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By Alameda County Environmental Health 4:37 pm, Oct 09, 201

Reza Sheikhai
1208 Lincoln Avenue
Alameda, California 94501

Ms. Karel Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: Elegant Cleaners
1208 Lincoln Avenue
Alameda, California 94501
ACEH LOP No. RO0003163

Dear Ms. Detterman:

I, Mr. Reza Sheikhai, have retained Pangea Environmental Services, Inc. (Pangea) as the environmental consultant for the project referenced above. Pangea is submitting the attached report on my behalf.

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the State Water Resources Control Board's Geo Tracker website.

Sincerely,

Reza Sheikhai

October 9, 2017

Ms. Karel Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: **Data Gap Investigation Report**
Elegant Cleaners
1208 Lincoln Avenue
Alameda, California
ACDEH Case No. RO0003163

Dear Ms. Detterman:

On behalf of Mr. Reza Sheikhai, Pangea Environmental Services, Inc. (Pangea), has prepared this *Data Gap Investigation Report* (Report) for the subject site. This Report describes implementation of the approved *Data Gap Investigation Work Plan and Site Conceptual Model* (Workplan) dated April 5, 2016. The Workplan was approved by Alameda County Department of Environmental Health (ACDEH) in a letter dated April 13, 2016. The Report describes an underground utility survey, site assessment of subslab gas, soil gas and grab groundwater, and a soil vapor extraction (SVE) pilot study. As requested in the ACDEH letter, the Report also describes assessment of the current hydrocarbon-based cleaning fluid (DF2000) and a Conceptual Site Model (CSM).

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: *Data Gap Investigation Report*

cc: Reza Sheikhai (electronic)
SWCRB Geotracker (electronic copy)

DATA GAP INVESTIGATION REPORT

Elegant Cleaners
1208 Lincoln Avenue
Alameda, California

October 9, 2017

Prepared for:

Mr. Reza Sheikhai
1208 Lincoln Avenue
Alameda, California

Prepared by:

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

Written by:

Morgan Gillies
Project Manager

Bob Clark-Riddell, P.E.
Principal Engineer

DATA GAP INVESTIGATION REPORT

Elegant Cleaners
1208 Lincoln Avenue
Alameda, California
ACDEH Site No. 990026

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ATTACHMENTS

1.0 INTRODUCTION

On behalf of Mr. Reza Sheikhai, Pangea Environmental Services, Inc. (Pangea), has prepared this *Data Gap Investigation Report* (Report) for the subject site. This Report describes implementation of the approved *Data Gap Investigation Work Plan and Site Conceptual Model* (Workplan) dated April 5, 2016. The Workplan was approved by Alameda County Department of Environmental Health (ACDEH) in a letter dated April 13, 2016. The Report describes an underground utility survey, site assessment of subslab gas, soil gas and grab groundwater, and a soil vapor extraction (SVE) pilot study. As requested in the ACDEH letter, the Report also describes assessment of the current hydrocarbon-based cleaning fluid (DF2000) and a Conceptual Site Model (CSM). Regulatory correspondence is included in Appendix A.

2.0 SITE BACKGROUND

2.1 Site Location and Description

The subject property is located at 1208 Lincoln Avenue, Alameda, in the partly commercial and residential area of the city of Alameda, California (Figure 1). The property is a 5,500 square foot (ft^2) irregularly shaped parcel that is developed with two-story 2,500 ft^2 commercial building currently occupied by a dry cleaning business (Figure 2). The northern portion of the building's first floor features a main entrance door leading into a reception area. The southern portion features a large dry cleaning machine, storage, and various pressers and dryers. The northern 40% of the building has raised wooden flooring. A boiler room extends from the southeastern corner onto the adjacent property. The second floor is used as storage. There is an unpaved parking area at the southern end of the property. The property is accessible from the north along Lincoln Avenue and southwest along an unpaved alley from Bay Street.

The property was developed with the current site building in the late 1800s or early 1900s. The building was originally developed as a meat market and was occupied by a store until the mid-1900s. In the 1970s it was occupied by a general store, and in 1980 it was occupied by a pet store. The current occupant, Elegant Cleaners, began occupying the building in 1986. The dry cleaners upgraded to a hydrocarbon-based (DF 2000) dry cleaning machine in 2005, which replaced the previous machine that used tetrachloroethene (PCE).

2.2 Summary of Previous Environmental Investigation and Remediation

Volatile organic compound (VOC) data for soil, groundwater, and subslab/soil gas are summarized on Tables 1, 2 and 3, respectively. In 2006, a Phase II Subsurface Investigation report was prepared by ERAS Environmental Inc (ERAS). ERAS advanced three hand auger borings (B-1 through B-3) to about 5 feet depth in the southern portion of the building around the location of the dry cleaning machine. Soil samples collected

from the borings were analyzed for TPH-diesel, TPH-kerosene, and HVOC (including PCE). The test results indicated non-detectable concentrations for all contaminants tested, including PCE.

In August 2014, Encon Solutions, Inc. (Encon) advanced six borings to assess soil gas conditions. Soil gas samples were collected at depths of 5 to 12 feet below grade surface (ft bgs). The results indicated the presence of PCE at a maximum concentration of 22,480 micrograms per cubic meter ($\mu g/m^3$) in the unpaved gravel parking lot south of the building (SV-5-5.0 feet), and 13,540 $\mu g/m^3$ PCE inside the building (SV-4-5.0 feet). Soil sampling was not performed. The PCE concentrations in soil gas exceeded the California Human Health Screening Level (CHHSL) for PCE for commercial land use as well as Environmental Screening Level (ESL) established by the San Francisco Bay Regional Water Quality Control Board. Groundwater was not encountered at a maximum refusal depth of 12 ft bgs.

In October 2014, Encon conducted indoor air sampling at two indoor and two outdoor ambient locations (approximately 9-hour sample collection). Indoor air samples IA-1 and IA-2 were located on the southwest stairs near the existing hydrocarbon/former solvent based dry cleaning machines and in the northern portion of the tenant space near the public counter, respectively. Ambient air samples BG-1 and BG-2 were located at the extreme southeast portion of the gravel parking lot and at the southern entrance to the tenant space near the HVAC system intake, respectively. All VOC concentrations in indoor air were below commercial ESLs, except for benzene and carbon tetrachloride (which were similar to the ambient air concentrations). The only VOC present in indoor air significantly higher than ambient air concentrations was PCE (1.0 $\mu g/m^3$) detected on the southwest stairs near the dry cleaning machine. This PCE concentration of 1.0 $\mu g/m^3$ is below the commercial ESL of 2.1 $\mu g/m^3$.

In November 2014, five soil vapor probes (VW-1 through VW-5), one subslab gas probe (SS-1), and three monitoring wells (MW-1 through MW-3) were installed by Environmental Control Associates, Inc. (ECA) of Santa Cruz, California. This work was described in the *Phase III Environmental Site Assessment Report* dated January 14, 2015 by Encon. The maximum PCE concentration detected in soil gas was 13,000 $\mu g/m^3$ in soil gas probe VW-2. A PCE concentration of 7,000 $\mu g/m^3$ was found in subslab probe SS-1. The maximum PCE concentration detected in groundwater was 29 µg/L (MW-1).

On March 4, 2016, Pangea met with ACDEH regarding current site conditions and future site assessment. As required during the meeting, Pangea prepared a *Data Gap Investigation Workplan and Site Conceptual Model* (Workplan) dated April 5, 2016. The Workplan was conditionally approved by ACDEH in a letter dated April 13, 2016.

In April 2016, Pangea performed groundwater monitoring of the three existing groundwater monitoring wells. Groundwater monitoring procedures and results are described in the *Groundwater Monitoring Report – First Half 2016* dated July 12, 2016.

2.3 Site Geology and Hydrogeology

Based on prior site investigation, site soil predominantly consists of fill material overlying alluvial deposits. Soil beneath the fill material has been classified primarily as silts and silty sands. The maximum explored depth is 20 ft bgs.

Groundwater has been first encountered at depths of approximately 10 to 15 ft bgs. Based on limited site groundwater monitoring data (November 25, 2014 and April 20, 2016), the depth to static groundwater ranged from approximately 8 to 10 ft bgs in outdoor wells MW-2 and MW-3. For source area well MW-1 located inside the building with a lower top-of-casing elevation, the depth to groundwater has ranged from approximately 6.2 to 7.8 ft bgs. The static groundwater elevation has ranged from approximately 16.4 to 18.2 ft above mean sea level (NAVD 88 datum). The inferred groundwater flow direction has been towards the north-northwest and northern directions with a gradient of 0.003 to 0.008 ft/ft. Shallow groundwater near the site has been reported as being relatively flat. Buildings and paving inhibit infiltration of rainfall across most of the northern portion of the site, while unpaved areas south of the site allow rain infiltration.

3.0 SITE INVESTIGATION ACTIVITIES

Pangea's site investigation included a subsurface utility survey, installation and sampling of subslab/soil gas probes, installation of soil vapor extraction wells, and offsite borings to evaluate the lateral extent of site contaminants in soil and groundwater. The assessment evaluated media for potential impact by former cleaning solvent PCE and current hydrocarbon-based cleaning solution DF2000.

3.1 Pre-Drilling Activities

A comprehensive site Safety Plan was prepared to protect site workers and the plan was kept onsite during all field activities. Boring and soil vapor well installation permits were obtained from Alameda County Public Works Agency (ACPWA). An encroachment permit was obtained from the City of Alameda. Additionally, access agreements were obtained from the two neighboring property owners at 1206 and 1210 Lincoln Avenue. Copies of the permits are presented in Appendix B. The proposed drilling locations were marked and Underground Service Alert was notified at least 72 hours before the proposed field activities.

3.2 Utility Survey

Pangea coordinated underground line locating to determine the locations of underground utilities and possible penetrations through the floor slabs. Pangea met with the property owners of 1206, 1208 and 1210 Lincoln Avenue to gain access to the site and adjacent buildings, and to obtain owner information about subsurface

utilities on those properties. Pangea also requested sanitary sewer and storm drain maps of the area from the City of Alameda (Appendix C).

On October 5 and 11, 2016, underground utility locating was performed by Geotech Utility Locating of Moraga, California. The location of underground utilities identified by the survey are shown on Figure 2. The only identified slab penetrations at 1206, 1208 and 1210 Lincoln Avenue are the sanitary sewer connections to the sewer sump at 1210 Lincoln, and the sinks and toilets in each building. At 1208 Lincoln Avenue, drainage from laundry equipment is through pipes above the slab to the sewer sump in the southeast corner of the building. No additional floor drains were observed in any of the surveyed buildings.

At the subject site (1208 Lincoln Avenue), the survey identified the sanitary sewer lateral and natural gas supply piping exiting the rear of the building in the southeastern corner. The sanitary sewer commences at the restroom in the southeastern corner of the building and exits the building at a depth of approximately 5’3” depth. The sewer lateral then turns westward beneath the alley continuing to the main sanitary sewer line beneath Bay Street. The natural gas pipeline follows a similar route to the sanitary sewer lateral at a shallower depth of approximately 2’9”. The water supply line at 1208 Lincoln Avenue enters the front of the building at a depth of approximately 18” and proceeds approximately 55 feet into the building before turning to the east.

At 1206 Lincoln Avenue, the survey identified the sanitary sewer lateral commencing at the sinks located in the northwest portion of the building, connecting to the toilets along the eastern wall and continuing eastward beneath 1208 Lincoln Avenue (subject site). The sewer lateral then turns northward beneath 1208 Lincoln Avenue and connects to the sanitary sewer main beneath Lincoln Avenue. The only other subsurface utilities identified at 1206 Lincoln were the approximately 18” deep water supply and natural gas lines extending from the front of the building to their respective mains beneath Lincoln Avenue.

At the 1210 Lincoln Avenue, the survey identified the sanitary sewer lateral commencing at the restroom in the southeastern corner of the building and exits the building beneath the eastern wall. The sewer lateral then turns northward beneath the walkway east of the building and proceeds to the main sanitary sewer line beneath Lincoln Avenue. The sanitary sewer line is approximately 5 ft bgs beneath the sidewalk along Lincoln Avenue. The water supply pipeline follows a similar route to the sanitary sewer lateral at a shallower depth of approximately 18”. The natural gas supply line at 1210 Lincoln Avenue enters the front of the building at a depth of approximately 18”.

The sanitary sewer lateral and gas pipeline behind the subject site building do represent potential preferential pathways for vapor phase VOC migration. However, the relatively high permeability of native soil (silty sand) diminishes the potential for VOC migration along utility backfill material of relatively similar permeability.

The only identified conduit with the potential to intersect impacted groundwater is the sanitary sewer main beneath Lincoln Avenue. However, site data suggests that even during periods of extremely high groundwater conditions, groundwater does not intersect the sanitary sewer beneath Lincoln Avenue near the site. This suggests the sanitary sewer beneath Lincoln Avenue adjacent the subject site does not act as a preferential pathway for VOC migration in groundwater. Additional information is presented in the preferential pathway evaluation in the conceptual site model (CSM).

3.3 Drilling Procedures

All soil borings were installed in general accordance with the procedures described in Pangea's *Data Gap Investigation Work Plan and Site Conceptual Model* (Workplan) dated April 5, 2016. All borings were hand-augered to 5 ft depth to help avoid subsurface utilities. Pangea retained Cascade Drilling (Cascade) of Richmond, California, to drill the borings. The drilling was observed in the field by Pangea staff engineer Erik Lervaag, and supervised by Bob Clark-Riddell, a California Registered Civil Professional Engineer (P.E.). Soil characteristics such as color, texture, and relative water contents were described in the field using the USCS classification system and entered onto a field boring log. Field screening of soil samples for potential hydrocarbons and volatile organic compounds included visual and olfactory observations and photo-ionization detector (PID) readings. Undisturbed soil samples were collected in preserved vials using Terracore™ samplers and stored on ice for laboratory analysis.

3.4 Subslab Gas Probe, Soil Gas Well and Soil Vapor Extraction Well Installation

On March 6, 2017, Pangea coordinated installation of soil gas wells and soil vapor extraction wells at the site. Pangea coordinated subslab gas probe installation on March 9, 2017. Probe and well locations are shown on Figure 2.

Soil Gas Well Installation: Soil gas well SG-1 was installed near the middle of the subject site building just south of the raised floor portion of the building. Soil gas well SG-2 was installed in the alley southwest of the site between the source area and the nearest residential building. Each soil gas well location was hand augered to approximately 5 ft depth before constructing the soil gas well. Each soil gas well was constructed with a stainless steel Geoprobe™ implant connected to new ¼-inch diameter Teflon tubing and capped with a Swagelok® type fitting. The soil gas implant was placed in a 1.0 ft thick sand pack with 0.5 ft of dry granular bentonite above, followed by hydrated bentonite and a concrete seal within the well box. The well sampling intervals are approximately 4 to 5 ft bgs. Soil samples were collected form each boring at approximately 4 ft bgs. The soil gas well construction logs are included in Appendix E.

Subslab Gas Probe Installation: On March 9, 2017, Pangea installed subslab probes SS-2 through SS-4 using Cox-Colvin vapor pins. Subslab probes SS-2 and SS-3 were installed at 1210 Lincoln Avenue and probe SS-4

was installed at 1206 Lincoln Avenue to assess the lateral extent of soil gas contamination. Proposed subslab probe SS-5 was not installed at 1206 Lincoln Avenue because an unknown portion of the building has raised flooring and the owner didn't want to drill through his wooden flooring. Subslab gas probe installation procedures involved using a rotohammer to drill a 1 ½-inch diameter hole part way through the concrete slab of the building, drilling a 5/8-inch diameter hole through the remaining concrete, installing a Cox-Colvin vapor pin (capped with a plastic cap), and threading a stainless steel cover over the vapor pin for probe protection. Subslab/soil vapor sampling procedures and analytical results are presented below.

SVE Well Installation: Soil vapor extraction wells SVE-1 and SVE-2 were also installed on March 6, 2017. Well SVE-1 was installed near the former dry cleaning machine to target residual contamination in the source area. Well SVE-2 was installed near the highest PCE impacted soil gas sample location (SV-5) to target contamination in this area. Wells SVE-1 and SVE-2 were constructed using 2-inch diameter PVC casing with 0.020" slots and were screened slightly shallower than planned due to shallow groundwater. Well SVE-1 was screened from approximately 3 to 6 ft bgs; well SVE-2 was screened from approximately 4 to 7 ft bgs. The wells are protected from damage by flush-mounted traffic rated well boxes. The wells were installed in general accordance with Pangea's standard operating procedures in Appendix D. The SVE well construction logs are included in Appendix E.

3.5 Subslab/Soil Gas Well Sampling

The subslab sampling was conducted in general accordance with the guidelines outlined in October 2011 *Advisory: Active Soil Gas Investigations* by the CalEPA/Department of Toxic Substances Control (CalEPA, 2011). The subslab gas and soil gas sampling was conducted in general accordance with the July 2015 *Advisory: Active Soil Gas Investigation* (CalEPA, 2015). A figure showing Pangea's subslab/soil gas sampling apparatus is included in Appendix D and sampling procedures are described below. Pangea collected subslab and soil gas samples using 1-liter Tedlar bags. Pangea conducted purging using a vacuum pump to purge the probe/well assembly. Upon completion of purging of approximately three times the ambient volume of air in the assembly/probe/well, the Tedlar bag was opened for sample collection. A rotameter with an adjustable valve was used to regulate vapor flow to less than 150 milliliters of air per minute. A vacuum gauge was used to monitor the amount of vacuum applied to the probe side of the sampling apparatus during purging and sampling. After approximately 4 to 5 minutes, the Tedlar bag was full and the valve was closed.

To further evaluate potential leakage within the sampling system, a leak-check enclosure was placed over the subslab probe/soil vapor well, and isopropyl alcohol was introduced into the leak-check enclosure. A photo-ionization detector (PID) was used to monitor the concentration of isopropyl alcohol within the enclosure during sample collection. Subslab/soil gas sampling field data sheets are included in Appendix F. After sample collection, subslab probes and soil gas wells were capped and left for future sampling, as merited.

3.6 Soil and Groundwater Borings

On March 27, 2017, Pangea observed drilling of offsite soil borings B-4 through B-7 to help evaluate subsurface conditions downgradient of the site. The borings were located along the southern side of Lincoln Avenue northwest and north of the source area.

All borings were hand-augered to approximately 5 ft bgs to ensure that drilling activities did not damage unmarked or marked utilities. After hand augering, Cascade drilled the soil borings using dual-wall direct-push drilling methods to collect continuously cored soil samples. Each soil boring was advanced to approximately 12 ft depth. No soil samples were collected from these downgradient offsite borings. Grab groundwater samples were collected from each boring using a peristaltic pump equipped with new Teflon tubing. Grab groundwater samples were collected from each boring in accordance with Pangea's Standard Field Procedures for Soil Borings (Appendix D).

Soil from the borings consisted primarily of brown silty sand to the total explored depth of 12 ft bgs. First encountered groundwater was observed at approximately 6 to 7 ft in the borings for wells SVE-1 and SVE-2. Groundwater was measured in borings B-4 through B-7 at approximately 5 to 6 ft bgs after approximately 2 to 3 hours of equilibration.

4.0 SITE INVESTIGATION RESULTS

The following discussion of site geology/ hydrogeology and assessment results is based on prior and current site investigation. Soil, groundwater, and subslab/soil gas analytical data are summarized on Tables 1, 2 and 3, respectively. PCE concentrations in soil, groundwater and subslab/soil gas are shown on Figures 3, 4 and 5, respectively. Laboratory analytical reports from the current investigation are included in Appendix G.

To investigate potential hydrocarbon impact from cleaning solution DF2000 in site soil and groundwater, Pangea coordinated analysis of the four shallow soil samples from soil vapor extraction wells and the grab groundwater sample from boring B-5 for total petroleum hydrocarbons as gasoline and/or diesel by EPA Method 8015.

4.1 Geology and Hydrogeology

During the current assessment, shallow subsurface soils consisted of approximately six inches of sandy gravel fill overlying brown silty sand to the explored depth of 12 feet. This is consistent with prior site investigation, where site soil predominantly consists of fill material overlying alluvial deposits of silty sand and sand to the maximum explored depth of 20 ft bgs.

Groundwater was encountered as shallow as 6 ft bgs and equilibrated at approximately 5 ft bgs in select site borings. During previous assessment groundwater was encountered at approximately 10 to 15 ft bgs. The shallower groundwater encountered during this March 2017 investigation is likely due to significant rain this rainy season.

4.2 Soil Analytical Results

Four soil samples collected from 4 ft bgs were analyzed by the analytical laboratory for VOCs by EPA 8260 and total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015. The soil samples were collected during installation of soil gas wells SG-1 and SG-2, and installation of soil vapor extraction wells SVE-1 and SVE-2. Soil sample results are shown on Figure 3 and Table 1. Laboratory analytical reports are presented in Appendix G.

PCE was only detected in one sample, at a concentration of 0.0088 milligrams per kilogram (mg/kg) at well SVE-2 located outside in the parking lot. This concentration is well below the conservative Tier 1 ESL of 0.42 mg/kg, the residential soil ESL of 0.6 mg/kg, and the commercial ESL of 2.7 mg/kg. The PCE concentration in soil coincides with the elevated soil gas PCE impact detected in offsite soil vapor well SV-5. No other VOCs were detected in the four analyzed samples or in prior soil sample analysis at the site. No TPHg concentrations were detected in the four analyzed soil samples.

4.3 Groundwater Analytical Results

Grab groundwater samples from downgradient borings B-4 through B-7 were analyzed for VOCs by EPA Method 8260. Additionally, the grab groundwater sample from boring B-5 was analyzed for TPHg and TPHd by EPA Method 8015. Groundwater sample results are summarized on Figure 4 and Table 2. Laboratory analytical reports are presented in Appendix G.

PCE: PCE was detected in all four grab groundwater samples, at a maximum concentration of 360 micrograms per liter (µg/L) in boring B-5. Lower PCE concentrations (ranging from 3 to 59 µg/L) were detected in the borings west and east of boring B-5, suggesting the primary PCE groundwater impact at the property boundary is located near boring B-5. This PCE grab data also suggests a groundwater flow direction in the north-northwest direction toward boring B-5 from the PCE source area. Since grab groundwater data tends to be higher than well data, much lower PCE concentrations would likely be detected in groundwater if a well were installed offsite near boring B-5.

Figure 4 illustrates the distribution of PCE in groundwater with respect to the residential ESL (3 µg/L) and the commercial ESL of (26 µg/L) protective of vapor intrusion from groundwater. As shown on Figure 4, PCE concentrations in groundwater from site wells exceeded the commercial ESL for vapor intrusion in the rear

(southern) portion of the subject site, and exceeded the residential ESL for vapor intrusion beneath the commercial buildings/parking lot and the garage for 1544 Bay Street residential property.

As described in the preferential pathway evaluation of the CSM, site data suggests that even during periods of extremely high groundwater conditions, groundwater does not intersect the sanitary sewer beneath Lincoln Avenue near the site. This suggests the sanitary sewer conduit beneath Lincoln Avenue adjacent the subject site does not act as a preferential pathway for VOC migration in groundwater.

TCE: TCE was also detected in two grab groundwater samples (B-5 and B-6) at a maximum concentration of 2.8 µg/L, below the Tier 1 ESL of 5 µg/L. The presence of TCE in these borings and in well MW-1 is indicative of PCE degradation in the source area and downgradient.

Other VOCs: The only other VOCs detected were low concentrations of xylenes (1.3 µg/L) in boring B-4 and para-isopropyl toluene (1.0 µg/L) in boring B-6, both well below Tier 1 ESLs of 20 µg/L and 40 µg/L, respectively.

TPH: While TPHg was quantified and reported in boring B-5 at a concentration of 170 µg/L, the analytical laboratory noted that the "sample exhibits unknown single peak or peaks." Comparing the chromatogram for the TPHg laboratory standard to the analyzed sample chromatogram suggests that this detection is not representative of petroleum hydrocarbons. Chromatograms are included in the analytical report in Appendix G. No TPHd was detected in boring B-5 above the laboratory reporting limit. The above information suggests no DF2000 hydrocarbon impact in groundwater in boring B-5, and that the single peak quantified as TPHg could be PCE.

4.4 Subslab/Soil Gas Analytical Results

Seven subslab/soil gas samples were analyzed from all existing soil gas wells (SG-1, SG-2, VW-3 and VW-4) and subslab gas probes (SS-2, SS-3 and SS-4). Soil gas results are summarized on Figure 5 and Table 3. Consistent with historic data, only PCE was detected in soil gas. Laboratory analytical reports are presented in Appendix G.

During the March 2017 sampling event, the maximum detected PCE concentration was 2,600 micrograms per cubic meter (µg/m^3) in soil gas well VW-3, located in the driveway behind the building. This PCE concentration is lower than the 10,000 µg/m^3 detected in well VW-3 in November 2014. The concentration variation may be due to seasonal variation, as the March 2017 sampling follows significant seasonal rain that likely raised the groundwater elevation.

As shown by current and historic analytical data on Figure 5, the primary PCE soil gas impact is near the dry cleaning equipment in the rear of the subject site. The subslab/soil gas PCE impact only exceeds the commercial ESL (2,100 µg/m^3) in the rear portion of the site, and does not extend into the adjacent commercial properties above the commercial ESL. The soil gas PCE impact also exceeds the residential ESL (240 µg/m^3) within a portion of the three surrounding residential properties: the backyard of 1545 Sherman Street, the garage of 1542 Bay Street, and the garage/residence of 1544 Bay Street. To facilitate remediation of this soil gas impact, Pangea proposed soil vapor extraction (SVE) testing within the Workplan dated April 5, 2016. As described below, the SVE pilot study is targeting VOC impact above residential and commercial ESLs.

5.0 SOIL VAPOR EXTRACTION PILOT STUDY

To evaluate the effectiveness of SVE to target residual PCE vapors in subslab gas and soil gas, Pangea initiated an SVE pilot study. Initial SVE testing was conducted in accordance with the *Data Gap Investigation Workplan.* The SVE test duration was extended to further evaluate SVE effectiveness to reduce source are VOC impact. The layout of the SVE pilot study system is shown on Figure 6.

5.1 SVE Pilot Study Preparation

To prepare for the SVE pilot study, Pangea performed the following:

1) Installed a 5-horse power regenerative SVE blower with variable frequency drive, a knock-out tank (to remove entrained moisture/water from the extracted vapor), and two 200-pound carbon vapor treatment vessels;

2) Connected electrical service to the SVE blower motor; and

3) Plumbed aboveground PVC piping from the blower to well de(SVE-1 (located inside the building) and well SVE-2 (located outside the building).

The SVE blower and SVE piping installation was performed in August 2017. On August 14, Pangea notified the Bay Area Air Quality Management District (BAAQMD) that we were moving our various locations permitted blower to this site and beginning operations on August 25, 2017. On August 17, Pangea notified BAAQMD that we planned to conduct a 5-day SVE test at the site beginning on August 21, 2017. Photographs of the SVE pilot study system are included in Appendix B.

Following installation of the SVE blower and ancillary equipment/plumbing, an initial five-day SVE commenced on August 21, 2017. On August 25, 2017, continuous operation of the SVE pilot study equipment commenced under BAAQMD various locations plant number 23659.

5.2 SVE Pilot Study Performance Monitoring

Pangea regularly inspected and monitored the SVE pilot study system to evaluate and optimize overall SVE system performance. Pangea recorded the applied vacuum, vapor extraction flow rate, and extracted vapor concentrations. Vapor flow rate was measured using a hot-wire anemometer and extracted vapor concentrations were measured using a RAE Systems MiniRAE Lite PID calibrated to 100 ppmv isobutylene. A PID was used to monitor the influent, midpoint and effluent of the carbon treatment system. System influent vapor samples were collected in 1-liter Tedlar™ bags and submitted for VOC analysis by EPA Method 8260 (8010 Basic Target List) to McCampbell Analytical Laboratories of Pittsburg, California.

Influent VOC concentrations in extraction wells SVE-1 and SVE-2 are shown on Table 3. Well SVE performance data is summarized below on Table A. For well SVE-1 during startup, an applied vacuum of 37 inches of water induced a vapor extraction flow rate of 37 cubic feet per minute (cfm). For well SVE-2, an applied vacuum of 34 inches of water induced a vapor extraction flow rate of 45 cfm. The applied vacuum was controlled at each well to minimize the potential for water upwelling.

On test start day August 21, 2017, the following elevated PCE concentrations were reported: 1,700 µg/m^3 in well SVE-1 and 6,000 µg/m^3 in well SVE-2. On day four of SVE testing (August 25, 2017), influent PCE concentrations reduced to <250 µg/m^3 in SVE-1 and 1,100 µg/m^3 in well SVE-2. On September 22, 2017 (after 32 days of testing), the influent PCE concentrations were <250 µg/m^3 from well SVE-1 and 270 µg/m^3 from well SVE-2. SVE pilot test data is summarized below on Table A.

Table A – SVE Test Performance Data

Extraction Location	Test Date	Test Duration (total days)	Applied Vacuum ("H_2O)	Vapor Flow (cfm)	Influent PCE Conc. (ug/m^3)	PCE Vapor Removal Rate (lbs/day)	Estimated Test PCE Removal (lbs)
SVE-1	8/21/17	0.05	28	25	**1,700**	0.004	<0.023 lbs
	8/25/17	4.0	28	25	**<250**	<0.0006	
	9/22/17	32	27	26	**<250**	<0.0006	
SVE-2	8/21/17	0.05	28	28	**6,000**	0.014	0.079 lbs
	8/25/17	4.0	27	30	**1,100**	0.0025	
	9/22/17	32	26	32	**270**	0.00077	

Mass removal rates were calculated using vapor extraction flow rates measured using a hot wire anemometer and VOC concentrations from laboratory analysis of vapor samples collected during testing. During system startup on August 21, 2017, the estimated PCE removal rates were 0.004 lbs/day for well SVE-1 and 0.014 lbs/day for SVE-2. On August 25, 2017, the estimated PCE removal rates were <0.0006 lbs/day for well SVE-

1 and 0.0025 lbs/day for well SVE-2. On September 22, 2017, the estimated PCE removal rates were <0.0006 lbs/day for well SVE-1 and 0.00077 lbs/day for well SVE-2. As of September 22, 2017, Pangea estimates that the SVE system has removed a total of <0.135 lbs of PCE from the subsurface.

During SVE pilot testing, Pangea collected vacuum measurements from nearby monitoring points to evaluate the extent of vacuum influence in the subsurface. On August 21, 2017, during an applied vacuum of approximately 28" of water at the blower, a subsurface vacuum influence of 0.01" of water was measured up to 40 ft from the nearest extraction well. On October 6, 2017, during an applied vacuum of approximately 31" of water at the blower, a subsurface vacuum influence of 0.01" of water was measured up to 40 ft from the nearest extraction well. The measured vacuum influence on October 6, 2017, is shown on Figure 7.

As shown on Figure 7, the SVE pilot study system provides vacuum influence within the primary residential area of concern and the commercial area of concern. The above data also indicates that subsurface conditions are amenable to vapor extraction and that SVE effectively removed VOC impact.

6.0 CONCEPTUAL SITE MODEL

Site investigation has revealed the presence of VOCs, including tetrachloroethylene (PCE), in soil, soil gas and groundwater at the site. To evaluate potential risks to human health and the environment associated with the presence of VOCs at the site, Pangea developed a CSM and compared data with applicable environmental screening levels (ESLs). Through a comparison of site data to applicable criteria, the CSM was used to assess the adequacy of the site characterization and identify potential data gaps for making decisions regarding future corrective action. Based on the investigation described above and historic data, Pangea offers the following CSM and summary of subsurface conditions. Potential data gaps for site assessment are described below, which expands on the above data gap discussion requested by ACDEH.

The CSM developed for the site represents the assemblage of the existing site data and the general physical conditions that influence contaminant transport. The CSM presents the primary and secondary sources of VOCs and their release mechanisms. The CSM has been developed based on: known historical operations at the site; investigation results; properties of the chemicals present, e.g., suspected chemical release mechanisms; transport mechanisms; and potential exposure scenarios. As depicted in the CSM, the data indicate that the distribution of VOCs in soil, soil gas and groundwater is attributed to releases from historical operations at Elegant Cleaners.

6.1 Contaminant Source/Release Information

Dry cleaning operations at the site reportedly started in 1986. The dry cleaners upgraded to an hydrocarbon-based dry cleaning machine in 2005, which replaced the previous machine that used tetrachloroethene (PCE). Available soil gas and groundwater data suggest a primary PCE source area is near the current and/or former dry cleaning machines (based on data from MW-1, SV-2, SV-3, and SV-4), and a secondary PCE source area is outside the building and across the paved alley and driveway where the gravel parking lot is located (based on data from MW-2 and SV-5). Pangea understands storage of PCE-laden materials may have occurred at this outdoors location.

6.2 Chemicals of Concern (COC)

The primary chemical of concern (COC) at the site is tetrachloroethylene (PCE) and the secondary COC is trichloroethylene (TCE), a breakdown product of PCE. Other breakdown products of PCE such as cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride may become future COCs, but have not been detected in sampled media to date. To date, only PCE has been detected in site soil and soil vapor, and only PCE and TCE were detected in groundwater. PCE concentrations in soil vapor and groundwater have exceeded RWQCB Environmental Screening Levels (ESLs). The only VOC detection in site was was 0.0088 mg/kg PCE from four (4) ft depth during installation of well MW-2 near the elevated soil gas impact detected in SVP-5.

The other potential chemical of concern is DF2000 dry cleaning solution (aliphatic hydrocarbons). Relatively low concentrations of total petroleum hydrocarbons have been detected in one site grab groundwater sample. No TPHg was detected in soil samples collected at four ft depth during installation of soil gas/soil vapor extraction wells SG-1, SG-2, SVE-1 and SVE-2.

6.3 VOC Distribution

Site investigation work has shown the presence of COCs in site soil, soil gas and groundwater. For each media Pangea compares analytical data to ESLs for *residential and commercial* land use established by the RWQCB. Boring and well locations are shown on Figure 2. Existing groundwater monitoring well MW-1 is screened from approximately 7 to 15 feet bgs, and wells MW-2 and MW-3 are screened from 10 to 20 feet bgs.

Soil: Soil samples were collected from borings B-1 through B-3 at approximately 3.25 ft bgs on October 3, 2006. Soil samples were also collected at 5 ft bgs, 10 ft bgs, and 15 ft bgs during installation of monitoring well MW-1 and 5 ft bgs and 10 ft bgs during installation of monitoring wells MW-2 and MW-3 on November 11, 2014. Soil samples were collected from 4 ft bgs from SG-1, SG-2, SVE-1 and SVE-2 on March 6, 2017.

All VOC concentrations in soil samples were below detection limits, except for 0.0088 mg/kg PCE in SVE-2 at four ft bgs.

Subslab Gas: Subslab gas probe SS-1 located immediately east of the current dry cleaning machine had a PCE concentration of 7,000 µg/m^3 in November 2014. This concentration exceeds the commercial ESL for vapor intrusion: human health risk levels of 2,100 µg/m^3. Offsite subslab probes SS-2 through SS-4 were sampled on March 9, 2017. No VOCs were detected in probes SS-2 or SS-3 and a concentration of 1,300 µg/m^3 PCE was detected in SS-4, located near the rear of the building at 1206 Lincoln Avenue.

Soil Gas: Soil gas has been sampled at several locations via former sampling locations and existing soil vapor monitoring wells. The highest reported PCE impact in soil gas was 22,480 µg/m^3 at SV-5, located in the unpaved parking lot behind the subject site building. The inferred extent of PCE with respect to the residential ESL (240 ug/m^3) and the commercial ESLs (2,100 ug/m^3) is shown on Figure 5. As shown on Figure 5, the PCE soil gas impact exceeding the commercial ESLs appears to be present beneath the rear portion of the subject site only. As also shown on Figures 5, the PCE soil gas impact exceeding the *residential* ESLs appears to be present beneath the adjacent garage/residence at 1544 Bay Street, the garage at 1542 Bay Street and the yard of 1545 Sherman Street.

Groundwater: Groundwater quality has been assessed by monitoring of wells MW-1 through MW-3 on November 25, 2014 and April 20, 2016, and by offsite grab groundwater sampling from borings B-4 thorugh B-7. The highest reported PCE impact in monitoring well groundwater was 43 ug/L at well MW-1 in April 2016. The only other PCE impact in monitoring wells exceeding the commercial ESL (26 ug/L) was 29 ug/L at well MW-1 in November 2014. Grab groundwater samples from borings B-4 (41 ug/L), B-5 (360 ug/L) and B-6 (59 ug/L) also exceed the commercial ESL. Since grab groundwater data tends to be higher than monitoring well data, much lower PCE concentrations would likely be detected in groundwater if a well were installed offsite near boring B-5. As shown on Figure 4, the PCE groundwater impact exceeding the Tier 1 groundwater ESL (3 ug/L) is present in the southern section of the site and the northwest portion of the unpaved parking lot.

Groundwater Plume Delineation and Stability: With only two groundwater monitoring events completed to date (November 25, 2014 and April 20, 2016), additional groundwater monitoring and grab groundwater sampling is merited to further evaluate plume delineation and stability. Given the cessation of PCE use in 2005 and the relatively limited PCE impact in groundwater, the groundwater plume may be fairly stable and limited in extent. The presence of TCE in well MW-1 and borings B-5 and B-6 suggests some biological degradation of the PCE plume is occurring. PCE concentrations in offsite grab groundwater samples also suggest a north-northwest groundwater flow direction, as illustrated on Figure 4. This flow direction is consistent with the two site monitoring events.

Indoor Air: From the October 2014 sampling, all VOC concentrations in indoor air were below commercial ESLs, except for benzene and carbon tetrachloride (which were similar to the ambient air concentrations). The only VOC present in indoor air significantly higher than ambient air concentrations was PCE (1.0 µg/m^3) detected on the southwest stairs near the dry cleaning machine.

6.4 Preferential Pathway Evaluation / Conduit Study

Pangea evaluated site utilities for potential preferential pathway contaminant migration. The sanitary sewer line beneath Lincoln Avenue was identified as a potential preferential pathway for VOC migration in groundwater. The depth of the sanitary sewer flow line beneath Lincoln Ave near boring B-5 is estimated at 4 ft 11 inches bgs, based on maps provided by the City of Alameda (Appendix C). The static depth to water in boring B-5 was measured at 5.23 ft bgs on March 27, 2017, after an extremely wet rainy season. This data suggests that even during periods of extremely high groundwater conditions, groundwater does not intersect the sanitary sewer beneath Lincoln Avenue near the site.

Also, the potential for VOC migration to impact to the nearest surface water body (Encinal Basin located approximately 1,640 ft northeast) is very unlikely. Even if impacted groundwater could migrate along the sanitary sewer line, the PCE concentration (360 µg/L) in grab groundwater from adjacent boring B-5 is only slightly higher than the saltwater ecotoxicity ESL of 230 µg/L. The permeability of the silty sand also diminishes the potential for preferential migration along utility pathways.

The sanitary sewer lateral and gas pipeline behind the subject site building do represent potential preferential pathways for soil gas VOC migration. However, the relatively high permeability of native soil (silty sand) diminishes the potential for VOC migration along utility backfill material of relatively similar permeability.

6.5 Water Well Survey and Basement Survey

A water well and basement survey will be completed in a future report.

6.6 Potential Exposure Pathways

Exposure pathways for VOCs in soil, soil gas and groundwater at the site have been evaluated to assess the potential impacts to human health and the environment. A CSM chart with potential exposure pathways in shows on Figure 8. This evaluation revealed that the *only* potentially complete exposure pathway for VOCs within site and adjacent buildings is inhalation of VOCs by existing commercial occupants (primarily the subject site) and one nearby residence (1544 Bay Street). Direct exposure and ingestion of soil is *not* identified as a currently complete exposure pathway for future construction workers, since no VOCs have been detected in soil. Direct exposure to VOCs in groundwater via ingestion is *not* identified as a potentially complete exposure pathway as the site and vicinity is served by municipal water supply, and no water wells are

anticipated downgradient near the site. Although the downgradient extent of the groundwater plume has not been fully delineated, Pangea concludes that potential impact to surface waters is unlikely based on the distance to the nearest surface water (1,640 ft) and the maximum concentration of offsite PCE in grab groundwater (360 µg/L) compared to the saltwater ecotoxicity ESL of 230 µg/L.

7.0 CONCLUSIONS

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

- Groundwater well data and subslab/soil gas data indicates the primary PCE source area is near the dry cleaning equipment/use area within the rear of the subject site (Figures 4 and 5). Soil analytical data at SVE-2 (Figure 3) and prior soil gas data at SV-5 indicates a secondary PCE source outside the dry cleaner in the gravel-covered parking lot (Table 3).

- The PCE groundwater impact is well characterized by the existing monitoring wells and recent downgradient, offsite borings. Given the cessation of PCE use in 2005 and the relatively limited PCE impact in groundwater, the groundwater plume is likely stable and limited in extent. Analytical and water elevation data suggest a north-northwestern groundwater flow direction, with a narrow PCE plume extending in this direction from the site source areas. The maximum PCE concentration detected in groundwater monitoring well water has been only 43 µg/L. While 360 µg/L PCE was just detected in groundwater in one boring (B-5) immediately downgradient of the site, adjacent grab groundwater data indicates the PCE impact is localized to a narrow area. And since grab groundwater data tends to be higher than well data, much lower PCE concentrations would likely be detected in groundwater if a well were installed offsite near boring B-5.

- The underground utility survey did not identify any significant preferential pathways for VOC migration in groundwater. Grab groundwater data suggests a VOC distribution relevant to VOC migration and attenuation in groundwater rather than migration within preferential pathways. The presence of TCE in source area and downgradient groundwater indicates the PCE impact is undergoing natural attenuation. Pangea concludes that VOC groundwater impact can be further evaluated following the SVE pilot study.

- The subslab/soil gas PCE impact exceeds the commercial ESL (2,100 µg/m^3) in the rear portion of the site and possibly within the adjacent commercial properties. While the soil gas PCE impact exceeds the residential ESL (240 µg/m^3) within a portion of the three surrounding residential properties (the backyard of 1545 Sherman Street, the garage of 1542 Bay Street, and the garage/residence of 1544 Bay Street), this soil gas impact is only near one occupied structure that contains a crawl space (residence at 1544 Bay Street). The crawl space beneath the 1544 Bay Street

residence should provide natural ventilation to help mitigate the potential for vapor intrusion at this residence. While the sanitary sewer lateral and gas pipeline in the alley behind the subject site represent potential preferential pathways for soil gas VOC migration, the relatively high permeability of native soil (silty sand) diminishes the potential for VOC migration along utility backfill material of relatively similar permeability. The estimated vacuum influence from SVE (Figure 7) should remediate and mitigate soil gas impact above residential and commercial ESLs (Figure 5). Pangea concludes that PCE impact in subslab/soil gas can be further evaluated by testing during or following the SVE pilot study.

- The SVE pilot study system is reducing PCE concentrations in influent soil gas. Influent PCE concentrations in well SVE-1 decreased from 1,700 µg/m^3 (August 21) to <250 µg/m^3 (four days later on August 25, and again on September 22). Influent PCE concentrations in well SVE-2 decreased from 6,000 µg/m^3 (August 21) to 270 µg/m^3 after 32 day of pilot testing (September 22).

- Vapor extraction from the vapor extraction wells effectively captures VOC vapors from the site subsurface. The relatively low vacuum required to induce vapor flow indicates the shallow soil (fine silt and sand) is amenable to vapor extraction.

8.0 RECOMMENDATIONS

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

- Pangea recommends continued SVE pilot testing during the dry season and seasonal low groundwater conditions. Given the permeable soil and limited PCE extent, SVE pilot testing should significantly remediate PCE and mitigate vapor intrusion concerns.

- Pangea recommends further evaluation of groundwater and subslab/soil gas conditions when influent SVE concentrations have reduced to asymptotic levels or when the wet season begins.

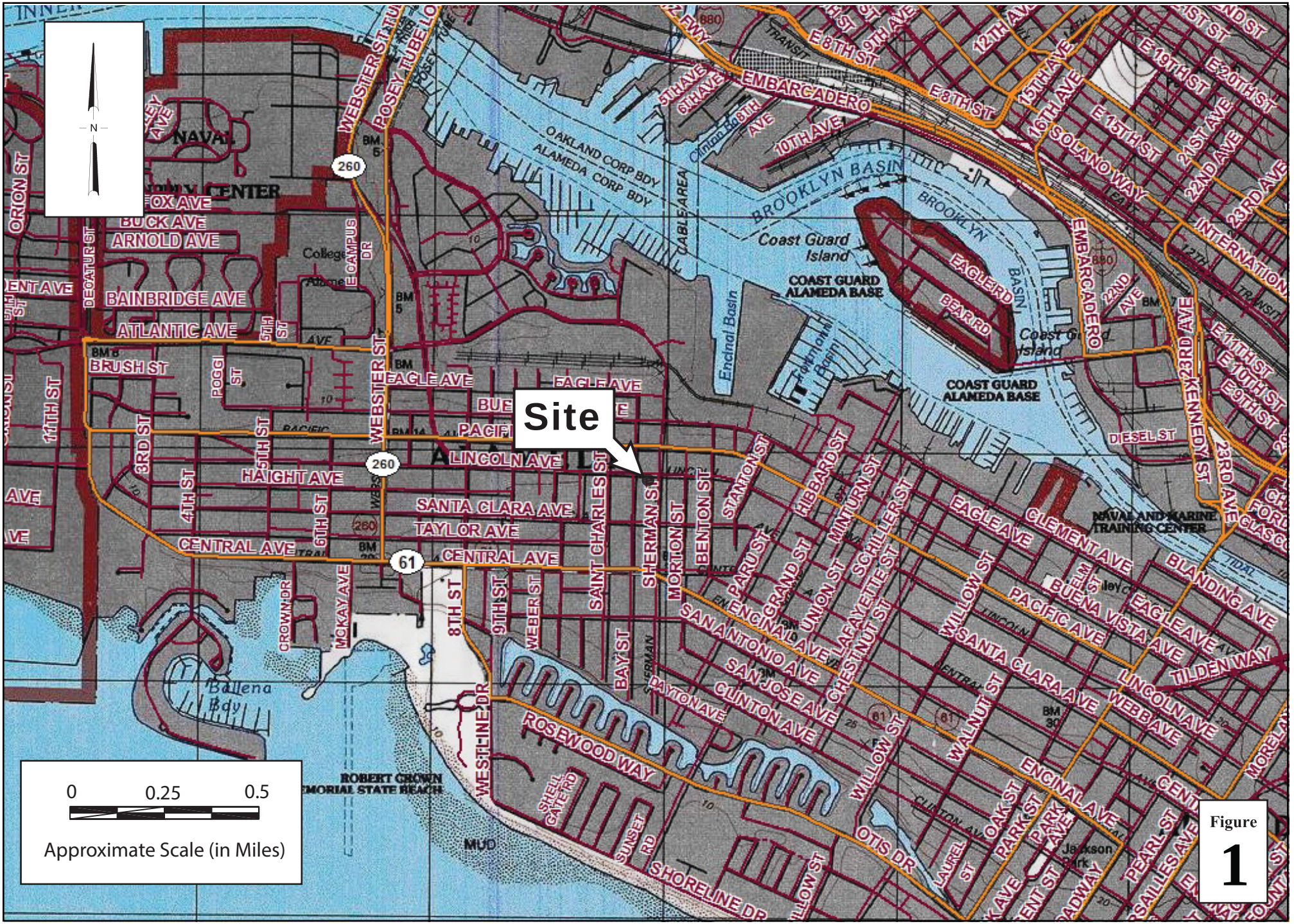
- If PCE soil gas concentrations persist after rebound testing of the SVE pilot study system, Pangea recommends installation of soil gas utility cut-off plugs along the sanitary sewer and natural gas utilities located between the dry cleaners and the adjacent 1544 Bay Street residence. If PCE soil gas concentrations persist in the rear yard, Pangea recommends consideration of excavation of residual PCE impact.

- Pangea recommends analyzing groundwater from source area well MW-1 for TPHd during the next groundwater monitoring event to further assess potential impact from DF2000 cleaning solution.

9.0 REFERENCES

Cal/EPA, 2011, Advisory-Active Soil Gas Investigation, California Environmental Protection Agency, Department of Toxic Substances Control, October.

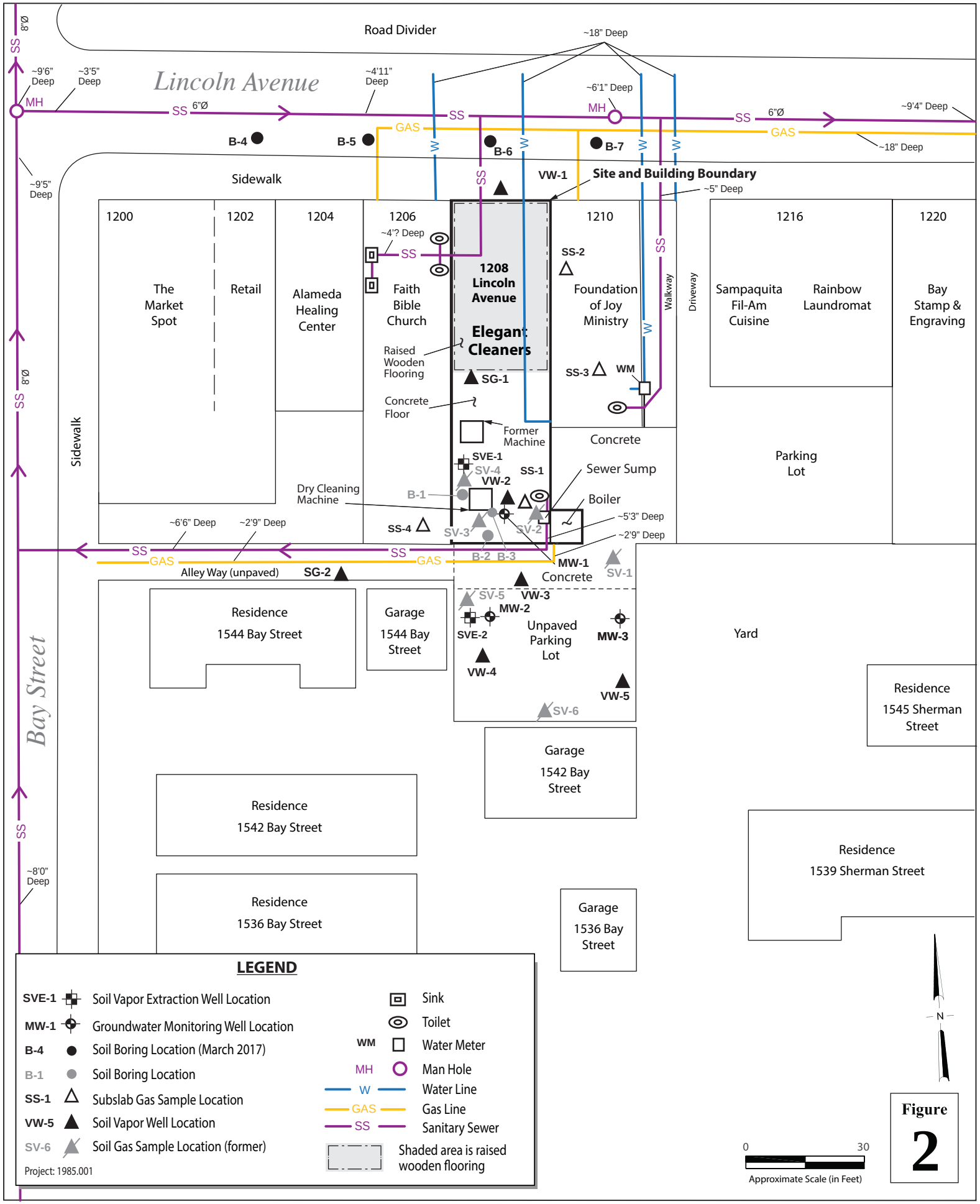
Cal/EPA, 2015, Advisory-Active Soil Gas Investigation, California Environmental Protection Agency, Department of Toxic Substances Control, Los Angeles Regional Water Quality Control Board, San Francisco Regional Water Quality Control Board, July.



Elegant Cleaners
1208 Lincoln Avenue
Alameda, California

PANGEA

Vicinity Map



1208 Lincoln Avenue
Alameda, California

PANGEA

Subsurface Utility Map

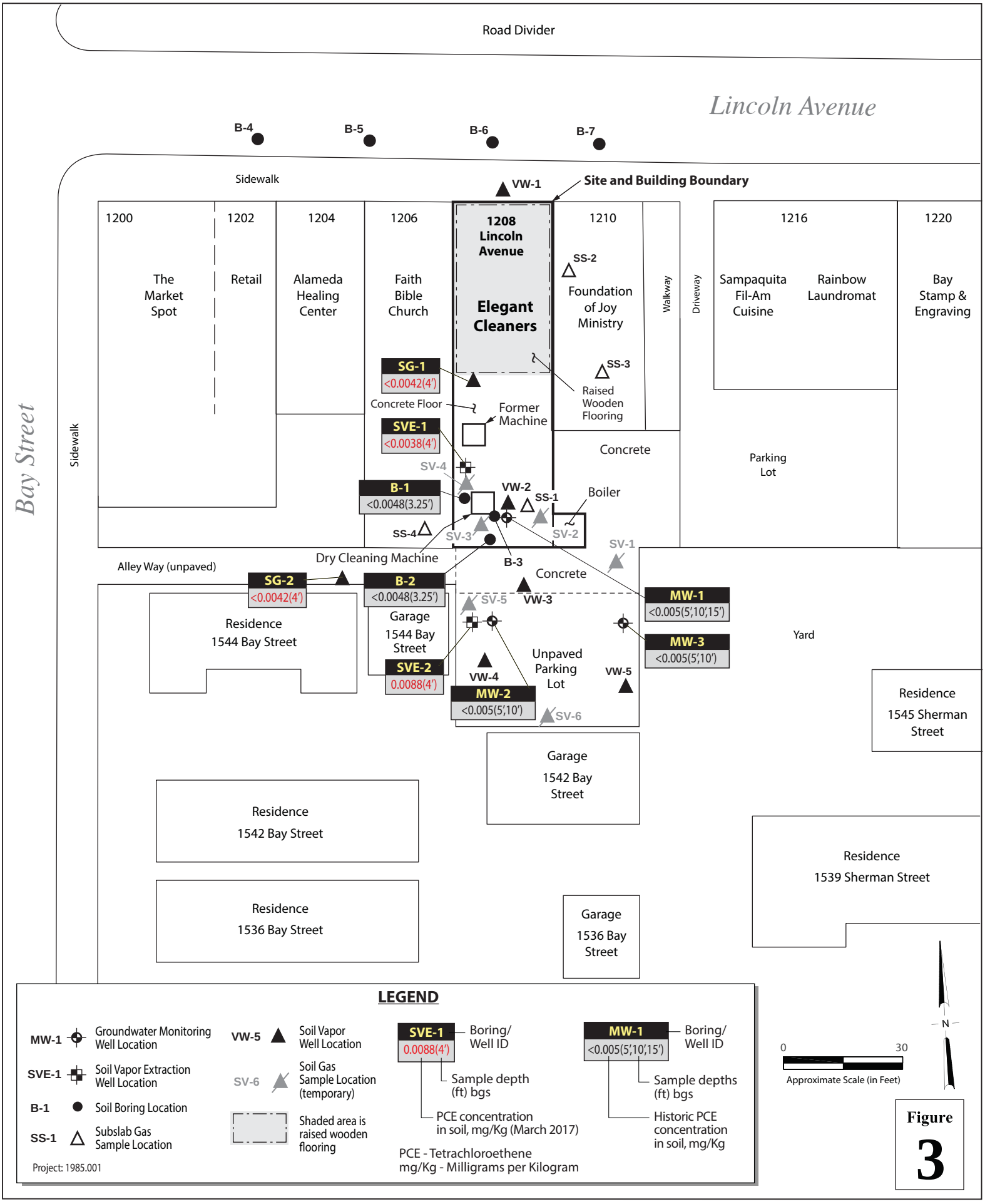


Figure 3

1208 Lincoln Avenue
Alameda, California

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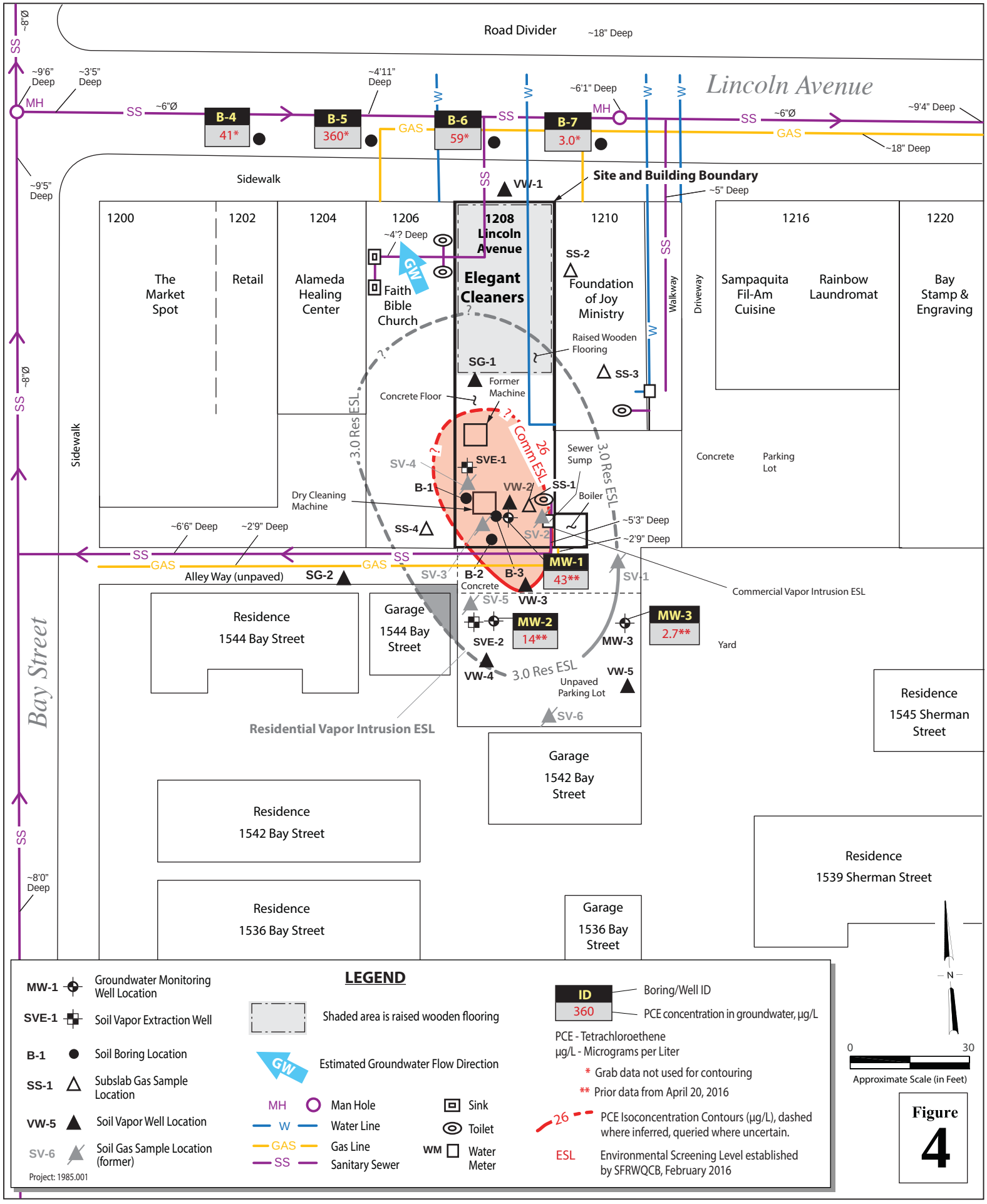
PCE in Soil



LEGEND

- MW-1 — Groundwater Monitoring Well Location
- SVE-1 — Soil Vapor Extraction Well
- B-1 — Soil Boring Location
- SS-1 — Subslab Gas Sample Location
- VW-5 — Soil Vapor Well Location
- SV-6 — Soil Gas Sample Location (former)
- Shaded area is raised wooden flooring
- GW — Estimated Groundwater Flow Direction
- MH — Man Hole
- W — Water Line
- GAS — Gas Line
- SS — Sanitary Sewer
- Sink
- Toilet
- WM — Water Meter
- ID 360 — Boring/Well ID; PCE concentration in groundwater, µg/L
- PCE - Tetrachloroethene
- µg/L - Micrograms per Liter
- * Grab data not used for contouring
- ** Prior data from April 20, 2016
- 26 — PCE Isoconcentration Contours (µg/L), dashed where inferred, queried where uncertain.
- ESL — Environmental Screening Level established by SFRWQCB, February 2016

Project: 1985.001

Figure 4

1208 Lincoln Avenue
Alameda, California

PANGEA

PCE in Groundwater, March 2017

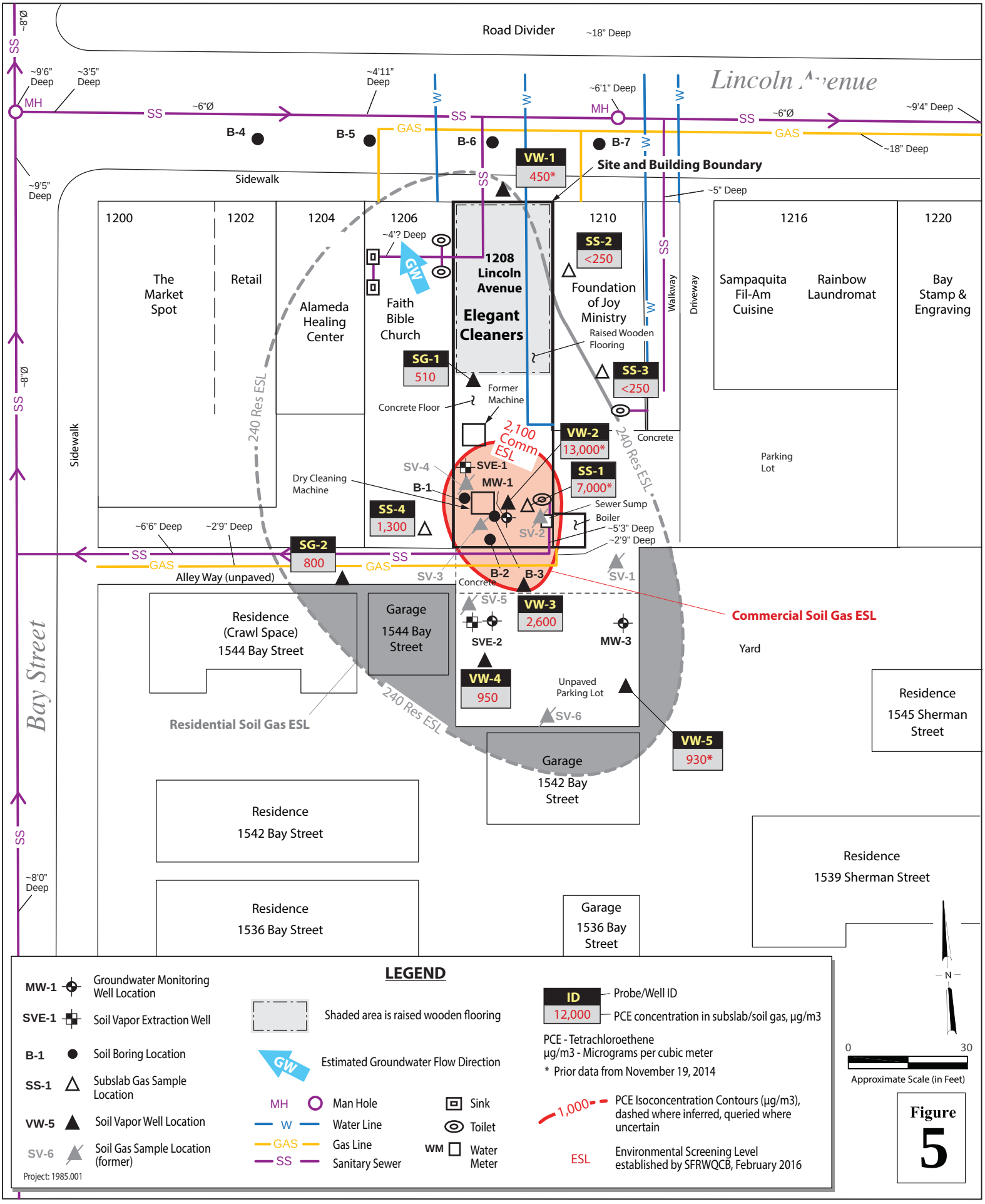


Figure 5

1208 Lincoln Avenue
Alameda, California

PANGEA

PCE in Subslab/Soil Gas, March 2017

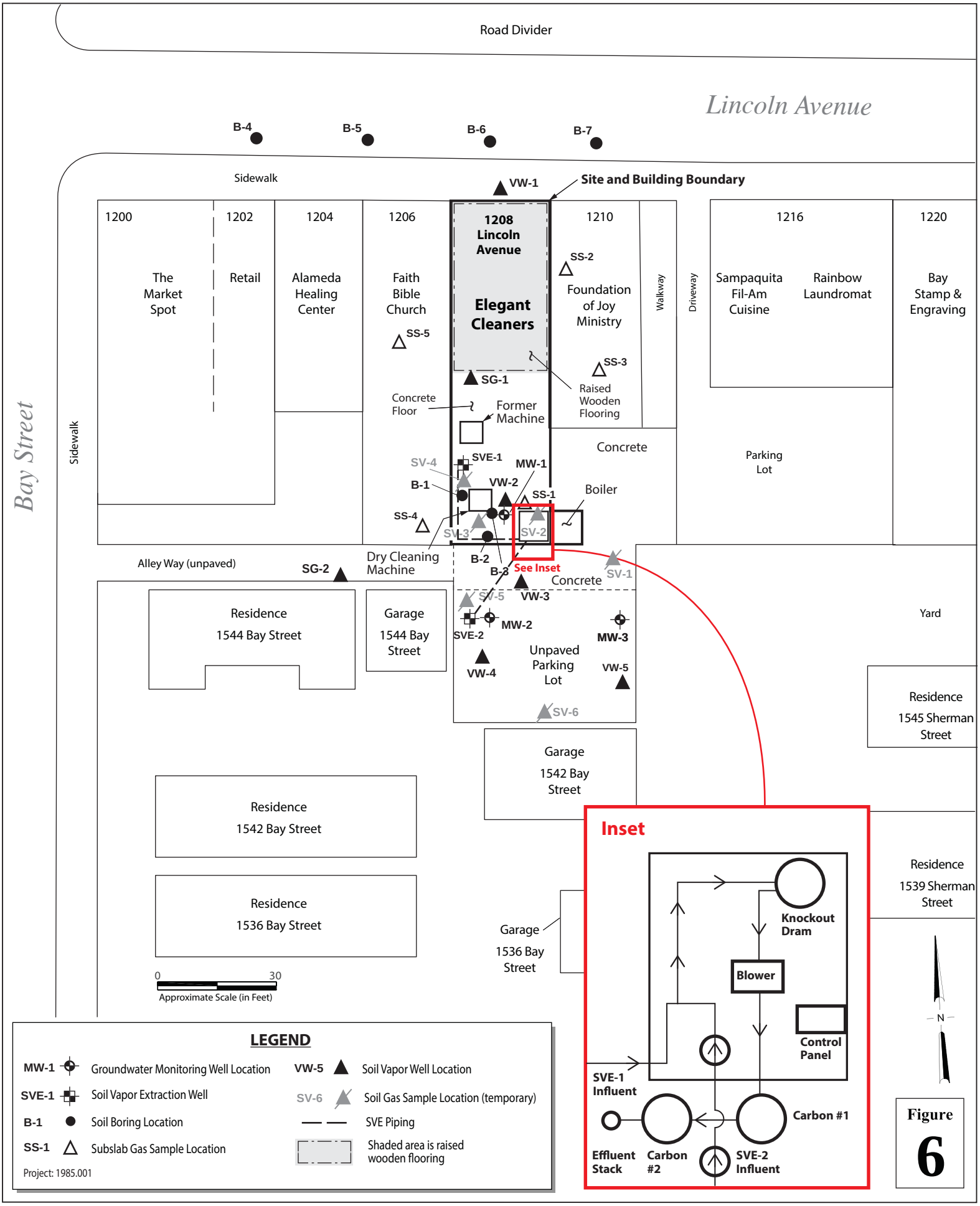


Figure 6

1208 Lincoln Avenue
Alameda, California

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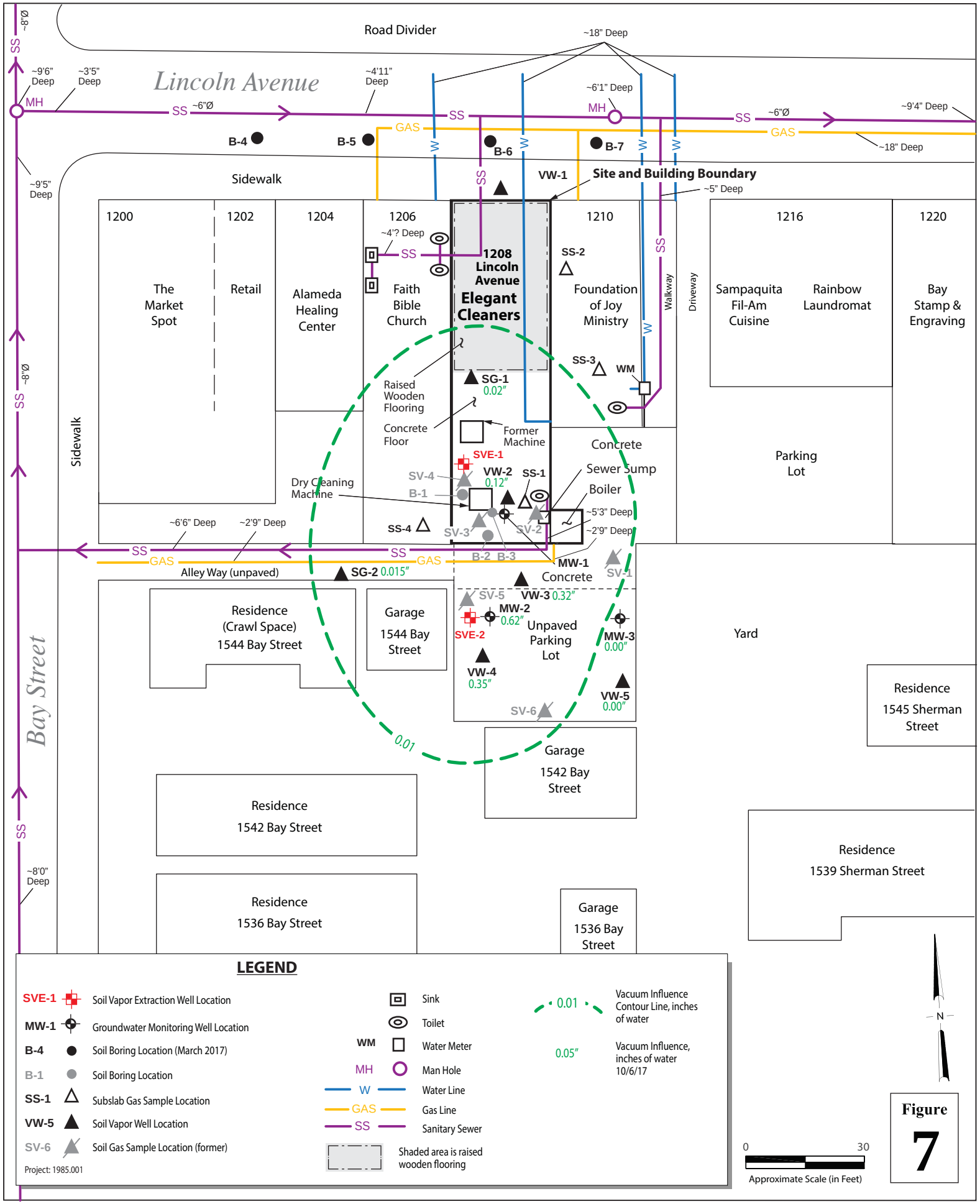
SVE Pilot Study System Layout



LEGEND

- SVE-1 — Soil Vapor Extraction Well Location
- MW-1 — Groundwater Monitoring Well Location
- B-4 — Soil Boring Location (March 2017)
- B-1 — Soil Boring Location
- SS-1 — Subslab Gas Sample Location
- VW-5 — Soil Vapor Well Location
- SV-6 — Soil Gas Sample Location (former)
- Sink
- Toilet
- WM — Water Meter
- MH — Man Hole
- W — Water Line
- GAS — Gas Line
- SS — Sanitary Sewer
- Shaded area is raised wooden flooring
- 0.01 — Vacuum Influence Contour Line, inches of water
- 0.05″ — Vacuum Influence, inches of water 10/6/17

Project: 1985.001

0 30

Approximate Scale (in Feet)

Figure 7

1208 Lincoln Avenue
Alameda, California

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Vacuum Influence for SVE Pilot Test

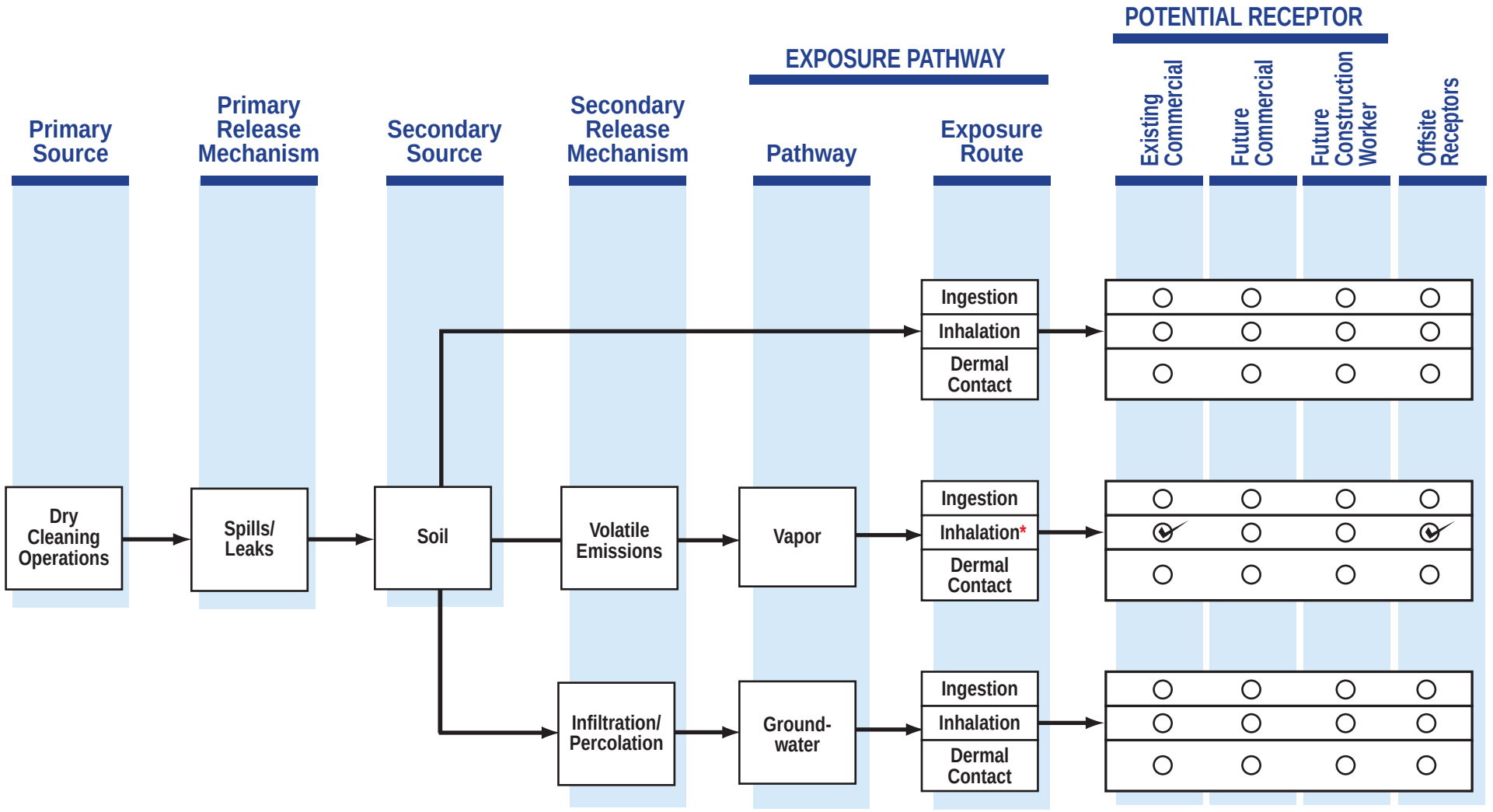

Figure
8

1208 Lincoln Avenue
Alameda, California

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Conceptual Site Model Chart and
Exposure Pathway Analysis

Pangea

Table 1. Soil Analytical Data - 1208 Lincoln Avenue, Alameda, CA

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthaline	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Chloroform	Other VOCs	Notes
			mg/kg															
	Soil Tier 1 ESL		100	230	0.044	2.9	1.4	2.3	0.023	0.033	0.42	0.46	0.19	0.67	0.0082	0.068	varies	
	ESL Direct Exposure: Residential Shallow Soil		740	230	0.23	970	5.1	560	42	3.3	0.6	1.2	19	160	0.0082	0.30	varies	
	ESL Direct Exposure: Commercial Shallow Soil		3,900	1,100	1.0	4,600	22	2,400	180	14	2.7	8.0	90	730	0.15	1.3	varies	
Soil Gas Probe/Well Installation																		
SG-1-4'	3/6/2017	4	<0.17	--	<0.0042	<0.0042	<0.0042	<0.0084	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0085	<0.0042	ND	
SG-2-4'	3/6/2017	4	<0.17	--	<0.0042	<0.0042	<0.0042	<0.0084	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0083	<0.0042	ND	
SVE-1-4'	3/6/2017	4	<0.16	--	<0.0038	<0.0038	<0.0038	<0.0076	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0077	<0.0038	ND	
SVE-2-4'	3/6/2017	4	<4.2	--	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	0.0088	<0.0042	<0.0042	<0.0042	<0.0084	<0.0042	ND	Only VOC detection
Monitoring Well Installation																		
MW-1-5	11/11/2014	5	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
MW-1-10	11/11/2014	10	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
MW-1-15	11/11/2014	15	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
MW-2-5	11/11/2014	5	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
MW-2-10	11/11/2014	10	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
MW-3-5	11/11/2014	5	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
MW-3-10	11/11/2014	10	--	--	<0.005	<0.005	<0.005	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	
Initial Site Borings																		
B-1	10/3/2006	3.25	--	--	--	--	--	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	--	ND	
B-2	10/3/2006	3.25	--	--	--	--	--	--	--	--	<0.0048	<0.0048	<0.0048	<0.0048	<0.0096	--	ND	
B-3	10/3/2006	3.25	--	<1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	TPHkerosene =<1

Explanation:

TPHg = Total petroleum hydrocarbons as gasoline

MTBE = Methyl tert-butyl ether

PCE = Tetrachloroethene

TCE = Trichloroethene

DCE = Dichloroethene

Other VOCs = Volatile organic compounds not otherwise listed.

= Concentration detected above laboratory reporting limits.

mg/kg = Milligrams per kilogram

ft bgs = Depth below ground surface (bgs) in feet.

ND = Not detected above laboratory reporting limits.

< n = Chemical not present above laboratory detection limts.

-- = Not analyzed

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

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Table 2. Groundwater Analytical Data - 1208 Lincoln Avenue, Alameda, CA

Well ID	Date Sampled	Depth to Water (ft btoc)	GWE (ft amsl)	PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	TPHg	TPHd	Other VOCs	Notes
				µg/L								
			GW Tier 1 ESL:	3.0	5.0	6.0	0.061	2.3	100	100	Varies	
			Shallow GW VI Human Health Risk Levels - Residential:	3.0	5.6	110	0.061	2.3	NE	NE	Varies	
			Shallow GW VI Human Health Risk Levels - Commercial:	26	49	950	0.53	20	NE	NE	Varies	
			Aquatic Habitat Goal Levels - Saltwater Ecotox:	230	200	22,000	NE	3,200	3,700	640	Varies	
Monitoring Well Data												
MW-1	11/25/2014	7.82	16.39	**29**	0.65	<1.0	<1.0	<1.0	--	--	<0.5 - <2.0	
24.21	4/20/2016	6.25	17.96	**43**	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	
MW-2	11/25/2014	9.82	16.46	**8.8**	<0.50	<1.0	<1.0	<1.0	--	--	<0.5 - <2.0	
26.28	4/20/2016	8.10	18.18	**14**	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	
MW-3	11/25/2014	10.00	16.51	1.0	<0.50	<1.0	<1.0	<1.0	--	--	<0.5 - <2.0	
26.51	4/20/2016	8.32	18.19	2.7	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	
Grab Groundwater Sampling Data												
B-4-W	3/27/2017	5.82	--	**41**	<0.5	<0.5	<0.5	<0.5	--	--	a	a = 1.3 µg/L xylenes
B-5-W	3/27/2017	5.23	--	**360**	2.8	<2.5	<2.5	<2.5	170*	<50	<2.0 - <10	
B-6-W	3/27/2017	5.85	--	**59**	1.2	<0.5	<0.5	<0.5	--	--	b	b=1.0 µg/L para-isopropyl toluene
B-7-W	3/27/2017	5.45	--	3.0	<0.5	<0.5	<0.5	<0.5	--	--	<0.5 - <10	

Explanation:

PCE = Tetrachloroethene

TCE = Trichloroethane

DCE = Dichloroethene

NE = Not Established

Other VOCs = Volatile organic compounds by EPA Method 8260 not otherwise listed.

µg/L = Micrograms per Liter

ft amsl = Elevation above mean sea level in feet.

ft bTOC = Depth below top of casing in feet.

GWE = Groundwater elevation

ND = Not Detected above laboratory reporting limits.

* = Laboratory notes that the "sample exhibits unknown single peak or peaks"; not representative of petroleum hydrocarbons.

< n = Chemical not present above laboratory detection limits.

-- = Not analyzed or not available.

ESL = Environmental screening level established by the SFBRWQCB, Interim Final - November 2007 and amended in February 2016, Version 3

Bold concentrations exceed Tier 1 ESL

Table 3. Soil Gas Analytical Data - 1208 Lincoln Avenue, Alameda CA

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	PCE	TCE	1,2-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	1,2-dibromoethane	Other VOCs	Notes
			µg/m³										
Residential ESL for Vapor Intrusion Human Health Risk:			**240**	240	54	4,200	42,000	520,000	33	61	2.3	--	
Commercial ESL for Vapor Intrusion Human Health Risk:			**2,100**	3,000	470	35,000	350,000	4,000,000	290	530	20	--	
Soil Gas Data													
VW-1	11/19/2014	5.0	450	<100	<100	<100	<100	<100	<100	<100	---	---	
VW-2	11/19/2014	5.0	**12,000**	<100	<100	<100	<100	<100	<100	<100	---	---	1 purge volume
VW-2	11/19/2014	5.0	**13,000**	<100	<100	<100	<100	<100	<100	<100	---	---	3 purge volume
VW-2	11/19/2014	5.0	**12,000**	<100	<100	<100	<100	<100	<100	<100	---	---	10 purge volume
VW-3	11/19/2014	5.0	**9,300**	<100	<100	<100	<100	<100	<100	<100	---	---	
VW-3	11/19/2014	5.0	**10,000**	<100	<100	<100	<100	<100	<100	<100	---	---	Duplicate
VW-3	3/9/2017	5.0	**2,600**	<250	<250	<250	<250	<250	<250	<250	<250	---	
VW-4	11/19/2014	5.0	**4,600**	<100	<100	<100	<100	<100	<100	<100	---	---	
VW-4	3/9/2017	5.0	950	<250	<250	<250	<250	<250	<250	<250	<250	---	
VW-5	11/19/2014	5.0	930	<100	<100	<100	<100	<100	<100	<100	---	---	
SV-1	8/20/2014	5.0	**2,420**	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	3 purge volume
SV-2	8/20/2014	5.0	**8,250**	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	1 purge volume
SV-3	8/20/2014	5.0	**11,110**	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	3 purge volume
SV-4	8/20/2014	5.0	**13,540**	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	10 purge volume

Table 3. Soil Gas Analytical Data - 1208 Lincoln Avenue, Alameda CA

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	PCE	TCE	1,2-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	1,2-dibromoethane	Other VOCs	Notes
			µg/m³										
Residential ESL for Vapor Intrusion Human Health Risk:			**240**	240	54	4,200	42,000	520,000	33	61	2.3	--	
Commercial ESL for Vapor Intrusion Human Health Risk:			**2,100**	3,000	470	35,000	350,000	4,000,000	290	530	20	--	
SV-5	8/20/2014	5.0	**22,480**	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	3 purge volume
SV-6	8/20/2014	5.0	590	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	3 purge volume
SV-6	8/20/2014	5.0	630	<100	<40	<1,000	<1,000	<1,000	<20	<1,000	---	---	Duplicate, 3 purge volume
SG-1	3/9/2017	5.0	510	<250	<250	<250	<250	<250	<250	<250	<250	---	
SG-2	3/9/2017	5.0	**800**	<250	<250	<250	<250	<250	<250	<250	<250	---	
Sub-slab Gas Data													
SS-1	11/19/2014	0.5	**7,000**	<100	<100	<100	<100	<100	<100	<100	---	---	
SS-2	3/9/2017	0.5	<250	<250	<250	<250	<250	<250	<250	<250	<250	---	
SS-3	3/9/2017	0.5	<250	<250	<250	<250	<250	<250	<250	<250	<250	---	
SS-4	3/9/2017	0.5	1,300	<250	<250	<250	<250	<250	<250	<250	<250	---	

Table 3. Soil Gas Analytical Data - 1208 Lincoln Avenue, Alameda CA

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	PCE	TCE	1,2-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	1,2-dibromoethane	Other VOCs	Notes
			µg/m³										
Residential ESL for Vapor Intrusion Human Health Risk:			**240**	240	54	4,200	42,000	520,000	33	61	2.3	--	
Commercial ESL for Vapor Intrusion Human Health Risk:			**2,100**	3,000	470	35,000	350,000	4,000,000	290	530	20	--	
SVE System Data													
SVE-1	8/21/2017	3.0 - 6.0	1,700	<250	<250	<250	<250	<250	<250	<250	<250	---	5-day test start
	8/25/2017	3.0 - 6.0	<250	<250	<250	<250	<250	<250	<250	<250	<250	---	5-day test end. Start VLP
	9/22/2017	3.0 - 6.0	<250	<250	<250	<250	<250	<250	<250	<250	<250	---	Day 32 of pilot study
SVE-2	8/21/2017	4.0 - 7.0	**6,000**	<250	<250	<250	<250	<250	<250	<250	<250	---	5-day test start
	8/25/2017	4.0 - 7.0	1,100	<250	<250	<250	<250	<250	<250	<250	<250	---	5-day test end. Start VLP
	9/22/2017	4.0 - 7.0	270	<250	<250	<250	<250	<250	<250	<250	<250	---	Day 32 of pilot study

Explanation:

PCE = Tetrachloroethene

TCE = Trichloroethene

DCA = Dichloroethane

DCE = Dichloroethene

TCA = Trichloroethane

Other VOCs = Volatile organic compounds by EPA Method TO-15 or EPA Method 8260 (8010 basic target list).

VLP = Various Location Permitted equipment with Bay Area Air Quality Management District

µg/m3 = Micrograms per cubic meter of air results calculated by laboratory from parts per billion results using normal pressure and temperature (NPT).

ft bgs = feet below ground surface.

< n = Chemical not present above laboratory detection limit.

--- = Not analyzed

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

Table 3. Soil Gas Analytical Data - 1208 Lincoln Avenue, Alameda CA

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	PCE	TCE	1,2-DCA	cis-1,2-DCE	trans-1,2-DCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	1,2-dibromoethane	Other VOCs	Notes
			µg/m³										
Residential ESL for Vapor Intrusion Human Health Risk:			**240**	240	54	4,200	42,000	520,000	33	61	2.3	--	
Commercial ESL for Vapor Intrusion Human Health Risk:			**2,100**	3,000	470	35,000	350,000	4,000,000	290	530	20	--	

Bold = Concentrations above ESLs for Residential and/or Commercial Land Use for shallow soil gas (SG samples).

APPENDIX A

Regulatory Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICE AGENCY
REBECCA GEBHART, Acting Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
FAX (510) 337-9335
(510) 567-6700

April 13, 2016

Mr. Reza Sheikhai
Elegant Cleaners
1208 Lincoln Avenue
Alameda, CA 94501-2326
(Sent via e-mail to: cpareza@aol.com)

Subject: Work Plan Approval for Site Cleanup Program Case Number RO0003163 and GeoTracker Global ID T10000006546, Elegant Cleaners, 1208 Lincoln Avenue, Alameda, CA

Dear Mr. Sheikhai:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the *Data Gap Investigation Work Plan and Site Conceptual Model* (Work Plan) dated April 5, 2016, prepared and submitted on your behalf by PANGEA Environmental Services, Inc. (PANGEA). The Work Plan was submitted in response to a meeting with you and PANGEA on March 4, 2016. Thank you for submitting the Work Plan.

Based on ACEH staff review of the work plan, the proposed scope of work is conditionally approved for implementation provided that the technical comments below are incorporated during the proposed work. Submittal of a revised work plan or a work plan addendum is not required unless an alternate scope of work outside that described in the work plan or these technical comments is proposed. We request that you address the following technical comments, perform the proposed work, and send us the report described below. Please provide 72-hour advance written notification to this office (e-mail preferred to:karel.detterman@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

Work Plan Modifications – The referenced work plan proposes a series of actions with which ACEH is in general agreement of undertaking; however, ACEH requests the following modifications/clarifications to the approach. Please submit a report by the date specified below.

1. **Subsurface Gas and Soil Gas Sampling:**

   a. **Tracer Concentrations –** To remain consistent with Department of Toxic Substances Control (DTSC) guidelines, please additionally analyze the shroud for the tracer gas used. In the event of detection of the tracer in a vapor sample, DTSC provides guidelines for the acceptability of the resulting data, provided the shroud concentration is known. Please include tracer and oxygen concentrations on the assembled tables for quick referencing in the investigation report.

   b. **Selection Criteria:** Please provide the selection criteria for assessment of DF2000 (aliphatic hydrocarbons) in the soil and groundwater investigation report requested below. Additionally, please provide the soil gas sampling standard operation procedures (SOPs).

c. **Soil Gas EPA Method 8010 (replaced with EPA Method 8021):** EPA Method 8021 appears reasonable for the initial screening and cost control. However, to ensure that detection levels are lower than the chosen remediation goals, the use of Summa Canisters for confirmation sampling as per Department of Toxic Substances Control (DTSC's) *Advisory Active Soil Gas Investigations* (April 2012) is appropriate.

2. **Site Investigation Report:** Please present the SCM in a tabular format highlighting the major SCM elements and associated data gaps, which need to be addressed to progress the site to case closure. Please perform a Well Survey utilizing Alameda County Public Works Agency (ACPWA) in addition to DWR resources as these two databases are sufficiently different to warrant a review of both databases. Please refer to Attachment A, *Site Conceptual Model Requisite Elements, Preferential Pathway and Sensitive Receptor Study and Site Conceptual Model in Table Format* and Attachment B*, Sample Well Survey and Table* to address this data gap in the report requested below.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Karel Detterman), and to the State Water Resources Control Board's Geotracker website, in accordance with the following specified file naming convention and schedule:

- **June 17, 2016 –** Soil and Groundwater Investigation Report
  File to be named: RO3163_SWI_R_yyyy-mm-dd

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 567-6708 or send me an e-mail message at karel.detterman@acgov.org

Sincerely,

Digitally signed by Karel Detterman
DN: cn=Karel Detterman, o, ou, email=karel.detterman@acgov.org, c=US
Date: 2016.04.13 17:56:14 -07'00'

Karel Detterman, PG
Hazardous Materials Specialist

Enclosures: Attachment 1 Responsible Party(ies) Legal Requirements/Obligations
ACEH Electronic Report Upload (ftp) Instructions
Attachment A *Site Conceptual Model Requisite Elements, Preferential Pathway and Sensitive Receptor Study and Site Conceptual Model in Table Format*
Attachment B *Sample Well Survey and Table*

cc: Bob Clark-Riddell, Pangea, (Sent via E-mail to: briddell@pangeaenv.com)
Rick Pak, Open Bank, (Sent via E-mail to: rick.pak@myopenbank.com)
Stephen Kang, Open Bank, (Sent via E-mail to: stephen.kang@myopenbank.com)
Dilan Roe, ACEH (Sent via E-mail to: dilan.roe@acgov.org)
Karel Detterman, ACEH (Sent via E-mail to: karel.detterman@acgov.org)
GeoTracker, Electronic Case File

APPENDIX B

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: 03/03/2017 By jamesy

Permit Numbers: W2017-0200 to W2017-0201
Permits Valid from 03/06/2017 to 03/07/2017

Application Id: 1487964782117 **City of Project Site:** Alameda
Site Location: 1208 Lincoln Avenue, Alameda, CA 94501
Project Start Date: 03/06/2017 **Completion Date:** 03/07/2017
Assigned Inspector: Contact Marcelino Vialpando at (510) 670-5760 or Marcelino@acpwa.org

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

Property Owner: Reza Sheikhai
1208 Lincoln Avenue, Alameda, CA 94501 **Phone:** 510-377-0233

Client: ** same as Property Owner **

	Total Due:	$530.00
Receipt Number: WR2017-0097	**Total Amount Paid:**	$530.00
Payer Name : Robert Clark-Riddell	Paid By: VISA	**PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 4 Boreholes
Driller: Cascade Drilling - Lic #: 938110 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2017-0200	03/03/2017	06/04/2017	4	3.00 in.	15.00 ft

Specific Work Permit Conditions

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

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

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

4. 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.

5. 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.

6. 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.

7. 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.

8. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a 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.

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

Well Construction-Vapor monitoring well-Vapor monitoring well - 4 Wells
Driller: Cascade Drilling - Lic #: 938110 - Method: DP **Work Total: $265.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2017-0201	03/03/2017	06/04/2017	SG-1	3.00 in.	0.25 in.	4.00 ft	5.00 ft
W2017-0201	03/03/2017	06/04/2017	SG-2	3.00 in.	0.25 in.	4.00 ft	5.00 ft
W2017-0201	03/03/2017	06/04/2017	SVE-1	8.00 in.	2.00 in.	3.00 ft	8.00 ft
W2017-0201	03/03/2017	06/04/2017	SVE-2	8.00 in.	2.00 in.	3.00 ft	8.00 ft

Specific Work Permit Conditions

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

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

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

properly damage, personal injury and wrongful death.

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

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

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

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

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

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

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

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

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

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

City of Alameda

Interdepartmental Memorandum

Date: March 14, 2017

To: Permit Office

From: Oskar Garcia
Public Works Department

Re: Permit No. EX17-0018, Drill 4 Borings for Ground Water Samples.

Job Address: 1208 Lincoln Avenue

Applicant: Jake Wilson
Pangea Environmental Services Inc.
64 Sonia Street
Oakland, CA 94618

APPROVAL NOTICE

Public Works staff has reviewed and approved the application for Permit No. EX17-0018. The following comments are the City's requirements for approval and shall be enforced, as necessary. The permittee and/or his contractor(s) shall abide by the following provisions:

Specific Comments

Civil

1. Notify all businesses within the same block side of the work and sidewalk closure, a minimum of one week in advance of work commencement.

2. The Public Works Inspector shall enforce all general comments addressing restoration within the public right-of-way.

Traffic

1. Work hours shall be 9 am to 4 pm.

The posting of "No-Parking" signs, as applicable, is required 48 hours in advance of the work. "No-Parking" signs are available at the Planning and Building Department, Room 190, City Hall. A fee will be charged for the signs. Only City of Alameda issued "No-Parking" signs are permitted for use within the public right-of-way.

General Comments:

1. Public Notifications: All property owners within the immediate vicinity of the work area must be notified in writing at least 5 days prior to the start of construction. The notification letter must include a brief description of the work, the anticipated project completion date and a contact name and phone number for citizens to report their concerns while work is in progress.

2. Coordination Notification: The permittee shall notify Maria DiMeglio of the Public Works Environmental Services Division at (510) 747-7958, 48-hours prior to beginning of any work within the public right-of-way.

3. Additional Permits: The Contractor shall be responsible for obtaining all additional permits prior to beginning construction for any work not contained within the scope of this permit.

4. Designated Truck Routes: All truck deliveries to the proposed work site must remain on established truck routes.

5. USA: All utilities within the work area shall be located and marked by USA prior to commencing excavation, trenching, micro-tunneling, or boring operations.

6. Work Hours: Unless stated otherwise in the specific comments, work hours are limited to the hours of 8:30 a.m. to 4:30 p.m., Monday through Friday. Be advised that uninterrupted traffic circulation within the public right-of-way is mandatory during the commute hour of 7:30 a.m. to 9:00 a.m. and 3:00 p.m. to 4:30 p.m. Work done on Saturdays, requiring inspection, is prohibited unless approved by the City Engineer and an inspector is available. Requests to work Saturday require two-week minimum prior notice. Inspection fees for Saturday work will be at time and a half (1-1/2) with a four-hour minimum. Said fee will be in accordance with the latest public works fee overtime schedule. No construction activity shall be permitted on Sundays or State and Federal holidays.

7. Construction Staging: Storage of construction materials and equipment within the public right-of-way is not permitted.

8. URCWP (General/As Applicable): Construction materials (i.e. cement bags, paints,

flammables, oils, fertilizers, pesticides, or any other materials that have potential for being discharged into the storm drain system by wind or as the result of a material spill) shall be kept in a contained and covered area on-site, as is practical, while construction is in progress. When feasible, tarps shall be used on the ground to collect fallen debris or splatters that could contribute to stormwater pollution. All temporary construction piles may remain on-site no more than 48 hours (continuous) and shall be securely covered overnight with a tarp or other device to contain debris. All construction debris shall be gathered and properly disposed of off-site on a regular basis.

9. Noise Generating Construction Activity: Maintain construction noise, dust control and cleanup to City acceptable levels. Construction equipment shall be properly muffled. Unnecessary idling of excavation and/or grading equipment is prohibited. Stationary noise-generating construction equipment such as compressors shall be located as far as practical from occupied residential housing units. Contractor shall be responsible for responding to any local complaints about construction noise.

10. Daily Work Site Cleanup: Trash and debris shall be cleaned up daily. Work area and haul routes shall be swept daily (with water sweepers) to remove construction-related materials. All construction debris shall be gathered on a regular basis and placed in a dumpster which is emptied or removed weekly. Any temporary on-site construction piles shall be securely covered with a tarp or other device to contain debris. Construction and demolition debris, and recycling, disposal shall be in accordance to the Alameda Municipal Code, Chapter XXI.

11. Storm Water BMP: Construction equipment, tools, etc. shall not be cleaned or rinsed into a street, gutter or storm drain. Concrete trucks and concrete finishing operations shall not discharge wash water into the street gutters or drains. There shall be no debris in the gutters. A contained and covered area on-site shall be used for storage of cement bags, paints, flammables, oils, fertilizers, pesticides, or any other materials that have potential for being discharged to the storm drain system by wind or in the event of a material spill. When feasible, tarps shall be used on the ground to collect fallen debris or splatters that could contribute to storm water pollution. Construction best management practices (BMP) for control of storm water runoff (e.g. straw waddles at catch basin inlets) shall be used where applicable. Contact the Public Works Environmental Services Division, at (510) 749-7930 for information on best management practices.

12. Pavement, Traffic Striping & Detectors: If the street pavement in the vicinity of the job site is damaged as a result of construction activity, then either pavement repair/reconstruction or an asphalt concrete overlay shall be required, as determined by the City Engineer or assigned representative. Additionally, traffic striping & marking, signal detectors, curb, gutter and other concrete improvements, damaged as a result of construction shall be replaced to the satisfaction of the City Engineer or assigned representative. Installation and maintenance of temporary striping and pavement markers is required while work is ongoing.

13. Traffic Control: If construction work encroaches within the right-of-way, the applicant must submit a traffic control plan that conforms to the following requirements:
    - The traffic control plan shall follow the standards and guidelines provided by the most recent version of the CA MUTCD and Caltrans Standard Plans.
    - If a lane is to remain open, the lane width shall be at least:
        - 12 feet on truck routes, bus routes, and paratransit routes
        - 10 feet otherwise.
    - Base the taper lengths, delineator spacing, and sign spacing on a traffic speed equal to the posted speed limit plus 5 MPH.
    - Notify Joseph Robinson at AC Transit (510-891-4908) if the work zone is in a bus stop, near a bus stop, or on a bus route. The work shall not interfere with AC Transit bus service in the area. Joseph Robinson shall be notified at least 2 weeks in advance of the work.
    - Notify Rochelle Wheeler at the City of Alameda Public Works Department (510-747-7944) if the work zone is in or near a City of Alameda Paratransit Shuttle stop.
    - Pedestrians shall be properly detoured at **appropriate crossing locations** whenever a sidewalk/crosswalk is closed. See the California MUTCD for guidance. Please keep in mind those pedestrians that may be disabled. Only one crossing at an intersection shall be closed at any time.
    - Applicant shall conform to all ADA standards.
    - If flaggers are used in the detour plan, they shall be shown in the drawings.
    - The applicant must obtain approval from the property owner of any driveways being blocked.
    - If the work is encroaching onto private properties, the applicant shall get approval from the appropriate property owners before proceeding with the work.
    - If the work is on State Route 61, the applicant shall get the proper approved permits from Caltrans
    - Applicant shall not park their vehicle, and not on/over curb or on the sidewalk or paths.

14. CCTV Inspection (As Applicable): Where boring or micro-tunneling work is proposed, all adjacent utility lines shall be closed circuit television (CCTV) inspected prior to the commencement of work and after the completion of work. Pipe cleaning shall be performed prior to CCTV inspection and all debris shall be removed from the pipeline. If the pipeline is damaged, it shall be replaced at the permittee's expense to the satisfaction of the City Engineer or his designated agent.

15. Open Trench Excavation: At no time shall there be more than 200 lineal feet of the trench opened along any single conduit alignment, including the section opened ahead of the pipe laying and the section behind the pipe laying which has not been completely backfilled and has a temporary cap. This also dictates the maximum length of right-of-way that may be posted with no parking signs at any one time.

16. Excavation Restoration: Excavation restoration in the roadway shall conform to City of Alameda Standard Plan 2930-22 and the following condition: At the direction of the City Engineer or assigned agent, pavement restoration may extend to a maximum 18" beyond the standard plan limits where existing adjacent pavement is raveled or alligatored. Pavement restoration shall include sawcut, removal of asphalt concrete, and replacement in kind in conjunction with the trench restoration/paving course. The limits of the area within the roadway to be repaved must be pre-approved by the City Inspector. All work shall be done to the satisfaction of the City Engineer or his assigned agent.

17. Hardscape Restoration: A concrete permit is required for the demolition and restoration of concrete curb, gutter and sidewalk within the public right-of-way. Concrete restoration of concrete curb, gutter, sidewalk and/or driveway within City right-of-way shall conform to City of Alameda Standard Plan 6297-24. Also, existing decorative concrete (e.g. tinted concrete, etc.) shall be replaced in kind and to the nearest expansion joint.

18. Site Restoration: Upon completion of the work all existing improvements within the project area (e.g. landscaping, irrigation, utilities, paths, area drainage, etc.) shall be completely restored to prior condition, or better, within five (5) working days of installation. Any damage within the public-right-of-way shall be replaced at the permittee's expense to the satisfaction of the City Engineer or his designated agent.

19. Construction Inspection: The permittee shall notify the Public Works Inspector (510) 747-7930, 48-hours prior to beginning of any work within the City right-of-way. Work performed or covered without adequate notice will be subject to rejection.

Should you require further clarification regarding these comments, contact Oskar Garcia at (510) 747-7964.

OG:pl

G:\pubworks\Permits\2017\Excavation\EX17-0018.1208 Lincoln.Drill 4 Borings for Groundwater Samples\EX17-0018.(A).1208 Lincoln.drill 4 borings for groundwater samples.doc

APPENDIX C

Utility Maps

25

16

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24

36

BUENA VISTA AVE

PACIFIC AVE

LINCOLN ST

CHARLES ST

BUENA VISTA PARK

SAINT VERDI ST

BAY SHERMAN

SANTA CLARA AVE

TAYLOR AVENUE

60" E.B.M.U.D. INTERCEPTOR T'N ℄

57" E.B.M.U.D. INTERCEPTOR

8" RELIEF

E.B.M.U.D. VG473

REF 8342-31 SH. 29

REF 8342-31 SH. 33

REF 8342-31 SH. 33,34

REF 8342-31 SH. 34

REF 8342-31 SH. 34,35

REF 8342-31 SH. 30,31

REF 8342-31 SH. 31

REF 8770-31 SH. 7

REF 8770-31 SH. 8

℄ -6.60 Rim 7.90
℄ 4.93 Rim 7.89
℄ 4.95
℄ 3.99
℄ 4.02
℄ 4.70
℄ 4.86 Rim 7.74
N ℄ 3.84 Rim 8.12
℄ 2.67
℄ 2.37 Rim 6.71
℄ -3.76 Rim 5.27
℄ -3.73 Rim 5.45
℄ ?
℄ -4.03
℄ -6.39 Rim 7.81
℄ -4.23 RIM
℄ -4.24
℄ 2.69
℄ 4.10
℄ 4.12 Rim 7.76
℄ 2.63
℄ 2.70 (E, SE)
℄ 3.48 Rim 8.98
℄ 3.10
℄ 3.09 RIM 7.93
℄ 2.82 RIM 7.90
℄ 6.12 RIM 12.25
℄ 8.78
℄ 8.79
℄ 6.61 Rim 12.96
℄ 7.00
℄ 7.00
℄ 6.12 Rim 12.25
℄ 6.37
℄ 5.63 RIM 12.50
℄ 5.69 RIM 12.81
℄ 6.61
℄ 8.78 (E)
℄ 8.89 Rim 17.40
℄ 8.90 Rim 17.69
℄ 8.81 Rim 18.20
℄ 14.82
℄ 14.82 RIM 18.20
℄ 11.70 Rim 17.74
℄ 11.65
℄ 8.38 Rim 18.00
℄ 8.91
℄ 8.72
℄ 8.44 RIM 17.88
30' N ℄ 8"
℄ 10.44 Rim 15.88
℄ 13.59
℄ 8.92
℄ 9.27 Rim 17.94
23' S ℄ 6"
℄ 9.80
℄ Rim 17.89
℄
℄ 11.62 RIM 19.80
℄ 11.62 RIM 19.80
℄ 11.02 RIM 19.00
℄ Rim 21.75
℄
℄ Rim
℄
℄ 14.80 10' N ℄
℄ 14.83 Rim 22.30
℄ 14.80
℄ 13.84 13' N ℄
℄ 14.21
℄ 14.29
℄ 13.87 Rim 22.07
℄ 17.83
℄ 17.72
℄ 14.25 Rim 21.36
℄ 14.06
℄ 13.60
℄ 14.16
℄ 13.66 Rim 19.90
℄ 17.01 Rim 22.63
℄ 15.33 Rim 22.80
℄ 15.74 RIM 21.80
℄ 15.09 RIM 19.90

Ref. F.B. 2-38, p. 68
2-28, p. 73-76
1-48, p. 58

25
16
24
26
36
BUENA VISTA
PACIFIC
LINCOLN
AVE.
SANTA CLARA
TAYLOR
AVE.
ST. CHARLES
ST. CHARLES
ST.
VERDI
ST.
BAY
SHERMAN
ST.
BUENA VISTA
PARK
MH RIM 5.60
IE 2.25
REF 5005-21
H.H.
IE -0.57
CB INLET
IE
CB INLET 5.25
IE 2.52
REF. 3286-11
HH
IE 1.11
18" RCP
CB INLET 6.47
IE 4.50
MH RIM 7.16
N.IE 1.89
E.IE 2.36
W.IE 2.21
21" RCP
REF. 4952-11
CB INLET 6.37
IE 2.63
REF. 4951-11
CB INLET 6.32
IE 2.64
CB INLET 6.50
IE 4.50
HH
IE 1.57
HH
N.IE 2.24
S.IE 2.36
CB INLET 6.41
IE 4.30
CB INLET 6.58
N.IE 2.13
E.IE 2.13
S.IE 1.97
MH RIM 9.01
CB INLET 11.39
IE 5.51
12" RCP
15" RCP
REF. 6782-11
F.B. 2-52 P.35
MH RIM 12.08
N.IE 4.98
W.IE 5.00
E.IE 5.76
CB INLET 11.39
IE 6.31
CB INLET 10.89
IE 9.53
CB INLET 11.18
N.IE 9.26
E.IE 7.05
15" RCP
CB INLET 10.93
CB INLET 11.18
12" RCP
CB INLET 11.55
N.IE 4.85
E.IE 6.90
CB INLET 11.51
IE 7.34
MH RIM 16.76
E.IE 9.51
W.IE 9.51
CB INLET 15.78
IE 9.83
REF. 3398-11
REF. 4834-11
REF. 4835-11
REF. 4836-11
REF. 2975-24
REF. 5363-11
REF. 3457-11
REF. 2976-24
12' 36' 12'
91.000

APPENDIX D

Standard Operating Procedures for Soil Borings and Monitoring Wells

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.

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.

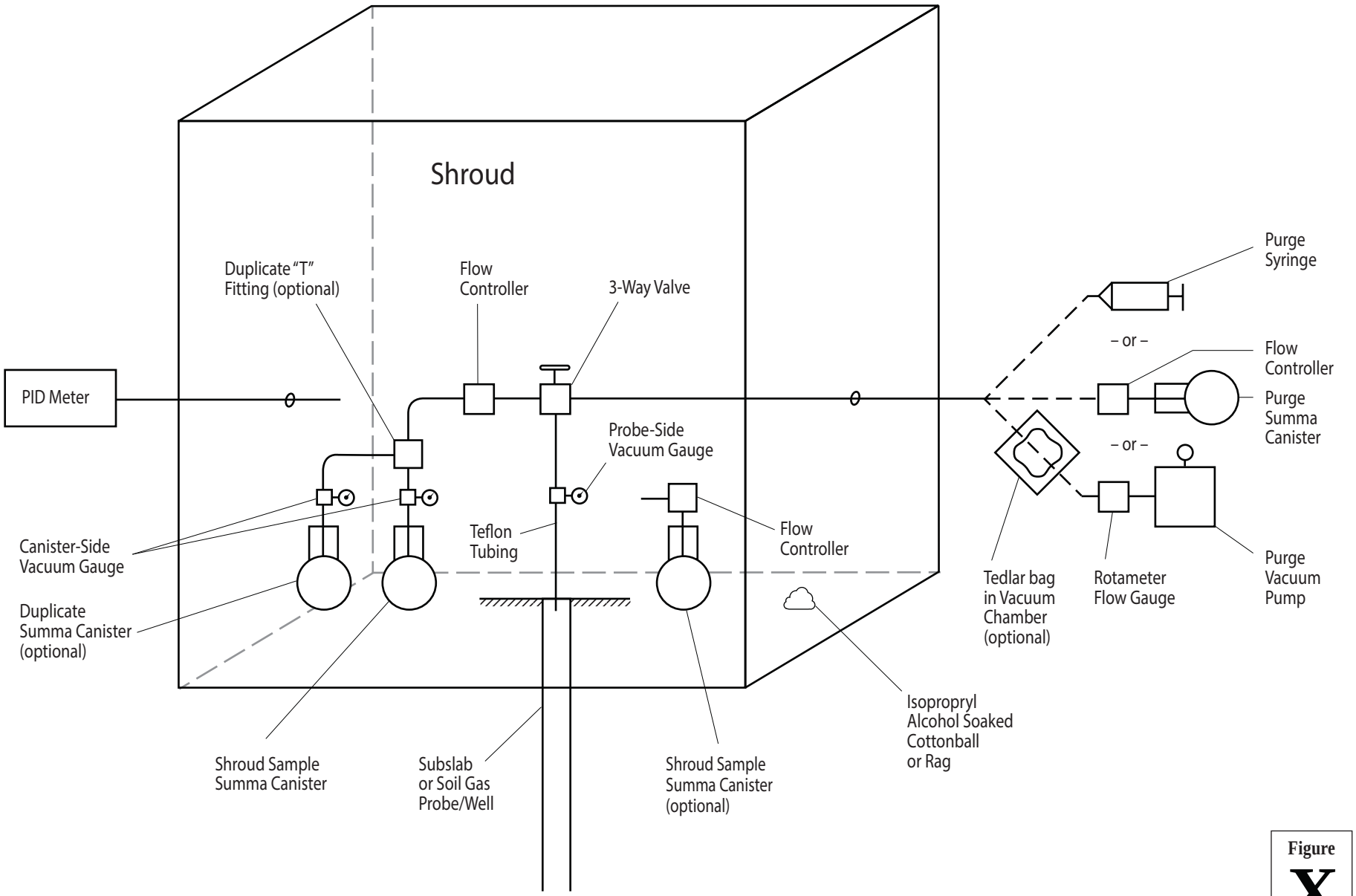


Figure X

PANGEA

Subslab and Soil Gas Sampling Apparatus Schematic

APPENDIX E

Boring Logs

Client Name	
Job / Site Name	Elegant Cleaners
Location	1208 Lincoln Ave
Project Number	1985.001
Driller	Cascade
Drilling Method	Hand Auger
Boring Diameter	3.25"
Logged by	B. Lervaag
PE/PG	

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name	SG-1
Hand Augered to	5'
Total Depth	5'
Date Started	3.6.17
Date Completed	3.6.17
Well Developent Date (yield)	—
Ground Surface Elevation	—
Top of Casing Elevation	—
Screend Interval	—
Depth to Water (first encountered)	Dry
Depth to Water (static)	Dry
Located	See map

Page 1 of 1

Depth/Sample Interval	Time	Sample ID	PID/Odor	Well Construction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0					well box	2" conc. slab, 8" sand/gravel fill									
						Brown silty sand to 5' bgs									
					hyd bent										
		SG-1-4'	0		Dry bent										
5					sand			Damp		–	30	70	–	–	high

Well Construction

- probe set at 4.5' bgs
- ¼ teflon tubing to surface
- #3 Sand 4'-5' bgs
- Dry bent 3.5'-4' bgs
- Hyd. Bent 1.0 - 3.5' bgs
- Concrete w/ well vault to match surface grade

Client Name
Job / Site Name Elegant Cleaners
Location 1208 Lincoln
Project Number ~~2050.001.318~~ 1985.001
Driller Cascade
Drilling Method Hand Auger
Boring Diameter 3.25"
Logged by E. Lervaag
PE/PG

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name SG-2 Page 1 of 1
Hand Augered to 5'
Total Depth 5'
Date Started 3.6.17
Date Completed 3.6.17
Well Developent Date (yield) —
Ground Surface Elevation —
Top of Casing Elevation —
Screend Interval —
Depth to Water (first encountered) Dry
Depth to Water (static) Dry
Located See map

Depth/Sample Interval	Time	Sample ID	PID/Odor	Well Construction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0						2" Asphalt 6" base rock Brown silty sand to 5' bgs									
		SG-2-4'	0												
5						5' — Boring term.	Damp			-	40	60	-	-	high
						Well Construction - Probe set at 4.5' bgs - #3 sand from 4'-5' bgs - Dry bent to 3.5' - Hyd. Bent to 1' - Concrete and 6" well box to match surrounding grade.									
10															
15															
20															
25															
30															

Client Name
Job / Site Name Elegant Cleaners
Location 1205 Lincoln Ave, Alameda
Project Number ~~3030-001-378~~ 1985.001
Driller Cascade
Drilling Method Hand Auger
Boring Diameter
Logged by E Lervaag
PE/PG

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name SVE-1 Page 1 of 1
Hand Augered to 6'
Total Depth 6'
Date Started 3.6.17
Date Completed 3.6.17
Well Developent Date (yield) NA
Ground Surface Elevation —
Top of Casing Elevation —
Screend Interval
Depth to Water (first encountered)
Depth to Water (static) 5'
Located See map

Depth/Sample Interval	Time	Sample ID	PID/Odor	Well Construction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0						2" conc. slab. 6" sandy gravel fill									
						Brown sand w/silt to 6' bgs				—	30	70	—	—	high
								Damp							
5		SVE-1-4	0												
					6'	Boring terminated		wet							
		SVE-1-6	0												
10															
				Well Construction											
				Screened 3'-5'											
				Blank 3'-surface											
15				Sand 2.5'-5'											
				Bent 2.5'-2.5'											
				Grout 2.5' to surface											
				* Wellbox flush with surrounding floor											
20															
25															
30															

Client Name

Job / Site Name Elegant Cleaners

Location 1208 Lincoln

Project Number ~~0325.001.018~~ 1985.001

Driller Cascade

Drilling Method Hand Auger

Boring Diameter 6"

Logged by E. Lervaag

PE/PG

PANGEA

1710 Franklin Street, Suite 200

Oakland, CA 94612

Boring/Well Name SVE-2 Page 1 of 1

Hand Augered to 7'

Total Depth 7'

Date Started 3.6.17

Date Completed 3.6.17

Well Developent Date (yield) NA

Ground Surface Elevation —

Top of Casing Elevation —

Screend Interval 3-6

Depth to Water (first encountered) —

Depth to Water (static) 6'

Located See map

Depth/Sample Interval	Time	Sample ID	PID/Odor	Well Construction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
						4" Gravel PKS lot									
						Brow silty sand to 7' bgs	Brn								
5		SVE-2-4'	0					damp		-	40	60	-	-	high
		SVE-2-6'	0			7' — Boring terminated		wet							
10						Well Construction									
						Screen 0.020 slot 4'-7' bgs									
						Blank 4' - surface									
15						- Sand to 3.5' bgs									
						- Bent to 2.5' bgs									
						- Grout to Surface.									
						* 8" well box w/ concrete pad									
20															
25															
30															

Client Name: Elegant Cleaners
Job / Site Name:
Location: 1208 Lincoln Ave, Alameda
Project Number: 1985.001.310
Driller: Cascade
Drilling Method: Direct Push
Boring Diameter: 2.25"
Logged by: E. Lerman
PE/PG: B. Clark-Riddell

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name: B-4 Page: 1 of 1
Hand Augered to: 5'
Total Depth: 12'
Date Started: 3.27.17
Date Completed: 3.27.17
Well Developent Date (yield): —
Ground Surface Elevation: —
Top of Casing Elevation: —
Screend Interval: —
Depth to Water (first encountered): —
Depth to Water (static): 5.82
Located: See map

Depth/Sample Interval	Time	Sample ID	PID/Odor	Boring / Well Construction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0				Concrete		4" Asphalt 8" Baserock									
						Hand Auger to 5' bgs.									
						Silty Sand	Brown	—		—	40	60	—	low	high
5															
			0			Silty Sand, Brown	Brn								
						Color, Poorly Graded		moist		—	40	60	—	low	high
				5'		Similar to 12' bgs									
			0												
10															
								wet							
			0												
					12'	— Boring terminated									
15															
20															
25															
30															

Client Name: Elegant Cleaners
Job / Site Name:
Location: 1205 Lincoln
Project Number: 1985.001.310
Driller: Cascade
Drilling Method: Direct Push
Boring Diameter: 2.25"
Logged by: E. Leverag
PE/PG: B. Christ Riddell

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name: B-5 Page 1 of 1
Hand Augered to: 5'
Total Depth: 12'
Date Started: 3.27.17
Date Completed: 3.27.17
Well Developent Date (yield): —
Ground Surface Elevation: —
Top of Casing Elevation: —
Screend Interval: —
Depth to Water (first encountered): —
Depth to Water (static): 5.23
Located: See map

Depth/Sample Interval	Time	Sample ID	PID/Odor	Well Construction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0				Conc.		4" Asphalt 8" base rock									
						Hand Auger to 5'									
						Silty Sand	Brn			-	40	60	-		high
5															
		0				Silty Sand, Brown	Brn								
						Poorly graded.		moist		-	40	60	-		high
						Similar to 12'									
		0													
10															
								wet							
		0			12.	— Boring term.									
15															
20															
25															
30															

Client Name: Elegant Cleaners
Job / Site Name:
Location: 1208 Lincoln Ave
Project Number: 1985.001.310
Driller: Cascade
Drilling Method: Direct Push
Boring Diameter: 2.25"
Logged by: E. Lenway
PE/PG: B. Clark-Riddell

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name: B-6 Page 1 of 1
Hand Augered to: 5'
Total Depth: 12'
Date Started: 3.27.17
Date Completed: 3.27.17
Well Developent Date (yield): —
Ground Surface Elevation: —
Top of Casing Elevation: —
Screend Interval: —
Depth to Water (first encountered): —
Depth to Water (static): 5.85
Located: See map

Depth/Sample Interval	Time	Sample ID	PID/Odor	Boring ~~Well Construction~~ Destruction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0				Concrete		4" Asphalt 8" base									
						Hand Auger to 5'									
						Silty Sand, Poorly Sorted	Brown	—		—	40	60	—	low	high
5															
			0				moist								
				Grout											
			0												
10															
							wet								
			0			Boring Terminated									
15															
20															
25															
30															

Client Name: Elegant Cleaners
Job / Site Name:
Location: 1208 Lincoln Ave
Project Number: 1985.001.310
Driller: Cascade
Drilling Method: Direct Push
Boring Diameter: 2.25"
Logged by: E. Lennag
PE/PG: B. Clark-Riddell

PANGEA

1710 Franklin Street, Suite 200
Oakland, CA 94612

Boring/Well Name: B-7 Page: 1 of 1
Hand Augered to: 5'
Total Depth: 12'
Date Started: 3.27.17
Date Completed: 3.27.17
Well Developent Date (yield): —
Ground Surface Elevation: —
Top of Casing Elevation: —
Screend Interval: —
Depth to Water (first encountered): —
Depth to Water (static): 5.45
Located:

Depth/Sample Interval	Time	Sample ID	PID/Odor	Boring / Well Construction / Destruction	USCS	Soil Type and Comments	Color	Moisture	Density / Consistency	Percentages: Clay	Silt	Sand	Gravel	Plasticity	Estimated Permeability
0				Concrete		4" Asphalt 8" Base									
						Hand Auger to 5'									
						Silty Sand Poorly Sorted	Brown	—		—	40	60	—	low	high
5															
							moist								
				Grout											
10							wet								
						Boring Terminated									
15															
20															
25															
30															

APPENDIX F

Subslab/Soil Gas Sampling Field Data Sheets

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: ~~[illegible]~~ 1985.001.30
Date: 3.9.17
Sampler(s): B. Lervaag
Sample ID / Time: SG-1 / 1429

PANGEA

Probe / Well ID: SG-1
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length: 5 ~~inches~~ ft
Tubing Diameter (ID): 0.170 inches
Boring Diameter: 3.25 inches
Dry Bentonite Height: 6" inches
Sandpack height: 12" inches
Probe Length: 1 inches
Probe Diameter: 0.5 inches
Summa Flow Rate: 150 mL/min
Purge Flow Rate: 150 mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = 25 mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= 407 mL
Sandpack = 650 mL
Single Purge Volume = 1082 mL
Three Total Purge Volumes = 3246 mL
Total Purge Time = 21min 38 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / ~~IPA~~ IN SHROUD (% / ~~PPM~~)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ~~("H20 /~~ "Hg)	COMMENTS
1406	0	1.6		0	
1409	3	12.4		2	
1412	6	11.3		2	
1415	9	10.9		2	
1418	12	11.6		2	
1421	15	9.4		2	
1424	18	8.7		2	add IPA
1428	21:38	16.4		2	
1429		15.8		2	Start Sample
1433		13.1		2	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: ~~[illegible]~~ 1985.001.310
Date: 3.9.17
Sampler(s): B. Lervaag
Sample ID / Time: SG-2 / 1334

PANGEA

Probe / Well ID: SG-2
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter (ID): _____ inches
Boring Diameter: _____ inches
Dry Bentonite Height: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

See SG-1 for purge calc

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= _____ mL
Sandpack = _____ mL
Single Purge Volume = _____ mL
Three Total Purge Volumes = _____ mL
Total Purge Time = 21:38 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe side Vacuum ("H20 / "Hg)	COMMENTS
1312	0	3.8		<1	
1315	3	17.6		<1	
1318	6	18.1		<1	
1321	9	17.3		<1	
1324	12	17.5		<1	
1327	15	16.8		<1	
1330	18	16.3		<1	
1334	21:38	16.9		<1	
1334		16.2		<1	Start Sample
1338		13.7		<1	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: ~~3030-000-218~~ 1985.001.310
Date: 3.9.17
Sampler(s): E. Leruaag
Sample ID / Time: VW-2 /

PANGEA

Probe / Well ID: VW-2
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length:	6'	~~inches~~
Tubing Diameter (ID):	0.170	inches
Boring Diameter:	2"	inches
Dry Bentonite Height:	0	inches
Sandpack height:	12	inches
Probe Length:	1	inches
Probe Diameter:	0.5	inches
Summa Flow Rate:	150	mL/min
Purge Flow Rate:	150	mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = 30 mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= 0 mL
Sandpack = 247 mL
Single Purge Volume = 277 mL
Three Total Purge Volumes = 831 mL
Total Purge Time = 5min 32sec seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1231	0	6.8		3	Start Purge
1234	3	14.1		3	
1237	5:32	13.3		3	Stop Purge
1238		12.6		3	Start Sample
1242		9.4		3	Stop Sample
					Post-sampling PID screening (ppm):

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: 1985.001.310
Date: 3.9.17
Sampler(s): E. Lervang
Sample ID / Time: VW-3 / 1203

PANGEA

Probe / Well ID: VW-3
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum:

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter (ID): _____ inches
Boring Diameter: _____ inches
Dry Bentonite Height: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

See VW-2

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= _____ mL
Sandpack = _____ mL
Single Purge Volume = _____ mL
Three Total Purge Volumes = _____ mL
Total Purge Time = 5:32 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (%, PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1158	0	5.6		4	Start Purge
1201	3	11.3		4	
1203	5:32	9.7		4	Stop Purge
1203		16.4		4	Start Sample
1208		12.3		4	Stop Sample
					Post-sampling PID screening (ppm):

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: 1485.001.310
Date: 3.9.17
Sampler(s): E. Lervaag
Sample ID / Time: VW-4 / 1131

PANGEA

Probe / Well ID: VW-4
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter (ID): _____ inches
Boring Diameter: _____ inches
Dry Bentonite Height: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

See VW-2

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= _____ mL
Sandpack = _____ mL
Single Purge Volume = _____ mL
Three Total Purge Volumes = _____ mL
Total Purge Time = 5:32 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1124	0	1.6		<1	Start Purge
1127	3	15.4		<1	
1130	5:32	13.3		<1	Stop Purge
1131		12.7		<1	Start Sample
1135		9.1		<1	Stop Sample
					Post-sampling PID screening (ppm):

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: 1985.001.310
Date: 3.9.17
Sampler(s): B. Lervaag
Sample ID / Time: SS-2 /

PANGEA

Probe / Well ID: SS-2
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length:	36	inches
Tubing Diameter (ID):	0.170	inches
Boring Diameter:	—	inches
Dry Bentonite Height:	—	inches
Sandpack height:	—	inches
Probe Length:	—	inches
Probe Diameter:	—	inches
Summa Flow Rate:	150	mL/min
Purge Flow Rate:	150	mL/min

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = 15 mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= 0 mL
Sandpack = 0 mL
Single Purge Volume = 15 mL
Three Total Purge Volumes = 45 mL
Total Purge Time = 18 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1347	3	Purge with syringe		45 ml in 20 sec	
1348		9.7		<1	Start Sample
1351		12.2		<1	Stop Sample
					Post-sampling PID screening (ppm):

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: 1985.001.310
Date: 3.9.17
Sampler(s): E. Larvaag
Sample ID / Time: SS-3 / 1443

PANGEA

Probe / Well ID: SS-3
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter (ID): _____ inches
Boring Diameter: _____ inches
Dry Bentonite Height: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

See SS-2 calcs

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= _____ mL
Sandpack = _____ mL
Single Purge Volume = _____ mL
Three Total Purge Volumes = _____ mL
Total Purge Time = 18 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1441		Purge w/ syringe		45 mL in 20 seconds	
1443		10.2		<1	Start Sample
1448		8.1		<1	Stop Sample
					Post-sampling PID screening (ppm):

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: Elegant Cleaners
Project/Task Number: 1985.001.310
Date: 3-9-17
Sampler(s): E. Lervaag
Sample ID / Time: SS-4 / 1504

PANGEA

Probe / Well ID: SS-4
Canister Serial #: Tedlar
Flow Controller #: —
Initial Vacuum: —
Final Vacuum:

SPECIFICATIONS

Tubing Length: _____ inches
Tubing Diameter (ID): _____ inches
Boring Diameter: _____ inches
Dry Bentonite Height: _____ inches
Sandpack height: _____ inches
Probe Length: _____ inches
Probe Diameter: _____ inches
Summa Flow Rate: _____ mL/min
Purge Flow Rate: _____ mL/min

See SS-2 calcs

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite
Tubing = π x (tubing diameter/2)^2 x length
Tubing = _____ mL
Bentonite = π x (boring diameter/2)^2 bentonite height x .5[porosity] x 16.4
Sandpack = π x (boring diameter/2)^2 sandpack height x .4[porosity] x 16.4
bentonite= _____ mL
Sandpack = _____ mL
Single Purge Volume = _____ mL
Three Total Purge Volumes = _____ mL
Total Purge Time = 18 seconds

π = 3.1416 | 1 inch^3 = 16.4 mL | 5 mL purge / 1 ft tubing | Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): end time/pressure ("Hg):

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1503	Purge w/ Syringe 45 ml in 20 sec.				
1504		7.9		<1	Start Sample
1509		12.2		<1	Stop Sample
					Post-sampling PID screening (ppm):

NOTES: _____

APPENDIX G

Laboratory Analytical Reports


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 286726
ANALYTICAL REPORT

Pangea Environmental	Project : STANDARD
1710 Franklin Street	Location : Elegant Cleaners
Oakland, CA 94612	Level : II

Sample ID	Lab ID
SVE-1-4'	286726-001
SVE-1-6'	286726-002
SG-1-4'	286726-003
SVE-2-4'	286726-004
SVE-2-6'	286726-005
SG-2-4'	286726-006

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

Signature: Will Rice Date: 03/15/2017

Will Rice
Project Manager
will.rice@ctberk.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**286726**
Client:	**Pangea Environmental**
Location:	**Elegant Cleaners**
Request Date:	**03/07/17**
Samples Received:	**03/07/17**

This data package contains sample and QC results for four soil samples, requested for the above referenced project on 03/07/17. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
High recovery was observed for 1,1-dichloroethene in the MSD for batch 245260; the parent sample was not a project sample, the BS/BSD were within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples. High recovery was observed for 1,1-dichloroethene in the MSD for batch 245303; the parent sample was not a project sample, the BS/BSD were within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated sample. No other analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 286726

Project No:

Project Name: Elegant Cleaners

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: E. Lervaag

Report To: Jake Wilson

Company: Pangea Env. Svs.

Telephone: 510-836-3700

Email: Jwilson@pangeaenv.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST	
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	8260	8015
	SVE-1-4'	3.6.17	0950		X			3					X	X	X
	SVE-1-6'	3.6.17	~~0955~~		X			3					X	X	X
	SG-1-4'		1148		X			3					X	X	X
	SVE-2-4'		1420		X			3					X	X	X
	SVE-2-6'		1426		X			3					X	X	X
	SG-2-4'	3.6.17	1436		X			3					X	X	X

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
3-7-17 0835 DATE: TIME:
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Hamm 3/7/17 DATE: TIME: 08.35
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 286726 Date Received 3/7/17 Number of coolers 1
Client Pangea Enviro Service Project Elegant Cleaners

Date Opened 3-7-17 By (print) DC (sign)
Date Logged in ↓ By (print) DTN (sign)
Date Labeled ↓ By (print) ↓ (sign) ↓

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 1.7

☐ Temperature blank(s) included? ☐ Thermometer# ☒ IR Gun# 4

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

8. Were Method 5035 sampling containers present? (YES) NO
   If YES, what time were they transferred to freezer? @ 12:25
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? (pH strip lot#) YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? (YES) NO N/A
20. Are bubbles > 6mm absent in VOA samples? (YES) NO N/A
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS
14. Only received 3 terracores, which not enough for 8260 and 8015

Curtis & Tompkins, Ltd.

Detections Summary for 286726

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

Client : Pangea Environmental
Project : STANDARD
Location : Elegant Cleaners

Client Sample ID : SVE-1-4' Laboratory Sample ID : 286726-001

No Detections

Client Sample ID : SG-1-4' Laboratory Sample ID : 286726-003

No Detections

Client Sample ID : SVE-2-4' Laboratory Sample ID : 286726-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	8.8		4.2	ug/Kg	As Recd	0.8361	EPA 8260B	EPA 5035

Client Sample ID : SG-2-4' Laboratory Sample ID : 286726-006

No Detections

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	03/06/17
Units:	mg/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/09/17
Batch#:	245300		

Field ID: SVE-1-4' Lab ID: 286726-001
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
Gasoline C7-C12	ND	0.16

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	95	70-138

Field ID: SG-1-4' Lab ID: 286726-003
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
Gasoline C7-C12	ND	0.17

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	93	70-138

Field ID: SVE-2-4' Lab ID: 286726-004
Type: SAMPLE Diln Fac: 1.000

Analyte	Result	RL
Gasoline C7-C12	ND	0.17

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	70-138

Field ID: SG-2-4' Lab ID: 286726-006
Type: SAMPLE Diln Fac: 25.00

Analyte	Result	RL
Gasoline C7-C12	ND	4.2

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	70-138

Type: BLANK Diln Fac: 1.000
Lab ID: QC875994

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	92	70-138

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC875991	Batch#:	245300
Matrix:	Soil	Analyzed:	03/09/17
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.128	113	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	91	70-138

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	286797-003	Batch#:	245300
Matrix:	Soil	Sampled:	03/08/17
Units:	mg/Kg	Received:	03/08/17
Basis:	as received	Analyzed:	03/10/17

Type: MS Lab ID: QC875992

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.2913	10.00	8.131	78	49-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	70-138

Type: MSD Lab ID: QC875993

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.524	7.351	74	49-120	5	32

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	70-138

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SVE-1-4'	Diln Fac:	0.7657
Lab ID:	286726-001	Batch#:	245260
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/08/17

Analyte	Result	RL
Freon 12	ND	7.7
Chloromethane	ND	7.7
Vinyl Chloride	ND	7.7
Bromomethane	ND	7.7
Chloroethane	ND	7.7
Trichlorofluoromethane	ND	3.8
Acetone	ND	15
Freon 113	ND	3.8
1,1-Dichloroethene	ND	3.8
Methylene Chloride	ND	15
Carbon Disulfide	ND	3.8
MTBE	ND	3.8
trans-1,2-Dichloroethene	ND	3.8
Vinyl Acetate	ND	38
1,1-Dichloroethane	ND	3.8
2-Butanone	ND	7.7
cis-1,2-Dichloroethene	ND	3.8
2,2-Dichloropropane	ND	3.8
Chloroform	ND	3.8
Bromochloromethane	ND	3.8
1,1,1-Trichloroethane	ND	3.8
1,1-Dichloropropene	ND	3.8
Carbon Tetrachloride	ND	3.8
1,2-Dichloroethane	ND	3.8
Benzene	ND	3.8
Trichloroethene	ND	3.8
1,2-Dichloropropane	ND	3.8
Bromodichloromethane	ND	3.8
Dibromomethane	ND	3.8
4-Methyl-2-Pentanone	ND	7.7
cis-1,3-Dichloropropene	ND	3.8
Toluene	ND	3.8
trans-1,3-Dichloropropene	ND	3.8
1,1,2-Trichloroethane	ND	3.8
2-Hexanone	ND	7.7
1,3-Dichloropropane	ND	3.8
Tetrachloroethene	ND	3.8

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SVE-1-4'	Diln Fac:	0.7657
Lab ID:	286726-001	Batch#:	245260
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/08/17

Analyte	Result	RL
Dibromochloromethane	ND	3.8
1,2-Dibromoethane	ND	3.8
Chlorobenzene	ND	3.8
1,1,1,2-Tetrachloroethane	ND	3.8
Ethylbenzene	ND	3.8
m,p-Xylenes	ND	3.8
o-Xylene	ND	3.8
Styrene	ND	3.8
Bromoform	ND	3.8
Isopropylbenzene	ND	3.8
1,1,2,2-Tetrachloroethane	ND	3.8
1,2,3-Trichloropropane	ND	3.8
Propylbenzene	ND	3.8
Bromobenzene	ND	3.8
1,3,5-Trimethylbenzene	ND	3.8
2-Chlorotoluene	ND	3.8
4-Chlorotoluene	ND	3.8
tert-Butylbenzene	ND	3.8
1,2,4-Trimethylbenzene	ND	3.8
sec-Butylbenzene	ND	3.8
para-Isopropyl Toluene	ND	3.8
1,3-Dichlorobenzene	ND	3.8
1,4-Dichlorobenzene	ND	3.8
n-Butylbenzene	ND	3.8
1,2-Dichlorobenzene	ND	3.8
1,2-Dibromo-3-Chloropropane	ND	3.8
1,2,4-Trichlorobenzene	ND	3.8
Hexachlorobutadiene	ND	3.8
Naphthalene	ND	3.8
1,2,3-Trichlorobenzene	ND	3.8

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	102	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	104	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SG-1-4'	Diln Fac:	0.8489
Lab ID:	286726-003	Batch#:	245260
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/08/17

Analyte	Result	RL
Freon 12	ND	8.5
Chloromethane	ND	8.5
Vinyl Chloride	ND	8.5
Bromomethane	ND	8.5
Chloroethane	ND	8.5
Trichlorofluoromethane	ND	4.2
Acetone	ND	17
Freon 113	ND	4.2
1,1-Dichloroethene	ND	4.2
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.2
MTBE	ND	4.2
trans-1,2-Dichloroethene	ND	4.2
Vinyl Acetate	ND	42
1,1-Dichloroethane	ND	4.2
2-Butanone	ND	8.5
cis-1,2-Dichloroethene	ND	4.2
2,2-Dichloropropane	ND	4.2
Chloroform	ND	4.2
Bromochloromethane	ND	4.2
1,1,1-Trichloroethane	ND	4.2
1,1-Dichloropropene	ND	4.2
Carbon Tetrachloride	ND	4.2
1,2-Dichloroethane	ND	4.2
Benzene	ND	4.2
Trichloroethene	ND	4.2
1,2-Dichloropropane	ND	4.2
Bromodichloromethane	ND	4.2
Dibromomethane	ND	4.2
4-Methyl-2-Pentanone	ND	8.5
cis-1,3-Dichloropropene	ND	4.2
Toluene	ND	4.2
trans-1,3-Dichloropropene	ND	4.2
1,1,2-Trichloroethane	ND	4.2
2-Hexanone	ND	8.5
1,3-Dichloropropane	ND	4.2
Tetrachloroethene	ND	4.2

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SG-1-4'	Diln Fac:	0.8489
Lab ID:	286726-003	Batch#:	245260
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/08/17

Analyte	Result	RL
Dibromochloromethane	ND	4.2
1,2-Dibromoethane	ND	4.2
Chlorobenzene	ND	4.2
1,1,1,2-Tetrachloroethane	ND	4.2
Ethylbenzene	ND	4.2
m,p-Xylenes	ND	4.2
o-Xylene	ND	4.2
Styrene	ND	4.2
Bromoform	ND	4.2
Isopropylbenzene	ND	4.2
1,1,2,2-Tetrachloroethane	ND	4.2
1,2,3-Trichloropropane	ND	4.2
Propylbenzene	ND	4.2
Bromobenzene	ND	4.2
1,3,5-Trimethylbenzene	ND	4.2
2-Chlorotoluene	ND	4.2
4-Chlorotoluene	ND	4.2
tert-Butylbenzene	ND	4.2
1,2,4-Trimethylbenzene	ND	4.2
sec-Butylbenzene	ND	4.2
para-Isopropyl Toluene	ND	4.2
1,3-Dichlorobenzene	ND	4.2
1,4-Dichlorobenzene	ND	4.2
n-Butylbenzene	ND	4.2
1,2-Dichlorobenzene	ND	4.2
1,2-Dibromo-3-Chloropropane	ND	4.2
1,2,4-Trichlorobenzene	ND	4.2
Hexachlorobutadiene	ND	4.2
Naphthalene	ND	4.2
1,2,3-Trichlorobenzene	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	113	80-128
1,2-Dichloroethane-d4	113	80-136
Toluene-d8	104	80-120
Bromofluorobenzene	106	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SVE-2-4'	Diln Fac:	0.8361
Lab ID:	286726-004	Batch#:	245260
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/08/17

Analyte	Result	RL
Freon 12	ND	8.4
Chloromethane	ND	8.4
Vinyl Chloride	ND	8.4
Bromomethane	ND	8.4
Chloroethane	ND	8.4
Trichlorofluoromethane	ND	4.2
Acetone	ND	17
Freon 113	ND	4.2
1,1-Dichloroethene	ND	4.2
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.2
MTBE	ND	4.2
trans-1,2-Dichloroethene	ND	4.2
Vinyl Acetate	ND	42
1,1-Dichloroethane	ND	4.2
2-Butanone	ND	8.4
cis-1,2-Dichloroethene	ND	4.2
2,2-Dichloropropane	ND	4.2
Chloroform	ND	4.2
Bromochloromethane	ND	4.2
1,1,1-Trichloroethane	ND	4.2
1,1-Dichloropropene	ND	4.2
Carbon Tetrachloride	ND	4.2
1,2-Dichloroethane	ND	4.2
Benzene	ND	4.2
Trichloroethene	ND	4.2
1,2-Dichloropropane	ND	4.2
Bromodichloromethane	ND	4.2
Dibromomethane	ND	4.2
4-Methyl-2-Pentanone	ND	8.4
cis-1,3-Dichloropropene	ND	4.2
Toluene	ND	4.2
trans-1,3-Dichloropropene	ND	4.2
1,1,2-Trichloroethane	ND	4.2
2-Hexanone	ND	8.4
1,3-Dichloropropane	ND	4.2
Tetrachloroethene	8.8	4.2

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SVE-2-4'	Diln Fac:	0.8361
Lab ID:	286726-004	Batch#:	245260
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/08/17

Analyte	Result	RL
Dibromochloromethane	ND	4.2
1,2-Dibromoethane	ND	4.2
Chlorobenzene	ND	4.2
1,1,1,2-Tetrachloroethane	ND	4.2
Ethylbenzene	ND	4.2
m,p-Xylenes	ND	4.2
o-Xylene	ND	4.2
Styrene	ND	4.2
Bromoform	ND	4.2
Isopropylbenzene	ND	4.2
1,1,2,2-Tetrachloroethane	ND	4.2
1,2,3-Trichloropropane	ND	4.2
Propylbenzene	ND	4.2
Bromobenzene	ND	4.2
1,3,5-Trimethylbenzene	ND	4.2
2-Chlorotoluene	ND	4.2
4-Chlorotoluene	ND	4.2
tert-Butylbenzene	ND	4.2
1,2,4-Trimethylbenzene	ND	4.2
sec-Butylbenzene	ND	4.2
para-Isopropyl Toluene	ND	4.2
1,3-Dichlorobenzene	ND	4.2
1,4-Dichlorobenzene	ND	4.2
n-Butylbenzene	ND	4.2
1,2-Dichlorobenzene	ND	4.2
1,2-Dibromo-3-Chloropropane	ND	4.2
1,2,4-Trichlorobenzene	ND	4.2
Hexachlorobutadiene	ND	4.2
Naphthalene	ND	4.2
1,2,3-Trichlorobenzene	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	102	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	105	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SG-2-4'	Diln Fac:	0.8306
Lab ID:	286726-006	Batch#:	245303
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/09/17

Analyte	Result	RL
Freon 12	ND	8.3
Chloromethane	ND	8.3
Vinyl Chloride	ND	8.3
Bromomethane	ND	8.3
Chloroethane	ND	8.3
Trichlorofluoromethane	ND	4.2
Acetone	ND	17
Freon 113	ND	4.2
1,1-Dichloroethene	ND	4.2
Methylene Chloride	ND	17
Carbon Disulfide	ND	4.2
MTBE	ND	4.2
trans-1,2-Dichloroethene	ND	4.2
Vinyl Acetate	ND	42
1,1-Dichloroethane	ND	4.2
2-Butanone	ND	8.3
cis-1,2-Dichloroethene	ND	4.2
2,2-Dichloropropane	ND	4.2
Chloroform	ND	4.2
Bromochloromethane	ND	4.2
1,1,1-Trichloroethane	ND	4.2
1,1-Dichloropropene	ND	4.2
Carbon Tetrachloride	ND	4.2
1,2-Dichloroethane	ND	4.2
Benzene	ND	4.2
Trichloroethene	ND	4.2
1,2-Dichloropropane	ND	4.2
Bromodichloromethane	ND	4.2
Dibromomethane	ND	4.2
4-Methyl-2-Pentanone	ND	8.3
cis-1,3-Dichloropropene	ND	4.2
Toluene	ND	4.2
trans-1,3-Dichloropropene	ND	4.2
1,1,2-Trichloroethane	ND	4.2
2-Hexanone	ND	8.3
1,3-Dichloropropane	ND	4.2
Tetrachloroethene	ND	4.2

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	SG-2-4'	Diln Fac:	0.8306
Lab ID:	286726-006	Batch#:	245303
Matrix:	Soil	Sampled:	03/06/17
Units:	ug/Kg	Received:	03/07/17
Basis:	as received	Analyzed:	03/09/17

Analyte	Result	RL
Dibromochloromethane	ND	4.2
1,2-Dibromoethane	ND	4.2
Chlorobenzene	ND	4.2
1,1,1,2-Tetrachloroethane	ND	4.2
Ethylbenzene	ND	4.2
m,p-Xylenes	ND	4.2
o-Xylene	ND	4.2
Styrene	ND	4.2
Bromoform	ND	4.2
Isopropylbenzene	ND	4.2
1,1,2,2-Tetrachloroethane	ND	4.2
1,2,3-Trichloropropane	ND	4.2
Propylbenzene	ND	4.2
Bromobenzene	ND	4.2
1,3,5-Trimethylbenzene	ND	4.2
2-Chlorotoluene	ND	4.2
4-Chlorotoluene	ND	4.2
tert-Butylbenzene	ND	4.2
1,2,4-Trimethylbenzene	ND	4.2
sec-Butylbenzene	ND	4.2
para-Isopropyl Toluene	ND	4.2
1,3-Dichlorobenzene	ND	4.2
1,4-Dichlorobenzene	ND	4.2
n-Butylbenzene	ND	4.2
1,2-Dichlorobenzene	ND	4.2
1,2-Dibromo-3-Chloropropane	ND	4.2
1,2,4-Trichlorobenzene	ND	4.2
Hexachlorobutadiene	ND	4.2
Naphthalene	ND	4.2
1,2,3-Trichlorobenzene	ND	4.2

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-128
1,2-Dichloroethane-d4	105	80-136
Toluene-d8	107	80-120
Bromofluorobenzene	106	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	245260
Units:	ug/Kg	Analyzed:	03/08/17
Diln Fac:	1.000		

Type: BS Lab ID: QC875821

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	29.21	117	65-127
Benzene	25.00	24.99	100	75-124
Trichloroethene	25.00	24.70	99	76-122
Toluene	25.00	26.18	105	77-120
Chlorobenzene	25.00	25.11	100	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-128
1,2-Dichloroethane-d4	100	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	100	80-132

Type: BSD Lab ID: QC875822

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	29.94	120	65-127	2	28
Benzene	25.00	24.83	99	75-124	1	25
Trichloroethene	25.00	24.81	99	76-122	0	26
Toluene	25.00	26.21	105	77-120	0	25
Chlorobenzene	25.00	24.75	99	80-120	1	24

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	103	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	102	80-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC875823	Batch#:	245260
Matrix:	Soil	Analyzed:	03/08/17
Units:	ug/Kg		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC875823	Batch#:	245260
Matrix:	Soil	Analyzed:	03/08/17
Units:	ug/Kg		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	107	80-128
1,2-Dichloroethane-d4	98	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	104	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	245260
MSS Lab ID:	286776-002	Sampled:	03/08/17
Matrix:	Soil	Received:	03/08/17
Units:	ug/Kg	Analyzed:	03/08/17
Basis:	as received		

Type: MS Diln Fac: 0.8636
Lab ID: QC875935

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5413	43.18	50.94	118	65-131
Benzene	<0.6306	43.18	42.59	99	68-123
Trichloroethene	<0.6568	43.18	43.01	100	60-136
Toluene	<0.6908	43.18	42.12	98	64-120
Chlorobenzene	<0.5663	43.18	38.64	89	59-120

Surrogate	%REC	Limits
Dibromofluoromethane	109	80-128
1,2-Dichloroethane-d4	106	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	103	80-132

Type: MSD Diln Fac: 0.8929
Lab ID: QC875936

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	44.64	59.83	134 *	65-131	13	33
Benzene	44.64	49.19	110	68-123	11	30
Trichloroethene	44.64	50.65	113	60-136	13	34
Toluene	44.64	49.33	111	64-120	12	31
Chlorobenzene	44.64	45.70	102	59-120	13	33

Surrogate	%REC	Limits
Dibromofluoromethane	108	80-128
1,2-Dichloroethane-d4	105	80-136
Toluene-d8	106	80-120
Bromofluorobenzene	101	80-132

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	245303
Units:	ug/Kg	Analyzed:	03/09/17
Diln Fac:	1.000		

Type: BS Lab ID: QC876002

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	31.24	125	65-127
Benzene	25.00	27.15	109	75-124
Trichloroethene	25.00	25.88	104	76-122
Toluene	25.00	27.38	110	77-120
Chlorobenzene	25.00	26.12	104	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-128
1,2-Dichloroethane-d4	105	80-136
Toluene-d8	107	80-120
Bromofluorobenzene	101	80-132

Type: BSD Lab ID: QC876003

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	31.53	126	65-127	1	28
Benzene	25.00	27.08	108	75-124	0	25
Trichloroethene	25.00	25.92	104	76-122	0	26
Toluene	25.00	27.70	111	77-120	1	25
Chlorobenzene	25.00	26.45	106	80-120	1	24

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-128
1,2-Dichloroethane-d4	103	80-136
Toluene-d8	107	80-120
Bromofluorobenzene	101	80-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC876004	Batch#:	245303
Matrix:	Soil	Analyzed:	03/09/17
Units:	ug/Kg		

Analyte	Result	RL
Freon 12	ND	10
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Acetone	ND	20
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
Carbon Disulfide	ND	5.0
MTBE	ND	5.0
trans-1,2-Dichloroethene	ND	5.0
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	5.0
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	5.0
2,2-Dichloropropane	ND	5.0
Chloroform	ND	5.0
Bromochloromethane	ND	5.0
1,1,1-Trichloroethane	ND	5.0
1,1-Dichloropropene	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Benzene	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
Dibromomethane	ND	5.0
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	5.0
Toluene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
2-Hexanone	ND	10
1,3-Dichloropropane	ND	5.0
Tetrachloroethene	ND	5.0

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC876004	Batch#:	245303
Matrix:	Soil	Analyzed:	03/09/17
Units:	ug/Kg		

Analyte	Result	RL
Dibromochloromethane	ND	5.0
1,2-Dibromoethane	ND	5.0
Chlorobenzene	ND	5.0
1,1,1,2-Tetrachloroethane	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0
Styrene	ND	5.0
Bromoform	ND	5.0
Isopropylbenzene	ND	5.0
1,1,2,2-Tetrachloroethane	ND	5.0
1,2,3-Trichloropropane	ND	5.0
Propylbenzene	ND	5.0
Bromobenzene	ND	5.0
1,3,5-Trimethylbenzene	ND	5.0
2-Chlorotoluene	ND	5.0
4-Chlorotoluene	ND	5.0
tert-Butylbenzene	ND	5.0
1,2,4-Trimethylbenzene	ND	5.0
sec-Butylbenzene	ND	5.0
para-Isopropyl Toluene	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
n-Butylbenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0
1,2-Dibromo-3-Chloropropane	ND	5.0
1,2,4-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	5.0
Naphthalene	ND	5.0
1,2,3-Trichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	110	80-128
1,2-Dichloroethane-d4	102	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	107	80-132

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	286726	Location:	Elegant Cleaners
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	245303
MSS Lab ID:	286793-001	Sampled:	03/08/17
Matrix:	Soil	Received:	03/08/17
Units:	ug/Kg	Analyzed:	03/09/17
Basis:	as received		

Type: MS Diln Fac: 0.9728
Lab ID: QC876045

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5779	48.64	59.83	123	65-131
Benzene	<0.6732	48.64	49.53	102	68-123
Trichloroethene	<0.7012	48.64	53.83	111	60-136
Toluene	<0.7374	48.64	48.61	100	64-120
Chlorobenzene	<0.6046	48.64	44.63	92	59-120

Surrogate	%REC	Limits
Dibromofluoromethane	111	80-128
1,2-Dichloroethane-d4	109	80-136
Toluene-d8	106	80-120
Bromofluorobenzene	100	80-132

Type: MSD Diln Fac: 0.9862
Lab ID: QC876046

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	49.31	65.89	134 *	65-131	8	33
Benzene	49.31	53.44	108	68-123	6	30
Trichloroethene	49.31	60.42	123	60-136	10	34
Toluene	49.31	53.61	109	64-120	8	31
Chlorobenzene	49.31	49.03	99	59-120	8	33

Surrogate	%REC	Limits
Dibromofluoromethane	112	80-128
1,2-Dichloroethane-d4	108	80-136
Toluene-d8	105	80-120
Bromofluorobenzene	101	80-132

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1703491

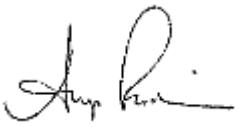
Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Jake Wilson
Project P.O.:
Project Name: Elegant Cleaners

Project Received: 03/09/2017

Analytical Report reviewed & approved for release on 03/15/2017 by:



Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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CA ELAP 1644 ♦ NELAP 4033ORELAP

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: Elegant Cleaners
WorkOrder: 1703491

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: Elegant Cleaners
WorkOrder: 1703491

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:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-1	1703491-001A	Air	03/09/2017 16:10	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 12:04
Bromochloromethane	ND	H	250	1	03/10/2017 12:04
Bromodichloromethane	ND	H	250	1	03/10/2017 12:04
Bromoform	ND	H	250	1	03/10/2017 12:04
Bromomethane	ND	H	250	1	03/10/2017 12:04
Carbon Tetrachloride	ND	H	250	1	03/10/2017 12:04
Chlorobenzene	ND	H	250	1	03/10/2017 12:04
Chloroethane	ND	H	250	1	03/10/2017 12:04
Chloroform	ND	H	250	1	03/10/2017 12:04
Chloromethane	ND	H	250	1	03/10/2017 12:04
2-Chlorotoluene	ND	H	250	1	03/10/2017 12:04
4-Chlorotoluene	ND	H	250	1	03/10/2017 12:04
Dibromochloromethane	ND	H	250	1	03/10/2017 12:04
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 12:04
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 12:04
Dibromomethane	ND	H	250	1	03/10/2017 12:04
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 12:04
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 12:04
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 12:04
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 12:04
1,1-Dichloroethane	ND	H	250	1	03/10/2017 12:04
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 12:04
1,1-Dichloroethene	ND	H	250	1	03/10/2017 12:04
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 12:04
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 12:04
1,2-Dichloropropane	ND	H	250	1	03/10/2017 12:04
1,3-Dichloropropane	ND	H	250	1	03/10/2017 12:04
2,2-Dichloropropane	ND	H	250	1	03/10/2017 12:04
1,1-Dichloropropene	ND	H	250	1	03/10/2017 12:04
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 12:04
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 12:04
Freon 113	ND	H	5000	1	03/10/2017 12:04
Hexachlorobutadiene	ND	H	250	1	03/10/2017 12:04
Hexachloroethane	ND	H	250	1	03/10/2017 12:04
Methylene chloride	ND	H	250	1	03/10/2017 12:04
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 12:04
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 12:04

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Angela Rydelius, Lab Manager

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG-1	**1703491-001A**	**Air**	**03/09/2017 16:10**	**GC18**	**135474**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**510**	H	250	1	03/10/2017 12:04
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 12:04
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 12:04
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 12:04
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 12:04
Trichloroethene	ND	H	250	1	03/10/2017 12:04
Trichlorofluoromethane	ND	H	250	1	03/10/2017 12:04
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 12:04
Vinyl Chloride	ND	H	250	1	03/10/2017 12:04

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	105	H	70-130	03/10/2017 12:04
Toluene-d8	98	H	70-130	03/10/2017 12:04
4-BFB	90	H	70-130	03/10/2017 12:04

Analyst(s): HK

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG- 2	1703491-002A	Air	03/09/2017 14:45	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 12:44
Bromochloromethane	ND	H	250	1	03/10/2017 12:44
Bromodichloromethane	ND	H	250	1	03/10/2017 12:44
Bromoform	ND	H	250	1	03/10/2017 12:44
Bromomethane	ND	H	250	1	03/10/2017 12:44
Carbon Tetrachloride	ND	H	250	1	03/10/2017 12:44
Chlorobenzene	ND	H	250	1	03/10/2017 12:44
Chloroethane	ND	H	250	1	03/10/2017 12:44
Chloroform	ND	H	250	1	03/10/2017 12:44
Chloromethane	ND	H	250	1	03/10/2017 12:44
2-Chlorotoluene	ND	H	250	1	03/10/2017 12:44
4-Chlorotoluene	ND	H	250	1	03/10/2017 12:44
Dibromochloromethane	ND	H	250	1	03/10/2017 12:44
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 12:44
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 12:44
Dibromomethane	ND	H	250	1	03/10/2017 12:44
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 12:44
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 12:44
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 12:44
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 12:44
1,1-Dichloroethane	ND	H	250	1	03/10/2017 12:44
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 12:44
1,1-Dichloroethene	ND	H	250	1	03/10/2017 12:44
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 12:44
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 12:44
1,2-Dichloropropane	ND	H	250	1	03/10/2017 12:44
1,3-Dichloropropane	ND	H	250	1	03/10/2017 12:44
2,2-Dichloropropane	ND	H	250	1	03/10/2017 12:44
1,1-Dichloropropene	ND	H	250	1	03/10/2017 12:44
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 12:44
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 12:44
Freon 113	ND	H	5000	1	03/10/2017 12:44
Hexachlorobutadiene	ND	H	250	1	03/10/2017 12:44
Hexachloroethane	ND	H	250	1	03/10/2017 12:44
Methylene chloride	ND	H	250	1	03/10/2017 12:44
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 12:44
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 12:44

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SG- 2	**1703491-002A**	**Air**	**03/09/2017 14:45**	**GC18**	**135474**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**800**	H	250	1	03/10/2017 12:44
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 12:44
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 12:44
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 12:44
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 12:44
Trichloroethene	ND	H	250	1	03/10/2017 12:44
Trichlorofluoromethane	ND	H	250	1	03/10/2017 12:44
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 12:44
Vinyl Chloride	ND	H	250	1	03/10/2017 12:44

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	105	H	70-130	03/10/2017 12:44
Toluene-d8	97	H	70-130	03/10/2017 12:44
4-BFB	90	H	70-130	03/10/2017 12:44

Analyst(s): HK

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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- 2	1703491-003A	Air	03/09/2017 15:00	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 13:23
Bromochloromethane	ND	H	250	1	03/10/2017 13:23
Bromodichloromethane	ND	H	250	1	03/10/2017 13:23
Bromoform	ND	H	250	1	03/10/2017 13:23
Bromomethane	ND	H	250	1	03/10/2017 13:23
Carbon Tetrachloride	ND	H	250	1	03/10/2017 13:23
Chlorobenzene	ND	H	250	1	03/10/2017 13:23
Chloroethane	ND	H	250	1	03/10/2017 13:23
Chloroform	ND	H	250	1	03/10/2017 13:23
Chloromethane	ND	H	250	1	03/10/2017 13:23
2-Chlorotoluene	ND	H	250	1	03/10/2017 13:23
4-Chlorotoluene	ND	H	250	1	03/10/2017 13:23
Dibromochloromethane	ND	H	250	1	03/10/2017 13:23
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 13:23
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 13:23
Dibromomethane	ND	H	250	1	03/10/2017 13:23
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 13:23
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 13:23
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 13:23
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 13:23
1,1-Dichloroethane	ND	H	250	1	03/10/2017 13:23
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 13:23
1,1-Dichloroethene	ND	H	250	1	03/10/2017 13:23
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 13:23
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 13:23
1,2-Dichloropropane	ND	H	250	1	03/10/2017 13:23
1,3-Dichloropropane	ND	H	250	1	03/10/2017 13:23
2,2-Dichloropropane	ND	H	250	1	03/10/2017 13:23
1,1-Dichloropropene	ND	H	250	1	03/10/2017 13:23
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 13:23
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 13:23
Freon 113	ND	H	5000	1	03/10/2017 13:23
Hexachlorobutadiene	ND	H	250	1	03/10/2017 13:23
Hexachloroethane	ND	H	250	1	03/10/2017 13:23
Methylene chloride	ND	H	250	1	03/10/2017 13:23
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 13:23
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 13:23

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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- 2	1703491-003A	Air	03/09/2017 15:00	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	03/10/2017 13:23
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 13:23
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 13:23
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 13:23
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 13:23
Trichloroethene	ND	H	250	1	03/10/2017 13:23
Trichlorofluoromethane	ND	H	250	1	03/10/2017 13:23
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 13:23
Vinyl Chloride	ND	H	250	1	03/10/2017 13:23

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	103	H	70-130	03/10/2017 13:23
Toluene-d8	98	H	70-130	03/10/2017 13:23
4-BFB	91	H	70-130	03/10/2017 13:23

Analyst(s): HK

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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- 3	1703491-004A	Air	03/09/2017 15:15	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 14:04
Bromochloromethane	ND	H	250	1	03/10/2017 14:04
Bromodichloromethane	ND	H	250	1	03/10/2017 14:04
Bromoform	ND	H	250	1	03/10/2017 14:04
Bromomethane	ND	H	250	1	03/10/2017 14:04
Carbon Tetrachloride	ND	H	250	1	03/10/2017 14:04
Chlorobenzene	ND	H	250	1	03/10/2017 14:04
Chloroethane	ND	H	250	1	03/10/2017 14:04
Chloroform	ND	H	250	1	03/10/2017 14:04
Chloromethane	ND	H	250	1	03/10/2017 14:04
2-Chlorotoluene	ND	H	250	1	03/10/2017 14:04
4-Chlorotoluene	ND	H	250	1	03/10/2017 14:04
Dibromochloromethane	ND	H	250	1	03/10/2017 14:04
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 14:04
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 14:04
Dibromomethane	ND	H	250	1	03/10/2017 14:04
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 14:04
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 14:04
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 14:04
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 14:04
1,1-Dichloroethane	ND	H	250	1	03/10/2017 14:04
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 14:04
1,1-Dichloroethene	ND	H	250	1	03/10/2017 14:04
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 14:04
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 14:04
1,2-Dichloropropane	ND	H	250	1	03/10/2017 14:04
1,3-Dichloropropane	ND	H	250	1	03/10/2017 14:04
2,2-Dichloropropane	ND	H	250	1	03/10/2017 14:04
1,1-Dichloropropene	ND	H	250	1	03/10/2017 14:04
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 14:04
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 14:04
Freon 113	ND	H	5000	1	03/10/2017 14:04
Hexachlorobutadiene	ND	H	250	1	03/10/2017 14:04
Hexachloroethane	ND	H	250	1	03/10/2017 14:04
Methylene chloride	ND	H	250	1	03/10/2017 14:04
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 14:04
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 14:04

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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- 3	1703491-004A	Air	03/09/2017 15:15	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	03/10/2017 14:04
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 14:04
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 14:04
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 14:04
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 14:04
Trichloroethene	ND	H	250	1	03/10/2017 14:04
Trichlorofluoromethane	ND	H	250	1	03/10/2017 14:04
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 14:04
Vinyl Chloride	ND	H	250	1	03/10/2017 14:04

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	103	H	70-130	03/10/2017 14:04
Toluene-d8	99	H	70-130	03/10/2017 14:04
4-BFB	91	H	70-130	03/10/2017 14:04

Analyst(s): HK

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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- 4	1703491-005A	Air	03/09/2017 15:33	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 16:59
Bromochloromethane	ND	H	250	1	03/10/2017 16:59
Bromodichloromethane	ND	H	250	1	03/10/2017 16:59
Bromoform	ND	H	250	1	03/10/2017 16:59
Bromomethane	ND	H	250	1	03/10/2017 16:59
Carbon Tetrachloride	ND	H	250	1	03/10/2017 16:59
Chlorobenzene	ND	H	250	1	03/10/2017 16:59
Chloroethane	ND	H	250	1	03/10/2017 16:59
Chloroform	ND	H	250	1	03/10/2017 16:59
Chloromethane	ND	H	250	1	03/10/2017 16:59
2-Chlorotoluene	ND	H	250	1	03/10/2017 16:59
4-Chlorotoluene	ND	H	250	1	03/10/2017 16:59
Dibromochloromethane	ND	H	250	1	03/10/2017 16:59
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 16:59
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 16:59
Dibromomethane	ND	H	250	1	03/10/2017 16:59
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 16:59
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 16:59
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 16:59
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 16:59
1,1-Dichloroethane	ND	H	250	1	03/10/2017 16:59
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 16:59
1,1-Dichloroethene	ND	H	250	1	03/10/2017 16:59
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 16:59
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 16:59
1,2-Dichloropropane	ND	H	250	1	03/10/2017 16:59
1,3-Dichloropropane	ND	H	250	1	03/10/2017 16:59
2,2-Dichloropropane	ND	H	250	1	03/10/2017 16:59
1,1-Dichloropropene	ND	H	250	1	03/10/2017 16:59
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 16:59
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 16:59
Freon 113	ND	H	5000	1	03/10/2017 16:59
Hexachlorobutadiene	ND	H	250	1	03/10/2017 16:59
Hexachloroethane	ND	H	250	1	03/10/2017 16:59
Methylene chloride	ND	H	250	1	03/10/2017 16:59
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 16:59
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 16:59

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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- 4	**1703491-005A**	**Air**	**03/09/2017 15:33**	**GC18**	**135474**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**1300**	H	250	1	03/10/2017 16:59
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 16:59
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 16:59
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 16:59
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 16:59
Trichloroethene	ND	H	250	1	03/10/2017 16:59
Trichlorofluoromethane	ND	H	250	1	03/10/2017 16:59
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 16:59
Vinyl Chloride	ND	H	250	1	03/10/2017 16:59

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	106	H	70-130	03/10/2017 16:59
Toluene-d8	97	H	70-130	03/10/2017 16:59
4-BFB	90	H	70-130	03/10/2017 16:59

Analyst(s): HK

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
VW- 3	1703491-006A	Air	03/09/2017 13:00	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 15:28
Bromochloromethane	ND	H	250	1	03/10/2017 15:28
Bromodichloromethane	ND	H	250	1	03/10/2017 15:28
Bromoform	ND	H	250	1	03/10/2017 15:28
Bromomethane	ND	H	250	1	03/10/2017 15:28
Carbon Tetrachloride	ND	H	250	1	03/10/2017 15:28
Chlorobenzene	ND	H	250	1	03/10/2017 15:28
Chloroethane	ND	H	250	1	03/10/2017 15:28
Chloroform	ND	H	250	1	03/10/2017 15:28
Chloromethane	ND	H	250	1	03/10/2017 15:28
2-Chlorotoluene	ND	H	250	1	03/10/2017 15:28
4-Chlorotoluene	ND	H	250	1	03/10/2017 15:28
Dibromochloromethane	ND	H	250	1	03/10/2017 15:28
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 15:28
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 15:28
Dibromomethane	ND	H	250	1	03/10/2017 15:28
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 15:28
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 15:28
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 15:28
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 15:28
1,1-Dichloroethane	ND	H	250	1	03/10/2017 15:28
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 15:28
1,1-Dichloroethene	ND	H	250	1	03/10/2017 15:28
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 15:28
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 15:28
1,2-Dichloropropane	ND	H	250	1	03/10/2017 15:28
1,3-Dichloropropane	ND	H	250	1	03/10/2017 15:28
2,2-Dichloropropane	ND	H	250	1	03/10/2017 15:28
1,1-Dichloropropene	ND	H	250	1	03/10/2017 15:28
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 15:28
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 15:28
Freon 113	ND	H	5000	1	03/10/2017 15:28
Hexachlorobutadiene	ND	H	250	1	03/10/2017 15:28
Hexachloroethane	ND	H	250	1	03/10/2017 15:28
Methylene chloride	ND	H	250	1	03/10/2017 15:28
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 15:28
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 15:28

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
VW- 3	**1703491-006A**	**Air**	**03/09/2017 13:00**	**GC18**	**135474**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**2600**	H	250	1	03/10/2017 15:28
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 15:28
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 15:28
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 15:28
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 15:28
Trichloroethene	ND	H	250	1	03/10/2017 15:28
Trichlorofluoromethane	ND	H	250	1	03/10/2017 15:28
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 15:28
Vinyl Chloride	ND	H	250	1	03/10/2017 15:28

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	105	H	70-130	03/10/2017 15:28
Toluene-d8	98	H	70-130	03/10/2017 15:28
4-BFB	89	H	70-130	03/10/2017 15:28

Analyst(s): HK

(Cont.)

NELAP 4033ORELAP

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
VW- 4	1703491-007A	Air	03/09/2017 14:20	GC18	135474

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	03/10/2017 16:15
Bromochloromethane	ND	H	250	1	03/10/2017 16:15
Bromodichloromethane	ND	H	250	1	03/10/2017 16:15
Bromoform	ND	H	250	1	03/10/2017 16:15
Bromomethane	ND	H	250	1	03/10/2017 16:15
Carbon Tetrachloride	ND	H	250	1	03/10/2017 16:15
Chlorobenzene	ND	H	250	1	03/10/2017 16:15
Chloroethane	ND	H	250	1	03/10/2017 16:15
Chloroform	ND	H	250	1	03/10/2017 16:15
Chloromethane	ND	H	250	1	03/10/2017 16:15
2-Chlorotoluene	ND	H	250	1	03/10/2017 16:15
4-Chlorotoluene	ND	H	250	1	03/10/2017 16:15
Dibromochloromethane	ND	H	250	1	03/10/2017 16:15
1,2-Dibromo-3-chloropropane	ND	H	250	1	03/10/2017 16:15
1,2-Dibromoethane (EDB)	ND	H	250	1	03/10/2017 16:15
Dibromomethane	ND	H	250	1	03/10/2017 16:15
1,2-Dichlorobenzene	ND	H	250	1	03/10/2017 16:15
1,3-Dichlorobenzene	ND	H	250	1	03/10/2017 16:15
1,4-Dichlorobenzene	ND	H	250	1	03/10/2017 16:15
Dichlorodifluoromethane	ND	H	250	1	03/10/2017 16:15
1,1-Dichloroethane	ND	H	250	1	03/10/2017 16:15
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	03/10/2017 16:15
1,1-Dichloroethene	ND	H	250	1	03/10/2017 16:15
cis-1,2-Dichloroethene	ND	H	250	1	03/10/2017 16:15
trans-1,2-Dichloroethene	ND	H	250	1	03/10/2017 16:15
1,2-Dichloropropane	ND	H	250	1	03/10/2017 16:15
1,3-Dichloropropane	ND	H	250	1	03/10/2017 16:15
2,2-Dichloropropane	ND	H	250	1	03/10/2017 16:15
1,1-Dichloropropene	ND	H	250	1	03/10/2017 16:15
cis-1,3-Dichloropropene	ND	H	250	1	03/10/2017 16:15
trans-1,3-Dichloropropene	ND	H	250	1	03/10/2017 16:15
Freon 113	ND	H	5000	1	03/10/2017 16:15
Hexachlorobutadiene	ND	H	250	1	03/10/2017 16:15
Hexachloroethane	ND	H	250	1	03/10/2017 16:15
Methylene chloride	ND	H	250	1	03/10/2017 16:15
1,1,1,2-Tetrachloroethane	ND	H	250	1	03/10/2017 16:15
1,1,2,2-Tetrachloroethane	ND	H	250	1	03/10/2017 16:15

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Received:	3/9/17 18:14	**Extraction Method:**	SW5030B
Date Prepared:	3/10/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**Unit:**	µg/m³

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

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
VW- 4	**1703491-007A**	**Air**	**03/09/2017 14:20**	**GC18**	**135474**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**950**	H	250	1	03/10/2017 16:15
1,2,3-Trichlorobenzene	ND	H	250	1	03/10/2017 16:15
1,2,4-Trichlorobenzene	ND	H	250	1	03/10/2017 16:15
1,1,1-Trichloroethane	ND	H	250	1	03/10/2017 16:15
1,1,2-Trichloroethane	ND	H	250	1	03/10/2017 16:15
Trichloroethene	ND	H	250	1	03/10/2017 16:15
Trichlorofluoromethane	ND	H	250	1	03/10/2017 16:15
1,2,3-Trichloropropane	ND	H	250	1	03/10/2017 16:15
Vinyl Chloride	ND	H	250	1	03/10/2017 16:15

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	105	H	70-130	03/10/2017 16:15
Toluene-d8	97	H	70-130	03/10/2017 16:15
4-BFB	89	H	70-130	03/10/2017 16:15

Analyst(s): HK

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Prepared:	3/10/17	**BatchID:**	135474
Date Analyzed:	3/10/17	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-135474

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Bromobenzene	ND	250	-	-	-
Bromochloromethane	ND	250	-	-	-
Bromodichloromethane	ND	250	-	-	-
Bromoform	ND	250	-	-	-
Bromomethane	ND	250	-	-	-
Carbon Tetrachloride	ND	250	-	-	-
Chlorobenzene	ND	250	-	-	-
Chloroethane	ND	250	-	-	-
Chloroform	ND	250	-	-	-
Chloromethane	ND	250	-	-	-
2-Chlorotoluene	ND	250	-	-	-
4-Chlorotoluene	ND	250	-	-	-
Dibromochloromethane	ND	250	-	-	-
1,2-Dibromo-3-chloropropane	ND	250	-	-	-
1,2-Dibromoethane (EDB)	ND	250	-	-	-
Dibromomethane	ND	250	-	-	-
1,2-Dichlorobenzene	ND	250	-	-	-
1,3-Dichlorobenzene	ND	250	-	-	-
1,4-Dichlorobenzene	ND	250	-	-	-
Dichlorodifluoromethane	ND	250	-	-	-
1,1-Dichloroethane	ND	250	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	250	-	-	-
1,1-Dichloroethene	ND	250	-	-	-
cis-1,2-Dichloroethene	ND	250	-	-	-
trans-1,2-Dichloroethene	ND	250	-	-	-
1,2-Dichloropropane	ND	250	-	-	-
1,3-Dichloropropane	ND	250	-	-	-
2,2-Dichloropropane	ND	250	-	-	-
1,1-Dichloropropene	ND	250	-	-	-
cis-1,3-Dichloropropene	ND	250	-	-	-
trans-1,3-Dichloropropene	ND	250	-	-	-
Freon 113	ND	5000	-	-	-
Hexachlorobutadiene	ND	250	-	-	-
Hexachloroethane	ND	250	-	-	-
Methylene chloride	ND	250	-	-	-
1,1,1,2-Tetrachloroethane	ND	250	-	-	-
1,1,2,2-Tetrachloroethane	ND	250	-	-	-
Tetrachloroethene	ND	250	-	-	-
1,2,3-Trichlorobenzene	ND	250	-	-	-

(Cont.)

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QA/QC Officer

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Prepared:	3/10/17	**BatchID:**	135474
Date Analyzed:	3/10/17	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-135474

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
1,2,4-Trichlorobenzene	ND	250	-	-	-
1,1,1-Trichloroethane	ND	250	-	-	-
1,1,2-Trichloroethane	ND	250	-	-	-
Trichloroethene	ND	250	-	-	-
Trichlorofluoromethane	ND	250	-	-	-
1,2,3-Trichloropropane	ND	250	-	-	-
Vinyl Chloride	ND	250	-	-	-
Surrogate Recovery					
Dibromofluoromethane	13150		12500	105	70-130
Toluene-d8	11970		12500	96	70-130
4-BFB	1231		1250	98	70-130

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Prepared:	3/10/17	**BatchID:**	135474
Date Analyzed:	3/10/17	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-135474

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Bromobenzene	4350	4450	5000	87	89	55-119	2.43	30
Bromochloromethane	5500	5350	5000	110	107	60-126	2.73	30
Bromodichloromethane	4750	4620	5000	95	92	53-138	2.84	30
Bromoform	2880	2920	5000	58	59	47-114	1.60	30
Bromomethane	6250	6180	5000	125	123	54-169	1.15	30
Carbon Tetrachloride	5040	4900	5000	101	98	64-132	3.02	30
Chlorobenzene	4750	4680	5000	95	94	69-112	1.55	30
Chloroethane	5090	4910	5000	102	98	58-133	3.71	30
Chloroform	5090	4920	5000	102	98	73-122	3.40	30
Chloromethane	5000	4910	5000	100	98	51-149	1.89	30
2-Chlorotoluene	4540	4600	5000	91	92	65-114	1.17	30
4-Chlorotoluene	4260	4370	5000	85	87	63-114	2.47	30
Dibromochloromethane	4110	4080	5000	82	81	42-122	0.845	30
1,2-Dibromo-3-chloropropane	820	917	2000	41	46	34-99	11.3	30
1,2-Dibromoethane (EDB)	4600	4550	5000	92	91	62-117	1.08	30
Dibromomethane	5140	5020	5000	103	100	66-127	2.37	30
1,2-Dichlorobenzene	3720	3830	5000	74	77	56-105	3.03	30
1,3-Dichlorobenzene	4150	4250	5000	83	85	63-108	2.19	30
1,4-Dichlorobenzene	4020	4110	5000	80	82	63-103	2.09	30
Dichlorodifluoromethane	5000	4810	5000	100	96	43-165	3.94	30
1,1-Dichloroethane	5120	4890	5000	102	98	70-124	4.46	30
1,2-Dichloroethane (1,2-DCA)	5000	4860	5000	100	97	61-126	2.87	30
1,1-Dichloroethene	4580	4420	5000	92	88	67-122	3.57	30
cis-1,2-Dichloroethene	4840	4740	5000	97	95	69-124	2.04	30
1,2-Dichloropropane	5090	4930	5000	102	99	70-121	3.12	30
1,3-Dichloropropane	4740	4590	5000	95	92	63-116	3.16	30
2,2-Dichloropropane	5190	4990	5000	104	100	67-140	3.83	30
1,1-Dichloropropene	5660	5450	5000	113	109	66-124	3.81	30
cis-1,3-Dichloropropene	4780	4600	5000	96	92	69-116	3.80	30
Freon 113		-	0	F2	-	-	-	-
Hexachlorobutadiene	2510	2830	5000	50	57	38-111	11.9	30
Hexachloroethane	7350	7540	5000	147, F2	151, F2	35-104	2.46	30
Methylene chloride	4540	4380	5000	91	88	63-117	3.70	30
1,1,1,2-Tetrachloroethane	4610	4570	5000	92	91	59-124	0.724	30
1,1,2,2-Tetrachloroethane	3810	3850	5000	76	77	55-108	1.13	30
Tetrachloroethene	5120	4940	5000	102	99	56-131	3.65	30
1,2,3-Trichlorobenzene	1590	1870	5000	32, F2	37	36-92	16.1	30
1,2,4-Trichlorobenzene	2160	2490	5000	43	50	40-97	13.9	30
1,1,1-Trichloroethane	5120	4950	5000	102	99	67-132	3.43	30

(Cont.)

NELAP 4033ORELAP

QA/QC Officer

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1703491
Date Prepared:	3/10/17	**BatchID:**	135474
Date Analyzed:	3/10/17	**Extraction Method:**	SW5030B
Instrument:	GC18	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-135474

QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
1,1,2-Trichloroethane	4570	4490	5000	91	90	62-116	1.87	30
Trichloroethene	5180	5020	5000	104	100	66-127	3.19	30
Trichlorofluoromethane	4720	4520	5000	94	90	63-123	4.20	30
1,2,3-Trichloropropane	4120	4190	5000	82	84	54-112	1.61	30
Vinyl Chloride	5530	5320	5000	111	106	58-162	3.86	30
Surrogate Recovery								
Dibromofluoromethane	13,100	13,200	12500	105	105	83-124	0	30
Toluene-d8	12,400	12,200	12500	99	98	80-120	1.13	30
4-BFB	1170	1220	1250	94	97	70-129	3.96	30

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1703491 **ClientCode: PEO**

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

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

Email: jwilson@pangeaenv.com
cc/3rd Party:
PO:
ProjectNo: Elegant Cleaners

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

Requested TAT: 5 days;

Date Received: **03/09/2017**
Date Logged: **03/09/2017**

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
1703491-001	SG-1	Air	3/9/2017 16:10	☐	A											
1703491-002	SG- 2	Air	3/9/2017 14:45	☐	A											
1703491-003	SS- 2	Air	3/9/2017 15:00	☐	A											
1703491-004	SS- 3	Air	3/9/2017 15:15	☐	A											
1703491-005	SS- 4	Air	3/9/2017 15:33	☐	A											
1703491-006	VW- 3	Air	3/9/2017 13:00	☐	A											
1703491-007	VW- 4	Air	3/9/2017 14:20	☐	A											

Test Legend:

1	8010_A(UG/M3)	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Tina Perez

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A contain testgroup 8010BMS_A.

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. **Project:** Elegant Cleaners **Work Order:** 1703491
Client Contact: Jake Wilson **QC Level:** LEVEL 2
Contact's Email: jwilson@pangeaenv.com **Comments:** **Date Logged:** 3/9/2017

☐ 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
1703491-001A	SG-1	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 16:10	5 days		☐	
1703491-002A	SG- 2	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 14:45	5 days		☐	
1703491-003A	SS- 2	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 15:00	5 days		☐	
1703491-004A	SS- 3	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 15:15	5 days		☐	
1703491-005A	SS- 4	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 15:33	5 days		☐	
1703491-006A	VW- 3	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 13:00	5 days		☐	
1703491-007A	VW- 4	Air	HVOCs by GCMS	1	Tedlar	☐	3/9/2017 14:20	5 days		☐	

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

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

General COC

MAI Work Order # 1703491

McCAMPBELL ANALYTICAL, INC.

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CHAIN OF CUSTODY RECORD

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

Report To: Jake Wilson Bill To: Pangea
Company: Pangea Env. Svs.
Email: Jwilson@pangeaenv.com
Alt Email: Tele: 510-836-3700
Project Name/#: Elegant Cleaners
Project Location: 1208 Lincoln Ave PO #
Sampler Signature:

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative
SG-1	3.9.17	1610	1	A	—
SG-2		1445	1	A	—
SS-2		1500	1	A	—
SS-3		1515	1	A	—
SS-4		1533	1	A	—
VW-3		1300	1	A	—
VW-4	3.9.17	1420	1	A	—

Analysis Requested

BTEX & TPH as Gas (8021/ 8015) MTBE	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) + Motor Oil With Silica Gel	Total Oil & Grease (1664 / 9071) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 / 9071) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ; Aroclors only	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.8 / 6020)*	Metals (200.8 / 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	8010			
															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 (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

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

Comments / Instructions

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	3-9-17	1910		3/9/17	18:14

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp _____ °C Initials

Page 1 of 1

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

Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received:	**3/9/2017 18:14**
Project Name:	**Elegant Cleaners**	Date Logged:	**3/9/2017**
		Received by:	Tina Perez
WorkOrder №:	**1703491** Matrix: Air	Logged by:	Tina Perez
Carrier:	Client Drop-In		

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	☐	NA ☐
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:


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

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

Laboratory Job Number 287400
ANALYTICAL REPORT

Pangea Environmental	Project : STANDARD
1710 Franklin Street	Location : 1208 Lincoln
Oakland, CA 94612	Level : II

Sample ID	Lab ID
B-4-W	287400-001
B-5-W	287400-002
B-6-W	287400-003
B-7-W	287400-004

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

Signature: _____ Date: 04/04/2017

Will Rice
Project Manager
will.rice@ctberk.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**287400**
Client:	**Pangea Environmental**
Location:	**1208 Lincoln**
Request Date:	**03/27/17**
Samples Received:	**03/27/17**

This data package contains sample and QC results for four water samples, requested for the above referenced project on 03/27/17. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
Low surrogate recovery was observed for bromofluorobenzene (FID) in the method blank for batch 246021. No other analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
No analytical problems were encountered.

CHAIN OF COUSTODY

Page 1 of 1

Chain of Custody #

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 287400

Project No:
Project Name: 1208 Lincoln
Project P. O. No:
EDD Format: Report Level ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☒ Standard

Sampler: E. Lervaag
Report To: Jake Wilson
Company: Pangea Env. Svs.
Telephone: 510-836-3700
Email: Jwilson@pangeaenv.com

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid	# of Containers	HCl	H2SO4	HNO3	NaOH	None	VOC by 8260	TPHg, TPHd by 8015
	B-4-W	3.27.17	1211	X		8	X				X	X	
	B-5-W		1215	X		8	X				X	X	X
	B-6-W		1220	X		8	X				X	X	
	B-7-W	3.27.17	1225	X		8	X				X	X	

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☐ On Ice
☐ Ambient

RELINQUISHED BY:
[signature] DATE: 3.27.17 TIME: 1541
DATE: TIME:
DATE: TIME:

RECEIVED BY:
[signature] DATE: 3/27/17 TIME: 1541
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 287400 Date Received 3.27.17 Number of coolers 1
Client Pangea Environmental Service Project 1208 Lincoln

Date Opened 3.27.17 By (print) DC (sign)
Date Logged in _____ By (print) _____ (sign) _____
Date Labeled _____ By (print) _____ (sign) _____

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

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

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

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

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 4.5

☐ Temperature blank(s) included? ☐ Thermometer# _____ ☒ IR Gun# A

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

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

COMMENTS

_____

_____

_____

_____

_____

_____

Curtis & Tompkins, Ltd.

Detections Summary for 287400

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

Client : Pangea Environmental
Project : STANDARD
Location : 1208 Lincoln

Client Sample ID : B-4-W Laboratory Sample ID : 287400-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	41		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
m,p-Xylenes	1.3		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Client Sample ID : B-5-W Laboratory Sample ID : 287400-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Gasoline C7-C12	170	Z	50	ug/L	As Recd	1.000	EPA 8015B	EPA 5030B
Trichloroethene	2.8		2.5	ug/L	As Recd	5.000	EPA 8260B	EPA 5030B
Tetrachloroethene	360		2.5	ug/L	As Recd	5.000	EPA 8260B	EPA 5030B

Client Sample ID : B-6-W Laboratory Sample ID : 287400-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Trichloroethene	1.2		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
Tetrachloroethene	59		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B
para-Isopropyl Toluene	1.0		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Client Sample ID : B-7-W Laboratory Sample ID : 287400-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	3.0		0.5	ug/L	As Recd	1.000	EPA 8260B	EPA 5030B

Z = Sample exhibits unknown single peak or peaks

Curtis & Tompkins, Ltd.

Total Volatile Hydrocarbons

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	B-5-W	Batch#:	246021
Matrix:	Water	Sampled:	03/27/17
Units:	ug/L	Received:	03/27/17
Diln Fac:	1.000		

Type: SAMPLE Analyzed: 03/29/17
Lab ID: 287400-002

Analyte	Result	RL
Gasoline C7-C12	170 Z	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	80-122

Type: BLANK Analyzed: 03/28/17
Lab ID: QC878903

Analyte	Result	RL
Gasoline C7-C12	ND	50

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	78 *	80-122

*= Value outside of QC limits; see narrative
Z= Sample exhibits unknown single peak or peaks
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC878900	Batch#:	246021
Matrix:	Water	Analyzed:	03/28/17
Units:	ug/L		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,000	972.8	97	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	85	80-122

Curtis & Tompkins, Ltd.

Batch QC Report

Total Volatile Hydrocarbons

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	B-5-W	Batch#:	246021
MSS Lab ID:	287400-002	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Type: MS Lab ID: QC878901

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	169.3	2,000	2,118	97	79-120

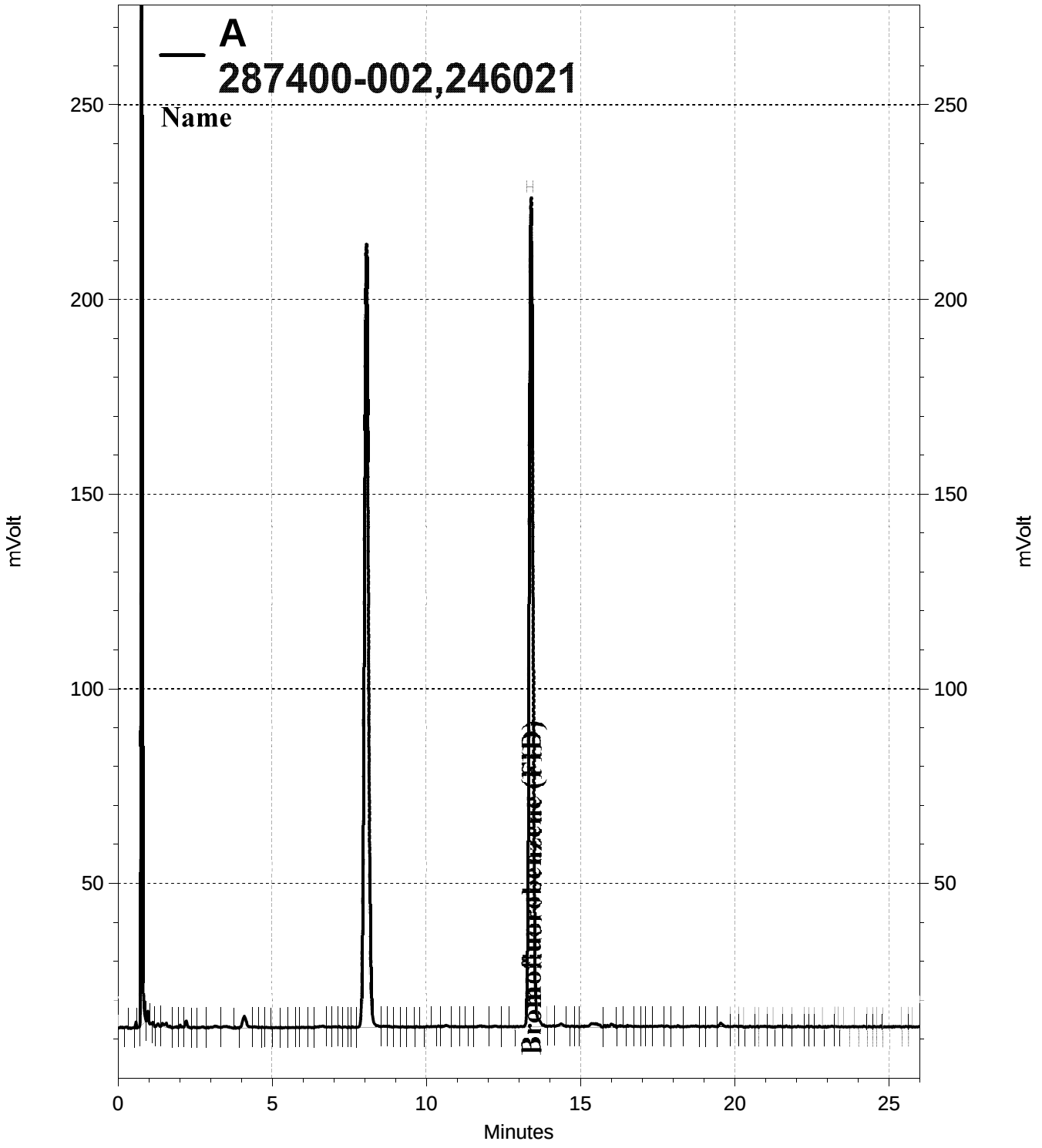
Surrogate	%REC	Limits
Bromofluorobenzene (FID)	99	80-122

Type: MSD Lab ID: QC878902

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	2,000	2,260	105	79-120	6	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	106	80-122

RPD= Relative Percent Difference



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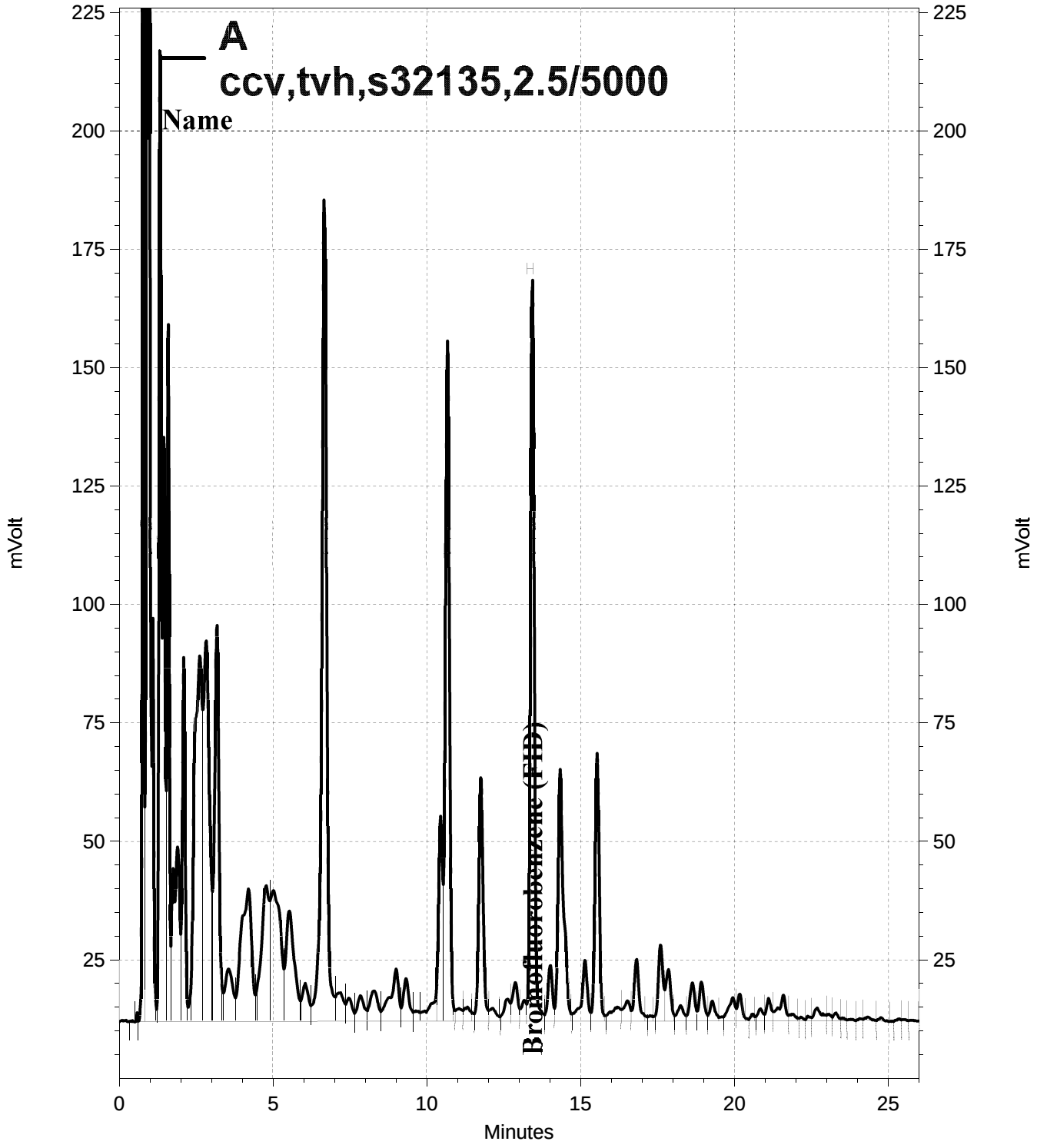
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Name
Bromofluorobenzene (FID)
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125
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75
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25
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10
15
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25
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Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	B-5-W	Batch#:	246126
Matrix:	Water	Sampled:	03/27/17
Units:	ug/L	Received:	03/27/17
Diln Fac:	1.000	Prepared:	03/30/17

Type: SAMPLE Analyzed: 03/31/17
Lab ID: 287400-002

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	76	52-138

Type: BLANK Analyzed: 04/03/17
Lab ID: QC879338

Analyte	Result	RL
Diesel C10-C24	ND	50

Surrogate	%REC	Limits
o-Terphenyl	115	52-138

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 3520C
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Water	Batch#:	246126
Units:	ug/L	Prepared:	03/30/17
Diln Fac:	1.000	Analyzed:	03/31/17

Type: BS Lab ID: QC879339

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	2,500	2,420	97	52-124

Surrogate	%REC	Limits
o-Terphenyl	106	52-138

Type: BSD Lab ID: QC879340

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	2,500	2,310	92	52-124	5	34

Surrogate	%REC	Limits
o-Terphenyl	100	52-138

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-4-W	Batch#:	246070
Lab ID:	287400-001	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	41	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-4-W	Batch#:	246070
Lab ID:	287400-001	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	1.3	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-5-W	Batch#:	246070
Lab ID:	287400-002	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	5.000		

Analyte	Result	RL
Freon 12	ND	5.0
Chloromethane	ND	5.0
Vinyl Chloride	ND	2.5
Bromomethane	ND	5.0
Chloroethane	ND	5.0
Trichlorofluoromethane	ND	5.0
Acetone	ND	50
Freon 113	ND	10
1,1-Dichloroethene	ND	2.5
Methylene Chloride	ND	50
Carbon Disulfide	ND	2.5
MTBE	ND	2.5
trans-1,2-Dichloroethene	ND	2.5
Vinyl Acetate	ND	50
1,1-Dichloroethane	ND	2.5
2-Butanone	ND	50
cis-1,2-Dichloroethene	ND	2.5
2,2-Dichloropropane	ND	2.5
Chloroform	ND	2.5
Bromochloromethane	ND	2.5
1,1,1-Trichloroethane	ND	2.5
1,1-Dichloropropene	ND	2.5
Carbon Tetrachloride	ND	2.5
1,2-Dichloroethane	ND	2.5
Benzene	ND	2.5
Trichloroethene	2.8	2.5
1,2-Dichloropropane	ND	2.5
Bromodichloromethane	ND	2.5
Dibromomethane	ND	2.5
4-Methyl-2-Pentanone	ND	50
cis-1,3-Dichloropropene	ND	2.5
Toluene	ND	2.5
trans-1,3-Dichloropropene	ND	2.5
1,1,2-Trichloroethane	ND	2.5
2-Hexanone	ND	50
1,3-Dichloropropane	ND	2.5
Tetrachloroethene	360	2.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-5-W	Batch#:	246070
Lab ID:	287400-002	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	5.000		

Analyte	Result	RL
Dibromochloromethane	ND	2.5
1,2-Dibromoethane	ND	2.5
Chlorobenzene	ND	2.5
1,1,1,2-Tetrachloroethane	ND	2.5
Ethylbenzene	ND	2.5
m,p-Xylenes	ND	2.5
o-Xylene	ND	2.5
Styrene	ND	2.5
Bromoform	ND	5.0
Isopropylbenzene	ND	2.5
1,1,2,2-Tetrachloroethane	ND	2.5
1,2,3-Trichloropropane	ND	2.5
Propylbenzene	ND	2.5
Bromobenzene	ND	2.5
1,3,5-Trimethylbenzene	ND	2.5
2-Chlorotoluene	ND	2.5
4-Chlorotoluene	ND	2.5
tert-Butylbenzene	ND	2.5
1,2,4-Trimethylbenzene	ND	2.5
sec-Butylbenzene	ND	2.5
para-Isopropyl Toluene	ND	2.5
1,3-Dichlorobenzene	ND	2.5
1,4-Dichlorobenzene	ND	2.5
n-Butylbenzene	ND	2.5
1,2-Dichlorobenzene	ND	2.5
1,2-Dibromo-3-Chloropropane	ND	10
1,2,4-Trichlorobenzene	ND	2.5
Hexachlorobutadiene	ND	10
Naphthalene	ND	10
1,2,3-Trichlorobenzene	ND	2.5

Surrogate	%REC	Limits
Dibromofluoromethane	96	80-120
1,2-Dichloroethane-d4	95	73-136
Toluene-d8	99	80-120
Bromofluorobenzene	99	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-6-W	Batch#:	246070
Lab ID:	287400-003	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	1.2	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	59	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-6-W	Batch#:	246070
Lab ID:	287400-003	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	1.0	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	102	80-120
Bromofluorobenzene	103	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-7-W	Batch#:	246070
Lab ID:	287400-004	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	3.0	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-7-W	Batch#:	246070
Lab ID:	287400-004	Sampled:	03/27/17
Matrix:	Water	Received:	03/27/17
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	101	80-120
1,2-Dichloroethane-d4	100	73-136
Toluene-d8	102	80-120
Bromofluorobenzene	102	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	246070
Units:	ug/L	Analyzed:	03/29/17
Diln Fac:	1.000		

Type: BS Lab ID: QC879096

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	12.50	14.25	114	66-127
Benzene	12.50	13.94	111	78-123
Trichloroethene	12.50	13.08	105	75-120
Toluene	12.50	14.43	115	80-120
Chlorobenzene	12.50	13.75	110	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	103	80-120
Bromofluorobenzene	100	80-120

Type: BSD Lab ID: QC879097

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	12.50	12.28	98	66-127	15	20
Benzene	12.50	11.96	96	78-123	15	20
Trichloroethene	12.50	11.51	92	75-120	13	20
Toluene	12.50	12.33	99	80-120	16	20
Chlorobenzene	12.50	12.01	96	80-120	14	20

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	99	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	101	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC879098	Batch#:	246070
Matrix:	Water	Analyzed:	03/29/17
Units:	ug/L		

Analyte	Result	RL
Freon 12	ND	1.0
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Acetone	ND	10
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	10
Carbon Disulfide	ND	0.5
MTBE	ND	0.5
trans-1,2-Dichloroethene	ND	0.5
Vinyl Acetate	ND	10
1,1-Dichloroethane	ND	0.5
2-Butanone	ND	10
cis-1,2-Dichloroethene	ND	0.5
2,2-Dichloropropane	ND	0.5
Chloroform	ND	0.5
Bromochloromethane	ND	0.5
1,1,1-Trichloroethane	ND	0.5
1,1-Dichloropropene	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Benzene	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
Dibromomethane	ND	0.5
4-Methyl-2-Pentanone	ND	10
cis-1,3-Dichloropropene	ND	0.5
Toluene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
2-Hexanone	ND	10
1,3-Dichloropropane	ND	0.5
Tetrachloroethene	ND	0.5

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	287400	Location:	1208 Lincoln
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC879098	Batch#:	246070
Matrix:	Water	Analyzed:	03/29/17
Units:	ug/L		

Analyte	Result	RL
Dibromochloromethane	ND	0.5
1,2-Dibromoethane	ND	0.5
Chlorobenzene	ND	0.5
1,1,1,2-Tetrachloroethane	ND	0.5
Ethylbenzene	ND	0.5
m,p-Xylenes	ND	0.5
o-Xylene	ND	0.5
Styrene	ND	0.5
Bromoform	ND	1.0
Isopropylbenzene	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,2,3-Trichloropropane	ND	0.5
Propylbenzene	ND	0.5
Bromobenzene	ND	0.5
1,3,5-Trimethylbenzene	ND	0.5
2-Chlorotoluene	ND	0.5
4-Chlorotoluene	ND	0.5
tert-Butylbenzene	ND	0.5
1,2,4-Trimethylbenzene	ND	0.5
sec-Butylbenzene	ND	0.5
para-Isopropyl Toluene	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
n-Butylbenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5
1,2-Dibromo-3-Chloropropane	ND	2.0
1,2,4-Trichlorobenzene	ND	0.5
Hexachlorobutadiene	ND	2.0
Naphthalene	ND	2.0
1,2,3-Trichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	100	80-120
1,2-Dichloroethane-d4	101	73-136
Toluene-d8	101	80-120
Bromofluorobenzene	104	80-120

ND= Not Detected
RL= Reporting Limit

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1708945

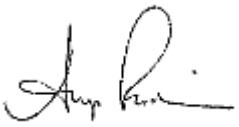
Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Morgan Gillies
Project P.O.:
Project Name: 1208 Lincoln; Elegant Cleaners

Project Received: 08/21/2017

Analytical Report reviewed & approved for release on 08/25/2017 by:



Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

McCampbell Analytical, Inc.
"When Quality Counts"
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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: 1208 Lincoln; Elegant Cleaners
WorkOrder: 1708945

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
ERS	External reference sample. Second source calibration verification.
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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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708945
Date Received:	8/21/17 19:25	**Extraction Method:**	SW5030B
Date Prepared:	8/23/17	**Analytical Method:**	SW8260B
Project:	1208 Lincoln; Elegant Cleaners	**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	1708945-001A	Air	08/21/2017 14:50	GC38	144314

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	08/23/2017 11:26
Bromochloromethane	ND	H	250	1	08/23/2017 11:26
Bromodichloromethane	ND	H	250	1	08/23/2017 11:26
Bromoform	ND	H	250	1	08/23/2017 11:26
Bromomethane	ND	H	250	1	08/23/2017 11:26
Carbon Tetrachloride	ND	H	250	1	08/23/2017 11:26
Chlorobenzene	ND	H	250	1	08/23/2017 11:26
Chloroethane	ND	H	250	1	08/23/2017 11:26
Chloroform	ND	H	250	1	08/23/2017 11:26
Chloromethane	ND	H	250	1	08/23/2017 11:26
2-Chlorotoluene	ND	H	250	1	08/23/2017 11:26
4-Chlorotoluene	ND	H	250	1	08/23/2017 11:26
Dibromochloromethane	ND	H	250	1	08/23/2017 11:26
1,2-Dibromo-3-chloropropane	ND	H	250	1	08/23/2017 11:26
1,2-Dibromoethane (EDB)	ND	H	250	1	08/23/2017 11:26
Dibromomethane	ND	H	250	1	08/23/2017 11:26
1,2-Dichlorobenzene	ND	H	250	1	08/23/2017 11:26
1,3-Dichlorobenzene	ND	H	250	1	08/23/2017 11:26
1,4-Dichlorobenzene	ND	H	250	1	08/23/2017 11:26
Dichlorodifluoromethane	ND	H	250	1	08/23/2017 11:26
1,1-Dichloroethane	ND	H	250	1	08/23/2017 11:26
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	08/23/2017 11:26
1,1-Dichloroethene	ND	H	250	1	08/23/2017 11:26
cis-1,2-Dichloroethene	ND	H	250	1	08/23/2017 11:26
trans-1,2-Dichloroethene	ND	H	250	1	08/23/2017 11:26
1,2-Dichloropropane	ND	H	250	1	08/23/2017 11:26
1,3-Dichloropropane	ND	H	250	1	08/23/2017 11:26
2,2-Dichloropropane	ND	H	250	1	08/23/2017 11:26
1,1-Dichloropropene	ND	H	250	1	08/23/2017 11:26
cis-1,3-Dichloropropene	ND	H	250	1	08/23/2017 11:26
trans-1,3-Dichloropropene	ND	H	250	1	08/23/2017 11:26
Freon 113	ND	H	5000	1	08/23/2017 11:26
Hexachlorobutadiene	ND	H	250	1	08/23/2017 11:26
Hexachloroethane	ND	H	250	1	08/23/2017 11:26
Methylene chloride	ND	H	250	1	08/23/2017 11:26
1,1,1,2-Tetrachloroethane	ND	H	250	1	08/23/2017 11:26
1,1,2,2-Tetrachloroethane	ND	H	250	1	08/23/2017 11:26

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708945
Date Received:	8/21/17 19:25	**Extraction Method:**	SW5030B
Date Prepared:	8/23/17	**Analytical Method:**	SW8260B
Project:	1208 Lincoln; Elegant Cleaners	**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	**1708945-001A**	**Air**	**08/21/2017 14:50**	**GC38**	**144314**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**1700**	H	250	1	08/23/2017 11:26
1,2,3-Trichlorobenzene	ND	H	250	1	08/23/2017 11:26
1,2,4-Trichlorobenzene	ND	H	250	1	08/23/2017 11:26
1,1,1-Trichloroethane	ND	H	250	1	08/23/2017 11:26
1,1,2-Trichloroethane	ND	H	250	1	08/23/2017 11:26
Trichloroethene	ND	H	250	1	08/23/2017 11:26
Trichlorofluoromethane	ND	H	250	1	08/23/2017 11:26
1,2,3-Trichloropropane	ND	H	250	1	08/23/2017 11:26
Vinyl Chloride	ND	H	250	1	08/23/2017 11:26

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	119	H	70-130	08/23/2017 11:26
Toluene-d8	111	H	70-130	08/23/2017 11:26
4-BFB	96	H	70-130	08/23/2017 11:26

Analyst(s): HK

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708945
Date Received:	8/21/17 19:25	**Extraction Method:**	SW5030B
Date Prepared:	8/23/17	**Analytical Method:**	SW8260B
Project:	1208 Lincoln; Elegant Cleaners	**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	1708945-002A	Air	08/21/2017 15:30	GC38	144314

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	08/23/2017 12:08
Bromochloromethane	ND	H	250	1	08/23/2017 12:08
Bromodichloromethane	ND	H	250	1	08/23/2017 12:08
Bromoform	ND	H	250	1	08/23/2017 12:08
Bromomethane	ND	H	250	1	08/23/2017 12:08
Carbon Tetrachloride	ND	H	250	1	08/23/2017 12:08
Chlorobenzene	ND	H	250	1	08/23/2017 12:08
Chloroethane	ND	H	250	1	08/23/2017 12:08
Chloroform	ND	H	250	1	08/23/2017 12:08
Chloromethane	ND	H	250	1	08/23/2017 12:08
2-Chlorotoluene	ND	H	250	1	08/23/2017 12:08
4-Chlorotoluene	ND	H	250	1	08/23/2017 12:08
Dibromochloromethane	ND	H	250	1	08/23/2017 12:08
1,2-Dibromo-3-chloropropane	ND	H	250	1	08/23/2017 12:08
1,2-Dibromoethane (EDB)	ND	H	250	1	08/23/2017 12:08
Dibromomethane	ND	H	250	1	08/23/2017 12:08
1,2-Dichlorobenzene	ND	H	250	1	08/23/2017 12:08
1,3-Dichlorobenzene	ND	H	250	1	08/23/2017 12:08
1,4-Dichlorobenzene	ND	H	250	1	08/23/2017 12:08
Dichlorodifluoromethane	ND	H	250	1	08/23/2017 12:08
1,1-Dichloroethane	ND	H	250	1	08/23/2017 12:08
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	08/23/2017 12:08
1,1-Dichloroethene	ND	H	250	1	08/23/2017 12:08
cis-1,2-Dichloroethene	ND	H	250	1	08/23/2017 12:08
trans-1,2-Dichloroethene	ND	H	250	1	08/23/2017 12:08
1,2-Dichloropropane	ND	H	250	1	08/23/2017 12:08
1,3-Dichloropropane	ND	H	250	1	08/23/2017 12:08
2,2-Dichloropropane	ND	H	250	1	08/23/2017 12:08
1,1-Dichloropropene	ND	H	250	1	08/23/2017 12:08
cis-1,3-Dichloropropene	ND	H	250	1	08/23/2017 12:08
trans-1,3-Dichloropropene	ND	H	250	1	08/23/2017 12:08
Freon 113	ND	H	5000	1	08/23/2017 12:08
Hexachlorobutadiene	ND	H	250	1	08/23/2017 12:08
Hexachloroethane	ND	H	250	1	08/23/2017 12:08
Methylene chloride	ND	H	250	1	08/23/2017 12:08
1,1,1,2-Tetrachloroethane	ND	H	250	1	08/23/2017 12:08
1,1,2,2-Tetrachloroethane	ND	H	250	1	08/23/2017 12:08

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708945
Date Received:	8/21/17 19:25	**Extraction Method:**	SW5030B
Date Prepared:	8/23/17	**Analytical Method:**	SW8260B
Project:	1208 Lincoln; Elegant Cleaners	**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	**1708945-002A**	**Air**	**08/21/2017 15:30**	**GC38**	**144314**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**6000**	H	250	1	08/23/2017 12:08
1,2,3-Trichlorobenzene	ND	H	250	1	08/23/2017 12:08
1,2,4-Trichlorobenzene	ND	H	250	1	08/23/2017 12:08
1,1,1-Trichloroethane	ND	H	250	1	08/23/2017 12:08
1,1,2-Trichloroethane	ND	H	250	1	08/23/2017 12:08
Trichloroethene	ND	H	250	1	08/23/2017 12:08
Trichlorofluoromethane	ND	H	250	1	08/23/2017 12:08
1,2,3-Trichloropropane	ND	H	250	1	08/23/2017 12:08
Vinyl Chloride	ND	H	250	1	08/23/2017 12:08

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	118	H	70-130	08/23/2017 12:08
Toluene-d8	111	H	70-130	08/23/2017 12:08
4-BFB	96	H	70-130	08/23/2017 12:08

Analyst(s): HK

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708945
Date Prepared:	8/23/17	**BatchID:**	144314
Date Analyzed:	8/23/17	**Extraction Method:**	SW5030B
Instrument:	GC38	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	1208 Lincoln; Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-144314

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Bromobenzene	ND	250	-	-	-
Bromochloromethane	ND	250	-	-	-
Bromodichloromethane	ND	250	-	-	-
Bromoform	ND	250	-	-	-
Bromomethane	ND	250	-	-	-
Carbon Tetrachloride	ND	250	-	-	-
Chlorobenzene	ND	250	-	-	-
Chloroethane	ND	250	-	-	-
Chloroform	ND	250	-	-	-
Chloromethane	ND	250	-	-	-
2-Chlorotoluene	ND	250	-	-	-
4-Chlorotoluene	ND	250	-	-	-
Dibromochloromethane	ND	250	-	-	-
1,2-Dibromo-3-chloropropane	ND	250	-	-	-
1,2-Dibromoethane (EDB)	ND	250	-	-	-
Dibromomethane	ND	250	-	-	-
1,2-Dichlorobenzene	ND	250	-	-	-
1,3-Dichlorobenzene	ND	250	-	-	-
1,4-Dichlorobenzene	ND	250	-	-	-
Dichlorodifluoromethane	ND	250	-	-	-
1,1-Dichloroethane	ND	250	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	250	-	-	-
1,1-Dichloroethene	ND	250	-	-	-
cis-1,2-Dichloroethene	ND	250	-	-	-
trans-1,2-Dichloroethene	ND	250	-	-	-
1,2-Dichloropropane	ND	250	-	-	-
1,3-Dichloropropane	ND	250	-	-	-
2,2-Dichloropropane	ND	250	-	-	-
1,1-Dichloropropene	ND	250	-	-	-
cis-1,3-Dichloropropene	ND	250	-	-	-
trans-1,3-Dichloropropene	ND	250	-	-	-
Freon 113	ND	5000	-	-	-
Hexachlorobutadiene	ND	250	-	-	-
Hexachloroethane	ND	250	-	-	-
Methylene chloride	ND	250	-	-	-
1,1,1,2-Tetrachloroethane	ND	250	-	-	-
1,1,2,2-Tetrachloroethane	ND	250	-	-	-
Tetrachloroethene	ND	250	-	-	-
1,2,3-Trichlorobenzene	ND	250	-	-	-

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708945
Date Prepared:	8/23/17	**BatchID:**	144314
Date Analyzed:	8/23/17	**Extraction Method:**	SW5030B
Instrument:	GC38	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	1208 Lincoln; Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-144314

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
1,2,4-Trichlorobenzene	ND	250	-	-	-
1,1,1-Trichloroethane	ND	250	-	-	-
1,1,2-Trichloroethane	ND	250	-	-	-
Trichloroethene	ND	250	-	-	-
Trichlorofluoromethane	ND	250	-	-	-
1,2,3-Trichloropropane	ND	250	-	-	-
Vinyl Chloride	ND	250	-	-	-
Surrogate Recovery					
Dibromofluoromethane	14650		12500	117	70-130
Toluene-d8	13780		12500	110	70-130
4-BFB	1244		1250	99	70-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chlorobenzene	4280	4280	5000	86	86	69-112	0	30
1,2-Dibromoethane (EDB)	4320	4380	5000	86	88	62-117	1.41	30
1,2-Dichloroethane (1,2-DCA)	4280	4300	5000	86	86	61-126	0	30
1,1-Dichloroethene	5330	5320	5000	107	106	67-122	0.215	30
Trichloroethene	4660	4650	5000	93	93	66-127	0	30
Surrogate Recovery								
Dibromofluoromethane	14,900	15,000	12500	119	120	83-124	0.770	30
Toluene-d8	13,700	13,700	12500	109	110	80-120	0.529	30
4-BFB	1380	1410	1250	111	113	70-129	1.75	30

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1708945 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
▣ Detection Summary ▣ Dry-Weight

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

Email: mgillies@pangeaenv.com
cc/3rd Party:
PO:
ProjectNo: Elegant Cleaners

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

Requested TAT: 5 days;

Date Received: **08/21/2017**
Date Logged: **08/21/2017**

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
1708945-001	SVE-1	Air	8/21/2017 14:50	☐	A	A										
1708945-002	SVE-2	Air	8/21/2017 15:30	☐	A											

Test Legend:

1	8010_A(UG/M3)	2	PREDF REPORT	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Tina Perez

The following SampIDs: 001A, 002A contain testgroup 8010BMS_A.

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. **Project:** 1208 Lincoln; Elegant Cleaners **Work Order:** 1708945

Client Contact: Morgan Gillies **QC Level:** LEVEL 2

Contact's Email: mgillies@pangeaenv.com **Comments:** **Date Logged:** 8/21/2017

☐ 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
1708945-001A	SVE-1	Air	HVOCs by GCMS	1	Tedlar	☐	8/21/2017 14:50	5 days		☐	
1708945-002A	SVE-2	Air	HVOCs by GCMS	1	Tedlar	☐	8/21/2017 15:30	5 days		☐	

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

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

Summa COC

MAI Work Order # 1708945

6

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CHAIN OF CUSTODY RECORD

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

Report To: Morgan Gillies Bill To: Pangea

Company: Pangea Env. Srs.

Email: mgillies@pangeaenv.com

Alt Email: Tele: 510-836-3700

Project Name: Elegant Cleaners Project#:

Project Location: 120 E. Lincoln PO #

Sampler Signature:

Analysis Requested

Helium Shroud SN#

Leak Check Default is IPA

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

SAMPLE ID Location / Field Point	Sampling Start Date	Sampling Start Time	End Time	Canister SN#	Sample Kit / Manifold #	VOCs TO-15 (µg/m³) - See Notes	8010 by TO-15 (µg/m³)	TPH(g) (µg/m³)	LEED: (inc. 4PCH, Formaldehyde, CO, Total VOCs)	Fixed Gas (CO_2, Methane, Ethane, Ethylene, Acetylene,Propane, CO) %	Fixed Gas: (O_2, N_2) %	APH: Aliphatic and/or Aromatic (circle one) µg/m³	Helium Leak Check %	Leak Check (IPA, Norflorane, 1,1-difluroethane) µg/m³	8010	Matrix: Soilgas	Matrix: Indoor Air	Canister Pressure / Vacuum: Initial	Canister Pressure / Vacuum: Final
SVE-1	8.21.17	1450		Tedlar	—										X	X			
SVE-2	8.21.17	1530		Tedlar	—										X	X			

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

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time	Comments / Instructions
	8.21.17	1925		8/22/17	1925	

Page 1 of 1

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received	**8/21/2017 19:25**
Project Name:	**Elegant Cleaners**	Date Logged:	**8/21/2017**
		Received by:	Tina Perez
WorkOrder №:	**1708945** Matrix: Air	Logged by:	Tina Perez
Carrier:	Client Drop-In		

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 ☑	NA ☐
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 ☑	

UCMR 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: Method SW8260B (HVOCs List) was received past its 0.25-day holding time.

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1708C91

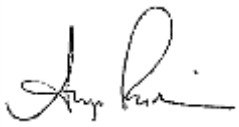
Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Morgan Gillies
Project P.O.:
Project Name: Elegant Cleaners

Project Received: 08/25/2017

Analytical Report reviewed & approved for release on 08/31/2017 by:



Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: Elegant Cleaners
WorkOrder: 1708C91

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
ERS	External reference sample. Second source calibration verification.
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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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708C91
Date Received:	8/25/17 18:30	**Extraction Method**	SW5030B
Date Prepared:	8/28/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	1708C91-001A	Air	08/25/2017 15:30	GC38	144558

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	08/28/2017 12:51
Bromochloromethane	ND	H	250	1	08/28/2017 12:51
Bromodichloromethane	ND	H	250	1	08/28/2017 12:51
Bromoform	ND	H	250	1	08/28/2017 12:51
Bromomethane	ND	H	250	1	08/28/2017 12:51
Carbon Tetrachloride	ND	H	250	1	08/28/2017 12:51
Chlorobenzene	ND	H	250	1	08/28/2017 12:51
Chloroethane	ND	H	250	1	08/28/2017 12:51
Chloroform	ND	H	250	1	08/28/2017 12:51
Chloromethane	ND	H	250	1	08/28/2017 12:51
2-Chlorotoluene	ND	H	250	1	08/28/2017 12:51
4-Chlorotoluene	ND	H	250	1	08/28/2017 12:51
Dibromochloromethane	ND	H	250	1	08/28/2017 12:51
1,2-Dibromo-3-chloropropane	ND	H	250	1	08/28/2017 12:51
1,2-Dibromoethane (EDB)	ND	H	250	1	08/28/2017 12:51
Dibromomethane	ND	H	250	1	08/28/2017 12:51
1,2-Dichlorobenzene	ND	H	250	1	08/28/2017 12:51
1,3-Dichlorobenzene	ND	H	250	1	08/28/2017 12:51
1,4-Dichlorobenzene	ND	H	250	1	08/28/2017 12:51
Dichlorodifluoromethane	ND	H	250	1	08/28/2017 12:51
1,1-Dichloroethane	ND	H	250	1	08/28/2017 12:51
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	08/28/2017 12:51
1,1-Dichloroethene	ND	H	250	1	08/28/2017 12:51
cis-1,2-Dichloroethene	ND	H	250	1	08/28/2017 12:51
trans-1,2-Dichloroethene	ND	H	250	1	08/28/2017 12:51
1,2-Dichloropropane	ND	H	250	1	08/28/2017 12:51
1,3-Dichloropropane	ND	H	250	1	08/28/2017 12:51
2,2-Dichloropropane	ND	H	250	1	08/28/2017 12:51
1,1-Dichloropropene	ND	H	250	1	08/28/2017 12:51
cis-1,3-Dichloropropene	ND	H	250	1	08/28/2017 12:51
trans-1,3-Dichloropropene	ND	H	250	1	08/28/2017 12:51
Freon 113	ND	H	5000	1	08/28/2017 12:51
Hexachlorobutadiene	ND	H	250	1	08/28/2017 12:51
Hexachloroethane	ND	H	250	1	08/28/2017 12:51
Methylene chloride	ND	H	250	1	08/28/2017 12:51
1,1,1,2-Tetrachloroethane	ND	H	250	1	08/28/2017 12:51
1,1,2,2-Tetrachloroethane	ND	H	250	1	08/28/2017 12:51

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708C91
Date Received:	8/25/17 18:30	**Extraction Method**	SW5030B
Date Prepared:	8/28/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	**1708C91-001A**	**Air**	**08/25/2017 15:30**	**GC38**	**144558**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	08/28/2017 12:51
1,2,3-Trichlorobenzene	ND	H	250	1	08/28/2017 12:51
1,2,4-Trichlorobenzene	ND	H	250	1	08/28/2017 12:51
1,1,1-Trichloroethane	ND	H	250	1	08/28/2017 12:51
1,1,2-Trichloroethane	ND	H	250	1	08/28/2017 12:51
Trichloroethene	ND	H	250	1	08/28/2017 12:51
Trichlorofluoromethane	ND	H	250	1	08/28/2017 12:51
1,2,3-Trichloropropane	ND	H	250	1	08/28/2017 12:51
Vinyl Chloride	ND	H	250	1	08/28/2017 12:51

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	117	H	70-130	08/28/2017 12:51
Toluene-d8	112	H	70-130	08/28/2017 12:51
4-BFB	106	H	70-130	08/28/2017 12:51

Analyst(s): HK

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708C91
Date Received:	8/25/17 18:30	**Extraction Method**	SW5030B
Date Prepared:	8/28/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	1708C91-002A	Air	08/25/2017 15:45	GC38	144558

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	08/28/2017 13:32
Bromochloromethane	ND	H	250	1	08/28/2017 13:32
Bromodichloromethane	ND	H	250	1	08/28/2017 13:32
Bromoform	ND	H	250	1	08/28/2017 13:32
Bromomethane	ND	H	250	1	08/28/2017 13:32
Carbon Tetrachloride	ND	H	250	1	08/28/2017 13:32
Chlorobenzene	ND	H	250	1	08/28/2017 13:32
Chloroethane	ND	H	250	1	08/28/2017 13:32
Chloroform	ND	H	250	1	08/28/2017 13:32
Chloromethane	ND	H	250	1	08/28/2017 13:32
2-Chlorotoluene	ND	H	250	1	08/28/2017 13:32
4-Chlorotoluene	ND	H	250	1	08/28/2017 13:32
Dibromochloromethane	ND	H	250	1	08/28/2017 13:32
1,2-Dibromo-3-chloropropane	ND	H	250	1	08/28/2017 13:32
1,2-Dibromoethane (EDB)	ND	H	250	1	08/28/2017 13:32
Dibromomethane	ND	H	250	1	08/28/2017 13:32
1,2-Dichlorobenzene	ND	H	250	1	08/28/2017 13:32
1,3-Dichlorobenzene	ND	H	250	1	08/28/2017 13:32
1,4-Dichlorobenzene	ND	H	250	1	08/28/2017 13:32
Dichlorodifluoromethane	ND	H	250	1	08/28/2017 13:32
1,1-Dichloroethane	ND	H	250	1	08/28/2017 13:32
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	08/28/2017 13:32
1,1-Dichloroethene	ND	H	250	1	08/28/2017 13:32
cis-1,2-Dichloroethene	ND	H	250	1	08/28/2017 13:32
trans-1,2-Dichloroethene	ND	H	250	1	08/28/2017 13:32
1,2-Dichloropropane	ND	H	250	1	08/28/2017 13:32
1,3-Dichloropropane	ND	H	250	1	08/28/2017 13:32
2,2-Dichloropropane	ND	H	250	1	08/28/2017 13:32
1,1-Dichloropropene	ND	H	250	1	08/28/2017 13:32
cis-1,3-Dichloropropene	ND	H	250	1	08/28/2017 13:32
trans-1,3-Dichloropropene	ND	H	250	1	08/28/2017 13:32
Freon 113	ND	H	5000	1	08/28/2017 13:32
Hexachlorobutadiene	ND	H	250	1	08/28/2017 13:32
Hexachloroethane	ND	H	250	1	08/28/2017 13:32
Methylene chloride	ND	H	250	1	08/28/2017 13:32
1,1,1,2-Tetrachloroethane	ND	H	250	1	08/28/2017 13:32
1,1,2,2-Tetrachloroethane	ND	H	250	1	08/28/2017 13:32

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708C91
Date Received:	8/25/17 18:30	**Extraction Method**	SW5030B
Date Prepared:	8/28/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	**1708C91-002A**	**Air**	**08/25/2017 15:45**	**GC38**	**144558**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**1100**	H	250	1	08/28/2017 13:32
1,2,3-Trichlorobenzene	ND	H	250	1	08/28/2017 13:32
1,2,4-Trichlorobenzene	ND	H	250	1	08/28/2017 13:32
1,1,1-Trichloroethane	ND	H	250	1	08/28/2017 13:32
1,1,2-Trichloroethane	ND	H	250	1	08/28/2017 13:32
Trichloroethene	ND	H	250	1	08/28/2017 13:32
Trichlorofluoromethane	ND	H	250	1	08/28/2017 13:32
1,2,3-Trichloropropane	ND	H	250	1	08/28/2017 13:32
Vinyl Chloride	ND	H	250	1	08/28/2017 13:32

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	116	H	70-130	08/28/2017 13:32
Toluene-d8	111	H	70-130	08/28/2017 13:32
4-BFB	105	H	70-130	08/28/2017 13:32

Analyst(s): HK

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708C91
Date Prepared:	8/28/17	**BatchID:**	144558
Date Analyzed:	8/28/17	**Extraction Method:**	SW5030B
Instrument:	GC38	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-144558

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Bromobenzene	ND	250	-	-	-
Bromochloromethane	ND	250	-	-	-
Bromodichloromethane	ND	250	-	-	-
Bromoform	ND	250	-	-	-
Bromomethane	ND	250	-	-	-
Carbon Tetrachloride	ND	250	-	-	-
Chlorobenzene	ND	250	-	-	-
Chloroethane	ND	250	-	-	-
Chloroform	ND	250	-	-	-
Chloromethane	ND	250	-	-	-
2-Chlorotoluene	ND	250	-	-	-
4-Chlorotoluene	ND	250	-	-	-
Dibromochloromethane	ND	250	-	-	-
1,2-Dibromo-3-chloropropane	ND	250	-	-	-
1,2-Dibromoethane (EDB)	ND	250	-	-	-
Dibromomethane	ND	250	-	-	-
1,2-Dichlorobenzene	ND	250	-	-	-
1,3-Dichlorobenzene	ND	250	-	-	-
1,4-Dichlorobenzene	ND	250	-	-	-
Dichlorodifluoromethane	ND	250	-	-	-
1,1-Dichloroethane	ND	250	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	250	-	-	-
1,1-Dichloroethene	ND	250	-	-	-
cis-1,2-Dichloroethene	ND	250	-	-	-
trans-1,2-Dichloroethene	ND	250	-	-	-
1,2-Dichloropropane	ND	250	-	-	-
1,3-Dichloropropane	ND	250	-	-	-
2,2-Dichloropropane	ND	250	-	-	-
1,1-Dichloropropene	ND	250	-	-	-
cis-1,3-Dichloropropene	ND	250	-	-	-
trans-1,3-Dichloropropene	ND	250	-	-	-
Freon 113	ND	5000	-	-	-
Hexachlorobutadiene	ND	250	-	-	-
Hexachloroethane	ND	250	-	-	-
Methylene chloride	ND	250	-	-	-
1,1,1,2-Tetrachloroethane	ND	250	-	-	-
1,1,2,2-Tetrachloroethane	ND	250	-	-	-
Tetrachloroethene	ND	250	-	-	-
1,2,3-Trichlorobenzene	ND	250	-	-	-

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1708C91
Date Prepared:	8/28/17	**BatchID:**	144558
Date Analyzed:	8/28/17	**Extraction Method:**	SW5030B
Instrument:	GC38	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-144558

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
1,2,4-Trichlorobenzene	ND	250	-	-	-
1,1,1-Trichloroethane	ND	250	-	-	-
1,1,2-Trichloroethane	ND	250	-	-	-
Trichloroethene	ND	250	-	-	-
Trichlorofluoromethane	ND	250	-	-	-
1,2,3-Trichloropropane	ND	250	-	-	-
Vinyl Chloride	ND	250	-	-	-
Surrogate Recovery					
Dibromofluoromethane	14380		12500	115	70-130
Toluene-d8	14010		12500	112	70-130
4-BFB	1319		1250	106	70-130

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chlorobenzene	4190	4270	5000	84	85	69-112	1.78	30
1,2-Dibromoethane (EDB)	4500	4570	5000	90	91	62-117	1.44	30
1,2-Dichloroethane (1,2-DCA)	4200	4240	5000	84	85	61-126	0.897	30
1,1-Dichloroethene	5010	5090	5000	100	102	67-122	1.59	30
Trichloroethene	4390	4480	5000	88	90	66-127	1.96	30
Surrogate Recovery								
Dibromofluoromethane	14,800	14,900	12500	118	119	83-124	0.545	30
Toluene-d8	13,900	13,900	12500	111	111	80-120	0	30
4-BFB	1470	1470	1250	118	118	70-129	0	30

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1708C91 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
▣ Detection Summary ▣ Dry-Weight

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

Email: mgillies@pangeaenv.com
cc/3rd Party:
PO:
ProjectNo: Elegant Cleaners

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

Requested TAT: 5 days;

Date Received: **08/25/2017**
Date Logged: **08/25/2017**

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
1708C91-001	SVE-1	Air	8/25/2017 15:30	☐	A	A										
1708C91-002	SVE-2	Air	8/25/2017 15:45	☐	A											

Test Legend:

1	8010_A(UG/M3)	2	PREDF REPORT	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Kena Ponce

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. **Project:** Elegant Cleaners **Work Order:** 1708C91

Client Contact: Morgan Gillies **QC Level:** LEVEL 2

Contact's Email: mgillies@pangeaenv.com **Comments:** **Date Logged:** 8/25/2017

☐ 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
1708C91-001A	SVE-1	Air	SW8260B (HVOCs List)	1	Tedlar	☐	8/25/2017 15:30	5 days		☐	
1708C91-002A	SVE-2	Air	SW8260B (HVOCs List)	1	Tedlar	☐	8/25/2017 15:45	5 days		☐	

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

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

General COC

MAI Work Order # 1708C91

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CHAIN OF CUSTODY RECORD

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

Report To: Morgan Gillies Bill To: Pangea
Company: Pangea Env. Svs.
Email: mgillies@pangeaenv.com
Alt Email: Tele: 510-836-3700
Project Name: Elegant Cleaners Project #:
Project Location: 1208 Lincoln PO #
Sampler Signature:

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative
SVE-1	8.25.17	1530	1	A	7
SVE-2	8.25.17	1545	1	A	7

Analysis Requested

BTEX & TPH as Gas (8021/ 8015) MTBE	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) + Motor Oil With Silica Gel	Total Oil & Grease (1664 / 9071) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 / 9071) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ; Aroclors only	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.8 / 6020)*	Metals (200.8 / 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	8010			
															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 (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

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

Comments / Instructions

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	8.25.17	1830		8/25/17	1830

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp _____ °C Initials _____

Page 1 of 1

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received	**8/25/2017 18:30**
Project Name:	**Elegant Cleaners**	Date Logged:	**8/25/2017**
		Received by:	Kena Ponce
WorkOrder №:	**1708C91** Matrix: Air	Logged by:	Kena Ponce
Carrier:	Client Drop-In		

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	☑	No	☐	NA	☐
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	☑		

UCMR 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: 1709957

Report Created for: Pangea Environmental Svcs., Inc.

1710 Franklin Street, Ste. 200
Oakland, CA 94612

Project Contact: Morgan Gillies
Project P.O.:
Project Name: Elegant Cleaners

Project Received: 09/22/2017

Analytical Report reviewed & approved for release on 09/26/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: Elegant Cleaners
WorkOrder: 1709957

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
ERS	External reference sample. Second source calibration verification.
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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Glossary of Terms & Qualifier Definitions

Client: Pangea Environmental Svcs., Inc.
Project: Elegant Cleaners
WorkOrder: 1709957

Analytical Qualifiers

H	Samples were analyzed out of holding time
S	Surrogate spike recovery outside accepted recovery limits
c12	Surrogate recovery outside of the control limits

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1709957
Date Received:	9/22/17 17:40	**Extraction Method:**	SW5030B
Date Prepared:	9/23/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	1709957-001A	Air	09/22/2017 14:00	GC38 09231709.D	146029

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	09/23/2017 12:59
Bromochloromethane	ND	H	250	1	09/23/2017 12:59
Bromodichloromethane	ND	H	250	1	09/23/2017 12:59
Bromoform	ND	H	250	1	09/23/2017 12:59
Bromomethane	ND	H	250	1	09/23/2017 12:59
Carbon Tetrachloride	ND	H	250	1	09/23/2017 12:59
Chlorobenzene	ND	H	250	1	09/23/2017 12:59
Chloroethane	ND	H	250	1	09/23/2017 12:59
Chloroform	ND	H	250	1	09/23/2017 12:59
Chloromethane	ND	H	250	1	09/23/2017 12:59
2-Chlorotoluene	ND	H	250	1	09/23/2017 12:59
4-Chlorotoluene	ND	H	250	1	09/23/2017 12:59
Dibromochloromethane	ND	H	250	1	09/23/2017 12:59
1,2-Dibromo-3-chloropropane	ND	H	250	1	09/23/2017 12:59
1,2-Dibromoethane (EDB)	ND	H	250	1	09/23/2017 12:59
Dibromomethane	ND	H	250	1	09/23/2017 12:59
1,2-Dichlorobenzene	ND	H	250	1	09/23/2017 12:59
1,3-Dichlorobenzene	ND	H	250	1	09/23/2017 12:59
1,4-Dichlorobenzene	ND	H	250	1	09/23/2017 12:59
Dichlorodifluoromethane	ND	H	250	1	09/23/2017 12:59
1,1-Dichloroethane	ND	H	250	1	09/23/2017 12:59
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	09/23/2017 12:59
1,1-Dichloroethene	ND	H	250	1	09/23/2017 12:59
cis-1,2-Dichloroethene	ND	H	250	1	09/23/2017 12:59
trans-1,2-Dichloroethene	ND	H	250	1	09/23/2017 12:59
1,2-Dichloropropane	ND	H	250	1	09/23/2017 12:59
1,3-Dichloropropane	ND	H	250	1	09/23/2017 12:59
2,2-Dichloropropane	ND	H	250	1	09/23/2017 12:59
1,1-Dichloropropene	ND	H	250	1	09/23/2017 12:59
cis-1,3-Dichloropropene	ND	H	250	1	09/23/2017 12:59
trans-1,3-Dichloropropene	ND	H	250	1	09/23/2017 12:59
Freon 113	ND	H	5000	1	09/23/2017 12:59
Hexachlorobutadiene	ND	H	250	1	09/23/2017 12:59
Hexachloroethane	ND	H	250	1	09/23/2017 12:59
Methylene chloride	ND	H	250	1	09/23/2017 12:59
1,1,1,2-Tetrachloroethane	ND	H	250	1	09/23/2017 12:59
1,1,2,2-Tetrachloroethane	ND	H	250	1	09/23/2017 12:59

(Cont.)

McCampbell Analytical, Inc.
"When Quality Counts"

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1709957
Date Received:	9/22/17 17:40	**Extraction Method:**	SW5030B
Date Prepared:	9/23/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	1709957-001A	Air	09/22/2017 14:00	GC38 09231709.D	146029

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	09/23/2017 12:59
1,2,3-Trichlorobenzene	ND	H	250	1	09/23/2017 12:59
1,2,4-Trichlorobenzene	ND	H	250	1	09/23/2017 12:59
1,1,1-Trichloroethane	ND	H	250	1	09/23/2017 12:59
1,1,2-Trichloroethane	ND	H	250	1	09/23/2017 12:59
Trichloroethene	ND	H	250	1	09/23/2017 12:59
Trichlorofluoromethane	ND	H	250	1	09/23/2017 12:59
1,2,3-Trichloropropane	ND	H	250	1	09/23/2017 12:59
Vinyl Chloride	ND	H	250	1	09/23/2017 12:59

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	122	SH	84-115	09/23/2017 12:59
Toluene-d8	109	H	86-112	09/23/2017 12:59
4-BFB	104	H	66-121	09/23/2017 12:59

Analyst(s): HK Analytical Comments: c12

(Cont.)

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1709957
Date Received:	9/22/17 17:40	**Extraction Method:**	SW5030B
Date Prepared:	9/23/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	1709957-002A	Air	09/22/2017 13:30	GC38 09231710.D	146029

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	09/23/2017 13:40
Bromochloromethane	ND	H	250	1	09/23/2017 13:40
Bromodichloromethane	ND	H	250	1	09/23/2017 13:40
Bromoform	ND	H	250	1	09/23/2017 13:40
Bromomethane	ND	H	250	1	09/23/2017 13:40
Carbon Tetrachloride	ND	H	250	1	09/23/2017 13:40
Chlorobenzene	ND	H	250	1	09/23/2017 13:40
Chloroethane	ND	H	250	1	09/23/2017 13:40
Chloroform	ND	H	250	1	09/23/2017 13:40
Chloromethane	ND	H	250	1	09/23/2017 13:40
2-Chlorotoluene	ND	H	250	1	09/23/2017 13:40
4-Chlorotoluene	ND	H	250	1	09/23/2017 13:40
Dibromochloromethane	ND	H	250	1	09/23/2017 13:40
1,2-Dibromo-3-chloropropane	ND	H	250	1	09/23/2017 13:40
1,2-Dibromoethane (EDB)	ND	H	250	1	09/23/2017 13:40
Dibromomethane	ND	H	250	1	09/23/2017 13:40
1,2-Dichlorobenzene	ND	H	250	1	09/23/2017 13:40
1,3-Dichlorobenzene	ND	H	250	1	09/23/2017 13:40
1,4-Dichlorobenzene	ND	H	250	1	09/23/2017 13:40
Dichlorodifluoromethane	ND	H	250	1	09/23/2017 13:40
1,1-Dichloroethane	ND	H	250	1	09/23/2017 13:40
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	09/23/2017 13:40
1,1-Dichloroethene	ND	H	250	1	09/23/2017 13:40
cis-1,2-Dichloroethene	ND	H	250	1	09/23/2017 13:40
trans-1,2-Dichloroethene	ND	H	250	1	09/23/2017 13:40
1,2-Dichloropropane	ND	H	250	1	09/23/2017 13:40
1,3-Dichloropropane	ND	H	250	1	09/23/2017 13:40
2,2-Dichloropropane	ND	H	250	1	09/23/2017 13:40
1,1-Dichloropropene	ND	H	250	1	09/23/2017 13:40
cis-1,3-Dichloropropene	ND	H	250	1	09/23/2017 13:40
trans-1,3-Dichloropropene	ND	H	250	1	09/23/2017 13:40
Freon 113	ND	H	5000	1	09/23/2017 13:40
Hexachlorobutadiene	ND	H	250	1	09/23/2017 13:40
Hexachloroethane	ND	H	250	1	09/23/2017 13:40
Methylene chloride	ND	H	250	1	09/23/2017 13:40
1,1,1,2-Tetrachloroethane	ND	H	250	1	09/23/2017 13:40
1,1,2,2-Tetrachloroethane	ND	H	250	1	09/23/2017 13:40

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Analytical Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1709957
Date Received:	9/22/17 17:40	**Extraction Method:**	SW5030B
Date Prepared:	9/23/17	**Analytical Method:**	SW8260B
Project:	Elegant Cleaners	**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	**1709957-002A**	**Air**	**09/22/2017 13:30**	**GC38 09231710.D**	**146029**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	**270**	H	250	1	09/23/2017 13:40
1,2,3-Trichlorobenzene	ND	H	250	1	09/23/2017 13:40
1,2,4-Trichlorobenzene	ND	H	250	1	09/23/2017 13:40
1,1,1-Trichloroethane	ND	H	250	1	09/23/2017 13:40
1,1,2-Trichloroethane	ND	H	250	1	09/23/2017 13:40
Trichloroethene	ND	H	250	1	09/23/2017 13:40
Trichlorofluoromethane	ND	H	250	1	09/23/2017 13:40
1,2,3-Trichloropropane	ND	H	250	1	09/23/2017 13:40
Vinyl Chloride	ND	H	250	1	09/23/2017 13:40

Surrogates	REC (%)	Qualifiers	Limits	
Dibromofluoromethane	123	SH	84-115	09/23/2017 13:40
Toluene-d8	109	H	86-112	09/23/2017 13:40
4-BFB	101	H	66-121	09/23/2017 13:40

Analyst(s): HK Analytical Comments: c12

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1709957
Date Prepared:	9/23/17	**BatchID:**	146029
Date Analyzed:	9/23/17	**Extraction Method:**	SW5030B
Instrument:	GC38	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-146029

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Bromobenzene	ND	250	-	-	-
Bromochloromethane	ND	250	-	-	-
Bromodichloromethane	ND	250	-	-	-
Bromoform	ND	250	-	-	-
Bromomethane	ND	250	-	-	-
Carbon Tetrachloride	ND	250	-	-	-
Chlorobenzene	ND	250	-	-	-
Chloroethane	ND	250	-	-	-
Chloroform	ND	250	-	-	-
Chloromethane	ND	250	-	-	-
2-Chlorotoluene	ND	250	-	-	-
4-Chlorotoluene	ND	250	-	-	-
Dibromochloromethane	ND	250	-	-	-
1,2-Dibromo-3-chloropropane	ND	250	-	-	-
1,2-Dibromoethane (EDB)	ND	250	-	-	-
Dibromomethane	ND	250	-	-	-
1,2-Dichlorobenzene	ND	250	-	-	-
1,3-Dichlorobenzene	ND	250	-	-	-
1,4-Dichlorobenzene	ND	250	-	-	-
Dichlorodifluoromethane	ND	250	-	-	-
1,1-Dichloroethane	ND	250	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	250	-	-	-
1,1-Dichloroethene	ND	250	-	-	-
cis-1,2-Dichloroethene	ND	250	-	-	-
trans-1,2-Dichloroethene	ND	250	-	-	-
1,2-Dichloropropane	ND	250	-	-	-
1,3-Dichloropropane	ND	250	-	-	-
2,2-Dichloropropane	ND	250	-	-	-
1,1-Dichloropropene	ND	250	-	-	-
cis-1,3-Dichloropropene	ND	250	-	-	-
trans-1,3-Dichloropropene	ND	250	-	-	-
Freon 113	ND	5000	-	-	-
Hexachlorobutadiene	ND	250	-	-	-
Hexachloroethane	ND	250	-	-	-
Methylene chloride	ND	250	-	-	-
1,1,1,2-Tetrachloroethane	ND	250	-	-	-
1,1,2,2-Tetrachloroethane	ND	250	-	-	-
Tetrachloroethene	ND	250	-	-	-
1,2,3-Trichlorobenzene	ND	250	-	-	-

(Cont.)

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Quality Control Report

Client:	Pangea Environmental Svcs., Inc.	**WorkOrder:**	1709957
Date Prepared:	9/23/17	**BatchID:**	146029
Date Analyzed:	9/23/17	**Extraction Method:**	SW5030B
Instrument:	GC38	**Analytical Method:**	SW8260B
Matrix:	Air	**Unit:**	µg/m³
Project:	Elegant Cleaners	**Sample ID:**	MB/LCS/LCSD-146029

QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
1,2,4-Trichlorobenzene	ND	250	-	-	-
1,1,1-Trichloroethane	ND	250	-	-	-
1,1,2-Trichloroethane	ND	250	-	-	-
Trichloroethene	ND	250	-	-	-
Trichlorofluoromethane	ND	250	-	-	-
1,2,3-Trichloropropane	ND	250	-	-	-
Vinyl Chloride	ND	250	-	-	-
Surrogate Recovery					
Dibromofluoromethane	15100		12500	121	79-131
Toluene-d8	13740		12500	110	81-124
4-BFB	1290		1250	103	74-128

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Chlorobenzene	4440	4460	5000	89	89	72-107	0	30
1,2-Dibromoethane (EDB)	4910	4970	5000	98	99	68-110	1.20	30
1,2-Dichloroethane (1,2-DCA)	4880	4950	5000	98	99	68-115	1.45	30
1,1-Dichloroethene	5550	5530	5000	111	111	58-127	0	30
Trichloroethene	4850	4850	5000	97	97	73-117	0	30
Surrogate Recovery								
Dibromofluoromethane	15,300	15,300	12500	122	122	79-131	0	30
Toluene-d8	13,500	13,600	12500	108	108	81-124	0	30
4-BFB	1420	1400	1250	113	112	74-128	1.24	30

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1709957 **ClientCode: PEO**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ▣ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
▣ Detection Summary ▣ Dry-Weight

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

Email: mgillies@pangeaenv.com
cc/3rd Party:
PO:
ProjectNo: Elegant Cleaners

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

Requested TAT: 2 days;

Date Received: **09/22/2017**
Date Logged: **09/22/2017**

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
1709957-001	SVE-1	Air	9/22/2017 14:00	☐	A	A										
1709957-002	SVE-2	Air	9/22/2017 13:30	☐	A											

Test Legend:

1	8010_A(UG/M3)	2	PREDF REPORT	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Kena Ponce

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. **Project:** Elegant Cleaners **Work Order:** 1709957
Client Contact: Morgan Gillies **QC Level:** LEVEL 2
Contact's Email: mgillies@pangeaenv.com **Comments:** **Date Logged:** 9/22/2017

☐ 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
1709957-001A	SVE-1	Air	SW8260B (HVOCs List)	1	Tedlar	☐	9/22/2017 14:00	2 days		☐	
1709957-002A	SVE-2	Air	SW8260B (HVOCs List)	1	Tedlar	☐	9/22/2017 13:30	2 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.

General COC

RUSH

MAI Work Order # 1709957

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CHAIN OF CUSTODY RECORD

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

Report To: Morgan Gillies Bill To: Pangea
Company: Pangea Env. Svs.
Email: mgillies@pangeaenv.com
Alt Email: Tele: 510-836-3700
Project Name: Elegant Cleaners Project #:
Project Location: 1204 Lincoln Ave PO #
Sampler Signature: [signature]

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	BTEX & TPH as Gas (8021/ 8015) MTBE	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) + Motor Oil With Silca Gel	Total Oil & Grease (1664 / 9071) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 / 9071) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ; Aroclors only	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.8 / 6020)*	Metals (200.8 / 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	8010			
SVE-1	9.22.17	1400	1	A	7																X			
SVE-2	9.22.17	1330	1	A	7																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 (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

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

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
[signature]	9.22.17	1740	[signature]	9/22/17	1740

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

Page 1 of 1

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Sample Receipt Checklist

Client Name:	**Pangea Environmental Svcs., Inc.**	Date and Time Received	**9/22/2017 17:40**
Project Name:	**Elegant Cleaners**	Date Logged:	**9/22/2017**
		Received by:	Kena Ponce
WorkOrder №:	**1709957** Matrix: Air	Logged by:	Kena Ponce
Carrier:	Client Drop-In		

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	☑	No	☐	NA	☐
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	☑		

UCMR 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: