Methyl-2-pentanone	78	70-130
Toluene	95	70-130
trans-1,3-Dichloropropene	84	70-130
1,1,2-Trichloroethane	90	70-130
Tetrachloroethene	94	70-130
2-Hexanone	72	70-130

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Client Sample ID: LCSD

Lab ID#: 1606349-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:47 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	94	70-130
1,2-Dibromoethane (EDB)	93	70-130
Chlorobenzene	94	70-130
Ethyl Benzene	89	70-130
m,p-Xylene	89	70-130
o-Xylene	90	70-130
Styrene	79	70-130
Bromoform	96	70-130
Cumene	90	70-130
1,1,2,2-Tetrachloroethane	89	70-130
Propylbenzene	88	70-130
4-Ethyltoluene	90	70-130
1,3,5-Trimethylbenzene	89	70-130
1,2,4-Trimethylbenzene	85	70-130
1,3-Dichlorobenzene	92	70-130
1,4-Dichlorobenzene	92	70-130
alpha-Chlorotoluene	79	70-130
1,2-Dichlorobenzene	92	70-130
1,2,4-Trichlorobenzene	107	70-130
Hexachlorobutadiene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	85	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: LCS

Lab ID#: 1606349-09B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 09:18 AM**	

Compound	%Recovery	Method Limits
Freon 12	80	70-130
Freon 114	88	70-130
Chloromethane	73	70-130
Vinyl Chloride	80	70-130
1,3-Butadiene	73	70-130
Bromomethane	86	70-130
Chloroethane	81	70-130
Freon 11	82	70-130
Ethanol	79	70-130
Freon 113	86	70-130
1,1-Dichloroethene	74	70-130
Acetone	71	70-130
2-Propanol	74	70-130
Carbon Disulfide	68 Q	70-130
3-Chloropropene	71	70-130
Methylene Chloride	79	70-130
Methyl tert-butyl ether	74	70-130
trans-1,2-Dichloroethene	82	70-130
Hexane	81	70-130
1,1-Dichloroethane	83	70-130
2-Butanone (Methyl Ethyl Ketone)	79	70-130
cis-1,2-Dichloroethene	76	70-130
Tetrahydrofuran	80	70-130
Chloroform	83	70-130
1,1,1-Trichloroethane	83	70-130
Cyclohexane	81	70-130
Carbon Tetrachloride	86	70-130
2,2,4-Trimethylpentane	87	70-130
Benzene	91	70-130
1,2-Dichloroethane	84	70-130
Heptane	83	70-130
Trichloroethene	90	70-130
1,2-Dichloropropane	91	70-130
1,4-Dioxane	88	70-130
Bromodichloromethane	94	70-130
cis-1,3-Dichloropropene	81	70-130
4-Methyl-2-pentanone	82	70-130
Toluene	92	70-130
trans-1,3-Dichloropropene	85	70-130
1,1,2-Trichloroethane	90	70-130
Tetrachloroethene	94	70-130
2-Hexanone	85	70-130

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Client Sample ID: LCS

Lab ID#: 1606349-09B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 09:18 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	97	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	96	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	91	70-130
o-Xylene	92	70-130
Styrene	92	70-130
Bromoform	101	70-130
Cumene	92	70-130
1,1,2,2-Tetrachloroethane	92	70-130
Propylbenzene	93	70-130
4-Ethyltoluene	93	70-130
1,3,5-Trimethylbenzene	95	70-130
1,2,4-Trimethylbenzene	90	70-130
1,3-Dichlorobenzene	95	70-130
1,4-Dichlorobenzene	95	70-130
alpha-Chlorotoluene	92	70-130
1,2-Dichlorobenzene	94	70-130
1,2,4-Trichlorobenzene	74	70-130
Hexachlorobutadiene	75	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	83	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: LCSD

Lab ID#: 1606349-09BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 09:42 AM**	

Compound	%Recovery	Method Limits
Freon 12	80	70-130
Freon 114	87	70-130
Chloromethane	72	70-130
Vinyl Chloride	80	70-130
1,3-Butadiene	73	70-130
Bromomethane	85	70-130
Chloroethane	80	70-130
Freon 11	82	70-130
Ethanol	76	70-130
Freon 113	85	70-130
1,1-Dichloroethene	74	70-130
Acetone	73	70-130
2-Propanol	74	70-130
Carbon Disulfide	69 Q	70-130
3-Chloropropene	71	70-130
Methylene Chloride	79	70-130
Methyl tert-butyl ether	74	70-130
trans-1,2-Dichloroethene	82	70-130
Hexane	81	70-130
1,1-Dichloroethane	83	70-130
2-Butanone (Methyl Ethyl Ketone)	77	70-130
cis-1,2-Dichloroethene	76	70-130
Tetrahydrofuran	81	70-130
Chloroform	84	70-130
1,1,1-Trichloroethane	85	70-130
Cyclohexane	81	70-130
Carbon Tetrachloride	86	70-130
2,2,4-Trimethylpentane	88	70-130
Benzene	90	70-130
1,2-Dichloroethane	84	70-130
Heptane	83	70-130
Trichloroethene	90	70-130
1,2-Dichloropropane	93	70-130
1,4-Dioxane	91	70-130
Bromodichloromethane	94	70-130
cis-1,3-Dichloropropene	82	70-130
4-Methyl-2-pentanone	84	70-130
Toluene	93	70-130
trans-1,3-Dichloropropene	85	70-130
1,1,2-Trichloroethane	91	70-130
Tetrachloroethene	95	70-130
2-Hexanone	83	70-130

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Client Sample ID: LCSD

Lab ID#: 1606349-09BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3061804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/18/16 09:42 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	95	70-130
1,2-Dibromoethane (EDB)	95	70-130
Chlorobenzene	96	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	91	70-130
o-Xylene	91	70-130
Styrene	91	70-130
Bromoform	99	70-130
Cumene	92	70-130
1,1,2,2-Tetrachloroethane	91	70-130
Propylbenzene	92	70-130
4-Ethyltoluene	94	70-130
1,3,5-Trimethylbenzene	95	70-130
1,2,4-Trimethylbenzene	90	70-130
1,3-Dichlorobenzene	95	70-130
1,4-Dichlorobenzene	95	70-130
alpha-Chlorotoluene	93	70-130
1,2-Dichlorobenzene	96	70-130
1,2,4-Trichlorobenzene	94	70-130
Hexachlorobutadiene	92	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	97	70-130

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6/21/2016

Mr. Morgan Gillies
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name:
Project #:
Workorder #: 1606350

Dear Mr. Morgan Gillies

The following report includes the data for the above referenced project for sample(s) received on 6/16/2016 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1606350

Work Order Summary

CLIENT:	Mr. Morgan Gillies Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Morgan Gillies Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	
DATE RECEIVED:	06/16/2016	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/21/2016		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	Building C-IA	Modified TO-15	2.8 "Hg	5 psi
01B	Building C-IA	Modified TO-15	2.8 "Hg	5 psi
02A	Building D-IA	Modified TO-15	0.8 "Hg	5 psi
02B	Building D-IA	Modified TO-15	0.8 "Hg	5 psi
03A	IA-1	Modified TO-15	6.3 "Hg	5 psi
03B	IA-1	Modified TO-15	6.3 "Hg	5 psi
04A	IA-3	Modified TO-15	4.5 "Hg	4.8 psi
04B	IA-3	Modified TO-15	4.5 "Hg	4.8 psi
05A	IA-2	Modified TO-15	8.6 "Hg	5.1 psi
05B	IA-2	Modified TO-15	8.6 "Hg	5.1 psi
06A	Ambient Air	Modified TO-15	5.9 "Hg	5 psi
06B	Ambient Air	Modified TO-15	5.9 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
07B	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
08B	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA
09B	LCS	Modified TO-15	NA	NA
09BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 06/21/16

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
Pangea Environmental Services, Inc.
Workorder# 1606350

Six 6 Liter Summa Canister (SIM Certified) samples were received on June 16, 2016. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample IA-2 did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for 1,1,2,2-Tetrachloroethane that are below the Reporting Limit but greater than the Method Detection

Limit. Results are reported as qualified with high probability for false positive.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

The reported result for 4-Ethyltoluene in samples Building C-IA, Building D-IA, IA-1, IA-3 and IA-2 may be biased high due to co-elution with a non target compound with similar characteristic ions. Both the primary and secondary ion for 4-Ethyltoluene exhibited potential interference.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See case narrative explanation

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: Building C-IA

Lab ID#: 1606350-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.15	0.24	0.83	1.4
Ethanol	0.74	35	1.4	66
Acetone	0.74	37	1.8	88
2-Propanol	0.74	1.7	1.8	4.2
Methylene Chloride	0.30	0.40	1.0	1.4
Hexane	0.15	0.20	0.52	0.72
2-Butanone (Methyl Ethyl Ketone)	0.74	2.4	2.2	7.2
Cyclohexane	0.15	0.61	0.51	2.1
Heptane	0.15	1.1	0.61	4.4
4-Ethyltoluene	0.15	0.33	0.73	1.6
1,2,4-Trimethylbenzene	0.15	0.37	0.73	1.8

Client Sample ID: Building C-IA

Lab ID#: 1606350-01B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.030	0.52	0.15	2.6
Chloromethane	0.074	0.55	0.15	1.1
Chloroform	0.030	0.074	0.14	0.36
Carbon Tetrachloride	0.030	0.14 J0	0.19	0.88 J0
Benzene	0.074	0.12	0.24	0.39
1,2-Dichloroethane	0.030	0.048	0.12	0.19
Trichloroethene	0.030	0.031	0.16	0.16
Toluene	0.030	4.2	0.11	16
Tetrachloroethene	0.030	0.75	0.20	5.1
Ethyl Benzene	0.030	0.34	0.13	1.4
m,p-Xylene	0.059	1.1	0.26	4.8
o-Xylene	0.030	0.52	0.13	2.2

Client Sample ID: Building D-IA

Lab ID#: 1606350-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: Building D-IA

Lab ID#: 1606350-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.14	0.31	0.78	1.7
Ethanol	0.69	6.7	1.3	13
Acetone	0.69	9.6	1.6	23
Methylene Chloride	0.28	1.0	0.96	3.6
Hexane	0.14	0.76	0.49	2.7
2-Butanone (Methyl Ethyl Ketone)	0.69	0.74	2.0	2.2
Cyclohexane	0.14	0.26	0.48	0.90
2,2,4-Trimethylpentane	0.69	1.7	3.2	8.0
Heptane	0.14	0.45	0.56	1.8
4-Methyl-2-pentanone	0.14	0.14	0.56	0.57
4-Ethyltoluene	0.14	0.33	0.68	1.6
1,2,4-Trimethylbenzene	0.14	0.38	0.68	1.9

Client Sample ID: Building D-IA

Lab ID#: 1606350-02B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.028	0.72	0.14	3.5
Chloromethane	0.069	0.52	0.14	1.1
Methyl tert-butyl ether	0.14	0.41	0.50	1.5
Carbon Tetrachloride	0.028	0.067 J0	0.17	0.42 J0
Benzene	0.069	0.30	0.22	0.97
Toluene	0.028	4.8	0.10	18
Tetrachloroethene	0.028	0.064	0.19	0.44
Ethyl Benzene	0.028	0.33	0.12	1.4
m,p-Xylene	0.055	1.2	0.24	5.4
o-Xylene	0.028	0.39	0.12	1.7

Client Sample ID: IA-1

Lab ID#: 1606350-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.91	0.96	5.1

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IA-1

Lab ID#: 1606350-03A

Ethanol	0.85	140 E	1.6	260 E
Acetone	0.85	26	2.0	62
2-Propanol	0.85	1.3	2.1	3.1
Methylene Chloride	0.34	2.3	1.2	8.1
Hexane	0.17	5.4	0.60	19
2-Butanone (Methyl Ethyl Ketone)	0.85	4.6	2.5	13
Cyclohexane	0.17	2.2	0.58	7.7
2,2,4-Trimethylpentane	0.85	10	4.0	48
Heptane	0.17	3.8	0.70	15
4-Methyl-2-pentanone	0.17	0.24	0.70	0.98
Styrene	0.17	0.28	0.72	1.2
Propylbenzene	0.17	0.29	0.84	1.4
4-Ethyltoluene	0.17	1.4	0.84	7.2
1,3,5-Trimethylbenzene	0.17	0.46	0.84	2.2
1,2,4-Trimethylbenzene	0.17	1.6	0.84	7.9

Client Sample ID: IA-1

Lab ID#: 1606350-03B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.55	0.17	2.7
Chloromethane	0.085	0.59	0.18	1.2
Chloroform	0.034	0.037	0.17	0.18
Carbon Tetrachloride	0.034	0.21 J0	0.21	1.3 J0
Benzene	0.085	3.2	0.27	10
Toluene	0.034	28	0.13	110
Tetrachloroethene	0.034	0.096	0.23	0.65
Ethyl Benzene	0.034	3.0	0.15	13
m,p-Xylene	0.068	12	0.30	51
o-Xylene	0.034	3.5	0.15	15
1,4-Dichlorobenzene	0.034	0.11	0.20	0.64

Client Sample ID: IA-3

Lab ID#: 1606350-04A

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IA-3

Lab ID#: 1606350-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.16	0.83	0.88	4.7
Ethanol	0.78	50	1.5	94
Acetone	0.78	20	1.8	46
2-Propanol	0.78	1.2	1.9	2.9
Methylene Chloride	0.31	2.7	1.1	9.3
Hexane	0.16	2.0	0.55	7.0
2-Butanone (Methyl Ethyl Ketone)	0.78	3.8	2.3	11
Cyclohexane	0.16	1.0	0.54	3.5
2,2,4-Trimethylpentane	0.78	2.9	3.6	14
Heptane	0.16	2.2	0.64	9.2
4-Methyl-2-pentanone	0.16	0.18	0.64	0.74
Styrene	0.16	0.19	0.66	0.80
4-Ethyltoluene	0.16	0.50	0.77	2.4
1,2,4-Trimethylbenzene	0.16	0.47	0.77	2.3

Client Sample ID: IA-3

Lab ID#: 1606350-04B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.031	0.55	0.15	2.7
Chloromethane	0.078	0.57	0.16	1.2
Carbon Tetrachloride	0.031	0.22 J0	0.20	1.4 J0
Benzene	0.078	1.1	0.25	3.4
Toluene	0.031	17	0.12	63
Tetrachloroethene	0.031	0.10	0.21	0.71
Ethyl Benzene	0.031	1.5	0.14	6.5
m,p-Xylene	0.062	5.8	0.27	25
o-Xylene	0.031	1.6	0.14	7.1
1,4-Dichlorobenzene	0.031	0.17	0.19	1.0

