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By Alameda County Environmental Health 1:08 pm, Sep 12, 2017

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

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

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

Dear Ms. Roe:

1919 Crew LLC has retained the environmental consultant referenced on the attached report for the project referenced above. The attached report is being submitted on behalf of 1919 Crew LLC.

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 GeoTracker website.

Sincerely,

Jeremy Harris

September 8, 2017

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

Re: **Perimeter/Offsite Assessment Report and Revised Site Assessment Workplan**
1919 Market Street
Oakland, California 94607
ACDEH Case No. RO0003205

Dear Mr. Harris:

PANGEA Environmental Services, Inc. (PANGEA) prepared this *Perimeter/Offsite Assessment Report and Revised Site Assessment Workplan* for the property at 1919 Market Street, Oakland, California (Site). The completed assessment evaluated subsurface conditions at the Site perimeter and adjacent offsite areas. This report presents data from sampling of soil, groundwater, soil gas and air. The report also presents a workplan for further assessment of onsite conditions (and collection of repeat data from select offsite locations). The workplan was revised to address agency comments from a conference call on August 25, 2017.

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: *Perimeter/Offsite Assessment Report and Revised Site Assessment Workplan*

PERIMETER/OFFSITE ASSESSMENT REPORT AND REVISED SITE ASSESSMENT WORKPLAN

1919 Market Street
Oakland, California 94607
ACDEH Case No. RO0003205

September 8, 2017

Prepared for:

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

Prepared by:

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

Written by:

Ron Scheele, P.G.
Principal Geologist

Bob Clark-Riddell, P.E.
Principal Engineer

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1.0 INTRODUCTION

On behalf of 1919 Crew LLC, Pangea Environmental Services, Inc. (PANGEA) has prepared this *Perimeter/Offsite Assessment Report and Revised Site Assessment Workplan* for the subject property located at 1919 Market Street in Oakland, California (Site) (Figure 1). The completed assessment evaluated subsurface conditions at the Site perimeter and adjacent offsite areas. This report presents data from sampling of soil, groundwater, soil gas and air. The report also presents a revised workplan for further assessment of onsite conditions (and collection of repeat data from select offsite locations) as discussed during a conference call with Alameda County Department of Environmental Health (ACDEH) on August 25, 2017. Site work is being performed to help facilitate future development at the Site with environmental oversight from ACDEH.

The completed assessment work was primarily implemented according to PANGEA's *Workplan for Site Assessment and Remediation Pilot Study* dated October 24, 2016 (revised November 8, 2016 and February 21, 2017), which was conditionally approved by ACDEH in a letter dated March 3, 2017 (Appendix A). Further assessment work was conducted according to PANGEA's subsequent *Workplan Addendum for Site Assessment* dated April 19, 2017, which was conditionally approved by ACDEH in a letter dated April 21, 2017 (Appendix A). Described below are the site background, assessment activities, assessment results, conclusions, and proposed additional site assessment.

1.1 Project Work Scope

The objectives of the site assessment activities were to further delineate the perimeter and offsite extent of known subsurface VOCs and possible VOCs near historical Site operations/chemical use. The assessment evaluated known VOCs related to historical painting and bus repair operations and a former UST area; assessed potential vapor intrusion risk to offsite residents; investigated subsurface conditions near identified onsite historical oil and solvent storage areas, and evaluated chemical composition of site fill material.

Field activities conducted by PANGEA included the following:

- Collection of *soil* samples from four (4) locations to assess potential chemicals in soil in areas initially planned to be left as landscaping within the proposed development;

- Collection of *soil* samples from three (3) soil borings and collection of three (3) grab *groundwater* samples to assess potential offsite contaminant migration related to the historical painting and bus repair operations and former USTs;

- Collection of *soil* samples from five (5) soil borings and collection of four (4) grab *groundwater* samples to investigate the historical oil and solvent storage areas;

- Collection of *subslab gas* samples from two (2) subslab gas probes to assess potential vapor intrusion risks from the former oil storage area and former solvent storage area;

- Collection of *shallow soil gas* samples from twelve (12) soil gas probes to assess potential vapor intrusion risks to adjacent properties surrounding the Site; and

- Collection of an *indoor air* sample and two (2) *ambient air* samples and to assess potential vapor intrusion risk to the resident at 2006 Myrtle Street, located adjacent to the northwest corner of the Site with known subsurface VOC impact.

2.0 SITE BACKGROUND

2.1 Site Description and History

The Site consists of three parcels of land comprising 1.457 acres located on the west side of Market Street and the east side of Myrtle Street within a mixed residential and commercial area of Alameda County, in Oakland, California (Figure 1). The Site's assessor parcel numbers (APN) are: 5-410-13-1, 5-410-14, and 5-410-25. The property is owned and being redeveloped by 1919 Crew LLC into live-work residential units. The Site is currently developed with one 70,000 square foot building constructed in 1923 that has been partially demolished. In addition to the structure, the Site is improved with asphalt-paved parking, perimeter fencing, and associated drainage features. The subject property is bound by residential housing to the north, Market Street to the east beyond which is residential housing, St. John Missionary Baptist Church and residential housing to the south, and Myrtle Street to the west beyond which is residential housing. An aerial site map showing Site features and surrounding properties is included as Figure 2.

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

assessment (AEI, 2014), solvents were stored near the southwest and southeast corners of the Site and refrigerant oil was stored in the northeast corner of the Site. Historical use areas are shown on Figure 2.

2.2 Summary of Previous Site Investigations

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

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

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

- **May 2, 2016, Additional Subsurface Investigation Report, Partner:** Five soil borings (B-1 through B-5) were advanced to a depth of 15 to 20 feet below grade surface (ft bgs) inside the building. **S**oil, groundwater, and shallow soil gas at 5 ft bgs were sampled to identify potential concerns related to the aforementioned historical operations. No VOCs were detected in soil samples above the applicable laboratory reporting limits (RL). Tetrachloroethene (PCE) was detected in one groundwater sample (B5-GW) at a concentration less than the applicable ESL. No other VOCs were detected in groundwater exceeding laboratory RLs and/or residential ESLs. One soil gas sample (B3-SG-5) contained PCE and trichloroethene (TCE) concentrations exceeding applicable ESLs. Two soil gas samples (B2-SG-5 and B4-SG-5) contained chloroform concentrations exceeding the applicable ESL.

- **October 6, 2016, Site Assessment Report, PANGEA:** Nineteen subslab gas probes and three soil gas wells were installed and sampled to delineate VOCs beneath the building. Two soil borings were also drilled and grab groundwater samples collected to assess groundwater conditions. The extent of PCE, TCE, benzene, carbon tetrachloride and chloroform were

delineated in subslab gas/soil gas beneath the building. The extent of PCE in groundwater was also delineated.

- **May 17, 2017, Preliminary Offsite Assessment Results – 2006 Myrtle Street, PANGEA:** Two soil gas probes were installed and sampled to assess potential vapor intrusion at the residence located at 2006 Myrtle Street. Additionally, an indoor air sample was collected from the basement of the residence. Soil gas samples did not detect any VOCs above residential Environmental Screening Levels (ESLs). However, two contaminants of concern, benzene and carbon tetrachloride, were detected in the indoor air sample above residential ESLs. This Perimeter/Offsite Assessment Report documents additional soil gas and indoor air testing that showed that VOC concentrations in indoor air resembled VOC concentrations in ambient air.

2.3 Potential Chemicals of Concern

The chemicals of potential concern (COPC) at this Site primarily include PCE and its potential breakdown products, other chlorinated VOCs (carbon tetrachloride and chloroform), and petroleum hydrocarbons.

The following chemicals have been detected in site media (soil, soil gas, subslab gas or groundwater) *above* conservative residential environmental screening levels (ESLs) established by the San Francisco Bay Region Water Quality Control Board (RWQCB) and were identified as chemicals of concern (COCs): *PCE, TCE, carbon tetrachloride, chloroform, benzene, ethylbenzene and total petroleum hydrocarbons as gasoline and diesel (TPHg and TPHd)*. The following additional VOCs have been detected at the Site *below* ESLs: arsenic; 1,2-dichloroethane; naphthalene; 1,1,1-trichloroethane; toluene; xylenes; and TPH as motor oil (TPHmo).

No significant VOC impact has been detected in *soil* or *groundwater* based on data comparison to ESLs, with only limited benzene in groundwater above ESLs in the southeast corner (boring B-15). The primary impacted media of concern is soil gas and subslab gas.

2.4 Site Geology and Hydrogeology

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

comprised of Mesozoic and Cenozoic aged sedimentary strata, dominated by the Franciscan Complex within the subject property vicinity.

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

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

2.5 Planned Site Use

The planned redevelopment of the Site will involve conversion of the existing warehouse to live/work units with communal courtyards. A site map showing the planned Site development is included as Figure 3. The existing street side facades and portions of the building that are structurally adequate will remain, while rebuilding the middle portion of the building to current structural standards from the ground up. The entire building floor slab will be removed to allow for construction of new structural elements, infrastructure, and utilities, except within the planned stacked parking area in the northeast corner of the Site.

3.0 SITE ASSESSMENT ACTIVITIES

PANGEA initiated site assessment activities in November 2016 in accordance with the *Workplan for Site Assessment and Remediation Pilot Study (*Workplan*)* dated October 24, 2016 (revised November 8, 2016). This work was only partially implemented due to encroachment permitting delays and agency direction, postponing onsite source area assessment. The Workplan was revised again on February 21, 2017, which was conditionally approved by ACDEH in a letter dated March 3, 2017 (Appendix A).

Additional site assessment activities were conducted in May 2017, following receipt of the encroachment permit required for offsite drilling.

3.1 Pre-Drilling Activities

A Site-specific health and safety plan was prepared to protect Site workers and the plan was kept on-site during all field activities. Proposed drilling locations were marked and Underground Service Alert was notified before the proposed field activities. Boring/soil gas well drilling permits were obtained from Alameda County Public Works Agency (ACPWA). Encroachment and excavation permits for drilling offsite in the street and sidewalk were obtained from the City of Oakland. Permits are included in Appendix B.

Prior to drilling, PANGEA also conducted a survey of residences in the Site vicinity to determine if any the properties contained a basement or domestic well. A questionnaire was mailed out to residents surrounding the Site. PANGEA did not receive a returned questionnaire from the resident at 1913 Myrtle Street so PANGEA spoke with the resident in person to confirm that no basement was present. The survey identified property at 2003 Myrtle Street which had a partial 3 ft basement. Based on the results of the survey, PANGEA increased the depth of the soil gas well (SG-10) installed next the 2003 Myrtle Street. Completed Residential Survey Questionnaires are included in Appendix C.

3.2 Soil Sampling

On November 14, 2016, five soil borings (F-1 through F-4, and B-8) were advanced by Cascade Drilling (Cascade) of Richmond, California. Borings F-1 through F-4 were advanced using a hand auger to a depth of 2 feet below ground surface (ft bgs). These boring locations were completed within the planned landscape areas where soil would be exposed. The remaining boring (B-8) was drilled to a depth of 5 ft bgs using a hand auger to advance the boring near the Former Oil Storage Area in the northeast corner of the Site. Soil boring locations are shown on Figure 4.

Soil samples were collected from each boring and placed in a cooler with ice for transport to Curtis and Tompkins Ltd. (C&T) of Berkeley, California following chain-of-custody protocol. Select samples were analyzed for the following: Total petroleum hydrocarbons as gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo) by EPA Method 8015M; volatile organic compounds (VOCs) by EPA Method 8260B; semi-volatile organic compounds (SVOCs) by EPA Method 8270C; CAM-17 metals by EPA Method 6010B and 7471A; and polychlorinated biphenyls (PCBs) by EPA Method 8082. Soil from each sample used for TPHg and VOC analysis was collected in preserved VOAs in accordance with EPA Method 5035.

On May 26, 2017, seven soil borings (B-9 through B-15) were advanced by Confluence Environmental (Confluence) of Sacramento, California. Borings B-9 through B-11 and B-15 locations were selected to investigate the historical solvent and oil storage areas. Borings B-12 and B-13 locations were selected to assess the extent of VOCs offsite to towards the west and northwest. Boring B-14 location was selected to investigate the former USTs along Myrtle Street. Borings were drilled to a total depth of 15 to 25 ft bgs using a GeoProbe™ 6010DT track-rig to advance dual-tube rod and casing. Soil boring locations are shown on Figure 4.

Soil was screened for VOCs and hydrocarbons by PANGEA staff using a photoionization detector (PID) and by visually inspecting soil for discoloration. Soil from borings B-8 through B-15 was logged per the Unified Soil Classification System (USCS) and recorded on boring logs which are included in Appendix D. Borings were grouted under the supervision and approval of an ACPWA inspector. Standard operating procedures are included in Appendix G.

Soil samples were collected from each boring in preserved VOAs in accordance with EPA Method 5035 (TerraCore™) and placed in a cooler with ice for transport to ESC Lab Sciences (ESC) of Mount Juliet, Tennessee following chain-of-custody protocol. Soil samples were analyzed for TPHg, TPHd, and TPHmo by EPA Method 8015M and VOCs by EPA Method 8260B.

3.3 Grab Groundwater Sampling

On May 26, 2017, seven borings (B-9 through B-15) were drilled by Confluence to assess groundwater conditions near the onsite historical solvent and oil storage areas, and offsite near former USTs and downgradient of the VOC hotspot in subslab gas/soil gas. A grab groundwater sample was collected from each boring at depths ranging from 12.5 to 16 ft bgs. Upon reaching total depth, a grab groundwater sample was collected through 1-inch diameter, screened PVC well casing using a new disposable polyethylene bailer and carefully decanted into laboratory-provided sample containers to avoid volatilization of any VOCs. Soil boring locations are shown on Figure 4.

Groundwater samples were placed in a cooler with ice for transport to ESC following chain-of-custody protocol. Samples were analyzed for TPHg, TPHd, and TPHmo by EPA Method 8015 and VOCs by EPA Method 8260B.

3.4 Soil Gas Well and Subslab Gas Probe Installation

On April 7, 2017, six soil gas wells (SG-4 through SG-9) were installed within the site perimeter and offsite at 2006 Myrtle Street to evaluate potential vapor intrusion risk at adjacent properties. Borings for the wells were advanced by hand auger to a total depth of 5.5 to 6.0 ft bgs, except for SG-9 which was

advanced to 8.5 ft bgs to evaluate conditions approximately 5 ft below the foundation of the adjacent depressed loading area (the loading area is about 3.5 ft lower than the slab at locations SG-9).

Soil gas well installation was conducted in general accordance with the DTSC's *Advisory: Active Soil Gas Investigation* dated July 2015. A stainless-steel vapor implant, connected to new ¼-inch diameter Teflon™ tubing and capped with a Swagelok® type fitting, was placed at 5 ft bgs in all soil gas wells. The implant was set with 0.5 to 1.0 ft of Monterey #3 sand pack above and below, followed by 0.5 ft of dry granular bentonite. The remaining annular space was filled with hydrated bentonite. The well was finished with a 5-inch flush-mounted well box set in concrete. Well construction logs which are included in Appendix D.

On May 26, 2017, six soil gas wells (SG-10 through SG-15) were installed to evaluate potential vapor intrusion risk for properties west of the Site along Myrtle Street. Borings for the wells were advanced by Confluence using a hand auger to a total depth of 5.5 ft bgs, except for SG-10 which was advanced to 8.5 ft bgs to avoid potential short circuiting from nearby partial basement. A stainless-steel vapor implant, connected to new ¼-inch diameter Teflon™ tubing and capped with a Swagelok® type fitting, was placed at 5 ft bgs in all soil gas wells, except for well SG-10 where the implant was set at 8 ft bgs. The implant was set with 0.5 ft of Monterey #3 sand pack above and below, followed by 0.5 ft of dry granular bentonite. The remaining annular space was filled with hydrated bentonite. The well was finished with a 5-inch flush-mounted well box set in concrete. Well construction logs which are included in Appendix D.

On May 26, 2017, two subslab gas probes (SSV-21 and SSV-22) were installed by PANGEA. Probe locations were selected to investigate the historical solvent and oil storage areas. Subslab gas probes were constructed by drilling a 5/8-inch dimeter hole through the concrete slab and installing a Vapor Pin® manufactured by Cox-Colvin & Associates.

3.5 Soil Gas and Subslab Gas Sampling

On April 14, 2017, soil gas samples were initially collected from soil gas wells SG-7 and SG-8 to assess potential vapor intrusion risk for the residence at 2006 Myrtle Street. The results from these initial sampling results were reported to ACDEH in PANGEA's *Preliminary Offsite Assessment Results – 2006 Myrtle Street* dated May 17, 2017. To confirm the initial sampling results, SG-7 and SG-8 were resampled in May 2017, during sampling of other soil gas wells as described below. On April 14, PANGEA was unable to collect soil gas from wells SG-4, SG-5, SG-6 and SG-9 due to water presence in the tubing while purging/sampling.

Between May 23 to 31, 2017, a total of twelve soil gas samples and two subslab gas samples were collected by PANGEA. Samples were collected from soil gas wells SG-1, SG-4, and SG-6 through SG-

15, and from subslab gas probes SSV-21 and SSV-22. This assessment involved sampling of the six new soil gas wells (SG-10 through SG-15) installed on May 26, 2017, resampling of wells SG-7 and SG-8 at 2006 Myrtle, and successful sampling of the April 2017 soil gas wells (SG-4, SG-6 and SG-9) that previously contained water. While entrained water prevented soil gas sample collection from well SG-5 on both April 14 and May 24, 2017, successful sampling of well SG-4 evaluated soil gas conditions near the adjacent church at 1909 Market Street.A duplicate sample was collected from SG-8 on May 24, 2017, and shroud samples were collected on April 14, May 24 and May 31, 2017. Field forms for soil gas purging and sampling are included in Appendix E.

Samples were collected in general accordance with the DTSC's *Advisory: Active Soil Gas Investigation* dated July 2015 using laboratory-supplied manifolds and certified-clean Summa™ canisters. The Summa™ canisters were supplied with a vacuum of approximately 30 inches of mercury. Prior to sample collection from the probes/wells, a shut-in test was conducted on the Summa™ canisters and manifolds for a minimum of 5 minutes. A minimum of three casing volumes was typically purged from each probe/well using an air syringe or air pump at a flow rate between 100-200 milliliters per minute, unless low flow conditions were encountered. Upon completion of purging of approximately three or more times the ambient volume of air in the probe/well, the sampling Summa™ canister was opened for sample collection. The pre-set valve regulated the vapor flow to approximately 150 milliliters of air per minute. Summa™ canisters were closed once the vacuum within the canisters decreased to approximately 5 to 10 inches mercury (in Hg) of vacuum.

A duplicate sample was also collected from well SG-8 by attaching a sampling "T" to the manifold and connecting a second Summa™ canister to it.

To further evaluate potential leakage within the sampling system, a leak-check enclosure was placed over the sampling assembly, and isopropyl alcohol gas was introduced into the leak-check enclosure/shroud. A PID was used to monitor the concentration of isopropyl alcohol within the enclosure during sample collection. Shroud samples were collected three times over the course of sampling to quantify the concentration of isopropyl alcohol in the shroud. Samples were collected by placing an open Summa™ canister in the shroud during sampling of a well.

Soil gas samples were transported to Eurofins Air Toxics, Inc (Air Toxics) of Folsom, California. All samples were transported following chain-of-custody protocol. Samples were analyzed for VOCs by EPA Method TO-15 except for shroud samples which were only analyzed for isopropyl alcohol. Select samples were also analyzed for fixed gases by ASTM Method D-1946.

3.6 Indoor Air Sampling

On May 24, 2017, an indoor air sample was collected from the basement (A-1) of the adjacent residence located at 2006 Myrtle Street to further assess potential vapor intrusion risk. During this sampling event, two outdoor, ambient air samples (A-2 and A-3) were collected along Myrtle Street concurrently with the basement air sample. Field forms for indoor air sampling are included in Appendix E.

Samples were collected in general accordance with DTSC's October 2011 *Vapor Intrusion Mitigation Advisory*. Samples were collected in 6-liter SIM-certified Summa™ canisters with flow controllers calibrated for a 24-hour sample collection. Sample intake points were set to be in the breathing zone, approximately 5 ft above grade. Summa™ canisters were closed approximately 24 hours after first being opened with between 5 and 8 in Hg of vacuum remaining.

Samples were transported to Air Toxics following chain-of-custody protocol. Samples were analyzed for select compounds of concern by EPA Method TO-15 SIM.

3.7 Waste Disposal

Soil cuttings and other investigation-derived waste are stored onsite in DOT-approved, 55-gallon drums. Waste will be profiled and disposed of at the conclusion of site assessment activities.

4.0 SITE ASSESSMENT RESULTS

A summary of the VOC and TPH impact is shown on Figure 12. Assessment data for the primary subsurface chemicals of concern (PCE, TCE, benzene, carbon tetrachloride, and chloroform and TPH) are summarized on Figure 5 through Figure 10, respectively. Per agency direction, each figure depicts its respective chemical concentration in each subsurface media (soil, groundwater, and subslab and soil gas). Media specific data are summarized in Table 1 through Table 4.

4.1 Field Observations

Soil observed during drilling activities consisted of approximately 4 feet of silty sand or gravelly sand underlain by silt and clay to approximately 15 ft bgs, sand from 15 to 20 ft bgs, and clay to a total depth of 25 ft bgs. No obvious debris was observed in shallow material that may be fill material due the elevation above the surrounding streets. A 4-foot silty sand layer was not encountered in borings drilled in and near Market Street. Staining was observed in boring B-14 and B-15 from starting at 3.5 to 4 ft bgs and continuing to 15 ft bgs, the total depth of the borings. PID readings were only detected in borings B-14 and B-15, ranging from 15 to 1,440 ppmv. Groundwater was encountered during drilling at

approximately 13 to 15 feet bgs and, based on previous drilling data, appears to be under semi-confined conditions. Boring logs from this investigation are included in Appendix D.

4.2 Fill Material Soil Analytical Results

To assess fill material, four shallow soil samples collected at 2 ft bgs from borings F-1 through F-4 were analyzed for TPHg, TPHd, TPHmo, VOCs, SVOCs, CAM-17 metals, and PCBs. Except for traces of acetone, no TPHg, VOCs, SVOCs, or PCBs were detected above laboratory reporting limits in any of the samples. TPHd and TPHmo were detected in boring F-1 at low concentrations of 12 milligrams per kilogram (mg/kg) and 30 mg/kg, respectively. TPHd and TPHmo were not detected in samples from borings F-2 through F-4. All metal detections were below Tier I ESLs, except for arsenic which had a maximum concentration of 3.19 mg/kg and likely represents background conditions. Soil data is summarized in Table 1. Laboratory reports are included in Appendix F.

4.3 Soil Boring Analytical Results

Nine soil samples collected from borings B-8 through B-15 were analyzed for TPHg, TPHd, TPHmo, and VOCs. TPH detections were limited to samples collected from borings B-13 through B-15 located near the former USTs and the former solvent storage area along the southeast side of the Site. No VOCs of concern were detected in any samples, except for 0.0911 µg/kg benzene in boring B-15 at a depth of 10 ft bgs (Figure 7). Soil data is summarized in Table 1. Laboratory reports are included in Appendix F.

TPHg was detected in four samples from two borings (B-14 and B-15) at a maximum concentration of 101 mg/kg in boring B-15 at a depth of 10 ft bgs. TPHd was detected in the two samples collected from boring B-14 at a maximum concentration of 252 mg/kg at a depth of 10 ft bgs. TPHmo was detected in two samples from borings B-13 and B-14 at a maximum concentration of 1,040 mg/kg in boring B-13 at a depth of 5 ft bgs. For the 5-ft depth samples, TPHg+TPHd was well below the LTCP criteria of 100 mg/kg required for a bioattenuation zone. TPHg+TPHd data is summarized on Figure 10.

4.4 Groundwater Analytical Results

Seven grab groundwater samples collected from borings B-9 through B-15 were analyzed for VOCs and TPHg, TPHd, TPHmo. Samples were collected from first encountered groundwater at a depth of 13 to 16 ft bgs. Groundwater data is summarized in Table 2. Laboratory reports are included in Appendix F.

No VOCs of concern were detected in any of the samples, except 20.1 micrograms per liter (µg/L) benzene (B-15) and 2.62 µg/L TCE in boring B-11. Other VOCs not considered to be a concern were detected in some samples at very low concentrations.

The TPH impact to groundwater is summarized on Figures 10 and 12. TPHg was only reported for water samples from borings B-14 and B-15. TPHg concentrations ranged from 461 µg/L (B-14) to 6,650 µg/L (B-15). TPHg in groundwater from borings SG-9 through SG-13 was <100 µg/L. TPHd and TPHmo were detected in groundwater from all borings except B-12. TPHd concentrations ranged from 150 µg/L (B-13) to 4,660 µg/L (B-15). TPHmo concentrations ranged from 304 µg/L (B-9) to 3,830 µg/L (B-15).

4.5 Subslab Gas Analytical Results

Two subslab gas samples collected from probes SSV-21 and SSV-22 were analyzed for VOCs. No VOCs were detected in either sample, except for PCE detected at a concentration of 190 micrograms per cubic meter (µg/m^3) in probe SSV-21. This concentration is near but below the residential ESL of 240 µg/m^3. The PCE in subslab gas is shown on Figure 5. Subslab gas data is summarized in Table 3. Laboratory reports are included in Appendix F.

Leak check compound isopropyl alcohol (aka 2-propanol) was only detected in SSV-21 at 14 µg/m^3. Isopropyl alcohol was measured in the aboveground shroud sample at a concentration of 180,000 µg/m^3. These leak check analyses indicate that the isopropyl alcohol concentration in the subslab gas sample was <0.007% of the shroud concentration. According to the CalEPA/DTSC *Advisory: Active Soil Gas Investigation* dated July 2015, an ambient air leak of up to 5% is acceptable if quantitative tracer testing is performed by shrouding. This information suggests the subslab gas probes did not 'short circuit' to surface air and that the results are representative of subslab gas conditions.

4.6 Soil Gas Analytical Results

During this investigation, twelve soil gas samples were analyzed for VOCs. The following COPCs were detected in various subslab gas samples: benzene, toluene, ethylbenzene, xylenes, PCE, and chloroform. However, for this assessment, only *chloroform* at 66 µg/m^3 from SG-10 slightly exceeded the soil gas residential ESL of 61 µg/m^3. And while benzene exceeded the residential ESL of 48 µg/m^3 in select wells, all concentrations were well below applicable criteria from the Low Threat Closure Policy (LTCP) of 85,000 µg/m^3 for sites with a bioattenuation zone (SWRCB, 2012). Soil gas data is summarized in Table 3. Laboratory reports are included in Appendix F.

PCE was detected in all wells except for SG-6. The maximum PCE concentration was 34 µg/m^3 (SG-15), and was well below the residential ESL of 240 µg/m^3. PCE data is summarized on Figure 5.

Chloroform was detected in wells SG-8, SG-10, and SG-13. Chloroform concentrations ranged from 9.5 µg/m^3 (SG-8) to 66 µg/m^3 (SG-10). Only the 66 µg/m^3 concentration from well SG-10 slightly exceeded the residential ESL for chloroform of 61 µg/m^3. Chloroform data is summarized on Figure 9. PANGEA

understands that the chlorinated water (public water supply) can leak into the subsurface and form chloroform gas, which could explain or contribute to chloroform concentrations observed at the Site.

Benzene was detected in wells SG-8 and SG-10 through SG-15, at concentrations ranging from 11 µg/m^3 (SG-8) to 430 µg/m^3 (SG-15). Benzene exceeded the ESL of 48 µg/m^3 in wells SG-12, SG-13, and SG-15. However, all benzene concentrations were well below applicable LTCP criteria of 85,000 µg/m^3 for sites with a bioattenuation zone. Benzene data is summarized on Figure 7

A duplicate sample was collected from well SG-8 on May 24, 2017. For the initial and duplicate samples on May 24, PCE concentrations were very similar (18 µg/m^3 and 20 µg/m^3, respectively), while the chloroform concentrations was identical in each sample (14 µg/m^3). This data did not identify QA/QC concerns for the sampling and analytical procedures.

Leak check compound isopropyl alcohol was detected in 5 for 15 samples ranging up from 12 to 760 µg/m^3. Isopropyl alcohol was measured in the aboveground shroud sample at concentrations ranging from 110,000 to 180,000 µg/m^3. These leak check analyses indicate that the isopropyl alcohol concentration in the soil gas sample was <0.42% of the shroud concentration. According to the CalEPA/DTSC *Advisory: Active Soil Gas Investigation* dated July 2015, an ambient air leak of up to 5% is acceptable if quantitative tracer testing is performed by shrouding. This information suggests the soil gas wells did not 'short circuit' to surface air and that the results are representative of soil gas conditions.

Atmospheric gases including oxygen, methane, and carbon dioxide were analyzed in three samples collected from probes SG-1, SG-8, and SG-14. Oxygen concentrations ranged from 9.9% to 16%; carbon dioxide concentrations ranged from 1.6% to 3.0%. Methane was not detected above laboratory reporting limits in any samples. These oxygen concentrations greater than 4% for soil gas 5 ft below building foundations are indicative of a bioattenuation zone as established by the LTCP policy, as long as TPHg+TPHd concentrations in soil are below 100 mg/kg. With a bioattenuation zone, the soil gas criteria increases 1,000-fold (e.g., the benzene soil gas criteria of 85 µg/m^3 increases to 85,000 µg/m^3).

4.7 Indoor Air Analytical Results

For this assessment, one indoor air sample was collected from the basement of 2006 Myrtle Street (A-1) and two ambient air samples were collected from nearby ambient air (A-2 and A-3) and analyzed for VOCs. The following COPCs were detected in the indoor basement air sample *and/or* the ambient air samples: benzene, toluene, ethylbenzene, xylenes, carbon tetrachloride, and chloroform. Indoor air data is summarized in Table 4. Laboratory reports are included in Appendix F.

Review of subsurface data and air data strongly suggests that the VOC concentrations in the basement air at 2006 Myrtle Street are representative of ambient air conditions.

No benzene was detected in the basement sample from 2006 Myrtle Street during this assessment. Benzene was detected at 0.30 µg/m^3 in ambient air at 1919 Market (A-3), but not detected in ambient air 2006 Myrtle (<0.26 µg/m^3) or in the basement sample (<0.25 µg/m^3). The benzene residential ESL is 0.097 µg/m^3. (Note while benzene was detected in the basement air sample from April 8, 2017 at 0.60 µg/m^3, no ambient air sample was collected for comparison for that sampling event).

Carbon tetrachloride was detected at a concentration of 0.66 µg/m^3 in basement air, above the residential ESL of 0.067 µg/m^3. However, the carbon tetrachloride concentrations were *higher* in the two outdoor ambient air samples (0.97 µg/m^3 in sample A-2, and 0.81 µg/m^3 in sample A-3).

Chloroform was detected at a concentration of 0.15 µg/m^3 in basement air, slightly above the residential ESL of 0.12 µg/m^3. Chloroform was not detected in the two ambient air samples above the laboratory reporting limit of 0.16 µg/m^3. (Note that the reporting limit is very close to the concentration detected in the basement air sample). The lack of chloroform in soil gas at well SG-7 and the chloroform concentrations in well SG-8 (14 µg/m^3) below the residential ESL of 61 µg/m^3 suggests the chloroform in basement air is not due to subsurface conditions.

5.0 CONCLUSIONS

From the current and historic assessment data, Pangea offers the following conclusions:

- **Soil Type:** The Site subsurface consists of fill (sand, gravelly sand) and/or silty sand from approximately 0 to 4 ft bgs. (Note that Merritt Sand formation present in West Oakland consists of silty sand, making it difficult to differentiate between fill and native material). This shallow material is underlain by silt from 4 to 10 ft bgs, silty sand or clay from 10 to 21 ft bgs, sand from 21 to 24 ft bgs and clay from 24 to 25 ft bgs. In the former loading area in the northwest corner of the building, along the perimeter of the Site, and underneath Myrtle Street, a silty sand was observed from 13 to 21 ft bgs. Groundwater was encountered during drilling at approximately 13 to 16 feet bgs and with water levels rising a couple feet after drilling data indicative of semi-confined conditions.

- **Fill Characterization:** Sampling results show that the shallow fill/soil within the proposed courtyard/landscaped areas indicated trace levels of hydrocarbons and no VOCs, SVOCs or PCBs. In addition, all metal detections were below Tier I ESLs except for one lead concentration

of 84 mg/kg (above the 80 mg/kg ESL) and arsenic which had a very low maximum concentration of 3.19 mg/kg and likely represents background conditions. The sampling data suggests that the existing shallow fill/soil in these areas is unlikely to pose an exposure risk to future tenants.

- **Limited Soil and Groundwater COC Impact:** The primary COC impact (VOC and TPH) from current and historic data for all media is summarized on Figure 12. For the current investigation, no significant COC impact was detected in *soil* or *groundwater* during perimeter/offsite sampling except in the southeast corner as clarified herein. While TPHg and TPHd was detected in soil and groundwater at four site locations, the primary TPH impact in *groundwater* was discovered in the southeast historical solvent storage area where the highest TPHg, TPHd and benzene concentrations were reported for groundwater this investigation (boring B-15). Since only petroleum hydrocarbons were detected in this area, a historic release of petroleum hydrocarbons likely occurred in this vicinity of the Site. Despite TPHg, TPHd, and/or benzene in soil and groundwater above residential ESLs, the hydrocarbon concentrations do not exceed the LTCP criteria shown on Tables 1 and 2. No chlorinated VOCs were detected in soil or groundwater in any of the former solvent storage areas assessed this event. Our workplan below proposes additional assessment near three of the four areas where petroleum hydrocarbons were detected. Additional assessment is not proposed near B-9 where limited TPHg and TPHd was found in groundwater, since no COCs were detected in soil gas in adjacent soil gas well SG-6.

- **Subslab and Soil Gas COC Impact:** For this assessment, no VOCs were detected above applicable ESLs or LTCP criteria in the perimeter/offsite soil gas wells, except for low *chloroform* concentrations in one offsite soil gas well (SG-10) just above the conservative ESL. Additional data collection is proposed at this SG-10 location. *PCE* was also detected near residential ESL in subslab gas probe SSV-21 located within the northeast former oil storage area, so additional characterization is proposed at this location. While *benzene* was detected above the conservative ESL in select offsite soil gas wells near the former USTs, the benzene concentrations were well below the applicable LTCP criteria of 85,000 $\mu g/m^3$. The presence of oxygen above 4% for soil gas at 5 ft below building foundations and the lack of TPHg+TPHd concentrations greater than 100 mg/kg in shallow soil is indicative of a bioattenuation zone as established by the LTCP policy. Nonetheless, additional data collection is proposed at the offsite soil gas well with the highest benzene concentration to evaluate concentration trends and to confirm oxygen presence greater than 4% as required for a bioattenuation zone.

- **2006 Myrtle:** As described above, subsurface data and air data suggests that the VOC concentrations in the basement air at 2006 Myrtle Street are representative of ambient air conditions. No further assessment is proposed at this time.

6.0 SITE ASSESSMENT WORKPLAN

This Revised Workplan was prepared in response to a conference call with ACDEH on August 25, 2017. The assessment objective is to further characterize the onsite extent of known subsurface compounds and to provide repeat data for select offsite locations. The assessment will also help establish appropriate remediation and mitigation measures for known COCs with respect to planned warehouse conversion and live/work units with communal courtyards. Described below are the proposed sampling program and assessment procedures.

6.1 Proposed Sampling Program

The primary areas of VOC and TPH impact are summarized on Figure 12. The proposed sampling locations to characterize impact in these areas are shown on Figure 13. Additional sampling to assess shallow soil is shown on Figure 14. The rational for each sampling location is presented in Table 5. The proposed assessment provides further characterization of the following as summarized on Figure 13 and Table 5:

- Benzene and TPH assessment in the southeast corner of the site via three borings and three soil gas wells, including one pair of wells for vertical delineation;

- PCE and TPH assessment in the northeast corner of the site via two soil gas wells and one boring;

- Potential vapor intrusion evaluation near the former USTs in the southwest corner of the site via three soil gas wells including one pair of wells for vertical delineation;

- Onsite soil gas assessment near the center and northwest corner of the site near former bus maintenance and painting operations via eleven soil gas wells including four pairs of wells for vertical delineation;

- Assessment near proposed elevator locations via one soil boring and one soil gas well (10 ft depth) for each proposed elevator planned to 5 ft depth;

- Repeat data collection from two offsite soil gas wells along Myrtle Street to evaluate maximum benzene and chloroform concentrations in soil gas; and

- Shallow soil assessment using multi-increment sampling techniques.

All site assessment activities will be performed under the supervision of a California Registered Civil Professional Engineer (P.E.) or a California Registered Professional Geologist (P.G.), and in general accordance with the Standard Operating Procedures (SOPs) provided in Appendix G.

6.2 Pre-Drilling Preparation

Prior to initiating field activities, the following tasks will be conducted:

- Obtain drilling permit from the Alameda County Public Works Agency;
- Obtain encroachment permit City of Oakland;
- Pre-mark the excavation area with white paint and notify Underground Service Alert (USA) of the excavation activities at least 48 hours before work begins;
- Prepare a Site-specific health and safety plan (HASP) to educate personnel and minimize their exposure to potential hazards related to Site activities; and
- Coordinate with drilling and laboratory contractors and with involved parties.

6.3 Soil Sampling

The soil sampling locations and rationale is summarized on Figure 13 and Table 5. Most soil samples will be analyzed for TPHg, TPHd, and TPHmo by EPA Method 8015M and VOCs by EPA Method 8260B. Select samples will be analyzed for SVOCs (including seven carcinogenic poly-aromatic hydrocarbons [PAHs] and naphthalene) via EPA Method 8270 SIM. Soil samples for TPHg and VOC analysis will be collected in accordance with EPA Method 5035 (e.g., TerraCore™).

Elevator Pits: Two soil borings (B-20 and B-21) will be advanced and sampled near the two planned elevator pits. Soil samples will be collected at 5 ft bgs to determine if any impacted soil is present that might pose a vapor intrusion risk within the future elevator shaft.

Onsite VOC Source Area (Northwest Loading Area): The IRAP proposes soil sampling from eight borings to plan the excavation extent in the northwest loading area (a primary VOC source area). Some of these soil borings will be advanced to a depth of 10 ft bgs. This sampling will help determine if any impacted soil is present near where elevated PCE and TCE soil gas concentrations were previously detected in boring B-3. Assessment data from the IRAP assessment will be used to pre-profile soil for offsite disposal. No additional soil sampling is proposed within the subject workplan for this area.

TPH Source Area (Southeast Solvent Storage Area): Three soil borings (B-16, B-17, and B-18) will be advanced and sampled near boring B-15. Soil samples will be collected at 5 ft bgs to further determine if any impacted soil is present that might exceed LTCP criteria in soil.

Former UST Area (Southwest Area): Two soil borings (SG-23 and SG-24) will be advanced for soil gas well installation within the planned units adjacent the former UST area. Soil samples will be collected from 5 ft bgs in each boring to further determine if any impacted soil is present that might exceed LTCP criteria in soil.

Contingent Soil Sampling: If odors or staining are observed during installation of borings or soil gas wells, additional soil samples will be collected. Step-out borings may also be completed to expedite characterization of any discovered impact.

Soil borings will be advanced by a licensed driller using either a hand auger or direct push rig. Soil will be logged and classified per the USCS and screened for field indications of contamination using visual and olfactory observations, and a PID. For direct push drilling, soil will be collected continuously in acetate liners using either dual-tube or Macro-Core® technology.

Samples will be collected in laboratory-provided containers, placed in a cooler and transported to a California-certified laboratory under chain-of-custody protocol.

6.4 Groundwater Sampling

Groundwater samples will be collected from soil borings in the former oil storage and solvent storage areas, as shown on Figure 13 and detailed on Table 5.

Eastern TPH Source Areas (Southeast and Northeast Storage Areas): Three grab groundwater samples (B-16, B-17, and B-18) will be collected in the vicinity of the former southeast solvent storage area where benzene and TPH concentrations were detected boring B-15. One grab groundwater sample (B-19) will be collected in the vicinity of the former oil storage area, where PCE was detected in subslab gas in probe SSV-21, to characterize offsite groundwater conditions.

Borings will be advanced by a licensed driller using a direct push rig. Soil will be logged and classified per the USCS and screened for field indications of contamination using visual and olfactory observations, and a PID. If impacted soil is encountered during field screening, soil samples will be collected as per the protocol discussed above in Section 6.3.

Groundwater samples will be collected using a bailer inserted through temporary PVC casing. Groundwater samples will then be transferred to laboratory-provided containers, placed in a cooler, and transported to a California-certified laboratory under chain-of-custody protocol. Samples will be analyzed for TPHg, TPHd, and TPHmo by EPA Method 8015M and VOCs by EPA Method 8260B.

6.5 Soil Gas Well Installation

The proposed soil gas sampling program is summarized on Figure 13 and Table 5. This program includes the sampling of six soil gas well pairs. The well nomenclature uses the suffix 'A' or no suffice to denote a shallow soil gas well at 5.5 ft depth. The well nomenclature suffix 'B' denotes a soil gas well at 10 ft depth. The soil gas sampling program involves the following:

- In the northwest and central portion of the Site, the sampling program includes a total of eleven soil gas wells including four well pairs to further delineate the VOC plume: existing wells SG-1 and SG-2 and new wells SG-1B, SG-2B, SG-18, SG-19, SG-20A/SG-20B, SG-21, and SG-22A/SG-22B.

- To evaluate conditions near the former UST area in the southwest corner, soil gas well SG-23 and well pair SG-24A/SG-24B will be installed.

- To further investigate conditions near the elevators planned to 5 ft depth, soil gas wells SG-25B and SG-26B will be installed.

- To evaluate conditions near the former northeast oil storage and loading area, soil gas wells SG-27 and SG-28 will be installed.

- To evaluate conditions near the former southeast solvent storage, soil gas well SG-29 and well pair SG-30A/SG-30B will be installed.

Wells will be installed by a licensed driller and advanced by hand auger. Soil will be logged and classified per the USCS and screened for VOCs using a PID. If impacted soil is encountered during field screening, soil samples will be collected as per the protocol discussed above in Section 6.3.

Soil gas wells will be constructed to a depth of 5.5 ft bgs except for two 10 ft soil gas wells in loading area and four nested soil gas wells which will be constructed to a depth of 10 ft bgs. The wells will be constructed by setting a vapor implant attached to ¼-inch Teflon™ tubing six inches above the bottom of the boring with six-inches of sand pack above and below it. A ½ foot of dry bentonite crumbles will be poured on top of the sand and the remaining annular space will be backfilled with hydrated bentonite.

Nested wells will have an additional foot of sand pack between 4.5 ft bgs and 5.5 ft bgs with a ½ foot of dry bentonite crumbles on top. Wells will be finished with either a 5-inch well box set or a 2-inch PVC riser in concrete.

6.6 Soil Gas Sampling

As detailed on Table 5, soil gas samples will be collected from the nineteen (19) new soil gas wells proposed in Section 6.5. Soil gas samples will also be collected from two existing onsite wells in the northwest loading area (SG-1 and SG-2) and two offsite wells (SG-10 and SG-15) along Myrtle Street to provide repeat data from to evaluate VOCs trends and confirm presence of a bioattenuation zone.

Samples will be collected per DTSC *Advisory: Active Soil Gas Investigation* guideline dated July 2015. Consistent with the guidance, soil gas samples will not be collected within 5 days after significant precipitation (e.g., more than a half inch of rain in a 24-hour period) or if ponded water is present near the sampling locations.

Prior to sample collection, laboratory-provided 1-liter Summa™ canisters and manifolds will be connected for a shut-in test. Canister and manifold connections that any lose vacuum over five minutes will not be used for sampling. Samples will be collected by connecting the 1-liter Summa™ canister and the manifold calibrated to a rate of approximately 100-200 milliliters per minute (mL/min) to the well tubing. To further evaluate potential leakage within the sampling system, a leak-check enclosure/shroud will be placed over the sample train and isopropyl alcohol (aka 2-propanol) leak detectant will be introduced into the shroud. A PID will be used to monitor the concentration of isopropyl alcohol within the shroud during sample collection.

Soil gas samples will be analyzed for VOCs by EPA Method TO-15. A shroud sample will also be collected during sample collection at a random well to quantify any ambient air leaks. Soil gas samples from the former UST area including well SG-15 and from the former solvent storage area will also be analyzed for fixed gases (oxygen, carbon dioxide, and methane) by ASTM Method D-1946 as per Table 5.

6.7 Contingent Soil Gas Well Installation and Sampling

Proposed contingent soil gas wells for the former oil storage are shown on Figure 13. As part of the dynamic workplan, these wells may be installed based on the sample results from soil gas wells SG-27 and SG-28. Additional soil gas wells will be installed and sampled in order to fully delineate VOCs in soil gas. ACDEH will be notified a minimum of three days prior to installation and sampling if Pangea intends to install contingent soil gas wells. The same installation and sampling methods described in section 6.5 will be used.

6.8 Shallow Soil Multi-Increment Sampling

Multi-increment sampling (MIS) will be used to provide an estimate of mean contaminant concentrations in shallow soil at the Site. Samples will be collected from areas that are planned to be used as a courtyard in the proposed development shown on Figure 14. Shallow soil from 2.0 ft depth in the proposed courtyard areas was previously sampled from samples F-1 through F-4 for VOCs, TPHg, TPHd, TPHmo, SVOCs, PCB, and CAM 17 metals. Based on analytical results from samples F-1 through F-4, chemical of potential concern is lead.

A total of five distinct areas will be sampled and composited using the MIS protocol. The five area boundaries were chosen to give five roughly equal sized sampling areas. Each area will be approximately 3,500 square feet – 4,500 square feet in size. Areas will be subdivided into at least 30 equally spaced soil collection points which will be marked out prior to sampling to ensure no points are missed.

The top six inches of soil will be removed from each collection point using hand tools. Soil will be collected with a measuring spoon to ensure an equal amount of soil is taken from each point. The soil from each collection point within the same area will be transferred into its appropriate container, sealed, and stored on ice. Tools and sampling equipment will be wiped clean of any residual soil between collection points and will be decontaminated between sampling areas.

Approximately one kilogram of soil will be collected from each area and composited in the field. Soil samples will be transported to a California certified laboratory under chain-of-custody protocol. Upon arrival, each sample will be dried to remove moisture and run through a #10 sieve (<2 millimeter) in accordance with MIS protocol before being analyzed for lead by EPA Method 6010.

For areas that exceed the Tier 1 screening level of 80 mg/kg, Pangea will subdivide the area into at least four subareas and resample following the same MIS protocols. For subdivided areas that still exceed 80 mg/kg, Pangea will collect deeper samples to vertically delineate lead in soil.

6.9 Investigation Derived Waste

Investigation derived waste (IDW) generated during field activities will be stored in 55-gallon drums. Waste will be profiled and disposed of at the conclusion of site assessment activities.

6.10 Schedule, Reporting, and Dynamic Investigation

PANGEA will implement this assessment workplan immediately upon workplan approval by ACDEH. PANGEA will prepare a *Site Assessment Report* documenting field activities, procedures, and results and submit the report to ACDEH along with conclusions and recommendations for the Site.

Based on the results of the proposed site assessment activities, PANGEA may recommend additional sampling to delineate COPCs in soil, groundwater, and/or soil gas. Potential step out locations for soil gas sampling are shown on Figure 13. If additional assessment is recommended, PANGEA will provide initial assessment data and planned assessment locations to ACDEH. PANGEA will notify ACDEH of any additional assessment work a minimum of 72 hours in advance. Site assessment methods will follow procedures described in this Workplan. Any additional work will be documented in the *Site Assessment Report.*

7.0 REFERENCES

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

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

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

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

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

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

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

SWRCB, 2012, Low-Threat Underground Storage Tank Case Closure Policy. August 17, 2012.

Figure 1

1919 Market Street
Oakland, California

PANGEA

Vicinity Map

Figure 2

1919 Market Street
Oakland, California

Site Map and Historical Use Areas

1919 Market Street
Oakland, California

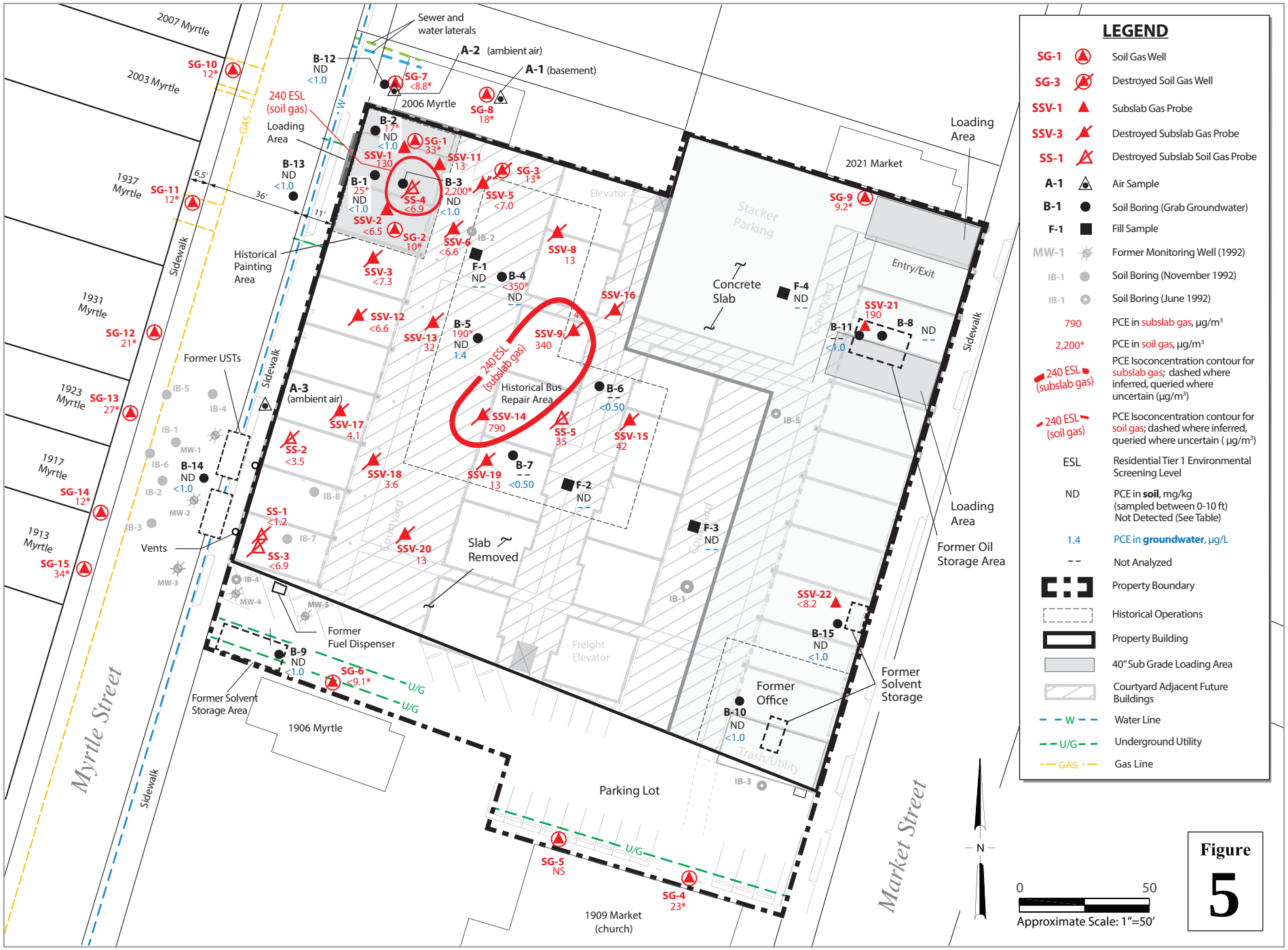
PANGEA

Site Map with
Planned Site Development

1919 Market Street
Oakland, California

PANGEA

Site map with Investigation locations



1919 Market Street
Oakland, California

PANGEA

PCE in Soil, Groundwater and Subslab/Soil Gas

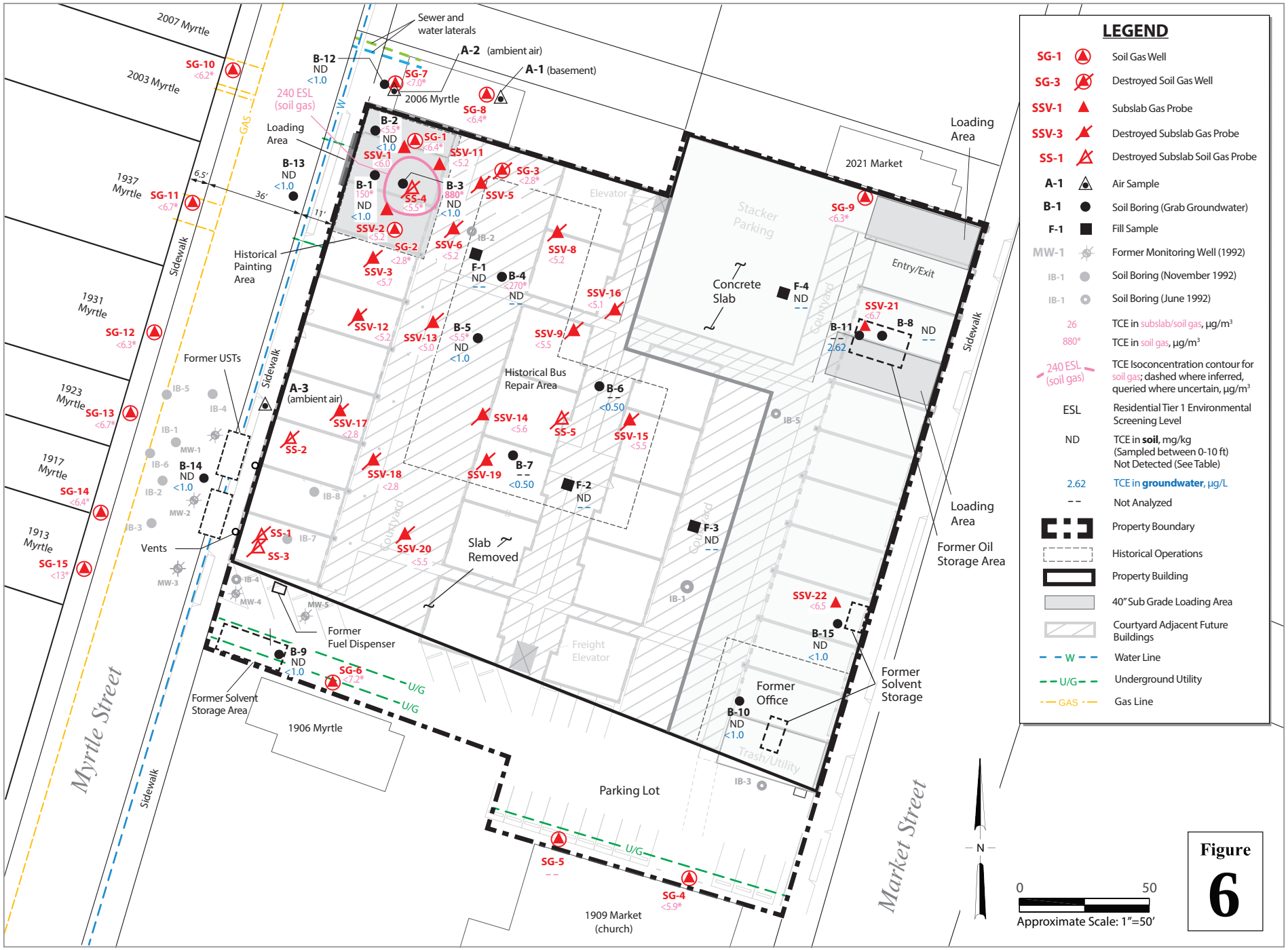
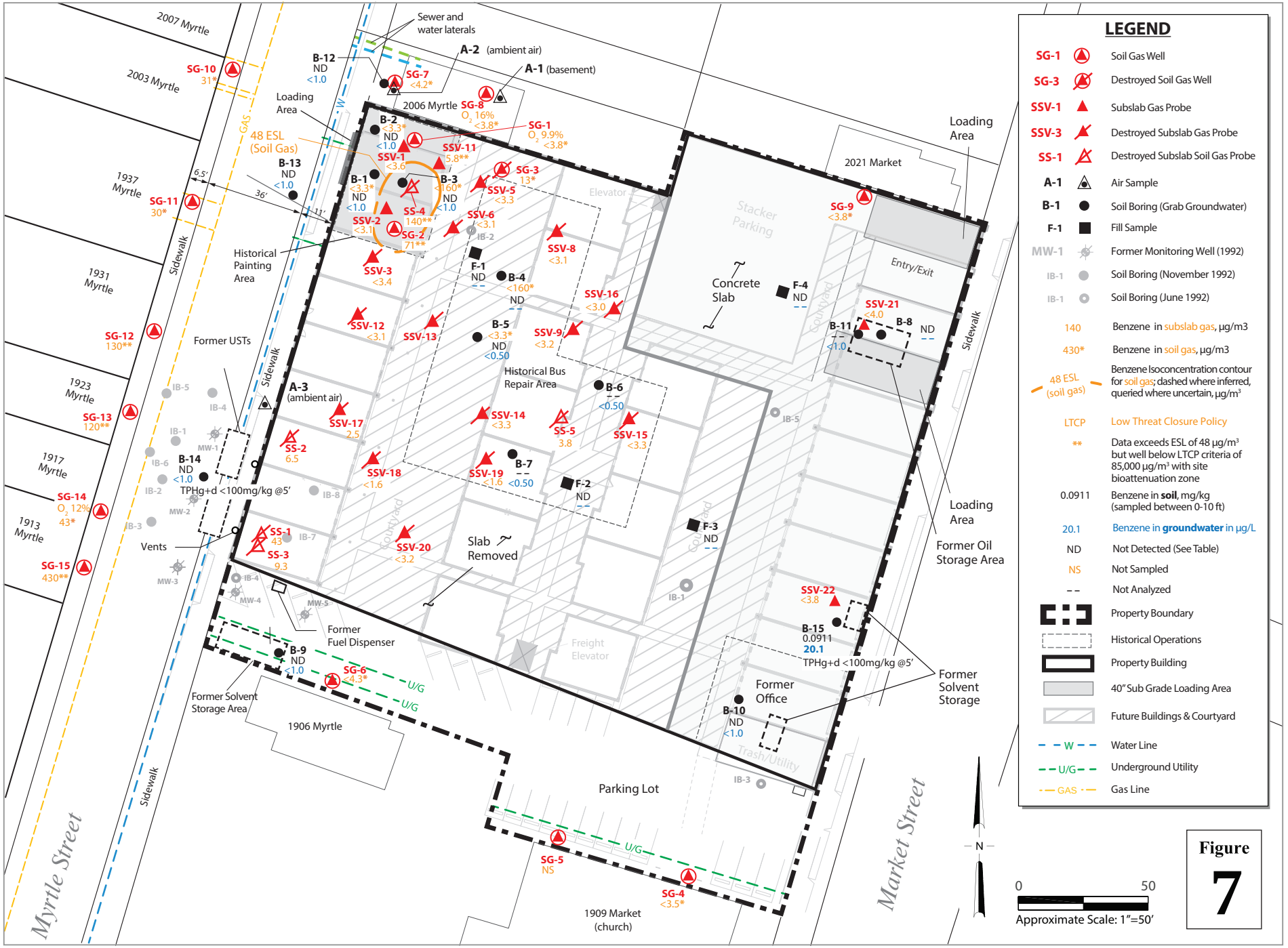


Figure 6

1919 Market Street
Oakland, California

PANGEA

TCE in Soil, Groundwater and Subslab/Soil Gas



1919 Market Street
Oakland, California

PANGEA

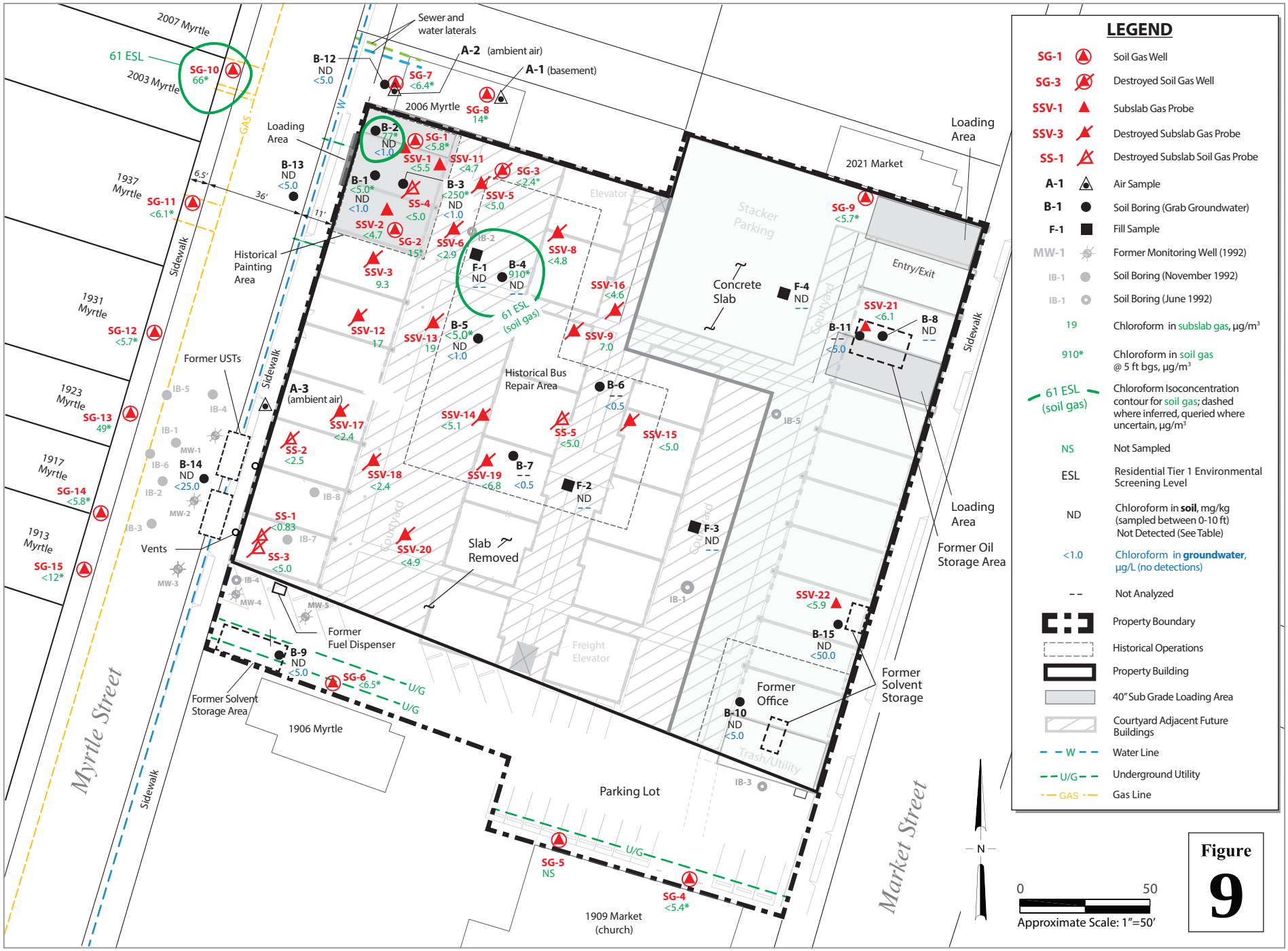
Benzene in Soil, Groundwater and Subslab/Soil Gas

Figure 8

1919 Market Street
Oakland, California

PANGEA

Carbon Tetrachloride in Soil, Groundwater and Subslab/Soil Gas



1919 Market Street
Oakland, California

PANGEA

Chloroform in Soil, Groundwater and Subslab/Soil Gas

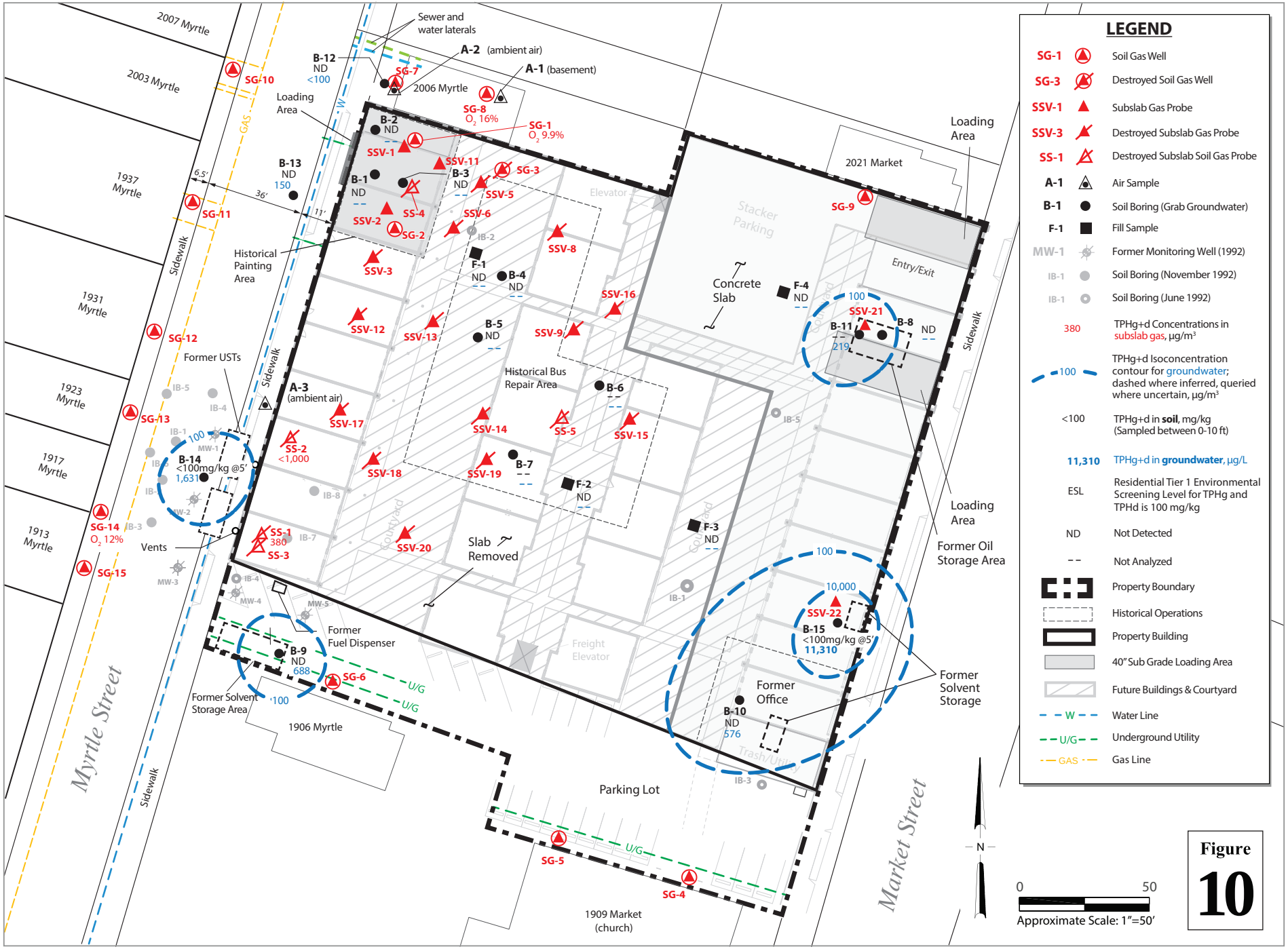


Figure 10

1919 Market Street
Oakland, California

PANGEA

TPH in Soil, Groundwater and Subslab/Soil Gas

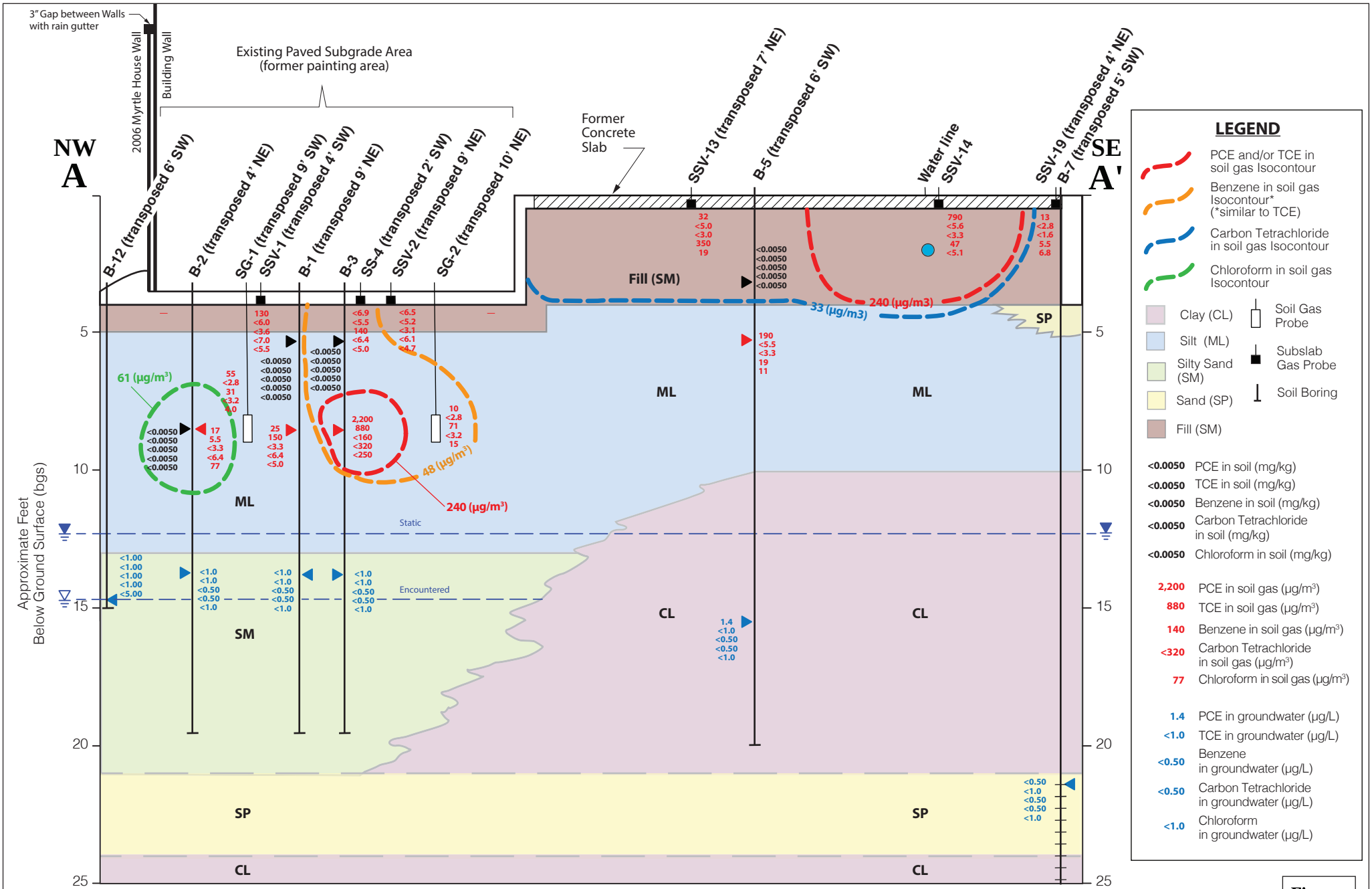
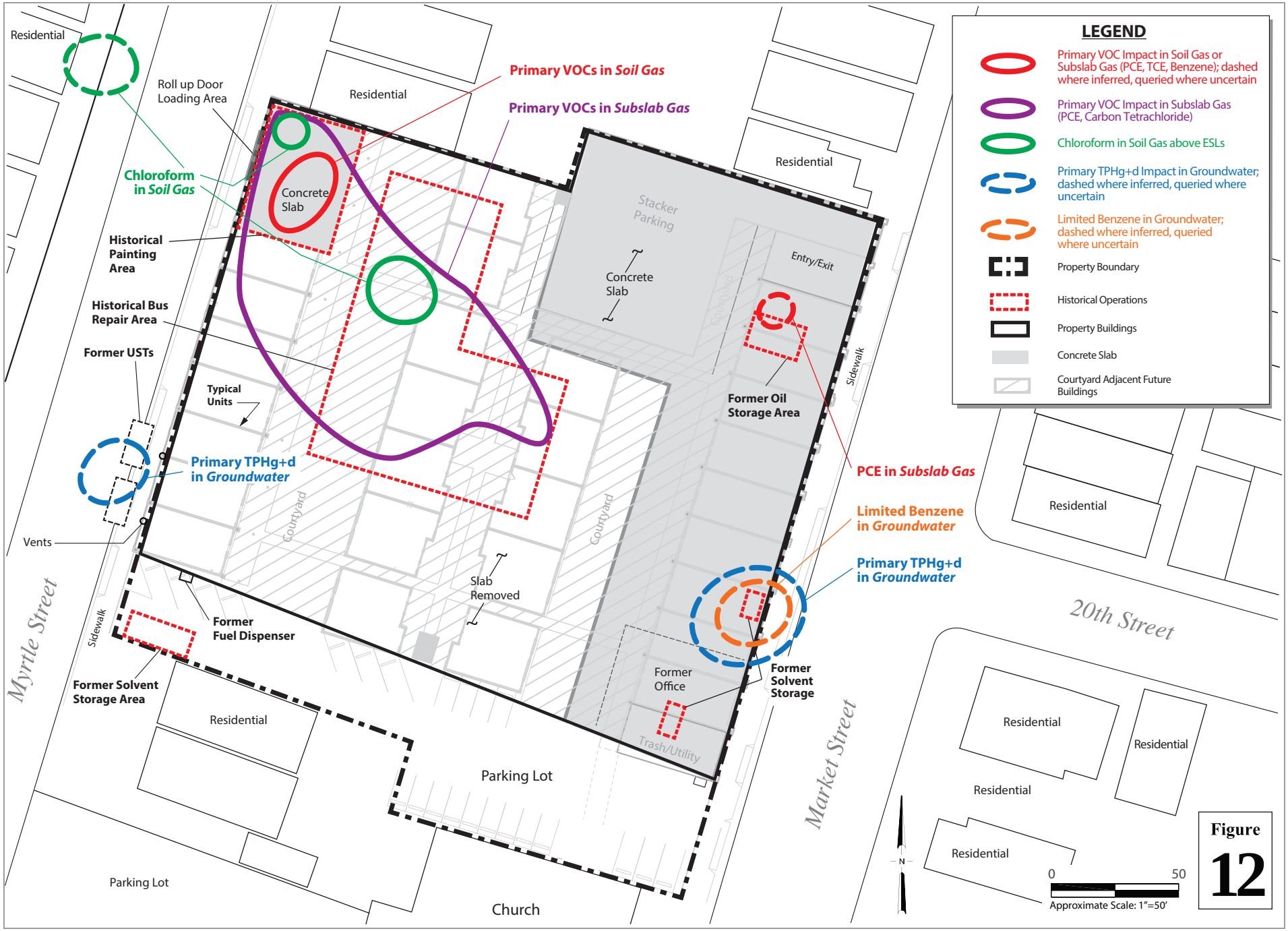


Figure 11

1919 Market Street
Oakland, California

PANGEA

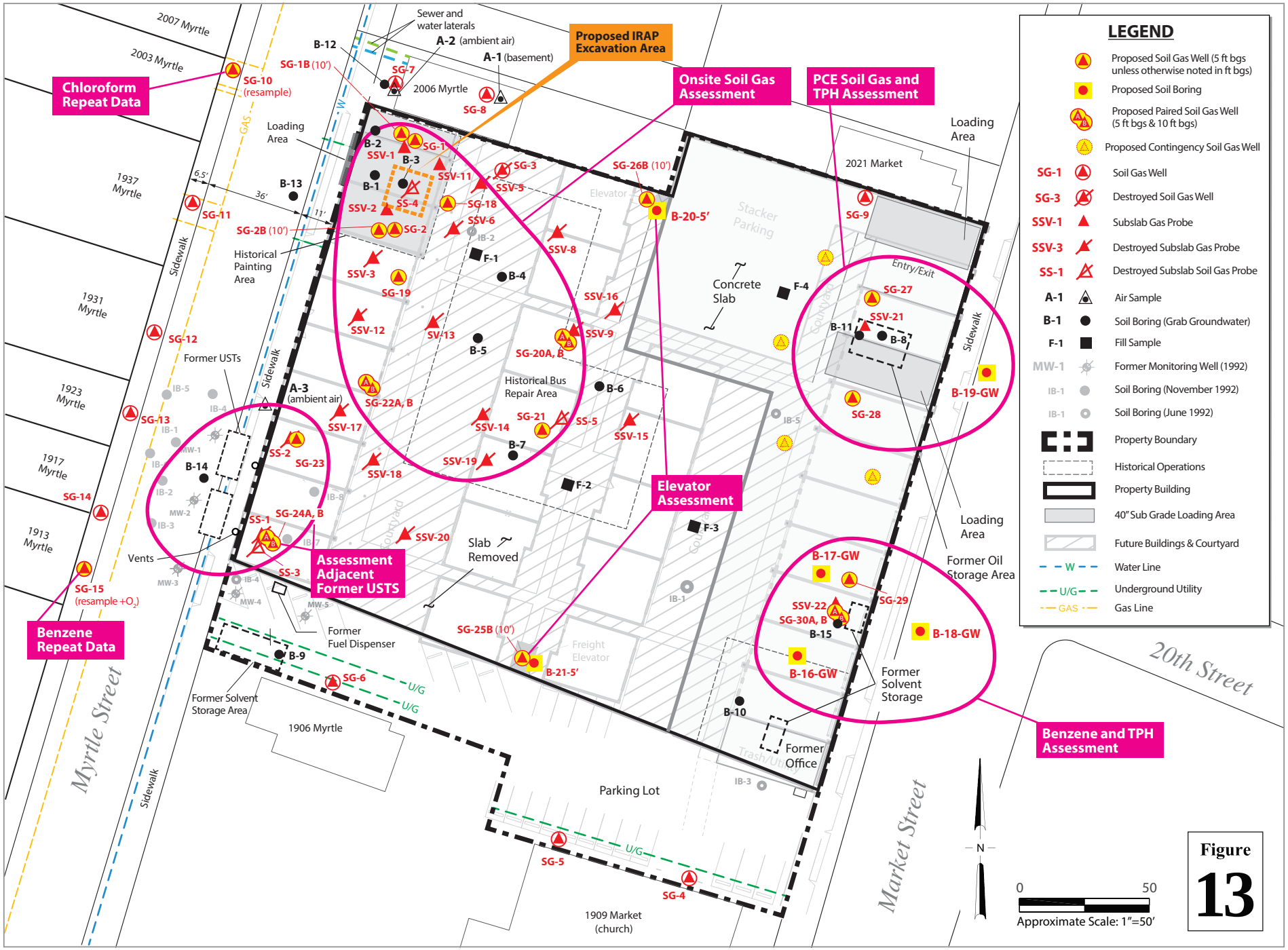
Cross Section A-A'



1919 Market Street
Oakland, California

PANGEA

VOC and TPH Impact Summary



1919 Market Street
Oakland, California

PANGEA

Proposed Sampling Locations

Figure 14

1919 Market Street
Oakland, California

PANGEA

Proposed Multi-Increment Sampling Areas for Shallow Lead

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

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	SVOCs	PCBs	Metals	NOTES
			mg/kg																	
		Soil - Tier 1 ESL:	100	230	5,100	0.044	2.9	1.4	2.3	0.033	0.0045	0.42	0.46	7.8	0.048	0.068	Varies	0.25	Varies	
		Residential 0-5 ft - LTCP Criteria:	<100		NA	1.9	NA	21	NA	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	
June 1992 Soil Sampling																				
IB-1	June 1992	5.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
IB-2	June 1992	5.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
IB-3	June 1992	5.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
IB-4	June 1992	5.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
		15.0	**2.5**	--	--	ND	**0.016**	**0.030**	**0.10**	--	--	--	--	--	--	--	--	--	--	
IB-5	June 1992	5.0	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
		10.5	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	
November 1992 Soil Sampling																				
IB-1	11/25/1992	6.0	**2.8**	<10	**<10 / 14**[a]	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		11.0	**87**	**300**	<20	<0.005	<0.005	<0.005	0.030	--	--	--	--	--	--	--	--	--	--	
IB-2	11/25/1992	6.0	<0.50	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		11.0	**23**	**<10 / 12**[a]	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
IB-3	11/25/1992	6.0	<0.5	<10	**13 / <10**[a]	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		11.0	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
IB-4	11/25/1992	6.0	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		11.5	**13**	**170**	**27**	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	--	--	--	
IB-5	11/25/1992	7.0	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
		11.5	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
IB-6	11/25/1992	7.0	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
		11.5	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
IB-7	11/25/1992	5.0	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
		10.0	**560**	**44**	<10	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
IB-8	11/25/1992	5.0	<1	<1	**11**	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
		10.0	**160**	**76**	<10	<0.0025	<0.0025	**1,100**	<0.0025	--	--	--	--	--	--	--	--	--	--	

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

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	SVOCs	PCBs	Metals	NOTES
			← mg/kg →																	
		Soil - Tier 1 ESL:	100	230	5,100	0.044	2.9	1.4	2.3	0.033	0.0045	0.42	0.46	7.8	0.048	0.068	Varies	0.25	Varies	
MW-1	1992	5.0	**40**	**140**	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	--	--	--	
		10.5	**430**	**1,100**	**61**	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
		13.0	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
MW-2	1992	5.5	**120**	**180**	<10	<0.05	<0.05	<0.05	<0.05	--	--	--	--	--	--	--	--	--	--	
		10.5	**310**	**1,200**	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
		15.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
MW-3	1992	5.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		10.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		15.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005											
MW-4	1992	8.0	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		12.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
MW-5	1992	8.0	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
		14.5	<0.5	<10	<10	<0.005	<0.005	<0.005	<0.005	--	--	--	--	--	--	--	--	--	--	
2016-2017 Soil Sampling																				
B-1	04/15/2016	2.0[1]	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	
B-2	04/15/2016	5.0[1]	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	
B-3	04/15/2016	2.0[1]	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	
B-4	04/15/2016	3.0	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	
B-5	04/15/2016	3.0	--	--	--	<0.0050	<0.0050	<0.0050	<0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	
B-8-5	11/14/2016	5.0	<0.15	<0.99	<5.0	<0.0038	<0.0038	<0.0038	<0.015	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	--	--	--	
B-9-5	5/26/2017	5.0	<0.116	<4.63	<4.63	<0.00116	<0.00578	<0.00116	<0.00347	<0.00578	<0.00116	<0.00116	<0.00116	<0.00116	<0.00116	<0.00578	--	--	--	
B-10-5	5/26/2017	5.0	<0.113	<4.52	<4.52	<0.00113	<0.00566	<0.00113	<0.00339	<0.00566	<0.00113	<0.00113	<0.00113	<0.00113	<0.00113	<0.00566	--	--	--	
B-12-5	5/26/2017	5.0	<0.116	<4.65	<4.65	<0.00116	<0.00581	<0.00116	<0.00349	<0.00581	<0.00116	<0.00116	<0.00116	<0.00116	<0.00116	<0.00581	--	--	--	
B-13-5	5/26/2017	5.0	<0.116	<232	**1,914**	<0.00116	<0.00580	<0.00116	<0.00348	<0.00580	<0.00116	<0.00116	<0.00116	<0.00116	<0.00116	<0.00580	--	--	--	
B-14-5	5/26/2017	5.0	**3.34**	**22.8**	<4.67	<0.00117	<0.00583	<0.00117	<0.00350	<0.00583	<0.00117	<0.00117	<0.00117	<0.00117	<0.00117	<0.00583	--	--	--	
B-14-10	5/26/2017	10.0	**65.1**	**252**	**16.2**	<0.0196	<0.0979	<0.0196	<0.0587	<0.0979	<0.0196	<0.0196	<0.0196	<0.0196	<0.0196	<0.0979	--	--	--	b
B-15-5	5/26/2017	5.0	**5.50**	<4.51	<4.51	<0.0194	<0.0972	<0.0194	<0.0583	<0.0972	<0.0194	<0.0194	<0.0194	<0.0194	<0.0194	<0.0972	--	--	--	
B-15-10	5/26/2017	10.0	**101**	<5.32	<5.32	**0.0911**	<0.110	<0.0220	<0.0659	<0.110	<0.0220	<0.0220	<0.0220	<0.0220	<0.0220	<0.110	--	--	--	b

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

Boring / Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	SVOCs	PCBs	Metals	NOTES
			mg/kg																	
		Soil - Tier 1 ESL:	100	230	5,100	0.044	2.9	1.4	2.3	0.033	0.0045	0.42	0.46	7.8	0.048	0.068	Varies	0.25	Varies	
F-1	11/14/2016	2.0	<0.14	**12**	**30**	<0.0034	<0.0034	<0.0034	<0.0068	<0.0034	<0.0034	<0.0034	<0.0034	<0.0034	<0.0034	<0.0034	<1,700	<0.096	c	
F-2	11/14/2016	2.0	<0.14	<1.0	<5.0	<0.0033	<0.0033	<0.0033	<0.0066	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<0.0033	<1,700	<0.096	c,d	d =lead detected at 84.4 mg/kg
F-3	11/14/2016	2.0	<0.15	<1.0	<5.0	<0.0039	<0.0039	<0.0039	<0.0078	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039	<1,700	<0.096	c	
F-4	11/14/2016	2.0	<0.19	1.0	<5.0	<0.0048	<0.0048	<0.0048	<0.0096	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	<1,700	<0.096	c	

Legend:

TPHg,d,mo = Total Petroleum Hydrocarbons as gasoline (TPHg), diesel(TPHd), and motor oil(TPHmo) by EPA Method 8015C.

VOCs = Volatile Organic Compounds by EPA Method 8260B.

1,2-DCA = 1,2-Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

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

SVOCs = Semi-Volatile Organic Compounds

mg/Kg = milligrams per kilogram

ft bgs = Depth below ground surface in feet.

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

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

-- = Not analyzed, not applicable

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

a = duplicate sample taken

b = sample analyzed outside of laboratory method hold time. See lab report for details

c = all metals detected below Tier 1 ESLs, except for arsenic which was detected above its Tier 1 ESL, but within background range for the area.

(1) = Grade elevation is 40" below rest of building so sample depth is approximately 3.3 ft lower than samples collected outside of Loading Area

Concentrations exceed environmental screening levels

Bold = contaminant detected above reporting limit

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

Well ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			µg/L																	
	Groundwater - Tier 1 ESL:		100	100	50,000	1.0	40	13	20.0	0.170	0.50	3.0	5.0	6.0	10	0.061	62	0.22	2.3	
	LTCP Criteria:		NA	NA	NA	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Historical Monitoring Well Data																				
MW-1	8/7/1992	--	<0.050	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.050	<0.050	<0.050	<0.5	**14**	**1.8**	**2.5**	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/28/1994	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.050	**0.06**	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/7/1992	--	<0.050	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.050	<0.050	<0.050	<0.5	**14**	**1.9**	**2.5**	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.050	**0.11**	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.050	**0.06**	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	<0.050	<0.050	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	<0.050	<0.050	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
MW-3	8/7/1992	--	<0.050	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	<0.050	<0.050	<0.050	<0.5	**16**	**2.4**	**3.5**	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	8/7/1992	--	**2.8**	<0.050	<0.050	**20**	**150**	**7.5**	**340**	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	**0.22**	<0.050	<0.050	**13**	**36**	**8.2**	**31**	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

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

Well ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			µg/L																	
	Groundwater - Tier 1 ESL:		100	100	50,000	1.0	40	13	20.0	0.170	0.50	3.0	5.0	6.0	10	0.061	62	0.22	2.3	
MW-4 cont.	1/10/1995	--	**3.0**	**0.75**	<0.5	**25**	**52**	**43**	**230**	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	**5.4**	**0.39**	--	**5.2**	**5.2**	**30**	**130**	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	**7.7**	<0.30	--	**17**	**18**	**110**	**300**	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	**17**	<0.30	--	**8.8**	<0.5	**9.9**	**22**	--	--	--	--	--	--	--	--	--	--	
MW-5	8/7/1992	--	<0.050	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	12/3/1992	--	**0.072**	<0.050	<0.050	<0.5	**33**	**3.5**	**4.2**	--	--	--	--	--	--	--	--	--	--	
	6/11/1993	--	<0.050	**0.10**	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/13/1994	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	1/10/1995	--	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	--	--	
	6/12/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	10/22/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	5/7/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Groundwater Data																				
B-1-GW	4/11/2016	16*	--	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-2-GW	4/11/2016	16*	--	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-3-GW	4/11/2016	16*	--	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-5-GW	4/11/2016	20	--	--	--	<0.50	<0.50	<0.50	<1.0	<1.0	<0.50	**1.4**	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<1.0	
B-6-GW	9/1/2016	21	--	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
B-7-GW	9/1/2016	21	--	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
B-9-GW	5/26/2017	15	<100	**688**	**304**	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	
B-10-GW	5/26/2017	16	<100	**576**	**706**	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	
B-11-GW	5/26/2017	15	<100	**219**	**381**	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	**2.62**	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	
B-12-GW	5/26/2017	15	<100	<100	<100	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	
B-13-GW	5/26/2017	14	<100	**150**	**315**	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	
B-14-GW	5/26/2017	12.5	**461**	**1,170**	**938**	<5.00	<5.00	<5.00	<15.0	<25.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<25.0	
B-15-GW	5/26/2017	13	**6,650**	**4,660**	**3,830**	**20.1**	<10.0	<10.0	<30.0	<50.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<50.0	

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

Well ID	Date Sampled	Sample Depth (ft bgs)	TPHg	TPHd	TPHmo	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-DCA	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	1,1,1-TCA	Carbon Tetrachloride	Chloroform	NOTES
			µg/L																	
Groundwater - Tier 1 ESL:			100	100	50,000	1.0	40	13	20.0	0.170	0.50	3.0	5.0	6.0	10	0.061	62	0.22	2.3	

Legend:

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

TPHd = Total Petroleum Hydrocarbons as diesel by EPA Method 8015. ESE Carbon Range of C12-C22.

TPHmo = Total Petroleum Hydrocarbons as motor oil by EPA Method 8015. ESE Carbon Range of C22-C32.

1,2-DCA = 1,2-Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

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

µg/L = Micrograms per Liter

ft bgs = feet below ground surface in feet

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

-- = Not analyzed

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

* = Surface elevation approximately 3.3 ft below other borings

Concentrations exceed environmental screening levels

Bold = contaminant detected above reporting limit

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

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Other VOCs	Isopropyl Alcohol (Leak Check Compound)	Oxygen	Methane [1]	Carbon Dioxide	Notes
			ug/m^3														%	%	%	
Subslab Gas /Soil Gas - Residential ESL:			300,000	48	160,000	560	52,000	41	54	240	240	520,000	33	61	Varies	NA	NA	NA	NA	
Soil Gas @ 5 ft with Bio Zone - LTCP Criteria:			NA	<85,000	NA	<1,100,000	NA	<93,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Subslab Soil Gas Samples																				
SS-1	02/05/16	0.5	**380**	**43**	**27**	**1.3**	**9.0**	**1.9**	<0.70	<1.2	<0.93	**2.3**	<1.1	<0.83	*	**12**	**17**	<0.20	--	
SS-2	02/05/16	0.5	<1,000	**6.5**	**16**	<2.2	<6.6	**5.3**	<2.1	<3.5	<2.8	<2.8	<3.2	<2.5	--	**16**	**17**	<0.19	--	
SS-3[2]	03/11/16	0.5	--	**9.3**	**140**	**19**	**100**	--	<4.1	<6.9	<5.5	<5.6	<6.4	<5.0	--	--	--	--	--	
SS-4[2]	03/11/16	0.5	--	**140**	**35**	**6.9**	**46**	--	<4.1	<6.9	<5.5	<5.6	<6.4	<5.0	--	--	--	--	--	
SS-5	03/11/16	0.5	--	**3.8**	**19**	<4.4	**26**	--	<4.1	**35**	**26**	**67**	<6.4	<5.0	--	--	--	--	--	
SSV-1	08/01/16	0.5	--	<3.6	**8.2**	<4.9	**9.7**	<23	<4.5	**130**	<6.0	<6.1	<7.0	<5.5	*	**14**	--	--	--	
SSV-2	08/01/16	0.5	--	<3.1	**8.1**	<4.2	**6.3**	<20	<3.9	<6.5	<5.2	<5.3	<6.1	<4.7	--	--	--	--	--	
SSV-3	08/01/16	0.5	--	<3.4	**4.2**	<4.6	**5.6**	<22	<4.3	<7.3	<5.7	**10**	**260**	**9.3**	--	**38**	--	--	--	
SSV-5	08/01/16	0.5	--	<3.3	**5.9**	<4.5	**7.5**	<21	<4.1	<7.0	<5.5	<5.6	**15**	<5.0	--	**21**	--	--	--	
SSV-6	08/01/16	0.5	--	<3.1	**4.5**	<4.2	**6.2**	<20	<3.9	<6.6	<5.2	**18**	**61**	<4.8	*	**13**	--	--	--	
SSV-8	08/01/16	0.5	--	<3.1	<3.7	<4.2	<8.4	<20	<3.9	**13**	<5.2	**80**	<6.1	<4.8	*	--	--	--	--	
SSV-9	08/01/16	0.5	--	<3.2	<3.8	<4.4	<8.4	<21	<4.1	**340**	<5.5	**220**	**33**	**7.0**	*	--	--	--	--	
SSV-10	--	--	----------probe destroyed before sampling could occur----------																	
SSV-11	08/17/16	0.5	--	**5.8**	**34**	<4.2	**15.3**	<20	<3.9	**13**	<5.2	<5.3	<6.1	<4.7	--	**10**	--	--	--	
SSV-12	08/17/16	0.5	--	<3.1	<3.7	**17**	**168**	<20	<3.9	<6.6	<5.2	**17**	**390**	**17**	--	**21**	--	--	--	
SSV-13	08/17/16	0.5	--	<3.0	<3.5	<4.0	<8.0	<19	<3.7	**32**	<5.0	**79**	**350**	**19**	--	<9.1	--	--	--	

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

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Other VOCs	Isopropyl Alcohol (Leak Check Compound)	Oxygen	Methane [1]	Carbon Dioxide	Notes
			ug/m^3														%	%	%	
Subslab Gas /Soil Gas - Residential ESL:			300,000	48	160,000	560	52,000	41	54	240	240	520,000	33	61	Varies	NA	NA	NA	NA	
SSV-14	08/17/16	0.5	--	<3.3	<3.9	<4.5	<9.0	<22	<4.2	**790**	<5.6	**240**	**47**	<5.1	--	**13**	--	--	--	
SSV-15	08/17/16	0.5	--	<3.3	<3.9	<4.5	<9.0	<22	<4.2	**42**	<5.5	**260**	**35**	<5.0	--	**15**	--	--	--	
SSV-16	08/17/16	0.5	--	<3.0	<3.6	<4.1	<8.2	<20	<3.8	**47**	<5.1	**52**	<6.0	<4.6	--	**20**	--	--	--	
SSV-17	09/01/16	0.5	--	**2.5**	**5.9**	<2.2	<6.6	<5.3	<2.0	**4.1**	<2.8	**5.3**	**11**	<2.4	*	**320**	--	--	--	
SSV-18	09/01/16	0.5	--	<1.6	**4.5**	<2.2	<6.6	<5.3	<.20	**3.6**	<2.8	**12**	**4.4**	<2.4	*	**150**	--	--	--	
SSV-19	09/01/16	0.5	--	<1.6	**3.1**	<2.2	<6.6	<5.3	**11**	**13**	<2.8	**160**	**5.5**	**6.8**	*	**110**	--	--	--	
SSV-20	09/01/16	0.5	--	<3.2	**6.4**	<4.4	<13	**13**	<4.1	**13**	<5.5	**13**	<6.4	<4.9	*	<100	--	--	--	
SSV-21	05/31/17	0.5		<4.0	<4.7	<5.4	<10.8	<13	<5.0	**190**	<6.7	<6.8	<7.8	<6.1	--	**14**	--	--	--	
SSV-22	05/31/17	0.5	--	<3.8	<4.5	<5.2	<10.4	<13	<4.9	<8.2	<6.5	<6.6	<7.6	<5.9	--	<12	--	--	--	
Soil Gas Samples																				
B-1[2]	04/29/16	5.0[3]	--	<3.3	<3.8	<4.4	<8.8	--	<4.1	**25**	**150**	<5.6	<6.4	<5.0	--	--	--	--	--	
B-2[2]	04/29/16	5.0[3]	--	<3.3	<3.8	**66**	**400**	--	<4.1	**17**	**5.5**	<5.6	<6.4	**77**	--	--	--	--	--	
B-3[2]	04/29/16	5.0[3]	--	<160	<190	<220	<220	--	<210	**2,200**	**880**	<280	<320	<250	--	--	--	--	--	
B-4[2]	04/29/16	5.0	--	<160	<190	<220	<220	--	<210	<350	<270	<280	<320	**910**	--	--	--	--	--	
B-5[2]	04/29/16	5.0	--	<3.3	<3.8	<4.4	<8.8	--	<4.1	**190**	<5.5	**46**	**19**	**11**	--	--	--	--	--	
SG-1	09/06/16	5.0[3]	--	**31**	**24**	**2.6**	**14**	<5.3	<2.0	**55**	<2.8	<2.8	<3.2	**4.0**	*	<50	--	--	--	
	05/24/17	5.0[3]	--	<3.8	<4.5	<5.2	<10.4	<12	<4.8	**33**	<6.4	<6.5	<7.6	<5.8	--	<12	**9.9**	<0.00032	**2.3**	
SG-2	09/06/16	5.0[3]	--	**71**	**120**	**17**	**80**	<5.3	<2.0	**10**	<2.8	<2.8	<3.2	**15**	*	<50	--	--	--	

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

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Other VOCs	Isopropyl Alcohol (Leak Check Compound)	Oxygen	Methane (1)	Carbon Dioxide	Notes
			ug/m^3														%	%	%	
Subslab Gas /Soil Gas - Residential ESL:			300,000	48	160,000	560	52,000	41	54	240	240	520,000	33	61	Varies	NA	NA	NA	NA	
SG-3	09/06/16	5.0	--	**13**	**38**	**8.3**	**53**	<5.3	<2.0	**13**	<2.8	**3.4**	<3.2	<2.4	*	<50	--	--	--	
SG-4	05/23/17	5.0	--	<3.5	<4.2	<4.8	<9.6	<12	<4.5	**23**	<5.9	<6.0	<7.0	<5.4	--	**760**	--	--	--	
SG-5	05/23/17	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	not sampled, water in well
SG-6	05/24/17	5.0	--	<4.3	<5.0	<5.8	<11.6	<14	<5.4	<9.1	<7.2	<7.3	<8.4	<6.5	--	<13	--	--	--	
SG-7	04/14/17	5.0	--	<4.0	<4.7	<5.4	<10.8	<26	<5.1	**16**	<6.7	<6.8	<7.9	<6.1	*	**68**	--	--	--	
	05/24/17	5.0	--	<4.2	<4.9	<5.7	<11.4	<14	<5.3	<8.8	<7.0	<7.1	<8.2	<6.4	--	<13	--	--	--	
SG-8	04/14/17	5.0	--	**11**	**27**	<6.5	**15**	<31	<6.0	**22**	<8.0	<8.1	<9.4	**9.5**	*	**15**	--	--	--	
	05/24/17	5.0	--	<3.8	<4.4	<5.1	<10.2	<12	<4.8	**18**	<6.3	<6.4	<7.4	14	--	<12	**16**	<0.00024	**1.6**	
	05/24/17	5.0	--	<3.8	<4.5	<5.1	<10.2	<12	<4.8	**20**	<6.4	<6.5	<7.4	14	--	<12	--	--	--	duplicate sample
SG-9	05/24/17	8.0	--	<3.8	<4.4	<5.1	<10.2	<12	<4.8	**9.2**	<6.3	<6.4	<7.4	<5.7	--	<12	--	--	--	
SG-10	05/31/17	8.0	--	**31**	**44**	**5.1**	**22**	<12	<4.6	**12**	<6.2	<6.3	<7.2	**66**	--	<11	--	--	--	
SG-11	05/31/17	5.0	--	**30**	**42**	**5.9**	**16**	<13	<5.0	**12**	<6.7	<6.8	<7.9	<6.1	--	**12**	--	--	--	
SG-12	05/31/17	5.0	--	**130**	**110**	**10**	**46**	<12	<4.7	**21**	<6.3	<6.4	<7.4	<5.7	--	<12	--	--	--	
SG-13	05/31/17	5.0	--	**120**	**150**	**18**	**79**	<13	<5.0	**27**	<6.7	<6.8	<7.8	**49**	--	**21**	--	--	--	
SG-14	05/31/17	5.0	--	**43**	**100**	**28**	**109**	<12	<4.8	**12**	<6.4	<6.5	<7.5	<5.8	--	<12	**12**	<0.00024	**3.0**	
SG-15	05/31/17	5.0	--	**430**	**1,600**	**300**	**1,140**	<25	<9.8	**34**	<13	<13	<15	<12	--	<24	--	--	--	
Shroud Samples																				
Shroud (SG-8)	04/14/17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**110,000**	--	--	--	
Shroud (SG-1)	05/24/17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**180,000**	--	--	--	
Shroud (SG-1)	05/31/17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**180,000**	--	--	--	

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

Boring/ Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Other VOCs	Isopropyl Alcohol (Leak Check Compound)	Oxygen	Methane (1)	Carbon Dioxide	Notes
			ug/m^3														%	%	%	
Subslab Gas /Soil Gas - Residential ESL:			300,000	48	160,000	560	52,000	41	54	240	240	520,000	33	61	Varies	NA	NA	NA	NA	

Legend:

VOC = Volatile Organic Compounds

TPHg = Total Petroleum Hydrocarbons as gasoline

1,2-DCA = 1,2-dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

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

VOCs analyzed by EPA Method TO-15

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

ft bgs = Depth interval below ground surface in feet.

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

-- = not analyzed

NA = not applicable

* = trace levels of other VOCs detected well below screening level thresholds. See lab report for details.

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

(1) = The lower explosion limit for methane is 4.4 to 5%.

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

(3) = Grade elevation is 40 inces below rest of building so sample depth is at approximately 8.3 ft relative to samples collected outside of Loading Area

Concentrations exceed environmental screening levels

Bold = contaminant detected above reporting limit

Table 4. Indoor Air Analytical Data - 1919 Market Street, Oakland, CA

Sample Location / ID	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Napthalene	1,2-DCA	PCE	TCE	1,1,1-TCA	Carbon Tetrachloride	Chloroform	Notes
		µg/m^3											
Indoor Air ESL, Commercial Land Use:		0.42	1,300	4.9	440	0.36	0.47	2.1	3.0	4,400	0.29	0.53	
Indoor Air ESL, Residential Land Use:		0.097	310	1.1	100	0.083	0.11	0.48	0.48	1,000	0.067	0.12	
2006 Myrtle Street													
A-1 (Basement Air)	4/8/2017	**0.60**	**0.82**	<0.21	**0.98**	--	<0.20	<0.33	<0.26	<0.27	**0.36**	<0.24	
	5/24/2017	<0.25	**0.66**	**0.14**	**0.61**	<0.41	<0.13	<0.21	<0.17	<0.17	**0.66**	**0.15**	
A-2 (Ambient Air)	5/24/2017	<0.26	**0.56**	<0.14	**0.53**	<0.43	<0.13	<0.22	<0.18	<0.18	**0.97**	<0.16	
1919 Market Street													
A-3 (Ambient Air)	5/24/2017	**0.30**	**1.4**	**0.34**	**1.14**	<0.42	<0.13	<0.22	<0.17	<0.17	**0.81**	<0.16	

Notes:

Samples analyzed for VOCs by USEPA Method TO-15 SIM.

DCA = Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

TCA = Trichloroethane

µg/m3 = micrograms per cubic meter

San Francisco Bay Region.

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

Concentrations exceed shown environmental screening levels

Bold = contaminant detected above reporting limit

Table 5 - Sampling and Analysis Plan: 1919 Market Street, Oakland, CA

Objective	Rationale	Medium	Sample Type	Sample Point Identification	Sample Depth	Soil Analysis				GW Analysis		Soil Gas Analysis	
						TPH	VOCs	SVOCs	Lead	TPH	VOCs	VOCs	Fixed Gases
Further assess offsite soil gas along Myrtle Street	Evaluate stability of benzene and chlorform with respect to May 2017 results. Evaluate oxygen for bioattenuation zone.	soil gas	Re-sample well SG-10 (chloroform) and SG-15 (benzene + oxygen)	SG-10, SG-15	8.5 ft, 5 ft							2	1
Further delineate onsite VOC source area (NW loading area and north central area)	Agency requested more soil gas wells and well pairs for vertical delineation of VOCs in soil gas.	soil gas	Install and/or sample 11 soil gas wells, including 4 well pairs for vertical delineation	SG-1, SG-1B, SG-2, SG-2B, SG-18, SG-19, SG-20(A,B), SG-21, SG-22(A,B)	5, 10 ft							11	
Further assess former UST area	Assessment of potential vapor intrusion risk from former USTs. Evaluate methane, and oxygen for bioattenuation.	soil	Collect soil samples from soil gas well borings	SG-23, SG-24	5 ft	2	2	2					
		soil gas	Install and sample 3 soil gas wells, including a well pair for vertical delineation	SG-23, SG-24(A,B)	5 ft, 10 ft							3	2
Assess future elevator pit areas	Assessment of potential vapor intrusion pathway.	soil	Collect 2 soil samples from bottom of elevator pit	B-20, B-21	5 ft	2	2						
		soil gas	Install and sample 2 shallow soil gas wells	SG-25, SG-26	10 ft							2	
Further assess former oil storage area in northeast	Delineation of PCE in soil gas and TPH in groundwater needed. Dynamic workplan may result in additonal samples.	groundwater	Collect 1 grab groundwater samples	B-19	15-20 ft					1	1		
		soil gas	Install and sample 2 soil gas wells (Contingent step-out wells not included in count total)	SG-27, SG-28	5 ft							2	
Further assess former solvent storage area in southeast	Delineation of TPH and benzene in soil, groundwater, and soil gas needed.	soil	Collect 2 soil samples from soil gas well boring adjacent B-15.	SG-30	5, 10 ft	2	2	2					
		groundwater	Collect 3 grab groundwater samples	B-16, B-17 & B-18	15-20 ft					3	3		
		soil gas	Install and sample 3 soil gas wells, including a well pair for vertical delineation	SG-29, SG-30(A,B)	5 ft, 10 ft							3	1
Assess shallow soil in proposed courtyard areas	Confirm lead in shallow soil below ESLs to protect future residents from direct contact pathway.	soil	Composite sample collected using multi-increment sampling method. Dynamic workplan may result in additional samples (not included in current count)	MIS-1 to MIS-5	0.5 ft				5				
					Total analysis quantity:	6	6	4	5	4	4	25 (with shroud and dup)	4

58 Total Analyses (excludes any additional dynamic assessment)

Notes and Abbreviations:

TPH = Total petroleum hydrocarbons as gas, diesel, motor oil by EPA Method 8015/8021.

VOCs = volatile organic compounds by EPA Method 8260 with sample collection via Method 5035.

SVOCs = semi volatile organic compounds (including naphthalene and poly-aromatic hydrocarbons) by EPA Method 8270.

Fixed Gases = Oxygen, Carbon Dioxide, and Methane

* = Grade elevation of Loading Area is 3.3 ft lower than rest of building so sample depth is approximately 3.3 ft lower than samples collected outside of Loading Area

APPENDIX A

Agency Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
REBECCA GEBHART, Interim Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
LOCAL OVERSIGHT PROGRAM (LOP)
For Hazardous Materials Releases
1131 HARBOR BAY PARKWAY, SUITE 250
ALAMEDA, CA 94502
(510) 567-6700
FAX (510) 337-9335

March 3, 2017

Mr. Danny Haber
1919 Crew LLC
Pier 54 Suite 202
San Francisco, CA 94158
(*Sent via E-mail to: danny@thenegev.com*)

Subject: Conditional Approval of Workplan for Site Assessment and Remediation Pilot Study, Site Cleanup Case No. RO0003205 and GeoTracker Global ID T10000009433, 1919 Market Street, Oakland, CA 94158

Dear Mr. Haber:

Alameda County Department of Environmental Health (ACDEH) staff has reviewed the Site Cleanup case file for the above referenced site including the recently submitted document *Workplan for Site Assessment and Remediation Pilot Study* (Work Plan), dated October 24, 2016, revised November 8, 2016, and February 21, 2017 – submitted on February 23, 2017).

The Work Plan was prepared and revised to address the following objectives: further delineate the extent of known subsurface volatile organic compounds (VOCs) that pose a potential vapor intrusion risk for future residences and current occupants of adjacent properties; assess condition at and in the vicinity of historic solvent use and storage areas; and assess the existing fill material for chemicals of potential concern at the site. In addition, a pilot study is also proposed in the Work Plan to evaluate the feasibility of soil vapor extraction (SVE) for remediation and mitigation of subsurface VOCs at the site.

TECHNICAL COMMENTS

Based on our review of the Work Plan, ACDEH is authorizing the collection of ten (10) soil gas samples and one crawl space or indoor air sample along the perimeter of the site and offsite to assess vapor intrusion risks to adjacent properties/receptors, provided the following comments are incorporated and addressed PRIOR TO field implementation. Please also refer to the attached Figure 14 for approved soil gas sampling locations (see circled locations with orange highlights). Note that the remaining proposed onsite activities (soil and groundwater sampling, soil profiling for fill characterization and soil disposal, soil gas and sub-slab gas sampling, and pilot study) will NOT BE AUTHORIZED until a meeting with the City of Oakland, 1919 Crew's Outreach Consultant, 1919 Crew Representatives, and ACDEH has been scheduled to discuss site redevelopment, site stabilization, the proposed revised Site Management Plan (SMP), and agency roles.

1. Section 3.0 – Proposed Site-Assessment
    a. For the proposed soil gas sampling at 2006 Myrtle Street Residence, please also collect a crawl space or indoor air sample in the basement of the 2006 Myrtle Street Residence.
    b. In addition to the two proposed samples on the sidewalk immediately west of the western site boundary, please collect soil gas samples from each of the two contingent soil gas wells proposed on the west side of Myrtle Street as well.
    c. Include an additional location for the collection of soil gas on the southeast portion of the property, adjacent to the Church Property.

d. Please make sure that isopropanol is included in the suite of VOCs proposed to be analyzed for the soil gas samples.

SUBMITTAL ACKNOWLEDGEMENT STATEMENT

Please note that ACDEH has updated its Attachment 1 with regards to report submittals to ACDEH. ACDEH will now be requiring a Submittal Acknowledgement Statement, replacing the Perjury Statement, as a cover letter signed by the Responsible Party (RP). The language for the Submittal Acknowledgement Statement is as follows:

"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 GeoTracker website."

Note this change to your submittals to ACDEH.

TECHNICAL REPORT REQUEST

Please submit technical reports to the ACDEH ftp site using the designations indicated below according to the following schedule, which was also referenced in our email directive dated October 21, 2016:

- **April 7, 2017** – Soil Gas Investigation Report – Perimeter and Offsite Areas
  File to be named: RO3205 SWI_R_yyyy-mm-dd

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at kit.soo@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

Sincerely,

Kit Soo

Digitally signed by Kit Soo
DN: cn=Kit Soo, o=Alameda County, ou=Department of Environmental Health, email=kit.soo@acgov.org, c=US
Date: 2017.03.03 17:19:48 -08'00'

Kit Soo, California PG 8957
Senior Hazardous Materials Specialist

Attachment: Figure 14 – Proposed Sampling Locations and VOC Soil Gas Plumes
Responsible Party(ies) Legal Requirements/Obligations
ACDEH Electronic Report Upload (ftp) Instructions

cc: Jeremy Harris, 1919 Crew LLC. (*Sent via E-mail to: jeremy@thenegev.com*)

Peggy Moore (*Sent via E-mail to: moore4oakland@gmail.com*)

Bob Clark-Riddell, Pangea Environmental Services, Inc. (*Sent via E-mail to: briddell@pangeaenv.com*)

Darin Ranelletti, City of Oakland Planning and Building Department. (*Sent via Email to: DRanelletti@oaklandnet.com*)
Timothy Low, City of Oakland Planning and Building Department. (*Sent via Email to: TLow@oaklandnet.com*)
Rich Fielding, City of Oakland Planning and Building Department. (*Sent via Email to: RFielding@oaklandnet.com*)

Ronald Browder, ACDEH (*Sent via E-mail to: ronald.browder@acgov.org*)
Dilan Roe, ACDEH (*Sent via E-mail to: dilan.roe@acgov.org*)
Paresh Khatri, ACDEH (*Sent via E-mail to: paresh.khatri@acgov.org*)
Kit Soo, ACDEH (*Sent via E-mail to: kit.soo@acgov.org*)

GeoTracker, eFile

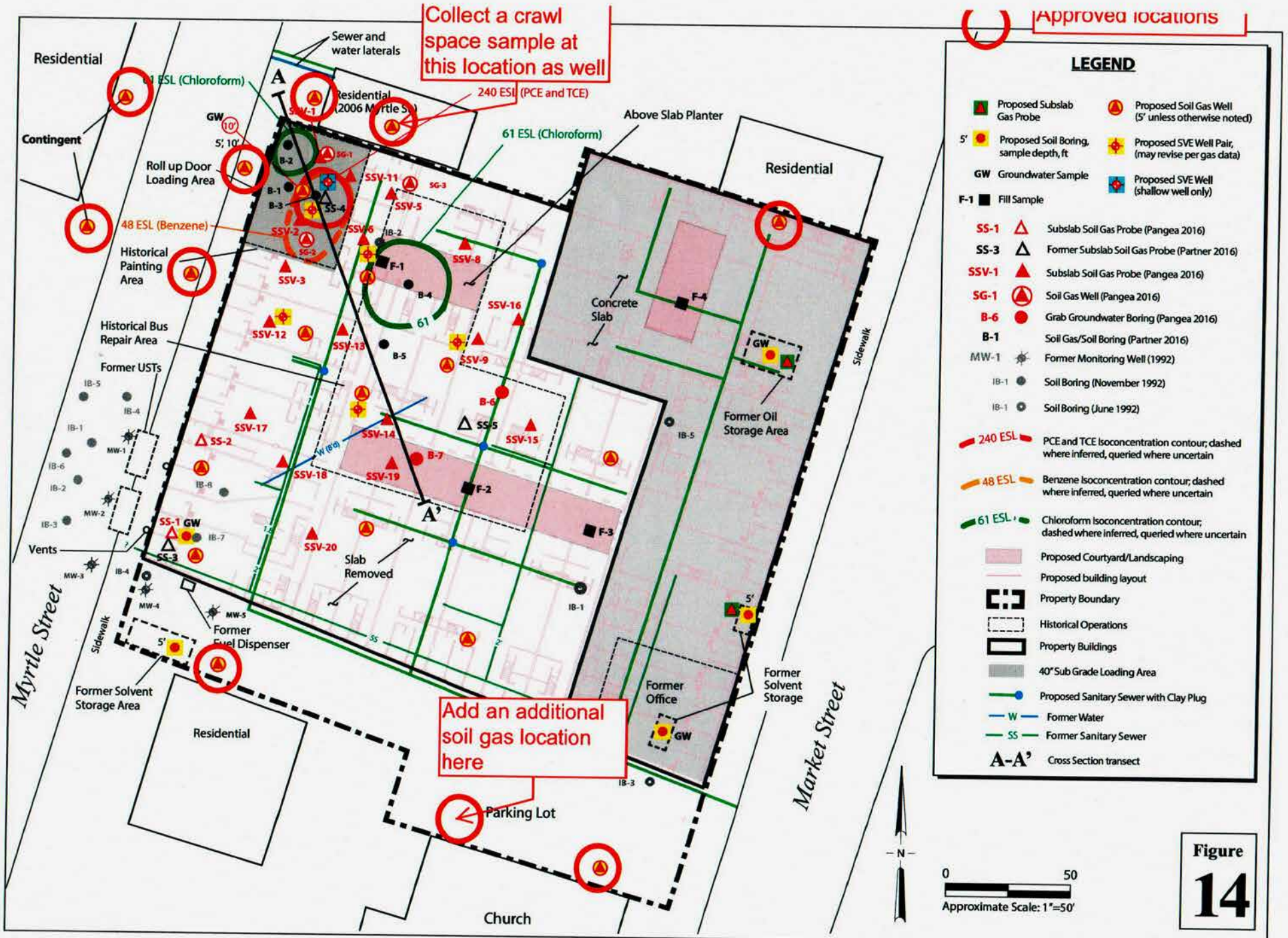


Figure 14

1919 Market Street
Oakland, California

PANGEA

Proposed Sampling Locations and VOC Soil Gas Plumes

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

Alameda County Department of Environmental Health's (ACDEH) Environmental Cleanup Oversight Programs, Local Oversight Program (LOP) and Site Cleanup Program (SCP) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program File Transfer Protocol (FTP) site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to SCP sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/) for more information on these requirements.

ACKNOWLEDGEMENT STATEMENT

All work plans, technical reports, or technical documents submitted to ACDEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "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 SWRCB's GeoTracker website." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6731, 6735, and 7835) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately licensed or certified professional. For your submittal to be considered a valid technical report, you are to present site-specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this case meet this requirement. Additional information is available on the Board of Professional Engineers, Land Surveyors, and Geologists website at: http://www.bpelsg.ca.gov/laws/index.shtml.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
REBECCA GEBHART, Interim Director

DEPARTMENT OF ENVIRONMENTAL HEALTH
LOCAL OVERSIGHT PROGRAM (LOP)
For Hazardous Materials Releases
1131 HARBOR BAY PARKWAY, SUITE 250
ALAMEDA, CA 94502
(510) 567-6700
FAX (510) 337-9335

April 21, 2017

Mr. Danny Haber
1919 Crew LLC
Pier 54 Suite 202
San Francisco, CA 94158
(*Sent via E-mail to: danny@thenegev.com*)

Subject: Conditional Approval of Work Plan Addendum for Site Assessment, Site Cleanup Case No. RO0003205 and GeoTracker Global ID T10000009433, 1919 Market Street, Oakland, CA 94158

Dear Mr. Haber:

Alameda County Department of Environmental Health (ACDEH) staff has reviewed the Site Cleanup case file for the above referenced site including the recently submitted document *Work Plan Addendum for Site Assessment (*Work Plan Addendum), dated April 19, 2017.

The Work Plan was prepared and revised to address concerns expressed in the community letter dated March 29, 2017. The concerns pertained to potential vapor intrusion, soil and groundwater impacts to the residences located adjacent to the site. The Work Plan Addendum included: estimated groundwater flow directions based on available groundwater elevation data for nearby sites located on the Geotracker database; proposed additional soil gas locations adjacent to six residences along Myrtle Street; and soil and groundwater locations from six locations around the perimeter of the site.

TECHNICAL COMMENTS

Based on our review of Work Plan, ACDEH approves of this scope of work providing that comment no. 1 and its associated sub-items are addressed prior to any field implementation. In addition, comment no. 2, associated with certain soil vapor wells which were installed on April 7, 2017 (soil vapor wells SG-4, -5, -6 and -9) were reported to contain water in the wells and thus not sampled. This issue must be addressed under separate cover in order not to delay the implementation of the scope in the Work Plan Addendum.

1. Proposed Soil and Groundwater Sampling – To be Implemented Immediately After the Comments Below are Addressed
   - The groundwater samples must be collected from the first encountered groundwater.
   - For grab groundwater sampling which is a point in time sampling, it is appropriate to use a bailer to collect a groundwater sample but please make sure that the following precautions are taken: minimize loss of volatile organic compounds (VOCs) during sample collection, minimize turbidity during sample collection, and collect discrete groundwater samples at the targeted depths (i.e. use of VOC removal device to reduce agitation during sample transfer in bailer, letting sediments settle prior to sample analysis, use of a double checked valve bailer, etc.).

2. Soil Vapor Wells SG-4, -5, -6 and -9 – Work Plan Required
   - As mentioned above, soil vapor wells SG-4, -5, -6, and -9 contained water and thus could not be sampled. These soil vapor wells were initially installed to assess for potential vapor intrusion from the site to the residences located at 1906 Myrtle, 1909 Market and 2021 Market Streets.
   - Well resampling was proposed in the near future after a period of dry weather and this is not acceptable to ACDEH due to fact that the proposed sampling date is uncertain. We are requesting that a work plan is submitted under separate cover to address the soil vapor wells SG-4, -5, -6 and -9 by providing alternative methods to assess vapor intrusion to these

residences (i.e. collection of sub-slab soil gas sample, collection of indoor air sample, etc.) as soon as possible to ensure protectiveness to human health.

SUBMITTAL ACKNOWLEDGEMENT STATEMENT

Please note that ACDEH has updated its Attachment 1 with regards to report submittals to ACDEH. ACDEH will now be requiring a Submittal Acknowledgement Statement, replacing the Perjury Statement, as a cover letter signed by the Responsible Party (RP). The language for the Submittal Acknowledgement Statement is as follows:

"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 GeoTracker website."

Note this change to your submittals to ACDEH.

TECHNICAL REPORT REQUEST

Please submit technical reports to the ACDEH ftp site using the designations indicated below according to the following schedule:

- **April 28, 2017** - Work Plan - Alternative Methods to Address Vapor Intrusion Issues at 1906 Myrtle, 1909 Market, and 2021 Market.
  File to be named: RO3205 WP_R_yyyy-mm-dd

- **June 1, 2017** – Addendum to Soil Gas, Soil and Groundwater Investigation Report – Perimeter and Offsite Areas
  File to be named: RO3205 ADEND_R_yyyy-mm-dd

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at kit.soo@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

Sincerely,

Kit Soo

Digitally signed by Kit Soo
DN: cn=Kit Soo, o=ACDEH, ou, email=Kit.Soo@acgov.org, c=US
Date: 2017.04.21 16:37:05 -07'00'

Kit Soo, California PG 8957
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations
ACDEH Electronic Report Upload (ftp) Instructions

cc: CB Smith-Dahl, Representative for Concerned Neighbors of 1919 Market Street (*Sent via E-mail to: cbsmithdahl@gmail.com*)

Jeremy Harris, 1919 Crew LLC. (*Sent via E-mail to: jeremy@thenegev.com*)

Bob Clark-Riddell, Pangea Environmental Services, Inc. (*Sent via E-mail to: briddell@pangeaenv.com*)

Peggy Moore (*Sent via E-mail to: moore4oakland@gmail.com*)

Darin Ranelletti, City of Oakland Planning and Building Department (*Sent via E-mail to: DRanelletti@oaklandnet.com*)
Timothy Low, City of Oakland Planning and Building Department (*Sent via E-mail to: TLow@oaklandnet.com*)
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Ronald Browder, ACDEH (*Sent via E-mail to: ronald.browder@acgov.org*)
Dilan Roe, ACDEH (*Sent via E-mail to: dilan.roe@acgov.org*)
Paresh Khatri, ACDEH (*Sent via E-mail to: paresh.khatri@acgov.org*)
Robert Schultz, ACDEH (*Sent via E-mail to: robert.schultz@acgov.org*)
Kit Soo, ACDEH (*Sent via E-mail to: kit.soo@acgov.org*)

GeoTracker, eFile

Attachment 1

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PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6731, 6735, and 7835) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately licensed or certified professional. For your submittal to be considered a valid technical report, you are to present site-specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this case meet this requirement. Additional information is available on the Board of Professional Engineers, Land Surveyors, and Geologists website at: http://www.bpelsg.ca.gov/laws/index.shtml.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

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: 03/29/2017 By jamesy

Permit Numbers: W2017-0291
Permits Valid from 04/06/2017 to 04/07/2017

Application Id: 1490738498798 **City of Project Site:** Oakland
Site Location: 1919 Market Street, Oakland, CA.
Project Start Date 4/6/2017, and Completion Date 4/7/2017, if possible.
Project Start Date: 04/06/2017 **Completion Date:** 04/07/2017
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:** 510-836-3700
Property Owner: Daniel Haber
1919 Bayside, Pier 54, Suite #202, San Francisco, CA 94158 **Phone:** --
Client: ** same as Property Owner **

Total Due: $265.00
Receipt Number: WR2017-0157 **Total Amount Paid:** $265.00
Payer Name : Robert Clark-Riddell Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Well Construction-Vapor monitoring well-Vapor monitoring well - 10 Wells
Driller: Confluence Environmental, Inc. - Lic #: 913194 - Method: Hand **Work Total: $265.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2017-0291	03/29/2017	07/05/2017	SG-10	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-11	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-12	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-13	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-4	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-5	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-6	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-7	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-8	3.25 in.	0.25 in.	4.50 ft	5.50 ft
W2017-0291	03/29/2017	07/05/2017	SG-9	3.25 in.	0.25 in.	4.50 ft	5.50 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.

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: 05/22/2017 By jamesy

Permit Numbers: W2017-0441
Permits Valid from 05/25/2017 to 05/26/2017

Application Id: 1495238478624 **City of Project Site:** Oakland
Site Location: 1919 Market Street, Oakland, CA

Start Date 5/25/17, Completion Date 5/26/2017 if possible
Project Start Date: 05/25/2017 **Completion Date:** 05/26/2017
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:** 510-836-3700
Property Owner: Danny Haber
1919 Bayside, Pier 54, Suite #202, San Francisco, CA 94158 **Phone:** --
Client: ** same as Property Owner **

Total Due: $265.00
Receipt Number: WR2017-0245 **Total Amount Paid:** $265.00
Payer Name : Robert Clark-Riddell Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 6 Boreholes
Driller: Confluence Environmental, Inc. - Lic #: 913194 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2017-0441	05/22/2017	08/23/2017	6	2.25 in.	25.00 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.

JOB SITE

Permits for which no major inspection [redacted] final.

- SL and X permits valid 90 days
- CGS permit valid 30 days

CHECK REVERSE

CITY OF OAKLAND

CITY OF OAKLAND DEPT OF PUBLIC WORKS 4th FLOOR

250 FRANK H. OGAWA PLAZA • [redacted] • OAKLAND, CA 94612

Planning and Building Department
www.oaklandnet.com

To schedule inspection
Email: pwa_inspections@oaklandnet.com or call 510-238-3651

[redacted]

Permit No: OB1700672 Obstruction **Filed Date:** 5/23/2017

Job Site: 1919 MARKET ST

Parcel No: 005 041001301

District:

[redacted]

For SL; X; and CGS permits see **SPECIAL NOTE** below

Project Description: Reserve 2 NON-METERED parking space(s) in front of parcel only for dumpster, construction vehicle, moving van or storage pod. Received 1 non-fee parking per X1700619. Post No-parking signs 72 hours prior in residential areas. No impact on traffic lane or sidewalk allowed. No-parking signs picked up by applicant after payment, 4TH FLOOR. To Have Illegally Parked Vehicle Ticketed Call 510-777-3333. Applicant arranges towing. Comply with terms set forth in CVC Section 22651 (m). For Towed Vehicle: Call 510-238-3021. Please call OPD and Fire Department for road closure.
Contact: 925 818-0010.

Petition to allow encroachment of six (6) soil gas monitoring wells (SG-10 to SG-15) along Myrtle Street adjacent to 1919 Market Street. Contact: P Groff, Pangea Environmental, 925 818-0010.

Related Permits: X1700619

	Name	Applicant	Address	Phone	License #
Owner:	1919 CREW LLC		PIER 54, SUITE 202 SAN FRANCISCO, CA		
Contractor:	CONFLUENCE ENVIRONMENTAL INC		6821 8TH ST RIO LINDA, CA	(916) 760-7641	913194
Contractor-Employee:	PATRICK GROFF	X	6821 8TH ST RIO LINDA, CA	(916) 760-7641	

ADDRESS

PERMIT DETAILS: Building/Public Use/Activity/Obstructions

Work Information

Start Date: 05/25/2017
End Date: 05/26/2017

Obstruction Permit Type: Short Term (Max 14 Days)
Number of Meters (Metered Area):
Length Of Obstruction (Unmetered Area): 25

TOTAL FEES TO BE PAID AT FILING: $119.34

Application Fee	$70.00	Records Management Fee	$9.88	Short Term Permits	$34.00
Technology Enhancement Fee	$5.46				

APPLICATION

Plans Checked By _____ Date _____ Permit Issued By YL Date 5/23/17

Finalized By _____ Date _____

SPECIAL NOTE

- SL; X; and CGS permits: prior to start, email pwa_inspections@oaklandnet.com or call 510-238-3651
- SL and X permits valid 90 days • CGS permit valid 30 days

JOB SITE

Permits for which no major inspection [redacted] final.

- SL and X permits valid 90 days
- CGS permit valid 30 days

CHECK REVERSE →

CITY OF OAKLAND

CITY OF OAKLAND

DEPT OF PUBLIC WORKS 4th FLOOR

250 FRANK H. OGAWA PLAZA ▪ [redacted] ▪ OAKLAND, CA 94612

Planning and Building Department
www.oaklandnet.com

To schedule inspection
Email: pwa_inspections@oaklandnet.com or call 510-238-3651

[redacted]

Permit No:	X1700619	OPW - Excavation	**Filed Date:** 5/19/2017
Job Site:	1919 MARKET ST		[redacted]
Parcel No:	005 041001301		For SL; X; and CGS permits see **SPECIAL NOTE** below
District:			

Project Description: Soil boring(s) on 1919 Market St on Myrtle St. No impact on traffic lane or sidewalk allowed. Please see Map. Ensure that environmental controls are in place to prevent dust/debris/waste water from contaminating environment. If working within 25' feet of a monument you must comply with State Law 8771, contact the Inspector prior to starting excavation: minimum $5,800.00 fine for non-compliance.
Comply with all terms of City of Oakland Public Works Standards, Street Excavation Rules, Revised March 2015 and City Council Ordinance No. 13300 C.M.S. Five day prior notice required for work lasting five days or less in business/commercial districts; 72 hour notice in residential districts. Ten day prior notice required for work lasting six days or more in all districts.
Call PWA INSPECTION prior to start: 510-238-3651. email PWA_inspections@oaklandnet.com.
Contact: 916-760-7641

Petition to allow encroachment of six (6) soil gas monitoring wells (SG-10 to SG-15) along Myrtle Street adjacent to 1919 Market Street. Contact: P Groff, Pangea Environmental, 925 818-0010.

Related Permits: ENMI16291

ADDRESS

	Name	Applicant	Address	Phone	License #
Owner:	1919 CREW LLC		PIER 54, SUITE 202 SAN FRANCISCO, CA		
Contractor:	CONFLUENCE ENVIRONMENTAL INC		6821 8TH ST RIO LINDA, CA	(916) 760-7641	913194
Contractor-Employee:	PATRICK GROFF	X	6821 8TH ST RIO LINDA, CA	(916) 760-7641	

PERMIT DETAILS: Building/Public Infrastructure/Excavation/NA

General Information

Excavation Type: Private Party
Date Street Last Resurfaced:
Worker's Compensation Company Name:
Worker's Compensation Policy #:

Special Paving Detail Required:

Tree Removal Involved:
Holiday Restriction (Nov 1 - Jan 1):
Limited Operation Area (7AM-9AM) And (4PM-6PM):

Key Dates

Approximate Start Date:
Approximate End Date:

YL 5/19

APPLICATION

TOTAL FEES TO BE PAID AT FILING: $449.09

Application Fee [illegible] Excavation - Private Party Type [illegible] Records Management Fee $37.18
Technology Enhancement Fee $20.55

SPECIAL NOTE

SL; X; and CGS permits prior to start, email pwa_inspections@oaklandnet.com or call 510-238-3651

- SL and X permits valid 90 days
- CGS permit valid 30 days

APPENDIX C

Residential Survey Questionnaires

April 11, 2017

Dear **Homeowner** or **Tenant**:

Pangea Environmental Services, Inc. (Pangea) is conducting a **survey for basements and/or water wells** near the project site for 1919 Market, Oakland. This survey has been requested by Alameda County Environmental Health as part of an ongoing investigation for case number RO00003205 for this project site.

Please fill out the questionnaire below. Please return the questionnaire in the provided self-addressed stamped envelope, if provided. Or return via contact information provided for this project, or to contact information below (pgroff@pangeaenv.com or Pangea Environmental, 1710 Franklin, Suite 200, Oakland, CA 94612).

1. What is the address for this property? Myrtle 1917

2. Are you the property owner or tenant or other? Rental property

3. What is your contact information (optional)? _____ (name)
_____ (phone)
_____ (email)

4. Is there a **basement** or subgrade structure on your property? ☐Yes ☐No

If yes, is this basement or structure finished or unfinished? What is the use of this basement or structure (i.e. storage or as a living space)? If yes, can you provide photos?
If yes, what is the approximate depth below the surrounding ground level of the house?_____ft
If yes, are you available to schedule a brief visual inspection of your basement?_____

5. Is there a **water well** on your property? ☐Yes ☐No

If yes, do you know the depth of the well? _____
If yes, do you know if well is used for irrigation or drinking water? _____

If you have any questions, feel free to call me at (510) 836-3700 or email me at pgroff@pangeaenv.com.

Thank you,

Patrick Groff
Staff Geologist

PANGEA Environmental Services, Inc.
1710 Franklin Street, Suite 200, Oakland, CA 94612 Telephone 510.836.3700 Facsimile 510.836.3709 www.pangeaenv.com

April 11, 2017

Dear **Homeowner** or **Tenant**:

Pangea Environmental Services, Inc. (Pangea) is conducting a **survey for basements and/or water wells** near the project site for 1919 Market, Oakland. This survey has been requested by Alameda County Environmental Health as part of an ongoing investigation for case number RO00003205 for this project site.

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1. What is the address for this property? 1923 (Lower Level)

2. Are you the property owner or tenant or other? Renting

3. What is your contact information (optional)? Sheila Ford (name)
   510-422-7384 (phone)
   _____ (email)

4. Is there a **basement** or subgrade structure on your property? ☐Yes ☐No

If yes, is this basement or structure finished or unfinished? What is the use of this basement or structure (i.e. storage or as a living space)? If yes, can you provide photos?
If yes, what is the approximate depth below the surrounding ground level of the house?_____ft
If yes, are you available to schedule a brief visual inspection of your basement?_____

5. Is there a **water well** on your property? ☐Yes ☐No

If yes, do you know the depth of the well? _____
If yes, do you know if well is used for irrigation or drinking water? _____

If you have any questions, feel free to call me at (510) 836-3700 or email me at pgroff@pangeaenv.com.

Thank you,

Patrick Groff
Staff Geologist

PANGEA

April 11, 2017

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Please fill out the questionnaire below. Please return the questionnaire in the provided self-addressed stamped envelope, if provided. Or return via contact information provided for this project, or to contact information below (pgroff@pangeaenv.com or Pangea Environmental, 1710 Franklin, Suite 200, Oakland, CA 94612).

1. What is the address for this property? 1931 Myrtle St

2. Are you the property owner or tenant or other? yes owner of property

3. What is your contact information (optional)? Ms. [illegible] Danielle Darrif (name)
   510-692-5536 (phone)
   lckis4@yahoo.com (email)

4. Is there a **basement** or subgrade structure on your property? ☐Yes ☑No

If yes, is this basement or structure finished or unfinished? What is the use of this basement or structure (i.e. storage or as a living space)? If yes, can you provide photos?
If yes, what is the approximate depth below the surrounding ground level of the house?________ft
If yes, are you available to schedule a brief visual inspection of your basement?________

5. Is there a **water well** on your property? ☐Yes ☑No

If yes, do you know the depth of the well? ________
If yes, do you know if well is used for irrigation or drinking water? ________

If you have any questions, feel free to call me at (510) 836-3700 or email me at pgroff@pangeaenv.com.

Thank you,

[signature]

Patrick Groff
Staff Geologist

April 11, 2017

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1. What is the address for this property? 1937 Myrtle St

2. Are you the property owner or tenant or other? Mother owns property

3. What is your contact information (optional)? Karen Butler-Robinson (name)
510-776-9829 (phone)
sharonnbutler@gmail.com (email)

4. Is there a **basement** or subgrade structure on your property? ☐Yes ☑No

If yes, is this basement or structure finished or unfinished? What is the use of this basement or structure (i.e. storage or as a living space)? If yes, can you provide photos?
If yes, what is the approximate depth below the surrounding ground level of the house?_____ft
If yes, are you available to schedule a brief visual inspection of your basement?_____

5. Is there a **water well** on your property? ☐Yes ☑No

If yes, do you know the depth of the well?_____
If yes, do you know if well is used for irrigation or drinking water?_____

If you have any questions, feel free to call me at (510) 836-3700 or email me at pgroff@pangeaenv.com.

Thank you,

Pe

Patrick Groff
Staff Geologist

PANGEA Environmental Services, Inc.
1710 Franklin Street, Suite 200, Oakland, CA 94612 Telephone 510.836.3700 Facsimile 510.836.3709 www.pangeaenv.com

PANGEA

April 11, 2017

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1. What is the address for this property? 2003 Myrtle St

2. Are you the property owner or tenant or other? owner of property

3. What is your contact information (optional)? Johnathon McCarless (name)
   901-757-1[redacted]212 (phone)
   _____ (email)

4. Is there a **basement** or subgrade structure on your property? ☑Yes ☐No

If yes, is this basement or structure finished or unfinished? What is the use of this basement or structure (i.e. storage or as a living space)? If yes, can you provide photos?
If yes, what is the approximate depth below the surrounding ground level of the house? 3 ft
If yes, are you available to schedule a brief visual inspection of your basement? nw

5. Is there a **water well** on your property? ☐Yes ☑No

If yes, do you know the depth of the well? N/A
If yes, do you know if well is used for irrigation or drinking water? _____

If you have any questions, feel free to call me at (510) 836-3700 or email me at pgroff@pangeaenv.com.

Thank you,

Pat Groff

Patrick Groff
Staff Geologist

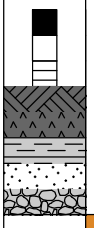
PANGEA Environmental Services, Inc.

1710 Franklin Street, Suite 200, Oakland, CA 94612 Telephone 510.836.3700 Facsimile 510.836.3709 www.pangeaenv.com

APPENDIX D

Soil Boring Logs/Soil Gas Well Constructions Logs

BORING AND WELL LOG LEGEND

LITHOLOGY	WATER LEVEL	WELL/BORING COMPLETION	SAMPLE TYPE	DESCRIPTION
				ASPHALT
				CONCRETE
				FILL
				TOPSOIL
				COBBLES
				IGNEOUS Rock
				METAMORPHIC Rock
				SEDIMENTARY Rock
				Well-graded GRAVEL (GW)
				Poorly graded GRAVEL (GP)
				Silty GRAVEL (GM)
				Clayey GRAVEL (GC)
				Well-graded GRAVEL with silt (GW-GM)
				Poorly graded GRAVEL with silt (GP-GM)
				Well-graded GRAVEL with clay (GW-GC)
				Poorly graded GRAVEL with clay (GP-GC)
				Well-graded SAND (SW)
				Poorly graded SAND (SP)
				Silty SAND (SM)
				Clayey SAND (SC)
				Well-graded SAND with silt (SW-SM)
				Poorly graded SAND with silt (SP-SM)
				Well-graded SAND with clay (SW-SC)
				Poorly graded SAND with clay (SP-SC)
				SILT (ML)
				Lean CLAY (CL)
				Organic SOIL (OL)
				Elastic SILT (MH)
				Fat CLAY (CH)
				Organic SOIL (OH)
				PEAT (PT)
				Volume Descriptors: Trace = <5% Few = 5-10% Little = 15-25% Some = 30-45% Mostly = >=50%
				Water Level During Drilling Water Level at End of Drilling/in Completed Well
				Cap Riser Screen Cement Bentonite Grout Bentonite Seal Filter Pack Backfill
			GR	Grab
			EN	Encore
			SS	Split Spoon
			SH	Shelby Tube
			CO	Core Barrel
			DP	Direct Push
			ID	Lab Sample and ID

NOTES:

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No.** B-8 **Page:** 1 of 1

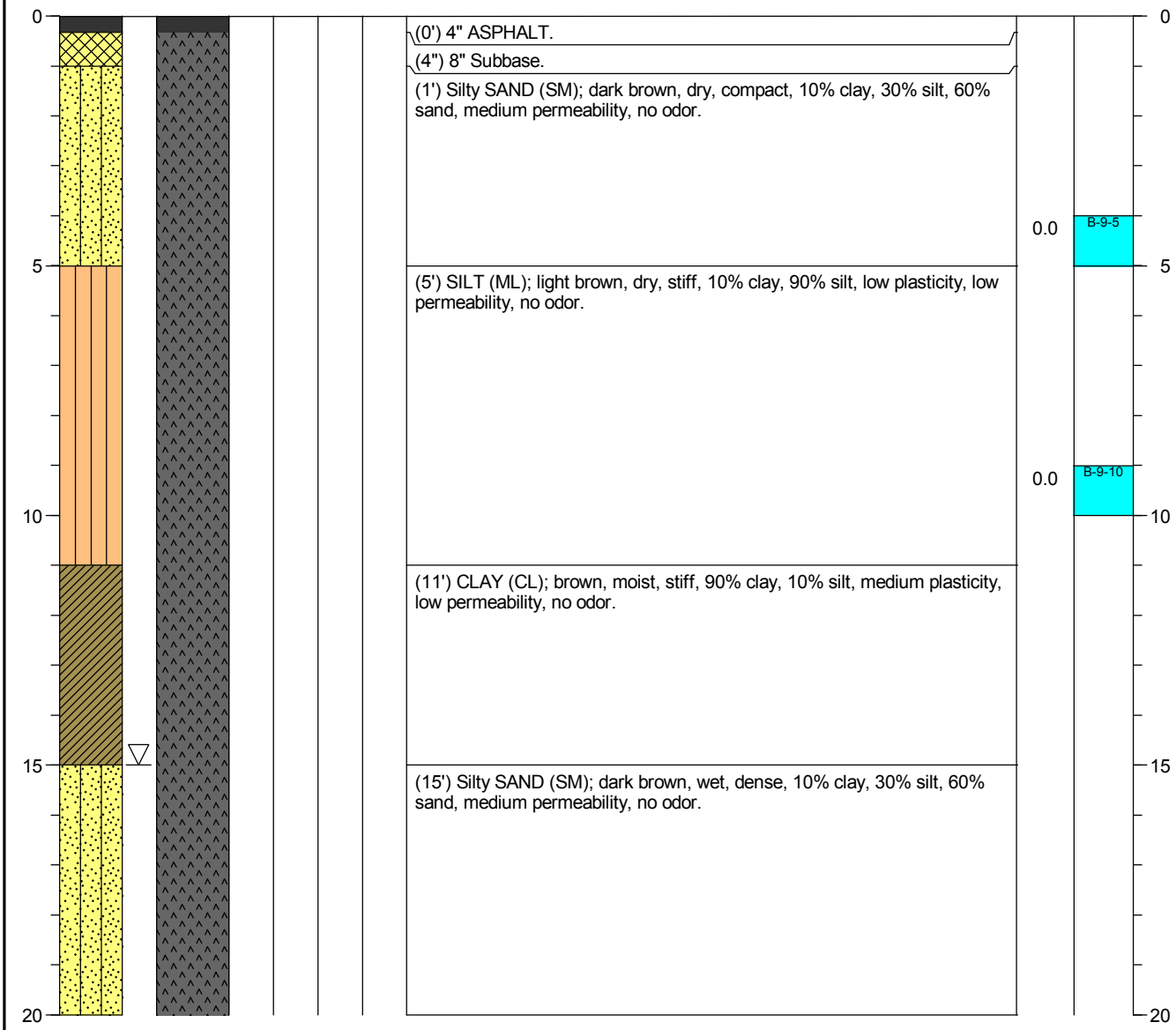
Drilling Start Date:	**11/14/2016**	Boring Depth (ft):	**5**
Drilling End Date:	**11/14/2016**	Boring Diameter (in):	**3.25**
Drilling Company:	**Cascade**	Sampling Method(s):	
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):	
Drilling Equipment:		DTW After Drilling (ft):	
Driller:		Ground Surface Elev. (ft):	
Logged By:	**Jake Wilson**	Location (X,Y):	

DEPTH (ft)	LITHOLOGY	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 6" CONCRETE.	0.0		0
								(0.5') FILL: SAND (SP); light yellowish brown (2.5Y 6/4), moist, compact, 100% sand, high permeability.	0.0		
									0.0		
									0.0		
								(3.5') Silty SAND (SM); very dark grayish brown (2.5Y 3/2), moist, compact, 30% silt, 70% sand, medium permeability.	0.0	B-8-5	
5								(5') End of Boring.			5
10											10

NOTES:

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No.** B-9 **Page:** 1 of 2

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**25**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**15**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-9** **Page: 2 of 2**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**25**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**15**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	

DEPTH (ft)	LITHOLOGY	WATER LEVEL	BORING COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
20								(20') CLAY (CL); dark brown, moist, stiff, 90% clay, 10% silt, medium plasticity, low permeability.			20
25								(25') End of Boring.			25
30											30

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

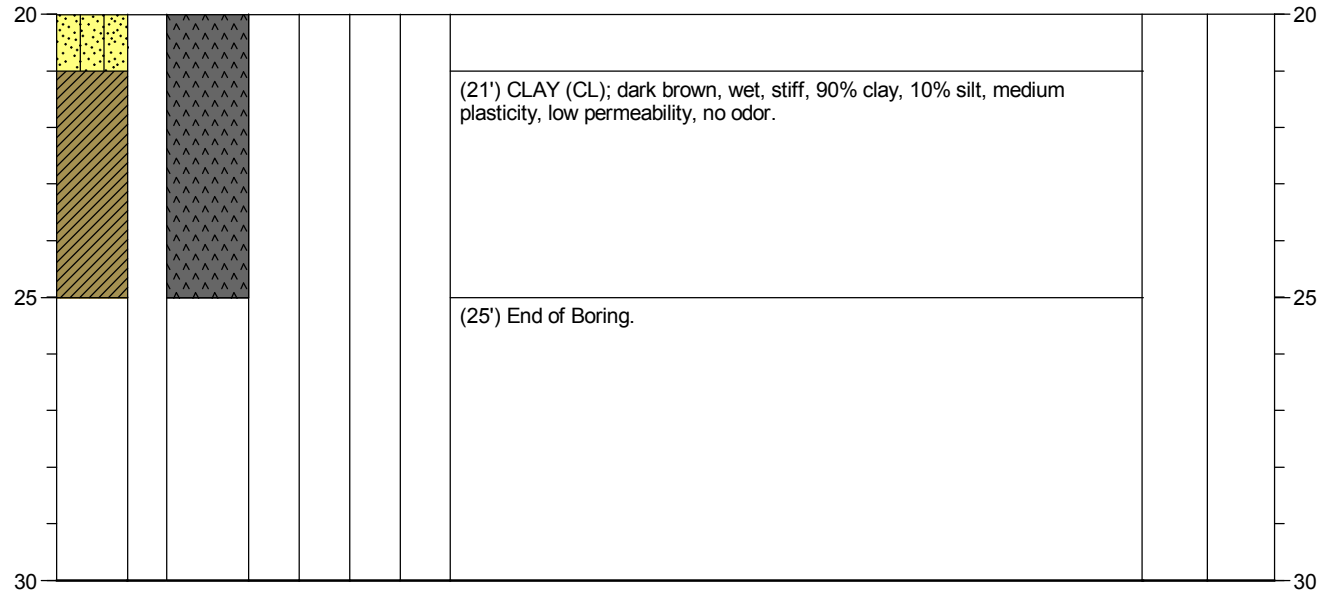
PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-10** **Page: 1 of 2**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**25**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**16**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-10** **Page: 2 of 2**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**25**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**16**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

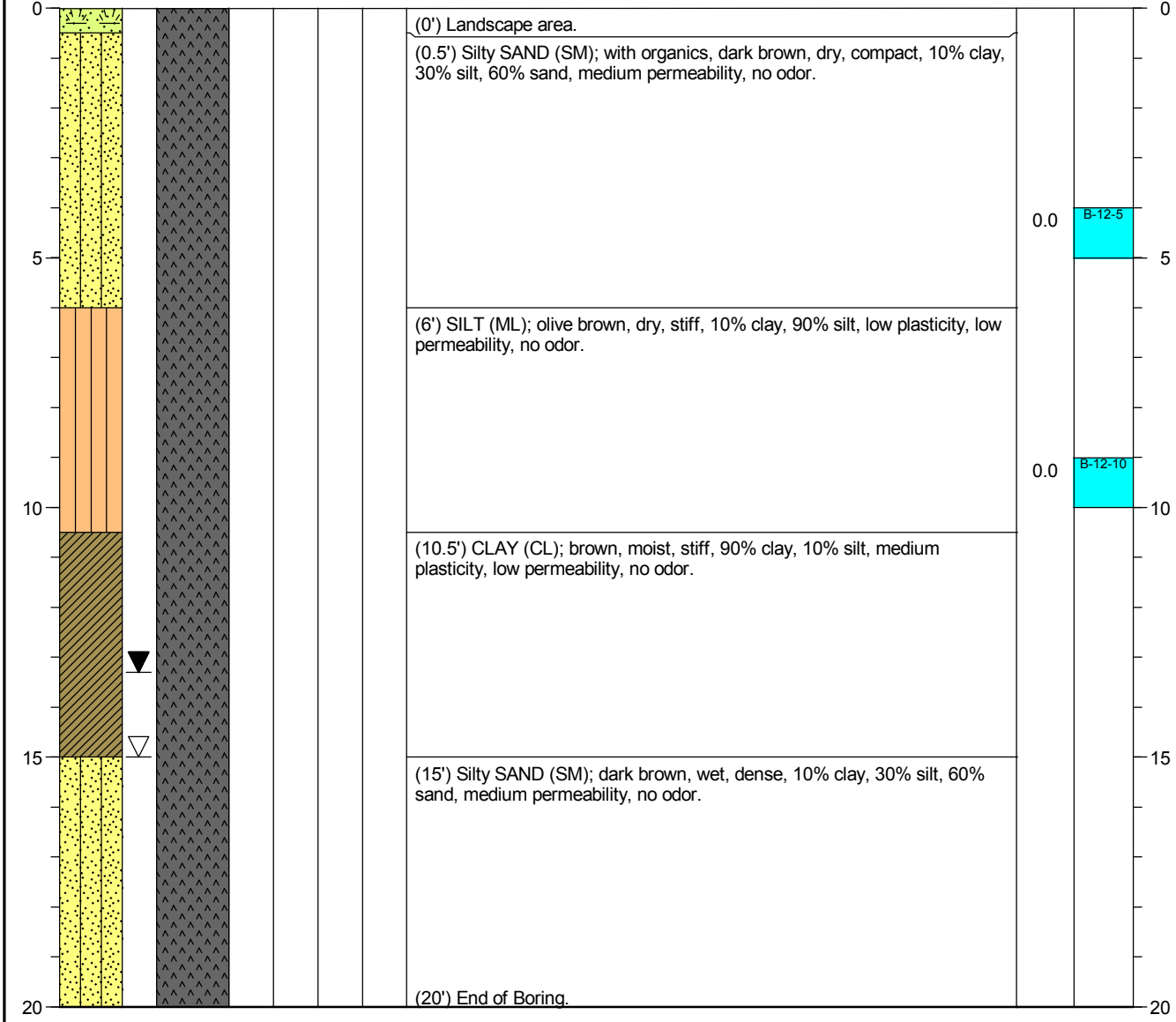
PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-11** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**2.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**20**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**15**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-12** **Page: 1 of 1**

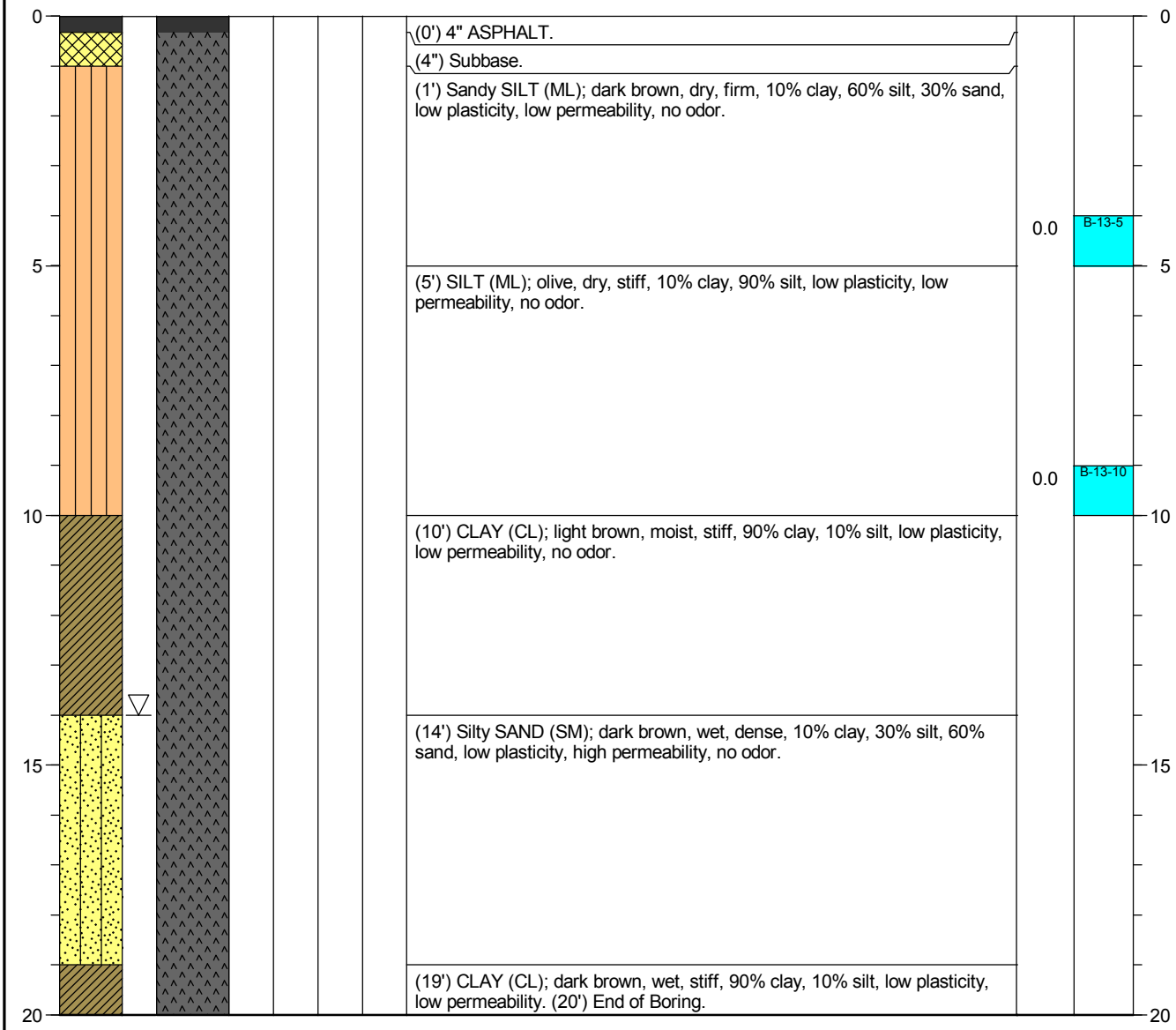
Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**20**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**15**
Drilling Equipment:		DTW After Drilling (ft):	**13.3**
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-13** **Page: 1 of 1**

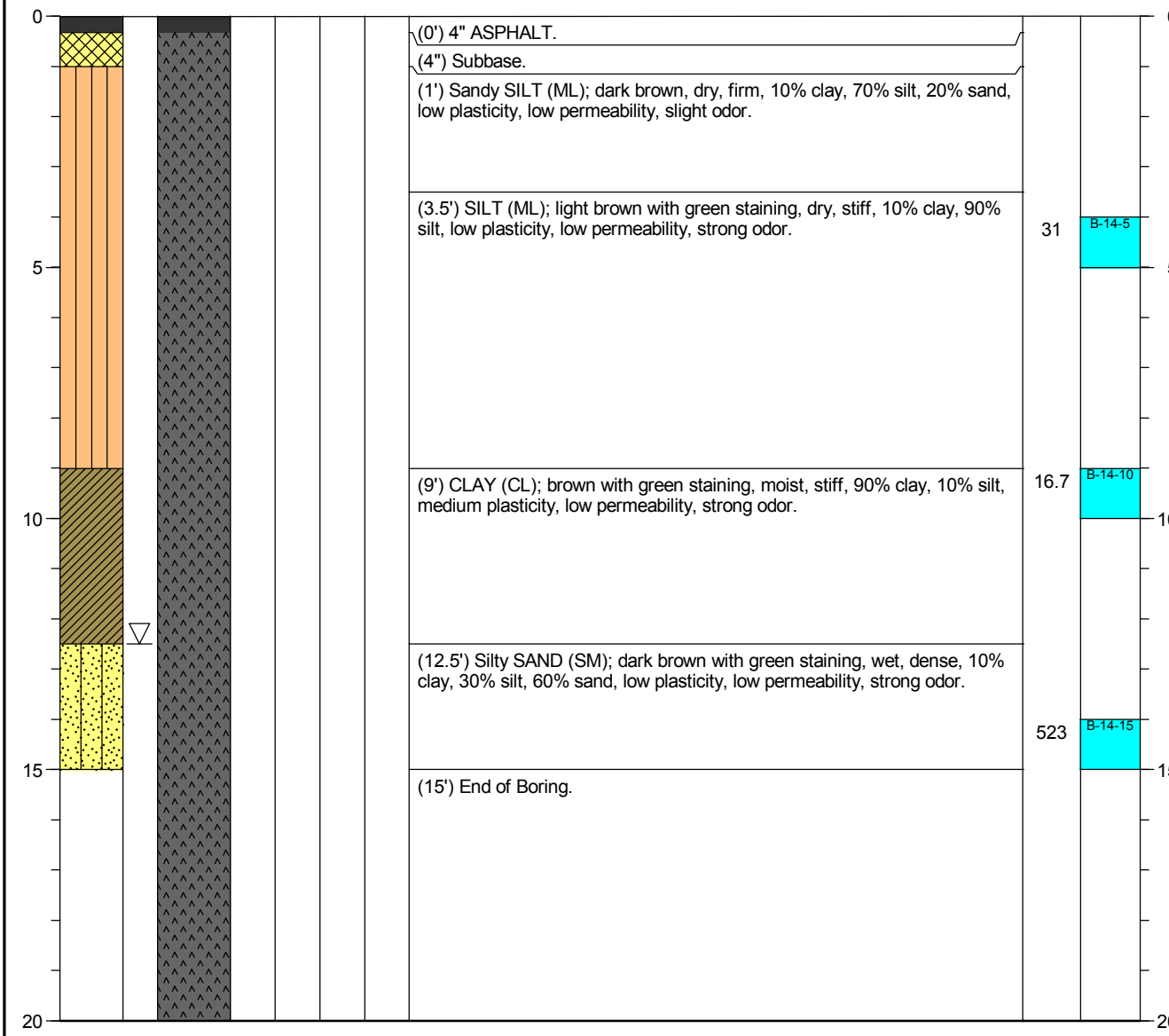
Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**20**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**14**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-14** **Page: 1 of 1**

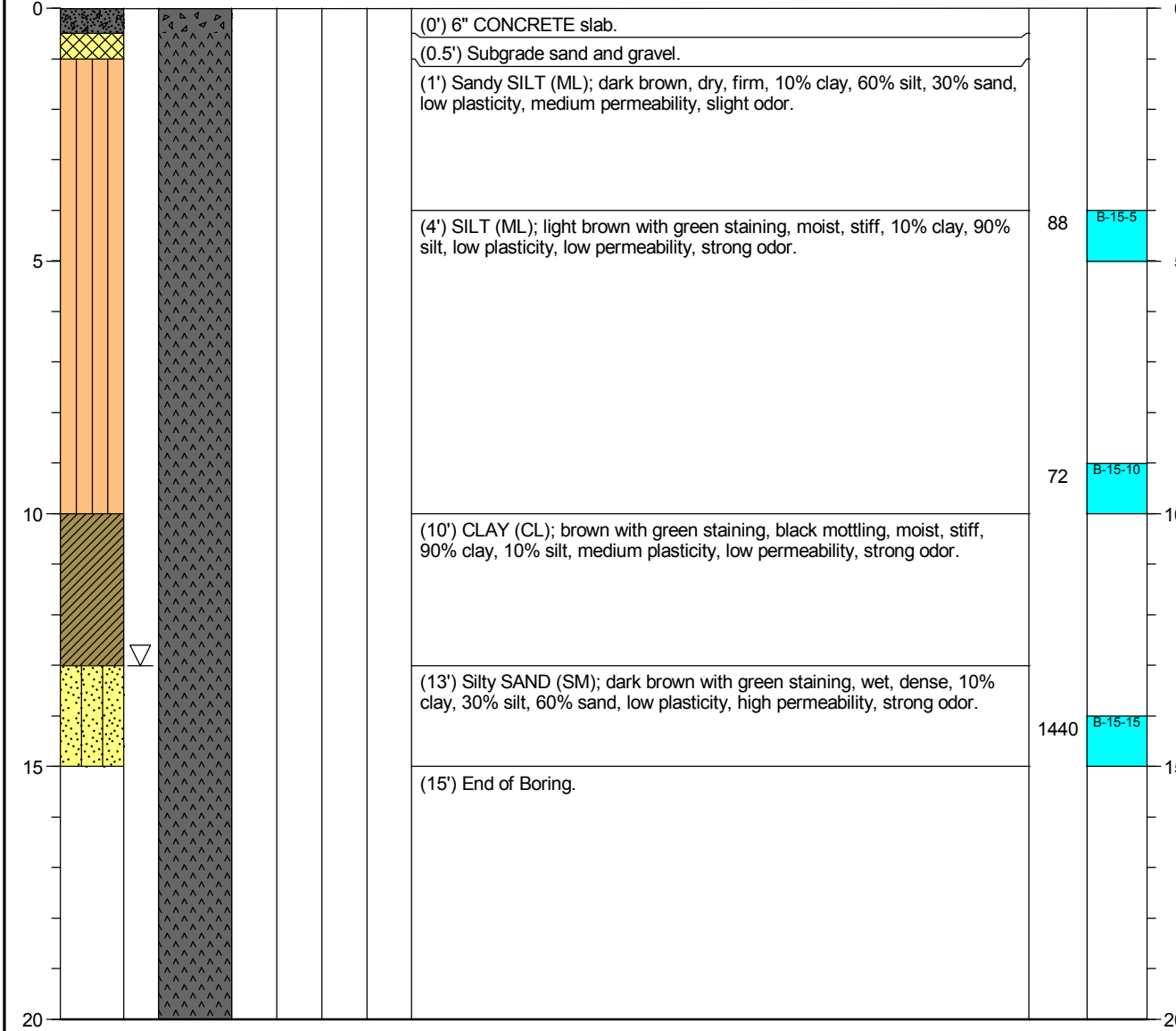
Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**15**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**12.5**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**BORING LOG** **Boring No. B-15** **Page: 1 of 1**

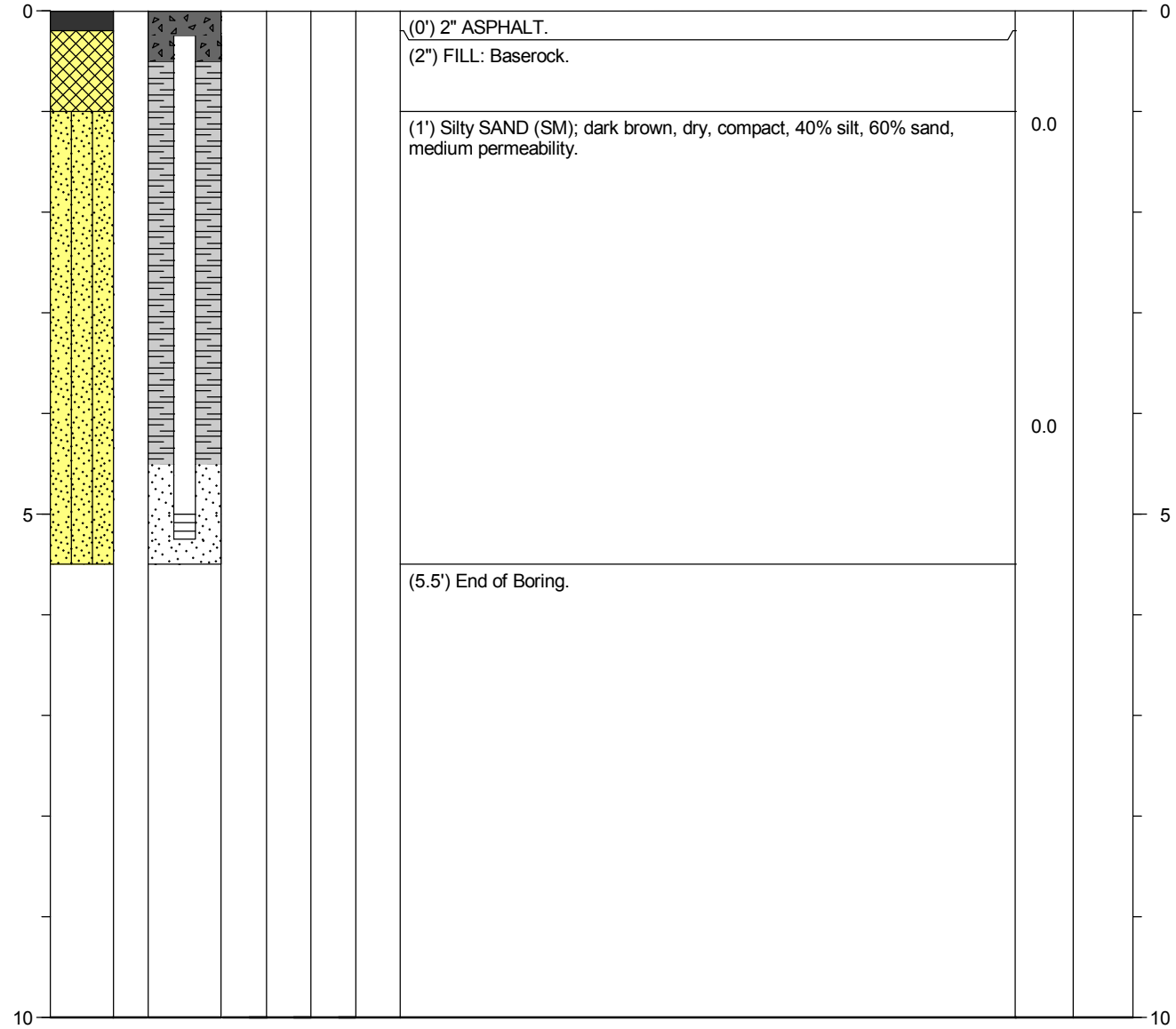
Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**15**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**2.5**
Drilling Company:	**Confluence**	Sampling Method(s):	
Drilling Method:	**Direct Push**	DTW During Drilling (ft):	**13**
Drilling Equipment:		DTW After Drilling (ft):	
Driller:	**Jesus**	Ground Surface Elev. (ft):	
Logged By:	**E. Lervaag**	Location (X,Y):	



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-4 **Page:** 1 of 1

Drilling Start Date:	**04/07/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**04/07/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**ConFluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**



NOTES: Hydrated bentonite 0-4' bgs.
Dry bentonite 4-4.5' bgs.
Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-5 **Page:** 1 of 1

Drilling Start Date:	**04/07/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**04/07/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**ConFluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 2" ASPHALT. (2") FILL: Baserock.			0
								(1') Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability.			
								(3') Sandy CLAY (CL); brown, moist, 50% clay, 20% silt, 30% sand, medium plasticity, low permeability.			
5								(5') As above: 40% clay, 20% silt, 40% sand.			5
								(5.5') End of Boring.			
10											10

NOTES: Hydrated bentonite 0-4' bgs.
Dry bentonite 4-4.5' bgs.
Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-6 **Page:** 1 of 1

Drilling Start Date:	**04/07/2017**	Boring Depth (ft):	**6**	Well Depth (ft):	**6**
Drilling End Date:	**04/07/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**ConFluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 2" ASPHALT. (2") FILL: Baserock.			0
								(1') Silty SAND (SM); light brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability.			
								(3.5') Clayey SAND (SC); brown, dry, 40% clay, 10% silt, 50% sand, medium permeability.			
5								(5') As above: 30% clay, 20% silt, 50% sand.			5
								(6') End of Boring.			
10											10

NOTES: Hydrated bentonite 0-4' bgs.
Dry bentonite 4-4.5' bgs.
Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-7 **Page:** 1 of 1

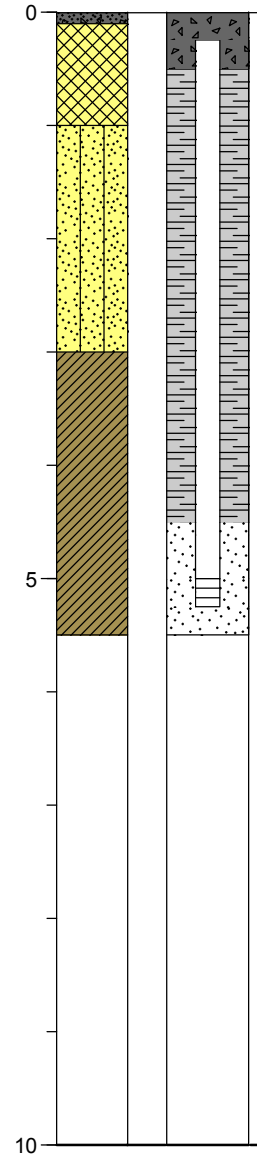
Drilling Start Date:	**04/07/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**04/07/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**ConFluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') Organic SOIL (OL); black, moist, loose, low plasticity. Roots present.			0
								(2.5') CLAY (CH); grayish brown, 90% clay, 10% silt, high plasticity, low permeability.			
5								(4.5') Sandy CLAY (CL); brown, 40% clay, 20% silt, 40% sand, low plasticity, low permeability.			5
								(5.5') End of Boring.			
10											10

NOTES: Hydrated bentonite 0-4' bgs.
Dry bentonite 4-4.5' bgs.
Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-8 **Page:** 1 of 1

Drilling Start Date:	**04/07/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**04/07/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**ConFluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**



DEPTH (ft)	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0					(0') 1" CONCRETE. (1") FILL.			0
					(1') Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability.			
					(3') Sandy CLAY (CL); grayish brown, moist, 60% clay, 20% silt, 20% sand, medium plasticity, medium permeability. (4') As above: 40% clay, 30% silt, 30% sand.			
5					(5.5') End of Boring.			5
10								10

NOTES: Hydrated bentonite 0-4' bgs.
Dry bentonite 4-4.5' bgs.
Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No.** SG-9 **Page:** 1 of 1

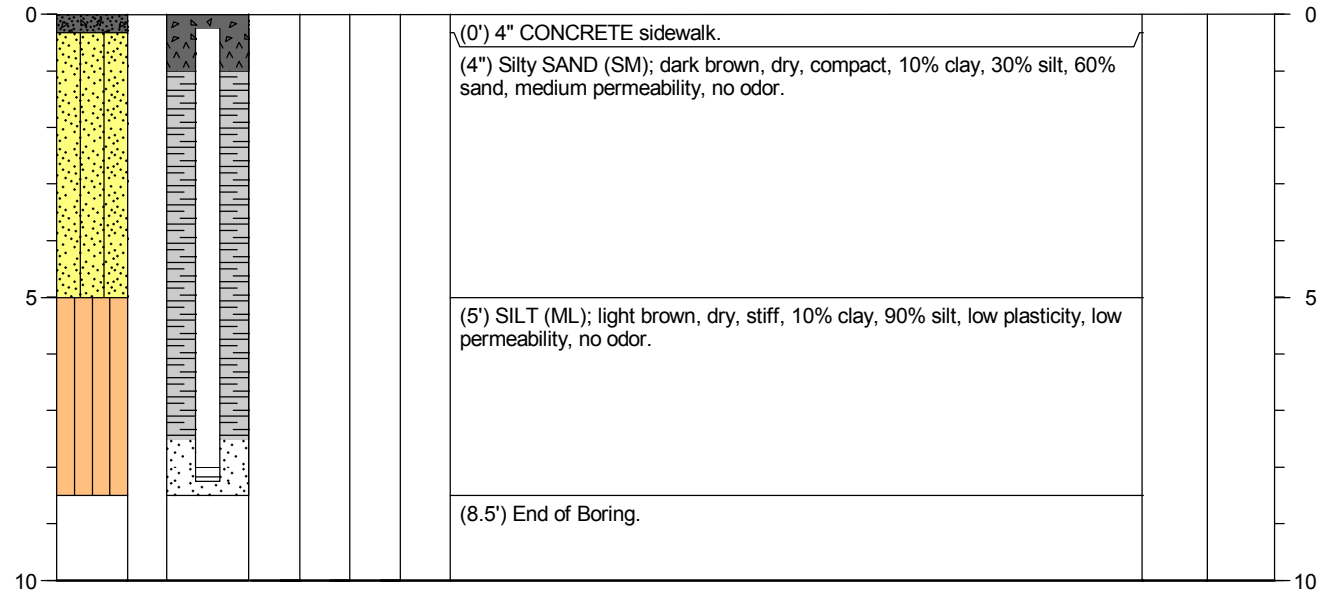
Drilling Start Date:	**04/07/2017**	Boring Depth (ft):	**8.5**	Well Depth (ft):	**8.5**
Drilling End Date:	**04/07/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**ConFluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:		Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE.			0
								(4") Clayey SAND (SC); reddish brown, compact, 30% clay, 20% silt, 50% sand, medium permeability.			
								(4') As above: dark brown.			
5								(6.5') CLAY (CH); olive brown, moist, 90% clay, 10% sand, high plasticity, low permeability.			5
								(7.5') Sandy CLAY (CL); brown, moist, 50% clay, 10% silt, 40% sand, medium plasticity, medium permeability.			
								(8.5') End of Boring.			
10											10

NOTES: Hydrated bentonite 0-7' bgs.
Dry bentonite 7-7.5' bgs.
Sand 7.5-8.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No. SG-10** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**8.5**	Well Depth (ft):	**8.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**Confluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:	**Matt**	Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**



NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.
Hydrated bentonite 11"-7' bgs. Dry bentonite 7-7.5' bgs. Sand 7.5-8.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No. SG-11** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**Confluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:	**Matt**	Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE sidewalk.			0
								(4") Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability, no odor.			
5								(5.5') End of Boring.			5
10											10

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.
Hydrated bentonite 11"-4' bgs. Dry bentonite 4-4.5' bgs. Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No. SG-12** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**Confluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:	**Matt**	Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE sidewalk.			0
								(4") Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability, no odor.			
5								(5.5') End of Boring.			5
10											10

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.
Hydrated bentonite 11"-4' bgs. Dry bentonite 4-4.5' bgs. Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No. SG-13** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**Confluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:	**Matt**	Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE sidewalk.			0
								(4") Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability, no odor.			
5								(5.5') End of Boring.			5
10											10

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.
Hydrated bentonite 11"-4' bgs. Dry bentonite 4-4.5' bgs. Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No. SG-14** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**Confluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:	**Matt**	Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE sidewalk.			0
								(4") Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability, no odor.			
5								(5.5') End of Boring.			5
10											10

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.
Hydrated bentonite 11"-4' bgs. Dry bentonite 4-4.5' bgs. Sand 4.5-5.5' bgs.

PANGEA	**Client:** 1919 Crew LLC **Project:** 1975.001 **Address:** 1919 Market Street, Oakland, CA	**WELL LOG** **Well No. SG-15** **Page: 1 of 1**

Drilling Start Date:	**05/26/2017**	Boring Depth (ft):	**5.5**	Well Depth (ft):	**5.5**
Drilling End Date:	**05/26/2017**	Boring Diameter (in):	**3.25**	Well Diameter (in):	**1/4**
Drilling Company:	**Confluence**	Sampling Method(s):		Screen Slot (in):	**N/A**
Drilling Method:	**Hand Auger**	DTW During Drilling (ft):		Riser Material:	**Teflon Tubing**
Drilling Equipment:		DTW After Drilling (ft):		Screen Material:	**Vapor Implant**
Driller:	**Matt**	Top of Casing Elev. (ft):		Seal Material(s):	**Hydrated Bentonite**
Logged By:	**E. Lervaag**	Location (X,Y):		Filter Pack:	**#3 Sand**

DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL COMPLETION	COLLECT: Sample Type	COLLECT: Date & Time	COLLECT: Blow Counts	COLLECT: Recovery (ft)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE: PID (ppm)	MEASURE: Lab Sample	DEPTH (ft)
0								(0') 4" CONCRETE sidewalk.			0
								(4") Silty SAND (SM); dark brown, dry, compact, 10% clay, 30% silt, 60% sand, medium permeability, no odor.			
5								(5.5') End of Boring.			5
10											10

NOTES: Hole precleared to 4.0' on 05/26/2017 by Confluence using hand auger.
Hydrated bentonite 11"-4' bgs. Dry bentonite 4-4.5' bgs. Sand 4.5-5.5' bgs.

APPENDIX E

Soil Gas Sampling Field Forms

Pangea
ENVIRONMENTAL SERVICES, INC.

MONITORING FIELD DATA SHEET

Well ID: A-1 (2006 MYRTLE ST.)

Project.Task #: 1975.001 104	Project Name: CAN # 6L1705
Address: 1999 Market St. Oakland, CA	Cont # 21934
Date: 4-7-17	Weather Sunny, Windy ~ 60°
Well Diameter: —	Volume/ft. 1" = 0.04 | 3" = 0.37 | 6" = 1.47 ; 2" = 0.16 | 4" = 0.65 | radius² * 0.163
Total Depth (TD): —	Depth to Product: —
Depth to Water (DTW): —	Product Thickness: —
Water Column Height: —	1 Casing Volume: gallons
Reference Point: NTOC	3 Casing Volumes: gallons
Purging Device: —	
Sampling Device: 6-L canister	

Time	~~Temp ©~~	~~pH~~	~~Cond (µs)~~	NTU	DO(mg/L)	ORP (mV)	Vol(gal)	DTW
Start time		4.7.17						
1620	—	30 " Hg						
Stop time		4.8.17						
1230	—	11 " Hg						

Comments:

Sample ID: A-1	Sample Time: 0620 / 1230 pm
Laboratory: Eurofins	Sample Date: 4.7.17 / 4.8.17
Containers/Preservative: 6-L Summa Canister	
Analyzed for: TO-15 Sim Std	
Sampler Name: E. Lervaag / Patrick Groff	Signature:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.104
Date: 4.14.17
Sampler(s): B. Lerwaag
Sample ID / Time:

PANGEA

Probe / Well ID: SG-4
Canister Serial #: —
Flow Controller #: AQ0303
Initial Vacuum: —
Final Vacuum: —

SPECIFICATIONS

Tubing Length:	10	~~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:	1/2"	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 = 50 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= 408 mL
Sandpack = 652 mL
Single Purge Volume = 1110 mL
Three Total Purge Volumes = 3330 mL
Total Purge Time = 22 min 12 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
	WATER IN Sample Tube. NO Sample Collected				
					Post-sampling PID screening (ppm): —

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1945.001.104
Date: 4.14.17
Sampler(s): E. Lervaag
Sample ID / Time:

PANGEA

Probe / Well ID: SG-5
Canister Serial #: —
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

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 = _____ 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
	Water in Probe. No Sample Collected				
					Post-sampling PID screening (ppm): —

NOTES: 100-80 - 38 sec ≈ 5 mL
40-20 - 73 ≈ 5 mL

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.00.104
Date: 4.14.17
Sampler(s): E. Lervaas
Sample ID / Time: —

PANGEA

Probe / Well ID: SG-6
Canister Serial #:
Flow Controller #:
Initial Vacuum:
Final Vacuum:

SPECIFICATIONS

Tubing Length:	10	inches
Tubing Diameter (ID):	0.170	inches
Boring Diameter:	3.25	inches
Dry Bentonite Height:	6	inches
Sandpack height:	18	inches
Probe Length:	1	inches
Probe Diameter:	1/2"	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 = 50 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=	408	mL
Sandpack =	979	mL
Single Purge Volume =	1437	mL
Three Total Purge Volumes =	4311	mL
Total Purge Time =	28min 44	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
	Water in Probe. No Sample collected				
					Post-sampling PID screening (ppm):

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.104
Date: 4.14.17
Sampler(s): B. Lervaag
Sample ID / Time: SG-7 / 1144

PANGEA

Probe / Well ID: SG-7
Canister Serial #: 00116
Flow Controller #: A00287
Initial Vacuum: 28.5
Final Vacuum: 8.5

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

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 = _____ 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
	NO	Purge Sample			
1144		7.3	28.5		Start Sample
1148		15.1	25		
1153		13.6	20		
1157		12.1	15		
1203		10.9	10		
1206		9.3	8.5		End Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.104
Date: 4.14.17
Sampler(s): E. Lervaag
Sample ID / Time:

PANGEA

Probe / Well ID: SG-8
Canister Serial #: 341
Flow Controller #: 272
Initial Vacuum: 29
Final Vacuum: 12

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

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 = _____ 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
	No Purge Sample				
1217		9.7	29		Start Sample
1220		16.8	25		
1224		14 3	20		
1229		13.3	15		
1232		12.7	12		Stop Sample
					Post-sampling PID screening (ppm):
					0.7

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 market
Project/Task Number: 1975.001.104
Date: 4.14.17
Sampler(s): E. Lervaag
Sample ID / Time: Shroud / 1158

PANGEA

Probe / Well ID: Shroud
Canister Serial #: 00078
Flow Controller #: A00219
Initial Vacuum: 29
Final Vacuum: 4

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

No Purge

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 = _____ 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		20.4	30	—	Start Sample
1200		29.2	25		
1202		21.6	20		
1204		15.8	15		
1205		11.6	10		
1207		9.1	4		Stop Sample
					Post-sampling PID screening (ppm): —

NOTES: Shroud collected on SG-8

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.104
Date: 4.14.17
Sampler(s): E. Lervoas
Sample ID / Time: —

PANGEA

Probe / Well ID: SG-9
Canister Serial #:
Flow Controller #:
Initial Vacuum:
Final Vacuum:

SPECIFICATIONS

Tubing Length:	13	~~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:	¼	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 = 65 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= 408 mL
Sandpack = 652 mL
Single Purge Volume = 1125 mL
Three Total Purge Volumes = 3375 mL
Total Purge Time = 22min 30 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
	Water in probe. No Sample Collected				
					Post-sampling PID screening (ppm):

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.23.17 - 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: A-1

PANGEA

Probe / Well ID: A-1
Canister Serial #: 6L 1554
Flow Controller #: 5551
Initial Vacuum: 30
Final Vacuum: 5

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

NO purge

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL

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 = _____ seconds

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
1601	Start	Sample	30	—	5.23.17 Start Sample
1703	Stop	Sample	5	—	5.24.17 Stop Sample
					Post-sampling PID screening (ppm): _____

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 market
Project/Task Number: 1975.001.106
Date: 5.23.17 - 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: A-2 / 1755

PANGEA

Probe / Well ID: A-2
Canister Serial #: 6L 0832
Flow Controller #: 40360
Initial Vacuum: 30
Final Vacuum: 8

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

No purge

1 scf/h = 471.95 ml/minute

π = 3.1416 1 inch^3 = 16.4 mL 5 mL purge / 1 ft tubing

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 = _____ seconds

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
1755	—	—	30	—	5.23.17 start Sample
1800	—	—	8	—	5.24.17 Stop Sample
					Post-sampling PID screening (ppm):

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.23.17 - 5.24.17
Sampler(s): B. Lervaag
Sample ID / Time: A-3 / 1753

PANGEA

Probe / Well ID: A-3
Canister Serial #: 6L 0852
Flow Controller #: 40590
Initial Vacuum: 28
Final Vacuum: 6.5

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

NO purge

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL

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 = _____ seconds

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
5.23.17	1753		28	—	5.23.17 Start Sample
5.24.17	1739		6.5	—	5.24.17 Stop Sample
					Post-sampling PID screening (ppm):

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-1 /

PANGEA

Probe / Well ID: SG-1
Canister Serial #: 35630
Flow Controller #: 100440
Initial Vacuum: 28
Final Vacuum: 3

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-4

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL
5 mL purge / 1 ft tubing

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 = 72:12 seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1350 96.5 "H_2O end time/pressure ("Hg): 1356 96.5 "H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1419	0	1.7		18	Start Purge
1422	3	19.6		20	
1425	6	17.1		20	
1428	9	18.3		22	
1431	12	17.6		22	
1434	15	17.1		22	
1337	18	16.5		22	
1440	21	16.8		22	
1442	22:12	15.3		23	Stop Purge
1447		14.1	28	22	Start Sample
1448		15.2	25	22	
1449		13.6	20	20	
1451		10.1	15	18	
1453		10.4	10	10	
1455		9.7	7	10	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.23.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-4/1639

PANGEA

Probe / Well ID: SG-4
Canister Serial #: 37397
Flow Controller #: 20308
Initial Vacuum: 30
Final Vacuum: 3

SPECIFICATIONS

Tubing Length:	120	inches
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

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite

Tubing = π x (tubing diameter/2)^2 x length

Tubing = 50 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= 408 mL
Sandpack = 652 mL
Single Purge Volume = 1110 mL
Three Total Purge Volumes = 3330 mL
Total Purge Time = 22:12 seconds

5 mL purge / 1 ft tubing

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1553 97.0" end time/pressure ("Hg): 1559 97.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1615	0	3.3		10	Start ~~Sample~~ Purge
1618	3	17.6		32	
1621	6	15.1		40	
1624	9	13.3		64	
1627	12	10.7		70	Add IPA
1630	15	21.4		74	
1633	18	16.9		75	
1636	21	13.7		75	
1637	22:12	12.2		75	Stop Purge
1639		10.1	30	83	Start Sample (add IPA
1641		18.2	25	83	
1643		16.9	20	80	
1644		15.2	15	75	
1646		13.7	10	75	
1650		12.9	5	73	Stop Sample
					Post-sampling PID screening (ppm):
					0.0 ppm

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-6 / 1146

PANGEA

Probe / Well ID: SG-6
Canister Serial #: 12399
Flow Controller #: ~~2744~~ 100213
Initial Vacuum: 25
Final Vacuum: 3

SPECIFICATIONS

Tubing Length:	120	inches
Tubing Diameter (ID):	0.170	inches
Boring Diameter:	3.15	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

1 scf/h = 471.95 ml/minute

π = 3.1416 1 inch^3 = 16.4 mL 5 mL purge / 1 ft tubing

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite

Tubing = π x (tubing diameter/2)^2 x length

Tubing = 50 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= 408 mL
Sandpack = 652 mL
Single Purge Volume = 1110 mL
Three Total Purge Volumes = 3330 mL
Total Purge Time = 22min 12 seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): ~~1035~~ 98.0" H_2O end time/pressure ("Hg): 1040 98.0" H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1122	0	1.6		0	Start Purge
1125	3	15.3		14	
1128	6	12.7		14	
1131	9	9.1		15	Add IPA
1134	12	17.6		15	
1137	15	15.3		14	
1140	18	14.7		14	
1143	21	14.1		14	
1144	22:12	14.6		14	Stop Purge
1146		12.2	30(gauge)	18	Start Sample
1147		11.4	25	16	
1149		10.6	20	14	
1150		10.1	15	14	
1152		9.7	3	14	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 market
Project/Task Number: 1975.001.106
Date: 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-7 / 1646

PANGEA

Probe / Well ID: SG-7
Canister Serial #: 1L1605
Flow Controller #: 30943
Initial Vacuum: 27
Final Vacuum: 5

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-4

1 scf/h = 471.95 ml/minute
π = 3.1416 1 inch^3 = 16.4 mL 5 mL purge / 1 ft tubing

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 = 22:12 seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1551 97.5" H_2O end time/pressure ("Hg): 1559 97" H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1621	0	1.1		2	Start Purge
1624	3	15.6		4	
1627	6	14.8		4	
1630	9	15.2		4	
1633	12	14.7		5	
1636	15	14.1		5	
1639	18	13.7		4	
1642	21	13.0		4	
1643	22:12	12.4		4	Stop Purge
1646		11.3	27 (gauge)	5	Start Sample
1647		11.7	25	5	
1649		10.8	20	4	
1650		10.3	15	4	
1651		9.4	10 (gauge)	4	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.081.106
Date: 5.24.17
Sampler(s): B. Lervaag
Sample ID / Time: SG-8 / 1600

PANGEA

Probe / Well ID: SG-8
Canister Serial #: 157651
Flow Controller #: 21419
Initial Vacuum: 28
Final Vacuum: 3

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-4

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL
5 mL purge / 1 ft tubing

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 = 22:12 seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): #2 1520 96.0" end time/pressure ("Hg): #2 1525 96.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1536	0	4.7		2	Start Purge
1539	3	19.2		4	
1542	6	18.1		4	
1545	9	17.6		4	
1548	12	17.0		4	
1551	15	15.9		4	
1554	18	15.2		4	
1557	21	14.7		4	
1558	22:12	14.5		4	Stop Purge
1600		12.8	28 (gauge)	4	Start Sample
1602		11.7	25	4	
1605		11.2	20	4	
1607		10.7	15	3	
1611		10.1	10	3	
1615		9.8	7 (gauge)	2	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-8 DUP / 1600

PANGEA

Probe / Well ID: SG-8 DUP
Canister Serial #: 20773
Flow Controller #: 21419
Initial Vacuum: 28
Final Vacuum: 3

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-4

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL
5 mL purge / 1 ft tubing

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 = 22:12 seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1520 96.0" H2O end time/pressure ("Hg): 1525 96" H2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1536	0	4.7		2	Start Purge
1539	3	19.2		4	
1542	6	18.1		4	
1545	9	17.6		4	
1548	12	17.0		4	
1551	15	15.9		4	
1554	18	15.2		4	
1557	21	14.7		4	
1558	22:12	14.5		4	Stop Purge
1600		12.8	28	4	Start Sample
1602		11.7	25	4	
1605		11.2	20	4	
1607		10.7	15	3	
1611		10.1	10	2	
1615		9.8	7	2	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES: Duplicate Sample

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.24.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-9 / 1324

PANGEA

Probe / Well ID: SG-9
Canister Serial #: IL2655
Flow Controller #: 20904
Initial Vacuum: 25
Final Vacuum: 3

SPECIFICATIONS

Tubing Length:	15	~~ft~~ inches
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

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

5 mL purge / 1 ft tubing

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite

Tubing = π x (tubing diameter/2)^2 x length

Tubing = 75 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= 408 mL

Sandpack = 652 mL

Single Purge Volume = 1135 mL

Three Total Purge Volumes = 3405 mL

Total Purge Time = 22m 42sec seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1237 99.5" H_2O end time/pressure ("Hg): 1243 99.5" H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1300	0	3.1		10	Start Purge
1303	3	12.7		9	
1306	6	11.3		9	Add IPA
1309	9	17.9		9	
1312	12	17.3		9.5	
1315	15	16.8		9	
1318	18	17.0		9	
1321	21	16.7		9.5	
1322	22:42	16.3		9	Stop Purge
1324		11.6	26 (Gauge)	10	Start Sample
1325		10.7	20		
1327		10.1	15		
1329		9.4	10		Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number:
Date: 5.24.17
Sampler(s): B. Lervaag
Sample ID / Time: Shroud /

PANGEA

Probe / Well ID: Shroud
Canister Serial #: 37687
Flow Controller #: 21336
Initial Vacuum: 27.5
Final Vacuum: 5

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

NO Purge

1 scf/h = 471.95 ml/minute

π = 3.1416 1 inch^3 = 16.4 mL 5 mL purge / 1 ft tubing

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 = _____ seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1425 97.0" end time/pressure ("Hg): 1431 97.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1447		14.2	27.5	—	Start Sample
1448		15.2	25	—	
1450		13.7	20	—	
1451		10.3	15	—	
1453		10.4	10	—	
1454		10.8	7	—	Stop Sample
					Post-sampling PID screening (ppm):

NOTES: Shroud sample collected at SG-1

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5-23-17
Sampler(s): E. Leruagg
Sample ID / Time: Not Sampled

PANGEA

Probe / Well ID: SG-5
Canister Serial #: 34158
Flow Controller #: 508
Initial Vacuum: 28
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-4

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL
5 mL purge / 1 ft tubing

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 = 22:12 seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1617 93.0 "H_2O end time/pressure ("Hg): 1625 93.0 "H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1558	0	2.7			Start Purge
1601	32:35	stop purge. water droplets in sample tube.			
					Post-sampling PID screening (ppm): ——

NOTES: No Sample. During Purging started collecting water

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SSV-21

PANGEA

Probe / Well ID: SSV-21
Canister Serial #: IL1762
Flow Controller #: 21815
Initial Vacuum: 27.5
Final Vacuum: 5

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:	167	mL/min
Purge Flow Rate:	120	mL/min

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

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= — mL

Sandpack = — mL

Single Purge Volume = 15 mL

Three Total Purge Volumes = 45 mL

Total Purge Time = 18 seconds

5 mL purge / 1 ft tubing

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("~~Hg~~ H_2O): 1004 97.5" end time/pressure ("~~Hg~~ H_2O): 1010 97.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1012	Purge w/	syringe 45	ml @ 2ml/sec		
1013		15.2	30 (fitting gauge)	<1	Start Sample
1013		14.9	25	<1	
1014		14.7	20	<1	
1015		14.3	15	<1	
1017		14.4	10	<1	
1018		14.0	7	<1	Stop Sample
					Post-sampling PID screening (ppm):
					0.1

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SSV-22 / 0948

PANGEA

Probe / Well ID: SSV-22
Canister Serial #: 1L2924
Flow Controller #: 22341
Initial Vacuum: 27.5
Final Vacuum: 5

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:	167	mL/min
Purge Flow Rate:	120	mL/min

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

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= — mL

Sandpack = — mL

Single Purge Volume = 15 mL

Three Total Purge Volumes = 45 mL

Total Purge Time = 18 seconds

5 mL purge / 1 ft tubing

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): H_2O 0932 96.0" end time/pressure ("Hg): H_2O 0940 96.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
0946	Purge w/	syringe	45ml @ 2	ml/sec.	start/stop purge
0948		11.6	30 (~~Fitting~~ gauge)	<1	start sample
0949		12.2	25	<1	remove IPA rag
0950		12.0	20	<1	
0950		11.8	15	<1	
0952		11.4	10	<1	
0953		11.6	5	<1	stop sample

Post-sampling PID screening (ppm): 0.0

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): B. Lervaag
Sample ID / Time: SG-2 /

PANGEA

Probe / Well ID: SG-2
Canister Serial #: ~~TL2496~~
Flow Controller #: ~~100508~~
Initial Vacuum: 27.5
Final Vacuum:

SPECIFICATIONS

Tubing Length:	8	~~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

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite

Tubing = π x (tubing diameter/2)^2 x length

Tubing = 40 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= 408 mL
Sandpack = 652 mL
Single Purge Volume = 1100 mL
Three Total Purge Volumes = 3300 mL
Total Purge Time = 22 min 0secs seconds

5 mL purge / 1 ft tubing

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1054 98.0" end time/pressure ("Hg): 1101 98.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1117	0	3.1		60	start purge.
1120	3	15.1		80	
1123	6	14.7			Stop Purge
1126	9	NO sample, water in sample line			
1129	12				
1132	15				
1135	18				
1136	22				
~~1137~~					~~start Sample~~
					Post-sampling PID screening (ppm):

NOTES: Water in sample line after 6:30 of purging. Purge rate was reduced to 75 ml/min because of low permeability, but still picked up water. No sample collected

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-10 / 1250

PANGEA

Probe / Well ID: SG-10
Canister Serial #: 1L2496
Flow Controller #: 100042
Initial Vacuum: 27.5
Final Vacuum: 5

SPECIFICATIONS

Tubing Length:	12	~~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

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite

Tubing = π x (tubing diameter/2)^2 x length

Tubing = 60 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=	408	mL
Sandpack =	652	mL
Single Purge Volume =	1120	mL
Three Total Purge Volumes =	3360	mL
Total Purge Time =	22min 24sec	seconds

5 mL purge / 1 ft tubing

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("~~Hg~~ H2O): 1218 93.5" end time/pressure ("~~Hg~~ H2O): 1223 93.5"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1225	0	1.4		4	Start Purge
1228	3	17.6		4	remove IPA rag
1231	6	15.1		4	
1234	9	13.8		4	
1237	12	11.6		4	
1240	15	9.4		4	Add IPA
1243	18	16.3		4	
1248	22:24	14.7		4	Stop Purge
1250		12.9	29 (fitting gauge)	4	Start Sample
1252		9.3	25	3	Add IPA
1253		16.2	20	4	
1255		14.9	15	3	
1257		13.3	10	3	
1258		13.0	7 (fitting gauge)	3	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lerraag
Sample ID / Time: SG-11 / 1341

PANGEA

Probe / Well ID: SG-11
Canister Serial #: IL 2867
Flow Controller #: 21513
Initial Vacuum: 27.5
Final Vacuum: 5

SPECIFICATIONS

Tubing Length:	8	~~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~~ 167	mL/min
Purge Flow Rate:	150	mL/min

1 scf/h = 471.95 ml/minute

π = 3.1416

1 inch^3 = 16.4 mL

PURGE VOLUME CALCULATION

Purge Volume = tubing + sandpack+bentonite

Tubing = π x (tubing diameter/2)^2 x length

Tubing = 40 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=	408	mL
Sandpack =	652	mL
Single Purge Volume =	1100	mL
Three Total Purge Volumes =	3300	mL
Total Purge Time =	22 min	seconds

5 mL purge / 1 ft tubing

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): ~~H2O~~ 1309 95.0" end time/pressure ("Hg): ~~H2O~~ 1314 95.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (%/ PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1318	0	2.3		3	Start Purge
1321	3	18.7		3	remove IPA rag
1324	6	16.1		3	
1327	9	15.4		3	
1330	12	14.7		3	
1333	15	14.9		3	
1336	18	13.9		3	
1340	22	13.3		3	Stop Purge
1341		12.2	29	3	Start Sample
1342		11.7	25	3	
1343		11.0	20	3	
1344		10.7	15	3	
1345		10.1	10	3	
1346		9.3	7	3	Stop Sample
					Post-sampling PID screening (ppm): 0.6

NOTES:

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-12 / 1427

PANGEA

Probe / Well ID: SG-12
Canister Serial #: 20781
Flow Controller #: 22345
Initial Vacuum: 27.0
Final Vacuum: 2.5

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-11

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL

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 = 22 min seconds

5 mL purge / 1 ft tubing
Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1338 97.5" H_2O end time/pressure ("Hg): 1342 97.5" H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1404	0	1.6		2	Start Purge
1407	3	15.7		2	remove IPA rag
1410	6	15.5		2	
1413	9	15.0		2	
1416	12	14.7		2	
1419	15	14.5		2	
1422	18	14.1		2	
1426	22	13.8		2	Stop Purge
1427		12.9	30 (fitting gauge)	2	Start Sample
1428		12.6	25	2	
1429		12.1	20	2	
1430		11.8	15	2	
1431		11.5	10	2	
1433		11.0	5	2	Stop Sample
					Post-sampling PID screening (ppm):
					0.1

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-13 |

PANGEA

Probe / Well ID: SG-13
Canister Serial #: IL 3062
Flow Controller #: 21671
Initial Vacuum: 27.5
Final Vacuum: 4

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-11 calcs

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL

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 = 22 min seconds

5 mL purge / 1 ft tubing
Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("H_2O / "Hg): 1422 99.5" end time/pressure ("H_2O / "Hg): 1434 94.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1445	0	3.6		3	Start Purge
1448	3	15.2		3	remove IPA rag
1451	6	14.8		3	
1454	9	14.4		3	
1457	12	14.7		3	
1500	15	13.8		3	
1503	18	13.3		3	
1507	22	12.9		3	Stop Purge
1507		11.6	29 (Fitting gauge)	3	Start Sample
1508		10.9	25	3	
1509		10.5	20	3	
1509		10.0	15	3	
1511		9.6	10	3	
1512		9.0	5	2	Stop Sample
					Post-sampling PID screening (ppm):
					0.1

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-14 / 1553

PANGEA

Probe / Well ID: SG-14
Canister Serial #: 12718
Flow Controller #: 22346
Initial Vacuum: 27.0
Final Vacuum: 3.5

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: 167 mL/min
Purge Flow Rate: 150 mL/min

See SG-11

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL

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 = 22 min ~~seconds~~

5 mL purge / 1 ft tubing
Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1455 95.0" H2O end time/pressure ("Hg): 1503 94.5" H2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1530	0	2.6		3	Start Purge
1533	3	17.4		3	remove IPA rag
1536	6	16.9		3	
1539	9	16.2		3	
1542	12	15.7		3	
1545	15	15.2		3	
1548	18	14.9		3	
1552	22	14.6		3	Stop Purge
1553		13.3	30 (Fitting gauge)	3	Start Sample.
1554		12.8	25	3	
1555		11.6	20	3	
1556		11.1	15	3	
1557		10.6	10	3	
1559		10.0	5	2	Stop Sample
					Post-sampling PID screening (ppm):
					0.0

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 Market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: SG-15 / 1639

PANGEA

Probe / Well ID: SG-15
Canister Serial #: IL 3079
Flow Controller #: 21961
Initial Vacuum: 27.5
Final Vacuum: 3.5

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: 167 mL/min
Purge Flow Rate: 150 mL/min

See SG-11

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL
5 mL purge / 1 ft tubing

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 = 22 min seconds

Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): ~~H2O~~ 1540 ~~[illegible]~~ 94.0" end time/pressure ("Hg): ~~H2O~~ 1548 94.0"

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
1616	0			3	Start Purge
1619	3			3	
1622	6			2	
1625	9			2	
1628	12			2	
1631	15			3	
1634	18			2	
1638	22			2	Stop Purge
~~1630~~ 1640		18.1	29.5		Start Sample
1641		16.7	25	3	
1642		12.7	20	2	add IPA rag
1644		15.8	15	2	
1646		16.5	10	2	
1647		11.1	5	2	Stop Sample
					Post-sampling PID screening (ppm):
					2.3 ppm

NOTES: _____

SOIL GAS PURGING / SAMPLING LOG

Project Name: 1919 market
Project/Task Number: 1975.001.106
Date: 5.31.17
Sampler(s): E. Lervaag
Sample ID / Time: Shroud

PANGEA

Probe / Well ID: Shroud
Canister Serial #: 34158
Flow Controller #: 100508
Initial Vacuum: 25
Final Vacuum: 5.0

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

NO Purge

1 scf/h = 471.95 ml/minute
π = 3.1416
1 inch^3 = 16.4 mL

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 = _____ seconds

5 mL purge / 1 ft tubing
Estimated Porosity, Sandpack = 0.4; bentonite = 0.5

SHUT-IN TEST start time/pressure ("Hg): 1620 98.0" H_2O end time/pressure ("Hg): 1628 98.0" H_2O

TIME	PURGE TIME (min./sec.)	He / IPA IN SHROUD (% / PPM)	CANISTER PRESSURE ("Hg)	Probe-side Vacuum ("H20 / "Hg)	COMMENTS
		NO Purge			
40					
1635		18.1	28		Start Sample
1642		13.2	25		Add IPA
1643		17.2	20		
1645		14.4	15		
1647		12.0	10		
			5		Stop Sample
					Post-sampling PID screening (ppm):

NOTES: shroud sample collected at SG-1.

APPENDIX F

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 283440
ANALYTICAL REPORT

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

Sample ID	Lab ID
F-1	283440-001
F-2	283440-002
F-3	283440-003
F-4	283440-004

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: Will Rice Date: 11/30/2016

Will Rice
Project Manager
will.rice@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**283440**
Client:	**Pangea Environmental**
Location:	**1919 Market**
Request Date:	**11/15/16**
Samples Received:	**11/15/16**

This data package contains sample and QC results for four soil samples, requested for the above referenced project on 11/15/16. The samples were received cold and intact.

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

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

Volatile Organics by GC/MS (EPA 8260B):
High surrogate recoveries were observed for bromofluorobenzene in F-2 (lab # 283440-002) and F-3 (lab # 283440-003). No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270C):
High surrogate recovery was observed for terphenyl-d14 in F-3 (lab # 283440-003); no target analytes were detected in the sample. No other analytical problems were encountered.

PCBs (EPA 8082):
All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. No analytical problems were encountered.

California Title 22 Metals (EPA 6010B):
Enthalpy Analytical in Orange, CA performed the analysis (NELAP certified). Please see the Enthalpy Analytical case narrative.

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 # 283440

Project No:

Project Name: 1919 Market

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH ☒ Standard

Sampler: Jake Wilson

Report To: Jake Wilson

Company: Pangea

Telephone: 415-259-8860

Email: JWilson@PangeaENV.com

ANALYTICAL REQUEST

Lab No.	Sample ID.	SAMPLING Date Collected	SAMPLING Time Collected	MATRIX Water	MATRIX Solid	# of Containers	CHEMICAL PRESERVATIVE HCl	H2SO4	HNO3	NaOH	None	VOCs	TPH - d / g / mo	SVOCs	PCBs	CAM 17 Metals
	~~B-11-2~~ 9 F-1 RS 11/16/16	11/14/16	0800		X	5						X	X	X	X	X
	~~B-12-2~~ F-2 RS		0815													
	~~B-13-2~~ F-3 RS		0825													
	~~B-14-2~~ F-4 RS		1000													
	~~B-8-5~~		1100													

Notes:

SAMPLE RECEIPT
☑ Intact
☑ Cold
☑ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 11/15/16 TIME: 1725
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 11/15/16 TIME: 1725
DATE: TIME:
DATE: TIME:

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 #: 283440

Project No:

Project Name: 1919 Market

Project P. O. No:

EDD Format: Report Level ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: Jake Wilson

Report To: Jake Wilson

Company: Pangea

Telephone: 415-259-8860

Email: JWilson@PangeaENV.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST					
		Date Collected	Time Collected	Water	Solid				HCl	H_2SO_4	HNO_3	NaOH	None	VOCs	TPH – d / g / 418.1	SVOCs	PCBs	CAM 17 Metals
	B-11-2	11/14/16	0800		X			5						X	X	X	X	X	
	B-12-2		0815																
	B-13-2		0825																
	B-14-2		1000																
JW	~~B-8-5~~		1100																

Notes:

SAMPLE RECEIPT
☑ Intact
☑ Cold
☑ On Ice
☐ Ambient

RELINQUISHED BY:
John Wilson DATE: 11/15/16 TIME: 1725
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 11/15/16 TIME: 1725
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 283440 Date Received 11/15/16 Number of coolers 1
Client Pangea Project 1919 Market

Date Opened 11/15 By (print) DTV (sign) [signature]
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) 4.2

☐ 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 283440

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

Client : Pangea Environmental
Project : STANDARD
Location : 1919 Market

Client Sample ID : F-1 Laboratory Sample ID : 283440-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	12	Y	0.99	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Motor Oil C24-C36	30		5.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Acetone	14		14	ug/Kg	As Recd	0.6840	EPA 8260B	EPA 5035

Client Sample ID : F-2 Laboratory Sample ID : 283440-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	25		13	ug/Kg	As Recd	0.6614	EPA 8260B	EPA 5035

Client Sample ID : F-3 Laboratory Sample ID : 283440-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	19		16	ug/Kg	As Recd	0.7764	EPA 8260B	EPA 5035

Client Sample ID : F-4 Laboratory Sample ID : 283440-004

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	1.0	Y	1.0	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Acetone	37		19	ug/Kg	As Recd	0.9690	EPA 8260B	EPA 5035

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	241446
Units:	mg/Kg	Sampled:	11/14/16
Basis:	as received	Received:	11/15/16
Diln Fac:	1.000	Analyzed:	11/16/16

Field ID: F-1 Lab ID: 283440-001
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.14

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	78-138

Field ID: F-2 Lab ID: 283440-002
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.14

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	78-138

Field ID: F-3 Lab ID: 283440-003
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.15

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	108	78-138

Field ID: F-4 Lab ID: 283440-004
Type: SAMPLE

Analyte	Result	RL
Gasoline C7-C12	ND	0.19

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	107	78-138

Type: BLANK Lab ID: QC860818

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	78-138

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC860813	Batch#:	241446
Matrix:	Soil	Analyzed:	11/16/16
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.106	111	80-121

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	114	78-138

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	283415-001	Batch#:	241446
Matrix:	Soil	Sampled:	11/14/16
Units:	mg/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/16/16

Type: MS Lab ID: QC860816

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.6276	9.901	8.027	75	50-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	107	78-138

Type: MSD Lab ID: QC860817

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.434	7.625	74	50-120	1	31

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	78-138

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Sampled:	11/14/16
Basis:	as received	Received:	11/15/16

Field ID:	F-1	Batch#:	241632
Type:	SAMPLE	Prepared:	11/21/16
Lab ID:	283440-001	Analyzed:	11/21/16

Analyte	Result	RL
Diesel C10-C24	12 Y	0.99
Motor Oil C24-C36	30	5.0

Surrogate	%REC	Limits
o-Terphenyl	94	59-140

Field ID:	F-2	Batch#:	241632
Type:	SAMPLE	Prepared:	11/21/16
Lab ID:	283440-002	Analyzed:	11/21/16

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	103	59-140

Field ID:	F-3	Batch#:	241632
Type:	SAMPLE	Prepared:	11/21/16
Lab ID:	283440-003	Analyzed:	11/21/16

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	99	59-140

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Diln Fac:	1.000
Units:	mg/Kg	Sampled:	11/14/16
Basis:	as received	Received:	11/15/16

Field ID:	F-4	Batch#:	241691
Type:	SAMPLE	Prepared:	11/22/16
Lab ID:	283440-004	Analyzed:	11/23/16

Analyte	Result	RL
Diesel C10-C24	1.0 Y	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	105	59-140

Type:	BLANK	Prepared:	11/21/16
Lab ID:	QC861537	Analyzed:	11/21/16
Batch#:	241632		

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	103	59-140

Type:	BLANK	Prepared:	11/22/16
Lab ID:	QC861774	Analyzed:	11/23/16
Batch#:	241691		

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	105	59-140

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC861538	Batch#:	241632
Matrix:	Soil	Prepared:	11/21/16
Units:	mg/Kg	Analyzed:	11/21/16

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.90	34.90	70	58-137

Surrogate	%REC	Limits
o-Terphenyl	75	59-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	241632
MSS Lab ID:	283540-001	Sampled:	11/18/16
Matrix:	Soil	Received:	11/18/16
Units:	mg/Kg	Prepared:	11/21/16
Basis:	as received	Analyzed:	11/21/16
Diln Fac:	1.000		

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC861539

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	8.377	49.96	44.17	72	46-154

Surrogate	%REC	Limits
o-Terphenyl	62	59-140

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC861540

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	49.70	47.60	79	46-154	8	50

Surrogate	%REC	Limits
o-Terphenyl	64	59-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC861775	Batch#:	241691
Matrix:	Soil	Prepared:	11/22/16
Units:	mg/Kg	Analyzed:	11/23/16

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.96	43.54	87	58-137

Surrogate	%REC	Limits
o-Terphenyl	77	59-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	241691
MSS Lab ID:	283470-002	Sampled:	11/14/16
Matrix:	Soil	Received:	11/16/16
Units:	mg/Kg	Prepared:	11/22/16
Basis:	as received	Analyzed:	11/23/16
Diln Fac:	1.000		

Type: MS Lab ID: QC861776

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	0.8936	49.58	45.45	90	46-154

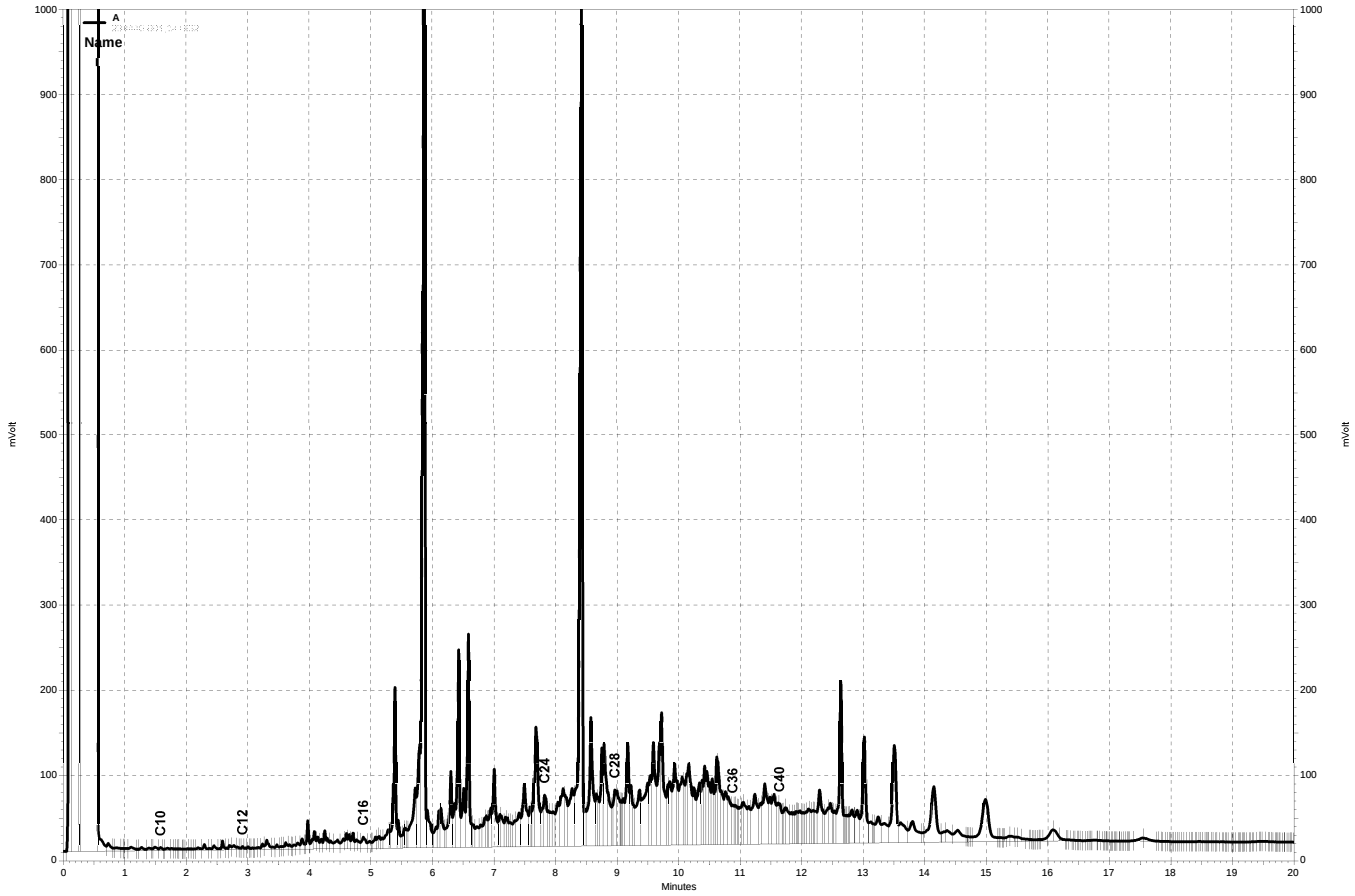
Surrogate	%REC	Limits
o-Terphenyl	90	59-140

Type: MSD Lab ID: QC861777

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	50.01	47.84	94	46-154	4	50

Surrogate	%REC	Limits
o-Terphenyl	91	59-140

RPD= Relative Percent Difference



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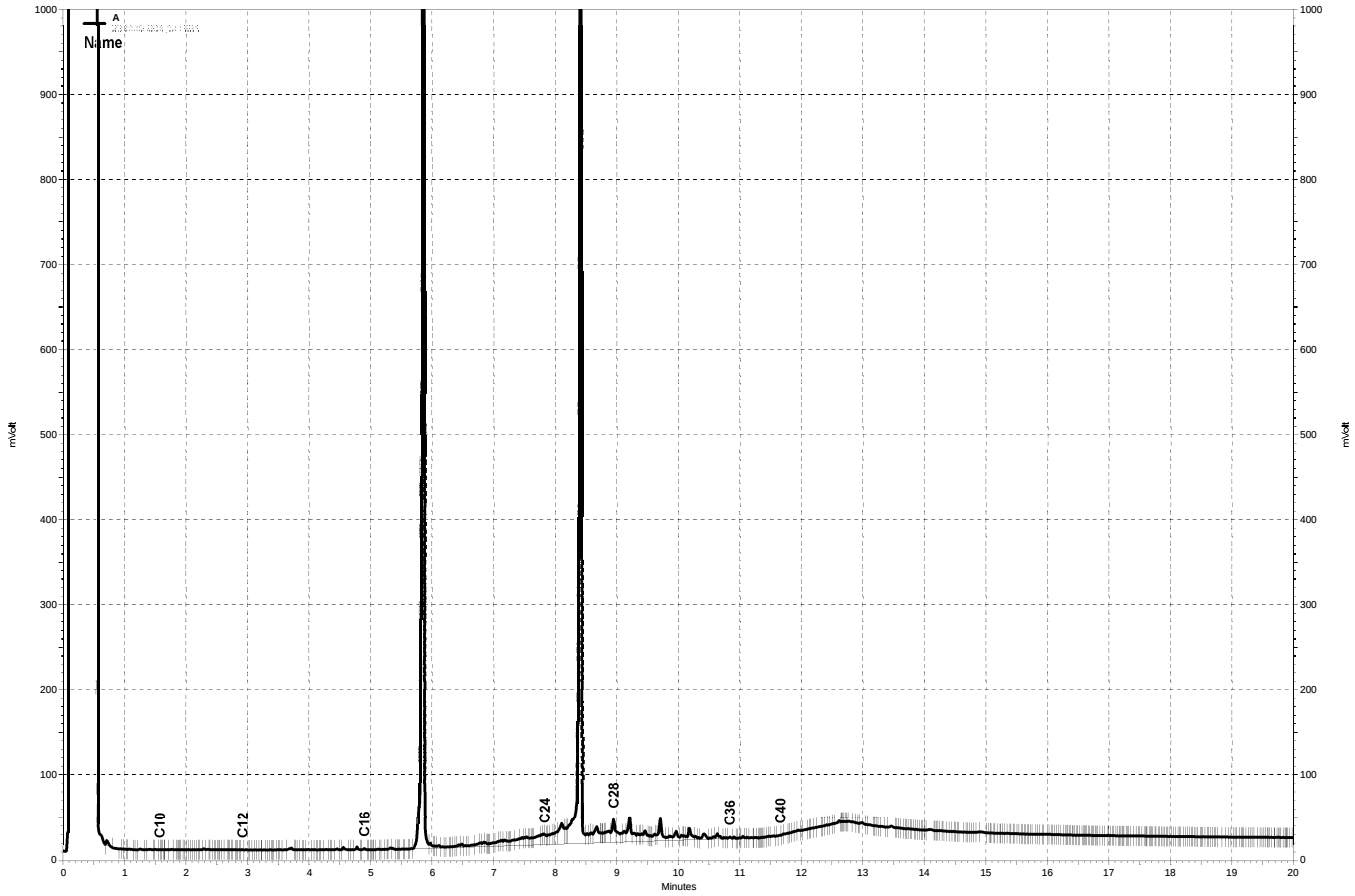

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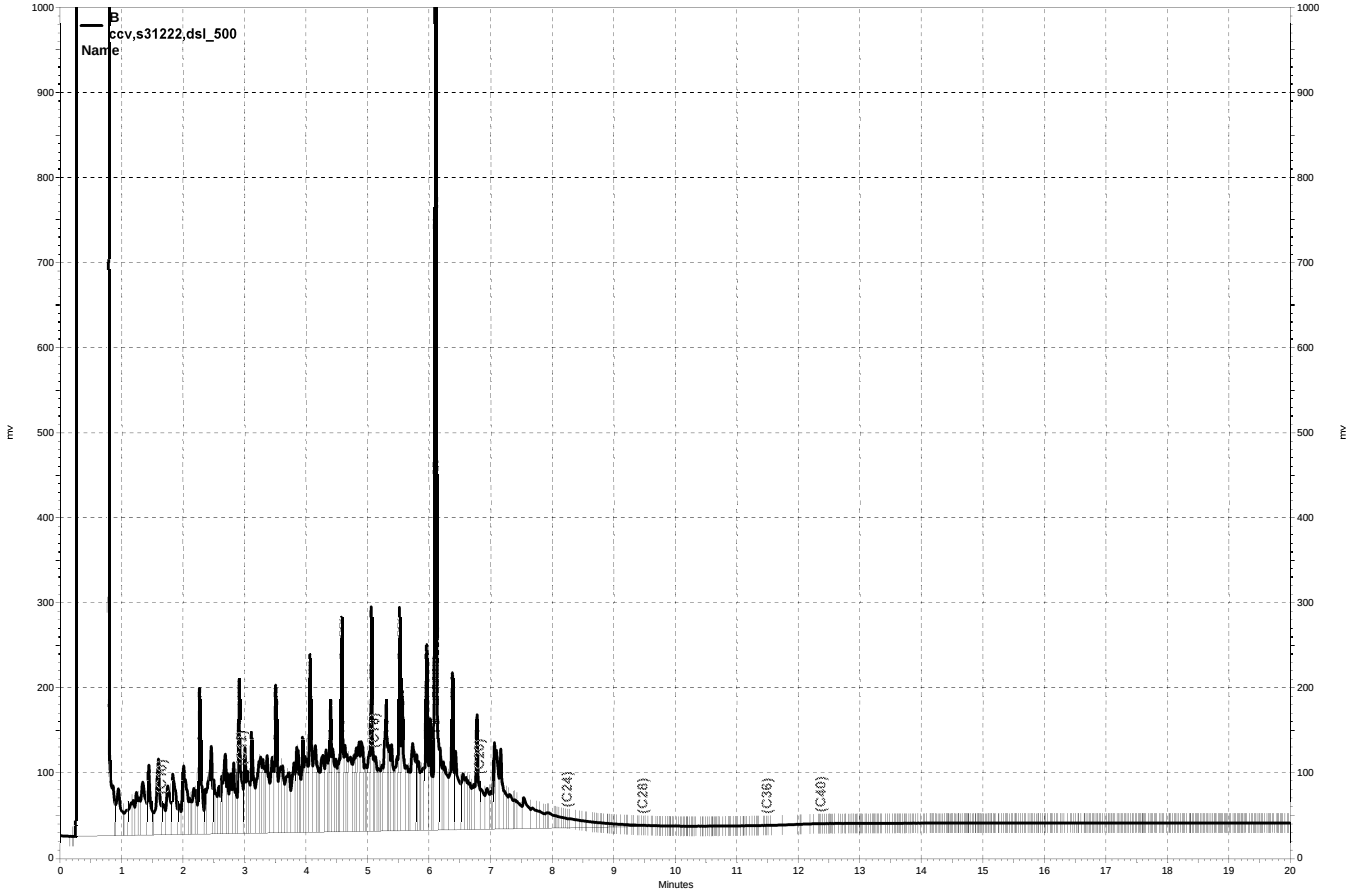

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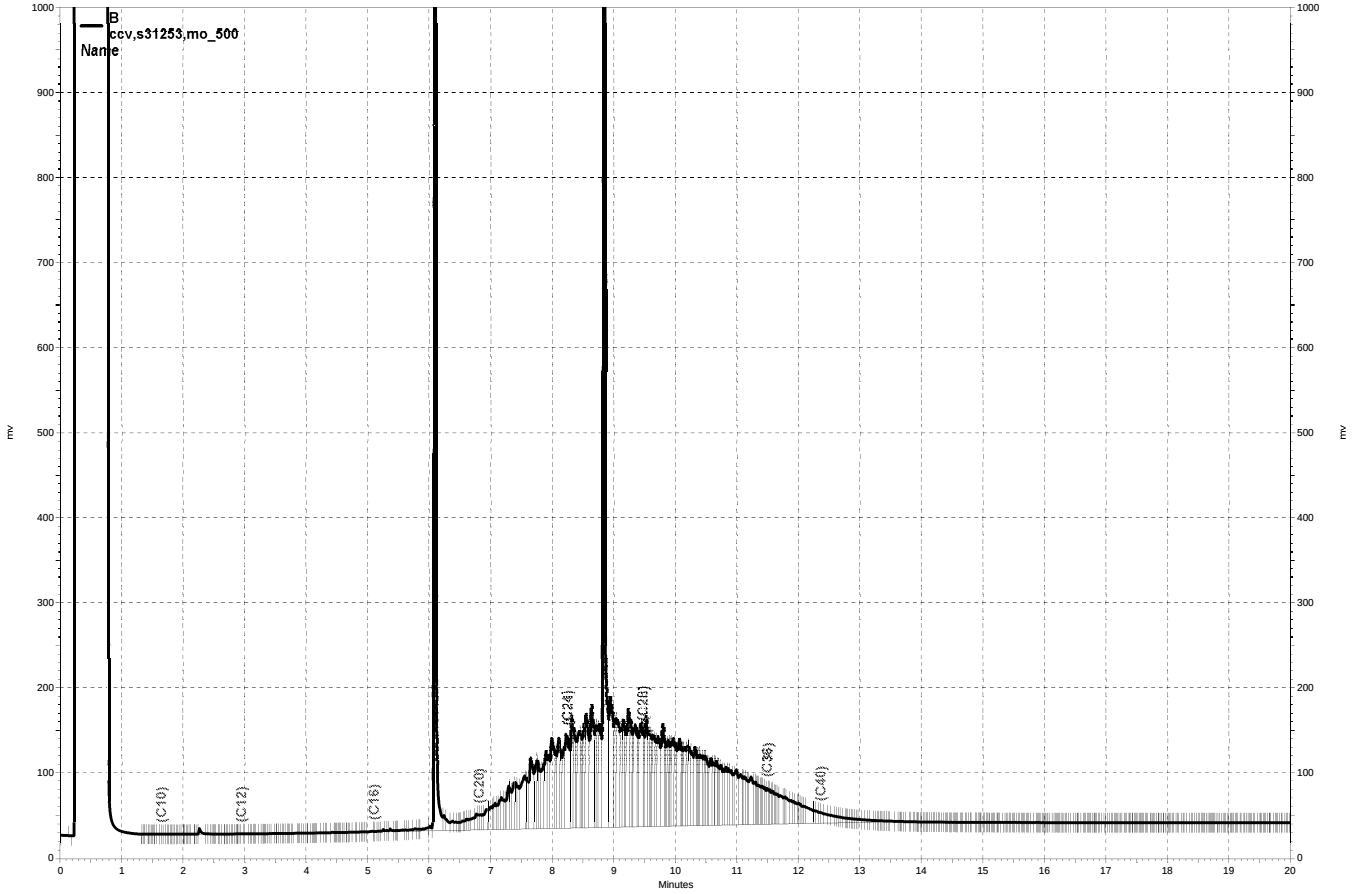

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Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-1	Diln Fac:	0.6840
Lab ID:	283440-001	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
Freon 12	ND	6.8
Chloromethane	ND	6.8
Vinyl Chloride	ND	6.8
Bromomethane	ND	6.8
Chloroethane	ND	6.8
Trichlorofluoromethane	ND	3.4
Acetone	14	14
Freon 113	ND	3.4
1,1-Dichloroethene	ND	3.4
Methylene Chloride	ND	14
Carbon Disulfide	ND	3.4
MTBE	ND	3.4
trans-1,2-Dichloroethene	ND	3.4
Vinyl Acetate	ND	34
1,1-Dichloroethane	ND	3.4
2-Butanone	ND	6.8
cis-1,2-Dichloroethene	ND	3.4
2,2-Dichloropropane	ND	3.4
Chloroform	ND	3.4
Bromochloromethane	ND	3.4
1,1,1-Trichloroethane	ND	3.4
1,1-Dichloropropene	ND	3.4
Carbon Tetrachloride	ND	3.4
1,2-Dichloroethane	ND	3.4
Benzene	ND	3.4
Trichloroethene	ND	3.4
1,2-Dichloropropane	ND	3.4
Bromodichloromethane	ND	3.4
Dibromomethane	ND	3.4
4-Methyl-2-Pentanone	ND	6.8
cis-1,3-Dichloropropene	ND	3.4
Toluene	ND	3.4
trans-1,3-Dichloropropene	ND	3.4
1,1,2-Trichloroethane	ND	3.4
2-Hexanone	ND	6.8
1,3-Dichloropropane	ND	3.4
Tetrachloroethene	ND	3.4

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-1	Diln Fac:	0.6840
Lab ID:	283440-001	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
Dibromochloromethane	ND	3.4
1,2-Dibromoethane	ND	3.4
Chlorobenzene	ND	3.4
1,1,1,2-Tetrachloroethane	ND	3.4
Ethylbenzene	ND	3.4
m,p-Xylenes	ND	3.4
o-Xylene	ND	3.4
Styrene	ND	3.4
Bromoform	ND	3.4
Isopropylbenzene	ND	3.4
1,1,2,2-Tetrachloroethane	ND	3.4
1,2,3-Trichloropropane	ND	3.4
Propylbenzene	ND	3.4
Bromobenzene	ND	3.4
1,3,5-Trimethylbenzene	ND	3.4
2-Chlorotoluene	ND	3.4
4-Chlorotoluene	ND	3.4
tert-Butylbenzene	ND	3.4
1,2,4-Trimethylbenzene	ND	3.4
sec-Butylbenzene	ND	3.4
para-Isopropyl Toluene	ND	3.4
1,3-Dichlorobenzene	ND	3.4
1,4-Dichlorobenzene	ND	3.4
n-Butylbenzene	ND	3.4
1,2-Dichlorobenzene	ND	3.4
1,2-Dibromo-3-Chloropropane	ND	3.4
1,2,4-Trichlorobenzene	ND	3.4
Hexachlorobutadiene	ND	3.4
Naphthalene	ND	3.4
1,2,3-Trichlorobenzene	ND	3.4

Surrogate	%REC	Limits
Dibromofluoromethane	115	78-134
1,2-Dichloroethane-d4	110	80-138
Toluene-d8	91	80-120
Bromofluorobenzene	112	78-123

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-2	Diln Fac:	0.6614
Lab ID:	283440-002	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
Freon 12	ND	6.6
Chloromethane	ND	6.6
Vinyl Chloride	ND	6.6
Bromomethane	ND	6.6
Chloroethane	ND	6.6
Trichlorofluoromethane	ND	3.3
Acetone	25	13
Freon 113	ND	3.3
1,1-Dichloroethene	ND	3.3
Methylene Chloride	ND	13
Carbon Disulfide	ND	3.3
MTBE	ND	3.3
trans-1,2-Dichloroethene	ND	3.3
Vinyl Acetate	ND	33
1,1-Dichloroethane	ND	3.3
2-Butanone	ND	6.6
cis-1,2-Dichloroethene	ND	3.3
2,2-Dichloropropane	ND	3.3
Chloroform	ND	3.3
Bromochloromethane	ND	3.3
1,1,1-Trichloroethane	ND	3.3
1,1-Dichloropropene	ND	3.3
Carbon Tetrachloride	ND	3.3
1,2-Dichloroethane	ND	3.3
Benzene	ND	3.3
Trichloroethene	ND	3.3
1,2-Dichloropropane	ND	3.3
Bromodichloromethane	ND	3.3
Dibromomethane	ND	3.3
4-Methyl-2-Pentanone	ND	6.6
cis-1,3-Dichloropropene	ND	3.3
Toluene	ND	3.3
trans-1,3-Dichloropropene	ND	3.3
1,1,2-Trichloroethane	ND	3.3
2-Hexanone	ND	6.6
1,3-Dichloropropane	ND	3.3
Tetrachloroethene	ND	3.3
Dibromochloromethane	ND	3.3
1,2-Dibromoethane	ND	3.3
Chlorobenzene	ND	3.3
1,1,1,2-Tetrachloroethane	ND	3.3
Ethylbenzene	ND	3.3
m,p-Xylenes	ND	3.3
o-Xylene	ND	3.3
Styrene	ND	3.3
Bromoform	ND	3.3
Isopropylbenzene	ND	3.3
1,1,2,2-Tetrachloroethane	ND	3.3
1,2,3-Trichloropropane	ND	3.3
Propylbenzene	ND	3.3
Bromobenzene	ND	3.3
1,3,5-Trimethylbenzene	ND	3.3
2-Chlorotoluene	ND	3.3

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-2	Dil'n Fac:	0.6614
Lab ID:	283440-002	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
4-Chlorotoluene	ND	3.3
tert-Butylbenzene	ND	3.3
1,2,4-Trimethylbenzene	ND	3.3
sec-Butylbenzene	ND	3.3
para-Isopropyl Toluene	ND	3.3
1,3-Dichlorobenzene	ND	3.3
1,4-Dichlorobenzene	ND	3.3
n-Butylbenzene	ND	3.3
1,2-Dichlorobenzene	ND	3.3
1,2-Dibromo-3-Chloropropane	ND	3.3
1,2,4-Trichlorobenzene	ND	3.3
Hexachlorobutadiene	ND	3.3
Naphthalene	ND	3.3
1,2,3-Trichlorobenzene	ND	3.3

Surrogate	%REC	Limits
Dibromofluoromethane	115	78-134
1,2-Dichloroethane-d4	113	80-138
Toluene-d8	98	80-120
Bromofluorobenzene	132 *	78-123

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-3	Dil'n Fac:	0.7764
Lab ID:	283440-003	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
Freon 12	ND	7.8
Chloromethane	ND	7.8
Vinyl Chloride	ND	7.8
Bromomethane	ND	7.8
Chloroethane	ND	7.8
Trichlorofluoromethane	ND	3.9
Acetone	19	16
Freon 113	ND	3.9
1,1-Dichloroethene	ND	3.9
Methylene Chloride	ND	16
Carbon Disulfide	ND	3.9
MTBE	ND	3.9
trans-1,2-Dichloroethene	ND	3.9
Vinyl Acetate	ND	39
1,1-Dichloroethane	ND	3.9
2-Butanone	ND	7.8
cis-1,2-Dichloroethene	ND	3.9
2,2-Dichloropropane	ND	3.9
Chloroform	ND	3.9
Bromochloromethane	ND	3.9
1,1,1-Trichloroethane	ND	3.9
1,1-Dichloropropene	ND	3.9
Carbon Tetrachloride	ND	3.9
1,2-Dichloroethane	ND	3.9
Benzene	ND	3.9
Trichloroethene	ND	3.9
1,2-Dichloropropane	ND	3.9
Bromodichloromethane	ND	3.9
Dibromomethane	ND	3.9
4-Methyl-2-Pentanone	ND	7.8
cis-1,3-Dichloropropene	ND	3.9
Toluene	ND	3.9
trans-1,3-Dichloropropene	ND	3.9
1,1,2-Trichloroethane	ND	3.9
2-Hexanone	ND	7.8
1,3-Dichloropropane	ND	3.9
Tetrachloroethene	ND	3.9
Dibromochloromethane	ND	3.9
1,2-Dibromoethane	ND	3.9
Chlorobenzene	ND	3.9
1,1,1,2-Tetrachloroethane	ND	3.9
Ethylbenzene	ND	3.9
m,p-Xylenes	ND	3.9
o-Xylene	ND	3.9
Styrene	ND	3.9
Bromoform	ND	3.9
Isopropylbenzene	ND	3.9
1,1,2,2-Tetrachloroethane	ND	3.9
1,2,3-Trichloropropane	ND	3.9
Propylbenzene	ND	3.9
Bromobenzene	ND	3.9
1,3,5-Trimethylbenzene	ND	3.9
2-Chlorotoluene	ND	3.9

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-3	Dil'n Fac:	0.7764
Lab ID:	283440-003	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
4-Chlorotoluene	ND	3.9
tert-Butylbenzene	ND	3.9
1,2,4-Trimethylbenzene	ND	3.9
sec-Butylbenzene	ND	3.9
para-Isopropyl Toluene	ND	3.9
1,3-Dichlorobenzene	ND	3.9
1,4-Dichlorobenzene	ND	3.9
n-Butylbenzene	ND	3.9
1,2-Dichlorobenzene	ND	3.9
1,2-Dibromo-3-Chloropropane	ND	3.9
1,2,4-Trichlorobenzene	ND	3.9
Hexachlorobutadiene	ND	3.9
Naphthalene	ND	3.9
1,2,3-Trichlorobenzene	ND	3.9

Surrogate	%REC	Limits
Dibromofluoromethane	113	78-134
1,2-Dichloroethane-d4	112	80-138
Toluene-d8	96	80-120
Bromofluorobenzene	127 *	78-123

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-4	Diln Fac:	0.9690
Lab ID:	283440-004	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
Freon 12	ND	9.7
Chloromethane	ND	9.7
Vinyl Chloride	ND	9.7
Bromomethane	ND	9.7
Chloroethane	ND	9.7
Trichlorofluoromethane	ND	4.8
Acetone	37	19
Freon 113	ND	4.8
1,1-Dichloroethene	ND	4.8
Methylene Chloride	ND	19
Carbon Disulfide	ND	4.8
MTBE	ND	4.8
trans-1,2-Dichloroethene	ND	4.8
Vinyl Acetate	ND	48
1,1-Dichloroethane	ND	4.8
2-Butanone	ND	9.7
cis-1,2-Dichloroethene	ND	4.8
2,2-Dichloropropane	ND	4.8
Chloroform	ND	4.8
Bromochloromethane	ND	4.8
1,1,1-Trichloroethane	ND	4.8
1,1-Dichloropropene	ND	4.8
Carbon Tetrachloride	ND	4.8
1,2-Dichloroethane	ND	4.8
Benzene	ND	4.8
Trichloroethene	ND	4.8
1,2-Dichloropropane	ND	4.8
Bromodichloromethane	ND	4.8
Dibromomethane	ND	4.8
4-Methyl-2-Pentanone	ND	9.7
cis-1,3-Dichloropropene	ND	4.8
Toluene	ND	4.8
trans-1,3-Dichloropropene	ND	4.8
1,1,2-Trichloroethane	ND	4.8
2-Hexanone	ND	9.7
1,3-Dichloropropane	ND	4.8
Tetrachloroethene	ND	4.8

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	F-4	Diln Fac:	0.9690
Lab ID:	283440-004	Batch#:	241593
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/20/16

Analyte	Result	RL
Dibromochloromethane	ND	4.8
1,2-Dibromoethane	ND	4.8
Chlorobenzene	ND	4.8
1,1,1,2-Tetrachloroethane	ND	4.8
Ethylbenzene	ND	4.8
m,p-Xylenes	ND	4.8
o-Xylene	ND	4.8
Styrene	ND	4.8
Bromoform	ND	4.8
Isopropylbenzene	ND	4.8
1,1,2,2-Tetrachloroethane	ND	4.8
1,2,3-Trichloropropane	ND	4.8
Propylbenzene	ND	4.8
Bromobenzene	ND	4.8
1,3,5-Trimethylbenzene	ND	4.8
2-Chlorotoluene	ND	4.8
4-Chlorotoluene	ND	4.8
tert-Butylbenzene	ND	4.8
1,2,4-Trimethylbenzene	ND	4.8
sec-Butylbenzene	ND	4.8
para-Isopropyl Toluene	ND	4.8
1,3-Dichlorobenzene	ND	4.8
1,4-Dichlorobenzene	ND	4.8
n-Butylbenzene	ND	4.8
1,2-Dichlorobenzene	ND	4.8
1,2-Dibromo-3-Chloropropane	ND	4.8
1,2,4-Trichlorobenzene	ND	4.8
Hexachlorobutadiene	ND	4.8
Naphthalene	ND	4.8
1,2,3-Trichlorobenzene	ND	4.8

Surrogate	%REC	Limits
Dibromofluoromethane	112	78-134
1,2-Dichloroethane-d4	107	80-138
Toluene-d8	91	80-120
Bromofluorobenzene	113	78-123

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	241593
Units:	ug/Kg	Analyzed:	11/20/16
Diln Fac:	1.000		

Type: BS Lab ID: QC861371

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	25.48	102	70-134
Benzene	25.00	23.24	93	80-123
Trichloroethene	25.00	24.18	97	80-128
Toluene	25.00	22.79	91	80-120
Chlorobenzene	25.00	24.68	99	80-123

Surrogate	%REC	Limits
Dibromofluoromethane	110	78-134
1,2-Dichloroethane-d4	98	80-138
Toluene-d8	92	80-120
Bromofluorobenzene	110	78-123

Type: BSD Lab ID: QC861372

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	25.67	103	70-134	1	22
Benzene	25.00	23.43	94	80-123	1	21
Trichloroethene	25.00	24.82	99	80-128	3	23
Toluene	25.00	22.96	92	80-120	1	20
Chlorobenzene	25.00	24.61	98	80-123	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	110	78-134
1,2-Dichloroethane-d4	99	80-138
Toluene-d8	92	80-120
Bromofluorobenzene	111	78-123

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC861373	Batch#:	241593
Matrix:	Soil	Analyzed:	11/20/16
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 #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC861373	Batch#:	241593
Matrix:	Soil	Analyzed:	11/20/16
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	108	78-134
1,2-Dichloroethane-d4	102	80-138
Toluene-d8	93	80-120
Bromofluorobenzene	113	78-123

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	241593
MSS Lab ID:	283535-002	Sampled:	11/15/16
Matrix:	Soil	Received:	11/18/16
Units:	ug/Kg	Analyzed:	11/21/16
Basis:	as received		

Type: MS Diln Fac: 0.9363
Lab ID: QC861387

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.4603	46.82	54.86	117	56-133
Benzene	<0.5122	46.82	44.02	94	57-120
Trichloroethene	<0.5098	46.82	48.87	104	49-145
Toluene	<0.4216	46.82	42.51	91	51-120
Chlorobenzene	<0.7250	46.82	44.59	95	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	131	78-134
1,2-Dichloroethane-d4	118	80-138
Toluene-d8	95	80-120
Bromofluorobenzene	117	78-123

Type: MSD Diln Fac: 0.9452
Lab ID: QC861388

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	47.26	50.58	107	56-133	9	46
Benzene	47.26	41.23	87	57-120	7	44
Trichloroethene	47.26	45.60	96	49-145	8	46
Toluene	47.26	39.96	85	51-120	7	47
Chlorobenzene	47.26	41.56	88	47-120	8	50

Surrogate	%REC	Limits
Dibromofluoromethane	125	78-134
1,2-Dichloroethane-d4	114	80-138
Toluene-d8	95	80-120
Bromofluorobenzene	117	78-123

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-1	Batch#:	241508
Lab ID:	283440-001	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
N-Nitrosodimethylamine	ND	330
Phenol	ND	330
bis(2-Chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	330
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
bis(2-Chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	670
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	67
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	67
Hexachlorocyclopentadiene	ND	670
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	670
Dimethylphthalate	ND	330
Acenaphthylene	ND	67
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	670
Acenaphthene	ND	67
2,4-Dinitrophenol	ND	670
4-Nitrophenol	ND	670
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
Fluorene	ND	67
4-Chlorophenyl-phenylether	ND	330
4-Nitroaniline	ND	670
4,6-Dinitro-2-methylphenol	ND	670
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	670
Phenanthrene	ND	67
Anthracene	ND	67
Di-n-butylphthalate	ND	330

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-1	Batch#:	241508
Lab ID:	283440-001	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
Fluoranthene	ND	67
Pyrene	ND	67
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	670
Benzo(a)anthracene	ND	67
Chrysene	ND	67
bis(2-Ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b)fluoranthene	ND	67
Benzo(k)fluoranthene	ND	67
Benzo(a)pyrene	ND	67
Indeno(1,2,3-cd)pyrene	ND	67
Dibenz(a,h)anthracene	ND	67
Benzo(g,h,i)perylene	ND	67

Surrogate	%REC	Limits
2-Fluorophenol	102	25-120
Phenol-d5	93	36-120
2,4,6-Tribromophenol	70	27-120
Nitrobenzene-d5	91	44-120
2-Fluorobiphenyl	83	47-120
Terphenyl-d14	108	49-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-2	Batch#:	241508
Lab ID:	283440-002	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
N-Nitrosodimethylamine	ND	330
Phenol	ND	330
bis(2-Chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	330
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
bis(2-Chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	670
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	67
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	67
Hexachlorocyclopentadiene	ND	670
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	670
Dimethylphthalate	ND	330
Acenaphthylene	ND	67
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	670
Acenaphthene	ND	67
2,4-Dinitrophenol	ND	670
4-Nitrophenol	ND	670
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
Fluorene	ND	67
4-Chlorophenyl-phenylether	ND	330
4-Nitroaniline	ND	670
4,6-Dinitro-2-methylphenol	ND	670
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	670
Phenanthrene	ND	67
Anthracene	ND	67
Di-n-butylphthalate	ND	330

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-2	Batch#:	241508
Lab ID:	283440-002	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
Fluoranthene	ND	67
Pyrene	ND	67
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	670
Benzo(a)anthracene	ND	67
Chrysene	ND	67
bis(2-Ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b)fluoranthene	ND	67
Benzo(k)fluoranthene	ND	67
Benzo(a)pyrene	ND	67
Indeno(1,2,3-cd)pyrene	ND	67
Dibenz(a,h)anthracene	ND	67
Benzo(g,h,i)perylene	ND	67

Surrogate	%REC	Limits
2-Fluorophenol	85	25-120
Phenol-d5	77	36-120
2,4,6-Tribromophenol	62	27-120
Nitrobenzene-d5	78	44-120
2-Fluorobiphenyl	75	47-120
Terphenyl-d14	105	49-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-3	Batch#:	241508
Lab ID:	283440-003	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
N-Nitrosodimethylamine	ND	340
Phenol	ND	340
bis(2-Chloroethyl)ether	ND	340
2-Chlorophenol	ND	340
1,3-Dichlorobenzene	ND	340
1,4-Dichlorobenzene	ND	340
Benzyl alcohol	ND	340
1,2-Dichlorobenzene	ND	340
2-Methylphenol	ND	340
bis(2-Chloroisopropyl) ether	ND	340
4-Methylphenol	ND	340
N-Nitroso-di-n-propylamine	ND	340
Hexachloroethane	ND	340
Nitrobenzene	ND	340
Isophorone	ND	340
2-Nitrophenol	ND	670
2,4-Dimethylphenol	ND	340
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	340
2,4-Dichlorophenol	ND	340
1,2,4-Trichlorobenzene	ND	340
Naphthalene	ND	67
4-Chloroaniline	ND	340
Hexachlorobutadiene	ND	340
4-Chloro-3-methylphenol	ND	340
2-Methylnaphthalene	ND	67
Hexachlorocyclopentadiene	ND	670
2,4,6-Trichlorophenol	ND	340
2,4,5-Trichlorophenol	ND	340
2-Chloronaphthalene	ND	340
2-Nitroaniline	ND	670
Dimethylphthalate	ND	340
Acenaphthylene	ND	67
2,6-Dinitrotoluene	ND	340
3-Nitroaniline	ND	670
Acenaphthene	ND	67
2,4-Dinitrophenol	ND	670
4-Nitrophenol	ND	670
Dibenzofuran	ND	340
2,4-Dinitrotoluene	ND	340
Diethylphthalate	ND	340
Fluorene	ND	67
4-Chlorophenyl-phenylether	ND	340
4-Nitroaniline	ND	670
4,6-Dinitro-2-methylphenol	ND	670
N-Nitrosodiphenylamine	ND	340
Azobenzene	ND	340
4-Bromophenyl-phenylether	ND	340
Hexachlorobenzene	ND	340
Pentachlorophenol	ND	670
Phenanthrene	ND	67
Anthracene	ND	67

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-3	Batch#:	241508
Lab ID:	283440-003	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
Di-n-butylphthalate	ND	340
Fluoranthene	ND	67
Pyrene	ND	67
Butylbenzylphthalate	ND	340
3,3'-Dichlorobenzidine	ND	670
Benzo(a)anthracene	ND	67
Chrysene	ND	67
bis(2-Ethylhexyl)phthalate	ND	340
Di-n-octylphthalate	ND	340
Benzo(b)fluoranthene	ND	67
Benzo(k)fluoranthene	ND	67
Benzo(a)pyrene	ND	67
Indeno(1,2,3-cd)pyrene	ND	67
Dibenz(a,h)anthracene	ND	67
Benzo(g,h,i)perylene	ND	67

Surrogate	%REC	Limits
2-Fluorophenol	104	25-120
Phenol-d5	91	36-120
2,4,6-Tribromophenol	73	27-120
Nitrobenzene-d5	98	44-120
2-Fluorobiphenyl	90	47-120
Terphenyl-d14	122 *	49-120

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-4	Batch#:	241508
Lab ID:	283440-004	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
N-Nitrosodimethylamine	ND	340
Phenol	ND	340
bis(2-Chloroethyl)ether	ND	340
2-Chlorophenol	ND	340
1,3-Dichlorobenzene	ND	340
1,4-Dichlorobenzene	ND	340
Benzyl alcohol	ND	340
1,2-Dichlorobenzene	ND	340
2-Methylphenol	ND	340
bis(2-Chloroisopropyl) ether	ND	340
4-Methylphenol	ND	340
N-Nitroso-di-n-propylamine	ND	340
Hexachloroethane	ND	340
Nitrobenzene	ND	340
Isophorone	ND	340
2-Nitrophenol	ND	670
2,4-Dimethylphenol	ND	340
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	340
2,4-Dichlorophenol	ND	340
1,2,4-Trichlorobenzene	ND	340
Naphthalene	ND	67
4-Chloroaniline	ND	340
Hexachlorobutadiene	ND	340
4-Chloro-3-methylphenol	ND	340
2-Methylnaphthalene	ND	67
Hexachlorocyclopentadiene	ND	670
2,4,6-Trichlorophenol	ND	340
2,4,5-Trichlorophenol	ND	340
2-Chloronaphthalene	ND	340
2-Nitroaniline	ND	670
Dimethylphthalate	ND	340
Acenaphthylene	ND	67
2,6-Dinitrotoluene	ND	340
3-Nitroaniline	ND	670
Acenaphthene	ND	67
2,4-Dinitrophenol	ND	670
4-Nitrophenol	ND	670
Dibenzofuran	ND	340
2,4-Dinitrotoluene	ND	340
Diethylphthalate	ND	340
Fluorene	ND	67
4-Chlorophenyl-phenylether	ND	340
4-Nitroaniline	ND	670
4,6-Dinitro-2-methylphenol	ND	670
N-Nitrosodiphenylamine	ND	340
Azobenzene	ND	340
4-Bromophenyl-phenylether	ND	340
Hexachlorobenzene	ND	340
Pentachlorophenol	ND	670
Phenanthrene	ND	67
Anthracene	ND	67
Di-n-butylphthalate	ND	340

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-4	Batch#:	241508
Lab ID:	283440-004	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/17/16
Diln Fac:	1.000		

Analyte	Result	RL
Fluoranthene	ND	67
Pyrene	ND	67
Butylbenzylphthalate	ND	340
3,3'-Dichlorobenzidine	ND	670
Benzo(a)anthracene	ND	67
Chrysene	ND	67
bis(2-Ethylhexyl)phthalate	ND	340
Di-n-octylphthalate	ND	340
Benzo(b)fluoranthene	ND	67
Benzo(k)fluoranthene	ND	67
Benzo(a)pyrene	ND	67
Indeno(1,2,3-cd)pyrene	ND	67
Dibenz(a,h)anthracene	ND	67
Benzo(g,h,i)perylene	ND	67

Surrogate	%REC	Limits
2-Fluorophenol	88	25-120
Phenol-d5	81	36-120
2,4,6-Tribromophenol	66	27-120
Nitrobenzene-d5	85	44-120
2-Fluorobiphenyl	81	47-120
Terphenyl-d14	116	49-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC861049	Batch#:	241508
Matrix:	Soil	Prepared:	11/17/16
Units:	ug/Kg	Analyzed:	11/17/16

Analyte	Result	RL
N-Nitrosodimethylamine	ND	330
Phenol	ND	330
bis(2-Chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl alcohol	ND	330
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
bis(2-Chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	670
2,4-Dimethylphenol	ND	330
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	67
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	330
2-Methylnaphthalene	ND	67
Hexachlorocyclopentadiene	ND	670
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	670
Dimethylphthalate	ND	330
Acenaphthylene	ND	67
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	670
Acenaphthene	ND	67
2,4-Dinitrophenol	ND	670
4-Nitrophenol	ND	670
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330
Diethylphthalate	ND	330
Fluorene	ND	67
4-Chlorophenyl-phenylether	ND	330
4-Nitroaniline	ND	670
4,6-Dinitro-2-methylphenol	ND	670
N-Nitrosodiphenylamine	ND	330
Azobenzene	ND	330
4-Bromophenyl-phenylether	ND	330
Hexachlorobenzene	ND	330
Pentachlorophenol	ND	670
Phenanthrene	ND	67
Anthracene	ND	67
Di-n-butylphthalate	ND	330
Fluoranthene	ND	67

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC861049	Batch#:	241508
Matrix:	Soil	Prepared:	11/17/16
Units:	ug/Kg	Analyzed:	11/17/16

Analyte	Result	RL
Pyrene	ND	67
Butylbenzylphthalate	ND	330
3,3'-Dichlorobenzidine	ND	670
Benzo(a)anthracene	ND	67
Chrysene	ND	67
bis(2-Ethylhexyl)phthalate	ND	330
Di-n-octylphthalate	ND	330
Benzo(b)fluoranthene	ND	67
Benzo(k)fluoranthene	ND	67
Benzo(a)pyrene	ND	67
Indeno(1,2,3-cd)pyrene	ND	67
Dibenz(a,h)anthracene	ND	67
Benzo(g,h,i)perylene	ND	67

Surrogate	%REC	Limits
2-Fluorophenol	57	25-120
Phenol-d5	58	36-120
2,4,6-Tribromophenol	69	27-120
Nitrobenzene-d5	83	44-120
2-Fluorobiphenyl	94	47-120
Terphenyl-d14	92	49-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC861050	Batch#:	241508
Matrix:	Soil	Prepared:	11/17/16
Units:	ug/Kg	Analyzed:	11/18/16

Analyte	Spiked	Result	%REC	Limits
Phenol	2,661	1,966	74	42-120
2-Chlorophenol	2,661	2,070	78	45-120
1,4-Dichlorobenzene	2,661	2,314	87	48-120
N-Nitroso-di-n-propylamine	2,661	1,871	70	27-123
1,2,4-Trichlorobenzene	2,661	2,168	81	50-120
4-Chloro-3-methylphenol	2,661	2,250	85	59-120
Acenaphthene	998.0	732.5	73	53-120
4-Nitrophenol	2,661	2,100	79	47-120
2,4-Dinitrotoluene	2,661	2,029	76	55-120
Pentachlorophenol	2,661	1,598	60	32-120
Pyrene	998.0	700.7	70	52-120

Surrogate	%REC	Limits
2-Fluorophenol	58	25-120
Phenol-d5	64	36-120
2,4,6-Tribromophenol	78	27-120
Nitrobenzene-d5	71	44-120
2-Fluorobiphenyl	73	47-120
Terphenyl-d14	82	49-120

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8270C
Field ID:	F-1	Batch#:	241508
MSS Lab ID:	283440-001	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/18/16
Diln Fac:	1.000		

Type: MS Lab ID: QC861051

Analyte	MSS Result	Spiked	Result	%REC	Limits
Phenol	<17.29	2,660	1,876	71	47-120
2-Chlorophenol	<16.43	2,660	2,007	75	44-120
1,4-Dichlorobenzene	<10.10	2,660	2,196	83	49-120
N-Nitroso-di-n-propylamine	<32.98	2,660	1,821	68	42-120
1,2,4-Trichlorobenzene	<9.648	2,660	2,059	77	54-120
4-Chloro-3-methylphenol	<14.68	2,660	2,123	80	55-120
Acenaphthene	<11.99	997.3	677.7	68	51-120
4-Nitrophenol	<68.64	2,660	2,050	77	36-120
2,4-Dinitrotoluene	<9.673	2,660	1,903	72	52-120
Pentachlorophenol	<148.1	2,660	1,312	49	14-120
Pyrene	<9.346	997.3	950.0	95	46-124

Surrogate	%REC	Limits
2-Fluorophenol	55	25-120
Phenol-d5	61	36-120
2,4,6-Tribromophenol	72	27-120
Nitrobenzene-d5	62	44-120
2-Fluorobiphenyl	59	47-120
Terphenyl-d14	76	49-120

Type: MSD Lab ID: QC861052

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Phenol	2,660	1,770	67	47-120	6	39
2-Chlorophenol	2,660	1,876	71	44-120	7	38
1,4-Dichlorobenzene	2,660	1,943	73	49-120	12	45
N-Nitroso-di-n-propylamine	2,660	1,705	64	42-120	7	40
1,2,4-Trichlorobenzene	2,660	1,883	71	54-120	9	38
4-Chloro-3-methylphenol	2,660	1,975	74	55-120	7	41
Acenaphthene	997.7	621.8	62	51-120	9	47
4-Nitrophenol	2,660	1,830	69	36-120	11	41
2,4-Dinitrotoluene	2,660	1,765	66	52-120	8	40
Pentachlorophenol	2,660	896.0	34	14-120	38	53
Pyrene	997.7	699.5	70	46-124	30	50

Surrogate	%REC	Limits
2-Fluorophenol	51	25-120
Phenol-d5	58	36-120
2,4,6-Tribromophenol	63	27-120
Nitrobenzene-d5	60	44-120
2-Fluorobiphenyl	56	47-120
Terphenyl-d14	72	49-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	241532
Units:	ug/Kg	Sampled:	11/14/16
Basis:	as received	Received:	11/15/16
Diln Fac:	1.000	Prepared:	11/18/16

Field ID: F-1 Lab ID: 283440-001
Type: SAMPLE Analyzed: 11/22/16

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	83	25-135

Field ID: F-2 Lab ID: 283440-002
Type: SAMPLE Analyzed: 11/22/16

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	78	25-135

Field ID: F-3 Lab ID: 283440-003
Type: SAMPLE Analyzed: 11/22/16

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	79	25-135

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	241532
Units:	ug/Kg	Sampled:	11/14/16
Basis:	as received	Received:	11/15/16
Diln Fac:	1.000	Prepared:	11/18/16

Field ID: F-4 Lab ID: 283440-004
Type: SAMPLE Analyzed: 11/22/16

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	92	25-135

Type: BLANK Analyzed: 11/20/16
Lab ID: QC861147

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
Decachlorobiphenyl	100	25-135

Type: BLANK Analyzed: 11/20/16
Lab ID: QC861242

Analyte	Result	RL
Aroclor-1016	ND	4.8
Aroclor-1221	ND	9.6
Aroclor-1232	ND	4.8
Aroclor-1242	ND	4.8
Aroclor-1248	ND	4.8
Aroclor-1254	ND	4.8
Aroclor-1260	ND	4.8

Surrogate	%REC	Limits
Decachlorobiphenyl	70	25-135

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC861148	Batch#:	241532
Matrix:	Soil	Prepared:	11/17/16
Units:	ug/Kg	Analyzed:	11/20/16

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	165.8	161.3	97	64-140
Aroclor-1260	165.8	181.4	109	65-146

Surrogate	%REC	Limits
Decachlorobiphenyl	92	25-135

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	283440	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	241532
MSS Lab ID:	283415-001	Sampled:	11/14/16
Matrix:	Soil	Received:	11/15/16
Units:	ug/Kg	Prepared:	11/17/16
Basis:	as received	Analyzed:	11/20/16
Diln Fac:	1.000		

Type: MS Lab ID: QC861149

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.931	168.7	148.1	88	60-161
Aroclor-1260	<1.917	168.7	161.3	96	42-166

Surrogate	%REC	Limits
Decachlorobiphenyl	87	25-135

Type: MSD Lab ID: QC861150

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	165.1	161.9	98	60-161	11	43
Aroclor-1260	165.1	178.6	108	42-166	12	51

Surrogate	%REC	Limits
Decachlorobiphenyl	95	25-135

RPD= Relative Percent Difference

Laboratory Job Number 283440

Subcontracted Products

Enthalpy Analytical

Enthalpy Analytical, Inc.
Formerly Associated Labs
806 N. Batavia - Orange, CA 92868
Tel: (714)771-6900 Fax: (714)538-1209
www.associatedlabs.com
info-sc@enthalpy.com

MONTROSE ENVIRONMENTAL

Client:	Curtis & Tompkins
Address:	2323 Fifth Street Berkeley, CA 94710
Attn:	Will Rice
Comments:	Project Number: 283440 Site: 1919 Market

Lab Request:	384556
Report Date:	11/30/2016
Date Received:	11/18/2016
Client ID:	15279

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

Sample #	Client Sample ID
384556-001	F-1
384556-002	F-2
384556-003	F-3
384556-004	F-4

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Winston Yu, Project Manager

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 60 days from date received.

Matrix: Solid **Client:** Curtis & Tompkins **Collector:** Client
Sampled: 11/14/2016 08:00 **Site:**
Sample #: 384556-001 **Client Sample #:** F-1 **Sample Type:**

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 6010B NELAC	Prep Method: EPA 3050B					QCBatchID: QC1172831		
Antimony	ND	1	3	mg/Kg	11/26/16	11/29/16	KLN	
Arsenic	**1.92**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Barium	**87.0**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Beryllium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Cadmium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Chromium	**34.7**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Cobalt	**3.66**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Copper	**9.39**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Lead	**17.4**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Molybdenum	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Nickel	**17.3**	1	1.5	mg/Kg	11/26/16	11/29/16	KLN	
Selenium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Silver	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Thallium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Vanadium	**24.2**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Zinc	**35.2**	1	5	mg/Kg	11/26/16	11/29/16	KLN	
Method: EPA 7471A NELAC	Prep Method: EPA 7471A					QCBatchID: QC1172934		
Mercury	ND	1	0.14	mg/Kg	11/29/16	11/29/16	JP	

Matrix: Solid **Client:** Curtis & Tompkins **Collector:** Client
Sampled: 11/14/2016 08:15 **Site:**
Sample #: 384556-002 **Client Sample #:** F-2 **Sample Type:**

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 6010B NELAC	Prep Method: EPA 3050B					QCBatchID: QC1172831		
Antimony	ND	1	3	mg/Kg	11/26/16	11/29/16	KLN	
Arsenic	**2.98**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Barium	**158**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Beryllium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Cadmium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Chromium	**43.0**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Cobalt	**5.61**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Copper	**14.0**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Lead	**84.4**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Molybdenum	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Nickel	**22.4**	1	1.5	mg/Kg	11/26/16	11/29/16	KLN	
Selenium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Silver	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Thallium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Vanadium	**29.3**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Zinc	**60.1**	1	5	mg/Kg	11/26/16	11/29/16	KLN	
Method: EPA 7471A NELAC	Prep Method: EPA 7471A					QCBatchID: QC1172934		
Mercury	ND	1	0.14	mg/Kg	11/29/16	11/29/16	JP	

Matrix: Solid **Client:** Curtis & Tompkins **Collector:** Client
Sampled: 11/14/2016 08:25 **Site:**
Sample #: 384556-003 **Client Sample #:** F-3 **Sample Type:**

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 6010B NELAC	Prep Method: EPA 3050B					QCBatchID: QC1172831		
Antimony	ND	1	3	mg/Kg	11/26/16	11/29/16	KLN	
Arsenic	**3.10**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Barium	**101**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Beryllium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Cadmium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Chromium	**35.0**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Cobalt	**4.49**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Copper	**8.35**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Lead	**3.62**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Molybdenum	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Nickel	**16.7**	1	1.5	mg/Kg	11/26/16	11/29/16	KLN	
Selenium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Silver	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Thallium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Vanadium	**25.7**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Zinc	**18.5**	1	5	mg/Kg	11/26/16	11/29/16	KLN	
Method: EPA 7471A NELAC	Prep Method: EPA 7471A					QCBatchID: QC1172934		
Mercury	ND	1	0.14	mg/Kg	11/29/16	11/29/16	JP	

Matrix: Solid **Client:** Curtis & Tompkins **Collector:** Client
Sampled: 11/14/2016 10:00 **Site:**
Sample #: 384556-004 **Client Sample #:** F-4 **Sample Type:**

Analyte	Result	DF	RDL	Units	Prepared	Analyzed	By	Notes
Method: EPA 6010B NELAC	Prep Method: EPA 3050B					QCBatchID: QC1172831		
Antimony	ND	1	3	mg/Kg	11/26/16	11/29/16	KLN	
Arsenic	**3.19**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Barium	**49.1**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Beryllium	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Cadmium	**0.62**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Chromium	**30.3**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Cobalt	**4.41**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Copper	**10.8**	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Lead	**3.54**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Molybdenum	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Nickel	**19.9**	1	1.5	mg/Kg	11/26/16	11/29/16	KLN	
Selenium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Silver	ND	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Thallium	ND	1	1	mg/Kg	11/26/16	11/29/16	KLN	
Vanadium	**17.5**	1	0.5	mg/Kg	11/26/16	11/29/16	KLN	
Zinc	**30.4**	1	5	mg/Kg	11/26/16	11/29/16	KLN	
Method: EPA 7471A NELAC	Prep Method: EPA 7471A					QCBatchID: QC1172934		
Mercury	ND	1	0.14	mg/Kg	11/29/16	11/29/16	JP	

QCBatchID: QC1172831	**Analyst:** dswafford	**Method:** EPA 6010B			
Matrix: Solid	**Analyzed:** 11/26/2016	**Instrument:** AAICP (group)			

Blank Summary

Analyte	Blank Result	Units		RDL	Notes
QC1172831MB1					
Antimony	ND	mg/Kg		3	
Arsenic	ND	mg/Kg		1	
Barium	ND	mg/Kg		1	
Beryllium	ND	mg/Kg		0.5	
Cadmium	ND	mg/Kg		0.5	
Chromium	ND	mg/Kg		1	
Cobalt	ND	mg/Kg		0.5	
Copper	ND	mg/Kg		1	
Lead	ND	mg/Kg		0.5	
Molybdenum	ND	mg/Kg		1	
Nickel	ND	mg/Kg		1.5	
Selenium	ND	mg/Kg		1	
Silver	ND	mg/Kg		0.5	
Thallium	ND	mg/Kg		1	
Vanadium	ND	mg/Kg		0.5	
Zinc	ND	mg/Kg		5	

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1172831LCS1											
Antimony	100		91.2		mg/Kg	91			80-120		
Arsenic	100		96.1		mg/Kg	96			80-120		
Barium	100		97.2		mg/Kg	97			80-120		
Beryllium	100		95.4		mg/Kg	95			80-120		
Cadmium	100		95.0		mg/Kg	95			80-120		
Chromium	100		98.8		mg/Kg	99			80-120		
Cobalt	100		100		mg/Kg	100			80-120		
Copper	100		99.4		mg/Kg	99			80-120		
Lead	100		94.9		mg/Kg	95			80-120		
Molybdenum	100		90.2		mg/Kg	90			80-120		
Nickel	100		99.3		mg/Kg	99			80-120		
Selenium	100		93.9		mg/Kg	94			80-120		
Silver	100		89.9		mg/Kg	90			80-120		
Thallium	100		97.0		mg/Kg	97			80-120		
Vanadium	100		98.7		mg/Kg	99			80-120		
Zinc	100		97.5		mg/Kg	98			80-120		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1172831MS1, QC1172831MSD1												**Source: 384549-001**
Antimony	ND	100	100	27.2	33.7	mg/Kg	27	34	21.3	75-125	20	M,M,D
Arsenic	6.72	100	100	117	134	mg/Kg	110	127	13.5	75-125	20	M
Barium	318	100	100	479	549	mg/Kg	161	231	13.6	75-125	20	M
Beryllium	ND	100	100	105	130	mg/Kg	105	130	21.3	75-125	20	M,D
Cadmium	0.50	100	100	98.1	124	mg/Kg	98	124	23.3	75-125	20	M,D
Chromium	19.8	100	100	121	154	mg/Kg	101	134	24.0	75-125	20	M,D
Cobalt	5.84	100	100	110	132	mg/Kg	104	126	18.2	75-125	20	M
Copper	26.6	100	100	138	166	mg/Kg	111	139	18.4	75-125	20	M
Lead	222	100	100	348	480	mg/Kg	126	258	31.9	75-125	20	M,M,D

QCBatchID: QC1172831	**Analyst:** dswafford	**Method:** EPA 6010B	
Matrix: Solid	**Analyzed:** 11/26/2016	**Instrument:** AAICP (group)	

Analyte	Sample Amount	Spike Amount MS	Spike Amount MSD	Spike Result MS	Spike Result MSD	Units	Recoveries MS	Recoveries MSD	RPD	Limits %Rec	Limits RPD	Notes
QC1172831MS1, QC1172831MSD1											**Source:**	**384549-001**
Molybdenum	0.62	100	100	88.1	107	mg/Kg	87	106	19.4	75-125	20	
Nickel	21.3	100	100	122	158	mg/Kg	101	137	25.7	75-125	20	M,D
Selenium	ND	100	100	90.1	110	mg/Kg	90	110	19.9	75-125	20	
Silver	ND	100	100	94.4	116	mg/Kg	94	116	20.5	75-125	20	M,D
Thallium	ND	100	100	99.0	117	mg/Kg	99	117	16.7	75-125	20	
Vanadium	26.4	100	100	130	164	mg/Kg	104	138	23.1	75-125	20	M,D
Zinc	93.5	100	100	189	253	mg/Kg	96	160	29.0	75-125	20	M,D

QCBatchID:	**QC1172934**	**Analyst:**	JParedes	**Method:**	EPA 7471A
Matrix:	Solid	**Analyzed:**	11/29/2016	**Instrument:**	AAICP-HG1

Blank Summary

Analyte	Blank Result	Units		RDL	Notes	
QC1172934MB1						
Mercury	ND	mg/Kg		0.14		

Lab Control Spike/ Lab Control Spike Duplicate Summary

Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1172934LCS1											
Mercury	0.83		0.80		mg/Kg	96			80-120		

Matrix Spike/Matrix Spike Duplicate Summary

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1172934MS1, QC1172934MSD1											**Source:**	**384549-001**
Mercury	0.81	0.83	0.83	1.87	1.39	mg/Kg	128	70	29.4	75-125	20	M,M,D

Data Qualifiers and Definitions

Qualifiers

A	See Report Comments.
B	Analyte was present in an associated method blank.
B1	Analyte was present in a sample and associated method blank greater than MDL but less than DRL.
BQ1	No valid test replicates. Sample Toxicity is possible. Best result was reported.
BQ2	No valid test replicates.
BQ3	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
C	Possible laboratory contamination.
D	RPD was not within control limits. The sample data was reported without further clarification.
D1	Lesser amount of sample was used due to insufficient amount of sample supplied.
D2	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
DW	Sample result is calculated on a dry weigh basis.
E	Concentration is estimated because it exceeds the quantification limits of the method.
I	The sample was read outside of the method required incubation period.
J	Reported value is estimated
L	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
M	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
M1	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
M2	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
N1	Sample chromatography does not match the specified TPH standard pattern.
NC	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
P	Sample was received without proper preservation according to EPA guidelines.
P1	Temperature of sample storage refrigerator was out of acceptance limits.
P2	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
Q1	Analyte Calibration Verification exceeds criteria. The result is estimated.
Q2	Analyte calibration was not verified and the result was estimated.
Q3	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
S	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
S1	The associated surrogate recovery was out of control limits; result is estimated.
S2	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
S3	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
T	Sample was extracted/analyzed past the holding time.
T1	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
T2	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
T3	Sample received and analyzed out of hold time per client's request.
T4	Sample was analyzed out of hold time per client's request.
T5	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
T6	Hold time is indeterminable due to unspecified sampling time.
T7	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.

Definitions

DF	Dilution Factor
MDL	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
ND	Analyte was not detected or was less than the detection limit.
NR	Not Reported. See Report Comments.
RDL	Reporting Detection Limit
TIC	Tentatively Identified Compounds

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

384556

Project Number: 283440
Site: 1919 Market

Subcontract Laboratory:
Enthalpy Analytical
1108 W. Barkley
Orange, CA 92868
(714) 771-6900
ATTN: Winston Yu

Results due: Report Level: II

Please send report to: Will Rice (will.rice@ctberk.com)
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
F-1	11/14 08:00	Soil	6010-T22 MET	283440-001	
F-1	11/14 08:00	Soil	6010-T22	283440-001	
F-1	11/14 08:00	Soil	T22/HG	283440-001	
F-2	11/14 08:15	Soil	6010-T22 MET	283440-002	
F-2	11/14 08:15	Soil	6010-T22	283440-002	
F-2	11/14 08:15	Soil	T22/HG	283440-002	
F-3	11/14 08:25	Soil	6010-T22 MET	283440-003	
F-3	11/14 08:25	Soil	6010-T22	283440-003	
F-3	11/14 08:25	Soil	T22/HG	283440-003	
F-4	11/14 10:00	Soil	6010-T22 MET	283440-004	
F-4	11/14 10:00	Soil	6010-T22	283440-004	
F-4	11/14 10:00	Soil	T22/HG	283440-004	

Notes:	Relinquished By:	Received By:
	Date/Time: 11/17/16 @16:30	Date/Time: 11/18/16 820
	Date/Time:	Date/Time:

Signature on this form constitutes a firm Purchase Order for the services requested above.

ENTHALPY analytical, inc.

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: C&T Project: 283440

Date Received: 11/18/16 Sampler's Name Present: Yes (No)

Sample(s) received in a cooler? (Yes) How many? 1 No (skip section 2) Sample Temp (°C): _____

Sample Temp (°C) from each cooler: #1: 5.0°C #2: _____ #3: _____ #4: _____

(Acceptance range is 0 to 6°C or, for samples collected the same day as sample receipt, arrival on ice; For Microbiology sample 0 to 10°C or, for samples collected the same day as sample receipt, arrival on ice)

Shipping Information: _____

Section 2

Was the cooler packed with: ___ Ice ✓ Ice Packs ___ Bubble Wrap ___ Styrofoam ___ Paper ___ None ___ Other _____

Cooler Temp (°C): #1: -0.7°C #2: _____ #3: _____ #4: _____

Section 3	YES	NO	N/A
Was a COC received?	✓		
Were sample IDs present?	✓		
Were sampling dates & times present?	✓		
Was a relinquished signature present?	✓		
Were the tests required clearly indicated?	✓		
Were custody seals present?		✓	
If Yes – were they intact?			✓
Were all samples sealed in plastic bags?	✓		
Did all samples arrive intact? If no, indicate below.	✓		
Did all bottle labels agree with COC? (ID, dates and times)	✓		
Were correct containers used for the tests required?	✓		
Was a sufficient amount of sample sent for tests indicated?	✓		
Was there headspace in VOA vials?			✓
Were the containers labeled with correct preservatives?			✓

Section 4

Explanations/Comments: _____

Section 5

For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time _____

Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 11/18/16

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal


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

Laboratory Job Number 283441
ANALYTICAL REPORT

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

Sample ID	Lab ID
B-8-5	283441-001

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: 11/28/2016

Will Rice
Project Manager
will.rice@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**283441**
Client:	**Pangea Environmental**
Location:	**1919 Market**
Request Date:	**11/15/16**
Samples Received:	**11/15/16**

This data package contains sample and QC results for one soil sample, requested for the above referenced project on 11/15/16. The sample was received cold and intact.

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

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

Volatile Organics by GC/MS (EPA 8260B):
Low surrogate recoveries were observed for bromofluorobenzene in the MS/MSD for batch 241604; the parent sample was not a project 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 # 28344

Project No: _____ Sampler: Jake Wilson

Project Name: 1919 Market Report To: "

Project P. O. No: _____ Company: Pangea

EDD Format: _____ Report Level ☐ II ☐ III ☐ IV Telephone: 415-259-8860

Turnaround Time: ☐ RUSH _____ ☒ Standard 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	X VOCs	X TPH-full scan + Cd/Mo
	B-8-5	11/14/16	1100		X			5						X	X

Notes:

SAMPLE RECEIPT
☑ Intact
☑ Cold
☑ On Ice
☐ Ambient

RELINQUISHED BY:
John Wilson DATE: 11/15/16 TIME: 1726
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 11/15/16 TIME: 1726
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 283441 Date Received 11/15/16 Number of coolers 1
Client Pangea Project 1919 Market

Date Opened 11/15 By (print) DTV (sign) dnguyen
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) 4.2

☐ 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 283441

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

Client : Pangea Environmental
Project : STANDARD
Location : 1919 Market

Client Sample ID : B-8-5 Laboratory Sample ID : 283441-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	16		15	ug/Kg	As Recd	0.7632	EPA 8260B	EPA 5035

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	B-8-5	Batch#:	241446
Matrix:	Soil	Sampled:	11/14/16
Units:	mg/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/16/16
Diln Fac:	1.000		

Type: SAMPLE Lab ID: 283441-001

Analyte	Result	RL
Gasoline C7-C12	ND	0.15

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	107	78-138

Type: BLANK Lab ID: QC860818

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	100	78-138

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC860813	Batch#:	241446
Matrix:	Soil	Analyzed:	11/16/16
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	1.106	111	80-121

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	114	78-138

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	283415-001	Batch#:	241446
Matrix:	Soil	Sampled:	11/14/16
Units:	mg/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/16/16

Type: MS Lab ID: QC860816

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.6276	9.901	8.027	75	50-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	107	78-138

Type: MSD Lab ID: QC860817

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.434	7.625	74	50-120	1	31

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	103	78-138

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	B-8-5	Batch#:	241691
Matrix:	Soil	Sampled:	11/14/16
Units:	mg/Kg	Received:	11/15/16
Basis:	as received	Prepared:	11/22/16
Diln Fac:	1.000	Analyzed:	11/23/16

Type: SAMPLE Lab ID: 283441-001

Analyte	Result	RL
Diesel C10-C24	ND	0.99
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	97	59-140

Type: BLANK Lab ID: QC861774

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
o-Terphenyl	105	59-140

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC861775	Batch#:	241691
Matrix:	Soil	Prepared:	11/22/16
Units:	mg/Kg	Analyzed:	11/23/16

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.96	43.54	87	58-137

Surrogate	%REC	Limits
o-Terphenyl	77	59-140

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	241691
MSS Lab ID:	283470-002	Sampled:	11/14/16
Matrix:	Soil	Received:	11/16/16
Units:	mg/Kg	Prepared:	11/22/16
Basis:	as received	Analyzed:	11/23/16
Diln Fac:	1.000		

Type: MS Lab ID: QC861776

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	0.8936	49.58	45.45	90	46-154

Surrogate	%REC	Limits
o-Terphenyl	90	59-140

Type: MSD Lab ID: QC861777

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	50.01	47.84	94	46-154	4	50

Surrogate	%REC	Limits
o-Terphenyl	91	59-140

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-8-5	Diln Fac:	0.7632
Lab ID:	283441-001	Batch#:	241604
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/21/16

Analyte	Result	RL
Freon 12	ND	7.6
Chloromethane	ND	7.6
Vinyl Chloride	ND	7.6
Bromomethane	ND	7.6
Chloroethane	ND	7.6
Trichlorofluoromethane	ND	3.8
Acetone	16	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	7.6
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	7.6
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	7.6
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 #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	B-8-5	Diln Fac:	0.7632
Lab ID:	283441-001	Batch#:	241604
Matrix:	Soil	Sampled:	11/14/16
Units:	ug/Kg	Received:	11/15/16
Basis:	as received	Analyzed:	11/21/16

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	97	78-134
1,2-Dichloroethane-d4	109	80-138
Toluene-d8	105	80-120
Bromofluorobenzene	105	78-123

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	241604
Units:	ug/Kg	Analyzed:	11/21/16
Diln Fac:	1.000		

Type: BS Lab ID: QC861426

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	20.55	82	70-134
Benzene	25.00	24.49	98	80-123
Trichloroethene	25.00	23.24	93	80-128
Toluene	25.00	24.39	98	80-120
Chlorobenzene	25.00	23.72	95	80-123

Surrogate	%REC	Limits
Dibromofluoromethane	91	78-134
1,2-Dichloroethane-d4	106	80-138
Toluene-d8	103	80-120
Bromofluorobenzene	101	78-123

Type: BSD Lab ID: QC861427

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	18.98	76	70-134	8	22
Benzene	25.00	22.31	89	80-123	9	21
Trichloroethene	25.00	21.09	84	80-128	10	23
Toluene	25.00	22.73	91	80-120	7	20
Chlorobenzene	25.00	21.88	88	80-123	8	20

Surrogate	%REC	Limits
Dibromofluoromethane	89	78-134
1,2-Dichloroethane-d4	104	80-138
Toluene-d8	105	80-120
Bromofluorobenzene	100	78-123

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC861428	Batch#:	241604
Matrix:	Soil	Analyzed:	11/21/16
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 #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5035
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC861428	Batch#:	241604
Matrix:	Soil	Analyzed:	11/21/16
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	90	78-134
1,2-Dichloroethane-d4	102	80-138
Toluene-d8	105	80-120
Bromofluorobenzene	101	78-123

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	283441	Location:	1919 Market
Client:	Pangea Environmental	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	241604
MSS Lab ID:	283535-021	Sampled:	11/17/16
Matrix:	Soil	Received:	11/18/16
Units:	ug/Kg	Analyzed:	11/21/16
Basis:	as received		

Type: MS Diln Fac: 0.9901
Lab ID: QC861448

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.5987	49.50	45.92	93	56-133
Benzene	<0.6975	49.50	50.14	101	57-120
Trichloroethene	<0.7265	49.50	47.00	95	49-145
Toluene	<0.7640	49.50	49.87	101	51-120
Chlorobenzene	<0.6263	49.50	45.96	93	47-120

Surrogate	%REC	Limits
Dibromofluoromethane	96	78-134
1,2-Dichloroethane-d4	108	80-138
Toluene-d8	106	80-120
Bromofluorobenzene	67 *	78-123

Type: MSD Diln Fac: 0.9259
Lab ID: QC861449

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	46.30	44.98	97	56-133	5	46
Benzene	46.30	49.29	106	57-120	5	44
Trichloroethene	46.30	46.50	100	49-145	6	46
Toluene	46.30	48.45	105	51-120	4	47
Chlorobenzene	46.30	44.55	96	47-120	4	50

Surrogate	%REC	Limits
Dibromofluoromethane	95	78-134
1,2-Dichloroethane-d4	109	80-138
Toluene-d8	106	80-120
Bromofluorobenzene	77 *	78-123

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

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4/21/2017
Mr. Jake Wilson
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001, 104
Workorder #: 1704167

Dear Mr. Jake Wilson

The following report includes the data for the above referenced project for sample(s) received on 4/10/2017 at Air Toxics Ltd.

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

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1704167

Work Order Summary

CLIENT:	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001, 104 1919 Market
DATE RECEIVED:	04/10/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	04/21/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	A-1 (2006 Myrtle St.)	Modified TO-15 SIM	13.5 "Hg	5.2 psi
02A	Lab Blank	Modified TO-15 SIM	NA	NA
03A	CCV	Modified TO-15 SIM	NA	NA
04A	LCS	Modified TO-15 SIM	NA	NA
04AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:  DATE: 04/21/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-15 SIM
Pangea Environmental Services, Inc.
Workorder# 1704167

One 6 Liter Summa Canister (SIM Certified) sample was received on April 10, 2017. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

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

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

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

Receiving Notes

A revised Chain of Custody (COC) was provided by the client on 04/18/17.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for Carbon Tetrachloride and Benzene that are below the Reporting Limit but greater than the Method Detection Limit. Results are reported as qualified with high probability for false positive.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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

Client Sample ID: A-1 (2006 Myrtle St.)

Lab ID#: 1704167-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.049	0.39	0.24	2.0
Chloromethane	0.12	0.39	0.25	0.81
Carbon Tetrachloride	0.049	0.058	0.31	0.36
Benzene	0.12	0.19	0.39	0.60
Toluene	0.049	0.22	0.18	0.82
m,p-Xylene	0.098	0.16	0.43	0.70
o-Xylene	0.049	0.065	0.21	0.28

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Client Sample ID: A-1 (2006 Myrtle St.)

Lab ID#: 1704167-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e041211sim**	**Date of Collection:**	**4/8/17 12:30:00 PM**
Dil. Factor:	**2.46**	**Date of Analysis:**	**4/12/17 04:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.049	0.39	0.24	2.0
Freon 114	0.049	Not Detected	0.34	Not Detected
Chloromethane	0.12	0.39	0.25	0.81
Vinyl Chloride	0.025	Not Detected	0.063	Not Detected
Chloroethane	0.12	Not Detected	0.32	Not Detected
1,1-Dichloroethene	0.025	Not Detected	0.098	Not Detected
trans-1,2-Dichloroethene	0.25	Not Detected	0.98	Not Detected
Methyl tert-butyl ether	0.25	Not Detected	0.89	Not Detected
1,1-Dichloroethane	0.049	Not Detected	0.20	Not Detected
cis-1,2-Dichloroethene	0.049	Not Detected	0.20	Not Detected
Chloroform	0.049	Not Detected	0.24	Not Detected
1,1,1-Trichloroethane	0.049	Not Detected	0.27	Not Detected
Carbon Tetrachloride	0.049	0.058	0.31	0.36
Benzene	0.12	0.19	0.39	0.60
1,2-Dichloroethane	0.049	Not Detected	0.20	Not Detected
Trichloroethene	0.049	Not Detected	0.26	Not Detected
Toluene	0.049	0.22	0.18	0.82
1,1,2-Trichloroethane	0.049	Not Detected	0.27	Not Detected
Tetrachloroethene	0.049	Not Detected	0.33	Not Detected
1,2-Dibromoethane (EDB)	0.049	Not Detected	0.38	Not Detected
Ethyl Benzene	0.049	Not Detected	0.21	Not Detected
m,p-Xylene	0.098	0.16	0.43	0.70
o-Xylene	0.049	0.065	0.21	0.28
1,1,2,2-Tetrachloroethane	0.049	Not Detected	0.34	Not Detected
1,4-Dichlorobenzene	0.049	Not Detected	0.30	Not Detected

Carbon Tetrachloride MDL=0.00079 ppbv
Benzene MDL=0.00631ppbv

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	107	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1704167-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e041206sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/12/17 11:34 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.020	Not Detected	0.099	Not Detected
Freon 114	0.020	Not Detected	0.14	Not Detected
Chloromethane	0.050	Not Detected	0.10	Not Detected
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Benzene	0.050	0.030 J	0.16	0.097 J
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
1,2-Dibromoethane (EDB)	0.020	Not Detected	0.15	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
1,4-Dichlorobenzene	0.020	Not Detected	0.12	Not Detected

J = Estimated value.

Carbon Tetrachloride MDL=0.00079 ppbv
Benzene MDL=0.00631ppbv

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: CCV

Lab ID#: 1704167-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e041202sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/12/17 08:32 AM**	

Compound	%Recovery
Freon 12	83
Freon 114	89
Chloromethane	78
Vinyl Chloride	73
Chloroethane	71
1,1-Dichloroethene	74
trans-1,2-Dichloroethene	80
Methyl tert-butyl ether	78
1,1-Dichloroethane	77
cis-1,2-Dichloroethene	76
Chloroform	78
1,1,1-Trichloroethane	85
Carbon Tetrachloride	93
Benzene	70
1,2-Dichloroethane	83
Trichloroethene	87
Toluene	79
1,1,2-Trichloroethane	86
Tetrachloroethene	91
1,2-Dibromoethane (EDB)	84
Ethyl Benzene	85
m,p-Xylene	84
o-Xylene	84
1,1,2,2-Tetrachloroethane	74
1,4-Dichlorobenzene	85

Container Type: NA - Not Applicable

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

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Client Sample ID: LCS

Lab ID#: 1704167-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e041203sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/12/17 09:18 AM**	

Compound	%Recovery	Method Limits
Freon 12	91	70-130
Freon 114	97	70-130
Chloromethane	85	70-130
Vinyl Chloride	82	70-130
Chloroethane	79	70-130
1,1-Dichloroethene	82	70-130
trans-1,2-Dichloroethene	96	70-130
Methyl tert-butyl ether	86	70-130
1,1-Dichloroethane	84	70-130
cis-1,2-Dichloroethene	78	70-130
Chloroform	85	70-130
1,1,1-Trichloroethane	93	70-130
Carbon Tetrachloride	60	60-140
Benzene	76	70-130
1,2-Dichloroethane	90	70-130
Trichloroethene	96	70-130
Toluene	87	70-130
1,1,2-Trichloroethane	93	70-130
Tetrachloroethene	98	70-130
1,2-Dibromoethane (EDB)	91	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	92	70-130
o-Xylene	92	70-130
1,1,2,2-Tetrachloroethane	81	70-130
1,4-Dichlorobenzene	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: LCSD

Lab ID#: 1704167-04AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**e041204sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/12/17 10:01 AM**	

Compound	%Recovery	Method Limits
Freon 12	90	70-130
Freon 114	96	70-130
Chloromethane	84	70-130
Vinyl Chloride	80	70-130
Chloroethane	78	70-130
1,1-Dichloroethene	81	70-130
trans-1,2-Dichloroethene	95	70-130
Methyl tert-butyl ether	85	70-130
1,1-Dichloroethane	84	70-130
cis-1,2-Dichloroethene	77	70-130
Chloroform	84	70-130
1,1,1-Trichloroethane	93	70-130
Carbon Tetrachloride	59 Q	60-140
Benzene	76	70-130
1,2-Dichloroethane	89	70-130
Trichloroethene	96	70-130
Toluene	86	70-130
1,1,2-Trichloroethane	92	70-130
Tetrachloroethene	98	70-130
1,2-Dibromoethane (EDB)	91	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	92	70-130
o-Xylene	92	70-130
1,1,2,2-Tetrachloroethane	82	70-130
1,4-Dichlorobenzene	96	70-130

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	108	70-130


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 288054
ANALYTICAL REPORT

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

Sample ID	Lab ID
SG-7	288054-001
SG-8	288054-002
SHROUD	288054-003

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: 04/21/2017

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:	**288054**
Client:	**Pangea Environmental**
Location:	**1919 Market St, Oakland**
Request Date:	**04/14/17**
Samples Received:	**04/14/17**

This data package contains sample and QC results for three air samples, requested for the above referenced project on 04/14/17. The samples were received cold and intact.

Volatile Organics in Air by MS (EPA TO-15):
No analytical problems were encountered.

Curtis & Tompkins, Ltd.
Analytical Laboratory Since 1878
2323 Fifth Street
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AIR TESTING CHAIN OF CUSTODY
& PURCHASE ORDER

Chain of Custody # :

C&T LOGIN # 288.054

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

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

Lab No.	Sample ID.	Sampling Information: Date Collected	Time Collected	Canister ID (Bar Code #)	Flow Controller ID	Sample Volume (Gauge Reading)	TESTING REQUESTED: TO-15	TPA - Leak check			
1	SG-7	4.14.17	1128	116	287	8.5	X	X			
2	SG-8	4.14.17	1155	341	272	12	X	X			
3	Shroud	4.14.17	1158	078	219	4		X			

Notes:

RELIQUISHED BY:
Ed L 4.14.17 DATE/TIME
DATE/TIME
DATE/TIME

RECEIVED BY:
Ed Ly 4/14/17 1554 DATE/TIME
DATE/TIME
DATE/TIME

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 288054 Date Received 4/14/17 Number of coolers 0
Client PANGEA Project 1919 Market St Oakland

Date Opened 4/14/17 By (print) EVA (sign) EA
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)

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

☐ 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 288054

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

Client : Pangea Environmental
Project : STANDARD
Location : 1919 Market St, Oakland

Client Sample ID : SG-7 Laboratory Sample ID : 288054-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Acetone	7.1		5.0	ppbv	As Recd	2.500	EPA TO-15	METHOD
Carbon Disulfide	37		1.3	ppbv	As Recd	2.500	EPA TO-15	METHOD
Isopropanol	28		5.0	ppbv	As Recd	2.500	EPA TO-15	METHOD
Ethyl Acetate	4.2		1.3	ppbv	As Recd	2.500	EPA TO-15	METHOD
Tetrachloroethene	2.3		1.3	ppbv	As Recd	2.500	EPA TO-15	METHOD
1,3-Dichlorobenzene	1.6		1.3	ppbv	As Recd	2.500	EPA TO-15	METHOD

Client Sample ID : SG-8 Laboratory Sample ID : 288054-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Carbon Disulfide	100		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
Isopropanol	6.0		6.0	ppbv	As Recd	2.980	EPA TO-15	METHOD
n-Hexane	22		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
Chloroform	1.9		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
Cyclohexane	16		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
Benzene	3.4		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
n-Heptane	4.4		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
4-Methyl-2-Pentanone	1.8		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
Toluene	7.1		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
Tetrachloroethene	3.2		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
m,p-Xylenes	3.5		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD
1,3-Dichlorobenzene	2.2		1.5	ppbv	As Recd	2.980	EPA TO-15	METHOD

Client Sample ID : SHROUD Laboratory Sample ID : 288054-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Isopropanol	46,000		1,100	ppbv	As Recd	525.6	EPA TO-15	METHOD

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SG-7	Diln Fac:	2.500
Lab ID:	288054-001	Batch#:	246847
Matrix:	Air	Sampled:	04/14/17
Units (V):	ppbv	Received:	04/14/17
Units (M):	ug/m3	Analyzed:	04/19/17

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.3	ND	6.2
Freon 114	ND	1.3	ND	8.7
Chloromethane	ND	1.3	ND	2.6
Vinyl Chloride	ND	1.3	ND	3.2
1,3-Butadiene	ND	1.3	ND	2.8
Bromomethane	ND	1.3	ND	4.9
Chloroethane	ND	1.3	ND	3.3
Trichlorofluoromethane	ND	1.3	ND	7.0
Acrolein	ND	5.0	ND	11
1,1-Dichloroethene	ND	1.3	ND	5.0
Freon 113	ND	1.3	ND	9.6
Acetone	7.1	5.0	17	12
Carbon Disulfide	37	1.3	120	3.9
Isopropanol	28	5.0	68	12
Methylene Chloride	ND	1.3	ND	4.3
trans-1,2-Dichloroethene	ND	1.3	ND	5.0
MTBE	ND	1.3	ND	4.5
n-Hexane	ND	1.3	ND	4.4
1,1-Dichloroethane	ND	1.3	ND	5.1
Vinyl Acetate	ND	1.3	ND	4.4
cis-1,2-Dichloroethene	ND	1.3	ND	5.0
2-Butanone	ND	4.2	ND	12
Ethyl Acetate	4.2	1.3	15	4.5
Tetrahydrofuran	ND	1.3	ND	3.7
Chloroform	ND	1.3	ND	6.1
1,1,1-Trichloroethane	ND	1.3	ND	6.8
Cyclohexane	ND	1.3	ND	4.3
Carbon Tetrachloride	ND	1.3	ND	7.9
Benzene	ND	1.3	ND	4.0
1,2-Dichloroethane	ND	1.3	ND	5.1
n-Heptane	ND	1.3	ND	5.1
Trichloroethene	ND	1.3	ND	6.7
1,2-Dichloropropane	ND	1.3	ND	5.8
Bromodichloromethane	ND	1.3	ND	8.4
cis-1,3-Dichloropropene	ND	1.3	ND	5.7

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

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SG-7	Diln Fac:	2.500
Lab ID:	288054-001	Batch#:	246847
Matrix:	Air	Sampled:	04/14/17
Units (V):	ppbv	Received:	04/14/17
Units (M):	ug/m3	Analyzed:	04/19/17

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	1.3	ND	5.1
Toluene	ND	1.3	ND	4.7
trans-1,3-Dichloropropene	ND	1.3	ND	5.7
1,1,2-Trichloroethane	ND	1.3	ND	6.8
Tetrachloroethene	2.3	1.3	16	8.5
2-Hexanone	ND	1.3	ND	5.1
Dibromochloromethane	ND	1.3	ND	11
1,2-Dibromoethane	ND	1.3	ND	9.6
Chlorobenzene	ND	1.3	ND	5.8
Ethylbenzene	ND	1.3	ND	5.4
m,p-Xylenes	ND	1.3	ND	5.4
o-Xylene	ND	1.3	ND	5.4
Styrene	ND	1.3	ND	5.3
Bromoform	ND	1.3	ND	13
1,1,2,2-Tetrachloroethane	ND	1.3	ND	8.6
4-Ethyltoluene	ND	1.3	ND	6.1
1,3,5-Trimethylbenzene	ND	1.3	ND	6.1
1,2,4-Trimethylbenzene	ND	1.3	ND	6.1
1,3-Dichlorobenzene	1.6	1.3	9.7	7.5
1,4-Dichlorobenzene	ND	1.3	ND	7.5
Benzyl chloride	ND	1.3	ND	6.5
1,2-Dichlorobenzene	ND	1.3	ND	7.5
1,2,4-Trichlorobenzene	ND	1.3	ND	9.3
Hexachlorobutadiene	ND	1.3	ND	13
Naphthalene	ND	5.0	ND	26

Surrogate	%REC	Limits
Bromofluorobenzene	98	80-120

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

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SG-8	Diln Fac:	2.980
Lab ID:	288054-002	Batch#:	246847
Matrix:	Air	Sampled:	04/14/17
Units (V):	ppbv	Received:	04/14/17
Units (M):	ug/m3	Analyzed:	04/19/17

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	1.5	ND	7.4
Freon 114	ND	1.5	ND	10
Chloromethane	ND	1.5	ND	3.1
Vinyl Chloride	ND	1.5	ND	3.8
1,3-Butadiene	ND	1.5	ND	3.3
Bromomethane	ND	1.5	ND	5.8
Chloroethane	ND	1.5	ND	3.9
Trichlorofluoromethane	ND	1.5	ND	8.4
Acrolein	ND	6.0	ND	14
1,1-Dichloroethene	ND	1.5	ND	5.9
Freon 113	ND	1.5	ND	11
Acetone	ND	6.0	ND	14
Carbon Disulfide	100	1.5	330	4.6
Isopropanol	6.0	6.0	15	15
Methylene Chloride	ND	1.5	ND	5.2
trans-1,2-Dichloroethene	ND	1.5	ND	5.9
MTBE	ND	1.5	ND	5.4
n-Hexane	22	1.5	78	5.3
1,1-Dichloroethane	ND	1.5	ND	6.0
Vinyl Acetate	ND	1.5	ND	5.2
cis-1,2-Dichloroethene	ND	1.5	ND	5.9
2-Butanone	ND	5.0	ND	15
Ethyl Acetate	ND	1.5	ND	5.4
Tetrahydrofuran	ND	1.5	ND	4.4
Chloroform	1.9	1.5	9.5	7.3
1,1,1-Trichloroethane	ND	1.5	ND	8.1
Cyclohexane	16	1.5	56	5.1
Carbon Tetrachloride	ND	1.5	ND	9.4
Benzene	3.4	1.5	11	4.8
1,2-Dichloroethane	ND	1.5	ND	6.0
n-Heptane	4.4	1.5	18	6.1
Trichloroethene	ND	1.5	ND	8.0
1,2-Dichloropropane	ND	1.5	ND	6.9
Bromodichloromethane	ND	1.5	ND	10
cis-1,3-Dichloropropene	ND	1.5	ND	6.8

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

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SG-8	Diln Fac:	2.980
Lab ID:	288054-002	Batch#:	246847
Matrix:	Air	Sampled:	04/14/17
Units (V):	ppbv	Received:	04/14/17
Units (M):	ug/m3	Analyzed:	04/19/17

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	1.8	1.5	7.6	6.1
Toluene	7.1	1.5	27	5.6
trans-1,3-Dichloropropene	ND	1.5	ND	6.8
1,1,2-Trichloroethane	ND	1.5	ND	8.1
Tetrachloroethene	3.2	1.5	22	10
2-Hexanone	ND	1.5	ND	6.1
Dibromochloromethane	ND	1.5	ND	13
1,2-Dibromoethane	ND	1.5	ND	11
Chlorobenzene	ND	1.5	ND	6.9
Ethylbenzene	ND	1.5	ND	6.5
m,p-Xylenes	3.5	1.5	15	6.5
o-Xylene	ND	1.5	ND	6.5
Styrene	ND	1.5	ND	6.3
Bromoform	ND	1.5	ND	15
1,1,2,2-Tetrachloroethane	ND	1.5	ND	10
4-Ethyltoluene	ND	1.5	ND	7.3
1,3,5-Trimethylbenzene	ND	1.5	ND	7.3
1,2,4-Trimethylbenzene	ND	1.5	ND	7.3
1,3-Dichlorobenzene	2.2	1.5	14	9.0
1,4-Dichlorobenzene	ND	1.5	ND	9.0
Benzyl chloride	ND	1.5	ND	7.7
1,2-Dichlorobenzene	ND	1.5	ND	9.0
1,2,4-Trichlorobenzene	ND	1.5	ND	11
Hexachlorobutadiene	ND	1.5	ND	16
Naphthalene	ND	6.0	ND	31

Surrogate	%REC	Limits
Bromofluorobenzene	95	80-120

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

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SHROUD	Diln Fac:	525.6
Lab ID:	288054-003	Batch#:	246847
Matrix:	Air	Sampled:	04/14/17
Units (V):	ppbv	Received:	04/14/17
Units (M):	ug/m3	Analyzed:	04/19/17

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	260	ND	1,300
Freon 114	ND	260	ND	1,800
Chloromethane	ND	260	ND	540
Vinyl Chloride	ND	260	ND	670
1,3-Butadiene	ND	260	ND	580
Bromomethane	ND	260	ND	1,000
Chloroethane	ND	260	ND	690
Trichlorofluoromethane	ND	260	ND	1,500
Acrolein	ND	1,100	ND	2,400
1,1-Dichloroethene	ND	260	ND	1,000
Freon 113	ND	260	ND	2,000
Acetone	ND	1,100	ND	2,500
Carbon Disulfide	ND	260	ND	820
Isopropanol	46,000	1,100	110,000	2,600
Methylene Chloride	ND	260	ND	910
trans-1,2-Dichloroethene	ND	260	ND	1,000
MTBE	ND	260	ND	950
n-Hexane	ND	260	ND	930
1,1-Dichloroethane	ND	260	ND	1,100
Vinyl Acetate	ND	260	ND	930
cis-1,2-Dichloroethene	ND	260	ND	1,000
2-Butanone	ND	880	ND	2,600
Ethyl Acetate	ND	260	ND	950
Tetrahydrofuran	ND	260	ND	780
Chloroform	ND	260	ND	1,300
1,1,1-Trichloroethane	ND	260	ND	1,400
Cyclohexane	ND	260	ND	900
Carbon Tetrachloride	ND	260	ND	1,700
Benzene	ND	260	ND	840
1,2-Dichloroethane	ND	260	ND	1,100
n-Heptane	ND	260	ND	1,100
Trichloroethene	ND	260	ND	1,400
1,2-Dichloropropane	ND	260	ND	1,200
Bromodichloromethane	ND	260	ND	1,800
cis-1,3-Dichloropropene	ND	260	ND	1,200

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

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	SHROUD	Diln Fac:	525.6
Lab ID:	288054-003	Batch#:	246847
Matrix:	Air	Sampled:	04/14/17
Units (V):	ppbv	Received:	04/14/17
Units (M):	ug/m3	Analyzed:	04/19/17

Analyte	Result (V)	RL	Result (M)	RL
4-Methyl-2-Pentanone	ND	260	ND	1,100
Toluene	ND	260	ND	990
trans-1,3-Dichloropropene	ND	260	ND	1,200
1,1,2-Trichloroethane	ND	260	ND	1,400
Tetrachloroethene	ND	260	ND	1,800
2-Hexanone	ND	260	ND	1,100
Dibromochloromethane	ND	260	ND	2,200
1,2-Dibromoethane	ND	260	ND	2,000
Chlorobenzene	ND	260	ND	1,200
Ethylbenzene	ND	260	ND	1,100
m,p-Xylenes	ND	260	ND	1,100
o-Xylene	ND	260	ND	1,100
Styrene	ND	260	ND	1,100
Bromoform	ND	260	ND	2,700
1,1,2,2-Tetrachloroethane	ND	260	ND	1,800
4-Ethyltoluene	ND	260	ND	1,300
1,3,5-Trimethylbenzene	ND	260	ND	1,300
1,2,4-Trimethylbenzene	ND	260	ND	1,300
1,3-Dichlorobenzene	ND	260	ND	1,600
1,4-Dichlorobenzene	ND	260	ND	1,600
Benzyl chloride	ND	260	ND	1,400
1,2-Dichlorobenzene	ND	260	ND	1,600
1,2,4-Trichlorobenzene	ND	260	ND	2,000
Hexachlorobutadiene	ND	260	ND	2,800
Naphthalene	ND	1,100	ND	5,500

Surrogate	%REC	Limits
Bromofluorobenzene	101	80-120

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246847
Units (V):	ppbv	Analyzed:	04/18/17
Diln Fac:	1.000		

Type: BS Lab ID: QC882196

Analyte	Spiked	Result (V)	%REC	Limits
Freon 12	5.000	4.686	94	70-130
Freon 114	5.000	4.652	93	70-130
Chloromethane	5.000	4.179	84	70-130
Vinyl Chloride	5.000	4.718	94	70-130
1,3-Butadiene	5.000	4.799	96	70-130
Bromomethane	5.000	4.464	89	70-130
Chloroethane	5.000	4.221	84	70-130
Trichlorofluoromethane	5.000	4.725	95	70-130
Acrolein	5.000	4.099	82	70-130
1,1-Dichloroethene	5.000	4.766	95	70-130
Freon 113	5.000	4.634	93	70-130
Acetone	5.000	4.233	85	70-130
Carbon Disulfide	5.000	4.469	89	70-130
Isopropanol	5.000	4.228	85	70-130
Methylene Chloride	5.000	4.407	88	70-130
trans-1,2-Dichloroethene	5.000	5.103	102	70-130
MTBE	5.000	4.728	95	70-130
n-Hexane	5.000	4.581	92	70-130
1,1-Dichloroethane	5.000	4.562	91	70-130
Vinyl Acetate	5.000	4.952	99	70-130
cis-1,2-Dichloroethene	5.000	5.248	105	70-130
2-Butanone	5.000	4.157	83	70-130
Ethyl Acetate	5.000	4.844	97	70-130
Tetrahydrofuran	5.000	5.310	106	70-130
Chloroform	5.000	4.735	95	70-130
1,1,1-Trichloroethane	5.000	4.656	93	70-130
Cyclohexane	5.000	4.778	96	70-130
Carbon Tetrachloride	5.000	3.751	75	70-130
Benzene	5.000	4.569	91	70-130
1,2-Dichloroethane	5.000	4.945	99	70-130
n-Heptane	5.000	5.391	108	70-130
Trichloroethene	5.000	4.739	95	70-130
1,2-Dichloropropane	5.000	4.899	98	70-130
Bromodichloromethane	5.000	4.652	93	70-130

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246847
Units (V):	ppbv	Analyzed:	04/18/17
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
cis-1,3-Dichloropropene	5.000	4.956	99	70-130
4-Methyl-2-Pentanone	5.000	5.530	111	70-130
Toluene	5.000	5.258	105	70-130
trans-1,3-Dichloropropene	5.000	4.759	95	70-130
1,1,2-Trichloroethane	5.000	5.113	102	70-130
Tetrachloroethene	5.000	5.183	104	70-130
2-Hexanone	5.000	5.974	119	70-130
Dibromochloromethane	5.000	4.616	92	70-130
1,2-Dibromoethane	5.000	4.880	98	70-130
Chlorobenzene	5.000	4.955	99	70-130
Ethylbenzene	5.000	5.047	101	70-130
m,p-Xylenes	10.00	10.23	102	70-130
o-Xylene	5.000	5.013	100	70-130
Styrene	5.000	4.731	95	70-130
Bromoform	5.000	4.330	87	70-130
1,1,2,2-Tetrachloroethane	5.000	4.613	92	70-130
4-Ethyltoluene	5.000	5.293	106	70-130
1,3,5-Trimethylbenzene	5.000	4.798	96	70-130
1,2,4-Trimethylbenzene	5.000	5.059	101	70-130
1,3-Dichlorobenzene	5.000	4.819	96	70-130
1,4-Dichlorobenzene	5.000	5.028	101	70-130
Benzyl chloride	5.000	5.279	106	70-130
1,2-Dichlorobenzene	5.000	5.075	102	70-130
1,2,4-Trichlorobenzene	5.000	6.128	123	70-130
Hexachlorobutadiene	5.000	6.033	121	70-130
Naphthalene	5.000	5.860	117	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	103	70-130

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246847
Units (V):	ppbv	Analyzed:	04/18/17
Diln Fac:	1.000		

Type: BSD Lab ID: QC882197

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Freon 12	5.000	4.696	94	70-130	0	25
Freon 114	5.000	4.655	93	70-130	0	25
Chloromethane	5.000	4.197	84	70-130	0	25
Vinyl Chloride	5.000	4.658	93	70-130	1	25
1,3-Butadiene	5.000	4.790	96	70-130	0	25
Bromomethane	5.000	4.393	88	70-130	2	25
Chloroethane	5.000	4.191	84	70-130	1	25
Trichlorofluoromethane	5.000	4.729	95	70-130	0	25
Acrolein	5.000	4.199	84	70-130	2	25
1,1-Dichloroethene	5.000	4.725	95	70-130	1	25
Freon 113	5.000	4.668	93	70-130	1	25
Acetone	5.000	4.259	85	70-130	1	25
Carbon Disulfide	5.000	4.453	89	70-130	0	25
Isopropanol	5.000	4.487	90	70-130	6	25
Methylene Chloride	5.000	4.370	87	70-130	1	25
trans-1,2-Dichloroethene	5.000	5.017	100	70-130	2	25
MTBE	5.000	4.605	92	70-130	3	25
n-Hexane	5.000	4.524	90	70-130	1	25
1,1-Dichloroethane	5.000	4.550	91	70-130	0	25
Vinyl Acetate	5.000	4.991	100	70-130	1	25
cis-1,2-Dichloroethene	5.000	5.230	105	70-130	0	25
2-Butanone	5.000	4.183	84	70-130	1	25
Ethyl Acetate	5.000	4.834	97	70-130	0	25
Tetrahydrofuran	5.000	5.469	109	70-130	3	25
Chloroform	5.000	4.654	93	70-130	2	25
1,1,1-Trichloroethane	5.000	4.770	95	70-130	2	25
Cyclohexane	5.000	4.918	98	70-130	3	25
Carbon Tetrachloride	5.000	3.867	77	70-130	3	25
Benzene	5.000	4.769	95	70-130	4	25
1,2-Dichloroethane	5.000	5.044	101	70-130	2	25
n-Heptane	5.000	5.488	110	70-130	2	25
Trichloroethene	5.000	4.869	97	70-130	3	25
1,2-Dichloropropane	5.000	5.086	102	70-130	4	25
Bromodichloromethane	5.000	4.794	96	70-130	3	25

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	246847
Units (V):	ppbv	Analyzed:	04/18/17
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
cis-1,3-Dichloropropene	5.000	5.114	102	70-130	3	25
4-Methyl-2-Pentanone	5.000	5.673	113	70-130	3	25
Toluene	5.000	5.121	102	70-130	3	25
trans-1,3-Dichloropropene	5.000	4.890	98	70-130	3	25
1,1,2-Trichloroethane	5.000	5.173	103	70-130	1	25
Tetrachloroethene	5.000	4.922	98	70-130	5	25
2-Hexanone	5.000	5.871	117	70-130	2	25
Dibromochloromethane	5.000	4.539	91	70-130	2	25
1,2-Dibromoethane	5.000	4.846	97	70-130	1	25
Chlorobenzene	5.000	4.950	99	70-130	0	25
Ethylbenzene	5.000	5.030	101	70-130	0	25
m,p-Xylenes	10.00	10.15	101	70-130	1	25
o-Xylene	5.000	4.936	99	70-130	2	25
Styrene	5.000	4.671	93	70-130	1	25
Bromoform	5.000	4.292	86	70-130	1	25
1,1,2,2-Tetrachloroethane	5.000	4.524	90	70-130	2	25
4-Ethyltoluene	5.000	5.176	104	70-130	2	25
1,3,5-Trimethylbenzene	5.000	4.778	96	70-130	0	25
1,2,4-Trimethylbenzene	5.000	4.929	99	70-130	3	25
1,3-Dichlorobenzene	5.000	4.668	93	70-130	3	25
1,4-Dichlorobenzene	5.000	4.757	95	70-130	6	25
Benzyl chloride	5.000	5.201	104	70-130	1	25
1,2-Dichlorobenzene	5.000	5.024	100	70-130	1	25
1,2,4-Trichlorobenzene	5.000	5.918	118	70-130	3	25
Hexachlorobutadiene	5.000	5.895	118	70-130	2	25
Naphthalene	5.000	6.000	120	70-130	2	25

Surrogate	%REC	Limits
Bromofluorobenzene	102	70-130

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC882198	Diln Fac:	1.000
Matrix:	Air	Batch#:	246847
Units (V):	ppbv	Analyzed:	04/18/17

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

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

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	288054	Location:	1919 Market St, Oakland
Client:	Pangea Environmental	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC882198	Diln Fac:	1.000
Matrix:	Air	Batch#:	246847
Units (V):	ppbv	Analyzed:	04/18/17

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

Surrogate	%REC	Limits
Bromofluorobenzene	104	70-130

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

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6/6/2017
Mr. Ron Scheele
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001-106
Workorder #: 1705526AR1

Dear Mr. Ron Scheele

The following report includes the data for the above referenced project for sample(s) received on 5/25/2017 at Air Toxics Ltd.

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

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1705526AR1

Work Order Summary

CLIENT:	Mr. Ron Scheele Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001-106 1919 Market
DATE RECEIVED:	05/25/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/01/2017		
DATE REISSUED:	06/06/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SG-1	TO-15	4.7 "Hg	15.1 psi
02A	SG-4	TO-15	2.6 "Hg	15 psi
03A	SG-6	TO-15	7.6 "Hg	14.7 psi
04A	SG-7	TO-15	6.7 "Hg	15.1 psi
05A	SG-8	TO-15	4.5 "Hg	14.7 psi
06A	SG-8 Dup	TO-15	4.7 "Hg	14.7 psi
07A	SG-9	TO-15	4.3 "Hg	14.9 psi
08A	Lab Blank	TO-15	NA	NA
09A	CCV	TO-15	NA	NA
10A	LCS	TO-15	NA	NA
10AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 06/06/17

Technical Director

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

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

LABORATORY NARRATIVE
EPA Method TO-15
Pangea Environmental Services, Inc.
Workorder# 1705526AR1

Seven 1 Liter Summa Canister samples were received on May 25, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Per client request, the Work Order was re-issued on 6/6/17 for the following reasons:

1. To report the data for Benzene and Carbon Tetrachloride to the reporting limits. Previously reported results below the reporting limits for these compounds are therefore reported as not detected. Additionally, a previously reported narrative was removed as it is no longer applicable.

2. To report the additional compound, 2-Propanol.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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

Client Sample ID: SG-1

Lab ID#: 1705526AR1-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	4.9	8.1	33

Client Sample ID: SG-4

Lab ID#: 1705526AR1-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.1	3.4	7.5	23
2-Propanol	4.4	310	11	760

Client Sample ID: SG-6

Lab ID#: 1705526AR1-03A

No Detections Were Found.

Client Sample ID: SG-7

Lab ID#: 1705526AR1-04A

No Detections Were Found.

Client Sample ID: SG-8

Lab ID#: 1705526AR1-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	2.9	5.7	14
Tetrachloroethene	1.2	2.7	8.0	18

Client Sample ID: SG-8 Dup

Lab ID#: 1705526AR1-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	2.8	5.8	14
Tetrachloroethene	1.2	2.9	8.0	20

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

Client Sample ID: SG-9

Lab ID#: 1705526AR1-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	1.4	8.0	9.2

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Client Sample ID: SG-1

Lab ID#: 1705526AR1-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053115r1**	**Date of Collection: 5/24/17 2:47:00 PM**	
Dil. Factor:	**2.40**	**Date of Analysis: 5/31/17 07:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	5.8	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
Tetrachloroethene	1.2	4.9	8.1	33
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	Not Detected	5.2	Not Detected
o-Xylene	1.2	Not Detected	5.2	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected
2-Propanol	4.8	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: SG-4

Lab ID#: 1705526AR1-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053116r1**	**Date of Collection: 5/23/17 4:37:00 PM**	
Dil. Factor:	**2.21**	**Date of Analysis: 5/31/17 07:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
Tetrachloroethene	1.1	3.4	7.5	23
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected
2-Propanol	4.4	310	11	760

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	113	70-130

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Client Sample ID: SG-6

Lab ID#: 1705526AR1-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053117r1**	**Date of Collection:**	**5/24/17 11:46:00 AM**
Dil. Factor:	**2.68**	**Date of Analysis:**	**5/31/17 08:13 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.3	Not Detected	6.5	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.3	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.4	Not Detected
Benzene	1.3	Not Detected	4.3	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.4	Not Detected
Trichloroethene	1.3	Not Detected	7.2	Not Detected
Toluene	1.3	Not Detected	5.0	Not Detected
Tetrachloroethene	1.3	Not Detected	9.1	Not Detected
Ethyl Benzene	1.3	Not Detected	5.8	Not Detected
m,p-Xylene	1.3	Not Detected	5.8	Not Detected
o-Xylene	1.3	Not Detected	5.8	Not Detected
Naphthalene	2.7	Not Detected	14	Not Detected
2-Propanol	5.4	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: SG-7

Lab ID#: 1705526AR1-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053118r1**	**Date of Collection: 5/24/17 4:46:00 PM**	
Dil. Factor:	**2.61**	**Date of Analysis: 5/31/17 08:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.3	Not Detected	6.4	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.1	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.2	Not Detected
Benzene	1.3	Not Detected	4.2	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.3	Not Detected
Trichloroethene	1.3	Not Detected	7.0	Not Detected
Toluene	1.3	Not Detected	4.9	Not Detected
Tetrachloroethene	1.3	Not Detected	8.8	Not Detected
Ethyl Benzene	1.3	Not Detected	5.7	Not Detected
m,p-Xylene	1.3	Not Detected	5.7	Not Detected
o-Xylene	1.3	Not Detected	5.7	Not Detected
Naphthalene	2.6	Not Detected	14	Not Detected
2-Propanol	5.2	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: SG-8

Lab ID#: 1705526AR1-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053119r1**	**Date of Collection: 5/24/17 4:00:00 PM**	
Dil. Factor:	**2.35**	**Date of Analysis: 5/31/17 09:10 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	2.9	5.7	14
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
Tetrachloroethene	1.2	2.7	8.0	18
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected
2-Propanol	4.7	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: SG-8 Dup

Lab ID#: 1705526AR1-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053120r1**	**Date of Collection: 5/24/17 4:00:00 PM**	
Dil. Factor:	**2.37**	**Date of Analysis: 5/31/17 09:38 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	2.8	5.8	14
1,1,1-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
Tetrachloroethene	1.2	2.9	8.0	20
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected
2-Propanol	4.7	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: SG-9

Lab ID#: 1705526AR1-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053121r1**	**Date of Collection: 5/24/17 1:24:00 PM**	
Dil. Factor:	**2.35**	**Date of Analysis: 5/31/17 10:07 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
Tetrachloroethene	1.2	1.4	8.0	9.2
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected
2-Propanol	4.7	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	83	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1705526AR1-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053105**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 10:49 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: CCV

Lab ID#: 1705526AR1-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053102**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 09:20 AM**	

Compound	%Recovery
Chloroform	87
1,1,1-Trichloroethane	87
Carbon Tetrachloride	88
Benzene	94
1,2-Dichloroethane	88
Trichloroethene	89
Toluene	95
Tetrachloroethene	98
Ethyl Benzene	102
m,p-Xylene	105
o-Xylene	103
Naphthalene	74
2-Propanol	83

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: LCS

Lab ID#: 1705526AR1-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053103**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 09:47 AM**	

Compound	%Recovery	Method Limits
Chloroform	92	70-130
1,1,1-Trichloroethane	92	70-130
Carbon Tetrachloride	94	70-130
Benzene	97	70-130
1,2-Dichloroethane	90	70-130
Trichloroethene	96	70-130
Toluene	100	70-130
Tetrachloroethene	102	70-130
Ethyl Benzene	110	70-130
m,p-Xylene	113	70-130
o-Xylene	112	70-130
Naphthalene	88	60-140
2-Propanol	96	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	107	70-130

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Client Sample ID: LCSD

Lab ID#: 1705526AR1-10AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17053104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 10:14 AM**	

Compound	%Recovery	Method Limits
Chloroform	92	70-130
1,1,1-Trichloroethane	92	70-130
Carbon Tetrachloride	95	70-130
Benzene	95	70-130
1,2-Dichloroethane	86	70-130
Trichloroethene	93	70-130
Toluene	98	70-130
Tetrachloroethene	101	70-130
Ethyl Benzene	109	70-130
m,p-Xylene	112	70-130
o-Xylene	112	70-130
Naphthalene	93	60-140
2-Propanol	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	106	70-130

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6/1/2017
Mr. Jake Wilson
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001-106
Workorder #: 1705526B

Dear Mr. Jake Wilson

The following report includes the data for the above referenced project for sample(s) received on 5/25/2017 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1705526B

Work Order Summary

CLIENT:	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001-106 1919 Market
DATE RECEIVED:	05/25/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/01/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SG-1	Modified ASTM D-1946	4.7 "Hg	15.1 psi
05A	SG-8	Modified ASTM D-1946	4.5 "Hg	14.7 psi
06A	Lab Blank	Modified ASTM D-1946	NA	NA
07A	LCS	Modified ASTM D-1946	NA	NA
07AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 06/01/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified ASTM D-1946
Pangea Environmental Services, Inc.
Workorder# 1705526B

Two 1 Liter Summa Canister samples were received on May 25, 2017. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

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

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

Client Sample ID: SG-1

Lab ID#: 1705526B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.32	9.9
Carbon Dioxide	0.032	2.3

Client Sample ID: SG-8

Lab ID#: 1705526B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	16
Carbon Dioxide	0.024	1.6

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Client Sample ID: SG-1

Lab ID#: 1705526B-01A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060113**	**Date of Collection: 5/24/17 2:47:00 PM**	
Dil. Factor:	**3.18**	**Date of Analysis: 6/1/17 12:51 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.32	9.9
Methane	0.00032	Not Detected
Carbon Dioxide	0.032	2.3

Container Type: 1 Liter Summa Canister

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Client Sample ID: SG-8

Lab ID#: 1705526B-05A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060112**	**Date of Collection: 5/24/17 4:00:00 PM**	
Dil. Factor:	**2.35**	**Date of Analysis: 6/1/17 12:28 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	16
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	1.6

Container Type: 1 Liter Summa Canister

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Client Sample ID: Lab Blank

Lab ID#: 1705526B-06A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/1/17 08:50 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1705526B-07A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060102**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/1/17 07:53 AM**	

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Methane	100	85-115
Carbon Dioxide	99	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1705526B-07AA

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060116**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/1/17 02:30 PM**	

Compound	%Recovery	Method Limits
Oxygen	98	85-115
Methane	101	85-115
Carbon Dioxide	99	85-115

Container Type: NA - Not Applicable

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6/1/2017
Mr. Jake Wilson
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001-106
Workorder #: 1705526C

Dear Mr. Jake Wilson

The following report includes the data for the above referenced project for sample(s) received on 5/25/2017 at Air Toxics Ltd.

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

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1705526C

Work Order Summary

CLIENT:	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001-106 1919 Market
DATE RECEIVED:	05/25/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/01/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
08A	Shroud	TO-15	5.9 "Hg	15.2 psi
09A	Lab Blank	TO-15	NA	NA
10A	CCV	TO-15	NA	NA
11A	LCS	TO-15	NA	NA
11AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 06/01/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Pangea Environmental Services, Inc.
Workorder# 1705526C

One 1 Liter Summa Canister sample was received on May 25, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample Shroud due to the presence of high level target species.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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

Client Sample ID: Shroud

Lab ID#: 1705526C-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	1300	72000	3100	180000

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Client Sample ID: Shroud

Lab ID#: 1705526C-08A

EPA METHOD TO-15 GC/MS

File Name:	**14053125**	**Date of Collection: 5/24/17 2:47:00 PM**	
Dil. Factor:	**63.2**	**Date of Analysis: 5/31/17 08:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	1300	72000	3100	180000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1705526C-09A

EPA METHOD TO-15 GC/MS

File Name:	**14053112**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 12:46 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	20	Not Detected	49	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CCV
Lab ID#: 1705526C-10A
EPA METHOD TO-15 GC/MS

File Name:	**14053107**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 10:15 AM**	

Compound	%Recovery
2-Propanol	101

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCS

Lab ID#: 1705526C-11A

EPA METHOD TO-15 GC/MS

File Name:	**14053109**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 11:13 AM**	

Compound	%Recovery	Method Limits
2-Propanol	112	70-130

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD
Lab ID#: 1705526C-11AA
EPA METHOD TO-15 GC/MS

File Name:	**14053110**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 11:47 AM**	

Compound	%Recovery	Method Limits
2-Propanol	114	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	99	70-130

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6/1/2017
Mr. Jake Wilson
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001,-106
Workorder #: 1705528

Dear Mr. Jake Wilson

The following report includes the data for the above referenced project for sample(s) received on 5/25/2017 at Air Toxics Ltd.

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

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1705528

Work Order Summary

CLIENT:	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001,-106 1919 Market
DATE RECEIVED:	05/25/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/01/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	A-1	Modified TO-15 SIM	4.3 "Hg	5 psi
02A	A-2	Modified TO-15 SIM	5.5 "Hg	5.1 psi
03A	A-3	Modified TO-15 SIM	4.7 "Hg	5 psi
04A	Lab Blank	Modified TO-15 SIM	NA	NA
05A	CCV	Modified TO-15 SIM	NA	NA
06A	LCS	Modified TO-15 SIM	NA	NA
06AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:  DATE: 06/01/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified TO-15 SIM
Pangea Environmental Services, Inc.
Workorder# 1705528

Three 6 Liter Summa Canister (SIM Certified) samples were received on May 25, 2017. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

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

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

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per project specific client request the laboratory has reported estimated values for Benzene and Carbon Tetrachloride that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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

Client Sample ID: A-1

Lab ID#: 1705528-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.031	0.032	0.15	0.15
Carbon Tetrachloride	0.031	0.10	0.20	0.66
Benzene	0.078	0.056 J	0.25	0.18 J
Toluene	0.031	0.18	0.12	0.66
Ethyl Benzene	0.031	0.033	0.14	0.14
m,p-Xylene	0.062	0.10	0.27	0.44
o-Xylene	0.031	0.040	0.14	0.17

Client Sample ID: A-2

Lab ID#: 1705528-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Tetrachloride	0.033	0.15	0.21	0.97
Benzene	0.082	0.080 J	0.26	0.25 J
Toluene	0.033	0.15	0.12	0.56
m,p-Xylene	0.066	0.083	0.29	0.36
o-Xylene	0.033	0.039	0.14	0.17

Client Sample ID: A-3

Lab ID#: 1705528-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Tetrachloride	0.032	0.13	0.20	0.81
Benzene	0.080	0.093	0.25	0.30
Toluene	0.032	0.38	0.12	1.4
Ethyl Benzene	0.032	0.079	0.14	0.34
m,p-Xylene	0.064	0.20	0.28	0.85
o-Xylene	0.032	0.066	0.14	0.29

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Client Sample ID: A-1

Lab ID#: 1705528-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053122sim**	**Date of Collection: 5/24/17 5:03:00 PM**	
Dil. Factor:	**1.56**	**Date of Analysis: 5/31/17 09:08 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.031	0.032	0.15	0.15
1,1,1-Trichloroethane	0.031	Not Detected	0.17	Not Detected
Carbon Tetrachloride	0.031	0.10	0.20	0.66
Benzene	0.078	0.056 J	0.25	0.18 J
1,2-Dichloroethane	0.031	Not Detected	0.13	Not Detected
Trichloroethene	0.031	Not Detected	0.17	Not Detected
Toluene	0.031	0.18	0.12	0.66
Tetrachloroethene	0.031	Not Detected	0.21	Not Detected
Ethyl Benzene	0.031	0.033	0.14	0.14
m,p-Xylene	0.062	0.10	0.27	0.44
o-Xylene	0.031	0.040	0.14	0.17
Naphthalene	0.078	Not Detected	0.41	Not Detected

J = Estimated value.

Benzene MDL = 0.0016 ppbv or 0.0052 ug/m3

Carbon Tetrachloride MDL = 0.0018 ppbv or 0.011 ug/m3

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	90	70-130

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Client Sample ID: A-2

Lab ID#: 1705528-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053123sim**	**Date of Collection: 5/24/17 6:00:00 PM**	
Dil. Factor:	**1.65**	**Date of Analysis: 5/31/17 09:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.033	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Carbon Tetrachloride	0.033	0.15	0.21	0.97
Benzene	0.082	0.080 J	0.26	0.25 J
1,2-Dichloroethane	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected
Toluene	0.033	0.15	0.12	0.56
Tetrachloroethene	0.033	Not Detected	0.22	Not Detected
Ethyl Benzene	0.033	Not Detected	0.14	Not Detected
m,p-Xylene	0.066	0.083	0.29	0.36
o-Xylene	0.033	0.039	0.14	0.17
Naphthalene	0.082	Not Detected	0.43	Not Detected

J = Estimated value.

Benzene MDL = 0.0016 ppbv or 0.0052 ug/m3

Carbon Tetrachloride MDL = 0.0018 ppbv or 0.011 ug/m3

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	91	70-130

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Client Sample ID: A-3

Lab ID#: 1705528-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053124sim**	**Date of Collection: 5/24/17 5:39:00 PM**	
Dil. Factor:	**1.59**	**Date of Analysis: 5/31/17 10:19 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.032	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.032	Not Detected	0.17	Not Detected
Carbon Tetrachloride	0.032	0.13	0.20	0.81
Benzene	0.080	0.093	0.25	0.30
1,2-Dichloroethane	0.032	Not Detected	0.13	Not Detected
Trichloroethene	0.032	Not Detected	0.17	Not Detected
Toluene	0.032	0.38	0.12	1.4
Tetrachloroethene	0.032	Not Detected	0.22	Not Detected
Ethyl Benzene	0.032	0.079	0.14	0.34
m,p-Xylene	0.064	0.20	0.28	0.85
o-Xylene	0.032	0.066	0.14	0.29
Naphthalene	0.080	Not Detected	0.42	Not Detected

Benzene MDL = 0.0016 ppbv or 0.0052 ug/m3
Carbon Tetrachloride MDL = 0.0018 ppbv or 0.011 ug/m3
Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	90	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1705528-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053106sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 10:30 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Benzene	0.050	0.0034 J	0.16	0.011 J
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected
Naphthalene	0.050	Not Detected	0.26	Not Detected

J = Estimated value.

Benzene MDL = 0.0016 ppbv or 0.0052 ug/m3

Carbon Tetrachloride MDL = 0.0018 ppbv or 0.011 ug/m3

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: CCV

Lab ID#: 1705528-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053102sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 07:30 AM**	

Compound	%Recovery
Chloroform	91
1,1,1-Trichloroethane	95
Carbon Tetrachloride	100
Benzene	82
1,2-Dichloroethane	94
Trichloroethene	85
Toluene	98
Tetrachloroethene	89
Ethyl Benzene	104
m,p-Xylene	106
o-Xylene	103
Naphthalene	90

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: LCS

Lab ID#: 1705528-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053103sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 08:11 AM**	

Compound	%Recovery	Method Limits
Chloroform	100	70-130
1,1,1-Trichloroethane	107	70-130
Carbon Tetrachloride	138	60-140
Benzene	89	70-130
1,2-Dichloroethane	98	70-130
Trichloroethene	94	70-130
Toluene	108	70-130
Tetrachloroethene	100	70-130
Ethyl Benzene	121	70-130
m,p-Xylene	125	70-130
o-Xylene	122	70-130
Naphthalene	101	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	108	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1705528-06AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v053104sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 5/31/17 08:54 AM**	

Compound	%Recovery	Method Limits
Chloroform	99	70-130
1,1,1-Trichloroethane	106	70-130
Carbon Tetrachloride	138	60-140
Benzene	88	70-130
1,2-Dichloroethane	96	70-130
Trichloroethene	93	70-130
Toluene	107	70-130
Tetrachloroethene	98	70-130
Ethyl Benzene	116	70-130
m,p-Xylene	121	70-130
o-Xylene	120	70-130
Naphthalene	112	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	96	70-130

ANALYTICAL REPORT

June 07, 2017

Pangea Environmental Serv - Oakland, CA

Sample Delivery Group:	L912470
Samples Received:	05/27/2017
Project Number:	1975.001
Description:	1919 Market St

Report To:

Ron Scheele
1710 Franklin Street
Suite 200
Oakland, CA 94612

Entire Report Reviewed By:

Brian Ford

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

B-9-5 L912470-01 Solid

Collected by: E. Lervaag | Collected date/time: 05/26/17 08:55 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG984968	1	06/01/17 14:40	06/01/17 14:53	KDW
Volatile Organic Compounds (GC) by Method 8015	WG984838	1	05/26/17 08:55	06/01/17 17:29	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985411	1	05/26/17 08:55	06/05/17 16:37	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG984102	1	05/30/17 19:21	06/01/17 23:12	ACM

B-10-5 L912470-02 Solid

Collected by: E. Lervaag | Collected date/time: 05/26/17 09:30 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG984968	1	06/01/17 14:40	06/01/17 14:53	KDW
Volatile Organic Compounds (GC) by Method 8015	WG984838	1	05/26/17 09:30	06/01/17 17:50	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985411	1	05/26/17 09:30	06/05/17 16:57	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG984102	1	05/30/17 19:21	06/01/17 23:50	ACM

B-12-5 L912470-03 Solid

Collected by: E. Lervaag | Collected date/time: 05/26/17 12:15 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG984968	1	06/01/17 14:40	06/01/17 14:53	KDW
Volatile Organic Compounds (GC) by Method 8015	WG984838	1	05/26/17 12:15	06/01/17 18:11	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985411	1	05/26/17 12:15	06/05/17 17:17	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG984102	1	05/30/17 19:21	06/02/17 00:03	ACM

B-13-5 L912470-04 Solid

Collected by: E. Lervaag | Collected date/time: 05/26/17 13:10 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG984968	1	06/01/17 14:40	06/01/17 14:53	KDW
Volatile Organic Compounds (GC) by Method 8015	WG985780	1	06/02/17 20:13	06/04/17 00:42	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985781	1	06/02/17 20:13	06/03/17 22:41	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG984102	50	05/30/17 19:21	06/02/17 00:56	ACM

B-14-5 L912470-05 Solid

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG984968	1	06/01/17 14:40	06/01/17 14:53	KDW
Volatile Organic Compounds (GC) by Method 8015	WG984838	1	05/26/17 00:00	06/01/17 18:32	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985411	1	05/26/17 00:00	06/05/17 17:38	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG984102	1	05/30/17 19:21	06/02/17 00:17	ACM

B-15-5 L912470-06 Solid

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG984976	1	06/01/17 10:18	06/01/17 10:46	KDW
Volatile Organic Compounds (GC) by Method 8015	WG984838	1	05/26/17 00:00	06/01/17 18:53	LRL
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985411	17.25	05/26/17 00:00	06/05/17 14:11	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG984102	1	05/30/17 19:21	06/02/17 00:30	ACM

B-10-GW L912470-07 GW

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	1	06/01/17 08:06	06/01/17 08:06	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	1	06/04/17 07:51	06/04/17 07:51	ACG
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG983958	1	05/30/17 05:03	05/30/17 21:19	LM

B-11-GW L912470-08 GW

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	1	06/01/17 09:36	06/01/17 09:36	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	1	06/04/17 08:06	06/04/17 08:06	ACG
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG983958	1	05/30/17 05:03	05/30/17 21:36	LM

B-12-GW L912470-09 GW

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	1	06/01/17 09:58	06/01/17 09:58	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	1	06/04/17 08:21	06/04/17 08:21	ACG
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG983958	1	05/30/17 05:03	05/30/17 21:53	LM

B-13-GW L912470-10 GW

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	1	06/01/17 10:52	06/01/17 10:52	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	1	06/04/17 08:37	06/04/17 08:37	ACG
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG983958	1	05/30/17 05:03	05/30/17 22:10	LM

B-14-GW L912470-11 GW

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	1	06/01/17 11:14	06/01/17 11:14	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	5	06/04/17 08:52	06/04/17 08:52	ACG
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG983958	2	05/30/17 05:03	05/30/17 22:27	LM

B-15-GW L912470-12 GW

Collected by: E. Lervaag | Collected date/time: 05/26/17 00:00 | Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	50	06/01/17 11:36	06/01/17 11:36	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	10	06/06/17 17:33	06/06/17 17:33	LRL
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG983958	2.5	05/30/17 05:03	05/30/17 22:44	LM

B-9-GW L912470-13 GW

Collected by: E. Lervaag
Collected date/time: 05/26/17 00:00
Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015	WG984216	1	06/01/17 11:59	06/01/17 11:59	ACE
Volatile Organic Compounds (GC/MS) by Method 8260B	WG985828	1	06/04/17 09:23	06/04/17 09:23	ACG
Semi-Volatile Organic Compounds (GC) by Method 3511/8015	WG985194	1.14	06/02/17 08:24	06/06/17 10:46	TRF

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.5		1	06/01/2017 14:53	WG984968

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	ND		0.116	1	06/01/2017 17:29	WG984838
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-120*		*06/01/2017 17:29*	WG984838

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0578	1	06/05/2017 16:37	WG985411
Acrylonitrile	ND		0.0116	1	06/05/2017 16:37	WG985411
Benzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Bromobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Bromodichloromethane	ND		0.00116	1	06/05/2017 16:37	WG985411
Bromoform	ND		0.00116	1	06/05/2017 16:37	WG985411
Bromomethane	ND	J3	0.00578	1	06/05/2017 16:37	WG985411
n-Butylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
sec-Butylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
tert-Butylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Carbon tetrachloride	ND		0.00116	1	06/05/2017 16:37	WG985411
Chlorobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Chlorodibromomethane	ND		0.00116	1	06/05/2017 16:37	WG985411
Chloroethane	ND	J3	0.00578	1	06/05/2017 16:37	WG985411
Chloroform	ND		0.00578	1	06/05/2017 16:37	WG985411
Chloromethane	ND	J3	0.00289	1	06/05/2017 16:37	WG985411
2-Chlorotoluene	ND		0.00116	1	06/05/2017 16:37	WG985411
4-Chlorotoluene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,2-Dibromo-3-Chloropropane	ND		0.00578	1	06/05/2017 16:37	WG985411
1,2-Dibromoethane	ND		0.00116	1	06/05/2017 16:37	WG985411
Dibromomethane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,2-Dichlorobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,3-Dichlorobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,4-Dichlorobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Dichlorodifluoromethane	ND		0.00578	1	06/05/2017 16:37	WG985411
1,1-Dichloroethane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,2-Dichloroethane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1-Dichloroethene	ND	J3	0.00116	1	06/05/2017 16:37	WG985411
cis-1,2-Dichloroethene	ND		0.00116	1	06/05/2017 16:37	WG985411
trans-1,2-Dichloroethene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,2-Dichloropropane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1-Dichloropropene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,3-Dichloropropane	ND		0.00116	1	06/05/2017 16:37	WG985411
cis-1,3-Dichloropropene	ND		0.00116	1	06/05/2017 16:37	WG985411
trans-1,3-Dichloropropene	ND		0.00116	1	06/05/2017 16:37	WG985411
2,2-Dichloropropane	ND		0.00116	1	06/05/2017 16:37	WG985411
Di-isopropyl ether	ND		0.00116	1	06/05/2017 16:37	WG985411
Ethylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Hexachloro-1,3-butadiene	ND		0.00116	1	06/05/2017 16:37	WG985411
Isopropylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
p-Isopropyltoluene	ND		0.00116	1	06/05/2017 16:37	WG985411
2-Butanone (MEK)	ND		0.0116	1	06/05/2017 16:37	WG985411
Methylene Chloride	ND		0.00578	1	06/05/2017 16:37	WG985411
4-Methyl-2-pentanone (MIBK)	ND		0.0116	1	06/05/2017 16:37	WG985411

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		0.00116	1	06/05/2017 16:37	WG985411
Naphthalene	ND		0.00578	1	06/05/2017 16:37	WG985411
n-Propylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Styrene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1,1,2-Tetrachloroethane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1,2,2-Tetrachloroethane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1,2-Trichlorotrifluoroethane	ND	J3	0.00116	1	06/05/2017 16:37	WG985411
Tetrachloroethene	ND		0.00116	1	06/05/2017 16:37	WG985411
Toluene	ND		0.00578	1	06/05/2017 16:37	WG985411
1,2,3-Trichlorobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,2,4-Trichlorobenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1,1-Trichloroethane	ND		0.00116	1	06/05/2017 16:37	WG985411
1,1,2-Trichloroethane	ND		0.00116	1	06/05/2017 16:37	WG985411
Trichloroethene	ND		0.00116	1	06/05/2017 16:37	WG985411
Trichlorofluoromethane	ND		0.00578	1	06/05/2017 16:37	WG985411
1,2,3-Trichloropropane	ND		0.00289	1	06/05/2017 16:37	WG985411
1,2,4-Trimethylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,2,3-Trimethylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
1,3,5-Trimethylbenzene	ND		0.00116	1	06/05/2017 16:37	WG985411
Vinyl chloride	ND	J3	0.00116	1	06/05/2017 16:37	WG985411
Xylenes, Total	ND		0.00347	1	06/05/2017 16:37	WG985411
(S) Toluene-d8	*104*		*80.0-120*		*06/05/2017 16:37*	WG985411
(S) Dibromofluoromethane	*105*		*74.0-131*		*06/05/2017 16:37*	WG985411
(S) 4-Bromofluorobenzene	*103*		*64.0-132*		*06/05/2017 16:37*	WG985411

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		4.63	1	06/01/2017 23:12	WG984102
C22-C32 Hydrocarbons	ND		4.63	1	06/01/2017 23:12	WG984102
C32-C40 Hydrocarbons	ND		4.63	1	06/01/2017 23:12	WG984102
(S) o-Terphenyl	*87.4*		*18.0-148*		*06/01/2017 23:12*	WG984102

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.4		1	06/01/2017 14:53	WG984968

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	ND		0.113	1	06/01/2017 17:50	WG984838
(S) a,a,a-Trifluorotoluene(FID)	*97.7*		*77.0-120*		*06/01/2017 17:50*	WG984838

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0565	1	06/05/2017 16:57	WG985411
Acrylonitrile	ND		0.0113	1	06/05/2017 16:57	WG985411
Benzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Bromobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Bromodichloromethane	ND		0.00113	1	06/05/2017 16:57	WG985411
Bromoform	ND		0.00113	1	06/05/2017 16:57	WG985411
Bromomethane	ND	J3	0.00565	1	06/05/2017 16:57	WG985411
n-Butylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
sec-Butylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
tert-Butylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Carbon tetrachloride	ND		0.00113	1	06/05/2017 16:57	WG985411
Chlorobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Chlorodibromomethane	ND		0.00113	1	06/05/2017 16:57	WG985411
Chloroethane	ND	J3	0.00565	1	06/05/2017 16:57	WG985411
Chloroform	ND		0.00565	1	06/05/2017 16:57	WG985411
Chloromethane	ND	J3	0.00283	1	06/05/2017 16:57	WG985411
2-Chlorotoluene	ND		0.00113	1	06/05/2017 16:57	WG985411
4-Chlorotoluene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,2-Dibromo-3-Chloropropane	ND		0.00565	1	06/05/2017 16:57	WG985411
1,2-Dibromoethane	ND		0.00113	1	06/05/2017 16:57	WG985411
Dibromomethane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,2-Dichlorobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,3-Dichlorobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,4-Dichlorobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Dichlorodifluoromethane	ND		0.00565	1	06/05/2017 16:57	WG985411
1,1-Dichloroethane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,2-Dichloroethane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1-Dichloroethene	ND	J3	0.00113	1	06/05/2017 16:57	WG985411
cis-1,2-Dichloroethene	ND		0.00113	1	06/05/2017 16:57	WG985411
trans-1,2-Dichloroethene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,2-Dichloropropane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1-Dichloropropene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,3-Dichloropropane	ND		0.00113	1	06/05/2017 16:57	WG985411
cis-1,3-Dichloropropene	ND		0.00113	1	06/05/2017 16:57	WG985411
trans-1,3-Dichloropropene	ND		0.00113	1	06/05/2017 16:57	WG985411
2,2-Dichloropropane	ND		0.00113	1	06/05/2017 16:57	WG985411
Di-isopropyl ether	ND		0.00113	1	06/05/2017 16:57	WG985411
Ethylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Hexachloro-1,3-butadiene	ND		0.00113	1	06/05/2017 16:57	WG985411
Isopropylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
p-Isopropyltoluene	ND		0.00113	1	06/05/2017 16:57	WG985411
2-Butanone (MEK)	ND		0.0113	1	06/05/2017 16:57	WG985411
Methylene Chloride	ND		0.00565	1	06/05/2017 16:57	WG985411
4-Methyl-2-pentanone (MIBK)	ND		0.0113	1	06/05/2017 16:57	WG985411

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		0.00113	1	06/05/2017 16:57	WG985411
Naphthalene	ND		0.00565	1	06/05/2017 16:57	WG985411
n-Propylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Styrene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1,1,2-Tetrachloroethane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1,2,2-Tetrachloroethane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1,2-Trichlorotrifluoroethane	ND	J3	0.00113	1	06/05/2017 16:57	WG985411
Tetrachloroethene	ND		0.00113	1	06/05/2017 16:57	WG985411
Toluene	ND		0.00565	1	06/05/2017 16:57	WG985411
1,2,3-Trichlorobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,2,4-Trichlorobenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1,1-Trichloroethane	ND		0.00113	1	06/05/2017 16:57	WG985411
1,1,2-Trichloroethane	ND		0.00113	1	06/05/2017 16:57	WG985411
Trichloroethene	ND		0.00113	1	06/05/2017 16:57	WG985411
Trichlorofluoromethane	ND		0.00565	1	06/05/2017 16:57	WG985411
1,2,3-Trichloropropane	ND		0.00283	1	06/05/2017 16:57	WG985411
1,2,4-Trimethylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,2,3-Trimethylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
1,3,5-Trimethylbenzene	ND		0.00113	1	06/05/2017 16:57	WG985411
Vinyl chloride	ND	J3	0.00113	1	06/05/2017 16:57	WG985411
Xylenes, Total	ND		0.00339	1	06/05/2017 16:57	WG985411
(S) Toluene-d8	*103*		*80.0-120*		*06/05/2017 16:57*	WG985411
(S) Dibromofluoromethane	*103*		*74.0-131*		*06/05/2017 16:57*	WG985411
(S) 4-Bromofluorobenzene	*103*		*64.0-132*		*06/05/2017 16:57*	WG985411

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		4.52	1	06/01/2017 23:50	WG984102
C22-C32 Hydrocarbons	ND		4.52	1	06/01/2017 23:50	WG984102
C32-C40 Hydrocarbons	ND		4.52	1	06/01/2017 23:50	WG984102
(S) o-Terphenyl	*92.0*		*18.0-148*		*06/01/2017 23:50*	WG984102

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.0		1	06/01/2017 14:53	WG984968

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	ND		0.116	1	06/01/2017 18:11	WG984838
(S) a,a,a-Trifluorotoluene(FID)	*98.2*		*77.0-120*		*06/01/2017 18:11*	WG984838

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0581	1	06/05/2017 17:17	WG985411
Acrylonitrile	ND		0.0116	1	06/05/2017 17:17	WG985411
Benzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Bromobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Bromodichloromethane	ND		0.00116	1	06/05/2017 17:17	WG985411
Bromoform	ND		0.00116	1	06/05/2017 17:17	WG985411
Bromomethane	ND	J3	0.00581	1	06/05/2017 17:17	WG985411
n-Butylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
sec-Butylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
tert-Butylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Carbon tetrachloride	ND		0.00116	1	06/05/2017 17:17	WG985411
Chlorobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Chlorodibromomethane	ND		0.00116	1	06/05/2017 17:17	WG985411
Chloroethane	ND	J3	0.00581	1	06/05/2017 17:17	WG985411
Chloroform	ND		0.00581	1	06/05/2017 17:17	WG985411
Chloromethane	ND	J3	0.00291	1	06/05/2017 17:17	WG985411
2-Chlorotoluene	ND		0.00116	1	06/05/2017 17:17	WG985411
4-Chlorotoluene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,2-Dibromo-3-Chloropropane	ND		0.00581	1	06/05/2017 17:17	WG985411
1,2-Dibromoethane	ND		0.00116	1	06/05/2017 17:17	WG985411
Dibromomethane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,2-Dichlorobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,3-Dichlorobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,4-Dichlorobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Dichlorodifluoromethane	ND		0.00581	1	06/05/2017 17:17	WG985411
1,1-Dichloroethane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,2-Dichloroethane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1-Dichloroethene	ND	J3	0.00116	1	06/05/2017 17:17	WG985411
cis-1,2-Dichloroethene	ND		0.00116	1	06/05/2017 17:17	WG985411
trans-1,2-Dichloroethene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,2-Dichloropropane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1-Dichloropropene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,3-Dichloropropane	ND		0.00116	1	06/05/2017 17:17	WG985411
cis-1,3-Dichloropropene	ND		0.00116	1	06/05/2017 17:17	WG985411
trans-1,3-Dichloropropene	ND		0.00116	1	06/05/2017 17:17	WG985411
2,2-Dichloropropane	ND		0.00116	1	06/05/2017 17:17	WG985411
Di-isopropyl ether	ND		0.00116	1	06/05/2017 17:17	WG985411
Ethylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Hexachloro-1,3-butadiene	ND		0.00116	1	06/05/2017 17:17	WG985411
Isopropylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
p-Isopropyltoluene	ND		0.00116	1	06/05/2017 17:17	WG985411
2-Butanone (MEK)	ND		0.0116	1	06/05/2017 17:17	WG985411
Methylene Chloride	ND		0.00581	1	06/05/2017 17:17	WG985411
4-Methyl-2-pentanone (MIBK)	ND		0.0116	1	06/05/2017 17:17	WG985411

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		0.00116	1	06/05/2017 17:17	WG985411
Naphthalene	ND		0.00581	1	06/05/2017 17:17	WG985411
n-Propylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Styrene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1,1,2-Tetrachloroethane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1,2,2-Tetrachloroethane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1,2-Trichlorotrifluoroethane	ND	J3	0.00116	1	06/05/2017 17:17	WG985411
Tetrachloroethene	ND		0.00116	1	06/05/2017 17:17	WG985411
Toluene	ND		0.00581	1	06/05/2017 17:17	WG985411
1,2,3-Trichlorobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,2,4-Trichlorobenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1,1-Trichloroethane	ND		0.00116	1	06/05/2017 17:17	WG985411
1,1,2-Trichloroethane	ND		0.00116	1	06/05/2017 17:17	WG985411
Trichloroethene	ND		0.00116	1	06/05/2017 17:17	WG985411
Trichlorofluoromethane	ND		0.00581	1	06/05/2017 17:17	WG985411
1,2,3-Trichloropropane	ND		0.00291	1	06/05/2017 17:17	WG985411
1,2,4-Trimethylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,2,3-Trimethylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
1,3,5-Trimethylbenzene	ND		0.00116	1	06/05/2017 17:17	WG985411
Vinyl chloride	ND	J3	0.00116	1	06/05/2017 17:17	WG985411
Xylenes, Total	ND		0.00349	1	06/05/2017 17:17	WG985411
(S) Toluene-d8	*103*		*80.0-120*		*06/05/2017 17:17*	WG985411
(S) Dibromofluoromethane	*106*		*74.0-131*		*06/05/2017 17:17*	WG985411
(S) 4-Bromofluorobenzene	*104*		*64.0-132*		*06/05/2017 17:17*	WG985411

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		4.65	1	06/02/2017 00:03	WG984102
C22-C32 Hydrocarbons	ND		4.65	1	06/02/2017 00:03	WG984102
C32-C40 Hydrocarbons	ND		4.65	1	06/02/2017 00:03	WG984102
(S) o-Terphenyl	*105*		*18.0-148*		*06/02/2017 00:03*	WG984102

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.1		1	06/01/2017 14:53	WG984968

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	ND		0.116	1	06/04/2017 00:42	WG985780
(S) a,a,a-Trifluorotoluene(FID)	*106*		*77.0-120*		*06/04/2017 00:42*	WG985780

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0580	1	06/03/2017 22:41	WG985781
Acrylonitrile	ND		0.0116	1	06/03/2017 22:41	WG985781
Benzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Bromobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Bromodichloromethane	ND		0.00116	1	06/03/2017 22:41	WG985781
Bromoform	ND		0.00116	1	06/03/2017 22:41	WG985781
Bromomethane	ND		0.00580	1	06/03/2017 22:41	WG985781
n-Butylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
sec-Butylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
tert-Butylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Carbon tetrachloride	ND		0.00116	1	06/03/2017 22:41	WG985781
Chlorobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Chlorodibromomethane	ND		0.00116	1	06/03/2017 22:41	WG985781
Chloroethane	ND		0.00580	1	06/03/2017 22:41	WG985781
Chloroform	ND		0.00580	1	06/03/2017 22:41	WG985781
Chloromethane	ND		0.00290	1	06/03/2017 22:41	WG985781
2-Chlorotoluene	ND		0.00116	1	06/03/2017 22:41	WG985781
4-Chlorotoluene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,2-Dibromo-3-Chloropropane	ND		0.00580	1	06/03/2017 22:41	WG985781
1,2-Dibromoethane	ND		0.00116	1	06/03/2017 22:41	WG985781
Dibromomethane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,2-Dichlorobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,3-Dichlorobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,4-Dichlorobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Dichlorodifluoromethane	ND		0.00580	1	06/03/2017 22:41	WG985781
1,1-Dichloroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,2-Dichloroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1-Dichloroethene	ND		0.00116	1	06/03/2017 22:41	WG985781
cis-1,2-Dichloroethene	ND		0.00116	1	06/03/2017 22:41	WG985781
trans-1,2-Dichloroethene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,2-Dichloropropane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1-Dichloropropene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,3-Dichloropropane	ND		0.00116	1	06/03/2017 22:41	WG985781
cis-1,3-Dichloropropene	ND		0.00116	1	06/03/2017 22:41	WG985781
trans-1,3-Dichloropropene	ND		0.00116	1	06/03/2017 22:41	WG985781
2,2-Dichloropropane	ND		0.00116	1	06/03/2017 22:41	WG985781
Di-isopropyl ether	ND		0.00116	1	06/03/2017 22:41	WG985781
Ethylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Hexachloro-1,3-butadiene	ND		0.00116	1	06/03/2017 22:41	WG985781
Isopropylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
p-Isopropyltoluene	ND		0.00116	1	06/03/2017 22:41	WG985781
2-Butanone (MEK)	ND		0.0116	1	06/03/2017 22:41	WG985781
Methylene Chloride	ND		0.00580	1	06/03/2017 22:41	WG985781
4-Methyl-2-pentanone (MIBK)	ND		0.0116	1	06/03/2017 22:41	WG985781

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		0.00116	1	06/03/2017 22:41	WG985781
Naphthalene	ND		0.00580	1	06/03/2017 22:41	WG985781
n-Propylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Styrene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1,1,2-Tetrachloroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1,2,2-Tetrachloroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1,2-Trichlorotrifluoroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
Tetrachloroethene	ND		0.00116	1	06/03/2017 22:41	WG985781
Toluene	ND		0.00580	1	06/03/2017 22:41	WG985781
1,2,3-Trichlorobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,2,4-Trichlorobenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1,1-Trichloroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
1,1,2-Trichloroethane	ND		0.00116	1	06/03/2017 22:41	WG985781
Trichloroethene	ND		0.00116	1	06/03/2017 22:41	WG985781
Trichlorofluoromethane	ND		0.00580	1	06/03/2017 22:41	WG985781
1,2,3-Trichloropropane	ND		0.00290	1	06/03/2017 22:41	WG985781
1,2,4-Trimethylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,2,3-Trimethylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
1,3,5-Trimethylbenzene	ND		0.00116	1	06/03/2017 22:41	WG985781
Vinyl chloride	ND		0.00116	1	06/03/2017 22:41	WG985781
Xylenes, Total	ND		0.00348	1	06/03/2017 22:41	WG985781
(S) Toluene-d8	*103*		*80.0-120*		*06/03/2017 22:41*	WG985781
(S) Dibromofluoromethane	*103*		*74.0-131*		*06/03/2017 22:41*	WG985781
(S) 4-Bromofluorobenzene	*96.0*		*64.0-132*		*06/03/2017 22:41*	WG985781

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		232	50	06/02/2017 00:56	WG984102
C22-C32 Hydrocarbons	1040		232	50	06/02/2017 00:56	WG984102
C32-C40 Hydrocarbons	874		232	50	06/02/2017 00:56	WG984102
(S) o-Terphenyl	*2.00*	J7	*18.0-148*		*06/02/2017 00:56*	WG984102

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.7		1	06/01/2017 14:53	WG984968

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	3.34		0.117	1	06/01/2017 18:32	WG984838
(S) a,a,a-Trifluorotoluene(FID)	*94.7*		*77.0-120*		*06/01/2017 18:32*	WG984838

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0583	1	06/05/2017 17:38	WG985411
Acrylonitrile	ND		0.0117	1	06/05/2017 17:38	WG985411
Benzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Bromobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Bromodichloromethane	ND		0.00117	1	06/05/2017 17:38	WG985411
Bromoform	ND		0.00117	1	06/05/2017 17:38	WG985411
Bromomethane	ND	J3	0.00583	1	06/05/2017 17:38	WG985411
n-Butylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
sec-Butylbenzene	0.00206		0.00117	1	06/05/2017 17:38	WG985411
tert-Butylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Carbon tetrachloride	ND		0.00117	1	06/05/2017 17:38	WG985411
Chlorobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Chlorodibromomethane	ND		0.00117	1	06/05/2017 17:38	WG985411
Chloroethane	ND	J3	0.00583	1	06/05/2017 17:38	WG985411
Chloroform	ND		0.00583	1	06/05/2017 17:38	WG985411
Chloromethane	ND	J3	0.00292	1	06/05/2017 17:38	WG985411
2-Chlorotoluene	ND		0.00117	1	06/05/2017 17:38	WG985411
4-Chlorotoluene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,2-Dibromo-3-Chloropropane	ND		0.00583	1	06/05/2017 17:38	WG985411
1,2-Dibromoethane	ND		0.00117	1	06/05/2017 17:38	WG985411
Dibromomethane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,2-Dichlorobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,3-Dichlorobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,4-Dichlorobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Dichlorodifluoromethane	ND		0.00583	1	06/05/2017 17:38	WG985411
1,1-Dichloroethane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,2-Dichloroethane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1-Dichloroethene	ND	J3	0.00117	1	06/05/2017 17:38	WG985411
cis-1,2-Dichloroethene	ND		0.00117	1	06/05/2017 17:38	WG985411
trans-1,2-Dichloroethene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,2-Dichloropropane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1-Dichloropropene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,3-Dichloropropane	ND		0.00117	1	06/05/2017 17:38	WG985411
cis-1,3-Dichloropropene	ND		0.00117	1	06/05/2017 17:38	WG985411
trans-1,3-Dichloropropene	ND		0.00117	1	06/05/2017 17:38	WG985411
2,2-Dichloropropane	ND		0.00117	1	06/05/2017 17:38	WG985411
Di-isopropyl ether	ND		0.00117	1	06/05/2017 17:38	WG985411
Ethylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Hexachloro-1,3-butadiene	ND		0.00117	1	06/05/2017 17:38	WG985411
Isopropylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
p-Isopropyltoluene	ND		0.00117	1	06/05/2017 17:38	WG985411
2-Butanone (MEK)	ND		0.0117	1	06/05/2017 17:38	WG985411
Methylene Chloride	ND		0.00583	1	06/05/2017 17:38	WG985411
4-Methyl-2-pentanone (MIBK)	ND		0.0117	1	06/05/2017 17:38	WG985411

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		0.00117	1	06/05/2017 17:38	WG985411
Naphthalene	ND		0.00583	1	06/05/2017 17:38	WG985411
n-Propylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Styrene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1,1,2-Tetrachloroethane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1,2,2-Tetrachloroethane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1,2-Trichlorotrifluoroethane	ND	J3	0.00117	1	06/05/2017 17:38	WG985411
Tetrachloroethene	ND		0.00117	1	06/05/2017 17:38	WG985411
Toluene	ND		0.00583	1	06/05/2017 17:38	WG985411
1,2,3-Trichlorobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,2,4-Trichlorobenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1,1-Trichloroethane	ND		0.00117	1	06/05/2017 17:38	WG985411
1,1,2-Trichloroethane	ND		0.00117	1	06/05/2017 17:38	WG985411
Trichloroethene	ND		0.00117	1	06/05/2017 17:38	WG985411
Trichlorofluoromethane	ND		0.00583	1	06/05/2017 17:38	WG985411
1,2,3-Trichloropropane	ND		0.00292	1	06/05/2017 17:38	WG985411
1,2,4-Trimethylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,2,3-Trimethylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
1,3,5-Trimethylbenzene	ND		0.00117	1	06/05/2017 17:38	WG985411
Vinyl chloride	ND	J3	0.00117	1	06/05/2017 17:38	WG985411
Xylenes, Total	ND		0.00350	1	06/05/2017 17:38	WG985411
(S) Toluene-d8	*106*		*80.0-120*		*06/05/2017 17:38*	WG985411
(S) Dibromofluoromethane	*104*		*74.0-131*		*06/05/2017 17:38*	WG985411
(S) 4-Bromofluorobenzene	*128*		*64.0-132*		*06/05/2017 17:38*	WG985411

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	22.8		4.67	1	06/02/2017 00:17	WG984102
C22-C32 Hydrocarbons	ND		4.67	1	06/02/2017 00:17	WG984102
C32-C40 Hydrocarbons	ND		4.67	1	06/02/2017 00:17	WG984102
(S) o-Terphenyl	*76.1*		*18.0-148*		*06/02/2017 00:17*	WG984102

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.8		1	06/01/2017 10:46	WG984976

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	5.50		0.113	1	06/01/2017 18:53	WG984838
(S) a,a,a-Trifluorotoluene(FID)	*91.9*		*77.0-120*		*06/01/2017 18:53*	WG984838

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.972	17.25	06/05/2017 14:11	WG985411
Acrylonitrile	ND		0.194	17.25	06/05/2017 14:11	WG985411
Benzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Bromobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Bromodichloromethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Bromoform	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Bromomethane	ND	J3	0.0972	17.25	06/05/2017 14:11	WG985411
n-Butylbenzene	0.0449		0.0194	17.25	06/05/2017 14:11	WG985411
sec-Butylbenzene	0.0271		0.0194	17.25	06/05/2017 14:11	WG985411
tert-Butylbenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Carbon tetrachloride	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Chlorobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Chlorodibromomethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Chloroethane	ND	J3	0.0972	17.25	06/05/2017 14:11	WG985411
Chloroform	ND		0.0972	17.25	06/05/2017 14:11	WG985411
Chloromethane	ND	J3	0.0486	17.25	06/05/2017 14:11	WG985411
2-Chlorotoluene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
4-Chlorotoluene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,2-Dibromo-3-Chloropropane	ND		0.0972	17.25	06/05/2017 14:11	WG985411
1,2-Dibromoethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Dibromomethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,2-Dichlorobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,3-Dichlorobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,4-Dichlorobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Dichlorodifluoromethane	ND		0.0972	17.25	06/05/2017 14:11	WG985411
1,1-Dichloroethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,2-Dichloroethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1-Dichloroethene	ND	J3	0.0194	17.25	06/05/2017 14:11	WG985411
cis-1,2-Dichloroethene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
trans-1,2-Dichloroethene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,2-Dichloropropane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1-Dichloropropene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,3-Dichloropropane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
cis-1,3-Dichloropropene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
trans-1,3-Dichloropropene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
2,2-Dichloropropane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Di-isopropyl ether	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Ethylbenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Hexachloro-1,3-butadiene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Isopropylbenzene	0.0255		0.0194	17.25	06/05/2017 14:11	WG985411
p-Isopropyltoluene	0.0335		0.0194	17.25	06/05/2017 14:11	WG985411
2-Butanone (MEK)	ND		0.194	17.25	06/05/2017 14:11	WG985411
Methylene Chloride	ND		0.0972	17.25	06/05/2017 14:11	WG985411
4-Methyl-2-pentanone (MIBK)	ND		0.194	17.25	06/05/2017 14:11	WG985411

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Naphthalene	ND		0.0972	17.25	06/05/2017 14:11	WG985411
n-Propylbenzene	0.0732		0.0194	17.25	06/05/2017 14:11	WG985411
Styrene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1,1,2-Tetrachloroethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1,2,2-Tetrachloroethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1,2-Trichlorotrifluoroethane	ND	J3	0.0194	17.25	06/05/2017 14:11	WG985411
Tetrachloroethene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Toluene	ND		0.0972	17.25	06/05/2017 14:11	WG985411
1,2,3-Trichlorobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,2,4-Trichlorobenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1,1-Trichloroethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,1,2-Trichloroethane	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Trichloroethene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Trichlorofluoromethane	ND		0.0972	17.25	06/05/2017 14:11	WG985411
1,2,3-Trichloropropane	ND		0.0486	17.25	06/05/2017 14:11	WG985411
1,2,4-Trimethylbenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,2,3-Trimethylbenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
1,3,5-Trimethylbenzene	ND		0.0194	17.25	06/05/2017 14:11	WG985411
Vinyl chloride	ND	J3	0.0194	17.25	06/05/2017 14:11	WG985411
Xylenes, Total	ND		0.0583	17.25	06/05/2017 14:11	WG985411
(S) Toluene-d8	*104*		*80.0-120*		*06/05/2017 14:11*	WG985411
(S) Dibromofluoromethane	*89.2*		*74.0-131*		*06/05/2017 14:11*	WG985411
(S) 4-Bromofluorobenzene	*120*		*64.0-132*		*06/05/2017 14:11*	WG985411

Sample Narrative:

8260B L912470-06 WG985411: Non-target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		4.51	1	06/02/2017 00:30	WG984102
C22-C32 Hydrocarbons	ND		4.51	1	06/02/2017 00:30	WG984102
C32-C40 Hydrocarbons	ND		4.51	1	06/02/2017 00:30	WG984102
(S) o-Terphenyl	*91.6*		*18.0-148*		*06/02/2017 00:30*	WG984102

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	ND		100	1	06/01/2017 08:06	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*97.1*		*77.0-122*		*06/01/2017 08:06*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/04/2017 07:51	WG985828
Acrolein	ND		50.0	1	06/04/2017 07:51	WG985828
Acrylonitrile	ND		10.0	1	06/04/2017 07:51	WG985828
Benzene	ND		1.00	1	06/04/2017 07:51	WG985828
Bromobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Bromodichloromethane	ND		1.00	1	06/04/2017 07:51	WG985828
Bromoform	ND		1.00	1	06/04/2017 07:51	WG985828
Bromomethane	ND		5.00	1	06/04/2017 07:51	WG985828
n-Butylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
sec-Butylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
tert-Butylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Carbon tetrachloride	ND		1.00	1	06/04/2017 07:51	WG985828
Chlorobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Chlorodibromomethane	ND		1.00	1	06/04/2017 07:51	WG985828
Chloroethane	ND		5.00	1	06/04/2017 07:51	WG985828
Chloroform	ND		5.00	1	06/04/2017 07:51	WG985828
Chloromethane	ND		2.50	1	06/04/2017 07:51	WG985828
2-Chlorotoluene	ND		1.00	1	06/04/2017 07:51	WG985828
4-Chlorotoluene	ND		1.00	1	06/04/2017 07:51	WG985828
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/04/2017 07:51	WG985828
1,2-Dibromoethane	ND		1.00	1	06/04/2017 07:51	WG985828
Dibromomethane	ND		1.00	1	06/04/2017 07:51	WG985828
1,2-Dichlorobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
1,3-Dichlorobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
1,4-Dichlorobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Dichlorodifluoromethane	ND	J4	5.00	1	06/04/2017 07:51	WG985828
1,1-Dichloroethane	ND		1.00	1	06/04/2017 07:51	WG985828
1,2-Dichloroethane	ND		1.00	1	06/04/2017 07:51	WG985828
1,1-Dichloroethene	ND		1.00	1	06/04/2017 07:51	WG985828
cis-1,2-Dichloroethene	ND		1.00	1	06/04/2017 07:51	WG985828
trans-1,2-Dichloroethene	ND		1.00	1	06/04/2017 07:51	WG985828
1,2-Dichloropropane	ND		1.00	1	06/04/2017 07:51	WG985828
1,1-Dichloropropene	ND		1.00	1	06/04/2017 07:51	WG985828
1,3-Dichloropropane	ND		1.00	1	06/04/2017 07:51	WG985828
cis-1,3-Dichloropropene	ND		1.00	1	06/04/2017 07:51	WG985828
trans-1,3-Dichloropropene	ND		1.00	1	06/04/2017 07:51	WG985828
2,2-Dichloropropane	ND		1.00	1	06/04/2017 07:51	WG985828
Di-isopropyl ether	ND		1.00	1	06/04/2017 07:51	WG985828
Ethylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Hexachloro-1,3-butadiene	ND		1.00	1	06/04/2017 07:51	WG985828
Isopropylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
p-Isopropyltoluene	ND		1.00	1	06/04/2017 07:51	WG985828
2-Butanone (MEK)	ND		10.0	1	06/04/2017 07:51	WG985828
Methylene Chloride	ND		5.00	1	06/04/2017 07:51	WG985828
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/04/2017 07:51	WG985828
Methyl tert-butyl ether	ND		1.00	1	06/04/2017 07:51	WG985828
Naphthalene	ND		5.00	1	06/04/2017 07:51	WG985828
n-Propylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Styrene	ND		1.00	1	06/04/2017 07:51	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/04/2017 07:51	WG985828
1,1,2,2-Tetrachloroethane	ND		1.00	1	06/04/2017 07:51	WG985828
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/04/2017 07:51	WG985828
Tetrachloroethene	ND		1.00	1	06/04/2017 07:51	WG985828
Toluene	ND		1.00	1	06/04/2017 07:51	WG985828
1,2,3-Trichlorobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
1,2,4-Trichlorobenzene	ND		1.00	1	06/04/2017 07:51	WG985828
1,1,1-Trichloroethane	ND		1.00	1	06/04/2017 07:51	WG985828
1,1,2-Trichloroethane	ND		1.00	1	06/04/2017 07:51	WG985828
Trichloroethene	ND		1.00	1	06/04/2017 07:51	WG985828
Trichlorofluoromethane	ND		5.00	1	06/04/2017 07:51	WG985828
1,2,3-Trichloropropane	ND		2.50	1	06/04/2017 07:51	WG985828
1,2,4-Trimethylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
1,2,3-Trimethylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
1,3,5-Trimethylbenzene	ND		1.00	1	06/04/2017 07:51	WG985828
Vinyl chloride	ND		1.00	1	06/04/2017 07:51	WG985828
Xylenes, Total	ND		3.00	1	06/04/2017 07:51	WG985828
(S) Toluene-d8	*100*		*80.0-120*		*06/04/2017 07:51*	WG985828
(S) Dibromofluoromethane	*99.5*		*76.0-123*		*06/04/2017 07:51*	WG985828
(S) 4-Bromofluorobenzene	*111*		*80.0-120*		*06/04/2017 07:51*	WG985828

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	576		100	1	05/30/2017 21:19	WG983958
C22-C32 Hydrocarbons	370		100	1	05/30/2017 21:19	WG983958
C32-C40 Hydrocarbons	336		100	1	05/30/2017 21:19	WG983958
(S) o-Terphenyl	*96.2*		*52.0-156*		*05/30/2017 21:19*	WG983958

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	ND		100	1	06/01/2017 09:36	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*96.7*		*77.0-122*		*06/01/2017 09:36*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/04/2017 08:06	WG985828
Acrolein	ND		50.0	1	06/04/2017 08:06	WG985828
Acrylonitrile	ND		10.0	1	06/04/2017 08:06	WG985828
Benzene	ND		1.00	1	06/04/2017 08:06	WG985828
Bromobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Bromodichloromethane	ND		1.00	1	06/04/2017 08:06	WG985828
Bromoform	ND		1.00	1	06/04/2017 08:06	WG985828
Bromomethane	ND		5.00	1	06/04/2017 08:06	WG985828
n-Butylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
sec-Butylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
tert-Butylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Carbon tetrachloride	ND		1.00	1	06/04/2017 08:06	WG985828
Chlorobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Chlorodibromomethane	ND		1.00	1	06/04/2017 08:06	WG985828
Chloroethane	ND		5.00	1	06/04/2017 08:06	WG985828
Chloroform	ND		5.00	1	06/04/2017 08:06	WG985828
Chloromethane	ND		2.50	1	06/04/2017 08:06	WG985828
2-Chlorotoluene	ND		1.00	1	06/04/2017 08:06	WG985828
4-Chlorotoluene	ND		1.00	1	06/04/2017 08:06	WG985828
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/04/2017 08:06	WG985828
1,2-Dibromoethane	ND		1.00	1	06/04/2017 08:06	WG985828
Dibromomethane	ND		1.00	1	06/04/2017 08:06	WG985828
1,2-Dichlorobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
1,3-Dichlorobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
1,4-Dichlorobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Dichlorodifluoromethane	ND	J4	5.00	1	06/04/2017 08:06	WG985828
1,1-Dichloroethane	ND		1.00	1	06/04/2017 08:06	WG985828
1,2-Dichloroethane	ND		1.00	1	06/04/2017 08:06	WG985828
1,1-Dichloroethene	ND		1.00	1	06/04/2017 08:06	WG985828
cis-1,2-Dichloroethene	ND		1.00	1	06/04/2017 08:06	WG985828
trans-1,2-Dichloroethene	ND		1.00	1	06/04/2017 08:06	WG985828
1,2-Dichloropropane	ND		1.00	1	06/04/2017 08:06	WG985828
1,1-Dichloropropene	ND		1.00	1	06/04/2017 08:06	WG985828
1,3-Dichloropropane	ND		1.00	1	06/04/2017 08:06	WG985828
cis-1,3-Dichloropropene	ND		1.00	1	06/04/2017 08:06	WG985828
trans-1,3-Dichloropropene	ND		1.00	1	06/04/2017 08:06	WG985828
2,2-Dichloropropane	ND		1.00	1	06/04/2017 08:06	WG985828
Di-isopropyl ether	ND		1.00	1	06/04/2017 08:06	WG985828
Ethylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Hexachloro-1,3-butadiene	ND		1.00	1	06/04/2017 08:06	WG985828
Isopropylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
p-Isopropyltoluene	ND		1.00	1	06/04/2017 08:06	WG985828
2-Butanone (MEK)	ND		10.0	1	06/04/2017 08:06	WG985828
Methylene Chloride	ND		5.00	1	06/04/2017 08:06	WG985828
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/04/2017 08:06	WG985828
Methyl tert-butyl ether	ND		1.00	1	06/04/2017 08:06	WG985828
Naphthalene	ND		5.00	1	06/04/2017 08:06	WG985828
n-Propylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Styrene	ND		1.00	1	06/04/2017 08:06	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/04/2017 08:06	WG985828
1,1,2,2-Tetrachloroethane	ND		1.00	1	06/04/2017 08:06	WG985828
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/04/2017 08:06	WG985828
Tetrachloroethene	ND		1.00	1	06/04/2017 08:06	WG985828
Toluene	ND		1.00	1	06/04/2017 08:06	WG985828
1,2,3-Trichlorobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
1,2,4-Trichlorobenzene	ND		1.00	1	06/04/2017 08:06	WG985828
1,1,1-Trichloroethane	ND		1.00	1	06/04/2017 08:06	WG985828
1,1,2-Trichloroethane	ND		1.00	1	06/04/2017 08:06	WG985828
Trichloroethene	2.62		1.00	1	06/04/2017 08:06	WG985828
Trichlorofluoromethane	ND		5.00	1	06/04/2017 08:06	WG985828
1,2,3-Trichloropropane	ND		2.50	1	06/04/2017 08:06	WG985828
1,2,4-Trimethylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
1,2,3-Trimethylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
1,3,5-Trimethylbenzene	ND		1.00	1	06/04/2017 08:06	WG985828
Vinyl chloride	ND		1.00	1	06/04/2017 08:06	WG985828
Xylenes, Total	ND		3.00	1	06/04/2017 08:06	WG985828
(S) Toluene-d8	*101*		*80.0-120*		*06/04/2017 08:06*	WG985828
(S) Dibromofluoromethane	*98.8*		*76.0-123*		*06/04/2017 08:06*	WG985828
(S) 4-Bromofluorobenzene	*111*		*80.0-120*		*06/04/2017 08:06*	WG985828

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	219		100	1	05/30/2017 21:36	WG983958
C22-C32 Hydrocarbons	188		100	1	05/30/2017 21:36	WG983958
C32-C40 Hydrocarbons	193		100	1	05/30/2017 21:36	WG983958
(S) o-Terphenyl	*90.8*		*52.0-156*		*05/30/2017 21:36*	WG983958

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	ND		100	1	06/01/2017 09:58	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*97.5*		*77.0-122*		*06/01/2017 09:58*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/04/2017 08:21	WG985828
Acrolein	ND		50.0	1	06/04/2017 08:21	WG985828
Acrylonitrile	ND		10.0	1	06/04/2017 08:21	WG985828
Benzene	ND		1.00	1	06/04/2017 08:21	WG985828
Bromobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Bromodichloromethane	ND		1.00	1	06/04/2017 08:21	WG985828
Bromoform	ND		1.00	1	06/04/2017 08:21	WG985828
Bromomethane	ND		5.00	1	06/04/2017 08:21	WG985828
n-Butylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
sec-Butylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
tert-Butylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Carbon tetrachloride	ND		1.00	1	06/04/2017 08:21	WG985828
Chlorobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Chlorodibromomethane	ND		1.00	1	06/04/2017 08:21	WG985828
Chloroethane	ND		5.00	1	06/04/2017 08:21	WG985828
Chloroform	ND		5.00	1	06/04/2017 08:21	WG985828
Chloromethane	ND		2.50	1	06/04/2017 08:21	WG985828
2-Chlorotoluene	ND		1.00	1	06/04/2017 08:21	WG985828
4-Chlorotoluene	ND		1.00	1	06/04/2017 08:21	WG985828
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/04/2017 08:21	WG985828
1,2-Dibromoethane	ND		1.00	1	06/04/2017 08:21	WG985828
Dibromomethane	ND		1.00	1	06/04/2017 08:21	WG985828
1,2-Dichlorobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
1,3-Dichlorobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
1,4-Dichlorobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Dichlorodifluoromethane	ND	J4	5.00	1	06/04/2017 08:21	WG985828
1,1-Dichloroethane	ND		1.00	1	06/04/2017 08:21	WG985828
1,2-Dichloroethane	ND		1.00	1	06/04/2017 08:21	WG985828
1,1-Dichloroethene	ND		1.00	1	06/04/2017 08:21	WG985828
cis-1,2-Dichloroethene	ND		1.00	1	06/04/2017 08:21	WG985828
trans-1,2-Dichloroethene	ND		1.00	1	06/04/2017 08:21	WG985828
1,2-Dichloropropane	ND		1.00	1	06/04/2017 08:21	WG985828
1,1-Dichloropropene	ND		1.00	1	06/04/2017 08:21	WG985828
1,3-Dichloropropane	ND		1.00	1	06/04/2017 08:21	WG985828
cis-1,3-Dichloropropene	ND		1.00	1	06/04/2017 08:21	WG985828
trans-1,3-Dichloropropene	ND		1.00	1	06/04/2017 08:21	WG985828
2,2-Dichloropropane	ND		1.00	1	06/04/2017 08:21	WG985828
Di-isopropyl ether	ND		1.00	1	06/04/2017 08:21	WG985828
Ethylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Hexachloro-1,3-butadiene	ND		1.00	1	06/04/2017 08:21	WG985828
Isopropylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
p-Isopropyltoluene	ND		1.00	1	06/04/2017 08:21	WG985828
2-Butanone (MEK)	ND		10.0	1	06/04/2017 08:21	WG985828
Methylene Chloride	ND		5.00	1	06/04/2017 08:21	WG985828
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/04/2017 08:21	WG985828
Methyl tert-butyl ether	ND		1.00	1	06/04/2017 08:21	WG985828
Naphthalene	ND		5.00	1	06/04/2017 08:21	WG985828
n-Propylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Styrene	ND		1.00	1	06/04/2017 08:21	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/04/2017 08:21	WG985828
1,1,2,2-Tetrachloroethane	ND		1.00	1	06/04/2017 08:21	WG985828
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/04/2017 08:21	WG985828
Tetrachloroethene	ND		1.00	1	06/04/2017 08:21	WG985828
Toluene	ND		1.00	1	06/04/2017 08:21	WG985828
1,2,3-Trichlorobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
1,2,4-Trichlorobenzene	ND		1.00	1	06/04/2017 08:21	WG985828
1,1,1-Trichloroethane	ND		1.00	1	06/04/2017 08:21	WG985828
1,1,2-Trichloroethane	ND		1.00	1	06/04/2017 08:21	WG985828
Trichloroethene	ND		1.00	1	06/04/2017 08:21	WG985828
Trichlorofluoromethane	ND		5.00	1	06/04/2017 08:21	WG985828
1,2,3-Trichloropropane	ND		2.50	1	06/04/2017 08:21	WG985828
1,2,4-Trimethylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
1,2,3-Trimethylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
1,3,5-Trimethylbenzene	ND		1.00	1	06/04/2017 08:21	WG985828
Vinyl chloride	ND		1.00	1	06/04/2017 08:21	WG985828
Xylenes, Total	ND		3.00	1	06/04/2017 08:21	WG985828
(S) Toluene-d8	*100*		*80.0-120*		*06/04/2017 08:21*	WG985828
(S) Dibromofluoromethane	*102*		*76.0-123*		*06/04/2017 08:21*	WG985828
(S) 4-Bromofluorobenzene	*110*		*80.0-120*		*06/04/2017 08:21*	WG985828

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		100	1	05/30/2017 21:53	WG983958
C22-C32 Hydrocarbons	ND		100	1	05/30/2017 21:53	WG983958
C32-C40 Hydrocarbons	ND		100	1	05/30/2017 21:53	WG983958
(S) o-Terphenyl	*85.0*		*52.0-156*		*05/30/2017 21:53*	WG983958

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	ND		100	1	06/01/2017 10:52	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*97.4*		*77.0-122*		*06/01/2017 10:52*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/04/2017 08:37	WG985828
Acrolein	ND		50.0	1	06/04/2017 08:37	WG985828
Acrylonitrile	ND		10.0	1	06/04/2017 08:37	WG985828
Benzene	ND		1.00	1	06/04/2017 08:37	WG985828
Bromobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Bromodichloromethane	ND		1.00	1	06/04/2017 08:37	WG985828
Bromoform	ND		1.00	1	06/04/2017 08:37	WG985828
Bromomethane	ND		5.00	1	06/04/2017 08:37	WG985828
n-Butylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
sec-Butylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
tert-Butylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Carbon tetrachloride	ND		1.00	1	06/04/2017 08:37	WG985828
Chlorobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Chlorodibromomethane	ND		1.00	1	06/04/2017 08:37	WG985828
Chloroethane	ND		5.00	1	06/04/2017 08:37	WG985828
Chloroform	ND		5.00	1	06/04/2017 08:37	WG985828
Chloromethane	ND		2.50	1	06/04/2017 08:37	WG985828
2-Chlorotoluene	ND		1.00	1	06/04/2017 08:37	WG985828
4-Chlorotoluene	ND		1.00	1	06/04/2017 08:37	WG985828
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/04/2017 08:37	WG985828
1,2-Dibromoethane	ND		1.00	1	06/04/2017 08:37	WG985828
Dibromomethane	ND		1.00	1	06/04/2017 08:37	WG985828
1,2-Dichlorobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
1,3-Dichlorobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
1,4-Dichlorobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Dichlorodifluoromethane	ND	J4	5.00	1	06/04/2017 08:37	WG985828
1,1-Dichloroethane	ND		1.00	1	06/04/2017 08:37	WG985828
1,2-Dichloroethane	ND		1.00	1	06/04/2017 08:37	WG985828
1,1-Dichloroethene	ND		1.00	1	06/04/2017 08:37	WG985828
cis-1,2-Dichloroethene	ND		1.00	1	06/04/2017 08:37	WG985828
trans-1,2-Dichloroethene	ND		1.00	1	06/04/2017 08:37	WG985828
1,2-Dichloropropane	ND		1.00	1	06/04/2017 08:37	WG985828
1,1-Dichloropropene	ND		1.00	1	06/04/2017 08:37	WG985828
1,3-Dichloropropane	ND		1.00	1	06/04/2017 08:37	WG985828
cis-1,3-Dichloropropene	ND		1.00	1	06/04/2017 08:37	WG985828
trans-1,3-Dichloropropene	ND		1.00	1	06/04/2017 08:37	WG985828
2,2-Dichloropropane	ND		1.00	1	06/04/2017 08:37	WG985828
Di-isopropyl ether	ND		1.00	1	06/04/2017 08:37	WG985828
Ethylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Hexachloro-1,3-butadiene	ND		1.00	1	06/04/2017 08:37	WG985828
Isopropylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
p-Isopropyltoluene	ND		1.00	1	06/04/2017 08:37	WG985828
2-Butanone (MEK)	ND		10.0	1	06/04/2017 08:37	WG985828
Methylene Chloride	ND		5.00	1	06/04/2017 08:37	WG985828
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/04/2017 08:37	WG985828
Methyl tert-butyl ether	ND		1.00	1	06/04/2017 08:37	WG985828
Naphthalene	ND		5.00	1	06/04/2017 08:37	WG985828
n-Propylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Styrene	ND		1.00	1	06/04/2017 08:37	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/04/2017 08:37	WG985828
1,1,2,2-Tetrachloroethane	ND		1.00	1	06/04/2017 08:37	WG985828
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/04/2017 08:37	WG985828
Tetrachloroethene	ND		1.00	1	06/04/2017 08:37	WG985828
Toluene	ND		1.00	1	06/04/2017 08:37	WG985828
1,2,3-Trichlorobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
1,2,4-Trichlorobenzene	ND		1.00	1	06/04/2017 08:37	WG985828
1,1,1-Trichloroethane	ND		1.00	1	06/04/2017 08:37	WG985828
1,1,2-Trichloroethane	ND		1.00	1	06/04/2017 08:37	WG985828
Trichloroethene	ND		1.00	1	06/04/2017 08:37	WG985828
Trichlorofluoromethane	ND		5.00	1	06/04/2017 08:37	WG985828
1,2,3-Trichloropropane	ND		2.50	1	06/04/2017 08:37	WG985828
1,2,4-Trimethylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
1,2,3-Trimethylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
1,3,5-Trimethylbenzene	ND		1.00	1	06/04/2017 08:37	WG985828
Vinyl chloride	ND		1.00	1	06/04/2017 08:37	WG985828
Xylenes, Total	ND		3.00	1	06/04/2017 08:37	WG985828
(S) Toluene-d8	*101*		*80.0-120*		*06/04/2017 08:37*	WG985828
(S) Dibromofluoromethane	*97.4*		*76.0-123*		*06/04/2017 08:37*	WG985828
(S) 4-Bromofluorobenzene	*107*		*80.0-120*		*06/04/2017 08:37*	WG985828

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	150		100	1	05/30/2017 22:10	WG983958
C22-C32 Hydrocarbons	162		100	1	05/30/2017 22:10	WG983958
C32-C40 Hydrocarbons	153		100	1	05/30/2017 22:10	WG983958
(S) o-Terphenyl	*87.3*		*52.0-156*		*05/30/2017 22:10*	WG983958

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	461	B	100	1	06/01/2017 11:14	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*95.7*		*77.0-122*		*06/01/2017 11:14*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		250	5	06/04/2017 08:52	WG985828
Acrolein	ND		250	5	06/04/2017 08:52	WG985828
Acrylonitrile	ND		50.0	5	06/04/2017 08:52	WG985828
Benzene	ND		5.00	5	06/04/2017 08:52	WG985828
Bromobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Bromodichloromethane	ND		5.00	5	06/04/2017 08:52	WG985828
Bromoform	ND		5.00	5	06/04/2017 08:52	WG985828
Bromomethane	ND		25.0	5	06/04/2017 08:52	WG985828
n-Butylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
sec-Butylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
tert-Butylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Carbon tetrachloride	ND		5.00	5	06/04/2017 08:52	WG985828
Chlorobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Chlorodibromomethane	ND		5.00	5	06/04/2017 08:52	WG985828
Chloroethane	ND		25.0	5	06/04/2017 08:52	WG985828
Chloroform	ND		25.0	5	06/04/2017 08:52	WG985828
Chloromethane	ND		12.5	5	06/04/2017 08:52	WG985828
2-Chlorotoluene	ND		5.00	5	06/04/2017 08:52	WG985828
4-Chlorotoluene	ND		5.00	5	06/04/2017 08:52	WG985828
1,2-Dibromo-3-Chloropropane	ND		25.0	5	06/04/2017 08:52	WG985828
1,2-Dibromoethane	ND		5.00	5	06/04/2017 08:52	WG985828
Dibromomethane	ND		5.00	5	06/04/2017 08:52	WG985828
1,2-Dichlorobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
1,3-Dichlorobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
1,4-Dichlorobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Dichlorodifluoromethane	ND	J4	25.0	5	06/04/2017 08:52	WG985828
1,1-Dichloroethane	ND		5.00	5	06/04/2017 08:52	WG985828
1,2-Dichloroethane	ND		5.00	5	06/04/2017 08:52	WG985828
1,1-Dichloroethene	ND		5.00	5	06/04/2017 08:52	WG985828
cis-1,2-Dichloroethene	ND		5.00	5	06/04/2017 08:52	WG985828
trans-1,2-Dichloroethene	ND		5.00	5	06/04/2017 08:52	WG985828
1,2-Dichloropropane	ND		5.00	5	06/04/2017 08:52	WG985828
1,1-Dichloropropene	ND		5.00	5	06/04/2017 08:52	WG985828
1,3-Dichloropropane	ND		5.00	5	06/04/2017 08:52	WG985828
cis-1,3-Dichloropropene	ND		5.00	5	06/04/2017 08:52	WG985828
trans-1,3-Dichloropropene	ND		5.00	5	06/04/2017 08:52	WG985828
2,2-Dichloropropane	ND		5.00	5	06/04/2017 08:52	WG985828
Di-isopropyl ether	ND		5.00	5	06/04/2017 08:52	WG985828
Ethylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Hexachloro-1,3-butadiene	ND		5.00	5	06/04/2017 08:52	WG985828
Isopropylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
p-Isopropyltoluene	ND		5.00	5	06/04/2017 08:52	WG985828
2-Butanone (MEK)	ND		50.0	5	06/04/2017 08:52	WG985828
Methylene Chloride	ND		25.0	5	06/04/2017 08:52	WG985828
4-Methyl-2-pentanone (MIBK)	ND		50.0	5	06/04/2017 08:52	WG985828
Methyl tert-butyl ether	ND		5.00	5	06/04/2017 08:52	WG985828
Naphthalene	ND		25.0	5	06/04/2017 08:52	WG985828
n-Propylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Styrene	ND		5.00	5	06/04/2017 08:52	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		5.00	5	06/04/2017 08:52	WG985828
1,1,2,2-Tetrachloroethane	ND		5.00	5	06/04/2017 08:52	WG985828
1,1,2-Trichlorotrifluoroethane	ND		5.00	5	06/04/2017 08:52	WG985828
Tetrachloroethene	ND		5.00	5	06/04/2017 08:52	WG985828
Toluene	ND		5.00	5	06/04/2017 08:52	WG985828
1,2,3-Trichlorobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
1,2,4-Trichlorobenzene	ND		5.00	5	06/04/2017 08:52	WG985828
1,1,1-Trichloroethane	ND		5.00	5	06/04/2017 08:52	WG985828
1,1,2-Trichloroethane	ND		5.00	5	06/04/2017 08:52	WG985828
Trichloroethene	ND		5.00	5	06/04/2017 08:52	WG985828
Trichlorofluoromethane	ND		25.0	5	06/04/2017 08:52	WG985828
1,2,3-Trichloropropane	ND		12.5	5	06/04/2017 08:52	WG985828
1,2,4-Trimethylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
1,2,3-Trimethylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
1,3,5-Trimethylbenzene	ND		5.00	5	06/04/2017 08:52	WG985828
Vinyl chloride	ND		5.00	5	06/04/2017 08:52	WG985828
Xylenes, Total	ND		15.0	5	06/04/2017 08:52	WG985828
(S) Toluene-d8	*101*		*80.0-120*		*06/04/2017 08:52*	WG985828
(S) Dibromofluoromethane	*101*		*76.0-123*		*06/04/2017 08:52*	WG985828
(S) 4-Bromofluorobenzene	*110*		*80.0-120*		*06/04/2017 08:52*	WG985828

Sample Narrative:

8260B L912470-11 WG985828: Lowest possible dilution due to sample foaming.

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	1170		200	2	05/30/2017 22:27	WG983958
C22-C32 Hydrocarbons	573		200	2	05/30/2017 22:27	WG983958
C32-C40 Hydrocarbons	365		200	2	05/30/2017 22:27	WG983958
(S) o-Terphenyl	*66.8*		*52.0-156*		*05/30/2017 22:27*	WG983958

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	6650	B	5000	50	06/01/2017 11:36	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*96.4*		*77.0-122*		*06/01/2017 11:36*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		500	10	06/06/2017 17:33	WG985828
Acrolein	ND		500	10	06/06/2017 17:33	WG985828
Acrylonitrile	ND		100	10	06/06/2017 17:33	WG985828
Benzene	20.1		10.0	10	06/06/2017 17:33	WG985828
Bromobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
Bromodichloromethane	ND		10.0	10	06/06/2017 17:33	WG985828
Bromoform	ND		10.0	10	06/06/2017 17:33	WG985828
Bromomethane	ND		50.0	10	06/06/2017 17:33	WG985828
n-Butylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
sec-Butylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
tert-Butylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
Carbon tetrachloride	ND		10.0	10	06/06/2017 17:33	WG985828
Chlorobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
Chlorodibromomethane	ND		10.0	10	06/06/2017 17:33	WG985828
Chloroethane	ND		50.0	10	06/06/2017 17:33	WG985828
Chloroform	ND		50.0	10	06/06/2017 17:33	WG985828
Chloromethane	ND		25.0	10	06/06/2017 17:33	WG985828
2-Chlorotoluene	ND		10.0	10	06/06/2017 17:33	WG985828
4-Chlorotoluene	ND		10.0	10	06/06/2017 17:33	WG985828
1,2-Dibromo-3-Chloropropane	ND		50.0	10	06/06/2017 17:33	WG985828
1,2-Dibromoethane	ND		10.0	10	06/06/2017 17:33	WG985828
Dibromomethane	ND		10.0	10	06/06/2017 17:33	WG985828
1,2-Dichlorobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
1,3-Dichlorobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
1,4-Dichlorobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
Dichlorodifluoromethane	ND	J4	50.0	10	06/06/2017 17:33	WG985828
1,1-Dichloroethane	ND		10.0	10	06/06/2017 17:33	WG985828
1,2-Dichloroethane	ND		10.0	10	06/06/2017 17:33	WG985828
1,1-Dichloroethene	ND		10.0	10	06/06/2017 17:33	WG985828
cis-1,2-Dichloroethene	ND		10.0	10	06/06/2017 17:33	WG985828
trans-1,2-Dichloroethene	ND		10.0	10	06/06/2017 17:33	WG985828
1,2-Dichloropropane	ND		10.0	10	06/06/2017 17:33	WG985828
1,1-Dichloropropene	ND		10.0	10	06/06/2017 17:33	WG985828
1,3-Dichloropropane	ND		10.0	10	06/06/2017 17:33	WG985828
cis-1,3-Dichloropropene	ND		10.0	10	06/06/2017 17:33	WG985828
trans-1,3-Dichloropropene	ND		10.0	10	06/06/2017 17:33	WG985828
2,2-Dichloropropane	ND		10.0	10	06/06/2017 17:33	WG985828
Di-isopropyl ether	ND		10.0	10	06/06/2017 17:33	WG985828
Ethylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
Hexachloro-1,3-butadiene	ND		10.0	10	06/06/2017 17:33	WG985828
Isopropylbenzene	16.4		10.0	10	06/06/2017 17:33	WG985828
p-Isopropyltoluene	11.5		10.0	10	06/06/2017 17:33	WG985828
2-Butanone (MEK)	ND		100	10	06/06/2017 17:33	WG985828
Methylene Chloride	ND		50.0	10	06/06/2017 17:33	WG985828
4-Methyl-2-pentanone (MIBK)	ND		100	10	06/06/2017 17:33	WG985828
Methyl tert-butyl ether	ND		10.0	10	06/06/2017 17:33	WG985828
Naphthalene	ND		50.0	10	06/06/2017 17:33	WG985828
n-Propylbenzene	22.2		10.0	10	06/06/2017 17:33	WG985828
Styrene	ND		10.0	10	06/06/2017 17:33	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		10.0	10	06/06/2017 17:33	WG985828
1,1,2,2-Tetrachloroethane	ND		10.0	10	06/06/2017 17:33	WG985828
1,1,2-Trichlorotrifluoroethane	ND		10.0	10	06/06/2017 17:33	WG985828
Tetrachloroethene	ND		10.0	10	06/06/2017 17:33	WG985828
Toluene	ND		10.0	10	06/06/2017 17:33	WG985828
1,2,3-Trichlorobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
1,2,4-Trichlorobenzene	ND		10.0	10	06/06/2017 17:33	WG985828
1,1,1-Trichloroethane	ND		10.0	10	06/06/2017 17:33	WG985828
1,1,2-Trichloroethane	ND		10.0	10	06/06/2017 17:33	WG985828
Trichloroethene	ND		10.0	10	06/06/2017 17:33	WG985828
Trichlorofluoromethane	ND		50.0	10	06/06/2017 17:33	WG985828
1,2,3-Trichloropropane	ND		25.0	10	06/06/2017 17:33	WG985828
1,2,4-Trimethylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
1,2,3-Trimethylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
1,3,5-Trimethylbenzene	ND		10.0	10	06/06/2017 17:33	WG985828
Vinyl chloride	ND		10.0	10	06/06/2017 17:33	WG985828
Xylenes, Total	ND		30.0	10	06/06/2017 17:33	WG985828
(S) Toluene-d8	*103*		*80.0-120*		*06/06/2017 17:33*	WG985828
(S) Dibromofluoromethane	*99.1*		*76.0-123*		*06/06/2017 17:33*	WG985828
(S) 4-Bromofluorobenzene	*101*		*80.0-120*		*06/06/2017 17:33*	WG985828

Sample Narrative:

8260B L912470-12 WG985828: Lowest possible dilution due to sample foaming.

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	4660		250	2.5	05/30/2017 22:44	WG983958
C22-C32 Hydrocarbons	2700		250	2.5	05/30/2017 22:44	WG983958
C32-C40 Hydrocarbons	1130		250	2.5	05/30/2017 22:44	WG983958
(S) o-Terphenyl	*67.2*		*52.0-156*		*05/30/2017 22:44*	WG983958

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
TPHG C5 - C12	ND		100	1	06/01/2017 11:59	WG984216
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*77.0-122*		*06/01/2017 11:59*	WG984216

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	06/04/2017 09:23	WG985828
Acrolein	ND		50.0	1	06/04/2017 09:23	WG985828
Acrylonitrile	ND		10.0	1	06/04/2017 09:23	WG985828
Benzene	ND		1.00	1	06/04/2017 09:23	WG985828
Bromobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Bromodichloromethane	ND		1.00	1	06/04/2017 09:23	WG985828
Bromoform	ND		1.00	1	06/04/2017 09:23	WG985828
Bromomethane	ND		5.00	1	06/04/2017 09:23	WG985828
n-Butylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
sec-Butylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
tert-Butylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Carbon tetrachloride	ND		1.00	1	06/04/2017 09:23	WG985828
Chlorobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Chlorodibromomethane	ND		1.00	1	06/04/2017 09:23	WG985828
Chloroethane	ND		5.00	1	06/04/2017 09:23	WG985828
Chloroform	ND		5.00	1	06/04/2017 09:23	WG985828
Chloromethane	ND		2.50	1	06/04/2017 09:23	WG985828
2-Chlorotoluene	ND		1.00	1	06/04/2017 09:23	WG985828
4-Chlorotoluene	ND		1.00	1	06/04/2017 09:23	WG985828
1,2-Dibromo-3-Chloropropane	ND		5.00	1	06/04/2017 09:23	WG985828
1,2-Dibromoethane	ND		1.00	1	06/04/2017 09:23	WG985828
Dibromomethane	ND		1.00	1	06/04/2017 09:23	WG985828
1,2-Dichlorobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
1,3-Dichlorobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
1,4-Dichlorobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Dichlorodifluoromethane	ND	J4	5.00	1	06/04/2017 09:23	WG985828
1,1-Dichloroethane	ND		1.00	1	06/04/2017 09:23	WG985828
1,2-Dichloroethane	ND		1.00	1	06/04/2017 09:23	WG985828
1,1-Dichloroethene	ND		1.00	1	06/04/2017 09:23	WG985828
cis-1,2-Dichloroethene	ND		1.00	1	06/04/2017 09:23	WG985828
trans-1,2-Dichloroethene	ND		1.00	1	06/04/2017 09:23	WG985828
1,2-Dichloropropane	ND		1.00	1	06/04/2017 09:23	WG985828
1,1-Dichloropropene	ND		1.00	1	06/04/2017 09:23	WG985828
1,3-Dichloropropane	ND		1.00	1	06/04/2017 09:23	WG985828
cis-1,3-Dichloropropene	ND		1.00	1	06/04/2017 09:23	WG985828
trans-1,3-Dichloropropene	ND		1.00	1	06/04/2017 09:23	WG985828
2,2-Dichloropropane	ND		1.00	1	06/04/2017 09:23	WG985828
Di-isopropyl ether	ND		1.00	1	06/04/2017 09:23	WG985828
Ethylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Hexachloro-1,3-butadiene	ND		1.00	1	06/04/2017 09:23	WG985828
Isopropylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
p-Isopropyltoluene	ND		1.00	1	06/04/2017 09:23	WG985828
2-Butanone (MEK)	ND		10.0	1	06/04/2017 09:23	WG985828
Methylene Chloride	ND		5.00	1	06/04/2017 09:23	WG985828
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	06/04/2017 09:23	WG985828
Methyl tert-butyl ether	ND		1.00	1	06/04/2017 09:23	WG985828
Naphthalene	ND		5.00	1	06/04/2017 09:23	WG985828
n-Propylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Styrene	ND		1.00	1	06/04/2017 09:23	WG985828

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1,2-Tetrachloroethane	ND		1.00	1	06/04/2017 09:23	WG985828
1,1,2,2-Tetrachloroethane	ND		1.00	1	06/04/2017 09:23	WG985828
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	06/04/2017 09:23	WG985828
Tetrachloroethene	ND		1.00	1	06/04/2017 09:23	WG985828
Toluene	ND		1.00	1	06/04/2017 09:23	WG985828
1,2,3-Trichlorobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
1,2,4-Trichlorobenzene	ND		1.00	1	06/04/2017 09:23	WG985828
1,1,1-Trichloroethane	ND		1.00	1	06/04/2017 09:23	WG985828
1,1,2-Trichloroethane	ND		1.00	1	06/04/2017 09:23	WG985828
Trichloroethene	ND		1.00	1	06/04/2017 09:23	WG985828
Trichlorofluoromethane	ND		5.00	1	06/04/2017 09:23	WG985828
1,2,3-Trichloropropane	ND		2.50	1	06/04/2017 09:23	WG985828
1,2,4-Trimethylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
1,2,3-Trimethylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
1,3,5-Trimethylbenzene	ND		1.00	1	06/04/2017 09:23	WG985828
Vinyl chloride	ND		1.00	1	06/04/2017 09:23	WG985828
Xylenes, Total	ND		3.00	1	06/04/2017 09:23	WG985828
(S) Toluene-d8	*101*		*80.0-120*		*06/04/2017 09:23*	WG985828
(S) Dibromofluoromethane	*101*		*76.0-123*		*06/04/2017 09:23*	WG985828
(S) 4-Bromofluorobenzene	*111*		*80.0-120*		*06/04/2017 09:23*	WG985828

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	688		114	1.14	06/06/2017 10:46	WG985194
C22-C32 Hydrocarbons	304	B	114	1.14	06/06/2017 10:46	WG985194
C32-C40 Hydrocarbons	179		114	1.14	06/06/2017 10:46	WG985194
(S) o-Terphenyl	*123*		*52.0-156*		*06/06/2017 10:46*	WG985194

Method Blank (MB)

(MB) R3222680-1 06/01/17 14:53

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000200			

L912448-03 Original Sample (OS) • Duplicate (DUP)

(OS) L912448-03 06/01/17 14:53 • (DUP) R3222680-3 06/01/17 14:53

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	83.4	83.2	1	0.193		5

Laboratory Control Sample (LCS)

(LCS) R3222680-2 06/01/17 14:53

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3222629-1 06/01/17 10:46

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L912684-04 Original Sample (OS) • Duplicate (DUP)

(OS) L912684-04 06/01/17 10:46 • (DUP) R3222629-3 06/01/17 10:46

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	79.9	80.7	1	0.973		5

Laboratory Control Sample (LCS)

(LCS) R3222629-2 06/01/17 10:46

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3223560-3 06/01/17 03:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
TPHG C5 - C12	48.9	J	30.4	100
(S) a,a,a-Trifluorotoluene(FID)	*97.6*			*77.0-122*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223560-1 06/01/17 02:44 • (LCSD) R3223560-2 06/01/17 03:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
TPHG C5 - C12	5500	5850	5840	106	106	71.0-130			0.140	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*101*	*77.0-122*				

L912470-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L912470-07 06/01/17 08:06 • (MS) R3223560-4 06/01/17 08:28 • (MSD) R3223560-5 06/01/17 08:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
TPHG C5 - C12	5500	ND	5430	5400	97.7	97.1	1	18.0-158			0.590	20
(S) a,a,a-Trifluorotoluene(FID)					*102*	*101*		*77.0-122*				

Method Blank (MB)

(MB) R3222320-3 05/31/17 20:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
TPHG C5 - C12	U		0.0332	0.100
(S) a,a,a-Trifluorotoluene(FID)	*93.2*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3222320-1 05/31/17 19:43 • (LCSD) R3222320-2 05/31/17 20:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
TPHG C5 - C12	5.50	6.38	6.53	116	119	75.0-128			2.36	20
(S) a,a,a-Trifluorotoluene(FID)				*103*	*104*	*77.0-120*				

Method Blank (MB)

(MB) R3223429-3 06/03/17 22:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C5 - C12	U		0.0332	0.100
(S) a,a,a-Trifluorotoluene(FID)	*109*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223429-1 06/03/17 21:33 • (LCSD) R3223429-2 06/03/17 21:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHG C5 - C12	5.50	6.00	6.36	109	116	75.0-128			5.85	20
(S) a,a,a-Trifluorotoluene(FID)				*110*	*111*	*77.0-120*				

L912470-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L912470-04 06/04/17 00:42 • (MS) R3223429-4 06/03/17 23:31 • (MSD) R3223429-5 06/03/17 23:55

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPHG C5 - C12	6.38	ND	2.69	2.21	42.2	34.6	1	10.0-146			19.9	35
(S) a,a,a-Trifluorotoluene(FID)					*110*	*93.8*		*77.0-120*				

Method Blank (MB)

(MB) R3222792-4 06/02/17 11:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
Isopropylbenzene	U		0.000243	0.00100

Method Blank (MB)

(MB) R3222792-4 06/02/17 11:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	U		0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*104*			*80.0-120*
(S) Dibromofluoromethane	*104*			*74.0-131*
(S) 4-Bromofluorobenzene	*105*			*64.0-132*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3222792-1 06/02/17 10:25 • (LCSD) R3222792-2 06/02/17 10:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.136	0.133	109	106	11.0-160			2.18	23
Acrylonitrile	0.125	0.128	0.123	102	98.3	61.0-143			3.91	20
Benzene	0.0250	0.0258	0.0249	103	99.5	71.0-124			3.72	20
Bromobenzene	0.0250	0.0252	0.0245	101	98.1	78.0-120			2.72	20
Bromodichloromethane	0.0250	0.0255	0.0262	102	105	75.0-120			2.60	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3222792-1 06/02/17 10:25 • (LCSD) R3222792-2 06/02/17 10:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	0.0259	0.0278	104	111	65.0-133			7.28	20
Bromomethane	0.0250	0.0289	0.0229	116	91.6	26.0-160		J3	23.2	20
n-Butylbenzene	0.0250	0.0267	0.0252	107	101	73.0-126			5.42	20
sec-Butylbenzene	0.0250	0.0276	0.0236	110	94.6	75.0-121			15.4	20
tert-Butylbenzene	0.0250	0.0271	0.0237	108	94.9	74.0-122			13.3	20
Carbon tetrachloride	0.0250	0.0258	0.0226	103	90.6	66.0-123			13.2	20
Chlorobenzene	0.0250	0.0250	0.0256	99.8	103	79.0-121			2.70	20
Chlorodibromomethane	0.0250	0.0242	0.0264	96.9	106	74.0-128			8.76	20
Chloroethane	0.0250	0.0292	0.0237	117	95.0	51.0-147		J3	20.6	20
Chloroform	0.0250	0.0262	0.0241	105	96.2	73.0-123			8.53	20
Chloromethane	0.0250	0.0263	0.0212	105	84.6	51.0-138		J3	21.6	20
2-Chlorotoluene	0.0250	0.0264	0.0240	106	95.9	72.0-124			9.70	20
4-Chlorotoluene	0.0250	0.0255	0.0242	102	96.7	78.0-120			5.24	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0229	0.0236	91.6	94.4	65.0-126			2.96	20
1,2-Dibromoethane	0.0250	0.0243	0.0267	97.1	107	78.0-122			9.59	20
Dibromomethane	0.0250	0.0252	0.0257	101	103	79.0-120			1.93	20
1,2-Dichlorobenzene	0.0250	0.0256	0.0247	102	99.0	80.0-120			3.34	20
1,3-Dichlorobenzene	0.0250	0.0254	0.0231	102	92.4	72.0-123			9.65	20
1,4-Dichlorobenzene	0.0250	0.0248	0.0249	99.2	99.6	77.0-120			0.440	20
Dichlorodifluoromethane	0.0250	0.0266	0.0218	107	87.2	49.0-155			19.9	20
1,1-Dichloroethane	0.0250	0.0265	0.0238	106	95.1	70.0-128			10.9	20
1,2-Dichloroethane	0.0250	0.0267	0.0266	107	106	69.0-128			0.370	20
1,1-Dichloroethene	0.0250	0.0258	0.0209	103	83.8	63.0-131		J3	20.7	20
cis-1,2-Dichloroethene	0.0250	0.0268	0.0238	107	95.0	74.0-123			12.1	20
trans-1,2-Dichloroethene	0.0250	0.0260	0.0223	104	89.3	72.0-122			15.3	20
1,2-Dichloropropane	0.0250	0.0259	0.0267	104	107	75.0-126			2.74	20
1,1-Dichloropropene	0.0250	0.0261	0.0249	105	99.5	72.0-130			4.88	20
1,3-Dichloropropane	0.0250	0.0245	0.0275	98.0	110	80.0-121			11.7	20
cis-1,3-Dichloropropene	0.0250	0.0251	0.0275	101	110	80.0-125			8.93	20
trans-1,3-Dichloropropene	0.0250	0.0248	0.0288	99.1	115	75.0-129			14.9	20
2,2-Dichloropropane	0.0250	0.0265	0.0223	106	89.3	60.0-129			17.1	20
Di-isopropyl ether	0.0250	0.0269	0.0241	108	96.6	62.0-133			10.7	20
Ethylbenzene	0.0250	0.0249	0.0256	99.6	102	77.0-120			2.79	20
Hexachloro-1,3-butadiene	0.0250	0.0264	0.0238	106	95.0	68.0-128			10.4	20
Isopropylbenzene	0.0250	0.0266	0.0240	107	95.9	75.0-120			10.5	20
p-Isopropyltoluene	0.0250	0.0272	0.0236	109	94.3	74.0-125			14.2	20
2-Butanone (MEK)	0.125	0.117	0.129	93.6	104	37.0-159			10.1	20
Methylene Chloride	0.0250	0.0249	0.0210	99.5	83.8	67.0-123			17.1	20
4-Methyl-2-pentanone (MIBK)	0.125	0.124	0.138	99.5	111	60.0-144			10.7	20
Methyl tert-butyl ether	0.0250	0.0277	0.0247	111	98.6	66.0-125			11.5	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3222792-1 06/02/17 10:25 • (LCSD) R3222792-2 06/02/17 10:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0252	0.0247	101	98.6	64.0-125			2.36	20
n-Propylbenzene	0.0250	0.0266	0.0250	106	100	78.0-120			6.24	20
Styrene	0.0250	0.0254	0.0259	101	104	78.0-124			2.15	20
1,1,1,2-Tetrachloroethane	0.0250	0.0266	0.0242	106	96.9	74.0-124			9.39	20
1,1,2,2-Tetrachloroethane	0.0250	0.0250	0.0249	100	99.4	73.0-120			0.680	20
Tetrachloroethene	0.0250	0.0251	0.0252	100	101	70.0-127			0.380	20
Toluene	0.0250	0.0246	0.0257	98.6	103	77.0-120			4.10	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0269	0.0219	108	87.6	64.0-135		J3	20.4	20
1,2,3-Trichlorobenzene	0.0250	0.0263	0.0243	105	97.2	68.0-126			7.96	20
1,2,4-Trichlorobenzene	0.0250	0.0259	0.0238	104	95.4	70.0-127			8.40	20
1,1,1-Trichloroethane	0.0250	0.0274	0.0233	110	93.3	69.0-125			16.0	20
1,1,2-Trichloroethane	0.0250	0.0249	0.0271	99.5	108	78.0-120			8.46	20
Trichloroethene	0.0250	0.0249	0.0247	99.7	98.8	79.0-120			0.930	20
Trichlorofluoromethane	0.0250	0.0279	0.0230	112	92.1	59.0-136			19.3	20
1,2,3-Trichloropropane	0.0250	0.0246	0.0253	98.5	101	73.0-124			2.54	20
1,2,3-Trimethylbenzene	0.0250	0.0262	0.0244	105	97.4	76.0-120			7.21	20
1,2,4-Trimethylbenzene	0.0250	0.0270	0.0234	108	93.5	75.0-120			14.5	20
1,3,5-Trimethylbenzene	0.0250	0.0268	0.0234	107	93.6	75.0-120			13.6	20
Vinyl chloride	0.0250	0.0272	0.0219	109	87.6	63.0-134		J3	21.7	20
Xylenes, Total	0.0750	0.0770	0.0750	103	100	77.0-120			2.63	20
(S) Toluene-d8				*104*	*103*	*80.0-120*				
(S) Dibromofluoromethane				*103*	*94.7*	*74.0-131*				
(S) 4-Bromofluorobenzene				*99.1*	*98.0*	*64.0-132*				

L912320-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L912320-02 06/02/17 15:30 • (MS) R3222792-5 06/02/17 15:51 • (MSD) R3222792-6 06/02/17 16:11

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.171	ND	4.58	4.08	126	112	21.25	10.0-160			11.3	36
Acrylonitrile	0.171	ND	4.20	3.94	115	108	21.25	14.0-160			6.19	33
Benzene	0.0343	ND	0.860	0.800	118	110	21.25	13.0-146			7.27	27
Bromobenzene	0.0343	ND	0.820	0.780	113	107	21.25	10.0-149			5.00	33
Bromodichloromethane	0.0343	ND	0.756	0.736	104	101	21.25	15.0-142			2.77	28
Bromoform	0.0343	ND	0.650	0.662	89.2	90.8	21.25	10.0-147			1.79	31
Bromomethane	0.0343	ND	0.517	0.483	71.0	66.3	21.25	10.0-160			6.91	32
n-Butylbenzene	0.0343	ND	0.847	0.797	116	110	21.25	10.0-154			6.03	37
sec-Butylbenzene	0.0343	ND	0.892	0.825	122	113	21.25	10.0-151			7.74	36
tert-Butylbenzene	0.0343	ND	0.898	0.836	123	115	21.25	10.0-152			7.13	35

L912320-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L912320-02 06/02/17 15:30 • (MS) R3222792-5 06/02/17 15:51 • (MSD) R3222792-6 06/02/17 16:11

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.0343	ND	0.797	0.724	109	99.4	21.25	13.0-140			9.59	30
Chlorobenzene	0.0343	ND	0.810	0.807	111	111	21.25	10.0-149			0.420	31
Chlorodibromomethane	0.0343	ND	0.700	0.703	96.1	96.6	21.25	12.0-147			0.510	29
Chloroethane	0.0343	ND	0.255	0.213	35.1	29.2	21.25	10.0-159			18.1	33
Chloroform	0.0343	ND	0.863	0.789	118	108	21.25	18.0-148			9.01	28
Chloromethane	0.0343	ND	0.611	0.531	83.9	73.0	21.25	10.0-146			14.0	29
2-Chlorotoluene	0.0343	ND	0.866	0.816	119	112	21.25	10.0-151			6.01	35
4-Chlorotoluene	0.0343	ND	0.843	0.813	116	112	21.25	10.0-150			3.67	35
1,2-Dibromo-3-Chloropropane	0.0343	ND	0.616	0.587	84.6	80.6	21.25	10.0-149			4.75	34
1,2-Dibromoethane	0.0343	ND	0.743	0.753	102	103	21.25	14.0-145			1.41	28
Dibromomethane	0.0343	ND	0.777	0.758	107	104	21.25	18.0-144			2.43	27
1,2-Dichlorobenzene	0.0343	ND	0.797	0.781	109	107	21.25	10.0-153			2.06	34
1,3-Dichlorobenzene	0.0343	ND	0.809	0.755	111	104	21.25	10.0-150			6.91	35
1,4-Dichlorobenzene	0.0343	ND	0.776	0.749	107	103	21.25	10.0-148			3.60	34
Dichlorodifluoromethane	0.0343	ND	0.517	0.436	71.0	59.8	21.25	10.0-160			17.1	30
1,1-Dichloroethane	0.0343	ND	0.886	0.815	122	112	21.25	19.0-148			8.36	28
1,2-Dichloroethane	0.0343	ND	0.891	0.833	122	114	21.25	17.0-147			6.75	27
1,1-Dichloroethene	0.0343	ND	0.880	0.777	121	107	21.25	10.0-150			12.4	31
cis-1,2-Dichloroethene	0.0343	ND	0.893	0.822	123	113	21.25	16.0-145			8.31	28
trans-1,2-Dichloroethene	0.0343	ND	0.877	0.797	120	109	21.25	11.0-142			9.53	29
1,2-Dichloropropane	0.0343	ND	0.814	0.818	112	112	21.25	17.0-148			0.400	28
1,1-Dichloropropene	0.0343	ND	0.912	0.851	125	117	21.25	10.0-150			6.95	30
1,3-Dichloropropane	0.0343	ND	0.777	0.779	107	107	21.25	16.0-148			0.280	27
cis-1,3-Dichloropropene	0.0343	ND	0.799	0.816	110	112	21.25	13.0-150			2.05	28
trans-1,3-Dichloropropene	0.0343	ND	0.774	0.784	106	108	21.25	10.0-152			1.26	29
2,2-Dichloropropane	0.0343	ND	0.729	0.697	100	95.7	21.25	16.0-143			4.48	30
Di-isopropyl ether	0.0343	ND	0.863	0.798	119	110	21.25	16.0-149			7.84	28
Ethylbenzene	0.0343	ND	0.804	0.800	110	110	21.25	10.0-147			0.530	31
Hexachloro-1,3-butadiene	0.0343	ND	0.835	0.787	115	108	21.25	10.0-154			5.89	40
Isopropylbenzene	0.0343	ND	0.849	0.822	117	113	21.25	10.0-147			3.22	33
p-Isopropyltoluene	0.0343	ND	0.915	0.850	126	117	21.25	10.0-156			7.37	37
2-Butanone (MEK)	0.171	ND	3.43	3.84	94.1	106	21.25	10.0-160			11.4	33
Methylene Chloride	0.0343	ND	0.826	0.748	113	103	21.25	16.0-139			9.84	29
4-Methyl-2-pentanone (MIBK)	0.171	ND	3.73	3.73	102	102	21.25	12.0-160			0.0200	32
Methyl tert-butyl ether	0.0343	ND	0.814	0.768	112	105	21.25	21.0-145			5.84	29
Naphthalene	0.0343	ND	0.755	0.733	104	101	21.25	10.0-153			2.93	36
n-Propylbenzene	0.0343	ND	0.876	0.827	120	114	21.25	10.0-151			5.76	34
Styrene	0.0343	ND	0.849	0.822	117	113	21.25	10.0-155			3.24	34
1,1,1,2-Tetrachloroethane	0.0343	ND	0.809	0.778	111	107	21.25	10.0-147			3.86	30

L912320-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L912320-02 06/02/17 15:30 • (MS) R3222792-5 06/02/17 15:51 • (MSD) R3222792-6 06/02/17 16:11

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	0.0343	ND	0.718	0.705	98.6	96.9	21.25	10.0-155			1.82	31
Tetrachloroethene	0.0343	3.53	3.73	3.60	28.0	10.4	21.25	10.0-144			3.49	32
Toluene	0.0343	ND	0.786	0.774	108	106	21.25	10.0-144			1.57	28
1,1,2-Trichlorotrifluoroethane	0.0343	ND	1.04	0.906	142	124	21.25	10.0-153			13.6	33
1,2,3-Trichlorobenzene	0.0343	ND	0.806	0.781	111	107	21.25	10.0-153			3.11	40
1,2,4-Trichlorobenzene	0.0343	ND	0.819	0.786	112	108	21.25	10.0-156			4.20	40
1,1,1-Trichloroethane	0.0343	ND	0.892	0.811	122	111	21.25	18.0-145			9.49	29
1,1,2-Trichloroethane	0.0343	ND	0.762	0.759	105	104	21.25	12.0-151			0.460	28
Trichloroethene	0.0343	ND	0.823	0.801	113	110	21.25	11.0-148			2.69	29
Trichlorofluoromethane	0.0343	ND	0.452	0.360	62.1	49.4	21.25	10.0-157			22.7	34
1,2,3-Trichloropropane	0.0343	ND	0.757	0.728	104	100	21.25	10.0-154			3.92	32
1,2,3-Trimethylbenzene	0.0343	ND	0.831	0.786	114	108	21.25	10.0-150			5.58	33
1,2,4-Trimethylbenzene	0.0343	ND	0.893	0.831	123	114	21.25	10.0-151			7.28	34
1,3,5-Trimethylbenzene	0.0343	ND	0.879	0.821	121	113	21.25	10.0-150			6.76	33
Vinyl chloride	0.0343	ND	0.681	0.595	93.5	81.7	21.25	10.0-150			13.5	29
Xylenes, Total	0.103	ND	2.45	2.42	112	111	21.25	10.0-150			1.46	31
(S) Toluene-d8					*103*	*102*		*80.0-120*				
(S) Dibromofluoromethane					*104*	*98.0*		*74.0-131*				
(S) 4-Bromofluorobenzene					*100*	*100*		*64.0-132*				

Method Blank (MB)

(MB) R3223389-3 06/03/17 22:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
Isopropylbenzene	U		0.000243	0.00100

Method Blank (MB)

(MB) R3223389-3 06/03/17 22:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	U		0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*103*			*80.0-120*
(S) Dibromofluoromethane	*99.1*			*74.0-131*
(S) 4-Bromofluorobenzene	*105*			*64.0-132*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223389-1 06/03/17 20:59 • (LCSD) R3223389-2 06/03/17 21:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.172	0.146	138	117	11.0-160			16.3	23
Acrylonitrile	0.125	0.137	0.133	109	107	61.0-143			2.39	20
Benzene	0.0250	0.0252	0.0261	101	104	71.0-124			3.64	20
Bromobenzene	0.0250	0.0244	0.0254	97.4	102	78.0-120			4.24	20
Bromodichloromethane	0.0250	0.0252	0.0262	101	105	75.0-120			3.76	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223389-1 06/03/17 20:59 • (LCSD) R3223389-2 06/03/17 21:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	0.0273	0.0277	109	111	65.0-133			1.48	20
Bromomethane	0.0250	0.0270	0.0276	108	110	26.0-160			2.21	20
n-Butylbenzene	0.0250	0.0249	0.0251	99.6	101	73.0-126			0.980	20
sec-Butylbenzene	0.0250	0.0264	0.0274	106	110	75.0-121			3.67	20
tert-Butylbenzene	0.0250	0.0269	0.0280	108	112	74.0-122			3.97	20
Carbon tetrachloride	0.0250	0.0253	0.0257	101	103	66.0-123			1.47	20
Chlorobenzene	0.0250	0.0253	0.0265	101	106	79.0-121			4.50	20
Chlorodibromomethane	0.0250	0.0259	0.0269	104	108	74.0-128			3.67	20
Chloroethane	0.0250	0.0275	0.0279	110	111	51.0-147			1.16	20
Chloroform	0.0250	0.0252	0.0259	101	104	73.0-123			2.76	20
Chloromethane	0.0250	0.0231	0.0235	92.5	94.1	51.0-138			1.80	20
2-Chlorotoluene	0.0250	0.0256	0.0264	102	106	72.0-124			3.02	20
4-Chlorotoluene	0.0250	0.0254	0.0266	102	107	78.0-120			4.75	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0249	0.0246	99.8	98.4	65.0-126			1.34	20
1,2-Dibromoethane	0.0250	0.0256	0.0263	102	105	78.0-122			2.77	20
Dibromomethane	0.0250	0.0262	0.0268	105	107	79.0-120			2.32	20
1,2-Dichlorobenzene	0.0250	0.0254	0.0259	102	104	80.0-120			1.72	20
1,3-Dichlorobenzene	0.0250	0.0249	0.0255	99.5	102	72.0-123			2.54	20
1,4-Dichlorobenzene	0.0250	0.0240	0.0245	95.9	97.9	77.0-120			2.04	20
Dichlorodifluoromethane	0.0250	0.0234	0.0243	93.5	97.0	49.0-155			3.74	20
1,1-Dichloroethane	0.0250	0.0258	0.0263	103	105	70.0-128			1.71	20
1,2-Dichloroethane	0.0250	0.0253	0.0261	101	105	69.0-128			3.12	20
1,1-Dichloroethene	0.0250	0.0263	0.0268	105	107	63.0-131			1.82	20
cis-1,2-Dichloroethene	0.0250	0.0266	0.0274	106	109	74.0-123			2.91	20
trans-1,2-Dichloroethene	0.0250	0.0259	0.0270	104	108	72.0-122			3.95	20
1,2-Dichloropropane	0.0250	0.0254	0.0261	102	105	75.0-126			2.82	20
1,1-Dichloropropene	0.0250	0.0259	0.0268	104	107	72.0-130			3.13	20
1,3-Dichloropropane	0.0250	0.0256	0.0263	102	105	80.0-121			2.82	20
cis-1,3-Dichloropropene	0.0250	0.0269	0.0281	108	113	80.0-125			4.37	20
trans-1,3-Dichloropropene	0.0250	0.0257	0.0264	103	106	75.0-129			2.69	20
2,2-Dichloropropane	0.0250	0.0241	0.0250	96.5	100	60.0-129			3.68	20
Di-isopropyl ether	0.0250	0.0251	0.0253	101	101	62.0-133			0.780	20
Ethylbenzene	0.0250	0.0252	0.0262	101	105	77.0-120			3.99	20
Hexachloro-1,3-butadiene	0.0250	0.0250	0.0259	100	103	68.0-128			3.23	20
Isopropylbenzene	0.0250	0.0261	0.0272	104	109	75.0-120			4.17	20
p-Isopropyltoluene	0.0250	0.0269	0.0281	108	113	74.0-125			4.37	20
2-Butanone (MEK)	0.125	0.138	0.124	110	98.9	37.0-159			11.0	20
Methylene Chloride	0.0250	0.0249	0.0254	99.6	101	67.0-123			1.77	20
4-Methyl-2-pentanone (MIBK)	0.125	0.136	0.130	109	104	60.0-144			4.73	20
Methyl tert-butyl ether	0.0250	0.0278	0.0279	111	112	66.0-125			0.230	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223389-1 06/03/17 20:59 • (LCSD) R3223389-2 06/03/17 21:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0259	0.0261	104	104	64.0-125			0.640	20
n-Propylbenzene	0.0250	0.0261	0.0268	104	107	78.0-120			2.85	20
Styrene	0.0250	0.0267	0.0276	107	110	78.0-124			3.12	20
1,1,1,2-Tetrachloroethane	0.0250	0.0266	0.0276	106	110	74.0-124			3.51	20
1,1,2,2-Tetrachloroethane	0.0250	0.0253	0.0254	101	101	73.0-120			0.230	20
Tetrachloroethene	0.0250	0.0256	0.0266	102	106	70.0-127			3.77	20
Toluene	0.0250	0.0254	0.0257	102	103	77.0-120			1.29	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0277	0.0278	111	111	64.0-135			0.460	20
1,2,3-Trichlorobenzene	0.0250	0.0256	0.0261	102	104	68.0-126			1.93	20
1,2,4-Trichlorobenzene	0.0250	0.0249	0.0259	99.8	103	70.0-127			3.65	20
1,1,1-Trichloroethane	0.0250	0.0262	0.0268	105	107	69.0-125			2.37	20
1,1,2-Trichloroethane	0.0250	0.0256	0.0265	102	106	78.0-120			3.63	20
Trichloroethene	0.0250	0.0260	0.0267	104	107	79.0-120			2.76	20
Trichlorofluoromethane	0.0250	0.0260	0.0261	104	104	59.0-136			0.350	20
1,2,3-Trichloropropane	0.0250	0.0266	0.0267	106	107	73.0-124			0.400	20
1,2,3-Trimethylbenzene	0.0250	0.0250	0.0254	100	102	76.0-120			1.65	20
1,2,4-Trimethylbenzene	0.0250	0.0264	0.0273	106	109	75.0-120			3.43	20
1,3,5-Trimethylbenzene	0.0250	0.0263	0.0272	105	109	75.0-120			3.09	20
Vinyl chloride	0.0250	0.0251	0.0256	101	103	63.0-134			2.00	20
Xylenes, Total	0.0750	0.0768	0.0798	102	106	77.0-120			3.83	20
(S) Toluene-d8				*103*	*103*	*80.0-120*				
(S) Dibromofluoromethane				*102*	*101*	*74.0-131*				
(S) 4-Bromofluorobenzene				*99.4*	*101*	*64.0-132*				

Method Blank (MB)

(MB) R3223511-4 06/04/17 07:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00
Hexachloro-1,3-butadiene	U		0.256	1.00

Method Blank (MB)

(MB) R3223511-4 06/04/17 07:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	*101*			*80.0-120*
(S) Dibromofluoromethane	*96.6*			*76.0-123*
(S) 4-Bromofluorobenzene	*109*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223511-1 06/04/17 05:16 • (LCSD) R3223511-2 06/04/17 05:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	125	142	133	114	106	10.0-160			6.79	23
Acrolein	125	148	153	118	122	10.0-160			3.15	20
Acrylonitrile	125	108	109	86.3	86.9	60.0-142			0.770	20
Benzene	25.0	22.8	21.8	91.2	87.1	69.0-123			4.64	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223511-1 06/04/17 05:16 • (LCSD) R3223511-2 06/04/17 05:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	25.0	23.6	23.3	94.5	93.3	79.0-120			1.35	20
Bromodichloromethane	25.0	21.6	20.9	86.3	83.8	76.0-120			2.97	20
Bromoform	25.0	18.5	18.7	74.1	74.9	67.0-132			1.17	20
Bromomethane	25.0	20.0	19.7	80.2	79.0	18.0-160			1.51	20
n-Butylbenzene	25.0	22.8	21.3	91.1	85.2	72.0-126			6.62	20
sec-Butylbenzene	25.0	20.3	19.6	81.2	78.4	74.0-121			3.52	20
tert-Butylbenzene	25.0	22.1	21.3	88.3	85.1	75.0-122			3.66	20
Carbon tetrachloride	25.0	22.6	21.3	90.4	85.3	63.0-122			5.76	20
Chlorobenzene	25.0	22.5	21.5	89.9	85.9	79.0-121			4.47	20
Chlorodibromomethane	25.0	20.8	20.5	83.2	82.0	75.0-125			1.47	20
Chloroethane	25.0	23.4	22.0	93.6	88.0	47.0-152			6.08	20
Chloroform	25.0	22.0	21.5	88.1	86.1	72.0-121			2.27	20
Chloromethane	25.0	24.3	23.1	97.3	92.5	48.0-139			4.99	20
2-Chlorotoluene	25.0	23.1	22.3	92.3	89.1	74.0-122			3.48	20
4-Chlorotoluene	25.0	23.5	23.2	93.9	92.9	79.0-120			1.06	20
1,2-Dibromo-3-Chloropropane	25.0	18.7	19.3	74.9	77.0	64.0-127			2.77	20
1,2-Dibromoethane	25.0	22.7	22.2	90.7	88.7	77.0-123			2.16	20
Dibromomethane	25.0	22.4	22.3	89.7	89.1	78.0-120			0.680	20
1,2-Dichlorobenzene	25.0	22.0	21.3	87.9	85.0	80.0-120			3.41	20
1,3-Dichlorobenzene	25.0	18.9	18.8	75.5	75.2	72.0-123			0.390	20
1,4-Dichlorobenzene	25.0	23.0	22.4	92.0	89.4	77.0-120			2.88	20
Dichlorodifluoromethane	25.0	41.1	37.1	165	148	49.0-155	J4		10.4	20
1,1-Dichloroethane	25.0	22.6	21.9	90.3	87.6	70.0-126			3.03	20
1,2-Dichloroethane	25.0	22.9	22.7	91.6	90.6	67.0-126			1.08	20
1,1-Dichloroethene	25.0	23.1	21.9	92.2	87.7	64.0-129			5.06	20
cis-1,2-Dichloroethene	25.0	23.5	23.1	94.1	92.5	73.0-120			1.70	20
trans-1,2-Dichloroethene	25.0	22.7	22.2	91.0	88.6	71.0-121			2.64	20
1,2-Dichloropropane	25.0	22.7	21.9	90.8	87.7	75.0-125			3.47	20
1,1-Dichloropropene	25.0	22.7	21.1	90.7	84.2	71.0-129			7.40	20
1,3-Dichloropropane	25.0	22.8	22.1	91.1	88.4	80.0-121			3.03	20
cis-1,3-Dichloropropene	25.0	23.9	23.0	95.5	91.9	79.0-123			3.80	20
trans-1,3-Dichloropropene	25.0	22.4	21.5	89.8	86.2	74.0-127			4.10	20
2,2-Dichloropropane	25.0	22.9	22.3	91.7	89.3	60.0-125			2.63	20
Di-isopropyl ether	25.0	22.1	22.1	88.4	88.5	59.0-133			0.120	20
Ethylbenzene	25.0	23.2	22.1	92.9	88.5	77.0-120			4.81	20
Hexachloro-1,3-butadiene	25.0	20.1	19.0	80.3	76.1	64.0-131			5.41	20
Isopropylbenzene	25.0	22.6	21.5	90.3	86.2	75.0-120			4.67	20
p-Isopropyltoluene	25.0	20.4	19.7	81.4	78.8	74.0-126			3.27	20
2-Butanone (MEK)	125	131	125	105	99.7	37.0-158			4.84	20
Methylene Chloride	25.0	22.7	22.9	90.8	91.5	66.0-121			0.730	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223511-1 06/04/17 05:16 • (LCSD) R3223511-2 06/04/17 05:32

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	125	112	113	89.5	90.3	59.0-143			0.910	20
Methyl tert-butyl ether	25.0	22.4	23.3	89.6	93.4	64.0-123			4.13	20
Naphthalene	25.0	20.7	21.2	82.8	84.8	62.0-128			2.27	20
n-Propylbenzene	25.0	22.6	21.7	90.3	86.8	79.0-120			3.95	20
Styrene	25.0	25.9	25.2	103	101	78.0-124			2.70	20
1,1,1,2-Tetrachloroethane	25.0	21.8	21.2	87.2	84.9	75.0-122			2.64	20
1,1,2,2-Tetrachloroethane	25.0	21.3	21.7	85.3	86.7	71.0-122			1.66	20
Tetrachloroethene	25.0	22.0	20.1	88.0	80.3	70.0-127			9.15	20
Toluene	25.0	22.9	21.7	91.7	86.8	77.0-120			5.38	20
1,1,2-Trichlorotrifluoroethane	25.0	24.1	22.5	96.5	89.8	61.0-136			7.20	20
1,2,3-Trichlorobenzene	25.0	19.7	19.9	78.6	79.7	61.0-133			1.39	20
1,2,4-Trichlorobenzene	25.0	20.2	20.0	80.8	80.1	69.0-129			0.800	20
1,1,1-Trichloroethane	25.0	22.0	21.0	88.1	83.8	68.0-122			4.94	20
1,1,2-Trichloroethane	25.0	21.7	21.5	86.7	86.0	78.0-120			0.870	20
Trichloroethene	25.0	22.4	21.3	89.7	85.3	78.0-120			5.00	20
Trichlorofluoromethane	25.0	24.7	23.1	98.6	92.3	56.0-137			6.59	20
1,2,3-Trichloropropane	25.0	22.4	23.2	89.6	93.0	72.0-124			3.64	20
1,2,3-Trimethylbenzene	25.0	24.7	23.8	98.9	95.2	75.0-120			3.75	20
1,2,4-Trimethylbenzene	25.0	22.2	21.8	88.9	87.2	75.0-120			1.86	20
1,3,5-Trimethylbenzene	25.0	22.6	22.1	90.5	88.3	75.0-120			2.46	20
Vinyl chloride	25.0	24.9	22.9	99.7	91.6	64.0-133			8.43	20
Xylenes, Total	75.0	68.5	65.9	91.3	87.9	77.0-120			3.87	20
(S) Toluene-d8				*102*	*102*	*80.0-120*				
(S) Dibromofluoromethane				*99.0*	*101*	*76.0-123*				
(S) 4-Bromofluorobenzene				*107*	*108*	*80.0-120*				

Method Blank (MB)

(MB) R3222078-1 05/30/17 18:12

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
C12-C22 Hydrocarbons	U		33.0	100
C22-C32 Hydrocarbons	U		33.0	100
C32-C40 Hydrocarbons	U		33.0	100
(S) o-Terphenyl	*73.8*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3222078-2 05/30/17 18:29 • (LCSD) R3222078-3 05/30/17 18:46

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
C22-C32 Hydrocarbons	750	760	762	101	102	50.0-150			0.290	20
C12-C22 Hydrocarbons	750	943	947	126	126	50.0-150			0.370	20
(S) o-Terphenyl				*91.3*	*89.3*	*52.0-156*				

Method Blank (MB)

(MB) R3223431-1 06/02/17 19:37

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
C12-C22 Hydrocarbons	U		33.0	100
C22-C32 Hydrocarbons	34.6	J	33.0	100
C32-C40 Hydrocarbons	U		33.0	100
(S) o-Terphenyl	*108*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3223431-2 06/02/17 19:53 • (LCSD) R3223431-3 06/02/17 20:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C22-C32 Hydrocarbons	750	799	835	106	111	50.0-150			4.42	20
C12-C22 Hydrocarbons	750	819	862	109	115	50.0-150			5.12	20
(S) o-Terphenyl				*102*	*102*	*52.0-156*				

Method Blank (MB)

(MB) R3222035-1 05/30/17 22:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C12-C22 Hydrocarbons	U		0.733	4.00
C22-C32 Hydrocarbons	U		1.33	4.00
C32-C40 Hydrocarbons	U		1.33	4.00
(S) o-Terphenyl	*89.2*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3222035-2 05/30/17 22:56 • (LCSD) R3222035-3 05/30/17 23:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
C22-C32 Hydrocarbons	30.0	26.9	26.4	89.7	88.0	50.0-150			1.93	20
C12-C22 Hydrocarbons	30.0	29.3	28.2	97.7	93.9	50.0-150			4.02	20
(S) o-Terphenyl				*90.0*	*86.5*	*18.0-148*				

L912470-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L912470-01 06/01/17 23:12 • (MS) R3222686-1 06/01/17 23:24 • (MSD) R3222686-2 06/01/17 23:37

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C22-C32 Hydrocarbons	34.7	ND	25.1	25.4	72.3	73.3	1	50.0-150			1.41	20
C12-C22 Hydrocarbons	34.7	ND	31.4	30.3	87.1	84.1	1	50.0-150			3.41	20
(S) o-Terphenyl					*75.6*	*71.1*		*18.0-148*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL (dry)	Reported Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

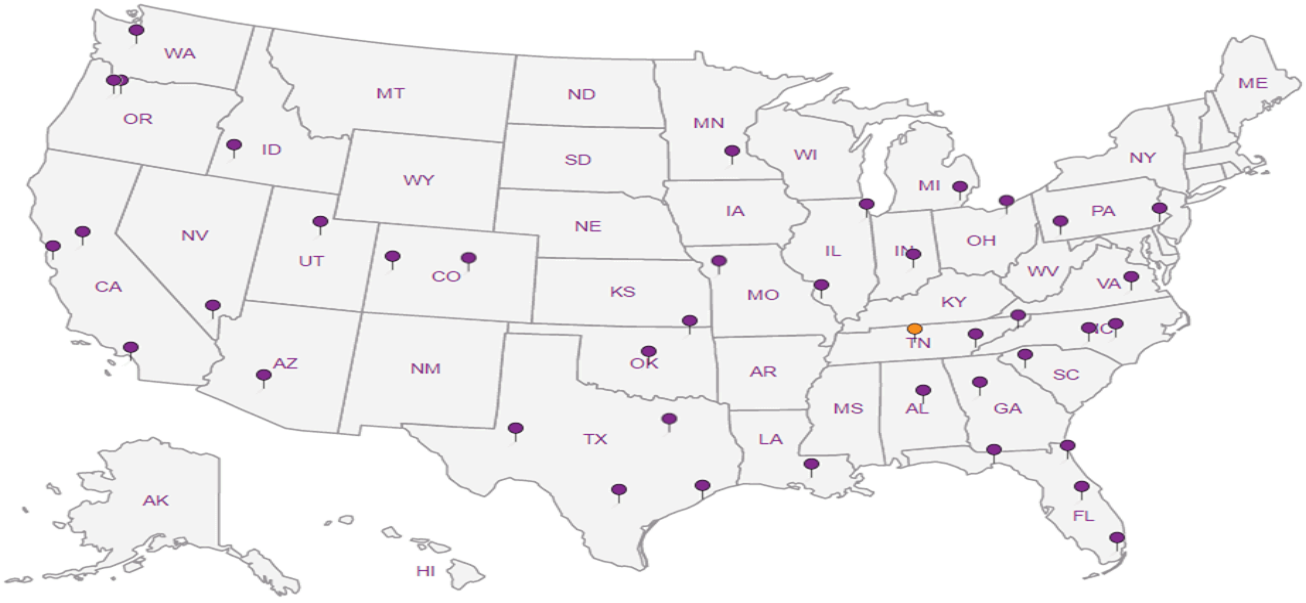
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Chain of Custody Page 1 of 3

ESC LAB SCIENCES — YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 912770

C130

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Pangea

Billing Information:

Pres Chk

Report to: **Ron Scheele**

Email To: **rscheele@pangeaenv.com**

Project Description: **1919 Market St**

City/State Collected: **Oakland, CA**

Phone: **510-836-3700**
Fax:

Client Project # **1975.001**

Lab Project #

Collected by (print): **E. Lervaag**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH g/d/mo	VOC	HOLD	Remarks	Sample # (lab only)
B-9-5	Grab	SS	5'	5/26/17	0855	5	X	X			01
B-9-10	Grab	SS	10	5/26/17	0915	5			X		
B-10-5	Grab	SS	5	5/26/17	0930		X	X			02
B-10-10	Grab	SS	10	5/26/17	0945				X		
B-11-5	Grab	SS	5	5/26/17	0955		~~X~~	~~X~~	X	Hold	
B-11-10	Grab	SS	10	5/26/17	1015				X		
B-12-5	Grab	SS	5	5/26/17	1215		X	X			03
B-12-10	Grab	SS	10	5/26/17	1230				X		
B-13-5	Grab	SS	5	5/26/17	1310		X	X			04
B-13-10	Grab	SS	10	5/26/17	1320				X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks:

pH ______ Temp ______
Flow ______ Other ______

Samples returned via:
__ UPS _/_ FedEx __ Courier __ ______

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: / NP _Y _N
COC Signed/Accurate: X _N
Bottles arrive intact: X _N
Correct bottles used: X _N
Sufficient volume sent: X _N
If Applicable
VOA Zero Headspace: / Y _N
Preservation Correct/Checked: _Y _N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
[signature]	5-26-17	1711	[signature]	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.2 °C / Bottles Received: 148
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 5/27/17 Time: 0845

If preservation required by Login: Date/Time

5-148

Condition: NCF / OK

Pangea

Billing Information:

Report to: **Ron Scheele**

Email To: **rscheele@pangeaenv.com**

Project Description: **1919 Market St**

City/State Collected: **Oakland, CA**

Phone: **510-836-3700**
Fax:

Client Project # **1975.001**

Lab Project #

Collected by (print): **E. Lervaag**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH g / BTEX MW	VOC	HOLD	Remarks	Sample # (lab only)
B-14-5	Grab	SS	5	5.26.17		1	X	X			05
B-14-10	Grab	SS	10			7			X		
B-14-15	Grab	SS	15						X		
B-15-5	Grab	SS	5				X	X			04
B-15-10	Grab	SS	10						X		
B-15-15	Grab	SS	15	5.26.17		1			X		
	Grab	SS									
	Grab	SS									
	Grab	SS									
	Grab	SS									

Chain of Custody Page 2 of 3

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 912476

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS / FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	5-26-17	17:11	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 3.2 DW 5cc Bottles Received: 14

Date: 5/27/17 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Billing Information:

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LABORATORIES

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: **Ron Scheele**

Email To: **rscheele@pangeaenv.com**

Project Description: **1919 Market St**

City/State Collected: **Oakland, CA**

Phone: **510-836-3700**
Fax:

Client Project # **1975.001**

Lab Project #

Collected by (print): **E. Lervaag**

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ____ Y ____

Rush? (Lab MUST Be Notified)
____ Same Day ____ Five Day
____ Next Day ____ 5 Day (Rad Only)
____ Two Day ____ 10 Day (Rad Only)
____ Three Day

Quote #

Date Results Needed

L# 91247

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH g/d/MO	VOC	Remarks	Sample # (lab only)
B-10-W	Grab	GW		5/26/17		6	X	X		07
B-11-W	Grab	GW		5/26/17			X	X		08
B-12-W	Grab	GW		5/26/17			X	X		09
B-13-W	Grab	GW		5/26/17			X	X		10
B-14-W	Grab	GW		5/26/17			X	X		11
B-15-W	Grab	GW		5/26/17			X	X		12
B-9-W	Grab	GW		5.26.17			X	X		13

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ____

Remarks:

pH ____ Temp ____

Flow ____ Other ____

Samples returned via:
__ UPS __ FedEx __ Courier __ ____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	5-26-17	1715	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 3.2 °C Bottles Received: 19

Date: 5/27/17 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Brian Ford

From: Brian Ford
Sent: Tuesday, June 06, 2017 6:15 PM
To: Brian Ford
Subject: FW: ESC Lab Sciences Login for 1975.001 1919 Market St L912470

-----Original Message-----
From: Ron Scheele [mailto:rscheele@pangeaenv.com]
Sent: Tuesday, June 06, 2017 6:04 PM
To: Brian Ford
Cc: Jake Wilson
Subject: RE: ESC Lab Sciences Login for 1975.001 1919 Market St L912470

Bryan,

Please remove j-flag data.
Please relabel all water samples as "B-#-GW", instead of "B-#-W".
Please relabel B-16-GW as B-9-GW, there was no B-16 boring.

Thanks

Ron Scheele, P.G.
Principal Geologist
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
510-459-6012 direct/cell
rscheele@pangeaenv.com

eurofins | Air Toxics

6/10/2017

Mr. Ron Scheele
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001.106
Workorder #: 1706030A

Dear Mr. Ron Scheele

The following report includes the data for the above referenced project for sample(s) received on 6/1/2017 at Air Toxics Ltd.

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

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

Regards,

Rachel Selenis

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1706030A

Work Order Summary

CLIENT:	Mr. Ron Scheele Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001.106 1919 Market
DATE RECEIVED:	06/01/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/10/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSV-22	TO-15	4.9 "Hg	15 psi
02A	SSV-21	TO-15	5.5 "Hg	15.2 psi
03A	SG-10	TO-15	3.7 "Hg	15 psi
04A	SG-11	TO-15	5.7 "Hg	15.1 psi
05A	SG-12	TO-15	3.9 "Hg	15.3 psi
06A	SG-13	TO-15	5.5 "Hg	15.1 psi
07A	SG-14	TO-15	4.5 "Hg	15.2 psi
08A	SG-15	TO-15	4.7 "Hg	15.2 psi
09A	Lab Blank	TO-15	NA	NA
10A	CCV	TO-15	NA	NA
11A	LCS	TO-15	NA	NA
11AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 06/10/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
Pangea Environmental Services, Inc.
Workorder# 1706030A

Eight 1 Liter Summa Canister samples were received on June 01, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample SG-15 due to the presence of high level target species.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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

Client Sample ID: SSV-22

Lab ID#: 1706030A-01A

No Detections Were Found.

Client Sample ID: SSV-21

Lab ID#: 1706030A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	28	8.4	190
2-Propanol	5.0	5.9	12	14

Client Sample ID: SG-10

Lab ID#: 1706030A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	14	5.6	66
Benzene	1.2	9.6	3.7	31
Toluene	1.2	12	4.3	44
Tetrachloroethene	1.2	1.8	7.8	12
Ethyl Benzene	1.2	1.2	5.0	5.1
m,p-Xylene	1.2	3.9	5.0	17
o-Xylene	1.2	1.2	5.0	5.3

Client Sample ID: SG-11

Lab ID#: 1706030A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	9.5	4.0	30
Toluene	1.2	11	4.7	42
Tetrachloroethene	1.2	1.8	8.5	12
Ethyl Benzene	1.2	1.4	5.4	5.9
m,p-Xylene	1.2	3.6	5.4	16
2-Propanol	5.0	5.0	12	12

Client Sample ID: SG-12

Lab ID#: 1706030A-05A

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

Client Sample ID: SG-12

Lab ID#: 1706030A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	41	3.7	130
Toluene	1.2	29	4.4	110
Tetrachloroethene	1.2	3.1	7.9	21
Ethyl Benzene	1.2	2.4	5.1	10
m,p-Xylene	1.2	8.2	5.1	36
o-Xylene	1.2	2.2	5.1	9.6

Client Sample ID: SG-13

Lab ID#: 1706030A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	10	6.0	49
Benzene	1.2	39	4.0	120
Toluene	1.2	40	4.7	150
Tetrachloroethene	1.2	4.0	8.4	27
Ethyl Benzene	1.2	4.1	5.4	18
m,p-Xylene	1.2	14	5.4	62
o-Xylene	1.2	3.9	5.4	17
2-Propanol	5.0	8.4	12	21

Client Sample ID: SG-14

Lab ID#: 1706030A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	13	3.8	43
Toluene	1.2	28	4.5	100
Tetrachloroethene	1.2	1.8	8.1	12
Ethyl Benzene	1.2	6.5	5.2	28
m,p-Xylene	1.2	20	5.2	86
o-Xylene	1.2	5.3	5.2	23

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

Client Sample ID: SG-15

Lab ID#: 1706030A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	2.4	140	7.7	430
Toluene	2.4	410	9.1	1600
Tetrachloroethene	2.4	5.0	16	34
Ethyl Benzene	2.4	68	10	300
m,p-Xylene	2.4	210	10	910
o-Xylene	2.4	52	10	230

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Client Sample ID: SSV-22

Lab ID#: 1706030A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060607**	**Date of Collection:**	**5/31/17 9:48:00 AM**
Dil. Factor:	**2.41**	**Date of Analysis:**	**6/6/17 03:39 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	5.9	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	Not Detected	5.2	Not Detected
o-Xylene	1.2	Not Detected	5.2	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected
2-Propanol	4.8	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: SSV-21

Lab ID#: 1706030A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060608**	**Date of Collection:**	**5/31/17 10:13:00 AM**
Dil. Factor:	**2.49**	**Date of Analysis:**	**6/6/17 04:06 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	6.1	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
Benzene	1.2	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
Toluene	1.2	Not Detected	4.7	Not Detected
Tetrachloroethene	1.2	28	8.4	190
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	Not Detected	5.4	Not Detected
o-Xylene	1.2	Not Detected	5.4	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
2-Propanol	5.0	5.9	12	14

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: SG-10

Lab ID#: 1706030A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060609**	**Date of Collection:**	**5/31/17 12:50:00 PM**
Dil. Factor:	**2.30**	**Date of Analysis:**	**6/6/17 04:32 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	14	5.6	66
1,1,1-Trichloroethane	1.2	Not Detected	6.3	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.2	Not Detected
Benzene	1.2	9.6	3.7	31
1,2-Dichloroethane	1.2	Not Detected	4.6	Not Detected
Trichloroethene	1.2	Not Detected	6.2	Not Detected
Toluene	1.2	12	4.3	44
Tetrachloroethene	1.2	1.8	7.8	12
Ethyl Benzene	1.2	1.2	5.0	5.1
m,p-Xylene	1.2	3.9	5.0	17
o-Xylene	1.2	1.2	5.0	5.3
Naphthalene	2.3	Not Detected	12	Not Detected
2-Propanol	4.6	Not Detected	11	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: SG-11

Lab ID#: 1706030A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060616**	**Date of Collection:**	**5/31/17 1:41:00 PM**
Dil. Factor:	**2.50**	**Date of Analysis:**	**6/6/17 08:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	6.1	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.9	Not Detected
Benzene	1.2	9.5	4.0	30
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
Toluene	1.2	11	4.7	42
Tetrachloroethene	1.2	1.8	8.5	12
Ethyl Benzene	1.2	1.4	5.4	5.9
m,p-Xylene	1.2	3.6	5.4	16
o-Xylene	1.2	Not Detected	5.4	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
2-Propanol	5.0	5.0	12	12

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	110	70-130

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Client Sample ID: SG-12

Lab ID#: 1706030A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060615**	**Date of Collection:**	**5/31/17 2:27:00 PM**
Dil. Factor:	**2.34**	**Date of Analysis:**	**6/6/17 07:44 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
Benzene	1.2	41	3.7	130
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
Toluene	1.2	29	4.4	110
Tetrachloroethene	1.2	3.1	7.9	21
Ethyl Benzene	1.2	2.4	5.1	10
m,p-Xylene	1.2	8.2	5.1	36
o-Xylene	1.2	2.2	5.1	9.6
Naphthalene	2.3	Not Detected	12	Not Detected
2-Propanol	4.7	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	110	70-130

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Client Sample ID: SG-13

Lab ID#: 1706030A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060610**	**Date of Collection: 5/31/17 3:07:00 PM**	
Dil. Factor:	**2.48**	**Date of Analysis: 6/6/17 04:58 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	10	6.0	49
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
Benzene	1.2	39	4.0	120
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
Toluene	1.2	40	4.7	150
Tetrachloroethene	1.2	4.0	8.4	27
Ethyl Benzene	1.2	4.1	5.4	18
m,p-Xylene	1.2	14	5.4	62
o-Xylene	1.2	3.9	5.4	17
Naphthalene	2.5	Not Detected	13	Not Detected
2-Propanol	5.0	8.4	12	21

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	108	70-130

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Client Sample ID: SG-14

Lab ID#: 1706030A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060611**	**Date of Collection:**	**5/31/17 3:53:00 PM**
Dil. Factor:	**2.39**	**Date of Analysis:**	**6/6/17 05:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.2	Not Detected	5.8	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.5	Not Detected
Benzene	1.2	13	3.8	43
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
Toluene	1.2	28	4.5	100
Tetrachloroethene	1.2	1.8	8.1	12
Ethyl Benzene	1.2	6.5	5.2	28
m,p-Xylene	1.2	20	5.2	86
o-Xylene	1.2	5.3	5.2	23
Naphthalene	2.4	Not Detected	12	Not Detected
2-Propanol	4.8	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: SG-15

Lab ID#: 1706030A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060612**	**Date of Collection:**	**5/31/17 4:40:00 PM**
Dil. Factor:	**4.82**	**Date of Analysis:**	**6/6/17 05:48 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	2.4	Not Detected	12	Not Detected
1,1,1-Trichloroethane	2.4	Not Detected	13	Not Detected
Carbon Tetrachloride	2.4	Not Detected	15	Not Detected
Benzene	2.4	140	7.7	430
1,2-Dichloroethane	2.4	Not Detected	9.8	Not Detected
Trichloroethene	2.4	Not Detected	13	Not Detected
Toluene	2.4	410	9.1	1600
Tetrachloroethene	2.4	5.0	16	34
Ethyl Benzene	2.4	68	10	300
m,p-Xylene	2.4	210	10	910
o-Xylene	2.4	52	10	230
Naphthalene	4.8	Not Detected	25	Not Detected
2-Propanol	9.6	Not Detected	24	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	107	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1706030A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060605**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/6/17 12:34 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	108	70-130

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Client Sample ID: CCV

Lab ID#: 1706030A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060602**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/6/17 09:36 AM**	

Compound	%Recovery
Chloroform	93
1,1,1-Trichloroethane	90
Carbon Tetrachloride	97
Benzene	93
1,2-Dichloroethane	103
Trichloroethene	97
Toluene	92
Tetrachloroethene	110
Ethyl Benzene	88
m,p-Xylene	89
o-Xylene	87
Naphthalene	80
2-Propanol	78

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	111	70-130

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Client Sample ID: LCS

Lab ID#: 1706030A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060603**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/6/17 10:01 AM**	

Compound	%Recovery	Method Limits
Chloroform	94	70-130
1,1,1-Trichloroethane	94	70-130
Carbon Tetrachloride	102	70-130
Benzene	95	70-130
1,2-Dichloroethane	101	70-130
Trichloroethene	100	70-130
Toluene	94	70-130
Tetrachloroethene	114	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	93	70-130
o-Xylene	94	70-130
Naphthalene	87	60-140
2-Propanol	80	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	111	70-130

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Client Sample ID: LCSD

Lab ID#: 1706030A-11AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/6/17 10:33 AM**	

Compound	%Recovery	Method Limits
Chloroform	94	70-130
1,1,1-Trichloroethane	95	70-130
Carbon Tetrachloride	103	70-130
Benzene	94	70-130
1,2-Dichloroethane	100	70-130
Trichloroethene	100	70-130
Toluene	94	70-130
Tetrachloroethene	111	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	91	70-130
o-Xylene	91	70-130
Naphthalene	87	60-140
2-Propanol	80	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	110	70-130

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6/7/2017

Mr. Ron Scheele
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001.106
Workorder #: 1706030B

Dear Mr. Ron Scheele

The following report includes the data for the above referenced project for sample(s) received on 6/1/2017 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1706030B

Work Order Summary

CLIENT:	Mr. Ron Scheele Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001.106 1919 Market
DATE RECEIVED:	06/01/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/07/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
07A	SG-14	Modified ASTM D-1946	4.5 "Hg	15.2 psi
08A	Lab Blank	Modified ASTM D-1946	NA	NA
09A	LCS	Modified ASTM D-1946	NA	NA
09AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 06/07/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
Modified ASTM D-1946
Pangea Environmental Services, Inc.
Workorder# 1706030B

One 1 Liter Summa Canister sample was received on June 01, 2017. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

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

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

Client Sample ID: SG-14

Lab ID#: 1706030B-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	12
Carbon Dioxide	0.024	3.0

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Client Sample ID: SG-14

Lab ID#: 1706030B-07A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060316**	**Date of Collection: 5/31/17 3:53:00 PM**	
Dil. Factor:	**2.39**	**Date of Analysis: 6/3/17 02:18 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.24	12
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	3.0

Container Type: 1 Liter Summa Canister

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Client Sample ID: Lab Blank

Lab ID#: 1706030B-08A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/3/17 08:23 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1706030B-09A

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/3/17 07:31 AM**	

Compound	%Recovery	Method Limits
Oxygen	99	85-115
Methane	102	85-115
Carbon Dioxide	98	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1706030B-09AA

MODIFIED NATURAL GAS ANALYSIS BY ASTM D-1946

File Name:	**10060317**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/3/17 02:47 PM**	

Compound	%Recovery	Method Limits
Oxygen	98	85-115
Methane	99	85-115
Carbon Dioxide	99	85-115

Container Type: NA - Not Applicable

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6/6/2017
Mr. Ron Scheele
Pangea Environmental Services, Inc.
1710 Franklin Street
Suite 200
Oakland CA 94612

Project Name: 1919 Market
Project #: 1975.001.106
Workorder #: 1706030C

Dear Mr. Ron Scheele

The following report includes the data for the above referenced project for sample(s) received on 6/1/2017 at Air Toxics Ltd.

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

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

Regards,

Rachel Selenis

Project Manager

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WORK ORDER #: 1706030C

Work Order Summary

CLIENT:	Mr. Ron Scheele Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612	**BILL TO:**	Mr. Jake Wilson Pangea Environmental Services, Inc. 1710 Franklin Street Suite 200 Oakland, CA 94612
PHONE:	510-836-3700	**P.O. #**	
FAX:	510-836-3709	**PROJECT #**	1975.001.106 1919 Market
DATE RECEIVED:	06/01/2017	**CONTACT:**	Rachel Selenis
DATE COMPLETED:	06/06/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
09A	Shroud	TO-15	5.9 "Hg	14.6 psi
10A	Lab Blank	TO-15	NA	NA
11A	CCV	TO-15	NA	NA
12A	LCS	TO-15	NA	NA
12AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 06/06/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
EPA Method TO-15
Pangea Environmental Services, Inc.
Workorder# 1706030C

One 1 Liter Summa Canister sample was received on June 01, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample Shroud due to the presence of high level target species.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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

Client Sample ID: Shroud

Lab ID#: 1706030C-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	2500	72000	6100	180000

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Client Sample ID: Shroud

Lab ID#: 1706030C-09A

EPA METHOD TO-15 GC/MS

File Name:	**14060524**	**Date of Collection: 5/31/17 4:40:00 PM**	
Dil. Factor:	**124**	**Date of Analysis: 6/5/17 07:46 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	2500	72000	6100	180000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1706030C-10A

EPA METHOD TO-15 GC/MS

File Name:	**14060513**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/5/17 02:25 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	20	Not Detected	49	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV
Lab ID#: 1706030C-11A
EPA METHOD TO-15 GC/MS

File Name:	**14060509**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/5/17 12:26 PM**	

Compound	%Recovery
2-Propanol	113

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCS

Lab ID#: 1706030C-12A

EPA METHOD TO-15 GC/MS

File Name:	**14060510**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/5/17 12:53 PM**	

Compound	%Recovery	Method Limits
2-Propanol	115	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1706030C-12AA

EPA METHOD TO-15 GC/MS

File Name:	**14060511**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/5/17 01:20 PM**	

Compound	%Recovery	Method Limits
2-Propanol	115	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130

ANALYTICAL REPORT

June 13, 2017

Pangea Environmental Serv - Oakland, CA

Sample Delivery Group:	L915030
Samples Received:	05/27/2017
Project Number:	1975.001
Description:	1919 Market St

Report To:

Ron Scheele
1710 Franklin Street
Suite 200
Oakland, CA 94612

Entire Report Reviewed By:

Brian Ford

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

B-14-10 L915030-01 Solid

Collected by: E. Lervaag
Collected date/time: 05/26/17 00:00
Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG987928	1	06/10/17 12:12	06/10/17 12:25	KDW
Volatile Organic Compounds (GC) by Method 8015	WG988520	17	05/26/17 00:00	06/13/17 11:38	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG988286	17	05/26/17 00:00	06/13/17 11:04	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG987278	1	06/09/17 20:40	06/11/17 04:51	ACM
Semi-Volatile Organic Compounds (GC) by Method 8015	WG987278	5	06/09/17 20:40	06/12/17 22:05	DMG

B-15-10 L915030-02 Solid

Collected by: E. Lervaag
Collected date/time: 05/26/17 00:00
Received date/time: 05/27/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG987928	1	06/10/17 12:12	06/10/17 12:25	KDW
Volatile Organic Compounds (GC) by Method 8015	WG988520	16.5	05/26/17 00:00	06/13/17 12:00	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG988286	16.5	05/26/17 00:00	06/13/17 11:17	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG987278	1	06/09/17 20:40	06/11/17 05:08	ACM

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.8	T8	1	06/10/2017 12:25	WG987928

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	65.1	J3 T8	1.96	17	06/13/2017 11:38	WG988520
(S) a,a,a-Trifluorotoluene(FID)	*98.5*		*77.0-120*		*06/13/2017 11:38*	WG988520

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND	T8	0.979	17	06/13/2017 11:04	WG988286
Acrylonitrile	ND	T8	0.196	17	06/13/2017 11:04	WG988286
Benzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Bromobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Bromodichloromethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Bromoform	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Bromomethane	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
n-Butylbenzene	0.0649	T8	0.0196	17	06/13/2017 11:04	WG988286
sec-Butylbenzene	0.0666	T8	0.0196	17	06/13/2017 11:04	WG988286
tert-Butylbenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Carbon tetrachloride	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Chlorobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Chlorodibromomethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Chloroethane	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
Chloroform	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
Chloromethane	ND	T8	0.0489	17	06/13/2017 11:04	WG988286
2-Chlorotoluene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
4-Chlorotoluene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,2-Dibromo-3-Chloropropane	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
1,2-Dibromoethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Dibromomethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,2-Dichlorobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,3-Dichlorobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,4-Dichlorobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Dichlorodifluoromethane	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
1,1-Dichloroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,2-Dichloroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1-Dichloroethene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
cis-1,2-Dichloroethene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
trans-1,2-Dichloroethene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,2-Dichloropropane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1-Dichloropropene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,3-Dichloropropane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
cis-1,3-Dichloropropene	ND	J4 T8	0.0196	17	06/13/2017 11:04	WG988286
trans-1,3-Dichloropropene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
2,2-Dichloropropane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Di-isopropyl ether	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Ethylbenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Hexachloro-1,3-butadiene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Isopropylbenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
p-Isopropyltoluene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
2-Butanone (MEK)	ND	T8	0.196	17	06/13/2017 11:04	WG988286
Methylene Chloride	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
4-Methyl-2-pentanone (MIBK)	ND	T8	0.196	17	06/13/2017 11:04	WG988286

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Naphthalene	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
n-Propylbenzene	0.0202	T8	0.0196	17	06/13/2017 11:04	WG988286
Styrene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1,1,2-Tetrachloroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1,2,2-Tetrachloroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1,2-Trichlorotrifluoroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Tetrachloroethene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Toluene	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
1,2,3-Trichlorobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,2,4-Trichlorobenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1,1-Trichloroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,1,2-Trichloroethane	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Trichloroethene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Trichlorofluoromethane	ND	T8	0.0979	17	06/13/2017 11:04	WG988286
1,2,3-Trichloropropane	ND	T8	0.0489	17	06/13/2017 11:04	WG988286
1,2,4-Trimethylbenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,2,3-Trimethylbenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
1,3,5-Trimethylbenzene	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Vinyl chloride	ND	T8	0.0196	17	06/13/2017 11:04	WG988286
Xylenes, Total	ND	T8	0.0587	17	06/13/2017 11:04	WG988286
(S) Toluene-d8	*113*		*80.0-120*		*06/13/2017 11:04*	WG988286
(S) Dibromofluoromethane	*102*		*74.0-131*		*06/13/2017 11:04*	WG988286
(S) 4-Bromofluorobenzene	*121*		*64.0-132*		*06/13/2017 11:04*	WG988286

Sample Narrative:

8260B L915030-01 WG988286: Non-target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	252		23.0	5	06/12/2017 22:05	WG987278
C22-C32 Hydrocarbons	10.0		4.61	1	06/11/2017 04:51	WG987278
C32-C40 Hydrocarbons	6.20		4.61	1	06/11/2017 04:51	WG987278
(S) o-Terphenyl	*99.5*		*18.0-148*		*06/12/2017 22:05*	WG987278
(S) o-Terphenyl	*81.5*		*18.0-148*		*06/11/2017 04:51*	WG987278

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	75.2	T8	1	06/10/2017 12:25	WG987928

Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPHG C5 - C12	101	J3 T8	2.20	16.5	06/13/2017 12:00	WG988520
(S) a,a,a-Trifluorotoluene(FID)	*99.9*		*77.0-120*		*06/13/2017 12:00*	WG988520

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND	T8	1.10	16.5	06/13/2017 11:17	WG988286
Acrylonitrile	ND	T8	0.220	16.5	06/13/2017 11:17	WG988286
Benzene	0.0911	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Bromobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Bromodichloromethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Bromoform	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Bromomethane	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
n-Butylbenzene	0.112	T8	0.0220	16.5	06/13/2017 11:17	WG988286
sec-Butylbenzene	0.0489	T8	0.0220	16.5	06/13/2017 11:17	WG988286
tert-Butylbenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Carbon tetrachloride	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Chlorobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Chlorodibromomethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Chloroethane	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
Chloroform	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
Chloromethane	ND	T8	0.0549	16.5	06/13/2017 11:17	WG988286
2-Chlorotoluene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
4-Chlorotoluene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,2-Dibromo-3-Chloropropane	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
1,2-Dibromoethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Dibromomethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,2-Dichlorobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,3-Dichlorobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,4-Dichlorobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Dichlorodifluoromethane	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
1,1-Dichloroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,2-Dichloroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1-Dichloroethene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
cis-1,2-Dichloroethene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
trans-1,2-Dichloroethene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,2-Dichloropropane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1-Dichloropropene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,3-Dichloropropane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
cis-1,3-Dichloropropene	ND	J4 T8	0.0220	16.5	06/13/2017 11:17	WG988286
trans-1,3-Dichloropropene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
2,2-Dichloropropane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Di-isopropyl ether	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Ethylbenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Hexachloro-1,3-butadiene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Isopropylbenzene	0.101	T8	0.0220	16.5	06/13/2017 11:17	WG988286
p-Isopropyltoluene	0.0906	T8	0.0220	16.5	06/13/2017 11:17	WG988286
2-Butanone (MEK)	ND	T8	0.220	16.5	06/13/2017 11:17	WG988286
Methylene Chloride	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
4-Methyl-2-pentanone (MIBK)	ND	T8	0.220	16.5	06/13/2017 11:17	WG988286

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Methyl tert-butyl ether	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Naphthalene	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
n-Propylbenzene	0.264	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Styrene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1,1,2-Tetrachloroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1,2,2-Tetrachloroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1,2-Trichlorotrifluoroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Tetrachloroethene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Toluene	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
1,2,3-Trichlorobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,2,4-Trichlorobenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1,1-Trichloroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,1,2-Trichloroethane	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Trichloroethene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Trichlorofluoromethane	ND	T8	0.110	16.5	06/13/2017 11:17	WG988286
1,2,3-Trichloropropane	ND	T8	0.0549	16.5	06/13/2017 11:17	WG988286
1,2,4-Trimethylbenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,2,3-Trimethylbenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
1,3,5-Trimethylbenzene	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Vinyl chloride	ND	T8	0.0220	16.5	06/13/2017 11:17	WG988286
Xylenes, Total	ND	T8	0.0659	16.5	06/13/2017 11:17	WG988286
(S) Toluene-d8	*116*		*80.0-120*		*06/13/2017 11:17*	WG988286
(S) Dibromofluoromethane	*103*		*74.0-131*		*06/13/2017 11:17*	WG988286
(S) 4-Bromofluorobenzene	*106*		*64.0-132*		*06/13/2017 11:17*	WG988286

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C12-C22 Hydrocarbons	ND		5.32	1	06/11/2017 05:08	WG987278
C22-C32 Hydrocarbons	ND		5.32	1	06/11/2017 05:08	WG987278
C32-C40 Hydrocarbons	ND		5.32	1	06/11/2017 05:08	WG987278
(S) o-Terphenyl	*101*		*18.0-148*		*06/11/2017 05:08*	WG987278

Method Blank (MB)

(MB) R3224766-1 06/10/17 12:25

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000800			

L915034-02 Original Sample (OS) • Duplicate (DUP)

(OS) L915034-02 06/10/17 12:25 • (DUP) R3224766-3 06/10/17 12:25

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	80.4	80.1	1	0.382		5

Laboratory Control Sample (LCS)

(LCS) R3224766-2 06/10/17 12:25

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3225203-3 06/13/17 10:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPHG C5 - C12	U		0.0332	0.100
(S) a,a,a-Trifluorotoluene(FID)	*98.1*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3225203-1 06/13/17 09:47 • (LCSD) R3225203-2 06/13/17 10:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHG C5 - C12	5.50	5.37	4.26	97.7	77.4	75.0-128		J3	23.1	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*104*	*77.0-120*				

Method Blank (MB)

(MB) R3225077-3 06/12/17 11:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
Isopropylbenzene	U		0.000243	0.00100

Method Blank (MB)

(MB) R3225077-3 06/12/17 11:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	U		0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*101*			*80.0-120*
(S) Dibromofluoromethane	*90.0*			*74.0-131*
(S) 4-Bromofluorobenzene	*104*			*64.0-132*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3225077-1 06/12/17 10:29 • (LCSD) R3225077-2 06/12/17 11:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0798	0.0918	63.8	73.5	11.0-160			14.0	23
Acrylonitrile	0.125	0.0838	0.0894	67.0	71.5	61.0-143			6.45	20
Benzene	0.0250	0.0188	0.0192	75.2	76.9	71.0-124			2.22	20
Bromobenzene	0.0250	0.0242	0.0236	96.8	94.5	78.0-120			2.37	20
Bromodichloromethane	0.0250	0.0202	0.0208	80.7	83.2	75.0-120			3.06	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3225077-1 06/12/17 10:29 • (LCSD) R3225077-2 06/12/17 11:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	0.0241	0.0242	96.6	96.7	65.0-133			0.0800	20
Bromomethane	0.0250	0.0285	0.0292	114	117	26.0-160			2.18	20
n-Butylbenzene	0.0250	0.0204	0.0201	81.4	80.5	73.0-126			1.19	20
sec-Butylbenzene	0.0250	0.0251	0.0255	101	102	75.0-121			1.33	20
tert-Butylbenzene	0.0250	0.0261	0.0262	104	105	74.0-122			0.690	20
Carbon tetrachloride	0.0250	0.0232	0.0235	92.9	94.2	66.0-123			1.30	20
Chlorobenzene	0.0250	0.0262	0.0257	105	103	79.0-121			1.93	20
Chlorodibromomethane	0.0250	0.0249	0.0236	99.6	94.5	74.0-128			5.27	20
Chloroethane	0.0250	0.0228	0.0236	91.3	94.6	51.0-147			3.56	20
Chloroform	0.0250	0.0212	0.0212	84.9	84.9	73.0-123			0.0400	20
Chloromethane	0.0250	0.0168	0.0167	67.2	66.9	51.0-138			0.510	20
2-Chlorotoluene	0.0250	0.0258	0.0255	103	102	72.0-124			1.11	20
4-Chlorotoluene	0.0250	0.0254	0.0253	102	101	78.0-120			0.400	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0167	0.0166	67.0	66.4	65.0-126			0.860	20
1,2-Dibromoethane	0.0250	0.0253	0.0253	101	101	78.0-122			0.260	20
Dibromomethane	0.0250	0.0224	0.0230	89.6	92.2	79.0-120			2.88	20
1,2-Dichlorobenzene	0.0250	0.0224	0.0216	89.7	86.3	80.0-120			3.86	20
1,3-Dichlorobenzene	0.0250	0.0276	0.0273	111	109	72.0-123			1.12	20
1,4-Dichlorobenzene	0.0250	0.0229	0.0216	91.6	86.5	77.0-120			5.72	20
Dichlorodifluoromethane	0.0250	0.0201	0.0217	80.6	87.0	49.0-155			7.66	20
1,1-Dichloroethane	0.0250	0.0185	0.0188	73.8	75.2	70.0-128			1.84	20
1,2-Dichloroethane	0.0250	0.0223	0.0227	89.3	90.8	69.0-128			1.74	20
1,1-Dichloroethene	0.0250	0.0255	0.0262	102	105	63.0-131			2.63	20
cis-1,2-Dichloroethene	0.0250	0.0207	0.0207	83.0	82.7	74.0-123			0.330	20
trans-1,2-Dichloroethene	0.0250	0.0204	0.0205	81.7	82.1	72.0-122			0.460	20
1,2-Dichloropropane	0.0250	0.0205	0.0205	82.2	82.2	75.0-126			0.0200	20
1,1-Dichloropropene	0.0250	0.0193	0.0200	77.2	80.0	72.0-130			3.57	20
1,3-Dichloropropane	0.0250	0.0238	0.0230	95.1	91.8	80.0-121			3.51	20
cis-1,3-Dichloropropene	0.0250	0.0200	0.0199	79.8	79.7	80.0-125	J4	J4	0.130	20
trans-1,3-Dichloropropene	0.0250	0.0213	0.0214	85.0	85.7	75.0-129			0.770	20
2,2-Dichloropropane	0.0250	0.0216	0.0211	86.6	84.6	60.0-129			2.34	20
Di-isopropyl ether	0.0250	0.0167	0.0170	66.8	67.9	62.0-133			1.59	20
Ethylbenzene	0.0250	0.0257	0.0245	103	98.1	77.0-120			4.57	20
Hexachloro-1,3-butadiene	0.0250	0.0227	0.0231	90.7	92.2	68.0-128			1.67	20
Isopropylbenzene	0.0250	0.0258	0.0256	103	103	75.0-120			0.430	20
p-Isopropyltoluene	0.0250	0.0266	0.0265	106	106	74.0-125			0.420	20
2-Butanone (MEK)	0.125	0.0850	0.0919	68.0	73.5	37.0-159			7.80	20
Methylene Chloride	0.0250	0.0193	0.0191	77.0	76.4	67.0-123			0.800	20
4-Methyl-2-pentanone (MIBK)	0.125	0.0897	0.0944	71.8	75.5	60.0-144			5.08	20
Methyl tert-butyl ether	0.0250	0.0201	0.0208	80.5	83.0	66.0-125			3.12	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3225077-1 06/12/17 10:29 • (LCSD) R3225077-2 06/12/17 11:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0199	0.0199	79.8	79.7	64.0-125			0.150	20
n-Propylbenzene	0.0250	0.0249	0.0248	99.8	99.1	78.0-120			0.720	20
Styrene	0.0250	0.0265	0.0259	106	104	78.0-124			2.13	20
1,1,1,2-Tetrachloroethane	0.0250	0.0260	0.0253	104	101	74.0-124			2.80	20
1,1,2,2-Tetrachloroethane	0.0250	0.0221	0.0223	88.6	89.4	73.0-120			0.890	20
Tetrachloroethene	0.0250	0.0283	0.0277	113	111	70.0-127			2.00	20
Toluene	0.0250	0.0214	0.0215	85.5	86.0	77.0-120			0.630	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0264	0.0263	106	105	64.0-135			0.310	20
1,2,3-Trichlorobenzene	0.0250	0.0213	0.0216	85.4	86.4	68.0-126			1.22	20
1,2,4-Trichlorobenzene	0.0250	0.0233	0.0226	93.2	90.6	70.0-127			2.92	20
1,1,1-Trichloroethane	0.0250	0.0227	0.0232	90.7	92.8	69.0-125			2.31	20
1,1,2-Trichloroethane	0.0250	0.0235	0.0242	93.9	97.0	78.0-120			3.28	20
Trichloroethene	0.0250	0.0247	0.0256	98.9	103	79.0-120			3.66	20
Trichlorofluoromethane	0.0250	0.0275	0.0274	110	110	59.0-136			0.410	20
1,2,3-Trichloropropane	0.0250	0.0233	0.0250	93.2	100	73.0-124			7.17	20
1,2,3-Trimethylbenzene	0.0250	0.0209	0.0201	83.7	80.5	76.0-120			3.86	20
1,2,4-Trimethylbenzene	0.0250	0.0252	0.0255	101	102	75.0-120			1.14	20
1,3,5-Trimethylbenzene	0.0250	0.0258	0.0261	103	104	75.0-120			1.00	20
Vinyl chloride	0.0250	0.0202	0.0211	80.9	84.3	63.0-134			4.07	20
Xylenes, Total	0.0750	0.0764	0.0744	102	99.2	77.0-120			2.65	20
(S) Toluene-d8				*99.4*	*99.7*	*80.0-120*				
(S) Dibromofluoromethane				*91.1*	*93.1*	*74.0-131*				
(S) 4-Bromofluorobenzene				*102*	*106*	*64.0-132*				

L913791-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L913791-09 06/12/17 16:29 • (MS) R3225077-4 06/12/17 15:36 • (MSD) R3225077-5 06/12/17 15:53

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125		1.64	1.15	62.4	44.0	21	10.0-160			34.7	36
Acetone	0.125	U	1.64	1.15	62.4	44.0	21	10.0-160			34.7	36
Acrylonitrile	0.125		1.90	1.48	72.3	56.4	21	14.0-160			24.8	33
Acrylonitrile	0.125	U	1.90	1.48	72.3	56.4	21	14.0-160			24.8	33
Benzene	0.0250		0.437	0.420	83.2	80.0	21	13.0-146			3.89	27
Benzene	0.0250	U	0.437	0.420	83.2	80.0	21	13.0-146			3.89	27
Bromobenzene	0.0250		0.613	0.542	117	103	21	10.0-149			12.3	33
Bromobenzene	0.0250	U	0.613	0.542	117	103	21	10.0-149			12.3	33
Bromodichloromethane	0.0250		0.458	0.440	87.2	83.8	21	15.0-142			3.99	28
Bromodichloromethane	0.0250	U	0.458	0.440	87.2	83.8	21	15.0-142			3.99	28

L913791-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L913791-09 06/12/17 16:29 • (MS) R3225077-4 06/12/17 15:36 • (MSD) R3225077-5 06/12/17 15:53

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250		0.513	0.490	97.7	93.3	21	10.0-147			4.63	31
Bromoform	0.0250	U	0.513	0.490	97.7	93.3	21	10.0-147			4.63	31
Bromomethane	0.0250		0.391	0.439	74.5	83.7	21	10.0-160			11.6	32
Bromomethane	0.0250	U	0.391	0.439	74.5	83.7	21	10.0-160			11.6	32
n-Butylbenzene	0.0250		0.551	0.501	105	95.4	21	10.0-154			9.47	37
n-Butylbenzene	0.0250	U	0.551	0.501	105	95.4	21	10.0-154			9.47	37
sec-Butylbenzene	0.0250		0.700	0.616	133	117	21	10.0-151			12.8	36
sec-Butylbenzene	0.0250	U	0.700	0.616	133	117	21	10.0-151			12.8	36
tert-Butylbenzene	0.0250		0.714	0.644	136	123	21	10.0-152			10.3	35
tert-Butylbenzene	0.0250	U	0.714	0.644	136	123	21	10.0-152			10.3	35
Carbon tetrachloride	0.0250		0.521	0.502	99.3	95.7	21	13.0-140			3.68	30
Carbon tetrachloride	0.0250	U	0.521	0.502	99.3	95.7	21	13.0-140			3.68	30
Chlorobenzene	0.0250		0.650	0.605	124	115	21	10.0-149			7.18	31
Chlorobenzene	0.0250	U	0.650	0.605	124	115	21	10.0-149			7.18	31
Chlorodibromomethane	0.0250		0.554	0.535	106	102	21	12.0-147			3.42	29
Chlorodibromomethane	0.0250	U	0.554	0.535	106	102	21	12.0-147			3.42	29
Chloroethane	0.0250		0.166	0.290	31.6	55.2	21	10.0-159		J3	54.6	33
Chloroethane	0.0250	U	0.166	0.290	31.6	55.2	21	10.0-159		J3	54.6	33
Chloroform	0.0250		0.478	0.470	91.0	89.5	21	18.0-148			1.65	28
Chloroform	0.0250	U	0.478	0.470	91.0	89.5	21	18.0-148			1.65	28
Chloromethane	0.0250		0.379	0.371	72.1	70.6	21	10.0-146			2.17	29
Chloromethane	0.0250	U	0.379	0.371	72.1	70.6	21	10.0-146			2.17	29
2-Chlorotoluene	0.0250		0.670	0.602	128	115	21	10.0-151			10.8	35
2-Chlorotoluene	0.0250	U	0.670	0.602	128	115	21	10.0-151			10.8	35
4-Chlorotoluene	0.0250		0.660	0.605	126	115	21	10.0-150			8.77	35
4-Chlorotoluene	0.0250	U	0.660	0.605	126	115	21	10.0-150			8.77	35
1,2-Dibromo-3-Chloropropane	0.0250		0.402	0.379	76.5	72.2	21	10.0-149			5.86	34
1,2-Dibromo-3-Chloropropane	0.0250	U	0.402	0.379	76.5	72.2	21	10.0-149			5.86	34
1,2-Dibromoethane	0.0250		0.588	0.570	112	109	21	14.0-145			3.12	28
1,2-Dibromoethane	0.0250	U	0.588	0.570	112	109	21	14.0-145			3.12	28
Dibromomethane	0.0250		0.503	0.494	95.9	94.1	21	18.0-144			1.90	27
Dibromomethane	0.0250	U	0.503	0.494	95.9	94.1	21	18.0-144			1.90	27
1,2-Dichlorobenzene	0.0250		0.559	0.530	107	101	21	10.0-153			5.43	34
1,2-Dichlorobenzene	0.0250	U	0.559	0.530	107	101	21	10.0-153			5.43	34
1,3-Dichlorobenzene	0.0250		0.712	0.630	136	120	21	10.0-150			12.2	35
1,3-Dichlorobenzene	0.0250	U	0.712	0.630	136	120	21	10.0-150			12.2	35
1,4-Dichlorobenzene	0.0250		0.577	0.532	110	101	21	10.0-148			8.13	34
1,4-Dichlorobenzene	0.0250	U	0.577	0.532	110	101	21	10.0-148			8.13	34
Dichlorodifluoromethane	0.0250		0.685	0.648	130	123	21	10.0-160			5.57	30
Dichlorodifluoromethane	0.0250	U	0.685	0.648	130	123	21	10.0-160			5.57	30

L913791-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L913791-09 06/12/17 16:29 • (MS) R3225077-4 06/12/17 15:36 • (MSD) R3225077-5 06/12/17 15:53

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1-Dichloroethane	0.0250		0.416	0.395	79.2	75.3	21	19.0-148			5.05	28
1,1-Dichloroethane	0.0250	U	0.416	0.395	79.2	75.3	21	19.0-148			5.05	28
1,2-Dichloroethane	0.0250		0.503	0.485	95.7	92.3	21	17.0-147			3.63	27
1,2-Dichloroethane	0.0250	U	0.503	0.485	95.7	92.3	21	17.0-147			3.63	27
1,1-Dichloroethene	0.0250		0.537	0.372	102	70.8	21	10.0-150		J3	36.3	31
1,1-Dichloroethene	0.0250	U	0.537	0.372	102	70.8	21	10.0-150		J3	36.3	31
cis-1,2-Dichloroethene	0.0250		0.466	0.460	88.7	87.6	21	16.0-145			1.31	28
cis-1,2-Dichloroethene	0.0250	U	0.466	0.460	88.7	87.6	21	16.0-145			1.31	28
trans-1,2-Dichloroethene	0.0250		0.448	0.430	85.3	81.9	21	11.0-142			4.12	29
trans-1,2-Dichloroethene	0.0250	U	0.448	0.430	85.3	81.9	21	11.0-142			4.12	29
1,2-Dichloropropane	0.0250		0.483	0.437	92.0	83.3	21	17.0-148			9.91	28
1,2-Dichloropropane	0.0250	U	0.483	0.437	92.0	83.3	21	17.0-148			9.91	28
1,1-Dichloropropene	0.0250		0.468	0.467	89.2	88.9	21	10.0-150			0.380	30
1,1-Dichloropropene	0.0250	U	0.468	0.467	89.2	88.9	21	10.0-150			0.380	30
1,3-Dichloropropane	0.0250		0.571	0.537	109	102	21	16.0-148			6.09	27
1,3-Dichloropropane	0.0250	U	0.571	0.537	109	102	21	16.0-148			6.09	27
cis-1,3-Dichloropropene	0.0250		0.521	0.487	99.1	92.7	21	13.0-150			6.70	28
cis-1,3-Dichloropropene	0.0250	U	0.521	0.487	99.1	92.7	21	13.0-150			6.70	28
trans-1,3-Dichloropropene	0.0250		0.529	0.488	101	93.0	21	10.0-152			8.00	29
trans-1,3-Dichloropropene	0.0250	U	0.529	0.488	101	93.0	21	10.0-152			8.00	29
2,2-Dichloropropane	0.0250		0.394	0.389	75.0	74.0	21	16.0-143			1.24	30
2,2-Dichloropropane	0.0250	U	0.394	0.389	75.0	74.0	21	16.0-143			1.24	30
Di-isopropyl ether	0.0250		0.350	0.338	66.7	64.4	21	16.0-149			3.56	28
Di-isopropyl ether	0.0250	U	0.350	0.338	66.7	64.4	21	16.0-149			3.56	28
Ethylbenzene	0.0250		0.625	0.565	119	108	21	10.0-147			10.1	31
Ethylbenzene	0.0250	U	0.625	0.565	119	108	21	10.0-147			10.1	31
Hexachloro-1,3-butadiene	0.0250		0.690	0.597	132	114	21	10.0-154			14.4	40
Hexachloro-1,3-butadiene	0.0250	U	0.690	0.597	132	114	21	10.0-154			14.4	40
Isopropylbenzene	0.0250		0.661	0.612	126	116	21	10.0-147			7.79	33
Isopropylbenzene	0.0250	U	0.661	0.612	126	116	21	10.0-147			7.79	33
p-Isopropyltoluene	0.0250		0.737	0.655	140	125	21	10.0-156			11.8	37
p-Isopropyltoluene	0.0250	U	0.737	0.655	140	125	21	10.0-156			11.8	37
2-Butanone (MEK)	0.125		2.04	1.61	77.6	61.3	21	10.0-160			23.5	33
2-Butanone (MEK)	0.125	U	2.04	1.61	77.6	61.3	21	10.0-160			23.5	33
Methylene Chloride	0.0250		0.403	0.383	76.8	72.9	21	16.0-139			5.15	29
Methylene Chloride	0.0250	U	0.403	0.383	76.8	72.9	21	16.0-139			5.15	29
4-Methyl-2-pentanone (MIBK)	0.125		2.10	2.15	80.2	81.8	21	12.0-160			1.96	32
4-Methyl-2-pentanone (MIBK)	0.125	U	2.10	2.15	80.2	81.8	21	12.0-160			1.96	32
Methyl tert-butyl ether	0.0250		0.430	0.383	81.9	73.0	21	21.0-145			11.5	29
Methyl tert-butyl ether	0.0250	U	0.430	0.383	81.9	73.0	21	21.0-145			11.5	29

L913791-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L913791-09 06/12/17 16:29 • (MS) R3225077-4 06/12/17 15:36 • (MSD) R3225077-5 06/12/17 15:53

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250		0.512	0.499	97.5	95.1	21	10.0-153			2.49	36
Naphthalene	0.0250	U	0.512	0.499	97.5	95.1	21	10.0-153			2.49	36
n-Propylbenzene	0.0250		0.664	0.596	126	113	21	10.0-151			10.8	34
n-Propylbenzene	0.0250	U	0.664	0.596	126	113	21	10.0-151			10.8	34
Styrene	0.0250		0.691	0.637	132	121	21	10.0-155			8.12	34
Styrene	0.0250	U	0.691	0.637	132	121	21	10.0-155			8.12	34
1,1,1,2-Tetrachloroethane	0.0250		0.623	0.580	119	110	21	10.0-147			7.09	30
1,1,1,2-Tetrachloroethane	0.0250	U	0.623	0.580	119	110	21	10.0-147			7.09	30
1,1,2,2-Tetrachloroethane	0.0250		0.508	0.478	96.8	91.1	21	10.0-155			6.10	31
1,1,2,2-Tetrachloroethane	0.0250	U	0.508	0.478	96.8	91.1	21	10.0-155			6.10	31
Tetrachloroethene	0.0250		0.714	0.673	136	128	21	10.0-144			5.90	32
Tetrachloroethene	0.0250	U	0.714	0.673	136	128	21	10.0-144			5.90	32
Toluene	0.0250		0.523	0.485	99.6	92.4	21	10.0-144			7.40	28
Toluene	0.0250	U	0.523	0.485	99.6	92.4	21	10.0-144			7.40	28
1,1,2-Trichlorotrifluoroethane	0.0250		0.599	0.432	114	82.2	21	10.0-153			32.4	33
1,1,2-Trichlorotrifluoroethane	0.0250	U	0.599	0.432	114	82.2	21	10.0-153			32.4	33
1,2,3-Trichlorobenzene	0.0250		0.568	0.535	107	101	21	10.0-153			5.88	40
1,2,3-Trichlorobenzene	0.0250	0.00677	0.568	0.535	107	101	21	10.0-153			5.88	40
1,2,4-Trichlorobenzene	0.0250		0.628	0.579	120	110	21	10.0-156			8.08	40
1,2,4-Trichlorobenzene	0.0250	U	0.628	0.579	120	110	21	10.0-156			8.08	40
1,1,1-Trichloroethane	0.0250		0.515	0.514	98.2	97.9	21	18.0-145			0.270	29
1,1,1-Trichloroethane	0.0250	U	0.515	0.514	98.2	97.9	21	18.0-145			0.270	29
1,1,2-Trichloroethane	0.0250		0.580	0.556	110	106	21	12.0-151			4.19	28
1,1,2-Trichloroethane	0.0250	U	0.580	0.556	110	106	21	12.0-151			4.19	28
Trichloroethene	0.0250		0.604	0.577	115	110	21	11.0-148			4.50	29
Trichloroethene	0.0250	U	0.604	0.577	115	110	21	11.0-148			4.50	29
Trichlorofluoromethane	0.0250		0.111	0.431	21.1	82.1	21	10.0-157		J3	118	34
Trichlorofluoromethane	0.0250	U	0.111	0.431	21.1	82.1	21	10.0-157		J3	118	34
1,2,3-Trichloropropane	0.0250		0.584	0.599	111	114	21	10.0-154			2.53	32
1,2,3-Trichloropropane	0.0250	U	0.584	0.599	111	114	21	10.0-154			2.53	32
1,2,3-Trimethylbenzene	0.0250		0.524	0.488	99.9	93.0	21	10.0-150			7.11	33
1,2,3-Trimethylbenzene	0.0250	U	0.524	0.488	99.9	93.0	21	10.0-150			7.11	33
1,2,4-Trimethylbenzene	0.0250		0.682	0.614	130	117	21	10.0-151			10.5	34
1,2,4-Trimethylbenzene	0.0250	U	0.682	0.614	130	117	21	10.0-151			10.5	34
1,3,5-Trimethylbenzene	0.0250		0.676	0.626	129	119	21	10.0-150			7.72	33
1,3,5-Trimethylbenzene	0.0250	U	0.676	0.626	129	119	21	10.0-150			7.72	33
Vinyl chloride	0.0250		0.479	0.486	91.2	92.5	21	10.0-150			1.48	29
Vinyl chloride	0.0250	U	0.479	0.486	91.2	92.5	21	10.0-150			1.48	29
Xylenes, Total	0.0750		1.89	1.77	120	112	21	10.0-150			6.67	31
Xylenes, Total	0.0750	U	1.89	1.77	120	112	21	10.0-150			6.67	31

L913791-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L913791-09 06/12/17 16:29 • (MS) R3225077-4 06/12/17 15:36 • (MSD) R3225077-5 06/12/17 15:53

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
(S) Toluene-d8					*98.9*	*99.3*		*80.0-120*				
(S) Dibromofluoromethane					*85.5*	*88.4*		*74.0-131*				
(S) 4-Bromofluorobenzene					*107*	*103*		*64.0-132*				

Method Blank (MB)

(MB) R3224920-1 06/10/17 16:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C12-C22 Hydrocarbons	U		0.733	4.00
C22-C32 Hydrocarbons	U		1.33	4.00
C32-C40 Hydrocarbons	U		1.33	4.00
(S) o-Terphenyl	*101*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3224920-2 06/10/17 16:21 • (LCSD) R3224920-3 06/10/17 16:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C22-C32 Hydrocarbons	30.0	21.1	21.2	70.3	70.6	50.0-150			0.360	20
C12-C22 Hydrocarbons	30.0	22.9	24.6	76.2	82.0	50.0-150			7.31	20
(S) o-Terphenyl				*82.6*	*82.2*	*18.0-148*				

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL (dry)	Reported Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
Rec.	Recovery.

Qualifier	Description
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
T8	Sample(s) received past/too close to holding time expiration.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**

***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Conneticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

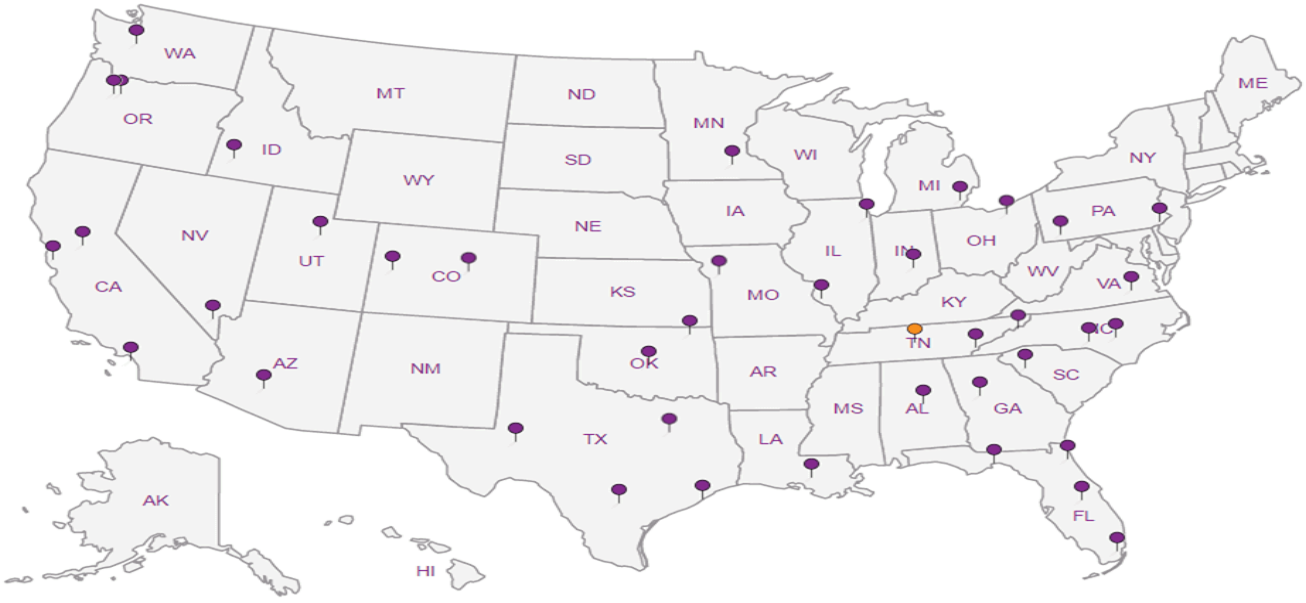
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Chain of Custody Page 2 of 3

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Pangea

Billing Information:

Pres Chk

Report to: Ron Scheele

Email To: rscheele@pangeaenv.com

Project Description: 1919 Market St

City/State Collected: Oakland, CA

Phone: 510-836-3700
Fax:

Client Project # 1975.001

Lab Project #

Collected by (print): E. Lervaag

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately Packed on Ice N ___ Y ___

Analysis / Container / Preservative: TPH g/d/mo; VOC; HOLD

L# ~~912470~~

Table #
Acctnum:
Template:
Prelogin:
TSR:
PB: L915030
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH g/d/mo	VOC	HOLD	Remarks	Sample # (lab only)
											~~AF~~
B-14-5	Grab	SS	5	5.26.17		1	X	X			-01
B-14-10	Grab	SS	10						X		
B-14-15	Grab	SS	15						X		
B-15-5	Grab	SS	5				X	X			~~2~~ 02
B-15-10	Grab	SS	10						X		
B-15-15	Grab	SS	15	5.26.17		1			X		
	Grab	SS									
	Grab	SS									
	Grab	SS									
	Grab	SS									

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ________

Remarks:

pH ______ Temp ______
Flow ______ Other ______

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Samples returned via:
___ UPS / FedEx ___ Courier ______

Tracking #

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: / Bottles Received:	If preservation required by Login: Date/Time
[signature]	5-26-17	17:11	[signature]	DW SEC 3.2 / 148	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)		Hold: / Condition: NCF / OK
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 5/27/17 Time: 0845	

Jeremy W. Watkins

From: Brian Ford
Sent: Friday, June 09, 2017 4:20 PM
To: Login; Sample Storage; Due VOC; Extractions; Due SVOC; Brian Ford
Subject: L912470 *PANENVOCA* short hold RUSH log off hold

Please log B-14-10 and B-15-10 for DROCAER, GROCA, V8260, TERRACORE, and TS as R3 due 06/13. **Holding time expires tonight.** Hold label 5-148.

Thanks,

Brian Ford | Technical Service Representative
ESC Lab Sciences
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APPENDIX G

Standard Operating Procedures

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

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

Objectives

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

Soil Classification/Logging

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

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

Soil Boring and Sampling

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

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

Sample Storage, Handling and Transport

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

Field Screening

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

Water Sampling

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

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

Duplicates and Blanks

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

Grouting

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

Waste Handling and Disposal

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

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