Client Sample ID: IA-2

Lab ID#: 1606350-05A

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IA-2

Lab ID#: 1606350-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.19	2.1	1.0	12
Ethanol	0.94	160 E	1.8	300 E
Acetone	0.94	30	2.2	71
2-Propanol	0.94	1.4	2.3	3.4
Methylene Chloride	0.38	1.6	1.3	5.7
Hexane	0.19	5.4	0.66	19
2-Butanone (Methyl Ethyl Ketone)	0.94	2.8	2.8	8.4
Cyclohexane	0.19	2.8	0.65	9.7
2,2,4-Trimethylpentane	0.94	8.3	4.4	39
Heptane	0.19	4.0	0.77	16
4-Methyl-2-pentanone	0.19	0.39	0.77	1.6
Styrene	0.19	0.38	0.80	1.6
Propylbenzene	0.19	0.48	0.92	2.3
4-Ethyltoluene	0.19	2.4	0.92	12
1,3,5-Trimethylbenzene	0.19	0.72	0.92	3.5
1,2,4-Trimethylbenzene	0.19	2.4	0.92	12

Client Sample ID: IA-2

Lab ID#: 1606350-05B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.038	0.53	0.18	2.6
Chloromethane	0.094	0.53	0.19	1.1
cis-1,2-Dichloroethene	0.038	0.088	0.15	0.35
Carbon Tetrachloride	0.038	0.13 J0	0.24	0.81 J0
Benzene	0.094	3.8	0.30	12
Trichloroethene	0.038	0.079	0.20	0.43
Toluene	0.038	28	0.14	100
Tetrachloroethene	0.038	1.6	0.26	11
Ethyl Benzene	0.038	3.7	0.16	16
m,p-Xylene	0.075	14	0.33	60
o-Xylene	0.038	4.4	0.16	19
1,4-Dichlorobenzene	0.038	0.16	0.23	0.97

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: Ambient Air

Lab ID#: 1606350-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.24	0.94	1.3
Ethanol	0.84	2.6	1.6	4.9
Acetone	0.84	2.8	2.0	6.7
Hexane	0.17	0.19	0.59	0.68
Heptane	0.17	0.18	0.68	0.76

Client Sample ID: Ambient Air

Lab ID#: 1606350-06B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.033	0.50	0.16	2.5
Chloromethane	0.084	0.51	0.17	1.0
Carbon Tetrachloride	0.033	0.065 J0	0.21	0.41 J0
Toluene	0.033	0.28	0.12	1.1
Ethyl Benzene	0.033	0.048	0.14	0.21
m,p-Xylene	0.067	0.17	0.29	0.75
o-Xylene	0.033	0.060	0.14	0.26

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Client Sample ID: Building C-IA

Lab ID#: 1606350-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061708**	**Date of Collection:**	**6/15/16 10:43:00 AM**
Dil. Factor:	**1.48**	**Date of Analysis:**	**6/17/16 01:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.15	Not Detected	0.33	Not Detected
Bromomethane	0.74	Not Detected	2.9	Not Detected
Freon 11	0.15	0.24	0.83	1.4
Ethanol	0.74	35	1.4	66
Freon 113	0.15	Not Detected	1.1	Not Detected
Acetone	0.74	37	1.8	88
2-Propanol	0.74	1.7	1.8	4.2
Carbon Disulfide	0.74	Not Detected	2.3	Not Detected
3-Chloropropene	0.74	Not Detected	2.3	Not Detected
Methylene Chloride	0.30	0.40	1.0	1.4
Hexane	0.15	0.20	0.52	0.72
2-Butanone (Methyl Ethyl Ketone)	0.74	2.4	2.2	7.2
Tetrahydrofuran	0.74	Not Detected	2.2	Not Detected
Cyclohexane	0.15	0.61	0.51	2.1
2,2,4-Trimethylpentane	0.74	Not Detected	3.4	Not Detected
Heptane	0.15	1.1	0.61	4.4
1,2-Dichloropropane	0.15	Not Detected	0.68	Not Detected
1,4-Dioxane	0.15	Not Detected	0.53	Not Detected
Bromodichloromethane	0.15	Not Detected	0.99	Not Detected
cis-1,3-Dichloropropene	0.15	Not Detected	0.67	Not Detected
4-Methyl-2-pentanone	0.15	Not Detected	0.61	Not Detected
trans-1,3-Dichloropropene	0.15	Not Detected	0.67	Not Detected
2-Hexanone	0.74	Not Detected	3.0	Not Detected
Dibromochloromethane	0.15	Not Detected	1.3	Not Detected
Chlorobenzene	0.15	Not Detected	0.68	Not Detected
Styrene	0.15	Not Detected	0.63	Not Detected
Bromoform	0.15	Not Detected	1.5	Not Detected
Cumene	0.15	Not Detected	0.73	Not Detected
Propylbenzene	0.15	Not Detected	0.73	Not Detected
4-Ethyltoluene	0.15	0.33	0.73	1.6
1,3,5-Trimethylbenzene	0.15	Not Detected	0.73	Not Detected
1,2,4-Trimethylbenzene	0.15	0.37	0.73	1.8
1,3-Dichlorobenzene	0.15	Not Detected	0.89	Not Detected
alpha-Chlorotoluene	0.15	Not Detected	0.77	Not Detected
1,2-Dichlorobenzene	0.15	Not Detected	0.89	Not Detected
1,2,4-Trichlorobenzene	0.74	Not Detected	5.5	Not Detected
Hexachlorobutadiene	0.74	Not Detected	7.9	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130

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Client Sample ID: Building C-IA

Lab ID#: 1606350-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061708**	**Date of Collection: 6/15/16 10:43:00 AM**	
Dil. Factor:	**1.48**	**Date of Analysis: 6/17/16 01:46 PM**	

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: Building C-IA

Lab ID#: 1606350-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061708sim**	**Date of Collection:**	**6/15/16 10:43:00 AM**
Dil. Factor:	**1.48**	**Date of Analysis:**	**6/17/16 01:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.030	0.52	0.15	2.6
Freon 114	0.030	Not Detected	0.21	Not Detected
Chloromethane	0.074	0.55	0.15	1.1
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
Chloroethane	0.074	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.059	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.59	Not Detected
Methyl tert-butyl ether	0.15	Not Detected	0.53	Not Detected
1,1-Dichloroethane	0.030	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.030	Not Detected	0.12	Not Detected
Chloroform	0.030	0.074	0.14	0.36
1,1,1-Trichloroethane	0.030	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.030	0.14 J0	0.19	0.88 J0
Benzene	0.074	0.12	0.24	0.39
1,2-Dichloroethane	0.030	0.048	0.12	0.19
Trichloroethene	0.030	0.031	0.16	0.16
Toluene	0.030	4.2	0.11	16
1,1,2-Trichloroethane	0.030	Not Detected	0.16	Not Detected
Tetrachloroethene	0.030	0.75	0.20	5.1
1,2-Dibromoethane (EDB)	0.030	Not Detected	0.23	Not Detected
Ethyl Benzene	0.030	0.34	0.13	1.4
m,p-Xylene	0.059	1.1	0.26	4.8
o-Xylene	0.030	0.52	0.13	2.2
1,1,2,2-Tetrachloroethane	0.030	Not Detected	0.20	Not Detected
1,4-Dichlorobenzene	0.030	Not Detected	0.18	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: Building D-IA

Lab ID#: 1606350-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061709**	**Date of Collection:**	**6/15/16 11:04:00 AM**
Dil. Factor:	**1.38**	**Date of Analysis:**	**6/17/16 02:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.14	Not Detected	0.30	Not Detected
Bromomethane	0.69	Not Detected	2.7	Not Detected
Freon 11	0.14	0.31	0.78	1.7
Ethanol	0.69	6.7	1.3	13
Freon 113	0.14	Not Detected	1.0	Not Detected
Acetone	0.69	9.6	1.6	23
2-Propanol	0.69	Not Detected	1.7	Not Detected
Carbon Disulfide	0.69	Not Detected	2.1	Not Detected
3-Chloropropene	0.69	Not Detected	2.2	Not Detected
Methylene Chloride	0.28	1.0	0.96	3.6
Hexane	0.14	0.76	0.49	2.7
2-Butanone (Methyl Ethyl Ketone)	0.69	0.74	2.0	2.2
Tetrahydrofuran	0.69	Not Detected	2.0	Not Detected
Cyclohexane	0.14	0.26	0.48	0.90
2,2,4-Trimethylpentane	0.69	1.7	3.2	8.0
Heptane	0.14	0.45	0.56	1.8
1,2-Dichloropropane	0.14	Not Detected	0.64	Not Detected
1,4-Dioxane	0.14	Not Detected	0.50	Not Detected
Bromodichloromethane	0.14	Not Detected	0.92	Not Detected
cis-1,3-Dichloropropene	0.14	Not Detected	0.63	Not Detected
4-Methyl-2-pentanone	0.14	0.14	0.56	0.57
trans-1,3-Dichloropropene	0.14	Not Detected	0.63	Not Detected
2-Hexanone	0.69	Not Detected	2.8	Not Detected
Dibromochloromethane	0.14	Not Detected	1.2	Not Detected
Chlorobenzene	0.14	Not Detected	0.64	Not Detected
Styrene	0.14	Not Detected	0.59	Not Detected
Bromoform	0.14	Not Detected	1.4	Not Detected
Cumene	0.14	Not Detected	0.68	Not Detected
Propylbenzene	0.14	Not Detected	0.68	Not Detected
4-Ethyltoluene	0.14	0.33	0.68	1.6
1,3,5-Trimethylbenzene	0.14	Not Detected	0.68	Not Detected
1,2,4-Trimethylbenzene	0.14	0.38	0.68	1.9
1,3-Dichlorobenzene	0.14	Not Detected	0.83	Not Detected
alpha-Chlorotoluene	0.14	Not Detected	0.71	Not Detected
1,2-Dichlorobenzene	0.14	Not Detected	0.83	Not Detected
1,2,4-Trichlorobenzene	0.69	Not Detected	5.1	Not Detected
Hexachlorobutadiene	0.69	Not Detected	7.4	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130

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Client Sample ID: Building D-IA

Lab ID#: 1606350-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061709**	**Date of Collection: 6/15/16 11:04:00 AM**	
Dil. Factor:	**1.38**	**Date of Analysis: 6/17/16 02:24 PM**	

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: Building D-IA

Lab ID#: 1606350-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061709sim**	**Date of Collection:**	**6/15/16 11:04:00 AM**
Dil. Factor:	**1.38**	**Date of Analysis:**	**6/17/16 02:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.028	0.72	0.14	3.5
Freon 114	0.028	Not Detected	0.19	Not Detected
Chloromethane	0.069	0.52	0.14	1.1
Vinyl Chloride	0.014	Not Detected	0.035	Not Detected
Chloroethane	0.069	Not Detected	0.18	Not Detected
1,1-Dichloroethene	0.014	Not Detected	0.055	Not Detected
trans-1,2-Dichloroethene	0.14	Not Detected	0.55	Not Detected
Methyl tert-butyl ether	0.14	0.41	0.50	1.5
1,1-Dichloroethane	0.028	Not Detected	0.11	Not Detected
cis-1,2-Dichloroethene	0.028	Not Detected	0.11	Not Detected
Chloroform	0.028	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.028	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.028	0.067 J0	0.17	0.42 J0
Benzene	0.069	0.30	0.22	0.97
1,2-Dichloroethane	0.028	Not Detected	0.11	Not Detected
Trichloroethene	0.028	Not Detected	0.15	Not Detected
Toluene	0.028	4.8	0.10	18
1,1,2-Trichloroethane	0.028	Not Detected	0.15	Not Detected
Tetrachloroethene	0.028	0.064	0.19	0.44
1,2-Dibromoethane (EDB)	0.028	Not Detected	0.21	Not Detected
Ethyl Benzene	0.028	0.33	0.12	1.4
m,p-Xylene	0.055	1.2	0.24	5.4
o-Xylene	0.028	0.39	0.12	1.7
1,1,2,2-Tetrachloroethane	0.028	Not Detected	0.19	Not Detected
1,4-Dichlorobenzene	0.028	Not Detected	0.16	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: IA-1

Lab ID#: 1606350-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061710**	**Date of Collection: 6/15/16 10:08:00 PM**	
Dil. Factor:	**1.70**	**Date of Analysis: 6/17/16 03:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.17	Not Detected	0.38	Not Detected
Bromomethane	0.85	Not Detected	3.3	Not Detected
Freon 11	0.17	0.91	0.96	5.1
Ethanol	0.85	140 E	1.6	260 E
Freon 113	0.17	Not Detected	1.3	Not Detected
Acetone	0.85	26	2.0	62
2-Propanol	0.85	1.3	2.1	3.1
Carbon Disulfide	0.85	Not Detected	2.6	Not Detected
3-Chloropropene	0.85	Not Detected	2.7	Not Detected
Methylene Chloride	0.34	2.3	1.2	8.1
Hexane	0.17	5.4	0.60	19
2-Butanone (Methyl Ethyl Ketone)	0.85	4.6	2.5	13
Tetrahydrofuran	0.85	Not Detected	2.5	Not Detected
Cyclohexane	0.17	2.2	0.58	7.7
2,2,4-Trimethylpentane	0.85	10	4.0	48
Heptane	0.17	3.8	0.70	15
1,2-Dichloropropane	0.17	Not Detected	0.78	Not Detected
1,4-Dioxane	0.17	Not Detected	0.61	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.77	Not Detected
4-Methyl-2-pentanone	0.17	0.24	0.70	0.98
trans-1,3-Dichloropropene	0.17	Not Detected	0.77	Not Detected
2-Hexanone	0.85	Not Detected	3.5	Not Detected
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
Chlorobenzene	0.17	Not Detected	0.78	Not Detected
Styrene	0.17	0.28	0.72	1.2
Bromoform	0.17	Not Detected	1.8	Not Detected
Cumene	0.17	Not Detected	0.84	Not Detected
Propylbenzene	0.17	0.29	0.84	1.4
4-Ethyltoluene	0.17	1.4	0.84	7.2
1,3,5-Trimethylbenzene	0.17	0.46	0.84	2.2
1,2,4-Trimethylbenzene	0.17	1.6	0.84	7.9
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.88	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.85	Not Detected	6.3	Not Detected
Hexachlorobutadiene	0.85	Not Detected	9.1	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: IA-1

Lab ID#: 1606350-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061710**	**Date of Collection: 6/15/16 10:08:00 PM**	
Dil. Factor:	**1.70**	**Date of Analysis: 6/17/16 03:18 PM**	

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: IA-1

Lab ID#: 1606350-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061710sim**	**Date of Collection: 6/15/16 10:08:00 PM**	
Dil. Factor:	**1.70**	**Date of Analysis: 6/17/16 03:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.55	0.17	2.7
Freon 114	0.034	Not Detected	0.24	Not Detected
Chloromethane	0.085	0.59	0.18	1.2
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
Chloroethane	0.085	Not Detected	0.22	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.61	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
Chloroform	0.034	0.037	0.17	0.18
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Carbon Tetrachloride	0.034	0.21 J0	0.21	1.3 J0
Benzene	0.085	3.2	0.27	10
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
Toluene	0.034	28	0.13	110
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	0.096	0.23	0.65
1,2-Dibromoethane (EDB)	0.034	Not Detected	0.26	Not Detected
Ethyl Benzene	0.034	3.0	0.15	13
m,p-Xylene	0.068	12	0.30	51
o-Xylene	0.034	3.5	0.15	15
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
1,4-Dichlorobenzene	0.034	0.11	0.20	0.64

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: IA-3

Lab ID#: 1606350-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061711**	**Date of Collection: 6/15/16 10:03:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 6/17/16 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.16	Not Detected	0.34	Not Detected
Bromomethane	0.78	Not Detected	3.0	Not Detected
Freon 11	0.16	0.83	0.88	4.7
Ethanol	0.78	50	1.5	94
Freon 113	0.16	Not Detected	1.2	Not Detected
Acetone	0.78	20	1.8	46
2-Propanol	0.78	1.2	1.9	2.9
Carbon Disulfide	0.78	Not Detected	2.4	Not Detected
3-Chloropropene	0.78	Not Detected	2.4	Not Detected
Methylene Chloride	0.31	2.7	1.1	9.3
Hexane	0.16	2.0	0.55	7.0
2-Butanone (Methyl Ethyl Ketone)	0.78	3.8	2.3	11
Tetrahydrofuran	0.78	Not Detected	2.3	Not Detected
Cyclohexane	0.16	1.0	0.54	3.5
2,2,4-Trimethylpentane	0.78	2.9	3.6	14
Heptane	0.16	2.2	0.64	9.2
1,2-Dichloropropane	0.16	Not Detected	0.72	Not Detected
1,4-Dioxane	0.16	Not Detected	0.56	Not Detected
Bromodichloromethane	0.16	Not Detected	1.0	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.71	Not Detected
4-Methyl-2-pentanone	0.16	0.18	0.64	0.74
trans-1,3-Dichloropropene	0.16	Not Detected	0.71	Not Detected
2-Hexanone	0.78	Not Detected	3.2	Not Detected
Dibromochloromethane	0.16	Not Detected	1.3	Not Detected
Chlorobenzene	0.16	Not Detected	0.72	Not Detected
Styrene	0.16	0.19	0.66	0.80
Bromoform	0.16	Not Detected	1.6	Not Detected
Cumene	0.16	Not Detected	0.77	Not Detected
Propylbenzene	0.16	Not Detected	0.77	Not Detected
4-Ethyltoluene	0.16	0.50	0.77	2.4
1,3,5-Trimethylbenzene	0.16	Not Detected	0.77	Not Detected
1,2,4-Trimethylbenzene	0.16	0.47	0.77	2.3
1,3-Dichlorobenzene	0.16	Not Detected	0.94	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.81	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.94	Not Detected
1,2,4-Trichlorobenzene	0.78	Not Detected	5.8	Not Detected
Hexachlorobutadiene	0.78	Not Detected	8.3	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130

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Client Sample ID: IA-3

Lab ID#: 1606350-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061711**	**Date of Collection: 6/15/16 10:03:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 6/17/16 04:11 PM**	

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: IA-3

Lab ID#: 1606350-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061711sim**	**Date of Collection: 6/15/16 10:03:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 6/17/16 04:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.031	0.55	0.15	2.7
Freon 114	0.031	Not Detected	0.22	Not Detected
Chloromethane	0.078	0.57	0.16	1.2
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
Chloroethane	0.078	Not Detected	0.20	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.062	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.62	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.56	Not Detected
1,1-Dichloroethane	0.031	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.031	Not Detected	0.12	Not Detected
Chloroform	0.031	Not Detected	0.15	Not Detected
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Carbon Tetrachloride	0.031	0.22 J0	0.20	1.4 J0
Benzene	0.078	1.1	0.25	3.4
1,2-Dichloroethane	0.031	Not Detected	0.13	Not Detected
Trichloroethene	0.031	Not Detected	0.17	Not Detected
Toluene	0.031	17	0.12	63
1,1,2-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Tetrachloroethene	0.031	0.10	0.21	0.71
1,2-Dibromoethane (EDB)	0.031	Not Detected	0.24	Not Detected
Ethyl Benzene	0.031	1.5	0.14	6.5
m,p-Xylene	0.062	5.8	0.27	25
o-Xylene	0.031	1.6	0.14	7.1
1,1,2,2-Tetrachloroethane	0.031	Not Detected	0.21	Not Detected
1,4-Dichlorobenzene	0.031	0.17	0.19	1.0

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: IA-2

Lab ID#: 1606350-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061712**	**Date of Collection: 6/15/16 10:33:00 AM**	
Dil. Factor:	**1.88**	**Date of Analysis: 6/17/16 04:49 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.19	Not Detected	0.42	Not Detected
Bromomethane	0.94	Not Detected	3.6	Not Detected
Freon 11	0.19	2.1	1.0	12
Ethanol	0.94	160 E	1.8	300 E
Freon 113	0.19	Not Detected	1.4	Not Detected
Acetone	0.94	30	2.2	71
2-Propanol	0.94	1.4	2.3	3.4
Carbon Disulfide	0.94	Not Detected	2.9	Not Detected
3-Chloropropene	0.94	Not Detected	2.9	Not Detected
Methylene Chloride	0.38	1.6	1.3	5.7
Hexane	0.19	5.4	0.66	19
2-Butanone (Methyl Ethyl Ketone)	0.94	2.8	2.8	8.4
Tetrahydrofuran	0.94	Not Detected	2.8	Not Detected
Cyclohexane	0.19	2.8	0.65	9.7
2,2,4-Trimethylpentane	0.94	8.3	4.4	39
Heptane	0.19	4.0	0.77	16
1,2-Dichloropropane	0.19	Not Detected	0.87	Not Detected
1,4-Dioxane	0.19	Not Detected	0.68	Not Detected
Bromodichloromethane	0.19	Not Detected	1.2	Not Detected
cis-1,3-Dichloropropene	0.19	Not Detected	0.85	Not Detected
4-Methyl-2-pentanone	0.19	0.39	0.77	1.6
trans-1,3-Dichloropropene	0.19	Not Detected	0.85	Not Detected
2-Hexanone	0.94	Not Detected	3.8	Not Detected
Dibromochloromethane	0.19	Not Detected	1.6	Not Detected
Chlorobenzene	0.19	Not Detected	0.86	Not Detected
Styrene	0.19	0.38	0.80	1.6
Bromoform	0.19	Not Detected	1.9	Not Detected
Cumene	0.19	Not Detected	0.92	Not Detected
Propylbenzene	0.19	0.48	0.92	2.3
4-Ethyltoluene	0.19	2.4	0.92	12
1,3,5-Trimethylbenzene	0.19	0.72	0.92	3.5
1,2,4-Trimethylbenzene	0.19	2.4	0.92	12
1,3-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
alpha-Chlorotoluene	0.19	Not Detected	0.97	Not Detected
1,2-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
1,2,4-Trichlorobenzene	0.94	Not Detected	7.0	Not Detected
Hexachlorobutadiene	0.94	Not Detected	10	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: IA-2

Lab ID#: 1606350-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061712**	**Date of Collection:**	**6/15/16 10:33:00 AM**
Dil. Factor:	**1.88**	**Date of Analysis:**	**6/17/16 04:49 PM**

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: IA-2

Lab ID#: 1606350-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061712sim**	**Date of Collection: 6/15/16 10:33:00 AM**	
Dil. Factor:	**1.88**	**Date of Analysis: 6/17/16 04:49 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.038	0.53	0.18	2.6
Freon 114	0.038	Not Detected	0.26	Not Detected
Chloromethane	0.094	0.53	0.19	1.1
Vinyl Chloride	0.019	Not Detected	0.048	Not Detected
Chloroethane	0.094	Not Detected	0.25	Not Detected
1,1-Dichloroethene	0.019	Not Detected	0.074	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Methyl tert-butyl ether	0.19	Not Detected	0.68	Not Detected
1,1-Dichloroethane	0.038	Not Detected	0.15	Not Detected
cis-1,2-Dichloroethene	0.038	0.088	0.15	0.35
Chloroform	0.038	Not Detected	0.18	Not Detected
1,1,1-Trichloroethane	0.038	Not Detected	0.20	Not Detected
Carbon Tetrachloride	0.038	0.13 J0	0.24	0.81 J0
Benzene	0.094	3.8	0.30	12
1,2-Dichloroethane	0.038	Not Detected	0.15	Not Detected
Trichloroethene	0.038	0.079	0.20	0.43
Toluene	0.038	28	0.14	100
1,1,2-Trichloroethane	0.038	Not Detected	0.20	Not Detected
Tetrachloroethene	0.038	1.6	0.26	11
1,2-Dibromoethane (EDB)	0.038	Not Detected	0.29	Not Detected
Ethyl Benzene	0.038	3.7	0.16	16
m,p-Xylene	0.075	14	0.33	60
o-Xylene	0.038	4.4	0.16	19
1,1,2,2-Tetrachloroethane	0.038	Not Detected	0.26	Not Detected
1,4-Dichlorobenzene	0.038	0.16	0.23	0.97

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Ambient Air

Lab ID#: 1606350-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061713**	**Date of Collection:**	**6/15/16 10:14:00 PM**
Dil. Factor:	**1.67**	**Date of Analysis:**	**6/17/16 05:28 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.17	Not Detected	0.37	Not Detected
Bromomethane	0.84	Not Detected	3.2	Not Detected
Freon 11	0.17	0.24	0.94	1.3
Ethanol	0.84	2.6	1.6	4.9
Freon 113	0.17	Not Detected	1.3	Not Detected
Acetone	0.84	2.8	2.0	6.7
2-Propanol	0.84	Not Detected	2.0	Not Detected
Carbon Disulfide	0.84	Not Detected	2.6	Not Detected
3-Chloropropene	0.84	Not Detected	2.6	Not Detected
Methylene Chloride	0.33	Not Detected	1.2	Not Detected
Hexane	0.17	0.19	0.59	0.68
2-Butanone (Methyl Ethyl Ketone)	0.84	Not Detected	2.5	Not Detected
Tetrahydrofuran	0.84	Not Detected	2.5	Not Detected
Cyclohexane	0.17	Not Detected	0.57	Not Detected
2,2,4-Trimethylpentane	0.84	Not Detected	3.9	Not Detected
Heptane	0.17	0.18	0.68	0.76
1,2-Dichloropropane	0.17	Not Detected	0.77	Not Detected
1,4-Dioxane	0.17	Not Detected	0.60	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.68	Not Detected
trans-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
2-Hexanone	0.84	Not Detected	3.4	Not Detected
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
Chlorobenzene	0.17	Not Detected	0.77	Not Detected
Styrene	0.17	Not Detected	0.71	Not Detected
Bromoform	0.17	Not Detected	1.7	Not Detected
Cumene	0.17	Not Detected	0.82	Not Detected
Propylbenzene	0.17	Not Detected	0.82	Not Detected
4-Ethyltoluene	0.17	Not Detected	0.82	Not Detected
1,3,5-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.86	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.84	Not Detected	6.2	Not Detected
Hexachlorobutadiene	0.84	Not Detected	8.9	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130

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Client Sample ID: Ambient Air

Lab ID#: 1606350-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061713**	**Date of Collection: 6/15/16 10:14:00 PM**	
Dil. Factor:	**1.67**	**Date of Analysis: 6/17/16 05:28 PM**	

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: Ambient Air

Lab ID#: 1606350-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061713sim**	**Date of Collection: 6/15/16 10:14:00 PM**	
Dil. Factor:	**1.67**	**Date of Analysis: 6/17/16 05:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.033	0.50	0.16	2.5
Freon 114	0.033	Not Detected	0.23	Not Detected
Chloromethane	0.084	0.51	0.17	1.0
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
Chloroethane	0.084	Not Detected	0.22	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.066	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.66	Not Detected
Methyl tert-butyl ether	0.17	Not Detected	0.60	Not Detected
1,1-Dichloroethane	0.033	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
Chloroform	0.033	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Carbon Tetrachloride	0.033	0.065 J0	0.21	0.41 J0
Benzene	0.084	Not Detected	0.27	Not Detected
1,2-Dichloroethane	0.033	Not Detected	0.14	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected
Toluene	0.033	0.28	0.12	1.1
1,1,2-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	Not Detected	0.23	Not Detected
1,2-Dibromoethane (EDB)	0.033	Not Detected	0.26	Not Detected
Ethyl Benzene	0.033	0.048	0.14	0.21
m,p-Xylene	0.067	0.17	0.29	0.75
o-Xylene	0.033	0.060	0.14	0.26
1,1,2,2-Tetrachloroethane	0.033	Not Detected	0.23	Not Detected
1,4-Dichlorobenzene	0.033	Not Detected	0.20	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1606350-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061707**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 12:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	115	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1606350-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061707**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 12:41 PM**	

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1606350-07B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061707sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 12:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.020	Not Detected	0.099	Not Detected
Freon 114	0.020	Not Detected	0.14	Not Detected
Chloromethane	0.050	Not Detected	0.10	Not Detected
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
1,2-Dibromoethane (EDB)	0.020	Not Detected	0.15	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	0.0031 J	0.14	0.022 J
1,4-Dichlorobenzene	0.020	Not Detected	0.12	Not Detected

J = Estimated value.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CCV

Lab ID#: 1606350-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 08:53 AM**	

Compound	%Recovery
1,3-Butadiene	110
Bromomethane	125
Freon 11	112
Ethanol	117
Freon 113	102
Acetone	106
2-Propanol	106
Carbon Disulfide	112
3-Chloropropene	105
Methylene Chloride	98
Hexane	112
2-Butanone (Methyl Ethyl Ketone)	110
Tetrahydrofuran	116
Cyclohexane	106
2,2,4-Trimethylpentane	111
Heptane	111
1,2-Dichloropropane	112
1,4-Dioxane	107
Bromodichloromethane	111
cis-1,3-Dichloropropene	112
4-Methyl-2-pentanone	113
trans-1,3-Dichloropropene	116
2-Hexanone	107
Dibromochloromethane	110
Chlorobenzene	108
Styrene	100
Bromoform	112
Cumene	108
Propylbenzene	102
4-Ethyltoluene	96
1,3,5-Trimethylbenzene	103
1,2,4-Trimethylbenzene	105
1,3-Dichlorobenzene	101
alpha-Chlorotoluene	117
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	89

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130

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Client Sample ID: CCV

Lab ID#: 1606350-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 08:53 AM**	

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: CCV

Lab ID#: 1606350-08B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061702sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 08:53 AM**	

Compound	%Recovery
Freon 12	113
Freon 114	106
Chloromethane	101
Vinyl Chloride	100
Chloroethane	115
1,1-Dichloroethene	98
trans-1,2-Dichloroethene	102
Methyl tert-butyl ether	105
1,1-Dichloroethane	109
cis-1,2-Dichloroethene	103
Chloroform	110
1,1,1-Trichloroethane	109
Carbon Tetrachloride	139 Q
Benzene	104
1,2-Dichloroethane	110
Trichloroethene	101
Toluene	107
1,1,2-Trichloroethane	111
Tetrachloroethene	101
1,2-Dibromoethane (EDB)	110
Ethyl Benzene	107
m,p-Xylene	105
o-Xylene	106
1,1,2,2-Tetrachloroethane	113
1,4-Dichlorobenzene	87

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: LCS

Lab ID#: 1606350-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:40 AM**	

Compound	%Recovery	Method Limits
1,3-Butadiene	112	70-130
Bromomethane	134 Q	70-130
Freon 11	118	70-130
Ethanol	124	70-130
Freon 113	104	70-130
Acetone	108	70-130
2-Propanol	114	70-130
Carbon Disulfide	100	70-130
3-Chloropropene	101	70-130
Methylene Chloride	101	70-130
Hexane	110	70-130
2-Butanone (Methyl Ethyl Ketone)	110	70-130
Tetrahydrofuran	116	70-130
Cyclohexane	109	70-130
2,2,4-Trimethylpentane	113	70-130
Heptane	110	70-130
1,2-Dichloropropane	109	70-130
1,4-Dioxane	105	70-130
Bromodichloromethane	112	70-130
cis-1,3-Dichloropropene	104	70-130
4-Methyl-2-pentanone	114	70-130
trans-1,3-Dichloropropene	114	70-130
2-Hexanone	108	70-130
Dibromochloromethane	112	70-130
Chlorobenzene	106	70-130
Styrene	99	70-130
Bromoform	119	70-130
Cumene	100	70-130
Propylbenzene	91	70-130
4-Ethyltoluene	84	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	98	70-130
1,3-Dichlorobenzene	92	70-130
alpha-Chlorotoluene	119	70-130
1,2-Dichlorobenzene	89	70-130
1,2,4-Trichlorobenzene	93	70-130
Hexachlorobutadiene	80	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

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Client Sample ID: LCS

Lab ID#: 1606350-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:40 AM**	

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: LCSD

Lab ID#: 1606350-09AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 10:23 AM**	

Compound	%Recovery	Method Limits
1,3-Butadiene	113	70-130
Bromomethane	138 Q	70-130
Freon 11	123	70-130
Ethanol	129	70-130
Freon 113	105	70-130
Acetone	113	70-130
2-Propanol	118	70-130
Carbon Disulfide	106	70-130
3-Chloropropene	106	70-130
Methylene Chloride	104	70-130
Hexane	113	70-130
2-Butanone (Methyl Ethyl Ketone)	111	70-130
Tetrahydrofuran	119	70-130
Cyclohexane	109	70-130
2,2,4-Trimethylpentane	118	70-130
Heptane	114	70-130
1,2-Dichloropropane	116	70-130
1,4-Dioxane	110	70-130
Bromodichloromethane	123	70-130
cis-1,3-Dichloropropene	110	70-130
4-Methyl-2-pentanone	119	70-130
trans-1,3-Dichloropropene	124	70-130
2-Hexanone	115	70-130
Dibromochloromethane	121	70-130
Chlorobenzene	114	70-130
Styrene	106	70-130
Bromoform	125	70-130
Cumene	111	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	97	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	105	70-130
1,3-Dichlorobenzene	105	70-130
alpha-Chlorotoluene	127	70-130
1,2-Dichlorobenzene	103	70-130
1,2,4-Trichlorobenzene	104	70-130
Hexachlorobutadiene	96	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

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Client Sample ID: LCSD

Lab ID#: 1606350-09AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 10:23 AM**	

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCS

Lab ID#: 1606350-09B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061703sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 09:40 AM**	

Compound	%Recovery	Method Limits
Freon 12	115	70-130
Freon 114	112	70-130
Chloromethane	101	70-130
Vinyl Chloride	102	70-130
Chloroethane	121	70-130
1,1-Dichloroethene	99	70-130
trans-1,2-Dichloroethene	105	70-130
Methyl tert-butyl ether	103	70-130
1,1-Dichloroethane	110	70-130
cis-1,2-Dichloroethene	101	70-130
Chloroform	111	70-130
1,1,1-Trichloroethane	108	70-130
Carbon Tetrachloride	139	60-140
Benzene	103	70-130
1,2-Dichloroethane	110	70-130
Trichloroethene	101	70-130
Toluene	105	70-130
1,1,2-Trichloroethane	112	70-130
Tetrachloroethene	102	70-130
1,2-Dibromoethane (EDB)	111	70-130
Ethyl Benzene	107	70-130
m,p-Xylene	99	70-130
o-Xylene	102	70-130
1,1,2,2-Tetrachloroethane	116	70-130
1,4-Dichlorobenzene	80	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCSD

Lab ID#: 1606350-09BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**20061704sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/17/16 10:23 AM**	

Compound	%Recovery	Method Limits
Freon 12	118	70-130
Freon 114	114	70-130
Chloromethane	104	70-130
Vinyl Chloride	105	70-130
Chloroethane	127	70-130
1,1-Dichloroethene	104	70-130
trans-1,2-Dichloroethene	108	70-130
Methyl tert-butyl ether	106	70-130
1,1-Dichloroethane	114	70-130
cis-1,2-Dichloroethene	104	70-130
Chloroform	115	70-130
1,1,1-Trichloroethane	113	70-130
Carbon Tetrachloride	146 Q	60-140
Benzene	108	70-130
1,2-Dichloroethane	116	70-130
Trichloroethene	105	70-130
Toluene	110	70-130
1,1,2-Trichloroethane	115	70-130
Tetrachloroethene	106	70-130
1,2-Dibromoethane (EDB)	115	70-130
Ethyl Benzene	111	70-130
m,p-Xylene	107	70-130
o-Xylene	110	70-130
1,1,2,2-Tetrachloroethane	121	70-130
1,4-Dichlorobenzene	89	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	101	70-130

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Analytical Report

WorkOrder: 1606836

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: 8410 Amelia

Project Received: 06/17/2016

Analytical Report reviewed & approved for release on 06/22/2016 by:

Angela Rydelius,
Laboratory Manager

McCampbell Analytical, Inc.
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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 8410 Amelia
WorkOrder: 1606836

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)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Received:	6/17/16 12:30	**Extraction Method:**	SW5030B
Date Prepared:	6/17/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-2-5.0'	1606836-005A	Soil	06/17/2016 13:30	GC28	122476

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	06/18/2016 01:10
tert-Amyl methyl ether (TAME)	ND	0.0050	1	06/18/2016 01:10
Benzene	ND	0.0050	1	06/18/2016 01:10
Bromobenzene	ND	0.0050	1	06/18/2016 01:10
Bromochloromethane	ND	0.0050	1	06/18/2016 01:10
Bromodichloromethane	ND	0.0050	1	06/18/2016 01:10
Bromoform	ND	0.0050	1	06/18/2016 01:10
Bromomethane	ND	0.0050	1	06/18/2016 01:10
2-Butanone (MEK)	ND	0.020	1	06/18/2016 01:10
t-Butyl alcohol (TBA)	ND	0.050	1	06/18/2016 01:10
n-Butyl benzene	ND	0.0050	1	06/18/2016 01:10
sec-Butyl benzene	ND	0.0050	1	06/18/2016 01:10
tert-Butyl benzene	ND	0.0050	1	06/18/2016 01:10
Carbon Disulfide	ND	0.0050	1	06/18/2016 01:10
Carbon Tetrachloride	ND	0.0050	1	06/18/2016 01:10
Chlorobenzene	ND	0.0050	1	06/18/2016 01:10
Chloroethane	ND	0.0050	1	06/18/2016 01:10
Chloroform	ND	0.0050	1	06/18/2016 01:10
Chloromethane	ND	0.0050	1	06/18/2016 01:10
2-Chlorotoluene	ND	0.0050	1	06/18/2016 01:10
4-Chlorotoluene	ND	0.0050	1	06/18/2016 01:10
Dibromochloromethane	ND	0.0050	1	06/18/2016 01:10
1,2-Dibromo-3-chloropropane	ND	0.0040	1	06/18/2016 01:10
1,2-Dibromoethane (EDB)	ND	0.0040	1	06/18/2016 01:10
Dibromomethane	ND	0.0050	1	06/18/2016 01:10
1,2-Dichlorobenzene	ND	0.0050	1	06/18/2016 01:10
1,3-Dichlorobenzene	ND	0.0050	1	06/18/2016 01:10
1,4-Dichlorobenzene	ND	0.0050	1	06/18/2016 01:10
Dichlorodifluoromethane	ND	0.0050	1	06/18/2016 01:10
1,1-Dichloroethane	ND	0.0050	1	06/18/2016 01:10
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	06/18/2016 01:10
1,1-Dichloroethene	ND	0.0050	1	06/18/2016 01:10
cis-1,2-Dichloroethene	ND	0.0050	1	06/18/2016 01:10
trans-1,2-Dichloroethene	ND	0.0050	1	06/18/2016 01:10
1,2-Dichloropropane	ND	0.0050	1	06/18/2016 01:10
1,3-Dichloropropane	ND	0.0050	1	06/18/2016 01:10
2,2-Dichloropropane	ND	0.0050	1	06/18/2016 01:10

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NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Received:	6/17/16 12:30	**Extraction Method:**	SW5030B
Date Prepared:	6/17/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-2-5.0'	1606836-005A	Soil	06/17/2016 13:30	GC28	122476

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	06/18/2016 01:10
cis-1,3-Dichloropropene	ND	0.0050	1	06/18/2016 01:10
trans-1,3-Dichloropropene	ND	0.0050	1	06/18/2016 01:10
Diisopropyl ether (DIPE)	ND	0.0050	1	06/18/2016 01:10
Ethylbenzene	ND	0.0050	1	06/18/2016 01:10
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	06/18/2016 01:10
Freon 113	ND	0.0050	1	06/18/2016 01:10
Hexachlorobutadiene	ND	0.0050	1	06/18/2016 01:10
Hexachloroethane	ND	0.0050	1	06/18/2016 01:10
2-Hexanone	ND	0.0050	1	06/18/2016 01:10
Isopropylbenzene	ND	0.0050	1	06/18/2016 01:10
4-Isopropyl toluene	ND	0.0050	1	06/18/2016 01:10
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	06/18/2016 01:10
Methylene chloride	ND	0.0050	1	06/18/2016 01:10
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	06/18/2016 01:10
Naphthalene	ND	0.0050	1	06/18/2016 01:10
n-Propyl benzene	ND	0.0050	1	06/18/2016 01:10
Styrene	ND	0.0050	1	06/18/2016 01:10
1,1,1,2-Tetrachloroethane	ND	0.0050	1	06/18/2016 01:10
1,1,2,2-Tetrachloroethane	ND	0.0050	1	06/18/2016 01:10
Tetrachloroethene	ND	0.0050	1	06/18/2016 01:10
Toluene	ND	0.0050	1	06/18/2016 01:10
1,2,3-Trichlorobenzene	ND	0.0050	1	06/18/2016 01:10
1,2,4-Trichlorobenzene	ND	0.0050	1	06/18/2016 01:10
1,1,1-Trichloroethane	ND	0.0050	1	06/18/2016 01:10
1,1,2-Trichloroethane	ND	0.0050	1	06/18/2016 01:10
Trichloroethene	ND	0.0050	1	06/18/2016 01:10
Trichlorofluoromethane	ND	0.0050	1	06/18/2016 01:10
1,2,3-Trichloropropane	ND	0.0050	1	06/18/2016 01:10
1,2,4-Trimethylbenzene	ND	0.0050	1	06/18/2016 01:10
1,3,5-Trimethylbenzene	ND	0.0050	1	06/18/2016 01:10
Vinyl Chloride	ND	0.0050	1	06/18/2016 01:10
Xylenes, Total	ND	0.0050	1	06/18/2016 01:10

(Cont.)

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Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Received:	6/17/16 12:30	**Extraction Method:**	SW5030B
Date Prepared:	6/17/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	mg/kg

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-2-5.0'	1606836-005A	Soil	06/17/2016 13:30	GC28	122476

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	90	70-130		06/18/2016 01:10
Toluene-d8	103	70-130		06/18/2016 01:10
4-BFB	89	70-130		06/18/2016 01:10
Benzene-d6	93	60-140		06/18/2016 01:10
Ethylbenzene-d10	117	60-140		06/18/2016 01:10
1,2-DCB-d4	90	60-140		06/18/2016 01:10

Analyst(s): KF

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Received:	6/17/16 12:30	**Extraction Method:**	SW5030B
Date Prepared:	6/18/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-1-W	1606836-001A	Water	06/17/2016 12:30	GC18	122529

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	06/18/2016 10:25
tert-Amyl methyl ether (TAME)	ND	0.50	1	06/18/2016 10:25
Benzene	ND	0.50	1	06/18/2016 10:25
Bromobenzene	ND	0.50	1	06/18/2016 10:25
Bromochloromethane	ND	0.50	1	06/18/2016 10:25
Bromodichloromethane	ND	0.50	1	06/18/2016 10:25
Bromoform	ND	0.50	1	06/18/2016 10:25
Bromomethane	ND	0.50	1	06/18/2016 10:25
2-Butanone (MEK)	ND	2.0	1	06/18/2016 10:25
t-Butyl alcohol (TBA)	ND	2.0	1	06/18/2016 10:25
n-Butyl benzene	ND	0.50	1	06/18/2016 10:25
sec-Butyl benzene	ND	0.50	1	06/18/2016 10:25
tert-Butyl benzene	ND	0.50	1	06/18/2016 10:25
Carbon Disulfide	ND	0.50	1	06/18/2016 10:25
Carbon Tetrachloride	ND	0.50	1	06/18/2016 10:25
Chlorobenzene	ND	0.50	1	06/18/2016 10:25
Chloroethane	ND	0.50	1	06/18/2016 10:25
Chloroform	ND	0.50	1	06/18/2016 10:25
Chloromethane	ND	0.50	1	06/18/2016 10:25
2-Chlorotoluene	ND	0.50	1	06/18/2016 10:25
4-Chlorotoluene	ND	0.50	1	06/18/2016 10:25
Dibromochloromethane	ND	0.50	1	06/18/2016 10:25
1,2-Dibromo-3-chloropropane	ND	0.20	1	06/18/2016 10:25
1,2-Dibromoethane (EDB)	ND	0.50	1	06/18/2016 10:25
Dibromomethane	ND	0.50	1	06/18/2016 10:25
1,2-Dichlorobenzene	ND	0.50	1	06/18/2016 10:25
1,3-Dichlorobenzene	ND	0.50	1	06/18/2016 10:25
1,4-Dichlorobenzene	ND	0.50	1	06/18/2016 10:25
Dichlorodifluoromethane	ND	0.50	1	06/18/2016 10:25
1,1-Dichloroethane	ND	0.50	1	06/18/2016 10:25
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	06/18/2016 10:25
1,1-Dichloroethene	ND	0.50	1	06/18/2016 10:25
cis-1,2-Dichloroethene	ND	0.50	1	06/18/2016 10:25
trans-1,2-Dichloroethene	ND	0.50	1	06/18/2016 10:25
1,2-Dichloropropane	ND	0.50	1	06/18/2016 10:25
1,3-Dichloropropane	ND	0.50	1	06/18/2016 10:25
2,2-Dichloropropane	ND	0.50	1	06/18/2016 10:25

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Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Received:	6/17/16 12:30	**Extraction Method:**	SW5030B
Date Prepared:	6/18/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-1-W	1606836-001A	Water	06/17/2016 12:30	GC18	122529

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	06/18/2016 10:25
cis-1,3-Dichloropropene	ND	0.50	1	06/18/2016 10:25
trans-1,3-Dichloropropene	ND	0.50	1	06/18/2016 10:25
Diisopropyl ether (DIPE)	ND	0.50	1	06/18/2016 10:25
Ethylbenzene	ND	0.50	1	06/18/2016 10:25
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	06/18/2016 10:25
Freon 113	ND	0.50	1	06/18/2016 10:25
Hexachlorobutadiene	ND	0.50	1	06/18/2016 10:25
Hexachloroethane	ND	0.50	1	06/18/2016 10:25
2-Hexanone	ND	0.50	1	06/18/2016 10:25
Isopropylbenzene	ND	0.50	1	06/18/2016 10:25
4-Isopropyl toluene	ND	0.50	1	06/18/2016 10:25
Methyl-t-butyl ether (MTBE)	**0.83**	0.50	1	06/18/2016 10:25
Methylene chloride	ND	0.50	1	06/18/2016 10:25
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	06/18/2016 10:25
Naphthalene	ND	0.50	1	06/18/2016 10:25
n-Propyl benzene	ND	0.50	1	06/18/2016 10:25
Styrene	ND	0.50	1	06/18/2016 10:25
1,1,1,2-Tetrachloroethane	ND	0.50	1	06/18/2016 10:25
1,1,2,2-Tetrachloroethane	ND	0.50	1	06/18/2016 10:25
Tetrachloroethene	ND	0.50	1	06/18/2016 10:25
Toluene	ND	0.50	1	06/18/2016 10:25
1,2,3-Trichlorobenzene	ND	0.50	1	06/18/2016 10:25
1,2,4-Trichlorobenzene	ND	0.50	1	06/18/2016 10:25
1,1,1-Trichloroethane	ND	0.50	1	06/18/2016 10:25
1,1,2-Trichloroethane	ND	0.50	1	06/18/2016 10:25
Trichloroethene	**0.79**	0.50	1	06/18/2016 10:25
Trichlorofluoromethane	ND	0.50	1	06/18/2016 10:25
1,2,3-Trichloropropane	ND	0.50	1	06/18/2016 10:25
1,2,4-Trimethylbenzene	ND	0.50	1	06/18/2016 10:25
1,3,5-Trimethylbenzene	ND	0.50	1	06/18/2016 10:25
Vinyl Chloride	ND	0.50	1	06/18/2016 10:25
Xylenes, Total	ND	0.50	1	06/18/2016 10:25

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Received:	6/17/16 12:30	**Extraction Method:**	SW5030B
Date Prepared:	6/18/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-1-W	1606836-001A	Water	06/17/2016 12:30	GC18	122529

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	90	70-130		06/18/2016 10:25
Toluene-d8	85	70-130		06/18/2016 10:25
4-BFB	82	70-130		06/18/2016 10:25

Analyst(s): MW

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Prepared:	6/17/16	**BatchID:**	122476
Date Analyzed:	6/18/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	8410 Amelia	**Sample ID:**	MB/LCS-122476 1606837-004AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	0.10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	0.0488	0.0050	0.050	-	98	53-116
Benzene	ND	0.0536	0.0050	0.050	-	107	63-137
Bromobenzene	ND	-	0.0050	-	-	-	-
Bromochloromethane	ND	-	0.0050	-	-	-	-
Bromodichloromethane	ND	-	0.0050	-	-	-	-
Bromoform	ND	-	0.0050	-	-	-	-
Bromomethane	ND	-	0.0050	-	-	-	-
2-Butanone (MEK)	ND	-	0.020	-	-	-	-
t-Butyl alcohol (TBA)	ND	0.198	0.050	0.20	-	99	41-135
n-Butyl benzene	ND	-	0.0050	-	-	-	-
sec-Butyl benzene	ND	-	0.0050	-	-	-	-
tert-Butyl benzene	ND	-	0.0050	-	-	-	-
Carbon Disulfide	ND	-	0.0050	-	-	-	-
Carbon Tetrachloride	ND	-	0.0050	-	-	-	-
Chlorobenzene	ND	0.0542	0.0050	0.050	-	108	77-121
Chloroethane	ND	-	0.0050	-	-	-	-
Chloroform	ND	-	0.0050	-	-	-	-
Chloromethane	ND	-	0.0050	-	-	-	-
2-Chlorotoluene	ND	-	0.0050	-	-	-	-
4-Chlorotoluene	ND	-	0.0050	-	-	-	-
Dibromochloromethane	ND	-	0.0050	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.0040	-	-	-	-
1,2-Dibromoethane (EDB)	ND	0.0512	0.0040	0.050	-	102	67-119
Dibromomethane	ND	-	0.0050	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.0050	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.0050	-	-	-	-
Dichlorodifluoromethane	ND	-	0.0050	-	-	-	-
1,1-Dichloroethane	ND	-	0.0050	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.0571	0.0040	0.050	-	114	58-135
1,1-Dichloroethene	ND	0.0490	0.0050	0.050	-	98	42-145
cis-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.0050	-	-	-	-
1,2-Dichloropropane	ND	-	0.0050	-	-	-	-
1,3-Dichloropropane	ND	-	0.0050	-	-	-	-
2,2-Dichloropropane	ND	-	0.0050	-	-	-	-

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Prepared:	6/17/16	**BatchID:**	122476
Date Analyzed:	6/18/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	8410 Amelia	**Sample ID:**	MB/LCS-122476 1606837-004AMS/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	-	0.0050	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.0050	-	-	-	-
Diisopropyl ether (DIPE)	ND	0.0464	0.0050	0.050	-	93	52-129
Ethylbenzene	ND	-	0.0050	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.0498	0.0050	0.050	-	100	53-125
Freon 113	ND	-	0.0050	-	-	-	-
Hexachlorobutadiene	ND	-	0.0050	-	-	-	-
Hexachloroethane	ND	-	0.0050	-	-	-	-
2-Hexanone	ND	-	0.0050	-	-	-	-
Isopropylbenzene	ND	-	0.0050	-	-	-	-
4-Isopropyl toluene	ND	-	0.0050	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.0513	0.0050	0.050	-	103	58-122
Methylene chloride	ND	-	0.0050	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.0050	-	-	-	-
Naphthalene	ND	-	0.0050	-	-	-	-
n-Propyl benzene	ND	-	0.0050	-	-	-	-
Styrene	ND	-	0.0050	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.0050	-	-	-	-
Tetrachloroethene	ND	-	0.0050	-	-	-	-
Toluene	ND	0.0612	0.0050	0.050	-	122	76-130
1,2,3-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.0050	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.0050	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.0050	-	-	-	-
Trichloroethene	ND	0.0527	0.0050	0.050	-	105	72-132
Trichlorofluoromethane	ND	-	0.0050	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.0050	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.0050	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.0050	-	-	-	-
Vinyl Chloride	ND	-	0.0050	-	-	-	-
Xylenes, Total	ND	-	0.0050	-	-	-	-

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Prepared:	6/17/16	**BatchID:**	122476
Date Analyzed:	6/18/16	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	8410 Amelia	**Sample ID:**	MB/LCS-122476 1606837-004AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.110	0.115		0.12	88	92	70-130
Toluene-d8	0.134	0.134		0.12	107	107	70-130
4-BFB	0.0130	0.0135		0.012	104	108	70-130
Benzene-d6	0.103	0.111		0.10	103	111	60-140
Ethylbenzene-d10	0.127	0.135		0.10	127	135	60-140
1,2-DCB-d4	0.0920	0.0966		0.10	92	97	60-140

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	0.0395	0.0402	0.050	ND	79	80	53-116	1.86	20
Benzene	0.0512	0.0509	0.050	ND	102	102	63-137	0	20
t-Butyl alcohol (TBA)	0.166	0.173	0.20	ND	83	86	41-135	3.65	20
Chlorobenzene	0.0545	0.0542	0.050	ND	109	108	77-121	0.661	20
1,2-Dibromoethane (EDB)	0.0458	0.0464	0.050	ND	92	93	67-119	1.23	20
1,2-Dichloroethane (1,2-DCA)	0.0485	0.0495	0.050	ND	97	99	58-135	2.06	20
1,1-Dichloroethene	0.0522	0.0516	0.050	ND	104	103	42-145	1.27	20
Diisopropyl ether (DIPE)	0.0460	0.0462	0.050	ND	92	92	52-129	0	20
Ethyl tert-butyl ether (ETBE)	0.0442	0.0450	0.050	ND	88	90	53-125	1.63	20
Methyl-t-butyl ether (MTBE)	0.0449	0.0457	0.050	ND	90	91	58-122	1.74	20
Toluene	0.0575	0.0574	0.050	ND	115	115	76-130	0	20
Trichloroethene	0.0520	0.0518	0.050	ND	104	104	72-132	0	20
Surrogate Recovery									
Dibromofluoromethane	0.113	0.113	0.12		91	91	70-130	0	20
Toluene-d8	0.131	0.130	0.12		105	104	70-130	0.480	20
4-BFB	0.0120	0.0120	0.012		96	96	70-130	0	20
Benzene-d6	0.107	0.107	0.10		107	107	60-140	0	20
Ethylbenzene-d10	0.133	0.131	0.10		133	131	60-140	1.18	20
1,2-DCB-d4	0.0994	0.0992	0.10		99	99	60-140	0	20

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Prepared:	6/18/16	**BatchID:**	122529
Date Analyzed:	6/18/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	8410 Amelia	**Sample ID:**	MB/LCS-122529 1606764-003BMS/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	8.37	0.50	10	-	84	54-140
Benzene	ND	8.99	0.50	10	-	90	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	30.3	2.0	40	-	76	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	9.71	0.50	10	-	97	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	9.46	0.50	10	-	95	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	8.87	0.50	10	-	89	66-125
1,1-Dichloroethene	ND	9.05	0.50	10	-	91	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	-	-	-	-

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Prepared:	6/18/16	**BatchID:**	122529
Date Analyzed:	6/18/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	8410 Amelia	**Sample ID:**	MB/LCS-122529 1606764-003BMS/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	8.37	0.50	10	-	84	57-136
Ethanol	ND	-	50	-	-	-	-
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	8.53	0.50	10	-	85	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	8.42	0.50	10	-	84	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	9.41	0.50	10	-	94	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	9.56	0.50	10	-	96	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	-	-	-	-

(Cont.)

NELAP 4033ORELAP

QA/QC Officer

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606836
Date Prepared:	6/18/16	**BatchID:**	122529
Date Analyzed:	6/18/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	8410 Amelia	**Sample ID:**	MB/LCS-122529 1606764-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	22.5	22.0		25	90	88	70-130
Toluene-d8	21.2	21.6		25	85	86	70-130
4-BFB	2.01	2.12		2.5	80	85	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)	9.40	9.72	10	ND	94	97	69-139	3.30	20
Benzene	8.56	8.96	10	ND	86	90	69-141	4.55	20
t-Butyl alcohol (TBA)	38.3	39.0	40	ND	96	98	41-152	1.93	20
Chlorobenzene	9.27	9.68	10	ND	93	97	77-120	4.31	20
1,2-Dibromoethane (EDB)	10.3	10.5	10	ND	103	105	76-135	1.74	20
1,2-Dichloroethane (1,2-DCA)	9.04	9.35	10	ND	90	93	73-139	3.40	20
1,1-Dichloroethene	8.55	9.04	10	ND	86	90	59-140	5.58	20
Diisopropyl ether (DIPE)	8.39	8.74	10	ND	84	87	72-140	4.08	20
Ethyl tert-butyl ether (ETBE)	8.94	9.24	10	ND	89	92	71-140	3.32	20
Methyl-t-butyl ether (MTBE)	9.37	9.69	10	ND	94	97	73-139	3.40	20
Toluene	8.81	9.22	10	ND	88	92	71-128	4.53	20
Trichloroethene	8.99	9.47	10	ND	90	95	64-132	5.21	20
Surrogate Recovery									
Dibromofluoromethane	22.1	22.1	25		88	89	73-131	0.283	20
Toluene-d8	21.6	21.4	25		86	86	72-117	0	20
4-BFB	2.09	2.10	2.5		83	84	74-116	0.387	20

McCampbell Analytical, Inc.
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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1606836 **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: 8410 Amelia

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

Requested TAT: **3 days;**

Date Received: **06/17/2016**
Date Logged: **06/17/2016**

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
1606836-001	P-1-W	Water	6/17/2016 12:30	☐		A										
1606836-005	P-2-5.0'	Soil	6/17/2016 13:30	☐	A											

Test Legend:

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

Prepared by: Jena Alfaro

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:** 1606836
Project: 8410 Amelia **Client Contact:** Bob Clark-Riddell **Date Logged:** 6/17/2016
Comments: **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
1606836-001A	P-1-W	Water	SW8260B (VOCs)	2	VOA w/ HCl	☐	6/17/2016 12:30	3 days		☐	
1606836-002A	P-1-4.5'	Soil		1	Acetate Liner	☐	6/17/2016 12:40			☑	
1606836-003A	P-1-6'	Soil		1	Acetate Liner	☐	6/17/2016 12:50			☑	
1606836-004A	P-1-12'	Soil		1	Acetate Liner	☐	6/17/2016 13:00			☑	
1606836-005A	P-2-5.0'	Soil	SW8260B (VOCs)	1	Acetate Liner	☐	6/17/2016 13:30	3 days		☐	
1606836-006A	P-2-7'	Soil		1	Acetate Liner	☐	6/17/2016 13:40			☑	
1606836-007A	P-2-13'	Soil		1	Acetate Liner	☐	6/17/2016 13:50			☑	

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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160836

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH ☐ 1 DAY ☐ 2 DAY ☐ 3 DAY ☒ 5 DAY ☐

GeoTracker EDF ☐ PDF ☐ EDD ☐ Write On (DW) ☐ EQuIS ☐ 10 DAY ☐

RUSH

Effluent Sample Requiring "J" flag ☐ UST Clean Up Fund Project ☐ ; Claim #_____

Report To: Bob Clark-Riddell **Bill To:** Pangea

Company: Pangea Env. Svs.

1710 Franklin St, Oakland

Tele: (510) 836-3700 **E-Mail:** briddell@pangeaenv.com

Project #: **Project Name:** 8410 Amelia

Project Location: 8410 Amelia St **Purchase Order#**

Sampler Signature:

SAMPLE ID	Location/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	MATRIX: Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	METHOD PRESERVED: HCL	HNO_3	Other
P-1-W		6.17.16	1230	2	X				~~X~~ ECI				X		
P-1-4.5'			1240	1					X						
P-1-6'			1250	1					X						
P-1-12'			1300	1					X						
P-2-5.0'			1330	1					X						
P-2-7'			1340	1					X						
P-2-13'		6.17.16	1350	1					X						

Analysis Request

BTEX & TPH as Gas (8021/ 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	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)***	Lab to Filter sample for Dissolved metals analysis	HOLD
							~~X~~ ECI	X							
															X
															X
															X
								X							X
															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.

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

Relinquished By:	Date:	Time:	Received By:
	6.17.16	1755	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° 1.8

GOOD CONDITION_____

HEAD SPACE ABSENT_____

DECHLORINATED IN LAB_____

APPROPRIATE CONTAINERS_____

PRESERVED IN LAB_____

COMMENTS:

VOAS O&G METALS OTHER HAZARDOUS:

PRESERVATION_____ pH<2_____

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**6/17/2016 12:30**
Project Name:	**8410 Amelia**	Date Logged:	**6/17/2016**
WorkOrder №:	**1606836** Matrix: Soil/Water	Received by:	Maria Venegas
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: 7.8°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:

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1606901

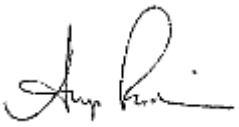
Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Bob Clark-Riddell
Project P.O.:
Project Name: 8410 Amelia Street

Project Received: 06/20/2016

Analytical Report reviewed & approved for release on 06/22/2016 by:



Angela Rydelius,
Laboratory Manager

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CDPH ELAP 1644 ♦ NELAP 4033ORELAP

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 8410 Amelia Street
WorkOrder: 1606901

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

H	samples were analyzed out of holding time

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 8410 Amelia Street
WorkOrder: 1606901

Quality Control Qualifiers

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

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1606901-002A	Air	06/20/2016 14:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	0.25	1	06/21/2016 12:30
Benzene	ND	H	0.25	1	06/21/2016 12:30
Bromobenzene	ND	H	0.25	1	06/21/2016 12:30
Bromochloromethane	ND	H	0.25	1	06/21/2016 12:30
Bromodichloromethane	ND	H	0.25	1	06/21/2016 12:30
Bromoform	ND	H	0.25	1	06/21/2016 12:30
Bromomethane	ND	H	0.25	1	06/21/2016 12:30
t-Butyl alcohol (TBA)	ND	H	2.5	1	06/21/2016 12:30
n-Butyl benzene	ND	H	0.25	1	06/21/2016 12:30
sec-Butyl benzene	ND	H	0.25	1	06/21/2016 12:30
tert-Butyl benzene	ND	H	0.25	1	06/21/2016 12:30
Carbon Disulfide	ND	H	0.25	1	06/21/2016 12:30
Carbon Tetrachloride	ND	H	0.25	1	06/21/2016 12:30
Chlorobenzene	ND	H	0.25	1	06/21/2016 12:30
Chloroethane	ND	H	0.25	1	06/21/2016 12:30
Chloroform	ND	H	0.25	1	06/21/2016 12:30
Chloromethane	ND	H	0.25	1	06/21/2016 12:30
2-Chlorotoluene	ND	H	0.25	1	06/21/2016 12:30
4-Chlorotoluene	ND	H	0.25	1	06/21/2016 12:30
Dibromochloromethane	ND	H	0.25	1	06/21/2016 12:30
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	06/21/2016 12:30
1,2-Dibromoethane (EDB)	ND	H	0.25	1	06/21/2016 12:30
Dibromomethane	ND	H	0.25	1	06/21/2016 12:30
1,2-Dichlorobenzene	ND	H	0.25	1	06/21/2016 12:30
1,3-Dichlorobenzene	ND	H	0.25	1	06/21/2016 12:30
1,4-Dichlorobenzene	ND	H	0.25	1	06/21/2016 12:30
Dichlorodifluoromethane	ND	H	0.25	1	06/21/2016 12:30
1,1-Dichloroethane	ND	H	0.25	1	06/21/2016 12:30
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	06/21/2016 12:30
1,1-Dichloroethene	ND	H	0.25	1	06/21/2016 12:30
cis-1,2-Dichloroethene	ND	H	0.25	1	06/21/2016 12:30
trans-1,2-Dichloroethene	ND	H	0.25	1	06/21/2016 12:30
1,2-Dichloropropane	ND	H	0.25	1	06/21/2016 12:30
1,3-Dichloropropane	ND	H	0.25	1	06/21/2016 12:30
2,2-Dichloropropane	ND	H	0.25	1	06/21/2016 12:30
1,1-Dichloropropene	ND	H	0.25	1	06/21/2016 12:30
cis-1,3-Dichloropropene	ND	H	0.25	1	06/21/2016 12:30

(Cont.)

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Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1606901-002A	Air	06/20/2016 14:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	0.25	1	06/21/2016 12:30
Diisopropyl ether (DIPE)	ND	H	0.25	1	06/21/2016 12:30
Ethylbenzene	ND	H	0.25	1	06/21/2016 12:30
Ethyl tert-butyl ether (ETBE)	ND	H	0.25	1	06/21/2016 12:30
Freon 113	ND	H	5.0	1	06/21/2016 12:30
Hexachlorobutadiene	ND	H	0.25	1	06/21/2016 12:30
Hexachloroethane	ND	H	0.25	1	06/21/2016 12:30
2-Hexanone	ND	H	0.25	1	06/21/2016 12:30
Isopropylbenzene	ND	H	0.25	1	06/21/2016 12:30
4-Isopropyl toluene	ND	H	0.25	1	06/21/2016 12:30
Methyl-t-butyl ether (MTBE)	ND	H	0.25	1	06/21/2016 12:30
Methylene chloride	ND	H	0.25	1	06/21/2016 12:30
n-Propyl benzene	ND	H	0.25	1	06/21/2016 12:30
Styrene	ND	H	0.25	1	06/21/2016 12:30
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	06/21/2016 12:30
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	06/21/2016 12:30
Tetrachloroethene	**0.38**	H	0.25	1	06/21/2016 12:30
Toluene	ND	H	0.25	1	06/21/2016 12:30
1,2,3-Trichlorobenzene	ND	H	0.25	1	06/21/2016 12:30
1,2,4-Trichlorobenzene	ND	H	0.25	1	06/21/2016 12:30
1,1,1-Trichloroethane	ND	H	0.25	1	06/21/2016 12:30
1,1,2-Trichloroethane	ND	H	0.25	1	06/21/2016 12:30
Trichloroethene	ND	H	0.25	1	06/21/2016 12:30
Trichlorofluoromethane	ND	H	0.25	1	06/21/2016 12:30
1,2,3-Trichloropropane	ND	H	0.25	1	06/21/2016 12:30
1,2,4-Trimethylbenzene	ND	H	0.25	1	06/21/2016 12:30
1,3,5-Trimethylbenzene	ND	H	0.25	1	06/21/2016 12:30
Vinyl Chloride	ND	H	0.25	1	06/21/2016 12:30
Xylenes, Total	ND	H	0.25	1	06/21/2016 12:30

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	90	H	70-130	06/21/2016 12:30
Toluene-d8	82	H	70-130	06/21/2016 12:30
4-BFB	80	H	70-130	06/21/2016 12:30

Analyst(s): MW

(Cont.)

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1606901-003A	Air	06/20/2016 13:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	0.25	1	06/21/2016 13:10
Benzene	ND	H	0.25	1	06/21/2016 13:10
Bromobenzene	ND	H	0.25	1	06/21/2016 13:10
Bromochloromethane	ND	H	0.25	1	06/21/2016 13:10
Bromodichloromethane	ND	H	0.25	1	06/21/2016 13:10
Bromoform	ND	H	0.25	1	06/21/2016 13:10
Bromomethane	ND	H	0.25	1	06/21/2016 13:10
t-Butyl alcohol (TBA)	ND	H	2.5	1	06/21/2016 13:10
n-Butyl benzene	ND	H	0.25	1	06/21/2016 13:10
sec-Butyl benzene	ND	H	0.25	1	06/21/2016 13:10
tert-Butyl benzene	ND	H	0.25	1	06/21/2016 13:10
Carbon Disulfide	ND	H	0.25	1	06/21/2016 13:10
Carbon Tetrachloride	ND	H	0.25	1	06/21/2016 13:10
Chlorobenzene	ND	H	0.25	1	06/21/2016 13:10
Chloroethane	ND	H	0.25	1	06/21/2016 13:10
Chloroform	ND	H	0.25	1	06/21/2016 13:10
Chloromethane	ND	H	0.25	1	06/21/2016 13:10
2-Chlorotoluene	ND	H	0.25	1	06/21/2016 13:10
4-Chlorotoluene	ND	H	0.25	1	06/21/2016 13:10
Dibromochloromethane	ND	H	0.25	1	06/21/2016 13:10
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	06/21/2016 13:10
1,2-Dibromoethane (EDB)	ND	H	0.25	1	06/21/2016 13:10
Dibromomethane	ND	H	0.25	1	06/21/2016 13:10
1,2-Dichlorobenzene	ND	H	0.25	1	06/21/2016 13:10
1,3-Dichlorobenzene	ND	H	0.25	1	06/21/2016 13:10
1,4-Dichlorobenzene	ND	H	0.25	1	06/21/2016 13:10
Dichlorodifluoromethane	ND	H	0.25	1	06/21/2016 13:10
1,1-Dichloroethane	ND	H	0.25	1	06/21/2016 13:10
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	06/21/2016 13:10
1,1-Dichloroethene	ND	H	0.25	1	06/21/2016 13:10
cis-1,2-Dichloroethene	ND	H	0.25	1	06/21/2016 13:10
trans-1,2-Dichloroethene	ND	H	0.25	1	06/21/2016 13:10
1,2-Dichloropropane	ND	H	0.25	1	06/21/2016 13:10
1,3-Dichloropropane	ND	H	0.25	1	06/21/2016 13:10
2,2-Dichloropropane	ND	H	0.25	1	06/21/2016 13:10
1,1-Dichloropropene	ND	H	0.25	1	06/21/2016 13:10
cis-1,3-Dichloropropene	ND	H	0.25	1	06/21/2016 13:10

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NELAP 4033ORELAP

Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1606901-003A	Air	06/20/2016 13:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	0.25	1	06/21/2016 13:10
Diisopropyl ether (DIPE)	ND	H	0.25	1	06/21/2016 13:10
Ethylbenzene	ND	H	0.25	1	06/21/2016 13:10
Ethyl tert-butyl ether (ETBE)	ND	H	0.25	1	06/21/2016 13:10
Freon 113	ND	H	5.0	1	06/21/2016 13:10
Hexachlorobutadiene	ND	H	0.25	1	06/21/2016 13:10
Hexachloroethane	ND	H	0.25	1	06/21/2016 13:10
2-Hexanone	ND	H	0.25	1	06/21/2016 13:10
Isopropylbenzene	ND	H	0.25	1	06/21/2016 13:10
4-Isopropyl toluene	ND	H	0.25	1	06/21/2016 13:10
Methyl-t-butyl ether (MTBE)	ND	H	0.25	1	06/21/2016 13:10
Methylene chloride	ND	H	0.25	1	06/21/2016 13:10
n-Propyl benzene	ND	H	0.25	1	06/21/2016 13:10
Styrene	ND	H	0.25	1	06/21/2016 13:10
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	06/21/2016 13:10
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	06/21/2016 13:10
Tetrachloroethene	**0.28**	H	0.25	1	06/21/2016 13:10
Toluene	ND	H	0.25	1	06/21/2016 13:10
1,2,3-Trichlorobenzene	ND	H	0.25	1	06/21/2016 13:10
1,2,4-Trichlorobenzene	ND	H	0.25	1	06/21/2016 13:10
1,1,1-Trichloroethane	ND	H	0.25	1	06/21/2016 13:10
1,1,2-Trichloroethane	ND	H	0.25	1	06/21/2016 13:10
Trichloroethene	ND	H	0.25	1	06/21/2016 13:10
Trichlorofluoromethane	ND	H	0.25	1	06/21/2016 13:10
1,2,3-Trichloropropane	ND	H	0.25	1	06/21/2016 13:10
1,2,4-Trimethylbenzene	ND	H	0.25	1	06/21/2016 13:10
1,3,5-Trimethylbenzene	ND	H	0.25	1	06/21/2016 13:10
Vinyl Chloride	ND	H	0.25	1	06/21/2016 13:10
Xylenes, Total	ND	H	0.25	1	06/21/2016 13:10

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	91	H	70-130	06/21/2016 13:10
Toluene-d8	82	H	70-130	06/21/2016 13:10
4-BFB	79	H	70-130	06/21/2016 13:10

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1606901-002A	Air	06/20/2016 14:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	250	1	06/21/2016 12:30
Benzene	ND	H	250	1	06/21/2016 12:30
Bromobenzene	ND	H	250	1	06/21/2016 12:30
Bromochloromethane	ND	H	250	1	06/21/2016 12:30
Bromodichloromethane	ND	H	250	1	06/21/2016 12:30
Bromoform	ND	H	250	1	06/21/2016 12:30
Bromomethane	ND	H	250	1	06/21/2016 12:30
t-Butyl alcohol (TBA)	ND	H	2500	1	06/21/2016 12:30
n-Butyl benzene	ND	H	250	1	06/21/2016 12:30
sec-Butyl benzene	ND	H	250	1	06/21/2016 12:30
tert-Butyl benzene	ND	H	250	1	06/21/2016 12:30
Carbon Disulfide	ND	H	250	1	06/21/2016 12:30
Carbon Tetrachloride	ND	H	250	1	06/21/2016 12:30
Chlorobenzene	ND	H	250	1	06/21/2016 12:30
Chloroethane	ND	H	250	1	06/21/2016 12:30
Chloroform	ND	H	250	1	06/21/2016 12:30
Chloromethane	ND	H	250	1	06/21/2016 12:30
2-Chlorotoluene	ND	H	250	1	06/21/2016 12:30
4-Chlorotoluene	ND	H	250	1	06/21/2016 12:30
Dibromochloromethane	ND	H	250	1	06/21/2016 12:30
1,2-Dibromo-3-chloropropane	ND	H	250	1	06/21/2016 12:30
1,2-Dibromoethane (EDB)	ND	H	250	1	06/21/2016 12:30
Dibromomethane	ND	H	250	1	06/21/2016 12:30
1,2-Dichlorobenzene	ND	H	250	1	06/21/2016 12:30
1,3-Dichlorobenzene	ND	H	250	1	06/21/2016 12:30
1,4-Dichlorobenzene	ND	H	250	1	06/21/2016 12:30
Dichlorodifluoromethane	ND	H	250	1	06/21/2016 12:30
1,1-Dichloroethane	ND	H	250	1	06/21/2016 12:30
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	06/21/2016 12:30
1,1-Dichloroethene	ND	H	250	1	06/21/2016 12:30
cis-1,2-Dichloroethene	ND	H	250	1	06/21/2016 12:30
trans-1,2-Dichloroethene	ND	H	250	1	06/21/2016 12:30
1,2-Dichloropropane	ND	H	250	1	06/21/2016 12:30
1,3-Dichloropropane	ND	H	250	1	06/21/2016 12:30
2,2-Dichloropropane	ND	H	250	1	06/21/2016 12:30
1,1-Dichloropropene	ND	H	250	1	06/21/2016 12:30
cis-1,3-Dichloropropene	ND	H	250	1	06/21/2016 12:30

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1606901-002A	Air	06/20/2016 14:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	250	1	06/21/2016 12:30
Diisopropyl ether (DIPE)	ND	H	250	1	06/21/2016 12:30
Ethylbenzene	ND	H	250	1	06/21/2016 12:30
Ethyl tert-butyl ether (ETBE)	ND	H	250	1	06/21/2016 12:30
Freon 113	ND	H	5000	1	06/21/2016 12:30
Hexachlorobutadiene	ND	H	250	1	06/21/2016 12:30
Hexachloroethane	ND	H	250	1	06/21/2016 12:30
2-Hexanone	ND	H	250	1	06/21/2016 12:30
Isopropylbenzene	ND	H	250	1	06/21/2016 12:30
4-Isopropyl toluene	ND	H	250	1	06/21/2016 12:30
Methyl-t-butyl ether (MTBE)	ND	H	250	1	06/21/2016 12:30
Methylene chloride	ND	H	250	1	06/21/2016 12:30
n-Propyl benzene	ND	H	250	1	06/21/2016 12:30
Styrene	ND	H	250	1	06/21/2016 12:30
1,1,1,2-Tetrachloroethane	ND	H	250	1	06/21/2016 12:30
1,1,2,2-Tetrachloroethane	ND	H	250	1	06/21/2016 12:30
Tetrachloroethene	**380**	H	250	1	06/21/2016 12:30
Toluene	ND	H	250	1	06/21/2016 12:30
1,2,3-Trichlorobenzene	ND	H	250	1	06/21/2016 12:30
1,2,4-Trichlorobenzene	ND	H	250	1	06/21/2016 12:30
1,1,1-Trichloroethane	ND	H	250	1	06/21/2016 12:30
1,1,2-Trichloroethane	ND	H	250	1	06/21/2016 12:30
Trichloroethene	ND	H	250	1	06/21/2016 12:30
Trichlorofluoromethane	ND	H	250	1	06/21/2016 12:30
1,2,3-Trichloropropane	ND	H	250	1	06/21/2016 12:30
1,2,4-Trimethylbenzene	ND	H	250	1	06/21/2016 12:30
1,3,5-Trimethylbenzene	ND	H	250	1	06/21/2016 12:30
Vinyl Chloride	ND	H	250	1	06/21/2016 12:30
Xylenes, Total	ND	H	250	1	06/21/2016 12:30

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	90	H	70-130	06/21/2016 12:30
Toluene-d8	82	H	70-130	06/21/2016 12:30
4-BFB	80	H	70-130	06/21/2016 12:30

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1606901-003A	Air	06/20/2016 13:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
tert-Amyl methyl ether (TAME)	ND	H	250	1	06/21/2016 13:10
Benzene	ND	H	250	1	06/21/2016 13:10
Bromobenzene	ND	H	250	1	06/21/2016 13:10
Bromochloromethane	ND	H	250	1	06/21/2016 13:10
Bromodichloromethane	ND	H	250	1	06/21/2016 13:10
Bromoform	ND	H	250	1	06/21/2016 13:10
Bromomethane	ND	H	250	1	06/21/2016 13:10
t-Butyl alcohol (TBA)	ND	H	2500	1	06/21/2016 13:10
n-Butyl benzene	ND	H	250	1	06/21/2016 13:10
sec-Butyl benzene	ND	H	250	1	06/21/2016 13:10
tert-Butyl benzene	ND	H	250	1	06/21/2016 13:10
Carbon Disulfide	ND	H	250	1	06/21/2016 13:10
Carbon Tetrachloride	ND	H	250	1	06/21/2016 13:10
Chlorobenzene	ND	H	250	1	06/21/2016 13:10
Chloroethane	ND	H	250	1	06/21/2016 13:10
Chloroform	ND	H	250	1	06/21/2016 13:10
Chloromethane	ND	H	250	1	06/21/2016 13:10
2-Chlorotoluene	ND	H	250	1	06/21/2016 13:10
4-Chlorotoluene	ND	H	250	1	06/21/2016 13:10
Dibromochloromethane	ND	H	250	1	06/21/2016 13:10
1,2-Dibromo-3-chloropropane	ND	H	250	1	06/21/2016 13:10
1,2-Dibromoethane (EDB)	ND	H	250	1	06/21/2016 13:10
Dibromomethane	ND	H	250	1	06/21/2016 13:10
1,2-Dichlorobenzene	ND	H	250	1	06/21/2016 13:10
1,3-Dichlorobenzene	ND	H	250	1	06/21/2016 13:10
1,4-Dichlorobenzene	ND	H	250	1	06/21/2016 13:10
Dichlorodifluoromethane	ND	H	250	1	06/21/2016 13:10
1,1-Dichloroethane	ND	H	250	1	06/21/2016 13:10
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	06/21/2016 13:10
1,1-Dichloroethene	ND	H	250	1	06/21/2016 13:10
cis-1,2-Dichloroethene	ND	H	250	1	06/21/2016 13:10
trans-1,2-Dichloroethene	ND	H	250	1	06/21/2016 13:10
1,2-Dichloropropane	ND	H	250	1	06/21/2016 13:10
1,3-Dichloropropane	ND	H	250	1	06/21/2016 13:10
2,2-Dichloropropane	ND	H	250	1	06/21/2016 13:10
1,1-Dichloropropene	ND	H	250	1	06/21/2016 13:10
cis-1,3-Dichloropropene	ND	H	250	1	06/21/2016 13:10

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/m³

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1606901-003A	Air	06/20/2016 13:30	GC18	122604

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
trans-1,3-Dichloropropene	ND	H	250	1	06/21/2016 13:10
Diisopropyl ether (DIPE)	ND	H	250	1	06/21/2016 13:10
Ethylbenzene	ND	H	250	1	06/21/2016 13:10
Ethyl tert-butyl ether (ETBE)	ND	H	250	1	06/21/2016 13:10
Freon 113	ND	H	5000	1	06/21/2016 13:10
Hexachlorobutadiene	ND	H	250	1	06/21/2016 13:10
Hexachloroethane	ND	H	250	1	06/21/2016 13:10
2-Hexanone	ND	H	250	1	06/21/2016 13:10
Isopropylbenzene	ND	H	250	1	06/21/2016 13:10
4-Isopropyl toluene	ND	H	250	1	06/21/2016 13:10
Methyl-t-butyl ether (MTBE)	ND	H	250	1	06/21/2016 13:10
Methylene chloride	ND	H	250	1	06/21/2016 13:10
n-Propyl benzene	ND	H	250	1	06/21/2016 13:10
Styrene	ND	H	250	1	06/21/2016 13:10
1,1,1,2-Tetrachloroethane	ND	H	250	1	06/21/2016 13:10
1,1,2,2-Tetrachloroethane	ND	H	250	1	06/21/2016 13:10
Tetrachloroethene	**280**	H	250	1	06/21/2016 13:10
Toluene	ND	H	250	1	06/21/2016 13:10
1,2,3-Trichlorobenzene	ND	H	250	1	06/21/2016 13:10
1,2,4-Trichlorobenzene	ND	H	250	1	06/21/2016 13:10
1,1,1-Trichloroethane	ND	H	250	1	06/21/2016 13:10
1,1,2-Trichloroethane	ND	H	250	1	06/21/2016 13:10
Trichloroethene	ND	H	250	1	06/21/2016 13:10
Trichlorofluoromethane	ND	H	250	1	06/21/2016 13:10
1,2,3-Trichloropropane	ND	H	250	1	06/21/2016 13:10
1,2,4-Trimethylbenzene	ND	H	250	1	06/21/2016 13:10
1,3,5-Trimethylbenzene	ND	H	250	1	06/21/2016 13:10
Vinyl Chloride	ND	H	250	1	06/21/2016 13:10
Xylenes, Total	ND	H	250	1	06/21/2016 13:10

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	91	H	70-130	06/21/2016 13:10
Toluene-d8	82	H	70-130	06/21/2016 13:10
4-BFB	79	H	70-130	06/21/2016 13:10

Analyst(s): MW

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16-6/22/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-2	1606901-001A	Water	06/20/2016 10:00	GC16	122605

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	06/21/2016 13:57
tert-Amyl methyl ether (TAME)	ND	0.50	1	06/21/2016 13:57
Benzene	ND	0.50	1	06/21/2016 13:57
Bromobenzene	ND	0.50	1	06/21/2016 13:57
Bromochloromethane	ND	0.50	1	06/21/2016 13:57
Bromodichloromethane	ND	0.50	1	06/21/2016 13:57
Bromoform	ND	0.50	1	06/21/2016 13:57
Bromomethane	ND	0.50	1	06/21/2016 13:57
2-Butanone (MEK)	ND	2.0	1	06/21/2016 13:57
t-Butyl alcohol (TBA)	ND	2.0	1	06/21/2016 13:57
n-Butyl benzene	ND	0.50	1	06/21/2016 13:57
sec-Butyl benzene	ND	0.50	1	06/21/2016 13:57
tert-Butyl benzene	ND	0.50	1	06/21/2016 13:57
Carbon Disulfide	ND	0.50	1	06/21/2016 13:57
Carbon Tetrachloride	ND	0.50	1	06/21/2016 13:57
Chlorobenzene	ND	0.50	1	06/21/2016 13:57
Chloroethane	ND	0.50	1	06/21/2016 13:57
Chloroform	ND	0.50	1	06/21/2016 13:57
Chloromethane	ND	0.50	1	06/21/2016 13:57
2-Chlorotoluene	ND	0.50	1	06/21/2016 13:57
4-Chlorotoluene	ND	0.50	1	06/21/2016 13:57
Dibromochloromethane	ND	0.50	1	06/21/2016 13:57
1,2-Dibromo-3-chloropropane	ND	0.20	1	06/21/2016 13:57
1,2-Dibromoethane (EDB)	ND	0.50	1	06/21/2016 13:57
Dibromomethane	ND	0.50	1	06/21/2016 13:57
1,2-Dichlorobenzene	ND	0.50	1	06/21/2016 13:57
1,3-Dichlorobenzene	ND	0.50	1	06/21/2016 13:57
1,4-Dichlorobenzene	ND	0.50	1	06/21/2016 13:57
Dichlorodifluoromethane	ND	0.50	1	06/21/2016 13:57
1,1-Dichloroethane	ND	0.50	1	06/21/2016 13:57
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	06/21/2016 13:57
1,1-Dichloroethene	**0.78**	0.50	1	06/21/2016 13:57
cis-1,2-Dichloroethene	**130**	5.0	10	06/22/2016 01:57
trans-1,2-Dichloroethene	**3.9**	0.50	1	06/21/2016 13:57
1,2-Dichloropropane	ND	0.50	1	06/21/2016 13:57
1,3-Dichloropropane	ND	0.50	1	06/21/2016 13:57
2,2-Dichloropropane	ND	0.50	1	06/21/2016 13:57

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16-6/22/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-2	1606901-001A	Water	06/20/2016 10:00	GC16	122605

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	06/21/2016 13:57
cis-1,3-Dichloropropene	ND	0.50	1	06/21/2016 13:57
trans-1,3-Dichloropropene	ND	0.50	1	06/21/2016 13:57
Diisopropyl ether (DIPE)	ND	0.50	1	06/21/2016 13:57
Ethylbenzene	ND	0.50	1	06/21/2016 13:57
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	06/21/2016 13:57
Freon 113	ND	0.50	1	06/21/2016 13:57
Hexachlorobutadiene	ND	0.50	1	06/21/2016 13:57
Hexachloroethane	ND	0.50	1	06/21/2016 13:57
2-Hexanone	ND	0.50	1	06/21/2016 13:57
Isopropylbenzene	ND	0.50	1	06/21/2016 13:57
4-Isopropyl toluene	ND	0.50	1	06/21/2016 13:57
Methyl-t-butyl ether (MTBE)	ND	0.50	1	06/21/2016 13:57
Methylene chloride	ND	0.50	1	06/21/2016 13:57
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	06/21/2016 13:57
Naphthalene	ND	0.50	1	06/21/2016 13:57
n-Propyl benzene	ND	0.50	1	06/21/2016 13:57
Styrene	ND	0.50	1	06/21/2016 13:57
1,1,1,2-Tetrachloroethane	ND	0.50	1	06/21/2016 13:57
1,1,2,2-Tetrachloroethane	ND	0.50	1	06/21/2016 13:57
Tetrachloroethene	ND	0.50	1	06/21/2016 13:57
Toluene	ND	0.50	1	06/21/2016 13:57
1,2,3-Trichlorobenzene	ND	0.50	1	06/21/2016 13:57
1,2,4-Trichlorobenzene	ND	0.50	1	06/21/2016 13:57
1,1,1-Trichloroethane	ND	0.50	1	06/21/2016 13:57
1,1,2-Trichloroethane	ND	0.50	1	06/21/2016 13:57
Trichloroethene	**32**	0.50	1	06/21/2016 13:57
Trichlorofluoromethane	ND	0.50	1	06/21/2016 13:57
1,2,3-Trichloropropane	ND	0.50	1	06/21/2016 13:57
1,2,4-Trimethylbenzene	ND	0.50	1	06/21/2016 13:57
1,3,5-Trimethylbenzene	ND	0.50	1	06/21/2016 13:57
Vinyl Chloride	**1.8**	0.50	1	06/21/2016 13:57
Xylenes, Total	ND	0.50	1	06/21/2016 13:57

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Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Received:	6/20/16 17:05	**Extraction Method:**	SW5030B
Date Prepared:	6/21/16-6/22/16	**Analytical Method:**	SW8260B
Project:	8410 Amelia Street	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
P-2	1606901-001A	Water	06/20/2016 10:00	GC16	122605

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	95	70-130		06/21/2016 13:57
Toluene-d8	93	70-130		06/21/2016 13:57
4-BFB	77	70-130		06/21/2016 13:57

Analyst(s): MW

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Prepared:	6/21/16	**BatchID:**	122604
Date Analyzed:	6/21/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/L
Project:	8410 Amelia Street	**Sample ID:**	MB/LCS/LCSD-122604

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
tert-Amyl methyl ether (TAME)	ND	0.25	-	-	-
Benzene	ND	0.25	-	-	-
Bromobenzene	ND	0.25	-	-	-
Bromochloromethane	ND	0.25	-	-	-
Bromodichloromethane	ND	0.25	-	-	-
Bromoform	ND	0.25	-	-	-
Bromomethane	ND	0.25	-	-	-
t-Butyl alcohol (TBA)	ND	2.5	-	-	-
n-Butyl benzene	ND	0.25	-	-	-
sec-Butyl benzene	ND	0.25	-	-	-
tert-Butyl benzene	ND	0.25	-	-	-
Carbon Disulfide	ND	0.25	-	-	-
Carbon Tetrachloride	ND	0.25	-	-	-
Chlorobenzene	ND	0.25	-	-	-
Chloroethane	ND	0.25	-	-	-
Chloroform	ND	0.25	-	-	-
Chloromethane	ND	0.25	-	-	-
2-Chlorotoluene	ND	0.25	-	-	-
4-Chlorotoluene	ND	0.25	-	-	-
Dibromochloromethane	ND	0.25	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.25	-	-	-
1,2-Dibromoethane (EDB)	ND	0.25	-	-	-
Dibromomethane	ND	0.25	-	-	-
1,2-Dichlorobenzene	ND	0.25	-	-	-
1,3-Dichlorobenzene	ND	0.25	-	-	-
1,4-Dichlorobenzene	ND	0.25	-	-	-
Dichlorodifluoromethane	ND	0.25	-	-	-
1,1-Dichloroethane	ND	0.25	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.25	-	-	-
1,1-Dichloroethene	ND	0.25	-	-	-
cis-1,2-Dichloroethene	ND	0.25	-	-	-
trans-1,2-Dichloroethene	ND	0.25	-	-	-
1,2-Dichloropropane	ND	0.25	-	-	-
1,3-Dichloropropane	ND	0.25	-	-	-
2,2-Dichloropropane	ND	0.25	-	-	-
1,1-Dichloropropene	ND	0.25	-	-	-
cis-1,3-Dichloropropene	ND	0.25	-	-	-
trans-1,3-Dichloropropene	ND	0.25	-	-	-
Diisopropyl ether (DIPE)	ND	0.25	-	-	-

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Prepared:	6/21/16	**BatchID:**	122604
Date Analyzed:	6/21/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/L
Project:	8410 Amelia Street	**Sample ID:**	MB/LCS/LCSD-122604

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Ethylbenzene	ND	0.25	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	0.25	-	-	-
Freon 113	ND	5.0	-	-	-
Hexachlorobutadiene	ND	0.25	-	-	-
Hexachloroethane	ND	0.25	-	-	-
2-Hexanone	ND	0.25	-	-	-
Isopropylbenzene	ND	0.25	-	-	-
4-Isopropyl toluene	ND	0.25	-	-	-
Methyl-t-butyl ether (MTBE)	ND	0.25	-	-	-
Methylene chloride	ND	0.25	-	-	-
n-Propyl benzene	ND	0.25	-	-	-
Styrene	ND	0.25	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.25	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.25	-	-	-
Tetrachloroethene	ND	0.25	-	-	-
Toluene	ND	0.25	-	-	-
1,2,3-Trichlorobenzene	ND	0.25	-	-	-
1,2,4-Trichlorobenzene	ND	0.25	-	-	-
1,1,1-Trichloroethane	ND	0.25	-	-	-
1,1,2-Trichloroethane	ND	0.25	-	-	-
Trichloroethene	ND	0.25	-	-	-
Trichlorofluoromethane	ND	0.25	-	-	-
1,2,3-Trichloropropane	ND	0.25	-	-	-
1,2,4-Trimethylbenzene	ND	0.25	-	-	-
1,3,5-Trimethylbenzene	ND	0.25	-	-	-
Vinyl Chloride	ND	0.25	-	-	-
Xylenes, Total	ND	0.25	-	-	-
Surrogate Recovery					
Dibromofluoromethane	11.1		12.5	89	70-130
Toluene-d8	10.4		12.5	83	70-130
4-BFB	1.01		1.25	81	70-130

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Prepared:	6/21/16	**BatchID:**	122604
Date Analyzed:	6/21/16	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/L
Project:	8410 Amelia Street	**Sample ID:**	MB/LCS/LCSD-122604

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	5.42	5.64	5	109	113	60-140	3.95	30
Benzene	4.88	4.95	5	98	99	60-140	1.33	30
t-Butyl alcohol (TBA)	46.3	57.7	20	231, F2	289, F2	60-140	22.0	30
Chlorobenzene	4.93	5.03	5	99	101	60-140	2.10	30
1,2-Dibromoethane (EDB)	5.64	6.02	5	113	120	60-140	6.37	30
1,2-Dichloroethane (1,2-DCA)	5.16	5.30	5	103	106	60-140	2.53	30
1,1-Dichloroethene	4.81	4.93	5	96	99	60-140	2.37	30
Diisopropyl ether (DIPE)	4.75	4.81	5	95	96	60-140	1.21	30
Ethylbenzene	4.72	4.88	5	94	98	60-140	3.36	30
Ethyl tert-butyl ether (ETBE)	5.16	5.28	5	103	106	60-140	2.33	30
Methyl-t-butyl ether (MTBE)	5.52	5.74	5	110	115	60-140	3.97	30
Toluene	4.76	4.86	5	95	97	60-140	2.24	30
Trichloroethene	5.05	5.16	5	101	103	60-140	2.06	30
Xylenes, Total	14.0	14.6	15	94	98	60-140	4.14	30
Surrogate Recovery								
Dibromofluoromethane	11.3	11.1	12.5	91	89	70-130	1.59	30
Toluene-d8	10.4	10.4	12.5	83	83	70-130	0	30
4-BFB	1.05	1.03	1.25	84	82	70-130	2.39	30

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1606901
Date Prepared:	6/21/16	**BatchID:**	122605
Date Analyzed:	6/21/16	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	8410 Amelia Street	**Sample ID:**	MB/LCS-122605 1606870-006BMS/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	9.48	0.50	10	-	95	54-140
Benzene	ND	10.6	0.50	10	-	106	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	30.8	2.0	40	-	77	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	10.4	0.50	10	-	104	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	9.96	0.50	10	-	100	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	9.82	0.50	10	-	98	66-125
1,1-Dichloroethene	ND	10.2	0.50	10	-	102	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:**	1606901
Date Prepared:	6/21/16	**BatchID:**	122605
Date Analyzed:	6/21/16	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	8410 Amelia Street	**Sample ID:**	MB/LCS-122605 1606870-006BMS/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	10.1	0.50	10	-	101	57-136
Ethanol	ND	-	50	-	-	-	-
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	10.3	0.50	10	-	103	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	9.65	0.50	10	-	97	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	10.7	0.50	10	-	107	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	10.4	0.50	10	-	104	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:**	1606901
Date Prepared:	6/21/16	**BatchID:**	122605
Date Analyzed:	6/21/16	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	8410 Amelia Street	**Sample ID:**	MB/LCS-122605 1606870-006BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	24.0	23.8		25	96	95	70-130
Toluene-d8	22.7	22.8		25	91	91	70-130
4-BFB	1.95	2.11		2.5	78	84	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)	9.87	10.3	10	ND	99	103	69-139	4.17	20
Benzene	9.84	10.3	10	ND	98	103	69-141	4.81	20
t-Butyl alcohol (TBA)	40.2	41.7	40	ND	101	104	41-152	3.56	20
Chlorobenzene	9.36	9.94	10	ND	94	99	77-120	6.01	20
1,2-Dibromoethane (EDB)	9.99	10.6	10	ND	100	106	76-135	6.04	20
1,2-Dichloroethane (1,2-DCA)	9.48	9.87	10	ND	95	99	73-139	4.10	20
1,1-Dichloroethene	9.30	9.92	10	ND	93	99	59-140	6.38	20
Diisopropyl ether (DIPE)	9.72	10.3	10	ND	97	103	72-140	5.43	20
Ethyl tert-butyl ether (ETBE)	10.5	11.0	10	ND	105	110	71-140	5.20	20
Methyl-t-butyl ether (MTBE)	10.4	11.0	10	ND	104	110	73-139	5.29	20
Toluene	9.27	9.84	10	ND	92	98	71-128	5.91	20
Trichloroethene	9.24	9.81	10	ND	92	98	64-132	5.92	20
Surrogate Recovery									
Dibromofluoromethane	24.7	24.7	25		99	99	73-131	0	20
Toluene-d8	22.2	22.2	25		89	89	72-117	0	20
4-BFB	1.86	2.10	2.5		74	84	74-116	12.4	20

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(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1606901 **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: 8410 Amelia Street

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

Requested TAT: 3 days;

Date Received: **06/20/2016**
Date Logged: **06/20/2016**

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
1606901-001	P-2	Water	6/20/2016 10:00	☐			A									
1606901-002	SVE-1	Air	6/20/2016 14:30	☐	A	A										
1606901-003	SVE-2	Air	6/20/2016 13:30	☐	A	A										

Test Legend:

1	8260B_A	2	8260B_A(UG/M3)	3	8260B_W	4	
5		6		7		8	
9		10		11		12	

Prepared by: Valerie Riva

The following SampIDs: 002A, 003A contain testgroup.

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.

McCampbell Analytical, Inc.
"When Quality Counts"

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

WORK ORDER SUMMARY

Client Name: PANGEA ENVIRONMENTAL SVCS., INC.
Project: 8410 Amelia Street
Comments:

QC Level: LEVEL 2
Client Contact: Bob Clark-Riddell
Contact's Email: BRiddell@pangeaenv.com

Work Order: 1606901
Date Logged: 6/20/2016

☐ 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
1606901-001A	P-2	Water	SW8260B (VOCs)	2	VOA w/ HCl	☐	6/20/2016 10:00	3 days	Present	☐	
1606901-002A	SVE-1	Air	VOCs by PT & GCMS	1	Tedlar	☐	6/20/2016 14:30	3 days		☐	
1606901-003A	SVE-2	Air	VOCs by PT & GCMS	1	Tedlar	☐	6/20/2016 13:30	3 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.

1606901

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RUSH

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH ☐ 1 DAY ☐ 2 DAY ☐ 3 DAY ☒ 5 DAY ☐

GeoTracker EDF ☐ PDF ☐ EDD ☐ Write On (DW) ☐ EQuIS ☐ 10 DAY ☐

Effluent Sample Requiring "J" flag ☐ UST Clean Up Fund Project ☐ ; Claim #_____

Report To: Bob Clark-Riddell **Bill To:** Pangea

Company: Pangea Env. Svs

1710 Franklin St, Oakland

Tele: (510) 836-3700 **E-Mail:** briddell@pangeaenv.com

Project #: **Project Name:** 8410 Amelia St

Project Location: 8410 Amelia St **Purchase Order#**

Sampler Signature:

SAMPLE ID	Location/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	MATRIX: Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	METHOD PRESERVED: HCL	HNO_3	Other	BTEX & TPH as Gas (8021/ 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	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)***	Lab to Filter sample for Dissolved metals analysis
P-2		6.20.16	1000	2	X								X											X						
SVE-1		6.20.16	1430	1						X														X						
SVE-2		6.20.16	1330	1						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.

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

Relinquished By:	Date:	Time:	Received By:
	6.20.16	1705	Valerie Kirin
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t°_____
GOOD CONDITION_____
HEAD SPACE ABSENT_____
DECHLORINATED IN LAB_____
APPROPRIATE CONTAINERS_____
PRESERVED IN LAB_____

COMMENTS:

VOAS O&G METALS OTHER HAZARDOUS:
PRESERVATION_____ pH<2_____

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**6/20/2016 17:05**
Project Name:	**8410 Amelia Street**	Date Logged:	**6/20/2016**
WorkOrder №:	**1606901** Matrix: Air/Water	Received by:	Valerie Riva
Carrier:	Client Drop-In	Logged by:	Valerie Riva

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: