Appendix F3 Soil and Soil Gas Investigation Report

Appendices

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AECOM

Technical Memorandum

Date: May 18, 2017

To: Mr. Dan Vittone
Starboard Realty Partners

cc: Susan Hori – Manatt, Phelps & Phillips, LLP

From: Cynthia Shen, P.E.
Peter Stumpf, P.E.

Subject: ***Soil and Soil Gas Investigation Report***
MacArthur Square
1701 Corinthian Way; 4251, 4253 And 4255 Martingale Way; 4200, 4220 And 4250 Scott Drive; 1660 Dove Street
Newport Beach, California 92660

AECOM is pleased to submit this Technical Memorandum to Starboard Realty Partners (Starboard) presenting the results of a soil and soil gas investigation conducted at the MacArthur Square property located at 1701 Corinthian Way in Newport Beach, California (the Site). An aerial photograph of the Site is included as Figure 1.

1.0 BACKGROUND

A former dry cleaner with documented usage of chlorinated solvents reportedly operated at 1701 Corinthian Way, Suite H between 1984 and 1997 (BBG Assessment [BBG], 2017). In 2013, Leymaster Environmental Consulting, LLC (LEC) conducted a Phase II investigation at the Site on behalf of Business Properties Management Company, LLC (LEC, 2013). As a part of the Phase II investigation, LEC collected three sub-slab soil gas samples from beneath the former dry cleaners. In addition, seven soil gas probes were installed along the perimeter of the Site. The soil gas samples were analyzed for volatile organic compounds (VOCs) by a mobile laboratory. Tetrachloroethene (PCE) was the only detected compound. The Phase II investigation boring locations and PCE soil gas concentrations are shown on Figure 1 and summarized below.

Sample ID	PCE (µg/L)		Sample ID	PCE (µg/L)		Sample ID	PCE (µg/L)
SS-1	0.73		SS-2	0.21		SS-3	0.35
SV-1-5’	<0.10		SV-1-15’	<0.10		SV-2-5’	0.15
SV-2-15’	1.5		SV-3-5’	0.38		SV-4-5’	<0.10
SV-4-15’	1.4		SV-5-5’	<0.10		SV-6-5’	<0.10
SV-6-15’	<0.10		SV-7-5’	<0.10			

Based on the results, LEC concluded that “should the property be re-developed for residential purposes, it is possible that certain measures might be required to mitigate any potential risk associated with the PCE concentrations in the soil vapor.”

The BBG Phase I assessment further concluded that "soils and ground water at the Property may have been impacted by historical onsite and offsite activities. Additional investigation would be needed to determine the source and extent of contamination."

The objectives of this soil and soil gas investigation are to:

1. Determine the source and extent of the documented VOC impacts, and
2. Evaluate the need for a vapor mitigation system for future building development.

2.0 SUMMARY OF SUBSURFACE INVESTIGATION ACTIVITIES

The field activities were conducted by AECOM between April 4 and May 3, 2017. The following sections describe the pre-field activities, investigative methods and procedures.

2.1 Pre-Field Activities

The sampling locations were marked in the field with white paint, and Underground Service Alert of Southern California (aka DigAlert) was notified of the intent to conduct subsurface investigations at least 48 hours prior to initiation of intrusive field tasks. At the proposed sampling locations, a geophysical survey, using a magnetometer, was also conducted by Spectrum Geophysics of Chatsworth, California, to help identify subsurface lines and other features/obstructions. Each boring was also hand auger cleared to 5 feet below ground surface (bgs).

2.2 Soil and Soil Gas Probe Sampling

Soil sampling and soil gas probe installation were conducted using direct push equipment (Geoprobe® DT22) by Strongarm Environmental (Strongarm) of Norwalk, California. The sampling locations are depicted on Figure 1. Five borings (SV-8 to SV-12) were completed.

Soil cuttings were retrieved continuously for sampling and logging purposes. The soil cuttings were also screened using a field organic vapor analyzer (OVA) and classified according to the Unified Soil Classification System (USCS). Soil sampling for chemical analysis was conducted at 5, 10, and 15 feet bgs. No unusual odors were noted. All soil samples were analyzed for VOCs, using United States Environmental Protection Agency (EPA) Method 8260B/5035. The organic vapor readings were recorded on the boring logs prepared by the field staff and included documentation of the soil lithology in the borings. Other relevant visual or olfactory observations were also documented on the boring logs (Attachment A). Groundwater was not encountered. Field work was conducted under the supervision of a California Professional Engineer.

Soil analytical results for VOCs are provided in Table 1. There were no VOC compounds detected above their respective reporting limits except for one acetone detection at 55 micrograms per kilogram (µg/kg).

Following completion of the soil borings to the target depth, nested soil vapor probes were constructed at 5 and 15 feet bgs to evaluate the vertical profile and extent of the VOC detections. Soil gas probe construction details are included in the boring logs completed at each location (Attachment A). Soil gas probe installation and monitoring were conducted in general accordance with the joint DTSC/LARWQCB *Advisory – Active Soil Gas Investigations*, dated July 2015 (the "Soil Gas Advisory"; DTSC and RWQCB, 2015). Because of the temporary nature of the probes, grout was not used as a seal between the vapor probes. Instead, granular bentonite was hydrated to provide a seal. All probes were placed at the desired depths inside tremmie pipes to centralize the probes and ensure that they were placed at the desired depths. Sand, bentonite, and hydration water were also added to the borehole through tremmie pipes.

Offsite chemical soil analyses were performed by Eurofins Calscience (Calscience), a California Environmental Laboratory Accreditation Program (ELAP) accredited analytical laboratory. Soil laboratory analytical reports are provided in Attachment B and a summary of detections is provided in Table 1.

Soil gas monitoring included measurement of soil gas pressure by AECOM field personnel using a hand-held field instrument; and collection and analysis of VOCs using an onsite mobile laboratory by Jones Environmental, Inc. (Jones) of Santa Fe Spring, California. Soil gas purge logs and analytical reports are provided in Attachment C, including calculated purge volumes.

Prior to soil gas sample collection, a manometer was connected to the soil gas probe sampling port to observe naturally existing pressure or vacuum at the location at the time of sampling. The gas-tight valve was opened and an initial pressure (or vacuum) reading was recorded. Prior to purging, a shut-in test was conducted to check for leaks in the aboveground sampling system. To check for potential communication between the ground surface and the sampling point at depth, a tracer (on a soaked paper towel) was used during soil gas sampling. The tracer was released at the sampling apparatus and at the ground surface where the probe extends out of the ground to evaluate if ambient air infiltration has diluted the soil gas sample. Tracer gas was not detected in the soil gas samples.

As shown in the soil gas purge log (Attachment C), probes at the Site generally existed at neutral pressure conditions.

Soil cuttings were placed in a U.S. Department of Transportation (DOT)-approved 55-gallon drum and labeled. Equipment used for soil sampling was decontaminated prior to use at each sampling point to reduce the potential for the introduction of contamination and cross-contamination. Decontamination water produced was placed in a DOT-approved 55-gallon drum and labeled as decontamination water.

To profile the investigative-derived waste (IDW) for disposal purposes, one soil sample (IDW) was collected from the soil IDW and analyzed for Title 22 metals by EPA Method 6010B/7471A, VOCs by EPA Method 8260B, total petroleum hydrocarbons with carbon chain breakdown (TPHcc) by EPA Method 8015B(M). The analytical results are included in the laboratory report presented in Attachment D. Based on the soil analytical results, the soil and water IDW will be profiled as non-hazardous waste.

Drum disposal services is anticipated to be provided by American Integrated Services, Inc. (AIS) of Wilmington, California. The IDW solid waste (one drum) and water waste (one drum) is anticipated to be removed from the Site for transport to Soil Safe in Adelanto, California and Crosby & Overton, Inc. in Long Beach, California, respectively, for lawful disposal as non-hazardous waste.

At the completion of soil gas analysis, the soil gas probes were destroyed by cutting the tubing and resurfacing the borehole with concrete.

2.3 Additional Soil Gas Probe Sampling

Following the initial round of soil gas investigation, three additional soil gas probes (SV-13 to SV-15) were installed and sampled to further evaluate the extent of soil gas impacts. All sampling locations are shown on Figure 1. A geophysical survey was conducted before installation of each of the probes. All three probes were installed to 5 feet bgs by Strongarm. The locations were hand augered to 5.5 feet bgs and the probes installed at 5 feet bgs. They were sampled for VOCs by the same onsite laboratory, Jones, used for the first five probes (SV-8 to SV-12). The protocol described in section 2.2 was followed during installation and sampling of SV-13 to SV-15. Soil gas probe SV-14 was not sampled due to no flow conditions. Soil gas purge logs and analytical reports are provided in Attachment C, including calculated purge volumes. The data is included on Table 2. Boring logs were not completed for these three additional locations.

2.4 Quality Control/Quality Assurance

The following quality assurance/quality control (QA/QC) procedures were followed during sampling and analysis:

- Field duplicate soil samples were collected and analyzed at a frequency of approximately 10 percent of the primary samples for VOC analysis.
- One duplicate soil gas sample was collected per 20 soil gas samples analyzed.
- Samples were transferred under chain-of-custody control and were subject to the laboratory's conventional QA/QC analytical procedures, including method blanks, laboratory control samples, and sample duplicate analyses.

3.0 SUMMARY OF INVESTIGATION RESULTS

This section provides an assessment of the nature and extent of contamination associated with historical Site operations. The soil analytical results are summarized in Table 1. The soil gas analytical results are summarized in Table 2. The soil and soil gas analytical laboratory reports are provided in Attachments B and C, respectively.

As shown in Table 1, VOCs were not detected in any of the soil samples except one acetone detection. Therefore, there is no evidence of a release from the historic dry cleaner operations.

Soil gas screening values (at 5 feet bgs) for key detected VOC compounds were calculated by dividing commercial/industrial indoor air screening levels from the Department of Toxic Substances Control (DTSC) Human Health Risk Assessment (HHRA) Note 3 (DTSC, 2016) by the default soil gas to indoor air attenuation factor of 0.0005 for future residential and commercial buildings (DTSC, 2011). US Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) for residential or industrial air (USEPA, 2016) were used if DTSC HHRA Note 3 indoor air screening levels were not available. These screening levels are protective of vapor intrusion into indoor air for future residential or commercial buildings. The exposure to vapors in indoor air from soil gas is greater than the exposure to vapors in outdoor air from soil gas because greater air mixing occurs in outdoor air. These screening levels are therefore also protective of inhalation of outdoor vapors from soil gas. The calculated screening values are included as Attachment E.

PCE was the only compound detected that exceeded its residential screening value for indoor vapor intrusion (0.48 µg/L). PCE soil gas detection in probes SV-8 through SV-11 exceeded the residential screening levels at 5 feet bgs. In each of these probes, concentrations were higher at 15 feet bgs compared with 5 feet bgs, indicating that the detections were likely associated with regional groundwater impacts. All PCE soil gas detections at 5 feet bgs were below the screening value for commercial use.

4.0 HUMAN HEALTH RISK ASSESSMENT

Although PCE was the only compound exceeding its soil gas screening value (for residential land use only), a human health risk assessment (HHRA) was conducted to address cumulative health risks associated with vapor intrusion exposures to multiple compounds at the same time. Also, three separate assessments were conducted as follows:

1. The maximum detected soil gas concentration at 5 feet bgs for each detected chemical was used to evaluate a future residential land use scenario (Table 3).
2. The maximum detected soil gas concentration at 5 feet bgs for each detected chemical was used to evaluate a future commercial land use scenario (Table 3).

3. The maximum detected soil gas concentration in the southern portion of the proposed residential development area at 5 feet bgs was used to evaluate a future residential land use scenario (Table 3).

To conduct the risk assessments, the Department of Toxic Substances Control's (DTSC) version of the Johnson and Ettinger model (DTSC, 2014) was used. All parameters for the residential and commercial scenarios were default as presented in the models. The results are presented in Table 3. For each scenario, chemical-specific cancer risks were summed and chemical-specific noncancer hazard indices were summed. The results of the assessment are as follows:

Scenario	Soil Gas Concentration	Cancer risk	Noncancer hazard Index
1. Residential	Maximum detected concentration at the Site for each detected chemical at 5 feet bgs	4E-06 (4 in 1 million)	0.1
2. Commercial	Maximum detected concentration at the site for each detected chemical at 5 feet bgs	5E-07 (0.5 in 1 million)	0.01
3. Residential	Maximum detected concentration in the southern portion for each detected chemical at 5 feet bgs	1E-06 (1 in 1 million)	0.03

As presented in the table above, the cumulative cancer risks for the residential scenario using the site-wide data results in a cancer risk greater than the insignificant, or *de minimis*, value of 1 in 1 million and would therefore be considered as acceptable for residential use only if appropriate mitigation measures were employed to reduce exposure to potential exposure to soil gas. The cancer risks for the commercial scenario using the site-wide data and the residential scenario using the southern portion are less than or equal to 1 in 1 million and would therefore be considered as acceptable for commercial or residential use. The noncancer hazard indices for all of the scenarios are less than 1 and would therefore be considered as acceptable for commercial or residential use.

5.0 CONCLUSIONS

Based on the results provided above, the following conclusions are presented:

- Because the soil gas detections did not constitute an unacceptable risk level for commercial use, the proposed future retail space and parking structure would not require a vapor mitigation system.
- Because SV-1, SV-5, SV-6, SV-7, SV-12, SV-13, and SV-15 surrounding the southern portion of the future residential development (Figure 1) did not constitute an unacceptable risk level for residential use, the proposed development of future residential uses within the southern portion of the Site would not require mitigation. VOCs were not detected in probes SV-1, SV-5, SV-6, and SV-7 and the PCE reporting limit was below the residential screen level of 0.48 µg/L (see Section 1.0).
- Vapor mitigation is necessary for vapor intrusion protection for future residential development on the northwest portion of the Site as shown on Figure 1. Vapor mitigation should consist of passive vapor barrier with the following components:
    - Sub-slab Ventilation System -- A sub-slab collection and ventilation system should be installed under the residential building. The system should consist of a series of polyvinyl chloride (PVC) gas collection pipes embedded in a permeable gravel layer. The collection pipes should be networked together and vented to the atmosphere. The purpose of the vent system will be to prevent the buildup or accumulation of VOCs in

the underlying soil; the gases instead are passively diverted into the venting system and safely discharged to the atmosphere away from occupied areas and air intake vents.

- Membrane Barrier – A horizontal synthetic membrane or a sprayed-on liner should be placed over the granular collection layer. The membrane provides a barrier to the intrusion of subsurface gases.
- Utility Trench Dams and Conduit Seals – Gas barriers should be installed in the permeable backfill of utility trenches or the hollow spaces of electrical or cable conduit piping to prevent gases from migrating laterally into the soils beneath the building. The conduit seals can consist of polyurethane foam that is injected into the conduit piping at the point where the conduit enters the structure to prevent the infiltration of subsurface gases into interior space.

With employment of these measures, the pathway of exposure to soil gas would be eliminated and residential use would be acceptable on this portion of the Site.

6.0 REFERENCES

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Attachments

Tables

1. Soil Analytical Results
2. Soil Gas Analytical Results
3. Vapor Intrusion Risk Assessment

Figures

1. Site Investigation Locations and Shallow PCE Soil Gas Concentrations

Attachments

A Boring Logs
B Soil Analytical Laboratory Reports
C Soil Gas Sampling Logs and Analytical Laboratory Reports
D IDW Analytical Laboratory Report
E Soil Gas Screening Value Calculation

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS
MacArthur Square
Newport Beach, California
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Site ID		SV-08			SV-09				SV-10			SV-11			SV-12			
Sample ID		SV-8-5	SV-8-10	SV-8-15	SV-9-5	SV-9-10	SV-9-15	SV-9-15D	SV-10-5	SV-10-10	SV-10-15	SV-11-5	SV-11-10	SV-11-15	SV-12-2	SV-12-5D	SV-12-10	SV-12-15
Sample Date		04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17
Sample Depth		5.0	10.0	15.0	5.0	10.0	15.0	15.0	5.0	10.0	15.0	5.0	10.0	15.0	5.0	5.0	10.0	15.0
Acetone	ug/kg	ND (<42)	ND (<52)	ND (<45)	ND (<53)	ND (<38)	ND (<59)	ND (<60)	ND (<47)	ND (<37)	ND (<55)	50	ND (<55)	ND (<48)	ND (<38)	ND (<37)	ND (<54)	ND (<46)
Tert-Amyl-Methyl Ether (TAME)	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Benzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Bromobenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Bromochloromethane	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Bromodichloromethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Bromoform	ug/kg	ND (<4.2)	ND (<5.2)	ND (<4.5)	ND (<5.3)	ND (<3.8)	ND (<5.9)	ND (<6.0)	ND (<4.7)	ND (<3.7)	ND (<5.5)	ND (<4.2)	ND (<5.5)	ND (<4.8)	ND (<3.8)	ND (<3.7)	ND (<5.4)	ND (<4.6)
Bromomethane	ug/kg	ND (<17)	ND (<21)	ND (<18)	ND (<21)	ND (<15)	ND (<23)	ND (<24)	ND (<19)	ND (<15)	ND (<22)	ND (<17)	ND (<22)	ND (<19)	ND (<15)	ND (<15)	ND (<22)	ND (<18)
2-Butanone	ug/kg	ND (<17)	ND (<21)	ND (<18)	ND (<21)	ND (<15)	ND (<23)	ND (<24)	ND (<19)	ND (<15)	ND (<22)	ND (<17)	ND (<22)	ND (<19)	ND (<15)	ND (<15)	ND (<22)	ND (<18)
Tert-Butyl Alcohol (TBA)	ug/kg	ND (<17)	ND (<21)	ND (<18)	ND (<21)	ND (<15)	ND (<23)	ND (<24)	ND (<19)	ND (<15)	ND (<22)	ND (<17)	ND (<22)	ND (<19)	ND (<15)	ND (<15)	ND (<22)	ND (<18)
n-Butylbenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
sec-Butylbenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
tert-Butylbenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Carbon Disulfide	ug/kg	ND (<8.4)	ND (<10)	ND (<8.9)	ND (<11)	ND (<7.7)	ND (<12)	ND (<12)	ND (<9.3)	ND (<7.4)	ND (<11)	ND (<8.5)	ND (<11)	ND (<9.7)	ND (<7.6)	ND (<7.3)	ND (<11)	ND (<9.2)
Carbon Tetrachloride	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Chlorobenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Chloroethane	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Chloroform	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Chloromethane	ug/kg	ND (<17)	ND (<21)	ND (<18)	ND (<21)	ND (<15)	ND (<23)	ND (<24)	ND (<19)	ND (<15)	ND (<22)	ND (<17)	ND (<22)	ND (<19)	ND (<15)	ND (<15)	ND (<22)	ND (<18)
2-Chlorotoluene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
4-Chlorotoluene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Cyclohexanone	ug/kg	ND (<42)	ND (<52)	ND (<45)	ND (<53)	ND (<38)	ND (<59)	ND (<60)	ND (<47)	ND (<37)	ND (<55)	ND (<42)	ND (<55)	ND (<48)	ND (<38)	ND (<37)	ND (<54)	ND (<46)
1,2-Dibromo-3-Chloropropane	ug/kg	ND (<4.2)	ND (<5.2)	ND (<4.5)	ND (<5.3)	ND (<3.8)	ND (<5.9)	ND (<6.0)	ND (<4.7)	ND (<3.7)	ND (<5.5)	ND (<4.2)	ND (<5.5)	ND (<4.8)	ND (<3.8)	ND (<3.7)	ND (<5.4)	ND (<4.6)
Dibromochloromethane	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
1,2-Dibromoethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Dibromomethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,2-Dichlorobenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,3-Dichlorobenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,4-Dichlorobenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Dichlorodifluoromethane	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
1,1-Dichloroethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,2-Dichloroethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,1-Dichloroethene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
c-1,2-Dichloroethene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
t-1,2-Dichloroethene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,2-Dichloropropane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,3-Dichloropropane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
2,2-Dichloropropane	ug/kg	ND (<4.2)	ND (<5.2)	ND (<4.5)	ND (<5.3)	ND (<3.8)	ND (<5.9)	ND (<6.0)	ND (<4.7)	ND (<3.7)	ND (<5.5)	ND (<4.2)	ND (<5.5)	ND (<4.8)	ND (<3.8)	ND (<3.7)	ND (<5.4)	ND (<4.6)
1,1-Dichloropropene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
c-1,3-Dichloropropene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
t-1,3-Dichloropropene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)

TABLE 1
SOIL ANALYTICAL RESULTS
MacArthur Square
Newport Beach, California
Page 2 of 2

Site ID		SV-08			SV-09				SV-10			SV-11			SV-12			
Sample ID		SV-8-5	SV-8-10	SV-8-15	SV-9-5	SV-9-10	SV-9-15	SV-9-15D	SV-10-5	SV-10-10	SV-10-15	SV-11-5	SV-11-10	SV-11-15	SV-12-2	SV-12-5D	SV-12-10	SV-12-15
Sample Date		04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17
Sample Depth		5.0	10.0	15.0	5.0	10.0	15.0	15.0	5.0	10.0	15.0	5.0	10.0	15.0	5.0	5.0	10.0	15.0
Diisopropyl Ether (DIPE)	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Ethanol	ug/kg	ND (<420)	ND (<520)	ND (<450)	ND (<530)	ND (<380)	ND (<590)	ND (<600)	ND (<470)	ND (<370)	ND (<550)	ND (<420)	ND (<550)	ND (<480)	ND (<380)	ND (<370)	ND (<540)	ND (<460)
Ethyl-t-Butyl Ether (ETBE)	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Ethylbenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
2-Hexanone	ug/kg	ND (<17)	ND (<21)	ND (<18)	ND (<21)	ND (<15)	ND (<23)	ND (<24)	ND (<19)	ND (<15)	ND (<22)	ND (<17)	ND (<22)	ND (<19)	ND (<15)	ND (<15)	ND (<22)	ND (<18)
Isopropylbenzene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
p-Isopropyltoluene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
2-Methyl-2-Butanol (TAA)	ug/kg	ND (<42)	ND (<52)	ND (<45)	ND (<53)	ND (<38)	ND (<59)	ND (<60)	ND (<47)	ND (<37)	ND (<55)	ND (<42)	ND (<55)	ND (<48)	ND (<38)	ND (<37)	ND (<54)	ND (<46)
4-Methyl-2-Pentanone	ug/kg	ND (<17)	ND (<21)	ND (<18)	ND (<21)	ND (<15)	ND (<23)	ND (<24)	ND (<19)	ND (<15)	ND (<22)	ND (<17)	ND (<22)	ND (<19)	ND (<15)	ND (<15)	ND (<22)	ND (<18)
Methyl-t-Butyl Ether (MTBE)	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Methylene Chloride	ug/kg	ND (<8.4)	ND (<10)	ND (<8.9)	ND (<11)	ND (<7.7)	ND (<12)	ND (<12)	ND (<9.3)	ND (<7.4)	ND (<11)	ND (<8.5)	ND (<11)	ND (<9.7)	ND (<7.6)	ND (<7.3)	ND (<11)	ND (<9.2)
Naphthalene	ug/kg	ND (<8.4)	ND (<10)	ND (<8.9)	ND (<11)	ND (<7.7)	ND (<12)	ND (<12)	ND (<9.3)	ND (<7.4)	ND (<11)	ND (<8.5)	ND (<11)	ND (<9.7)	ND (<7.6)	ND (<7.3)	ND (<11)	ND (<9.2)
n-Propylbenzene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Styrene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,1,1,2-Tetrachloroethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,1,2,2-Tetrachloroethane	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Tetrachloroethene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Toluene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	ND (<8.4)	ND (<10)	ND (<8.9)	ND (<11)	ND (<7.7)	ND (<12)	ND (<12)	ND (<9.3)	ND (<7.4)	ND (<11)	ND (<8.5)	ND (<11)	ND (<9.7)	ND (<7.6)	ND (<7.3)	ND (<11)	ND (<9.2)
1,2,3-Trichlorobenzene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
1,2,4-Trichlorobenzene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
1,1,1-Trichloroethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
1,1,2-Trichloroethane	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
Trichloroethene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Trichlorofluoromethane	ug/kg	ND (<8.4)	ND (<10)	ND (<8.9)	ND (<11)	ND (<7.7)	ND (<12)	ND (<12)	ND (<9.3)	ND (<7.4)	ND (<11)	ND (<8.5)	ND (<11)	ND (<9.7)	ND (<7.6)	ND (<7.3)	ND (<11)	ND (<9.2)
1,2,3-Trichloropropane	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
1,2,4-Trimethylbenzene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
1,3,5-Trimethylbenzene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)
Vinyl Acetate	ug/kg	ND (<8.4)	ND (<10)	ND (<8.9)	ND (<11)	ND (<7.7)	ND (<12)	ND (<12)	ND (<9.3)	ND (<7.4)	ND (<11)	ND (<8.5)	ND (<11)	ND (<9.7)	ND (<7.6)	ND (<7.3)	ND (<11)	ND (<9.2)
Vinyl Chloride	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
o-Xylene	ug/kg	ND (<0.84)	ND (<1.0)	ND (<0.89)	ND (<1.1)	ND (<0.77)	ND (<1.2)	ND (<1.2)	ND (<0.93)	ND (<0.74)	ND (<1.1)	ND (<0.85)	ND (<1.1)	ND (<0.97)	ND (<0.76)	ND (<0.73)	ND (<1.1)	ND (<0.92)
p/m-Xylene	ug/kg	ND (<1.7)	ND (<2.1)	ND (<1.8)	ND (<2.1)	ND (<1.5)	ND (<2.3)	ND (<2.4)	ND (<1.9)	ND (<1.5)	ND (<2.2)	ND (<1.7)	ND (<2.2)	ND (<1.9)	ND (<1.5)	ND (<1.5)	ND (<2.2)	ND (<1.8)

Notes:
Sample depth reported in feet below ground surface.
ug/kg - microgram per kilogram
ND - Not detected above the reporting limit shown.

TABLE 2
SOIL GAS ANALYTICAL RESULTS
MacArthur Square
Newport Beach, California
(Page 1 of 1)

Site ID:		SV-8		SV-9		SV-10		SV-11			SV-12		SV-13		SV-15	Southern Portion Max at 5 ft bgs	Site Wide Max at 5 ft bgs	Site Wide Max
Sample ID:		SV-8-5'	SV-8-15'	SV-9-5'	SV-9-15'	SV-10-5'	SV-10-15'	SV-11-5'	SV-11-15'	SV-11-15'-DUP	SV-12-5'	SV-12-15'	SV-13-5'	SV-13-5'-DUP	SV-15-5'			
Sample Date:		4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	4/10/2017	5/3/2017	5/3/2017	5/3/2017			
Sample Depth (ft bgs) :		5	15	5	15	5	15	5	15	15	5	15	5	5	5			
Purge Volume:		3	3	3	3	3	3	3	3	3	3	3	3	3	3			
Benzene	µg/L	0.048	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	0.038	0.012	0.056	ND (<0.0083)	ND (<0.0083)	0.075	0.13	ND (<0.0083)	ND (<0.0083)	0.056	0.075	0.075	0.13
Ethylbenzene	µg/L	0.040	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	0.023	0.016	0.060	0.010	0.010	0.082	0.042	ND (<0.017)	ND (<0.017)	0.017	0.082	0.082	0.082
4-Ethyltoluene	µg/L	0.016	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	0.010	0.010	0.025	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.025)	ND (<0.025)	ND (<0.025)	ND	0.025	0.025
Freon 113	µg/L	0.019	0.024	ND (<0.0083)	0.017	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND	0.019	0.024
4-Isopropyltoluene	µg/L	0.038	ND (<0.0083)	0.013	ND (<0.0083)	0.070	0.081	0.043	0.012	0.012	0.23	0.092	ND (<0.025)	ND (<0.025)	0.088	0.23	0.23	0.23
Naphthalene	µg/L	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.021	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND	0.021	0.021
n-Propylbenzene	µg/L	0.011	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.016	ND (<0.017)	ND (<0.017)	0.020	ND (<0.017)	ND (<0.025)	ND (<0.025)	ND (<0.025)	0.020	0.020	0.020
Propylene	µg/L	0.021	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.081	0.150	0.040	ND (<0.017)	ND (<0.017)	0.48	0.88	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.48	0.48	0.88
Tetrachloroethene	µg/L	1.3	3.9	1.3	4.4	1.1	4.4	1.2	4.4	4.4	0.034	0.029	0.11	0.12	0.028	0.12	1.3	4.4
Toluene	µg/L	0.220	ND (<0.0083)	0.014	ND (<0.0083)	0.11	0.033	0.23	0.024	0.024	0.37	0.22	ND (<0.0083)	ND (<0.0083)	0.064	0.37	0.37	0.37
Trichloroethene	µg/L	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	0.020	0.019	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	ND	ND	0.020
1,2,4-Trimethylbenzene	µg/L	0.059	ND (<0.017)	0.012	ND (<0.017)	0.043	0.039	0.078	0.026	0.025	0.13	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.030	0.13	0.13	0.13
1,3,5-Trimethylbenzene	µg/L	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.015	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND (<0.017)	ND	0.015	0.015
m,p-Xylene	µg/L	0.15	ND (<0.0083)	0.014	ND (<0.0083)	0.082	0.051	0.21	0.038	0.038	0.27	0.14	ND (<0.0083)	ND (<0.0083)	0.042	0.27	0.27	0.27
o-Xylene	µg/L	0.042	ND (<0.0083)	ND (<0.0083)	ND (<0.0083)	0.029	0.022	0.066	0.013	0.013	0.086	0.046	ND (<0.017)	ND (<0.017)	ND (<0.017)	0.086	0.086	0.086
Tracer																		
n-Pentane/n-Hexane/n-Heptane	µg/L	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	ND (<0.30)	NA	NA	NA

Notes:

ft bgs - feet below ground surface. Ground surface is the bottom of the plating pit floor.

ug/L - micrograms per liter

DUP - Duplicate sample

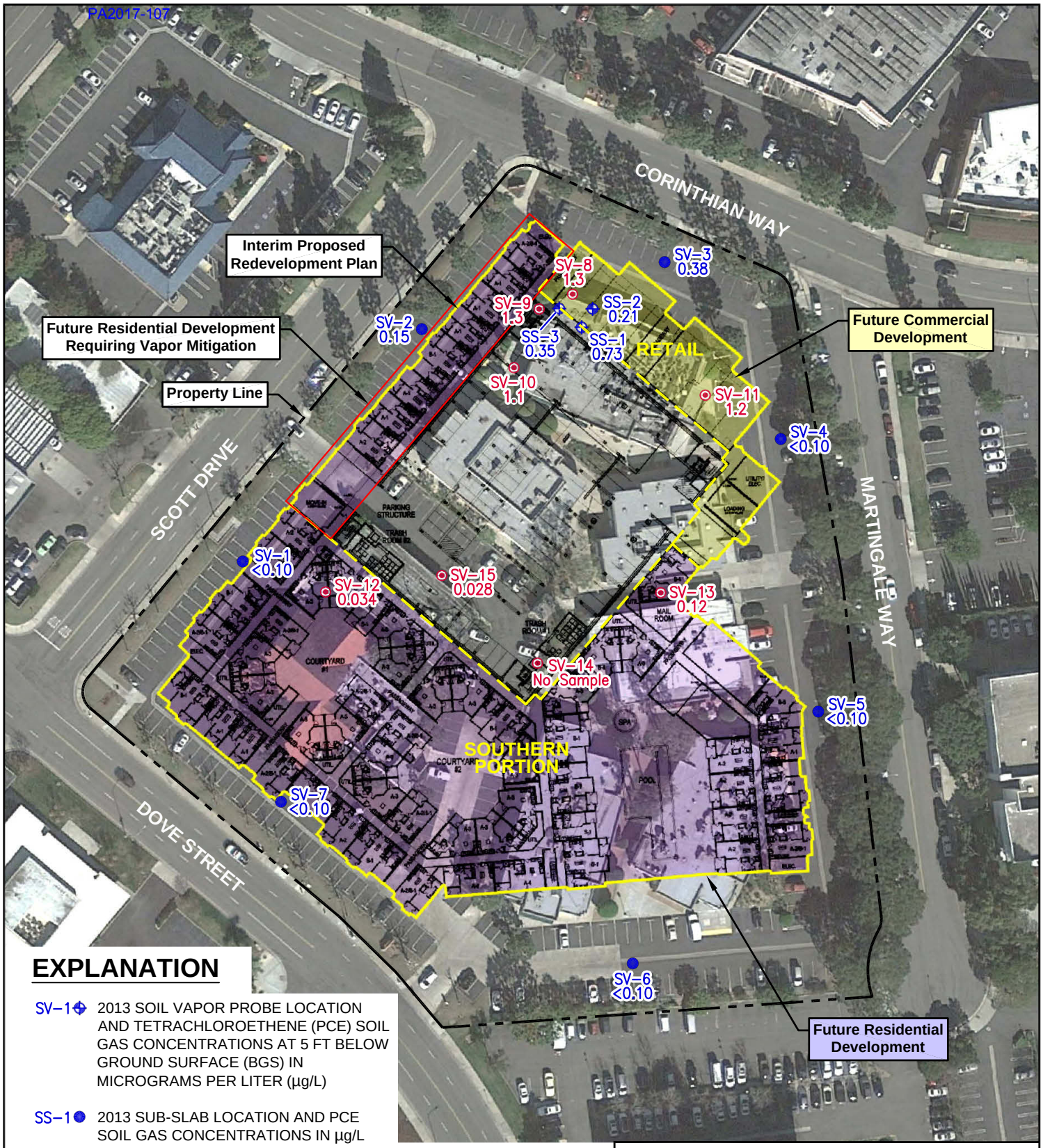
Southern portion excludes probes SV-8, SV-9, SV-10, and SV-11

TABLE 3
VAPOR INTRUSION RISK ASSESSMENT
MacArthur Square
Newport Beach, California
(Page 1 of 1)

		Residential		Commercial			Southern Residential	
Compounds	Maximum Concentration at 5 feet bgs	Cancer Risk	Noncancer Hazard	Cancer Risk	Noncancer Hazard	Southern Portion Maximum Concentration at 5 feet bgs	Cancer Risk	Noncancer Hazard
Benzene	0.075	1.1E-06	3.3E-02	1.2E-07	3.9E-03	0.075	1.1E-06	3.9E-03
Ethylbenzene	0.082	8.8E-08	9.5E-05	1.0E-08	1.1E-05	0.082	8.8E-08	9.5E-05
4-Ethyltoluene	0.025	ni	ni	ni	ni	ND (<0.0083)	nd	nd
Freon 113	0.019	nc	5.2E-07	nc	6.2E-08	ND (<0.0083)	nd	nd
4-Isopropyltoluene	0.23	ni	ni	ni	ni	0.23	ni	ni
Naphthalene	0.021	2.9E-07	7.6E-03	3.3E-08	9.1E-04	ND (<0.017)	nd	nd
n-Propylbenzene	0.020	nc	2.2E-05	nc	2.6E-06	0.020	nc	2.2E-05
Propylene	0.48	ni	ni	ni	ni	0.48	ni	ni
Tetrachloroethene	1.3	2.8E-06	3.7E-02	3.2E-07	4.3E-03	0.12	2.6E-07	9.5E-04
Toluene	0.37	nc	1.5E-03	nc	1.8E-04	0.37	nc	1.5E-03
Trichloroethene	ND (<0.0083)	nd	nd	nd	nd	ND (<0.0083)	nd	nd
1,2,4-Trimethylbenzene	0.13	nc	2.0E-02	nc	2.4E-03	0.13	nc	2.0E-02
1,3,5-Trimethylbenzene	0.015	nc	4.7E-04	nc	5.5E-05	ND (<0.017)	nd	nd
m,p-Xylene	0.27	nc	3.1E-03	nc	3.7E-04	0.27	nc	3.1E-03
o-Xylene	0.086	nc	1.0E-03	nc	1.2E-04	0.086	nc	1.0E-03
		4E-06	0.1	5E-07	0.01		1E-06	0.03

Notes
Concentrations in micrograms per liter (ug/l)
nc - not a carcinogen
ni - no information to model
nd - not detected

FIGURES



EXPLANATION

SV-1 ⊕ 2013 SOIL VAPOR PROBE LOCATION AND TETRACHLOROETHENE (PCE) SOIL GAS CONCENTRATIONS AT 5 FT BELOW GROUND SURFACE (BGS) IN MICROGRAMS PER LITER (µg/L)

SS-1 ● 2013 SUB-SLAB LOCATION AND PCE SOIL GAS CONCENTRATIONS IN µg/L

SV-8 ◉ 2017 SOIL VAPOR PROBE LOCATION AND PCE SOIL GAS CONCENTRATIONS AT 5 FT BGS IN µg/L

PCE RISK-BASED SCREENING VALUE (5 FT BGS)	
RESIDENTIAL:	0.48 ug/L
COMMERCIAL:	4.2 ug/L

N

0 50 100

SCALE IN FEET

AECOM

SITE INVESTIGATION LOCATIONS AND SHALLOW PCE SOIL GAS CONCENTRATIONS

Proj No:	60540359	Date:	MAY 2017
Project:	Former MacArthur Square Redevelopment Newport Beach, California	Figure:	1

Q:\DCS\Projects\ENV\60540359_MacArthur\900-CAD-GIS\910-CAD\Figure 1 - Proposed Boring Locations.dwg, File date: 5/12/2017 1:02 PM, Print date: 5/12/2017 1:02 PM by: Negrete, Gabriel

ATTACHMENT A

BORING LOGS

Project: Macarthur Square Redevelopment
Project Location: 1701 Corinthian Way Newport Beach, Calfornia
Project Number: 60540359.02000

Key to Log of Boring

Sheet 1 of 1

Elevation, feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Sample Time	REMARKS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1. **Elevation:** Elevation in feet relative to mean sea level (MSL).
2. **Depth:** Depth in feet below the ground surface (bgs).
3. **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.
4. **Sample Number:** Sample identification number.
5. **Recovery:** Inches recovered versus inches driven.
6. **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.
7. **Material Description:** Description of material encountered; may include color, moisture, grain size, and density/consistency.
8. **Well Completion Log:** Schematic of well construction; materials are listed in header block; graphic symbols are explained below.
9. **OVA Headspace (ppm):** Organic vapor analyzer headspace reading in parts per million (ppm).
10. **OVA Background (ppm):** Organic vapor analyzer background reading in parts per million (ppm).
11. **Sample Time:** Drilling progress indicated in 24-hour clock or minutes per sample; refer to column head for units.
12. **Remarks:** Comments and observations regarding drilling or sampling made by driller or field personnel.

TYPICAL SOIL GRAPHIC SYMBOLS


SAND (SP)


Silty SAND (SM)


CLAY (CL)


SILT (ML)


Clayey SAND (SC)


Concrete

TYPICAL WELL GRAPHIC SYMBOLS


1 vapor probe in Hydrated Granular Bentonite


1 vapor probe in Dry Granular Bentonite


1 vapor probe in Sand


Stainless steel vapor probe

TYPICAL SAMPLER GRAPHIC SYMBOLS


Sample Run

OTHER GRAPHIC SYMBOLS AND ABBREVIATIONS

—— Visually identifiable change in lithology

GENERAL NOTES

1. Soil Classification are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Report: ENV_23AW_KEY NO B/F; File: MACARTHUR SQUARE APRIL 2012.GPJ; 4/14/17

Project: Macarthur Square Redevelopment
Project Location: 1701 Corinthian Way Newport Beach, Calfornia
Project Number: 60540359.02000

Log of Boring SV-8

Sheet 1 of 1

Date(s) Drilled	**4/5/2017**	Logged By	**M. Baroldi**	Checked By	**J. Liles PG**
Drilling Method	**Direct Push**	Drilling Contractor	**Strongarm Environmental**	Total Depth of Borehole ft.bgs	**15.5**
Drill Rig Type	**Hand Auger / Geoprobe**	Sampler Type	**Acetate Sleeve**	Approx.Surface Elevation ft msl	**55**
Approx. Depth Groundwater Encountered	**Not encountered**	Drill Bit Size/Type	**2.25-inch**	Top of Casing Elevation feet	
Borehole Diameter (inches) **2.25-inch**	Diameter of Well (inches) **2 X 1/4"**	Type of Well Casing	**1/4" Teflon Tubing**	Screen Perforation	
Type of Sand Pack	**Sand 4.5-5.5, 14.5-15.5**	Type and Depth of Seal(s)	**Dry granular bentonite 4-4.5, 14-14.5; Hydrated bentonite 1-4, 5.5-14**		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Sample Time	REMARKS
55	0					4 inches Concrete Brown (10YR 4/3), fine to medium Sandy SILT (ML)					Hand auger to 5 ft bgs
50	5			36/36		Brown (7.5YR 4/4), Sandy CLAY (CL), dry Brown (7.5YR 4/4), Clayey SAND (SC), loose, dry		0.0	0.0		
						Dark yellowish brown (10YR 4/4), Silty SAND (SM)		0.0	0.0		
				48/48		Dark yellowish brown (10YR 4/4), fine to coarse SAND (SP), trace silt Becomes very dark brown (7.5YR 2.5/2) Becomes light olive brown (2.5Y 5/4), trace gravel, loose		0.0	0.0		
45	10					Light olive brown (2.5Y 5/6), Silty SAND (SM), dry		0.0	0.0		
				42/42		Brown (10YR 4/3), Sandy CLAY (CL), dry		0.0	0.0		
						Light olive brown (2.5Y 5/4), Silty fine SAND (SM), loose					
						Light olive brown (2.5YR 5/4), CLAY (CL) Light olive brown (2.5YR 5/4), Silty fine SAND (SM)		0.0	0.0		
40	15					Completed boring to 15.5 feet bgs					
35	20										

Report: ENV_23AW-SNA NO B/F; File: MACARTHUR SQUARE APRIL 2012.GPJ; 4/14/17

Project: Macarthur Square Redevelopment
Project Location: 1701 Corinthian Way Newport Beach, Calfornia
Project Number: 60540359.02000

Log of Boring SV-9

Sheet 1 of 1

Date(s) Drilled	**4/5/2017**	Logged By	**M. Baroldi**	Checked By	**J. Liles PG**
Drilling Method	**Direct Push**	Drilling Contractor	**Strongarm Environmental**	Total Depth of Borehole ft.bgs	**15.5**
Drill Rig Type	**Hand Auger / Geoprobe**	Sampler Type	**Acetate Sleeve**	Approx.Surface Elevation ft msl	**55**
Approx. Depth Groundwater Encountered	**Not encountered**	Drill Bit Size/Type	**2.25-inch**	Top of Casing Elevation feet	
Borehole Diameter (inches) **2.25-inch**	Diameter of Well (inches) **2 X 1/4"**	Type of Well Casing	**1/4" Teflon Tubing**	Screen Perforation	
Type of Sand Pack	**Sand 4.5-5.5, 14.5-15.5**	Type and Depth of Seal(s)	**Dry granular bentonite 4-4.5, 14-14.5; Hydrated bentonite 1-4, 5.5-14**		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Sample Time	REMARKS
55	0					4 inches Concrete					Hand auger to 5 ft bgs
						Brown (10YR 4/3), fine to medium Sandy SILT (ML)					
50	5			36/36		Becomes dark yellowish brown (10YR 4/6)		0.0	0.0		
						Dark yellowish brown (10YR 4/4), Silty SAND (SM)		0.0	0.0		
				48/48		Dark yellowish brown (10YR 4/6), fine to coarse SAND (SP), loose, trace gravels					
45	10					Dark yellowish brown (10YR 4/4), Silty fine to medium SAND (SM)		0.0	0.0		
						Dark yellowish brown (10YR 4/4), Clayey fine to medium SAND (SC), dense					
				42/42		Light yellowish brown (2.5Y 6/3), Silty fine SAND (SM)		0.0	0.0		
						Light olive brown (2.5Y 5/4), CLAY (CL)					
40	15					Light olive brown (2.5Y 5/4), Silty SAND (SM), trace gravel		0.0	0.0		
						Completed boring to 15.5 feet bgs					
35	20										

Report: ENV_23AW-SNA NO B/F; File: MACARTHUR SQUARE APRIL 2012.GPJ; 4/14/17

Project: Macarthur Square Redevelopment
Project Location: 1701 Corinthian Way Newport Beach, Calfornia
Project Number: 60540359.02000

Log of Boring SV-10

Sheet 1 of 1

Date(s) Drilled	**4/5/2017**	Logged By	**M. Baroldi**	Checked By	**J. Liles PG**
Drilling Method	**Direct Push**	Drilling Contractor	**Strongarm Environmental**	Total Depth of Borehole ft.bgs	**15.5**
Drill Rig Type	**Hand Auger / Geoprobe**	Sampler Type	**Acetate Sleeve**	Approx.Surface Elevation ft msl	**55**
Approx. Depth Groundwater Encountered	**Not encountered**	Drill Bit Size/Type	**2.25-inch**	Top of Casing Elevation feet	
Borehole Diameter (inches) **2.25-inch**	Diameter of Well (inches) **2 X 1/4"**	Type of Well Casing	**1/4" Teflon Tubing**	Screen Perforation	
Type of Sand Pack	**Sand 4.5-5.5, 14.5-15.5**	Type and Depth of Seal(s)	**Dry granular bentonite 4-4.5, 14-14.5; Hydrated bentonite 1-4, 5.5-14**		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Sample Time	REMARKS
55	0					4 inches Concrete					Hand auger to 5 ft bgs
						Brown (10YR 4/3), fine to medium Sandy SILT (ML), dry					
50	5			36/36		Becomes dark yellowish brown (10YR 4/4), fine to coarse sand, dense		0.0	0.0		
						Becomes fine to medium sand		0.0	0.0		
				48/48		Yellowish brown (10YR 5/4), Silty fine SAND (SM), loose, dry		0.0	0.0		
45	10					Dark yellowish brown (10YR 4/6), Sandy SILT (ML), dense		0.0	0.0		
				42/42		Light olive brown (2.5Y 5/6), Silty SAND (SM), loose, dry		0.0	0.0		
						Dark yellowish brown (10YR 4/6), Sandy SILT (ML)					
						Light olive brown (2.5Y 5/4), CLAY (CL), trace sand					
40	15					Light olive brown (2.5YR 5/4), SIlty fine SAND (SM)		0.0	0.0		
						Completed boring to 15.5 feet bgs					
35	20										

Report: ENV_23AW-SNA NO B/F; File: MACARTHUR SQUARE APRIL 2012.GPJ; 4/14/17

Project: Macarthur Square Redevelopment
Project Location: 1701 Corinthian Way Newport Beach, Calfornia
Project Number: 60540359.02000

Log of Boring SV-11

Sheet 1 of 1

Date(s) Drilled	4/5/2017	Logged By	M. Baroldi	Checked By	J. Liles PG
Drilling Method	Direct Push	Drilling Contractor	Strongarm Environmental	Total Depth of Borehole ft.bgs	15.5
Drill Rig Type	Hand Auger / Geoprobe	Sampler Type	Acetate Sleeve	Approx.Surface Elevation ft msl	55
Approx. Depth Groundwater Encountered	Not encountered	Drill Bit Size/Type	2.25-inch	Top of Casing Elevation feet	
Borehole Diameter (inches)	2.25-inch	Diameter of Well (inches)	2 X 1/4"	Type of Well Casing	1/4" Teflon Tubing	Screen Perforation	
Type of Sand Pack	Sand 4.5-5.5, 14.5-15.5	Type and Depth of Seal(s)	Dry granular bentonite 4-4.5, 14-14.5; Hydrated bentonite 1-4, 5.5-14		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Sample Time	REMARKS
55	0					4 inches Concrete					Hand auger to 5 ft bgs
						Brown (10YR 4/3), fine to coarse Sandy SILT (ML), dry					
50	5			36/36		Brown (7.5YR 4/3), Silty fine SAND (SM), loose, dry			0.0		
						Brown (7.5YR 4/3), Sandy SILT (ML)		0.1			
				48/48		Brown (7.5YR 4/3), fine to medium Sandy CLAY (CL), dry		0.0	0.0		
45	10					Brown (7.5YR 4/3), fine to medium SAND (SP), trace silts					
						Becomes dark yellowish brown (10YR 4/4), medium sand, trace mafic minerals		0.0	0.0		
						Becomes dark brown (10YR 3/3), coarse sand with gravel		0.0	0.0		
				42/42		Becomes fine to coarse sand					
						Brown (10YR 4/3), Silty fine to medium SAND (SM), loose		0.0	0.0		
						Brown (7.5Y 4/3), Sandy SILT (ML)					
40	15					Brown (7.5Y 4/3), CLAY with Silt (CL), moist					
						Brown (7.5YR 4/4), Silty fine to medium SAND (SM)		0.0	0.0		
						Completed boring to 15.5 feet bgs					
35	20										

Report: ENV_23AW-SNA NO B/F; File: MACARTHUR SQUARE APRIL 2012.GPJ; 4/14/17

Project: Macarthur Square Redevelopment
Project Location: 1701 Corinthian Way Newport Beach, Calfornia
Project Number: 60540359.02000

Log of Boring SV-12

Sheet 1 of 1

Date(s) Drilled	**4/5/2017**	Logged By	**M. Baroldi**	Checked By	**J. Liles PG**
Drilling Method	**Direct Push**	Drilling Contractor	**Strongarm Environmental**	Total Depth of Borehole ft.bgs	**15.5**
Drill Rig Type	**Hand Auger / Geoprobe**	Sampler Type	**Acetate Sleeve**	Approx.Surface Elevation ft msl	**55**
Approx. Depth Groundwater Encountered	**Not encountered**	Drill Bit Size/Type	**2.25-inch**	Top of Casing Elevation feet	
Borehole Diameter (inches) **2.25-inch**	Diameter of Well (inches) **2 X 1/4"**	Type of Well Casing	**1/4" Teflon Tubing**	Screen Perforation	
Type of Sand Pack	**Sand 4.5-5.5, 14.5-15.5**	Type and Depth of Seal(s)	**Dry granular bentonite 4-4.5, 14-14.5; Hydrated bentonite 1-4, 5.5-14**		
Comments					

Elevation, feet	Depth, feet	SAMPLES Type	SAMPLES Number	Inches Recovered	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Sample Time	REMARKS
55	0					4 inches Concrete 3 inch Gravel Base					Hand auger to 5 ft bgs
						Olive gray (5Y 4/2), Sandy SILT (ML), trace mafic minerals, moist, roots					
						Dark olive brown (2.5YR 3/3), fine Sandy CLAY (CL), medium plasticity					
						Dark yellowish brown (10YR 4/4), Sandy SILT (ML), dense, moist					
50	5			36/36				0.0	0.0		
								0.0	0.0		
				48/48		Light olive brown (2.5YR 5/4), Silty fine SAND (SM), loose					
45	10							0.0	0.0		
						Becomes olive brown (2.5Y 4/4), moist					
				42/42		Olive brown (2.5Y 4/4), Sandy CLAY (CL), moist		0.0	0.0		
						Becomes clay, trace sands					
						Becomes sandy clay, dense					
40	15					Dark yellowish brown (10YR 4/4), Silty SAND (SM), dense		0.0	0.0		
						Completed boring to 15.5 feet bgs					
35	20										

ATTACHMENT B

SOIL ANALYTICAL LABORATORY REPORTS

eurofins | Calscience

WORK ORDER NUMBER: 17-04-0324

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AECOM Environment

Client Project Name: MacArthur Square / 60540359.02000

Attention: Cynthia Shen
999 Town and Country Road
4th Floor
Orange, CA 92868-4713

Vikas Patel

Approved for release on 04/12/2017 by:
Vikas Patel
Project Manager

ResultLink

Email your PM

eurofins | Calscience

Contents

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Work Order Number: 17-04-0324

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Work Order Narrative

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 04/05/17. They were assigned to Work Order 17-04-0324.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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QC Association Summary

Work Order: 17-04-0324 Page 1 of 1

Client Sample ID	Method Name	Type	Ext Name	Instrument	MS/MSD/SDP	LCS/LCSD
SV-11-5	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-11-10	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-11-15	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-8-5	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-8-10	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-8-15	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-9-5	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-9-10	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-9-15	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS LL	*2	170406L006
SV-9-15D	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-10-5	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-10-10	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-10-15	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-12-2	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-12-10	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-12-15	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004
SV-12-5D	EPA 8260B Volatile Organics Prep 5035		EPA 5035	GC/MS Q	*2	170406L004

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2 = Limited sample received, no MS/MSD performed

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Detections Summary

Client:	AECOM Environment 999 Town and Country Road, 4th Floor Orange, CA 92868-4713	Work Order:	17-04-0324
		Project Name:	MacArthur Square / 60540359.02000
		Received:	04/05/17
Attn:	Cynthia Shen		Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
SV-11-5 (17-04-0324-1)						
Acetone	50		42	ug/kg	EPA 8260B	EPA 5035

Subcontracted analyses, if any, are not included in this summary.

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* MDL is shown

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-11-5	**17-04-0324-1-C**	**04/05/17 08:05**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 12:58**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	42	1.00	
Acetone	50	42	1.00	
Benzene	ND	0.85	1.00	
Bromobenzene	ND	0.85	1.00	
Bromochloromethane	ND	1.7	1.00	
Bromodichloromethane	ND	0.85	1.00	
Bromoform	ND	4.2	1.00	
Bromomethane	ND	17	1.00	
2-Butanone	ND	17	1.00	
n-Butylbenzene	ND	0.85	1.00	
sec-Butylbenzene	ND	0.85	1.00	
tert-Butylbenzene	ND	0.85	1.00	
Carbon Disulfide	ND	8.5	1.00	
Carbon Tetrachloride	ND	0.85	1.00	
Chlorobenzene	ND	0.85	1.00	
Chloroethane	ND	1.7	1.00	
Chloroform	ND	0.85	1.00	
Chloromethane	ND	17	1.00	
2-Chlorotoluene	ND	0.85	1.00	
4-Chlorotoluene	ND	0.85	1.00	
Dibromochloromethane	ND	1.7	1.00	
1,2-Dibromo-3-Chloropropane	ND	4.2	1.00	
1,2-Dibromoethane	ND	0.85	1.00	
Dibromomethane	ND	0.85	1.00	
1,2-Dichlorobenzene	ND	0.85	1.00	
1,3-Dichlorobenzene	ND	0.85	1.00	
1,4-Dichlorobenzene	ND	0.85	1.00	
Dichlorodifluoromethane	ND	1.7	1.00	
1,1-Dichloroethane	ND	0.85	1.00	
1,2-Dichloroethane	ND	0.85	1.00	
1,1-Dichloroethene	ND	0.85	1.00	
c-1,2-Dichloroethene	ND	0.85	1.00	
t-1,2-Dichloroethene	ND	0.85	1.00	
1,2-Dichloropropane	ND	0.85	1.00	
1,3-Dichloropropane	ND	0.85	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	4.2	1.00	
1,1-Dichloropropene	ND	1.7	1.00	
c-1,3-Dichloropropene	ND	0.85	1.00	
t-1,3-Dichloropropene	ND	1.7	1.00	
Ethylbenzene	ND	0.85	1.00	
2-Hexanone	ND	17	1.00	
Isopropylbenzene	ND	0.85	1.00	
p-Isopropyltoluene	ND	0.85	1.00	
Methylene Chloride	ND	8.5	1.00	
4-Methyl-2-Pentanone	ND	17	1.00	
Naphthalene	ND	8.5	1.00	
n-Propylbenzene	ND	1.7	1.00	
Styrene	ND	0.85	1.00	
1,1,1,2-Tetrachloroethane	ND	0.85	1.00	
1,1,2,2-Tetrachloroethane	ND	1.7	1.00	
Tetrachloroethene	ND	0.85	1.00	
Toluene	ND	0.85	1.00	
1,2,3-Trichlorobenzene	ND	1.7	1.00	
1,2,4-Trichlorobenzene	ND	1.7	1.00	
1,1,1-Trichloroethane	ND	0.85	1.00	
1,1,2-Trichloroethane	ND	0.85	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.5	1.00	
Trichloroethene	ND	1.7	1.00	
Trichlorofluoromethane	ND	8.5	1.00	
1,2,3-Trichloropropane	ND	1.7	1.00	
1,2,4-Trimethylbenzene	ND	1.7	1.00	
1,3,5-Trimethylbenzene	ND	1.7	1.00	
Vinyl Acetate	ND	8.5	1.00	
Vinyl Chloride	ND	0.85	1.00	
p/m-Xylene	ND	1.7	1.00	
o-Xylene	ND	0.85	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.7	1.00	
Tert-Butyl Alcohol (TBA)	ND	17	1.00	
Diisopropyl Ether (DIPE)	ND	0.85	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.85	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.85	1.00	
Ethanol	ND	420	1.00	
Cyclohexanone	ND	42	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 3 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	107	79-133	
1,2-Dichloroethane-d4	115	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-11-10	**17-04-0324-2-C**	**04/05/17 08:12**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 13:27**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	55	1.00	
Acetone	ND	55	1.00	
Benzene	ND	1.1	1.00	
Bromobenzene	ND	1.1	1.00	
Bromochloromethane	ND	2.2	1.00	
Bromodichloromethane	ND	1.1	1.00	
Bromoform	ND	5.5	1.00	
Bromomethane	ND	22	1.00	
2-Butanone	ND	22	1.00	
n-Butylbenzene	ND	1.1	1.00	
sec-Butylbenzene	ND	1.1	1.00	
tert-Butylbenzene	ND	1.1	1.00	
Carbon Disulfide	ND	11	1.00	
Carbon Tetrachloride	ND	1.1	1.00	
Chlorobenzene	ND	1.1	1.00	
Chloroethane	ND	2.2	1.00	
Chloroform	ND	1.1	1.00	
Chloromethane	ND	22	1.00	
2-Chlorotoluene	ND	1.1	1.00	
4-Chlorotoluene	ND	1.1	1.00	
Dibromochloromethane	ND	2.2	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.5	1.00	
1,2-Dibromoethane	ND	1.1	1.00	
Dibromomethane	ND	1.1	1.00	
1,2-Dichlorobenzene	ND	1.1	1.00	
1,3-Dichlorobenzene	ND	1.1	1.00	
1,4-Dichlorobenzene	ND	1.1	1.00	
Dichlorodifluoromethane	ND	2.2	1.00	
1,1-Dichloroethane	ND	1.1	1.00	
1,2-Dichloroethane	ND	1.1	1.00	
1,1-Dichloroethene	ND	1.1	1.00	
c-1,2-Dichloroethene	ND	1.1	1.00	
t-1,2-Dichloroethene	ND	1.1	1.00	
1,2-Dichloropropane	ND	1.1	1.00	
1,3-Dichloropropane	ND	1.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.5	1.00	
1,1-Dichloropropene	ND	2.2	1.00	
c-1,3-Dichloropropene	ND	1.1	1.00	
t-1,3-Dichloropropene	ND	2.2	1.00	
Ethylbenzene	ND	1.1	1.00	
2-Hexanone	ND	22	1.00	
Isopropylbenzene	ND	1.1	1.00	
p-Isopropyltoluene	ND	1.1	1.00	
Methylene Chloride	ND	11	1.00	
4-Methyl-2-Pentanone	ND	22	1.00	
Naphthalene	ND	11	1.00	
n-Propylbenzene	ND	2.2	1.00	
Styrene	ND	1.1	1.00	
1,1,1,2-Tetrachloroethane	ND	1.1	1.00	
1,1,2,2-Tetrachloroethane	ND	2.2	1.00	
Tetrachloroethene	ND	1.1	1.00	
Toluene	ND	1.1	1.00	
1,2,3-Trichlorobenzene	ND	2.2	1.00	
1,2,4-Trichlorobenzene	ND	2.2	1.00	
1,1,1-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	11	1.00	
Trichloroethene	ND	2.2	1.00	
Trichlorofluoromethane	ND	11	1.00	
1,2,3-Trichloropropane	ND	2.2	1.00	
1,2,4-Trimethylbenzene	ND	2.2	1.00	
1,3,5-Trimethylbenzene	ND	2.2	1.00	
Vinyl Acetate	ND	11	1.00	
Vinyl Chloride	ND	1.1	1.00	
p/m-Xylene	ND	2.2	1.00	
o-Xylene	ND	1.1	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.2	1.00	
Tert-Butyl Alcohol (TBA)	ND	22	1.00	
Diisopropyl Ether (DIPE)	ND	1.1	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.1	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.1	1.00	
Ethanol	ND	550	1.00	
Cyclohexanone	ND	55	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 6 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	80-120	
Dibromofluoromethane	108	79-133	
1,2-Dichloroethane-d4	118	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-11-15	**17-04-0324-3-C**	**04/05/17 08:20**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 13:56**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	48	1.00	
Acetone	ND	48	1.00	
Benzene	ND	0.97	1.00	
Bromobenzene	ND	0.97	1.00	
Bromochloromethane	ND	1.9	1.00	
Bromodichloromethane	ND	0.97	1.00	
Bromoform	ND	4.8	1.00	
Bromomethane	ND	19	1.00	
2-Butanone	ND	19	1.00	
n-Butylbenzene	ND	0.97	1.00	
sec-Butylbenzene	ND	0.97	1.00	
tert-Butylbenzene	ND	0.97	1.00	
Carbon Disulfide	ND	9.7	1.00	
Carbon Tetrachloride	ND	0.97	1.00	
Chlorobenzene	ND	0.97	1.00	
Chloroethane	ND	1.9	1.00	
Chloroform	ND	0.97	1.00	
Chloromethane	ND	19	1.00	
2-Chlorotoluene	ND	0.97	1.00	
4-Chlorotoluene	ND	0.97	1.00	
Dibromochloromethane	ND	1.9	1.00	
1,2-Dibromo-3-Chloropropane	ND	4.8	1.00	
1,2-Dibromoethane	ND	0.97	1.00	
Dibromomethane	ND	0.97	1.00	
1,2-Dichlorobenzene	ND	0.97	1.00	
1,3-Dichlorobenzene	ND	0.97	1.00	
1,4-Dichlorobenzene	ND	0.97	1.00	
Dichlorodifluoromethane	ND	1.9	1.00	
1,1-Dichloroethane	ND	0.97	1.00	
1,2-Dichloroethane	ND	0.97	1.00	
1,1-Dichloroethene	ND	0.97	1.00	
c-1,2-Dichloroethene	ND	0.97	1.00	
t-1,2-Dichloroethene	ND	0.97	1.00	
1,2-Dichloropropane	ND	0.97	1.00	
1,3-Dichloropropane	ND	0.97	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	4.8	1.00	
1,1-Dichloropropene	ND	1.9	1.00	
c-1,3-Dichloropropene	ND	0.97	1.00	
t-1,3-Dichloropropene	ND	1.9	1.00	
Ethylbenzene	ND	0.97	1.00	
2-Hexanone	ND	19	1.00	
Isopropylbenzene	ND	0.97	1.00	
p-Isopropyltoluene	ND	0.97	1.00	
Methylene Chloride	ND	9.7	1.00	
4-Methyl-2-Pentanone	ND	19	1.00	
Naphthalene	ND	9.7	1.00	
n-Propylbenzene	ND	1.9	1.00	
Styrene	ND	0.97	1.00	
1,1,1,2-Tetrachloroethane	ND	0.97	1.00	
1,1,2,2-Tetrachloroethane	ND	1.9	1.00	
Tetrachloroethene	ND	0.97	1.00	
Toluene	ND	0.97	1.00	
1,2,3-Trichlorobenzene	ND	1.9	1.00	
1,2,4-Trichlorobenzene	ND	1.9	1.00	
1,1,1-Trichloroethane	ND	0.97	1.00	
1,1,2-Trichloroethane	ND	0.97	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	9.7	1.00	
Trichloroethene	ND	1.9	1.00	
Trichlorofluoromethane	ND	9.7	1.00	
1,2,3-Trichloropropane	ND	1.9	1.00	
1,2,4-Trimethylbenzene	ND	1.9	1.00	
1,3,5-Trimethylbenzene	ND	1.9	1.00	
Vinyl Acetate	ND	9.7	1.00	
Vinyl Chloride	ND	0.97	1.00	
p/m-Xylene	ND	1.9	1.00	
o-Xylene	ND	0.97	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.9	1.00	
Tert-Butyl Alcohol (TBA)	ND	19	1.00	
Diisopropyl Ether (DIPE)	ND	0.97	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.97	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.97	1.00	
Ethanol	ND	480	1.00	
Cyclohexanone	ND	48	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 9 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	80-120	
Dibromofluoromethane	107	79-133	
1,2-Dichloroethane-d4	116	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-8-5	**17-04-0324-4-C**	**04/05/17 09:30**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 14:25**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	42	1.00	
Acetone	ND	42	1.00	
Benzene	ND	0.84	1.00	
Bromobenzene	ND	0.84	1.00	
Bromochloromethane	ND	1.7	1.00	
Bromodichloromethane	ND	0.84	1.00	
Bromoform	ND	4.2	1.00	
Bromomethane	ND	17	1.00	
2-Butanone	ND	17	1.00	
n-Butylbenzene	ND	0.84	1.00	
sec-Butylbenzene	ND	0.84	1.00	
tert-Butylbenzene	ND	0.84	1.00	
Carbon Disulfide	ND	8.4	1.00	
Carbon Tetrachloride	ND	0.84	1.00	
Chlorobenzene	ND	0.84	1.00	
Chloroethane	ND	1.7	1.00	
Chloroform	ND	0.84	1.00	
Chloromethane	ND	17	1.00	
2-Chlorotoluene	ND	0.84	1.00	
4-Chlorotoluene	ND	0.84	1.00	
Dibromochloromethane	ND	1.7	1.00	
1,2-Dibromo-3-Chloropropane	ND	4.2	1.00	
1,2-Dibromoethane	ND	0.84	1.00	
Dibromomethane	ND	0.84	1.00	
1,2-Dichlorobenzene	ND	0.84	1.00	
1,3-Dichlorobenzene	ND	0.84	1.00	
1,4-Dichlorobenzene	ND	0.84	1.00	
Dichlorodifluoromethane	ND	1.7	1.00	
1,1-Dichloroethane	ND	0.84	1.00	
1,2-Dichloroethane	ND	0.84	1.00	
1,1-Dichloroethene	ND	0.84	1.00	
c-1,2-Dichloroethene	ND	0.84	1.00	
t-1,2-Dichloroethene	ND	0.84	1.00	
1,2-Dichloropropane	ND	0.84	1.00	
1,3-Dichloropropane	ND	0.84	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	4.2	1.00	
1,1-Dichloropropene	ND	1.7	1.00	
c-1,3-Dichloropropene	ND	0.84	1.00	
t-1,3-Dichloropropene	ND	1.7	1.00	
Ethylbenzene	ND	0.84	1.00	
2-Hexanone	ND	17	1.00	
Isopropylbenzene	ND	0.84	1.00	
p-Isopropyltoluene	ND	0.84	1.00	
Methylene Chloride	ND	8.4	1.00	
4-Methyl-2-Pentanone	ND	17	1.00	
Naphthalene	ND	8.4	1.00	
n-Propylbenzene	ND	1.7	1.00	
Styrene	ND	0.84	1.00	
1,1,1,2-Tetrachloroethane	ND	0.84	1.00	
1,1,2,2-Tetrachloroethane	ND	1.7	1.00	
Tetrachloroethene	ND	0.84	1.00	
Toluene	ND	0.84	1.00	
1,2,3-Trichlorobenzene	ND	1.7	1.00	
1,2,4-Trichlorobenzene	ND	1.7	1.00	
1,1,1-Trichloroethane	ND	0.84	1.00	
1,1,2-Trichloroethane	ND	0.84	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.4	1.00	
Trichloroethene	ND	1.7	1.00	
Trichlorofluoromethane	ND	8.4	1.00	
1,2,3-Trichloropropane	ND	1.7	1.00	
1,2,4-Trimethylbenzene	ND	1.7	1.00	
1,3,5-Trimethylbenzene	ND	1.7	1.00	
Vinyl Acetate	ND	8.4	1.00	
Vinyl Chloride	ND	0.84	1.00	
p/m-Xylene	ND	1.7	1.00	
o-Xylene	ND	0.84	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.7	1.00	
Tert-Butyl Alcohol (TBA)	ND	17	1.00	
Diisopropyl Ether (DIPE)	ND	0.84	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.84	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.84	1.00	
Ethanol	ND	420	1.00	
Cyclohexanone	ND	42	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 12 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	107	79-133	
1,2-Dichloroethane-d4	118	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-8-10	**17-04-0324-5-C**	**04/05/17 09:35**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 14:55**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	52	1.00	
Acetone	ND	52	1.00	
Benzene	ND	1.0	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	2.1	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	5.2	1.00	
Bromomethane	ND	21	1.00	
2-Butanone	ND	21	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	1.0	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	2.1	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	21	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	2.1	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.2	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	2.1	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	1.0	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.2	1.00	
1,1-Dichloropropene	ND	2.1	1.00	
c-1,3-Dichloropropene	ND	1.0	1.00	
t-1,3-Dichloropropene	ND	2.1	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	21	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	21	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	2.1	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	2.1	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	2.1	1.00	
1,2,4-Trichlorobenzene	ND	2.1	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
Trichloroethene	ND	2.1	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	2.1	1.00	
1,2,4-Trimethylbenzene	ND	2.1	1.00	
1,3,5-Trimethylbenzene	ND	2.1	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	1.0	1.00	
p/m-Xylene	ND	2.1	1.00	
o-Xylene	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.1	1.00	
Tert-Butyl Alcohol (TBA)	ND	21	1.00	
Diisopropyl Ether (DIPE)	ND	1.0	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1.00	
Ethanol	ND	520	1.00	
Cyclohexanone	ND	52	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 15 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	80-120	
Dibromofluoromethane	108	79-133	
1,2-Dichloroethane-d4	118	71-155	
Toluene-d8	102	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-8-15	**17-04-0324-6-C**	**04/05/17 09:45**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 15:24**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	45	1.00	
Acetone	ND	45	1.00	
Benzene	ND	0.89	1.00	
Bromobenzene	ND	0.89	1.00	
Bromochloromethane	ND	1.8	1.00	
Bromodichloromethane	ND	0.89	1.00	
Bromoform	ND	4.5	1.00	
Bromomethane	ND	18	1.00	
2-Butanone	ND	18	1.00	
n-Butylbenzene	ND	0.89	1.00	
sec-Butylbenzene	ND	0.89	1.00	
tert-Butylbenzene	ND	0.89	1.00	
Carbon Disulfide	ND	8.9	1.00	
Carbon Tetrachloride	ND	0.89	1.00	
Chlorobenzene	ND	0.89	1.00	
Chloroethane	ND	1.8	1.00	
Chloroform	ND	0.89	1.00	
Chloromethane	ND	18	1.00	
2-Chlorotoluene	ND	0.89	1.00	
4-Chlorotoluene	ND	0.89	1.00	
Dibromochloromethane	ND	1.8	1.00	
1,2-Dibromo-3-Chloropropane	ND	4.5	1.00	
1,2-Dibromoethane	ND	0.89	1.00	
Dibromomethane	ND	0.89	1.00	
1,2-Dichlorobenzene	ND	0.89	1.00	
1,3-Dichlorobenzene	ND	0.89	1.00	
1,4-Dichlorobenzene	ND	0.89	1.00	
Dichlorodifluoromethane	ND	1.8	1.00	
1,1-Dichloroethane	ND	0.89	1.00	
1,2-Dichloroethane	ND	0.89	1.00	
1,1-Dichloroethene	ND	0.89	1.00	
c-1,2-Dichloroethene	ND	0.89	1.00	
t-1,2-Dichloroethene	ND	0.89	1.00	
1,2-Dichloropropane	ND	0.89	1.00	
1,3-Dichloropropane	ND	0.89	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	4.5	1.00	
1,1-Dichloropropene	ND	1.8	1.00	
c-1,3-Dichloropropene	ND	0.89	1.00	
t-1,3-Dichloropropene	ND	1.8	1.00	
Ethylbenzene	ND	0.89	1.00	
2-Hexanone	ND	18	1.00	
Isopropylbenzene	ND	0.89	1.00	
p-Isopropyltoluene	ND	0.89	1.00	
Methylene Chloride	ND	8.9	1.00	
4-Methyl-2-Pentanone	ND	18	1.00	
Naphthalene	ND	8.9	1.00	
n-Propylbenzene	ND	1.8	1.00	
Styrene	ND	0.89	1.00	
1,1,1,2-Tetrachloroethane	ND	0.89	1.00	
1,1,2,2-Tetrachloroethane	ND	1.8	1.00	
Tetrachloroethene	ND	0.89	1.00	
Toluene	ND	0.89	1.00	
1,2,3-Trichlorobenzene	ND	1.8	1.00	
1,2,4-Trichlorobenzene	ND	1.8	1.00	
1,1,1-Trichloroethane	ND	0.89	1.00	
1,1,2-Trichloroethane	ND	0.89	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	8.9	1.00	
Trichloroethene	ND	1.8	1.00	
Trichlorofluoromethane	ND	8.9	1.00	
1,2,3-Trichloropropane	ND	1.8	1.00	
1,2,4-Trimethylbenzene	ND	1.8	1.00	
1,3,5-Trimethylbenzene	ND	1.8	1.00	
Vinyl Acetate	ND	8.9	1.00	
Vinyl Chloride	ND	0.89	1.00	
p/m-Xylene	ND	1.8	1.00	
o-Xylene	ND	0.89	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.8	1.00	
Tert-Butyl Alcohol (TBA)	ND	18	1.00	
Diisopropyl Ether (DIPE)	ND	0.89	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.89	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.89	1.00	
Ethanol	ND	450	1.00	
Cyclohexanone	ND	45	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 18 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	106	79-133	
1,2-Dichloroethane-d4	119	71-155	
Toluene-d8	102	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-9-5	**17-04-0324-7-C**	**04/05/17 10:30**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 15:53**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	53	1.00	
Acetone	ND	53	1.00	
Benzene	ND	1.1	1.00	
Bromobenzene	ND	1.1	1.00	
Bromochloromethane	ND	2.1	1.00	
Bromodichloromethane	ND	1.1	1.00	
Bromoform	ND	5.3	1.00	
Bromomethane	ND	21	1.00	
2-Butanone	ND	21	1.00	
n-Butylbenzene	ND	1.1	1.00	
sec-Butylbenzene	ND	1.1	1.00	
tert-Butylbenzene	ND	1.1	1.00	
Carbon Disulfide	ND	11	1.00	
Carbon Tetrachloride	ND	1.1	1.00	
Chlorobenzene	ND	1.1	1.00	
Chloroethane	ND	2.1	1.00	
Chloroform	ND	1.1	1.00	
Chloromethane	ND	21	1.00	
2-Chlorotoluene	ND	1.1	1.00	
4-Chlorotoluene	ND	1.1	1.00	
Dibromochloromethane	ND	2.1	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.3	1.00	
1,2-Dibromoethane	ND	1.1	1.00	
Dibromomethane	ND	1.1	1.00	
1,2-Dichlorobenzene	ND	1.1	1.00	
1,3-Dichlorobenzene	ND	1.1	1.00	
1,4-Dichlorobenzene	ND	1.1	1.00	
Dichlorodifluoromethane	ND	2.1	1.00	
1,1-Dichloroethane	ND	1.1	1.00	
1,2-Dichloroethane	ND	1.1	1.00	
1,1-Dichloroethene	ND	1.1	1.00	
c-1,2-Dichloroethene	ND	1.1	1.00	
t-1,2-Dichloroethene	ND	1.1	1.00	
1,2-Dichloropropane	ND	1.1	1.00	
1,3-Dichloropropane	ND	1.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.3	1.00	
1,1-Dichloropropene	ND	2.1	1.00	
c-1,3-Dichloropropene	ND	1.1	1.00	
t-1,3-Dichloropropene	ND	2.1	1.00	
Ethylbenzene	ND	1.1	1.00	
2-Hexanone	ND	21	1.00	
Isopropylbenzene	ND	1.1	1.00	
p-Isopropyltoluene	ND	1.1	1.00	
Methylene Chloride	ND	11	1.00	
4-Methyl-2-Pentanone	ND	21	1.00	
Naphthalene	ND	11	1.00	
n-Propylbenzene	ND	2.1	1.00	
Styrene	ND	1.1	1.00	
1,1,1,2-Tetrachloroethane	ND	1.1	1.00	
1,1,2,2-Tetrachloroethane	ND	2.1	1.00	
Tetrachloroethene	ND	1.1	1.00	
Toluene	ND	1.1	1.00	
1,2,3-Trichlorobenzene	ND	2.1	1.00	
1,2,4-Trichlorobenzene	ND	2.1	1.00	
1,1,1-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	11	1.00	
Trichloroethene	ND	2.1	1.00	
Trichlorofluoromethane	ND	11	1.00	
1,2,3-Trichloropropane	ND	2.1	1.00	
1,2,4-Trimethylbenzene	ND	2.1	1.00	
1,3,5-Trimethylbenzene	ND	2.1	1.00	
Vinyl Acetate	ND	11	1.00	
Vinyl Chloride	ND	1.1	1.00	
p/m-Xylene	ND	2.1	1.00	
o-Xylene	ND	1.1	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.1	1.00	
Tert-Butyl Alcohol (TBA)	ND	21	1.00	
Diisopropyl Ether (DIPE)	ND	1.1	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.1	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.1	1.00	
Ethanol	ND	530	1.00	
Cyclohexanone	ND	53	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 21 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	109	79-133	
1,2-Dichloroethane-d4	119	71-155	
Toluene-d8	102	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-9-10	**17-04-0324-8-C**	**04/05/17 10:42**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 16:22**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	38	1.00	
Acetone	ND	38	1.00	
Benzene	ND	0.77	1.00	
Bromobenzene	ND	0.77	1.00	
Bromochloromethane	ND	1.5	1.00	
Bromodichloromethane	ND	0.77	1.00	
Bromoform	ND	3.8	1.00	
Bromomethane	ND	15	1.00	
2-Butanone	ND	15	1.00	
n-Butylbenzene	ND	0.77	1.00	
sec-Butylbenzene	ND	0.77	1.00	
tert-Butylbenzene	ND	0.77	1.00	
Carbon Disulfide	ND	7.7	1.00	
Carbon Tetrachloride	ND	0.77	1.00	
Chlorobenzene	ND	0.77	1.00	
Chloroethane	ND	1.5	1.00	
Chloroform	ND	0.77	1.00	
Chloromethane	ND	15	1.00	
2-Chlorotoluene	ND	0.77	1.00	
4-Chlorotoluene	ND	0.77	1.00	
Dibromochloromethane	ND	1.5	1.00	
1,2-Dibromo-3-Chloropropane	ND	3.8	1.00	
1,2-Dibromoethane	ND	0.77	1.00	
Dibromomethane	ND	0.77	1.00	
1,2-Dichlorobenzene	ND	0.77	1.00	
1,3-Dichlorobenzene	ND	0.77	1.00	
1,4-Dichlorobenzene	ND	0.77	1.00	
Dichlorodifluoromethane	ND	1.5	1.00	
1,1-Dichloroethane	ND	0.77	1.00	
1,2-Dichloroethane	ND	0.77	1.00	
1,1-Dichloroethene	ND	0.77	1.00	
c-1,2-Dichloroethene	ND	0.77	1.00	
t-1,2-Dichloroethene	ND	0.77	1.00	
1,2-Dichloropropane	ND	0.77	1.00	
1,3-Dichloropropane	ND	0.77	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	3.8	1.00	
1,1-Dichloropropene	ND	1.5	1.00	
c-1,3-Dichloropropene	ND	0.77	1.00	
t-1,3-Dichloropropene	ND	1.5	1.00	
Ethylbenzene	ND	0.77	1.00	
2-Hexanone	ND	15	1.00	
Isopropylbenzene	ND	0.77	1.00	
p-Isopropyltoluene	ND	0.77	1.00	
Methylene Chloride	ND	7.7	1.00	
4-Methyl-2-Pentanone	ND	15	1.00	
Naphthalene	ND	7.7	1.00	
n-Propylbenzene	ND	1.5	1.00	
Styrene	ND	0.77	1.00	
1,1,1,2-Tetrachloroethane	ND	0.77	1.00	
1,1,2,2-Tetrachloroethane	ND	1.5	1.00	
Tetrachloroethene	ND	0.77	1.00	
Toluene	ND	0.77	1.00	
1,2,3-Trichlorobenzene	ND	1.5	1.00	
1,2,4-Trichlorobenzene	ND	1.5	1.00	
1,1,1-Trichloroethane	ND	0.77	1.00	
1,1,2-Trichloroethane	ND	0.77	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.7	1.00	
Trichloroethene	ND	1.5	1.00	
Trichlorofluoromethane	ND	7.7	1.00	
1,2,3-Trichloropropane	ND	1.5	1.00	
1,2,4-Trimethylbenzene	ND	1.5	1.00	
1,3,5-Trimethylbenzene	ND	1.5	1.00	
Vinyl Acetate	ND	7.7	1.00	
Vinyl Chloride	ND	0.77	1.00	
p/m-Xylene	ND	1.5	1.00	
o-Xylene	ND	0.77	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.5	1.00	
Tert-Butyl Alcohol (TBA)	ND	15	1.00	
Diisopropyl Ether (DIPE)	ND	0.77	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.77	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.77	1.00	
Ethanol	ND	380	1.00	
Cyclohexanone	ND	38	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 24 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	107	79-133	
1,2-Dichloroethane-d4	119	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-9-15	**17-04-0324-9-C**	**04/05/17 10:53**	**Solid**	**GC/MS LL**	**04/05/17**	**04/06/17 16:51**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	59	1.00	
Acetone	ND	59	1.00	
Benzene	ND	1.2	1.00	
Bromobenzene	ND	1.2	1.00	
Bromochloromethane	ND	2.3	1.00	
Bromodichloromethane	ND	1.2	1.00	
Bromoform	ND	5.9	1.00	
Bromomethane	ND	23	1.00	
2-Butanone	ND	23	1.00	
n-Butylbenzene	ND	1.2	1.00	
sec-Butylbenzene	ND	1.2	1.00	
tert-Butylbenzene	ND	1.2	1.00	
Carbon Disulfide	ND	12	1.00	
Carbon Tetrachloride	ND	1.2	1.00	
Chlorobenzene	ND	1.2	1.00	
Chloroethane	ND	2.3	1.00	
Chloroform	ND	1.2	1.00	
Chloromethane	ND	23	1.00	
2-Chlorotoluene	ND	1.2	1.00	
4-Chlorotoluene	ND	1.2	1.00	
Dibromochloromethane	ND	2.3	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.9	1.00	
1,2-Dibromoethane	ND	1.2	1.00	
Dibromomethane	ND	1.2	1.00	
1,2-Dichlorobenzene	ND	1.2	1.00	
1,3-Dichlorobenzene	ND	1.2	1.00	
1,4-Dichlorobenzene	ND	1.2	1.00	
Dichlorodifluoromethane	ND	2.3	1.00	
1,1-Dichloroethane	ND	1.2	1.00	
1,2-Dichloroethane	ND	1.2	1.00	
1,1-Dichloroethene	ND	1.2	1.00	
c-1,2-Dichloroethene	ND	1.2	1.00	
t-1,2-Dichloroethene	ND	1.2	1.00	
1,2-Dichloropropane	ND	1.2	1.00	
1,3-Dichloropropane	ND	1.2	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.9	1.00	
1,1-Dichloropropene	ND	2.3	1.00	
c-1,3-Dichloropropene	ND	1.2	1.00	
t-1,3-Dichloropropene	ND	2.3	1.00	
Ethylbenzene	ND	1.2	1.00	
2-Hexanone	ND	23	1.00	
Isopropylbenzene	ND	1.2	1.00	
p-Isopropyltoluene	ND	1.2	1.00	
Methylene Chloride	ND	12	1.00	
4-Methyl-2-Pentanone	ND	23	1.00	
Naphthalene	ND	12	1.00	
n-Propylbenzene	ND	2.3	1.00	
Styrene	ND	1.2	1.00	
1,1,1,2-Tetrachloroethane	ND	1.2	1.00	
1,1,2,2-Tetrachloroethane	ND	2.3	1.00	
Tetrachloroethene	ND	1.2	1.00	
Toluene	ND	1.2	1.00	
1,2,3-Trichlorobenzene	ND	2.3	1.00	
1,2,4-Trichlorobenzene	ND	2.3	1.00	
1,1,1-Trichloroethane	ND	1.2	1.00	
1,1,2-Trichloroethane	ND	1.2	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	12	1.00	
Trichloroethene	ND	2.3	1.00	
Trichlorofluoromethane	ND	12	1.00	
1,2,3-Trichloropropane	ND	2.3	1.00	
1,2,4-Trimethylbenzene	ND	2.3	1.00	
1,3,5-Trimethylbenzene	ND	2.3	1.00	
Vinyl Acetate	ND	12	1.00	
Vinyl Chloride	ND	1.2	1.00	
p/m-Xylene	ND	2.3	1.00	
o-Xylene	ND	1.2	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.3	1.00	
Tert-Butyl Alcohol (TBA)	ND	23	1.00	
Diisopropyl Ether (DIPE)	ND	1.2	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.2	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.2	1.00	
Ethanol	ND	590	1.00	
Cyclohexanone	ND	59	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 27 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	107	79-133	
1,2-Dichloroethane-d4	117	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-9-15D	**17-04-0324-10-B**	**04/05/17 11:15**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 13:18**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	60	1.00	
Acetone	ND	60	1.00	
Benzene	ND	1.2	1.00	
Bromobenzene	ND	1.2	1.00	
Bromochloromethane	ND	2.4	1.00	
Bromodichloromethane	ND	1.2	1.00	
Bromoform	ND	6.0	1.00	
Bromomethane	ND	24	1.00	
2-Butanone	ND	24	1.00	
n-Butylbenzene	ND	1.2	1.00	
sec-Butylbenzene	ND	1.2	1.00	
tert-Butylbenzene	ND	1.2	1.00	
Carbon Disulfide	ND	12	1.00	
Carbon Tetrachloride	ND	1.2	1.00	
Chlorobenzene	ND	1.2	1.00	
Chloroethane	ND	2.4	1.00	
Chloroform	ND	1.2	1.00	
Chloromethane	ND	24	1.00	
2-Chlorotoluene	ND	1.2	1.00	
4-Chlorotoluene	ND	1.2	1.00	
Dibromochloromethane	ND	2.4	1.00	
1,2-Dibromo-3-Chloropropane	ND	6.0	1.00	
1,2-Dibromoethane	ND	1.2	1.00	
Dibromomethane	ND	1.2	1.00	
1,2-Dichlorobenzene	ND	1.2	1.00	
1,3-Dichlorobenzene	ND	1.2	1.00	
1,4-Dichlorobenzene	ND	1.2	1.00	
Dichlorodifluoromethane	ND	2.4	1.00	
1,1-Dichloroethane	ND	1.2	1.00	
1,2-Dichloroethane	ND	1.2	1.00	
1,1-Dichloroethene	ND	1.2	1.00	
c-1,2-Dichloroethene	ND	1.2	1.00	
t-1,2-Dichloroethene	ND	1.2	1.00	
1,2-Dichloropropane	ND	1.2	1.00	
1,3-Dichloropropane	ND	1.2	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	6.0	1.00	
1,1-Dichloropropene	ND	2.4	1.00	
c-1,3-Dichloropropene	ND	1.2	1.00	
t-1,3-Dichloropropene	ND	2.4	1.00	
Ethylbenzene	ND	1.2	1.00	
2-Hexanone	ND	24	1.00	
Isopropylbenzene	ND	1.2	1.00	
p-Isopropyltoluene	ND	1.2	1.00	
Methylene Chloride	ND	12	1.00	
4-Methyl-2-Pentanone	ND	24	1.00	
Naphthalene	ND	12	1.00	
n-Propylbenzene	ND	2.4	1.00	
Styrene	ND	1.2	1.00	
1,1,1,2-Tetrachloroethane	ND	1.2	1.00	
1,1,2,2-Tetrachloroethane	ND	2.4	1.00	
Tetrachloroethene	ND	1.2	1.00	
Toluene	ND	1.2	1.00	
1,2,3-Trichlorobenzene	ND	2.4	1.00	
1,2,4-Trichlorobenzene	ND	2.4	1.00	
1,1,1-Trichloroethane	ND	1.2	1.00	
1,1,2-Trichloroethane	ND	1.2	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	12	1.00	
Trichloroethene	ND	2.4	1.00	
Trichlorofluoromethane	ND	12	1.00	
1,2,3-Trichloropropane	ND	2.4	1.00	
1,2,4-Trimethylbenzene	ND	2.4	1.00	
1,3,5-Trimethylbenzene	ND	2.4	1.00	
Vinyl Acetate	ND	12	1.00	
Vinyl Chloride	ND	1.2	1.00	
p/m-Xylene	ND	2.4	1.00	
o-Xylene	ND	1.2	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.4	1.00	
Tert-Butyl Alcohol (TBA)	ND	24	1.00	
Diisopropyl Ether (DIPE)	ND	1.2	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.2	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.2	1.00	
Ethanol	ND	600	1.00	
Cyclohexanone	ND	60	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 30 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	80-120	
Dibromofluoromethane	102	79-133	
1,2-Dichloroethane-d4	106	71-155	
Toluene-d8	99	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-10-5	**17-04-0324-12-C**	**04/05/17 12:20**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 13:46**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	47	1.00	
Acetone	ND	47	1.00	
Benzene	ND	0.93	1.00	
Bromobenzene	ND	0.93	1.00	
Bromochloromethane	ND	1.9	1.00	
Bromodichloromethane	ND	0.93	1.00	
Bromoform	ND	4.7	1.00	
Bromomethane	ND	19	1.00	
2-Butanone	ND	19	1.00	
n-Butylbenzene	ND	0.93	1.00	
sec-Butylbenzene	ND	0.93	1.00	
tert-Butylbenzene	ND	0.93	1.00	
Carbon Disulfide	ND	9.3	1.00	
Carbon Tetrachloride	ND	0.93	1.00	
Chlorobenzene	ND	0.93	1.00	
Chloroethane	ND	1.9	1.00	
Chloroform	ND	0.93	1.00	
Chloromethane	ND	19	1.00	
2-Chlorotoluene	ND	0.93	1.00	
4-Chlorotoluene	ND	0.93	1.00	
Dibromochloromethane	ND	1.9	1.00	
1,2-Dibromo-3-Chloropropane	ND	4.7	1.00	
1,2-Dibromoethane	ND	0.93	1.00	
Dibromomethane	ND	0.93	1.00	
1,2-Dichlorobenzene	ND	0.93	1.00	
1,3-Dichlorobenzene	ND	0.93	1.00	
1,4-Dichlorobenzene	ND	0.93	1.00	
Dichlorodifluoromethane	ND	1.9	1.00	
1,1-Dichloroethane	ND	0.93	1.00	
1,2-Dichloroethane	ND	0.93	1.00	
1,1-Dichloroethene	ND	0.93	1.00	
c-1,2-Dichloroethene	ND	0.93	1.00	
t-1,2-Dichloroethene	ND	0.93	1.00	
1,2-Dichloropropane	ND	0.93	1.00	
1,3-Dichloropropane	ND	0.93	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	4.7	1.00	
1,1-Dichloropropene	ND	1.9	1.00	
c-1,3-Dichloropropene	ND	0.93	1.00	
t-1,3-Dichloropropene	ND	1.9	1.00	
Ethylbenzene	ND	0.93	1.00	
2-Hexanone	ND	19	1.00	
Isopropylbenzene	ND	0.93	1.00	
p-Isopropyltoluene	ND	0.93	1.00	
Methylene Chloride	ND	9.3	1.00	
4-Methyl-2-Pentanone	ND	19	1.00	
Naphthalene	ND	9.3	1.00	
n-Propylbenzene	ND	1.9	1.00	
Styrene	ND	0.93	1.00	
1,1,1,2-Tetrachloroethane	ND	0.93	1.00	
1,1,2,2-Tetrachloroethane	ND	1.9	1.00	
Tetrachloroethene	ND	0.93	1.00	
Toluene	ND	0.93	1.00	
1,2,3-Trichlorobenzene	ND	1.9	1.00	
1,2,4-Trichlorobenzene	ND	1.9	1.00	
1,1,1-Trichloroethane	ND	0.93	1.00	
1,1,2-Trichloroethane	ND	0.93	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	9.3	1.00	
Trichloroethene	ND	1.9	1.00	
Trichlorofluoromethane	ND	9.3	1.00	
1,2,3-Trichloropropane	ND	1.9	1.00	
1,2,4-Trimethylbenzene	ND	1.9	1.00	
1,3,5-Trimethylbenzene	ND	1.9	1.00	
Vinyl Acetate	ND	9.3	1.00	
Vinyl Chloride	ND	0.93	1.00	
p/m-Xylene	ND	1.9	1.00	
o-Xylene	ND	0.93	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.9	1.00	
Tert-Butyl Alcohol (TBA)	ND	19	1.00	
Diisopropyl Ether (DIPE)	ND	0.93	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.93	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.93	1.00	
Ethanol	ND	470	1.00	
Cyclohexanone	ND	47	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 33 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	80-120	
Dibromofluoromethane	104	79-133	
1,2-Dichloroethane-d4	107	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-10-10	**17-04-0324-13-C**	**04/05/17 12:27**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 14:14**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	37	1.00	
Acetone	ND	37	1.00	
Benzene	ND	0.74	1.00	
Bromobenzene	ND	0.74	1.00	
Bromochloromethane	ND	1.5	1.00	
Bromodichloromethane	ND	0.74	1.00	
Bromoform	ND	3.7	1.00	
Bromomethane	ND	15	1.00	
2-Butanone	ND	15	1.00	
n-Butylbenzene	ND	0.74	1.00	
sec-Butylbenzene	ND	0.74	1.00	
tert-Butylbenzene	ND	0.74	1.00	
Carbon Disulfide	ND	7.4	1.00	
Carbon Tetrachloride	ND	0.74	1.00	
Chlorobenzene	ND	0.74	1.00	
Chloroethane	ND	1.5	1.00	
Chloroform	ND	0.74	1.00	
Chloromethane	ND	15	1.00	
2-Chlorotoluene	ND	0.74	1.00	
4-Chlorotoluene	ND	0.74	1.00	
Dibromochloromethane	ND	1.5	1.00	
1,2-Dibromo-3-Chloropropane	ND	3.7	1.00	
1,2-Dibromoethane	ND	0.74	1.00	
Dibromomethane	ND	0.74	1.00	
1,2-Dichlorobenzene	ND	0.74	1.00	
1,3-Dichlorobenzene	ND	0.74	1.00	
1,4-Dichlorobenzene	ND	0.74	1.00	
Dichlorodifluoromethane	ND	1.5	1.00	
1,1-Dichloroethane	ND	0.74	1.00	
1,2-Dichloroethane	ND	0.74	1.00	
1,1-Dichloroethene	ND	0.74	1.00	
c-1,2-Dichloroethene	ND	0.74	1.00	
t-1,2-Dichloroethene	ND	0.74	1.00	
1,2-Dichloropropane	ND	0.74	1.00	
1,3-Dichloropropane	ND	0.74	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	3.7	1.00	
1,1-Dichloropropene	ND	1.5	1.00	
c-1,3-Dichloropropene	ND	0.74	1.00	
t-1,3-Dichloropropene	ND	1.5	1.00	
Ethylbenzene	ND	0.74	1.00	
2-Hexanone	ND	15	1.00	
Isopropylbenzene	ND	0.74	1.00	
p-Isopropyltoluene	ND	0.74	1.00	
Methylene Chloride	ND	7.4	1.00	
4-Methyl-2-Pentanone	ND	15	1.00	
Naphthalene	ND	7.4	1.00	
n-Propylbenzene	ND	1.5	1.00	
Styrene	ND	0.74	1.00	
1,1,1,2-Tetrachloroethane	ND	0.74	1.00	
1,1,2,2-Tetrachloroethane	ND	1.5	1.00	
Tetrachloroethene	ND	0.74	1.00	
Toluene	ND	0.74	1.00	
1,2,3-Trichlorobenzene	ND	1.5	1.00	
1,2,4-Trichlorobenzene	ND	1.5	1.00	
1,1,1-Trichloroethane	ND	0.74	1.00	
1,1,2-Trichloroethane	ND	0.74	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.4	1.00	
Trichloroethene	ND	1.5	1.00	
Trichlorofluoromethane	ND	7.4	1.00	
1,2,3-Trichloropropane	ND	1.5	1.00	
1,2,4-Trimethylbenzene	ND	1.5	1.00	
1,3,5-Trimethylbenzene	ND	1.5	1.00	
Vinyl Acetate	ND	7.4	1.00	
Vinyl Chloride	ND	0.74	1.00	
p/m-Xylene	ND	1.5	1.00	
o-Xylene	ND	0.74	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.5	1.00	
Tert-Butyl Alcohol (TBA)	ND	15	1.00	
Diisopropyl Ether (DIPE)	ND	0.74	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.74	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.74	1.00	
Ethanol	ND	370	1.00	
Cyclohexanone	ND	37	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 36 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	80-120	
Dibromofluoromethane	103	79-133	
1,2-Dichloroethane-d4	109	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-10-15	**17-04-0324-14-C**	**04/05/17 12:35**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 14:42**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	55	1.00	
Acetone	ND	55	1.00	
Benzene	ND	1.1	1.00	
Bromobenzene	ND	1.1	1.00	
Bromochloromethane	ND	2.2	1.00	
Bromodichloromethane	ND	1.1	1.00	
Bromoform	ND	5.5	1.00	
Bromomethane	ND	22	1.00	
2-Butanone	ND	22	1.00	
n-Butylbenzene	ND	1.1	1.00	
sec-Butylbenzene	ND	1.1	1.00	
tert-Butylbenzene	ND	1.1	1.00	
Carbon Disulfide	ND	11	1.00	
Carbon Tetrachloride	ND	1.1	1.00	
Chlorobenzene	ND	1.1	1.00	
Chloroethane	ND	2.2	1.00	
Chloroform	ND	1.1	1.00	
Chloromethane	ND	22	1.00	
2-Chlorotoluene	ND	1.1	1.00	
4-Chlorotoluene	ND	1.1	1.00	
Dibromochloromethane	ND	2.2	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.5	1.00	
1,2-Dibromoethane	ND	1.1	1.00	
Dibromomethane	ND	1.1	1.00	
1,2-Dichlorobenzene	ND	1.1	1.00	
1,3-Dichlorobenzene	ND	1.1	1.00	
1,4-Dichlorobenzene	ND	1.1	1.00	
Dichlorodifluoromethane	ND	2.2	1.00	
1,1-Dichloroethane	ND	1.1	1.00	
1,2-Dichloroethane	ND	1.1	1.00	
1,1-Dichloroethene	ND	1.1	1.00	
c-1,2-Dichloroethene	ND	1.1	1.00	
t-1,2-Dichloroethene	ND	1.1	1.00	
1,2-Dichloropropane	ND	1.1	1.00	
1,3-Dichloropropane	ND	1.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.5	1.00	
1,1-Dichloropropene	ND	2.2	1.00	
c-1,3-Dichloropropene	ND	1.1	1.00	
t-1,3-Dichloropropene	ND	2.2	1.00	
Ethylbenzene	ND	1.1	1.00	
2-Hexanone	ND	22	1.00	
Isopropylbenzene	ND	1.1	1.00	
p-Isopropyltoluene	ND	1.1	1.00	
Methylene Chloride	ND	11	1.00	
4-Methyl-2-Pentanone	ND	22	1.00	
Naphthalene	ND	11	1.00	
n-Propylbenzene	ND	2.2	1.00	
Styrene	ND	1.1	1.00	
1,1,1,2-Tetrachloroethane	ND	1.1	1.00	
1,1,2,2-Tetrachloroethane	ND	2.2	1.00	
Tetrachloroethene	ND	1.1	1.00	
Toluene	ND	1.1	1.00	
1,2,3-Trichlorobenzene	ND	2.2	1.00	
1,2,4-Trichlorobenzene	ND	2.2	1.00	
1,1,1-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	11	1.00	
Trichloroethene	ND	2.2	1.00	
Trichlorofluoromethane	ND	11	1.00	
1,2,3-Trichloropropane	ND	2.2	1.00	
1,2,4-Trimethylbenzene	ND	2.2	1.00	
1,3,5-Trimethylbenzene	ND	2.2	1.00	
Vinyl Acetate	ND	11	1.00	
Vinyl Chloride	ND	1.1	1.00	
p/m-Xylene	ND	2.2	1.00	
o-Xylene	ND	1.1	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.2	1.00	
Tert-Butyl Alcohol (TBA)	ND	22	1.00	
Diisopropyl Ether (DIPE)	ND	1.1	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.1	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.1	1.00	
Ethanol	ND	550	1.00	
Cyclohexanone	ND	55	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 39 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	102	80-120	
Dibromofluoromethane	102	79-133	
1,2-Dichloroethane-d4	108	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-12-2	**17-04-0324-15-C**	**04/05/17 13:30**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 15:09**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	38	1.00	
Acetone	ND	38	1.00	
Benzene	ND	0.76	1.00	
Bromobenzene	ND	0.76	1.00	
Bromochloromethane	ND	1.5	1.00	
Bromodichloromethane	ND	0.76	1.00	
Bromoform	ND	3.8	1.00	
Bromomethane	ND	15	1.00	
2-Butanone	ND	15	1.00	
n-Butylbenzene	ND	0.76	1.00	
sec-Butylbenzene	ND	0.76	1.00	
tert-Butylbenzene	ND	0.76	1.00	
Carbon Disulfide	ND	7.6	1.00	
Carbon Tetrachloride	ND	0.76	1.00	
Chlorobenzene	ND	0.76	1.00	
Chloroethane	ND	1.5	1.00	
Chloroform	ND	0.76	1.00	
Chloromethane	ND	15	1.00	
2-Chlorotoluene	ND	0.76	1.00	
4-Chlorotoluene	ND	0.76	1.00	
Dibromochloromethane	ND	1.5	1.00	
1,2-Dibromo-3-Chloropropane	ND	3.8	1.00	
1,2-Dibromoethane	ND	0.76	1.00	
Dibromomethane	ND	0.76	1.00	
1,2-Dichlorobenzene	ND	0.76	1.00	
1,3-Dichlorobenzene	ND	0.76	1.00	
1,4-Dichlorobenzene	ND	0.76	1.00	
Dichlorodifluoromethane	ND	1.5	1.00	
1,1-Dichloroethane	ND	0.76	1.00	
1,2-Dichloroethane	ND	0.76	1.00	
1,1-Dichloroethene	ND	0.76	1.00	
c-1,2-Dichloroethene	ND	0.76	1.00	
t-1,2-Dichloroethene	ND	0.76	1.00	
1,2-Dichloropropane	ND	0.76	1.00	
1,3-Dichloropropane	ND	0.76	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	3.8	1.00	
1,1-Dichloropropene	ND	1.5	1.00	
c-1,3-Dichloropropene	ND	0.76	1.00	
t-1,3-Dichloropropene	ND	1.5	1.00	
Ethylbenzene	ND	0.76	1.00	
2-Hexanone	ND	15	1.00	
Isopropylbenzene	ND	0.76	1.00	
p-Isopropyltoluene	ND	0.76	1.00	
Methylene Chloride	ND	7.6	1.00	
4-Methyl-2-Pentanone	ND	15	1.00	
Naphthalene	ND	7.6	1.00	
n-Propylbenzene	ND	1.5	1.00	
Styrene	ND	0.76	1.00	
1,1,1,2-Tetrachloroethane	ND	0.76	1.00	
1,1,2,2-Tetrachloroethane	ND	1.5	1.00	
Tetrachloroethene	ND	0.76	1.00	
Toluene	ND	0.76	1.00	
1,2,3-Trichlorobenzene	ND	1.5	1.00	
1,2,4-Trichlorobenzene	ND	1.5	1.00	
1,1,1-Trichloroethane	ND	0.76	1.00	
1,1,2-Trichloroethane	ND	0.76	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.6	1.00	
Trichloroethene	ND	1.5	1.00	
Trichlorofluoromethane	ND	7.6	1.00	
1,2,3-Trichloropropane	ND	1.5	1.00	
1,2,4-Trimethylbenzene	ND	1.5	1.00	
1,3,5-Trimethylbenzene	ND	1.5	1.00	
Vinyl Acetate	ND	7.6	1.00	
Vinyl Chloride	ND	0.76	1.00	
p/m-Xylene	ND	1.5	1.00	
o-Xylene	ND	0.76	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.5	1.00	
Tert-Butyl Alcohol (TBA)	ND	15	1.00	
Diisopropyl Ether (DIPE)	ND	0.76	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.76	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.76	1.00	
Ethanol	ND	380	1.00	
Cyclohexanone	ND	38	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 42 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	80-120	
Dibromofluoromethane	104	79-133	
1,2-Dichloroethane-d4	108	71-155	
Toluene-d8	99	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-12-10	**17-04-0324-16-C**	**04/05/17 13:40**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 15:37**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	54	1.00	
Acetone	ND	54	1.00	
Benzene	ND	1.1	1.00	
Bromobenzene	ND	1.1	1.00	
Bromochloromethane	ND	2.2	1.00	
Bromodichloromethane	ND	1.1	1.00	
Bromoform	ND	5.4	1.00	
Bromomethane	ND	22	1.00	
2-Butanone	ND	22	1.00	
n-Butylbenzene	ND	1.1	1.00	
sec-Butylbenzene	ND	1.1	1.00	
tert-Butylbenzene	ND	1.1	1.00	
Carbon Disulfide	ND	11	1.00	
Carbon Tetrachloride	ND	1.1	1.00	
Chlorobenzene	ND	1.1	1.00	
Chloroethane	ND	2.2	1.00	
Chloroform	ND	1.1	1.00	
Chloromethane	ND	22	1.00	
2-Chlorotoluene	ND	1.1	1.00	
4-Chlorotoluene	ND	1.1	1.00	
Dibromochloromethane	ND	2.2	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.4	1.00	
1,2-Dibromoethane	ND	1.1	1.00	
Dibromomethane	ND	1.1	1.00	
1,2-Dichlorobenzene	ND	1.1	1.00	
1,3-Dichlorobenzene	ND	1.1	1.00	
1,4-Dichlorobenzene	ND	1.1	1.00	
Dichlorodifluoromethane	ND	2.2	1.00	
1,1-Dichloroethane	ND	1.1	1.00	
1,2-Dichloroethane	ND	1.1	1.00	
1,1-Dichloroethene	ND	1.1	1.00	
c-1,2-Dichloroethene	ND	1.1	1.00	
t-1,2-Dichloroethene	ND	1.1	1.00	
1,2-Dichloropropane	ND	1.1	1.00	
1,3-Dichloropropane	ND	1.1	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.4	1.00	
1,1-Dichloropropene	ND	2.2	1.00	
c-1,3-Dichloropropene	ND	1.1	1.00	
t-1,3-Dichloropropene	ND	2.2	1.00	
Ethylbenzene	ND	1.1	1.00	
2-Hexanone	ND	22	1.00	
Isopropylbenzene	ND	1.1	1.00	
p-Isopropyltoluene	ND	1.1	1.00	
Methylene Chloride	ND	11	1.00	
4-Methyl-2-Pentanone	ND	22	1.00	
Naphthalene	ND	11	1.00	
n-Propylbenzene	ND	2.2	1.00	
Styrene	ND	1.1	1.00	
1,1,1,2-Tetrachloroethane	ND	1.1	1.00	
1,1,2,2-Tetrachloroethane	ND	2.2	1.00	
Tetrachloroethene	ND	1.1	1.00	
Toluene	ND	1.1	1.00	
1,2,3-Trichlorobenzene	ND	2.2	1.00	
1,2,4-Trichlorobenzene	ND	2.2	1.00	
1,1,1-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloroethane	ND	1.1	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	11	1.00	
Trichloroethene	ND	2.2	1.00	
Trichlorofluoromethane	ND	11	1.00	
1,2,3-Trichloropropane	ND	2.2	1.00	
1,2,4-Trimethylbenzene	ND	2.2	1.00	
1,3,5-Trimethylbenzene	ND	2.2	1.00	
Vinyl Acetate	ND	11	1.00	
Vinyl Chloride	ND	1.1	1.00	
p/m-Xylene	ND	2.2	1.00	
o-Xylene	ND	1.1	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.2	1.00	
Tert-Butyl Alcohol (TBA)	ND	22	1.00	
Diisopropyl Ether (DIPE)	ND	1.1	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.1	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.1	1.00	
Ethanol	ND	540	1.00	
Cyclohexanone	ND	54	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 45 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	98	79-133	
1,2-Dichloroethane-d4	98	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-12-15	**17-04-0324-17-C**	**04/05/17 13:50**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 16:05**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	46	1.00	
Acetone	ND	46	1.00	
Benzene	ND	0.92	1.00	
Bromobenzene	ND	0.92	1.00	
Bromochloromethane	ND	1.8	1.00	
Bromodichloromethane	ND	0.92	1.00	
Bromoform	ND	4.6	1.00	
Bromomethane	ND	18	1.00	
2-Butanone	ND	18	1.00	
n-Butylbenzene	ND	0.92	1.00	
sec-Butylbenzene	ND	0.92	1.00	
tert-Butylbenzene	ND	0.92	1.00	
Carbon Disulfide	ND	9.2	1.00	
Carbon Tetrachloride	ND	0.92	1.00	
Chlorobenzene	ND	0.92	1.00	
Chloroethane	ND	1.8	1.00	
Chloroform	ND	0.92	1.00	
Chloromethane	ND	18	1.00	
2-Chlorotoluene	ND	0.92	1.00	
4-Chlorotoluene	ND	0.92	1.00	
Dibromochloromethane	ND	1.8	1.00	
1,2-Dibromo-3-Chloropropane	ND	4.6	1.00	
1,2-Dibromoethane	ND	0.92	1.00	
Dibromomethane	ND	0.92	1.00	
1,2-Dichlorobenzene	ND	0.92	1.00	
1,3-Dichlorobenzene	ND	0.92	1.00	
1,4-Dichlorobenzene	ND	0.92	1.00	
Dichlorodifluoromethane	ND	1.8	1.00	
1,1-Dichloroethane	ND	0.92	1.00	
1,2-Dichloroethane	ND	0.92	1.00	
1,1-Dichloroethene	ND	0.92	1.00	
c-1,2-Dichloroethene	ND	0.92	1.00	
t-1,2-Dichloroethene	ND	0.92	1.00	
1,2-Dichloropropane	ND	0.92	1.00	
1,3-Dichloropropane	ND	0.92	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	4.6	1.00	
1,1-Dichloropropene	ND	1.8	1.00	
c-1,3-Dichloropropene	ND	0.92	1.00	
t-1,3-Dichloropropene	ND	1.8	1.00	
Ethylbenzene	ND	0.92	1.00	
2-Hexanone	ND	18	1.00	
Isopropylbenzene	ND	0.92	1.00	
p-Isopropyltoluene	ND	0.92	1.00	
Methylene Chloride	ND	9.2	1.00	
4-Methyl-2-Pentanone	ND	18	1.00	
Naphthalene	ND	9.2	1.00	
n-Propylbenzene	ND	1.8	1.00	
Styrene	ND	0.92	1.00	
1,1,1,2-Tetrachloroethane	ND	0.92	1.00	
1,1,2,2-Tetrachloroethane	ND	1.8	1.00	
Tetrachloroethene	ND	0.92	1.00	
Toluene	ND	0.92	1.00	
1,2,3-Trichlorobenzene	ND	1.8	1.00	
1,2,4-Trichlorobenzene	ND	1.8	1.00	
1,1,1-Trichloroethane	ND	0.92	1.00	
1,1,2-Trichloroethane	ND	0.92	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	9.2	1.00	
Trichloroethene	ND	1.8	1.00	
Trichlorofluoromethane	ND	9.2	1.00	
1,2,3-Trichloropropane	ND	1.8	1.00	
1,2,4-Trimethylbenzene	ND	1.8	1.00	
1,3,5-Trimethylbenzene	ND	1.8	1.00	
Vinyl Acetate	ND	9.2	1.00	
Vinyl Chloride	ND	0.92	1.00	
p/m-Xylene	ND	1.8	1.00	
o-Xylene	ND	0.92	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.8	1.00	
Tert-Butyl Alcohol (TBA)	ND	18	1.00	
Diisopropyl Ether (DIPE)	ND	0.92	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.92	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.92	1.00	
Ethanol	ND	460	1.00	
Cyclohexanone	ND	46	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 48 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	99	80-120	
Dibromofluoromethane	98	79-133	
1,2-Dichloroethane-d4	100	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SV-12-5D	**17-04-0324-18-B**	**04/05/17 14:00**	**Solid**	**GC/MS Q**	**04/05/17**	**04/06/17 16:32**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	37	1.00	
Acetone	ND	37	1.00	
Benzene	ND	0.73	1.00	
Bromobenzene	ND	0.73	1.00	
Bromochloromethane	ND	1.5	1.00	
Bromodichloromethane	ND	0.73	1.00	
Bromoform	ND	3.7	1.00	
Bromomethane	ND	15	1.00	
2-Butanone	ND	15	1.00	
n-Butylbenzene	ND	0.73	1.00	
sec-Butylbenzene	ND	0.73	1.00	
tert-Butylbenzene	ND	0.73	1.00	
Carbon Disulfide	ND	7.3	1.00	
Carbon Tetrachloride	ND	0.73	1.00	
Chlorobenzene	ND	0.73	1.00	
Chloroethane	ND	1.5	1.00	
Chloroform	ND	0.73	1.00	
Chloromethane	ND	15	1.00	
2-Chlorotoluene	ND	0.73	1.00	
4-Chlorotoluene	ND	0.73	1.00	
Dibromochloromethane	ND	1.5	1.00	
1,2-Dibromo-3-Chloropropane	ND	3.7	1.00	
1,2-Dibromoethane	ND	0.73	1.00	
Dibromomethane	ND	0.73	1.00	
1,2-Dichlorobenzene	ND	0.73	1.00	
1,3-Dichlorobenzene	ND	0.73	1.00	
1,4-Dichlorobenzene	ND	0.73	1.00	
Dichlorodifluoromethane	ND	1.5	1.00	
1,1-Dichloroethane	ND	0.73	1.00	
1,2-Dichloroethane	ND	0.73	1.00	
1,1-Dichloroethene	ND	0.73	1.00	
c-1,2-Dichloroethene	ND	0.73	1.00	
t-1,2-Dichloroethene	ND	0.73	1.00	
1,2-Dichloropropane	ND	0.73	1.00	
1,3-Dichloropropane	ND	0.73	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	3.7	1.00	
1,1-Dichloropropene	ND	1.5	1.00	
c-1,3-Dichloropropene	ND	0.73	1.00	
t-1,3-Dichloropropene	ND	1.5	1.00	
Ethylbenzene	ND	0.73	1.00	
2-Hexanone	ND	15	1.00	
Isopropylbenzene	ND	0.73	1.00	
p-Isopropyltoluene	ND	0.73	1.00	
Methylene Chloride	ND	7.3	1.00	
4-Methyl-2-Pentanone	ND	15	1.00	
Naphthalene	ND	7.3	1.00	
n-Propylbenzene	ND	1.5	1.00	
Styrene	ND	0.73	1.00	
1,1,1,2-Tetrachloroethane	ND	0.73	1.00	
1,1,2,2-Tetrachloroethane	ND	1.5	1.00	
Tetrachloroethene	ND	0.73	1.00	
Toluene	ND	0.73	1.00	
1,2,3-Trichlorobenzene	ND	1.5	1.00	
1,2,4-Trichlorobenzene	ND	1.5	1.00	
1,1,1-Trichloroethane	ND	0.73	1.00	
1,1,2-Trichloroethane	ND	0.73	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	7.3	1.00	
Trichloroethene	ND	1.5	1.00	
Trichlorofluoromethane	ND	7.3	1.00	
1,2,3-Trichloropropane	ND	1.5	1.00	
1,2,4-Trimethylbenzene	ND	1.5	1.00	
1,3,5-Trimethylbenzene	ND	1.5	1.00	
Vinyl Acetate	ND	7.3	1.00	
Vinyl Chloride	ND	0.73	1.00	
p/m-Xylene	ND	1.5	1.00	
o-Xylene	ND	0.73	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	1.5	1.00	
Tert-Butyl Alcohol (TBA)	ND	15	1.00	
Diisopropyl Ether (DIPE)	ND	0.73	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	0.73	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	0.73	1.00	
Ethanol	ND	370	1.00	
Cyclohexanone	ND	37	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 51 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	101	80-120	
Dibromofluoromethane	101	79-133	
1,2-Dichloroethane-d4	111	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-025-28690**	**N/A**	**Solid**	**GC/MS Q**	**04/06/17**	**04/06/17 10:47**	**170406L004**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	50	1.00	
Acetone	ND	50	1.00	
Benzene	ND	1.0	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	2.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	20	1.00	
2-Butanone	ND	20	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	1.0	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	2.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	20	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	2.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	2.0	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	1.0	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.0	1.00	
1,1-Dichloropropene	ND	2.0	1.00	
c-1,3-Dichloropropene	ND	1.0	1.00	
t-1,3-Dichloropropene	ND	2.0	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	20	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	20	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	2.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	2.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	2.0	1.00	
1,2,4-Trichlorobenzene	ND	2.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
Trichloroethene	ND	2.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	2.0	1.00	
1,2,4-Trimethylbenzene	ND	2.0	1.00	
1,3,5-Trimethylbenzene	ND	2.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	1.0	1.00	
p/m-Xylene	ND	2.0	1.00	
o-Xylene	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.0	1.00	
Tert-Butyl Alcohol (TBA)	ND	20	1.00	
Diisopropyl Ether (DIPE)	ND	1.0	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1.00	
Ethanol	ND	500	1.00	
Cyclohexanone	ND	50	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 54 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	98	80-120	
Dibromofluoromethane	97	79-133	
1,2-Dichloroethane-d4	99	71-155	
Toluene-d8	98	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-025-28689**	**N/A**	**Solid**	**GC/MS LL**	**04/06/17**	**04/06/17 11:38**	**170406L006**

Parameter	Result	RL	DF	Qualifiers
2-Methyl-2-Butanol (TAA)	ND	50	1.00	
Acetone	ND	50	1.00	
Benzene	ND	1.0	1.00	
Bromobenzene	ND	1.0	1.00	
Bromochloromethane	ND	2.0	1.00	
Bromodichloromethane	ND	1.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	20	1.00	
2-Butanone	ND	20	1.00	
n-Butylbenzene	ND	1.0	1.00	
sec-Butylbenzene	ND	1.0	1.00	
tert-Butylbenzene	ND	1.0	1.00	
Carbon Disulfide	ND	10	1.00	
Carbon Tetrachloride	ND	1.0	1.00	
Chlorobenzene	ND	1.0	1.00	
Chloroethane	ND	2.0	1.00	
Chloroform	ND	1.0	1.00	
Chloromethane	ND	20	1.00	
2-Chlorotoluene	ND	1.0	1.00	
4-Chlorotoluene	ND	1.0	1.00	
Dibromochloromethane	ND	2.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	5.0	1.00	
1,2-Dibromoethane	ND	1.0	1.00	
Dibromomethane	ND	1.0	1.00	
1,2-Dichlorobenzene	ND	1.0	1.00	
1,3-Dichlorobenzene	ND	1.0	1.00	
1,4-Dichlorobenzene	ND	1.0	1.00	
Dichlorodifluoromethane	ND	2.0	1.00	
1,1-Dichloroethane	ND	1.0	1.00	
1,2-Dichloroethane	ND	1.0	1.00	
1,1-Dichloroethene	ND	1.0	1.00	
c-1,2-Dichloroethene	ND	1.0	1.00	
t-1,2-Dichloroethene	ND	1.0	1.00	
1,2-Dichloropropane	ND	1.0	1.00	
1,3-Dichloropropane	ND	1.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
2,2-Dichloropropane	ND	5.0	1.00	
1,1-Dichloropropene	ND	2.0	1.00	
c-1,3-Dichloropropene	ND	1.0	1.00	
t-1,3-Dichloropropene	ND	2.0	1.00	
Ethylbenzene	ND	1.0	1.00	
2-Hexanone	ND	20	1.00	
Isopropylbenzene	ND	1.0	1.00	
p-Isopropyltoluene	ND	1.0	1.00	
Methylene Chloride	ND	10	1.00	
4-Methyl-2-Pentanone	ND	20	1.00	
Naphthalene	ND	10	1.00	
n-Propylbenzene	ND	2.0	1.00	
Styrene	ND	1.0	1.00	
1,1,1,2-Tetrachloroethane	ND	1.0	1.00	
1,1,2,2-Tetrachloroethane	ND	2.0	1.00	
Tetrachloroethene	ND	1.0	1.00	
Toluene	ND	1.0	1.00	
1,2,3-Trichlorobenzene	ND	2.0	1.00	
1,2,4-Trichlorobenzene	ND	2.0	1.00	
1,1,1-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloroethane	ND	1.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	10	1.00	
Trichloroethene	ND	2.0	1.00	
Trichlorofluoromethane	ND	10	1.00	
1,2,3-Trichloropropane	ND	2.0	1.00	
1,2,4-Trimethylbenzene	ND	2.0	1.00	
1,3,5-Trimethylbenzene	ND	2.0	1.00	
Vinyl Acetate	ND	10	1.00	
Vinyl Chloride	ND	1.0	1.00	
p/m-Xylene	ND	2.0	1.00	
o-Xylene	ND	1.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	2.0	1.00	
Tert-Butyl Alcohol (TBA)	ND	20	1.00	
Diisopropyl Ether (DIPE)	ND	1.0	1.00	
Ethyl-t-Butyl Ether (ETBE)	ND	1.0	1.00	
Tert-Amyl-Methyl Ether (TAME)	ND	1.0	1.00	
Ethanol	ND	500	1.00	
Cyclohexanone	ND	50	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5035
	Method:	EPA 8260B
	Units:	ug/kg
Project: MacArthur Square / 60540359.02000		Page 57 of 57

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	95	80-120	
Dibromofluoromethane	102	79-133	
1,2-Dichloroethane-d4	106	71-155	
Toluene-d8	101	80-120	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - LCS/LCSD

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B

Project: MacArthur Square / 60540359.02000

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-025-28690	**LCS**	**Solid**	**GC/MS Q**	**04/06/17**	**04/06/17 09:12**	**170406L004**
095-01-025-28690	**LCSD**	**Solid**	**GC/MS Q**	**04/06/17**	**04/06/17 09:40**	**170406L004**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	50.00	47.05	94	48.27	97	80-120	73-127	3	0-20	
Carbon Tetrachloride	50.00	56.31	113	57.18	114	65-137	53-149	2	0-20	
Chlorobenzene	50.00	46.95	94	48.08	96	80-120	73-127	2	0-20	
1,2-Dibromoethane	50.00	46.98	94	49.08	98	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	50.00	46.09	92	47.14	94	80-120	73-127	2	0-20	
1,2-Dichloroethane	50.00	46.99	94	47.63	95	80-120	73-127	1	0-20	
1,1-Dichloroethene	50.00	52.01	104	52.26	105	68-128	58-138	0	0-20	
Ethylbenzene	50.00	46.44	93	47.75	95	80-120	73-127	3	0-20	
Toluene	50.00	46.57	93	47.94	96	80-120	73-127	3	0-20	
Trichloroethene	50.00	48.85	98	49.17	98	80-120	73-127	1	0-20	
Vinyl Chloride	50.00	42.02	84	41.53	83	67-127	57-137	1	0-20	
p/m-Xylene	100.0	90.92	91	93.56	94	75-125	67-133	3	0-25	
o-Xylene	50.00	46.20	92	47.33	95	75-125	67-133	2	0-25	
Methyl-t-Butyl Ether (MTBE)	50.00	46.14	92	47.34	95	70-124	61-133	3	0-20	
Tert-Butyl Alcohol (TBA)	250.0	233.1	93	248.3	99	73-121	65-129	6	0-20	
Diisopropyl Ether (DIPE)	50.00	47.57	95	48.26	97	69-129	59-139	1	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	47.24	94	47.90	96	70-124	61-133	1	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	45.74	91	47.18	94	74-122	66-130	3	0-20	
Ethanol	500.0	419.3	84	420.2	84	51-135	37-149	0	0-27	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5035
Method: EPA 8260B

Project: MacArthur Square / 60540359.02000

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-025-28689	**LCS**	**Solid**	**GC/MS LL**	**04/06/17**	**04/06/17 09:42**	**170406L006**
095-01-025-28689	**LCSD**	**Solid**	**GC/MS LL**	**04/06/17**	**04/06/17 10:11**	**170406L006**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	50.00	46.87	94	47.09	94	80-120	73-127	0	0-20	
Carbon Tetrachloride	50.00	50.32	101	50.81	102	65-137	53-149	1	0-20	
Chlorobenzene	50.00	48.10	96	47.79	96	80-120	73-127	1	0-20	
1,2-Dibromoethane	50.00	48.10	96	49.90	100	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	50.00	48.53	97	48.66	97	80-120	73-127	0	0-20	
1,2-Dichloroethane	50.00	47.50	95	48.82	98	80-120	73-127	3	0-20	
1,1-Dichloroethene	50.00	41.92	84	42.41	85	68-128	58-138	1	0-20	
Ethylbenzene	50.00	49.61	99	49.09	98	80-120	73-127	1	0-20	
Toluene	50.00	47.86	96	47.60	95	80-120	73-127	1	0-20	
Trichloroethene	50.00	47.94	96	48.03	96	80-120	73-127	0	0-20	
Vinyl Chloride	50.00	49.11	98	47.78	96	67-127	57-137	3	0-20	
p/m-Xylene	100.0	101.6	102	100.5	101	75-125	67-133	1	0-25	
o-Xylene	50.00	51.58	103	51.06	102	75-125	67-133	1	0-25	
Methyl-t-Butyl Ether (MTBE)	50.00	47.98	96	50.24	100	70-124	61-133	5	0-20	
Tert-Butyl Alcohol (TBA)	250.0	253.7	101	258.9	104	73-121	65-129	2	0-20	
Diisopropyl Ether (DIPE)	50.00	49.36	99	48.66	97	69-129	59-139	1	0-20	
Ethyl-t-Butyl Ether (ETBE)	50.00	49.56	99	51.02	102	70-124	61-133	3	0-20	
Tert-Amyl-Methyl Ether (TAME)	50.00	49.06	98	50.68	101	74-122	66-130	3	0-20	
Ethanol	500.0	472.9	95	467.0	93	51-135	37-149	1	0-27	

Total number of LCS compounds: 19
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 17-04-0324 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 8260B	EPA 5035	867	GC/MS LL	2
EPA 8260B	EPA 5035	1055	GC/MS Q	2

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Glossary of Terms and Qualifiers

Work Order: 17-04-0324 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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AECOM
999 Town and Country Road
Orange, CA 92868
(714) 567-2400
FAX (714) 567-2594

CHAIN OF CUSTODY RECORD

Date: 4/5/17

PA2017-107

17-04-0324

☐ Data Requested in GISKey Format

Lab Name: CalScience	AECOM Project/PO Number: 60540359.02000
Client Name/Project Name/Location: MacArthur Square	GeoTracker Information:
AECOM Project Manager: Cynthia Shen	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Michelle Baroldi	COELT Log Number:

	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	Requested Analyses: VOCs 8260 / 5035	HOLD	Special Instructions:
1	SV-11-5	4/5/17	0805	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
2	SV-11-10		0812	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
3	SV-11-15		0820	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
4	SV-8-5		0930	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
5	SV-8-10		0935	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
6	SV-8-15		0945	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
7	SV-9-5		1030	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
8	SV-9-10		~~1030~~ MB 1042	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
9	SV-9-15		1053	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
10	SV-9-15D	4/5/17	1115	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	3	X		

Relinquished by: Michelle Baroldi	Date: 4/5/17	Received By: ECL	Date/Time: 4/5/17 1758
Relinquished by: Cindy N	Date: 4/5/17	Received By: Dannyle FedEx	Date/Time: 4/5/17 19:00
Relinquished by:	Date:	Received By:	Date/Time:

Turnaround Time: (Check)

Same Day:	72 Hour:
24 Hour:	5 Day:
48 Hour:	Standard:

Lab Use Only
Cooler Temperature*: _____
*Record upon arrival

AECOM

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to AECOM at Dropoff

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AECOM
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Orange, CA 92868
(714) 567-2400
FAX (714) 567-2594

CHAIN OF CUSTODY RECORD

Date: 4 / 5 / 17

0324

PA2017-107

☐ Data Requested in GISKey Format

Lab Name: CalScience	AECOM Project/PO Number: 60540359
Client Name/Project Name/Location: MacArthur Square	SeaTracker Information:
AECOM Project Manager: Cynthia Shen	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Michelle Barold	COELT Log Number:

	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	Requested Analyses: Title 22 Metals 6010B/7471A	VOCs 8260B	TPHcc 8015M	HOLD	Special Instructions:
1	IDW	4/5/17	1500	Y (N)	(S) L G	Acetate SS. Brass (Jar) Encore ____ml Amb. Plas. Glass VOA	1	X	X	X		
2				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
3				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
4				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
5				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
6				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
7				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
8				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
9				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
#				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						

F3-90

Relinquished by: Michelle Barold	Date: 4/5/17	Received By: ECL	Date/Time: 4/5/17 1758
Relinquished by:	Date: 4/5/17	Received By:	Date/Time: 19:00
Relinquished by:	Date:	Received By:	Date/Time:

Turnaround Time: (Check)

Same Day:____	72 Hour:____
24 Hour:____	5 Day:____
48 Hour:____	Standard:____

Lab Use Only
Cooler Temperature*:_____
*Record upon arrival

AECOM

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to AECOM at Dropoff

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Orange, CA 92868
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FAX (714) 567-2594

CHAIN OF CUSTODY RECORD

Date: 4/5/17

(0324)

PA2017-107

☐ Data Requested in GISKey Format

Lab Name: CalScience	AECOM Project/PO Number: 60540359.02000
Client Name/Project Name/Location: MacArthur Square	GeoTracker Information:
AECOM Project Manager: Cynthia Shen	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Michelle Baroldi	COELT Log Number:

	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	Requested Analyses: VOCs 8260c/5035	HOLD	Special Instructions:
12	SV-10-5	4/5/17	1220	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terracore	4	X		
13	SV-10-10		1227	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terracore	4	X		
14	SV-10-15 FB-01		1235	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terracore	4	X		
15	SV-12-5		1330	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	4	X		
16	SV-12-10		1340	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	4	X		Reacted with preservative - bottled in H_2O
17	SV-12-15		1350	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	4	X		Reacted with preservative - bottled in H_2O
18	SV-12-5D	✓	1400	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	3	X		
8				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA				
9				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA				
#				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA				

Relinquished by: Michelle Baroldi	Date: 4/5/17	Received By: Cindy C CC	Date/Time: 4/5/17 1758
Relinquished by:	Date: 4/5/17	Received By: Danny C CC2	Date/Time: 4/5/17 1900
Relinquished by:	Date:	Received By:	Date/Time:

Turnaround Time: (Check)
Same Day:____ 72 Hour:____
24 Hour:____ 5 Day:____
48 Hour:____ Standard:____

Lab Use Only
Cooler Temperature*:____
*Record upon arrival

AECOM

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to AECOM at Dropoff

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PA2017-107

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WORK ORDER NUMBER: 17-04- 0324

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: AECOM

DATE: 04 / 5 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC3B (CF: 0.0°C); Temperature (w/o CF): 2.4 °C (w/ CF): 2.4 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 676

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1053

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☑ 8ozCGJ (10) ☐ 16ozCGJ ☑ Sleeve (7) ☐ EnCores® (____) ☑ TerraCores® (3) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 1053

Reviewed by: 659

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WORK ORDER NUMBER: 17-04- 0524

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: AECOM

DATE: 04 / 5 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC3B (CF: 0.0°C); Temperature (w/o CF): 2.3 °C (w/ CF): 2.3 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 676

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1053

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☑ Sleeve (9) ☐ EnCores® (____) ☑ TerraCores® (3) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: 1053

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: 659

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ATTACHMENT C

SOIL GAS SAMPLING LOGS AND ANALYTICAL LABORATORY REPORTS

PA2017-107

Soil Vapor Sampling Log

Job Number: 60540359
Site Name: ~~McA~~ MacArthur Square
~~Geologist/Engineer~~: David Fees
Field Crew: Jones Env

Date: 4/10/17
Weather: Clear, Cool

Probe Number	Bentonite Seal (Date & time)	Sample Depth (ft bgs)	Flow Rate (mL/min)	Purge Volumes	Leak Test Compound	Sample Collected (Date & time)	Initial P ("H2O)	Final P ("H2O)	Other Notes
SS-8-5	4/5/17	5	200	3	~~N-Pentane~~ Hexane, Heptane	~~1510~~ 0950 4/10/17	0.0	0.0	
SS8-15		15				~~1610~~ 0902 4/10/17	0.0	0.0	
SS9-5		5				~~1510~~ 0914 4/10/17	0.0	0.0	
SS-9-15		15				~~16~~ 0926 4/10	0.0	0.0	
SS-10-5		5				0840 4/10	0.0	0.0	
SS-10-15		15				~~0840~~ 0109 4/10	0.0	0.0	
SS-11-5		5				0923 4/10	0.0	0.0	
SS-11-15		15				0938 4/10	0.0	0.0	
SS-12-5		5				1001 4/10	0.0	0.0	
SS-12-15	↓	15	☆	↓	↘	1016 4/10	0.0	0.0	
SV-13-5	4/27/17	5	200	3	Pentane Heptane Hexane	0725 5/3	0.0	0.0	
SV-13-5-REP	4127117	5	↓	3	↓	0730 5/3	0.0	0.0	
SV-15-5	4127117	5	↓	3	↓	0801 5/3	0.0	0.0	

SV

AECOM

JONES ENVIRONMENTAL, INC.

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

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
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Project Name:	MacArthur Square
Project Address:	1701 Corinthian Way
	Newport Beach, CA

3 Purge Volumes	Purging Time
1510 cc	7.53 min.

Form Completed By: Cynthia Shen

Well Construction Inputs	
Depth of Probe (ft.)	5
Tubing Type	1/4'' Teflon
Boring Diameter (in.)	2.25
Sand Pack Height (ft.)	1
Dry Bentonite Height (ft.)	0.5

Purging Rate (cc/min)	200

Default Parameters	
Above Ground Tubing (ft.)	1
Sand Porosity	35%
Bentonite Porosity	50%

Former Soil Gas Advisory Calculations

Purge Number	Purge Volume	Purging Time
1	502 cc	2.51 min.
3	1510 cc	7.53 min.
7	3510 cc	17.6 min.
10	5020 cc	25.1 min.

Tubing Vol.	Sand Pack Vol.	Dry Bent. Vol.
32.6 cc	274 cc	195 cc

** Purging times greater than one minute are notated in fractions of a minute (e.g. 7.20 min. = 7 min. & 12 sec.)

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Project Name:	MacArthur Square
Project Address:	1701 Corinthian Way
	Newport Beach, CA

3 Purge Volumes	Purging Time
1670 cc	8.34 min.

Form Completed By: Cynthia Shen

Well Construction Inputs	
Depth of Probe (ft.)	15
Tubing Type	1/4'' Teflon
Boring Diameter (in.)	2.25
Sand Pack Height (ft.)	1
Dry Bentonite Height (ft.)	0.5

Purging Rate (cc/min)	200

Default Parameters	
Above Ground Tubing (ft.)	1
Sand Porosity	35%
Bentonite Porosity	50%

Former Soil Gas Advisory Calculations

Purge Number	Purge Volume	Purging Time
1	556 cc	2.78 min.
3	1670 cc	8.34 min.
7	3890 cc	19.5 min.
10	5560 cc	27.8 min.

Tubing Vol.	Sand Pack Vol.	Dry Bent. Vol.
86.9 cc	274 cc	195 cc

** Purging times greater than one minute are notated in fractions of a minute (e.g. 7.20 min. = 7 min. & 12 sec.)

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Project Name:	Albertsons LLC
Project Address:	4323, 4423, 4455 Arden Drive
	El Monte, CA

3 Purge Volumes	Purging Time
2200 cc	11.0 min.

Form Completed By: Cynthia Shen

Well Construction Inputs	
Depth of Probe (ft.)	5
Tubing Type	1/4'' Teflon
Boring Diameter (in.)	2.75
Sand Pack Height (ft.)	1
Dry Bentonite Height (ft.)	0.5

Purging Rate (cc/min)	200

Default Parameters	
Above Ground Tubing (ft.)	1
Sand Porosity	35%
Bentonite Porosity	50%

Former Soil Gas Advisory Calculations

Purge Number	Purge Volume	Purging Time
1	733 cc	3.67 min.
3	2200 cc	11.0 min.
7	5130 cc	25.7 min.
10	7330 cc	36.7 min.

Tubing Vol.	Sand Pack Vol.	Dry Bent. Vol.
32.6 cc	409 cc	292 cc

** Purging times greater than one minute are notated in fractions of a minute (e.g. 7.20 min. = 7 min. & 12 sec.)

PA2017-107

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LABORATORY RESULTS

Client:	AECOM	**Report date:**	4/10/2017
Client Address:	999 Town and Country Rd. Orange, CA	**JEL Ref. No.:**	F-0022
Attn:	Cynthia Shen	**Date Sampled:**	4/10/2017
		Date Received:	4/10/2017
Project Name:	MacArthur Square	**Date Analyzed:**	4/10/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

ANALYSES REQUESTED

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

Sampling – Soil Gas samples were collected in Tedlar Bags.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except when noted differently on the chain of custody record, using a glass gas-tight syringe. Purging was completed using a pump set at approximately 200 cc/min, except when noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Continuing Calibration Verification (CCV) and Continuing Calibration Verification Duplicate (CCVD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 6 hours of sampling.

Approval: Marshall Chaffee

Marshall Chaffee, MS
Organics Supervisor

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	AECOM	**Report Date:**	4/10/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:**	F-0022
Attn:	Cynthia Shen	**Date Sampled:**	4/10/2017
		Date Received:	4/10/2017
Project:	MacArthur Square	**Date Analyzed:**	4/10/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

Sample ID:	**SV-8-5'**	**SV-8-15'**	**SV-9-5'**	**SV-9-15'**	**SV-10-5'**		
Jones ID:	**F-0022-01**	**F-0022-02**	**F-0022-03**	**F-0022-04**	**F-0022-05**	**Reporting Limit**	**Units**
Analytes:							
Benzene	**0.048**	ND	ND	ND	**0.038**	0.0083	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.0083	µg/L
Bromoform	ND	ND	ND	ND	ND	0.0083	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.017	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.0083	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.0083	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.0083	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.0083	µg/L
Chloroform	ND	ND	ND	ND	ND	0.0083	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dibromoethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	0.017	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.017	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.017	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
Ethylbenzene	**0.040**	ND	ND	ND	**0.023**	0.0083	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

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

Sample ID:	**SV-8-5'**	**SV-8-15'**	**SV-9-5'**	**SV-9-15'**	**SV-10-5'**		
Jones ID:	**F-0022-01**	**F-0022-02**	**F-0022-03**	**F-0022-04**	**F-0022-05**	**Reporting Limit**	**Units**
Analytes:							
4-Ethyltoluene	**0.016**	ND	ND	ND	**0.010**	0.0083	µg/L
Freon 11	ND	ND	ND	ND	ND	0.0083	µg/L
Freon 12	ND	ND	ND	ND	ND	0.0083	µg/L
Freon 113	**0.019**	**0.024**	ND	**0.017**	ND	0.0083	µg/L
Hexachloro-1,3-butadiene	ND	ND	ND	ND	ND	0.017	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.0083	µg/L
4-Isopropyltoluene	**0.038**	ND	**0.013**	ND	**0.070**	0.0083	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.0083	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.017	µg/L
n-Propylbenzene	**0.011**	ND	ND	ND	ND	0.017	µg/L
Propylene	**0.021**	ND	ND	ND	**0.081**	0.017	µg/L
Styrene	ND	ND	ND	ND	ND	0.0083	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
Tetrachloroethene	**1.3***	**3.9***	**1.3***	**4.4***	**1.1**	0.0083	µg/L
Toluene	**0.220**	ND	**0.014**	ND	**0.11**	0.0083	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
Trichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
1,2,4-Trimethylbenzene	**0.059**	ND	**0.012**	ND	**0.043**	0.017	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	**0.015**	0.017	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.0083	µg/L
m,p-Xylene	**0.15**	ND	**0.014**	ND	**0.082**	0.0083	µg/L
o-Xylene	**0.042**	ND	ND	ND	**0.029**	0.0083	µg/L
MTBE	ND	ND	ND	ND	ND	0.0083	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.0083	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.0083	µg/L
tert-Amylmethylether	ND	ND	ND	ND	ND	0.0083	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.050	µg/L
Tracer:							
n-Pentane	ND	ND	ND	ND	ND	0.30	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.30	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.30	µg/L
Dilution Factor	1/6*	1/30*	1/6*	1/30*	1		
Surrogate Recovery:						**QC Limits**	
4-Bromofluorobenzene	93%	98%	99%	101%	97%	60 - 140	
	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas		

ND = Not Detected

* =Dilutions for these compound(s); first number for all others

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	AECOM	**Report Date:**	4/10/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:**	F-0022
Attn:	Cynthia Shen	**Date Sampled:**	4/10/2017
		Date Received:	4/10/2017
Project:	MacArthur Square	**Date Analyzed:**	4/10/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

Sample ID:	**SV-10-15'**	**SV-12-5'**	**SV-12-15'**	**SV-11-5'**	**SV-11-15'**		
Jones ID:	**F-0022-06**	**F-0022-07**	**F-0022-08**	**F-0022-09**	**F-0022-10**	**Reporting Limit**	**Units**
Analytes:							
Benzene	**0.012**	**0.075**	**0.13**	**0.056**	ND	0.0083	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.0083	µg/L
Bromoform	ND	ND	ND	ND	ND	0.0083	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.017	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.0083	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.0083	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.0083	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.0083	µg/L
Chloroform	ND	ND	ND	ND	ND	0.0083	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dibromoethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	0.017	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.017	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.017	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.0083	µg/L
Ethylbenzene	**0.016**	**0.082**	**0.042**	**0.060**	**0.010**	0.0083	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

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

Sample ID:	**SV-10-15'**	**SV-12-5'**	**SV-12-15'**	**SV-11-5'**	**SV-11-15'**		
Jones ID:	**F-0022-06**	**F-0022-07**	**F-0022-08**	**F-0022-09**	**F-0022-10**	**Reporting Limit**	**Units**
Analytes:							
4-Ethyltoluene	**0.010**	ND	ND	**0.025**	ND	0.0083	µg/L
Freon 11	ND	ND	ND	ND	ND	0.0083	µg/L
Freon 12	ND	ND	ND	ND	ND	0.0083	µg/L
Freon 113	ND	ND	ND	ND	ND	0.0083	µg/L
Hexachloro-1,3-butadiene	ND	ND	ND	ND	ND	0.017	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.0083	µg/L
4-Isopropyltoluene	**0.081**	**0.23**	**0.092**	**0.043**	**0.012**	0.0083	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.0083	µg/L
Naphthalene	ND	ND	ND	**0.021**	ND	0.017	µg/L
n-Propylbenzene	ND	**0.020**	ND	**0.016**	ND	0.017	µg/L
Propylene	**0.150**	**0.48**	**0.88**	**0.040**	ND	0.017	µg/L
Styrene	ND	ND	ND	ND	ND	0.0083	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
Tetrachloroethene	**4.4***	**0.034**	**0.029**	**1.2**	**4.4***	0.0083	µg/L
Toluene	**0.033**	**0.37**	**0.22**	**0.23**	**0.024**	0.0083	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.0083	µg/L
Trichloroethene	ND	ND	ND	ND	**0.020**	0.0083	µg/L
1,2,4-Trimethylbenzene	**0.039**	**0.13**	ND	**0.078**	**0.026**	0.017	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.017	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.0083	µg/L
m,p-Xylene	**0.051**	**0.27**	**0.14**	**0.21**	**0.038**	0.0083	µg/L
o-Xylene	**0.022**	**0.086**	**0.046**	**0.066**	**0.013**	0.0083	µg/L
MTBE	ND	ND	ND	ND	ND	0.0083	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.0083	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.0083	µg/L
tert-Amylmethylether	ND	ND	ND	ND	ND	0.0083	µg/L
tert-Butylalcohol	ND	ND	ND	ND	ND	0.050	µg/L
Tracer:							
n-Pentane	ND	ND	ND	ND	ND	0.30	µg/L
n-Hexane	ND	ND	ND	ND	ND	0.30	µg/L
n-Heptane	ND	ND	ND	ND	ND	0.30	µg/L
Dilution Factor	1/30*	1	1	1	1/30*		
Surrogate Recovery:						**QC Limits**	
4-Bromofluorobenzene	98%	94%	94%	97%	101%	60 - 140	
	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas		

ND = Not Detected

* =Dilutions for these compound(s); first number for all others

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	AECOM	**Report Date:**	4/10/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:**	F-0022
Attn:	Cynthia Shen	**Date Sampled:**	4/10/2017
		Date Received:	4/10/2017
Project:	MacArthur Square	**Date Analyzed:**	4/10/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

Sample ID:	**SV-11-15'-DUP**	**Material Blank**		
Jones ID:	**F-0022-11**	**F-0022-12**	**Reporting Limit**	**Units**
Analytes:				
Benzene	ND	ND	0.0083	µg/L
Bromodichloromethane	ND	ND	0.0083	µg/L
Bromoform	ND	ND	0.0083	µg/L
n-Butylbenzene	ND	ND	0.017	µg/L
sec-Butylbenzene	ND	ND	0.0083	µg/L
tert-Butylbenzene	ND	ND	0.0083	µg/L
Carbon tetrachloride	ND	ND	0.0083	µg/L
Chlorobenzene	ND	ND	0.0083	µg/L
Chloroform	ND	ND	0.0083	µg/L
Dibromochloromethane	ND	ND	0.0083	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	0.0083	µg/L
1,2-Dibromoethane	ND	ND	0.0083	µg/L
1,2-Dichlorobenzene	ND	ND	0.017	µg/L
1,3-Dichlorobenzene	ND	ND	0.017	µg/L
1,4-Dichlorobenzene	ND	ND	0.017	µg/L
1,1-Dichloroethane	ND	ND	0.0083	µg/L
1,2-Dichloroethane	ND	ND	0.0083	µg/L
1,1-Dichloroethene	ND	ND	0.0083	µg/L
cis-1,2-Dichloroethene	ND	ND	0.0083	µg/L
trans-1,2-Dichloroethene	ND	ND	0.0083	µg/L
Ethylbenzene	**0.010**	ND	0.0083	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

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

Sample ID:	SV-11-15'-DUP	Material Blank		
Jones ID:	**F-0022-11**	**F-0022-12**	**Reporting Limit**	**Units**
Analytes:				
4-Ethyltoluene	ND	ND	0.0083	µg/L
Freon 11	ND	ND	0.0083	µg/L
Freon 12	ND	ND	0.0083	µg/L
Freon 113	ND	ND	0.0083	µg/L
Hexachloro-1,3-butadiene	ND	ND	0.017	µg/L
Isopropylbenzene	ND	ND	0.0083	µg/L
4-Isopropyltoluene	**0.012**	ND	0.0083	µg/L
Methylene chloride	ND	ND	0.0083	µg/L
Naphthalene	ND	ND	0.017	µg/L
n-Propylbenzene	ND	ND	0.017	µg/L
Propylene	ND	ND	0.017	µg/L
Styrene	ND	ND	0.0083	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	0.0083	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	0.0083	µg/L
Tetrachloroethene	**4.4***	ND	0.0083	µg/L
Toluene	**0.024**	ND	0.0083	µg/L
1,1,1-Trichloroethane	ND	ND	0.0083	µg/L
1,1,2-Trichloroethane	ND	ND	0.0083	µg/L
Trichloroethene	**0.019**	ND	0.0083	µg/L
1,2,4-Trimethylbenzene	**0.025**	ND	0.017	µg/L
1,3,5-Trimethylbenzene	ND	ND	0.017	µg/L
Vinyl chloride	ND	ND	0.008	µg/L
m,p-Xylene	**0.038**	ND	0.0083	µg/L
o-Xylene	**0.013**	ND	0.0083	µg/L
MTBE	ND	ND	0.0083	µg/L
Ethyl-tert-butylether	ND	ND	0.0083	µg/L
Di-isopropylether	ND	ND	0.0083	µg/L
tert-Amylmethylether	ND	ND	0.0083	µg/L
tert-Butylalcohol	ND	ND	0.050	µg/L
Tracer:				
n-Pentane	ND	ND	0.30	µg/L
n-Hexane	ND	ND	0.30	µg/L
n-Heptane	ND	ND	0.30	µg/L
Dilution Factor	1/30*	1		
Surrogate Recovery:			**QC Limits**	
4-Bromofluorobenzene	103%	87%	60 - 140	
	F-041017-CHECKS-Soil Gas	F-041017-CHECKS-Soil Gas		

ND = Not Detected

* =Dilutions for these compound(s); first number for all others

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	AECOM	**Report Date:**	4/10/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:**	F-0022
Attn:	Cynthia Shen	**Date Sampled:**	4/10/2017
		Date Received:	4/10/2017
Project:	MacArthur Square	**Date Analyzed:**	4/10/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

Sample ID:	**METHOD BLANK**		
Jones ID:	**041017-F1MB1**	**Reporting Limit**	**Units**
Analytes:			
Benzene	ND	0.0083	µg/L
Bromodichloromethane	ND	0.0083	µg/L
Bromoform	ND	0.0083	µg/L
n-Butylbenzene	ND	0.017	µg/L
sec-Butylbenzene	ND	0.0083	µg/L
tert-Butylbenzene	ND	0.0083	µg/L
Carbon tetrachloride	ND	0.0083	µg/L
Chlorobenzene	ND	0.0083	µg/L
Chloroform	ND	0.0083	µg/L
Dibromochloromethane	ND	0.0083	µg/L
1,2-Dibromo-3-chloropropane	ND	0.0083	µg/L
1,2-Dibromoethane	ND	0.0083	µg/L
1,2-Dichlorobenzene	ND	0.017	µg/L
1,3-Dichlorobenzene	ND	0.017	µg/L
1,4-Dichlorobenzene	ND	0.017	µg/L
1,1-Dichloroethane	ND	0.0083	µg/L
1,2-Dichloroethane	ND	0.0083	µg/L
1,1-Dichloroethene	ND	0.0083	µg/L
cis-1,2-Dichloroethene	ND	0.0083	µg/L
trans-1,2-Dichloroethene	ND	0.0083	µg/L
Ethylbenzene	ND	0.0083	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

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

Sample ID:	**METHOD BLANK**		
Jones ID:	**041017-F1MB1**	**Reporting Limit**	**Units**
Analytes:			
4-Ethyltoluene	ND	0.0083	µg/L
Freon 11	ND	0.0083	µg/L
Freon 12	ND	0.0083	µg/L
Freon 113	ND	0.0083	µg/L
Hexachloro-1,3-butadiene	ND	0.017	µg/L
Isopropylbenzene	ND	0.0083	µg/L
4-Isopropyltoluene	ND	0.0083	µg/L
Methylene chloride	ND	0.0083	µg/L
Naphthalene	ND	0.017	µg/L
n-Propylbenzene	ND	0.017	µg/L
Propylene	ND	0.017	µg/L
Styrene	ND	0.0083	µg/L
1,1,1,2-Tetrachloroethane	ND	0.0083	µg/L
1,1,2,2-Tetrachloroethane	ND	0.0083	µg/L
Tetrachloroethene	ND	0.0083	µg/L
Toluene	ND	0.0083	µg/L
1,1,1-Trichloroethane	ND	0.0083	µg/L
1,1,2-Trichloroethane	ND	0.0083	µg/L
Trichloroethene	ND	0.0083	µg/L
1,2,4-Trimethylbenzene	ND	0.017	µg/L
1,3,5-Trimethylbenzene	ND	0.017	µg/L
Vinyl chloride	ND	0.0083	µg/L
m,p-Xylene	ND	0.0083	µg/L
o-Xylene	ND	0.0083	µg/L
MTBE	ND	0.0083	µg/L
Ethyl-tert-butylether	ND	0.0083	µg/L
Di-isopropylether	ND	0.0083	µg/L
tert-Amylmethylether	ND	0.0083	µg/L
tert-Butylalcohol	ND	0.050	µg/L
Tracer:			
n-Pentane	ND	0.30	µg/L
n-Hexane	ND	0.30	µg/L
n-Heptane	ND	0.30	µg/L
Dilution Factor	1		
Surrogate Recovery:		**QC Limits**	
4-Bromofluorobenzene	78%	60 - 140	
	F-041017-CHECKS-Soil Gas		

ND = Not Detected

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JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	AECOM	**Report Date:**	4/10/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:** **Client Ref. No.:**	F-0022
Attn:	Cynthia Shen	**Date Sampled:**	4/10/2017
		Date Received:	4/10/2017
Project:	MacArthur Square	**Date Analyzed:**	4/10/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

GC#: F-041017-CHECKS-Soil Gas

Jones ID:	**041017-F1CCV1**	**041017-F1CCVD1**		
Parameter	CCV Recovery (%)	CCV-Dup Recovery (%)	RPD	Acceptability Range (%)
Vinyl chloride	100%	98%	1.4%	60-140
1,1-Dichloroethene	99%	102%	3.3%	60-140
cis-1,2-Dichloroethene	103%	100%	2.3%	70-130
1,1,1-Trichloroethane	96%	98%	1.6%	70-130
Benzene	98%	98%	0.5%	70-130
Trichloroethene	96%	93%	3.1%	70-130
Toluene	89%	88%	0.5%	70-130
Tetrachloroethene	87%	87%	0.2%	70-130
Chlorobenzene	88%	87%	0.5%	70-130
Ethylbenzene	84%	85%	0.8%	70-130
1,2,4-Trimethylbenzene	83%	84%	1.1%	70-130
Surrogate Recovery:				
4-Bromofluorobenzene	100%	101%		60 - 140

CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

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Soil-Gas Chain of Custody Record

Client: AECOM
Date: 4/10/17
Project Name: MacArthur Square
Client Project #:
Project Address: 1701 Corinthian Way
Newport Beach, CA 92660
Email:
Phone:
Report To: Cynthia Shen
Sampler: Chris Jones

Purge Number: ☐ 1P ☑ 3P ☐ 7P ☐ 10P
Shut-In Test: (Y) / N
Flow Rate: 200 cc/min
If different than above, see Notes.

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

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

Tracer:
- ☑ n-pentane
- ☑ n-hexane
- ☑ n-heptane
- ☐ Helium
- ☐ 1,1-DFA
- ☐ ____

Reporting Limits Requested: ☐ Commercial ☑ Residential
Units: mg/L

LAB USE ONLY
Jones Project #: F-0022
Page 1 of 2
Sample Condition as Recieved: Sealed ☒ yes ☐ no
Sample Container: Tedlar Bag
If different than above, see Notes.

4/10/17 (w) Sample ID	Purge Number	Purge Volume (mL)	Date	Pump Used	Magnehelic	Laboratory Sample ID	Canister ID	Canister Start Pressure	Canister End Pressure	Sampling Start Time	Sampling End Time	Analysis Requested: Sample Matrix: Soil Gas (SG), Air (A)	EPA 8260B	EPA TO-15	Magnehelic Vacuum (In/H_2O)	Number of Containers	Notes & Special Instructions
~~SV-8-5'~~	3	1510	4/10/17	Angela 1	<2"	F-0022-01	N/A	N/A	N/A	N/A	0750	SG		X		1	
SV-8-15'	3	1670	4/10/17	Angela 1	<2"	F-0022-02	N/A	N/A	N/A		0802			X		1	
SV-9-5'	3	1510	4/10/17	Angela 1	<5'	F-0022-03	N/A	N/A	N/A		0814			X		1	
SV-9-15'	3	1670	4/10/17	Angela 1	<2"	F-0022-04	N/A	N/A	N/A		0826			X		1	
SV-10-5'	3	1510	4/10/17	Angela 1	<2"	F-0022-05	N/A	N/A	N/A	N/A	0840			X		1	
SV-10-15'	3	1670	4/10/17	Angela 1	<2"	F-0022-06	N/A	N/A	N/A	N/A	0908			X		1	
SV-12-5'	3	1510	4/10/17	Angela 1	4"	F-0022-07	N/A	N/A	N/A	N/A	0923			X		1	
SV-12-15'	3	1670	4/10/17	Angela 1	18"	F-0022-08	N/A	N/A	N/A	N/A	0938			X		1	
SV-11-5'	3	1510	4/10/17	Angela 1	<2"	F-0022-09	N/A	N/A	N/A	N/A	1001			X		1	
SV-11-15'	3	1670	4/10/17	Angela 1	<2"	F-0022-10	N/A	N/A	N/A	N/A	1016			X		1	

Relinquished By (Signature)	Printed Name	Received By (Signature)	Printed Name		
	David Fogg		Marshall A Clutter	10	Total Number of Containers
Company: AECOM	Date: 4/10/17 Time: 1500	Company: JEL	Date: 4/10/17 Time: 1501		
Relinquished By (Signature)	Printed Name	Received By Laboratory (Signature)	Printed Name		
Company	Date: Time:	Company	Date: Time:		

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

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Soil-Gas Chain of Custody Record

Client: AECOM
Project Name: MacArthur Square
Project Address: 1701 Corinthian Way, Newport Beach, CA 92660
Email:
Phone:
Report To: Cynthia Shen
Sampler: Chris Jones

Date: 4/10/17
Client Project #:

Purge Number: ☐ 1P ☑ 3P ☐ 7P ☐ 10P
Shut-In Test: (Y) N
Flow Rate: 200 cc/min
If different than above, see Notes.

Report Options
EDD ____
EDF* - 10% Surcharge ____
*Global ID ____

LAB USE ONLY
Jones Project # F-0022
Page 2 of 2
Sample Condition as Recieved: Sealed ☑ yes ☐ no
Sample Container: Tedlar Bag
If different than above, see Notes.

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

Tracer:
- ☑ n-pentane
- ☑ n-hexane
- ☑ n-heptane
- ☐ Helium
- ☐ 1,1-DFA
- ☐ ____

Reporting Limits Requested: ☐ Commercial ☑ Residential

Units: µg/L

Analysis Requested

Sample ID	Purge Number	Purge Volume (mL)	Date	Pump Used	Magnehelic	Laboratory Sample ID	Cannister ID	Cannister Start Pressure	Cannister End Pressure	Sampling Start Time	Sampling End Time	Sample Matrix: Soil Gas (SG), Air (A)	EPA 8260B	EPA TO-15	Magnehelic Vacuum (in/H_2O)	Number of Containers	Notes & Special Instructions
SV-1H15 DUP	3	1670	4/6/17	Angela 1	<2"	F-0022-11	N/A	N/A	N/A	N/A	1016	SG		X		1	
Material Blank	N/A	N/A	4/6/17	N/A	N/A	F-0022-12	N/A	N/A	N/A			A		X		N/A	Pulled 100 cc thru tubing for analysis

Relinquished By (Signature): [signature]	Printed Name: David Foss	Received By (Signature): [signature]	Printed Name: Marshall F. Clarke
Company: AECOM	Date: 4/10/17 Time: 1500	Company: JEL	Date: 4/10/17 Time: 1501
Relinquished By (Signature):	Printed Name:	Received By Laboratory (Signature):	Printed Name:
Company:	Date: Time:	Company:	Date: Time:

Total Number of Containers: 1

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

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LABORATORY RESULTS

Client:	AECOM	**Report date:**	5/3/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:** **Client Ref. No.:**	F-0026 60540359. 02000
Attn:	Cynthia Shen	**Date Sampled:**	5/3/2017
		Date Received:	5/3/2017
Project Name:	MacArthur Square	**Date Analyzed:**	5/3/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	5/3/2017

ANALYSES REQUESTED

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

Sampling – Soil Gas samples were collected in Tedlar Bags.

A tracer gas mixture of n-pentane, n-hexane, and n-heptane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-pentane, n-hexane, or n-heptane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min, except when noted differently on the chain of custody record, using a glass gas-tight syringe. Purging was completed using a pump set at approximately 200 cc/min, except when noted differently on the chain of custody record. A default of 3 purge volumes was used as recommended by July 2015 DTSC/RWQCB guidance documents.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, a Continuing Calibration Verification (CCV) and Continuing Calibration Verification Duplicate (CCVD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 6 hours of sampling.

Approval: Marshall Chaffee

Marshall Chaffee, MS
Organics Supervisor

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	AECOM	**Report Date:**	5/3/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:** **Client Ref. No.:**	F-0026 60540359. 02000
Attn:	Cynthia Shen	**Date Sampled:**	5/3/2017
		Date Received:	5/3/2017
Project:	MacArthur Square	**Date Analyzed:**	5/3/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

Sample ID:	**SV-13-5**	**SV-13-5 REP**	**SV-15-5**	**MATERIAL BLANK**		
Jones ID:	**F-0026-01**	**F-0026-02**	**F-0026-03**	**F-0026-04**	**Reporting Limit**	**Units**
Acrolein	ND	ND	ND	ND	0.0083	µg/L
Benzene	ND	ND	**0.056**	ND	0.0083	µg/L
Bromodichloromethane	ND	ND	ND	ND	0.0083	µg/L
Bromoform	ND	ND	ND	ND	0.0083	µg/L
n-Butylbenzene	ND	ND	ND	ND	0.017	µg/L
sec-Butylbenzene	ND	ND	ND	ND	0.0083	µg/L
tert-Butylbenzene	ND	ND	ND	ND	0.0083	µg/L
Carbon tetrachloride	ND	ND	ND	ND	0.0083	µg/L
Chlorobenzene	ND	ND	ND	ND	0.0083	µg/L
Chloroform	ND	ND	ND	ND	0.0083	µg/L
Dibromochloromethane	ND	ND	ND	ND	0.0083	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	0.0083	µg/L
1,2-Dibromoethane	ND	ND	ND	ND	0.0083	µg/L
1,2-Dichlorobenzene	ND	ND	ND	ND	0.017	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	0.017	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	0.017	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	0.0083	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	0.0083	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	0.0083	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.0083	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.0083	µg/L
Ethylbenzene	ND	ND	**0.017**	ND	0.017	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

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

Sample ID:	**SV-13-5**	**SV-13-5 REP**	**SV-15-5**	**MATERIAL BLANK**		
Jones ID:	**F-0026-01**	**F-0026-02**	**F-0026-03**	**F-0026-04**	**Reporting Limit**	**Units**
Analytes:						
4-Ethyltoluene	ND	ND	ND	ND	0.025	µg/L
Freon 11	ND	ND	ND	ND	0.0083	µg/L
Freon 12	ND	ND	ND	ND	0.0083	µg/L
Freon 113	ND	ND	ND	ND	0.0083	µg/L
Hexachloro-1,3-butadiene	ND	ND	ND	ND	0.017	µg/L
Isopropyl alcohol	ND	ND	ND	ND	0.025	µg/L
Isopropylbenzene	ND	ND	ND	ND	0.0083	µg/L
4-Isopropyltoluene	ND	ND	**0.088**	ND	0.025	µg/L
Methylene chloride	ND	ND	ND	ND	0.0083	µg/L
Naphthalene	ND	ND	ND	ND	0.017	µg/L
n-Propylbenzene	ND	ND	ND	ND	0.025	µg/L
Propylene	ND	ND	ND	ND	0.017	µg/L
Styrene	ND	ND	ND	ND	0.0083	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	0.0083	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0.0083	µg/L
Tetrachloroethene	**0.11**	**0.12**	**0.028**	ND	0.0083	µg/L
Toluene	ND	ND	**0.064**	ND	0.0083	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	0.0083	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	0.0083	µg/L
Trichloroethene	ND	ND	ND	ND	0.0083	µg/L
1,2,4-Trimethylbenzene	ND	ND	**0.030**	ND	0.017	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	0.017	µg/L
Vinyl chloride	ND	ND	ND	ND	0.0083	µg/L
m,p-Xylene	ND	ND	**0.042**	ND	0.0083	µg/L
o-Xylene	ND	ND	ND	ND	0.017	µg/L
MTBE	ND	ND	ND	ND	0.0083	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	0.0083	µg/L
Di-isopropylether	ND	ND	ND	ND	0.0083	µg/L
tert-Amylmethylether	ND	ND	ND	ND	0.0083	µg/L
tert-Butylalcohol	ND	ND	ND	ND	0.050	µg/L
Tracer:						
n-Pentane	ND	ND	ND	ND	0.30	µg/L
n-Hexane	ND	ND	ND	ND	0.30	µg/L
n-Heptane	ND	ND	ND	ND	0.30	µg/L
Dilution Factor	1	1	1	1		
Surrogate Recovery:					**QC Limits**	
4-Bromofluorobenzene	105%	116%	104%	72%	60 - 140	
	F-050317-CHECKS-SoilGas2	F-050317-CHECKS-SoilGas2	F-050317-CHECKS-SoilGas2	F-050317-CHECKS-SoilGas2		

ND = Not Detected

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JONES ENVIRONMENTAL LABORATORY RESULTS

Client:	AECOM	**Report Date:**	5/3/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:** **Client Ref. No.:**	F-0026 60540359. 02000
Attn:	Cynthia Shen	**Date Sampled:**	5/3/2017
		Date Received:	5/3/2017
Project:	MacArthur Square	**Date Analyzed:**	5/3/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

Sample ID:	**METHOD BLANK**	**METHOD BLANK**		
Jones ID:	**050317-F1MB1**	**050317-F1MB2**	**Reporting Limit**	**Units**
Acrolein	ND	ND	0.0083	µg/L
Benzene	ND	ND	0.0083	µg/L
Bromodichloromethane	ND	ND	0.0083	µg/L
Bromoform	ND	ND	0.0083	µg/L
n-Butylbenzene	ND	ND	0.017	µg/L
sec-Butylbenzene	ND	ND	0.0083	µg/L
tert-Butylbenzene	ND	ND	0.0083	µg/L
Carbon tetrachloride	ND	ND	0.0083	µg/L
Chlorobenzene	ND	ND	0.0083	µg/L
Chloroform	ND	ND	0.0083	µg/L
Dibromochloromethane	ND	ND	0.0083	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	0.0083	µg/L
1,2-Dibromoethane	ND	ND	0.0083	µg/L
1,2-Dichlorobenzene	ND	ND	0.017	µg/L
1,3-Dichlorobenzene	ND	ND	0.017	µg/L
1,4-Dichlorobenzene	ND	ND	0.017	µg/L
1,1-Dichloroethane	ND	ND	0.0083	µg/L
1,2-Dichloroethane	ND	ND	0.0083	µg/L
1,1-Dichloroethene	ND	ND	0.0083	µg/L
cis-1,2-Dichloroethene	ND	ND	0.0083	µg/L
trans-1,2-Dichloroethene	ND	ND	0.0083	µg/L
Ethylbenzene	ND	ND	0.017	µg/L

JONES ENVIRONMENTAL LABORATORY RESULTS

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

Sample ID:	METHOD BLANK	METHOD BLANK		
Jones ID:	**050317-F1MB1**	**050317-F1MB2**	**Reporting Limit**	**Units**
Analytes:				
4-Ethyltoluene	ND	ND	0.025	µg/L
Freon 11	ND	ND	0.0083	µg/L
Freon 12	ND	ND	0.0083	µg/L
Freon 113	ND	ND	0.0083	µg/L
Hexachloro-1,3-butadiene	ND	ND	0.017	µg/L
Isopropyl alcohol	ND	ND	0.025	µg/L
Isopropylbenzene	ND	ND	0.0083	µg/L
4-Isopropyltoluene	ND	ND	0.025	µg/L
Methylene chloride	ND	ND	0.0083	µg/L
Naphthalene	ND	ND	0.017	µg/L
n-Propylbenzene	ND	ND	0.025	µg/L
Propylene	ND	ND	0.017	µg/L
Styrene	ND	ND	0.0083	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	0.0083	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	0.0083	µg/L
Tetrachloroethene	ND	ND	0.0083	µg/L
Toluene	ND	ND	0.0083	µg/L
1,1,1-Trichloroethane	ND	ND	0.0083	µg/L
1,1,2-Trichloroethane	ND	ND	0.0083	µg/L
Trichloroethene	ND	ND	0.0083	µg/L
1,2,4-Trimethylbenzene	ND	ND	0.017	µg/L
1,3,5-Trimethylbenzene	ND	ND	0.017	µg/L
Vinyl chloride	ND	ND	0.0083	µg/L
m,p-Xylene	ND	ND	0.0083	µg/L
o-Xylene	ND	ND	0.017	µg/L
MTBE	ND	ND	0.0083	µg/L
Ethyl-tert-butylether	ND	ND	0.0083	µg/L
Di-isopropylether	ND	ND	0.0083	µg/L
tert-Amylmethylether	ND	ND	0.0083	µg/L
tert-Butylalcohol	ND	ND	0.050	µg/L
Tracer:				
n-Pentane	ND	ND	0.30	µg/L
n-Hexane	ND	ND	0.30	µg/L
n-Heptane	ND	ND	0.30	µg/L
Dilution Factor	1	1		
Surrogate Recovery:			**QC Limits**	
4-Bromofluorobenzene	74%	72%	60 - 140	
	F-050317-CHECKS-SoilGas2	F-050317-CHECKS-SoilGas2		

ND = Not Detected

JONES ENVIRONMENTAL, INC.
714-449-9937
562-646-1611
805-399-0060
11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

JONES ENVIRONMENTAL QUALITY CONTROL INFORMATION

Client:	AECOM	**Report Date:**	5/3/2017
Client Address:	999 Town and Country Rd. Orange, CA	**Jones Ref. No.:** **Client Ref. No.:**	F-0026 60540359. 02000
Attn:	Cynthia Shen	**Date Sampled:** **Date Received:**	5/3/2017 5/3/2017
Project:	MacArthur Square	**Date Analyzed:**	5/3/2017
Project Address:	1701 Corinthian Way Newport Beach, CA 92660	**Physical State:**	Soil Gas

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

GC#: F-050317-CHECKS-SoilGas2

Jones ID:	**050317-F1CCV1**	**050317-F1CCV2**		
Parameter	CCV Recovery (%)	CCV-Dup Recovery (%)	RPD	Acceptability Range (%)
Vinyl chloride	132%	132%	0.0%	60-140
1,1-Dichloroethene	112%	112%	0.0%	60-140
cis-1,2-Dichloroethene	103%	108%	4.8%	70-130
1,1,1-Trichloroethane	113%	111%	1.4%	70-130
Benzene	100%	104%	3.4%	70-130
Trichloroethene	97%	100%	3.4%	70-130
Toluene	83%	83%	0.5%	70-130
Tetrachloroethene	83%	87%	3.9%	70-130
Chlorobenzene	90%	94%	4.4%	70-130
Ethylbenzene	85%	86%	1.3%	70-130
1,2,4-Trimethylbenzene	114%	110%	4.1%	70-130
Surrogate Recovery:				
4-Bromofluorobenzene	93%	100%		60 - 140

CCV = Continuing Calibration Verification
RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

PA2017-107

JONES ENVIRONMENTAL, INC.

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

Soil-Gas Chain of Custody Record

Client: AECOM
Date: 5-3-17
Project Name: 1701 Corinthian Way
Client Project #:
Project Address: 1701 Corinthian Way, Newport Beach, CA
Email:
Phone:
Report To: Cynthia Shen
Sampler: AMO

Purge Number: ☐ 1P ☒ 3P ☐ 7P ☐ 10P
Shut-In Test: ☒ Y ☐ N
Flow Rate: ~200cc/min
If different than above, see Notes.

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

Turn Around Requested:
- ☐ Immediate Attention
- ☐ Rush 24 Hours
- ☐ Rush 48 Hours
- ☐ Rush 72 Hours
- ☐ Normal
- ☒ Mobile Lab

Tracer:
- ☐ n-pentane
- ☐ n-hexane
- ☐ n-heptane
- ☐ Helium
- ☐ 1,1-DFA
- ☐ ____

Reporting Limits Requested: ☐ Commercial ☒ Residential
Units: ug/L

LAB USE ONLY
Jones Project #: F-0026
Page: 1 of 1
Sample Condition as Recieved: Sealed ☐ yes ☐ no
Sample Container: ~~glass~~ SUP tedlar
If different than above, see Notes.

Sample ID	Purge Number	Purge Volume (mL)	Date	Pump Used	Magnehelic	Laboratory Sample ID	Canister ID	Canister Start Pressure	Canister End Pressure	Sampling Start Time	Sampling End Time	Analysis Requested: Sample Matrix: Soil Gas (SG), Air (A)	EPA 8260B	EPA TO-15	Magnehelic Vacuum (In/H_2O)	Number of Containers	Notes & Special Instructions
SV-13-5	3	2200	5/3	A.1	M100.105	F-0026-01	n/a	n/a	n/a	n/a	0735	SG	X	X	20	1	
SV-13-5 REP	3	2200	5/3	A.1	M100.105	F-0026-02	n/a	n/a	n/a	n/a	0739	SG	X		20	1	
SV-15-5	3	2200	5/3	A.2	M100.002	F-0026-03	n/a	n/a	n/a	n/a	0801	SG	X		10	1	
SV-14-5	—	—	5/3	—	—	F-0026-05	n/a	n/a	n/a	n/a	—	—	—	+	100	—	NO FLOW
Material Blank	—	—	5/3	—	—	F-0026-04	n/a	n/a	n/a	n/a	0856	SG	X		—	1	

Relinquished By (Signature): Rajan Bansal
Printed Name: Rajani Bansal
Company: AECOM
Date: 5/3/17
Time: 0930

Received By (Signature): Annalise O Toole
Printed Name: Annalise O Toole
Company: Jones Environmental
Date: 5-3-17
Time: 0930

Relinquished By (Signature):
Printed Name:
Company:
Date:
Time:

Received By Laboratory (Signature):
Printed Name:
Company:
Date:
Time:

4 Total Number of Containers

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

ATTACHMENT D

IDW ANALYTICAL LABORATORY REPORT

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Supplemental Report 1

WORK ORDER NUMBER: 17-04-0324

The difference is service

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: AECOM Environment

Client Project Name: MacArthur Square / 60540359.02000

Attention: Cynthia Shen
999 Town and Country Road
4th Floor
Orange, CA 92868-4713

Vikas Patel

Approved for release on 04/13/2017 by:
Vikas Patel
Project Manager

ResultLink

Email your PM

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Contents

Client Project Name: MacArthur Square / 60540359.02000
Work Order Number: 17-04-0324

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Work Order Narrative

Work Order: 17-04-0324 Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 04/05/17. They were assigned to Work Order 17-04-0324.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

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QC Association Summary

Work Order: 17-04-0324 Page 1 of 1

Client Sample ID	Method Name	Type	Ext Name	Instrument	MS/MSD/SDP	LCS/LCSD
IDW	EPA 6010B/7471A CAC Title 22 Metals		EPA 3050B	ICP 7300	170407S02	170407L02
IDW	EPA 7471A Mercury		EPA 7471A Total	Mercury 08	170411S01	170411L01
IDW	EPA 8015B (M) C6-C44		EPA 3550B	GC 45	170406S07	170406B07
IDW	EPA 8260B Volatile Organics		EPA 5030C	GC/MS T	170406S005	170406L016

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Detections Summary

Client:	AECOM Environment	Work Order:	17-04-0324
	999 Town and Country Road, 4th Floor	Project Name:	MacArthur Square / 60540359.02000
	Orange, CA 92868-4713	Received:	04/05/17
Attn:	Cynthia Shen		Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
IDW (17-04-0324-11)						
Arsenic	3.00		0.754	mg/kg	EPA 6010B	EPA 3050B
Barium	74.0		0.503	mg/kg	EPA 6010B	EPA 3050B
Beryllium	0.401		0.251	mg/kg	EPA 6010B	EPA 3050B
Chromium	14.1		0.251	mg/kg	EPA 6010B	EPA 3050B
Cobalt	7.32		0.251	mg/kg	EPA 6010B	EPA 3050B
Copper	10.2		0.503	mg/kg	EPA 6010B	EPA 3050B
Lead	4.58		0.503	mg/kg	EPA 6010B	EPA 3050B
Molybdenum	8.44		0.251	mg/kg	EPA 6010B	EPA 3050B
Nickel	10.1		0.251	mg/kg	EPA 6010B	EPA 3050B
Vanadium	28.9		0.251	mg/kg	EPA 6010B	EPA 3050B
Zinc	38.1		1.01	mg/kg	EPA 6010B	EPA 3050B
C25-C28	9.5		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C29-C32	15		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C33-C36	11		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C37-C40	5.6		5.0	mg/kg	EPA 8015B (M)	EPA 3550B
C6-C44 Total	46		5.0	mg/kg	EPA 8015B (M)	EPA 3550B

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Subcontracted analyses, if any, are not included in this summary.

* MDL is shown

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW	**17-04-0324-11-A**	**04/05/17 15:00**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 18:59**	**170406B07**

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	9.5	5.0	1.00	
C29-C32	15	5.0	1.00	
C33-C36	11	5.0	1.00	
C37-C40	5.6	5.0	1.00	
C41-C44	ND	5.0	1.00	
C6-C44 Total	46	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	103	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-15-490-2574**	**N/A**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 14:43**	**170406B07**

Parameter	Result	RL	DF	Qualifiers
C6	ND	5.0	1.00	
C7	ND	5.0	1.00	
C8	ND	5.0	1.00	
C9-C10	ND	5.0	1.00	
C11-C12	ND	5.0	1.00	
C13-C14	ND	5.0	1.00	
C15-C16	ND	5.0	1.00	
C17-C18	ND	5.0	1.00	
C19-C20	ND	5.0	1.00	
C21-C22	ND	5.0	1.00	
C23-C24	ND	5.0	1.00	
C25-C28	ND	5.0	1.00	
C29-C32	ND	5.0	1.00	
C33-C36	ND	5.0	1.00	
C37-C40	ND	5.0	1.00	
C41-C44	ND	5.0	1.00	
C6-C44 Total	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
n-Octacosane	85	61-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW	**17-04-0324-11-A**	**04/05/17 15:00**	**Solid**	**ICP 7300**	**04/07/17**	**04/10/17 14:55**	**170407L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.754	1.01	
Arsenic	3.00	0.754	1.01	
Barium	74.0	0.503	1.01	
Beryllium	0.401	0.251	1.01	
Cadmium	ND	0.503	1.01	
Chromium	14.1	0.251	1.01	
Cobalt	7.32	0.251	1.01	
Copper	10.2	0.503	1.01	
Lead	4.58	0.503	1.01	
Molybdenum	8.44	0.251	1.01	
Nickel	10.1	0.251	1.01	
Selenium	ND	0.754	1.01	
Silver	ND	0.251	1.01	
Thallium	ND	0.754	1.01	
Vanadium	28.9	0.251	1.01	
Zinc	38.1	1.01	1.01	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-24587**	**N/A**	**Solid**	**ICP 7300**	**04/07/17**	**04/10/17 14:13**	**170407L02**

Parameter	Result	RL	DF	Qualifiers
Antimony	ND	0.728	0.971	
Arsenic	ND	0.728	0.971	
Barium	ND	0.485	0.971	
Beryllium	ND	0.243	0.971	
Cadmium	ND	0.485	0.971	
Chromium	ND	0.243	0.971	
Cobalt	ND	0.243	0.971	
Copper	ND	0.485	0.971	
Lead	ND	0.485	0.971	
Molybdenum	ND	0.243	0.971	
Nickel	ND	0.243	0.971	
Selenium	ND	0.728	0.971	
Silver	ND	0.243	0.971	
Thallium	ND	0.728	0.971	
Vanadium	ND	0.243	0.971	
Zinc	ND	0.971	0.971	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 7471A Total
Method: EPA 7471A
Units: mg/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW	**17-04-0324-11-A**	**04/05/17 15:00**	**Solid**	**Mercury 08**	**04/11/17**	**04/11/17 14:48**	**170411L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0877	1.00	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-16-272-2942**	**N/A**	**Solid**	**Mercury 08**	**04/11/17**	**04/11/17 14:07**	**170411L01**

Parameter	Result	RL	DF	Qualifiers
Mercury	ND	0.0833	1.00	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
IDW	**17-04-0324-11-A**	**04/05/17 15:00**	**Solid**	**GC/MS T**	**04/06/17**	**04/06/17 12:11**	**170406L016**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	130	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Return to Contents

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	97	60-132	
Dibromofluoromethane	88	63-141	
1,2-Dichloroethane-d4	91	62-146	
Toluene-d8	98	70-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-14-314-746**	**N/A**	**Solid**	**GC/MS T**	**04/06/17**	**04/06/17 11:08**	**170406L016**

Parameter	Result	RL	DF	Qualifiers
Acetone	ND	120	1.00	
Benzene	ND	5.0	1.00	
Bromobenzene	ND	5.0	1.00	
Bromochloromethane	ND	5.0	1.00	
Bromodichloromethane	ND	5.0	1.00	
Bromoform	ND	5.0	1.00	
Bromomethane	ND	25	1.00	
2-Butanone	ND	50	1.00	
n-Butylbenzene	ND	5.0	1.00	
sec-Butylbenzene	ND	5.0	1.00	
tert-Butylbenzene	ND	5.0	1.00	
Carbon Disulfide	ND	50	1.00	
Carbon Tetrachloride	ND	5.0	1.00	
Chlorobenzene	ND	5.0	1.00	
Chloroethane	ND	5.0	1.00	
Chloroform	ND	5.0	1.00	
Chloromethane	ND	25	1.00	
2-Chlorotoluene	ND	5.0	1.00	
4-Chlorotoluene	ND	5.0	1.00	
Dibromochloromethane	ND	5.0	1.00	
1,2-Dibromo-3-Chloropropane	ND	10	1.00	
1,2-Dibromoethane	ND	5.0	1.00	
Dibromomethane	ND	5.0	1.00	
1,2-Dichlorobenzene	ND	5.0	1.00	
1,3-Dichlorobenzene	ND	5.0	1.00	
1,4-Dichlorobenzene	ND	5.0	1.00	
Dichlorodifluoromethane	ND	5.0	1.00	
1,1-Dichloroethane	ND	5.0	1.00	
1,2-Dichloroethane	ND	5.0	1.00	
1,1-Dichloroethene	ND	5.0	1.00	
c-1,2-Dichloroethene	ND	5.0	1.00	
t-1,2-Dichloroethene	ND	5.0	1.00	
1,2-Dichloropropane	ND	5.0	1.00	
1,3-Dichloropropane	ND	5.0	1.00	
2,2-Dichloropropane	ND	5.0	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Analytical Report

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5030C
Method: EPA 8260B
Units: ug/kg

Project: MacArthur Square / 60540359.02000

Parameter	Result	RL	DF	Qualifiers
1,1-Dichloropropene	ND	5.0	1.00	
c-1,3-Dichloropropene	ND	5.0	1.00	
t-1,3-Dichloropropene	ND	5.0	1.00	
Ethylbenzene	ND	5.0	1.00	
2-Hexanone	ND	50	1.00	
Isopropylbenzene	ND	5.0	1.00	
p-Isopropyltoluene	ND	5.0	1.00	
Methylene Chloride	ND	50	1.00	
4-Methyl-2-Pentanone	ND	50	1.00	
Naphthalene	ND	50	1.00	
n-Propylbenzene	ND	5.0	1.00	
Styrene	ND	5.0	1.00	
1,1,1,2-Tetrachloroethane	ND	5.0	1.00	
1,1,2,2-Tetrachloroethane	ND	5.0	1.00	
Tetrachloroethene	ND	5.0	1.00	
Toluene	ND	5.0	1.00	
1,2,3-Trichlorobenzene	ND	10	1.00	
1,2,4-Trichlorobenzene	ND	5.0	1.00	
1,1,1-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloroethane	ND	5.0	1.00	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	1.00	
Trichloroethene	ND	5.0	1.00	
1,2,3-Trichloropropane	ND	5.0	1.00	
1,2,4-Trimethylbenzene	ND	5.0	1.00	
Trichlorofluoromethane	ND	50	1.00	
1,3,5-Trimethylbenzene	ND	5.0	1.00	
Vinyl Acetate	ND	50	1.00	
Vinyl Chloride	ND	5.0	1.00	
p/m-Xylene	ND	5.0	1.00	
o-Xylene	ND	5.0	1.00	
Methyl-t-Butyl Ether (MTBE)	ND	5.0	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
1,4-Bromofluorobenzene	96	60-132	
Dibromofluoromethane	89	63-141	
1,2-Dichloroethane-d4	91	62-146	
Toluene-d8	97	70-130	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

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Quality Control - Spike/Spike Duplicate

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Project: MacArthur Square / 60540359.02000

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3550B
Method: EPA 8015B (M)
Page 1 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-04-0327-3	**Sample**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 16:51**	**170406S07**
17-04-0327-3	**Matrix Spike**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 15:47**	**170406S07**
17-04-0327-3	**Matrix Spike Duplicate**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 16:09**	**170406S07**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	ND	400.0	362.1	91	436.8	109	64-130	19	0-15	4

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3050B
Method: EPA 6010B

Project: MacArthur Square / 60540359.02000

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-04-0313-1	**Sample**	**Solid**	**ICP 7300**	**04/07/17**	**04/10/17 14:44**	**170407S02**
17-04-0313-1	**Matrix Spike**	**Solid**	**ICP 7300**	**04/07/17**	**04/10/17 14:44**	**170407S02**
17-04-0313-1	**Matrix Spike Duplicate**	**Solid**	**ICP 7300**	**04/07/17**	**04/10/17 14:45**	**170407S02**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Antimony	ND	25.00	12.65	51	12.72	51	50-115	1	0-20	
Arsenic	1.239	25.00	25.15	96	26.06	99	75-125	4	0-20	
Barium	16.04	25.00	39.40	93	42.46	106	75-125	7	0-20	
Beryllium	ND	25.00	25.30	101	25.99	104	75-125	3	0-20	
Cadmium	ND	25.00	24.82	99	26.03	104	75-125	5	0-20	
Chromium	3.686	25.00	29.65	104	30.97	109	75-125	4	0-20	
Cobalt	1.118	25.00	26.56	102	27.33	105	75-125	3	0-20	
Copper	3.358	25.00	28.96	102	30.07	107	75-125	4	0-20	
Lead	8.058	25.00	32.98	100	33.94	104	75-125	3	0-20	
Molybdenum	ND	25.00	25.81	103	26.64	107	75-125	3	0-20	
Nickel	1.067	25.00	25.81	99	26.35	101	75-125	2	0-20	
Selenium	ND	25.00	24.68	99	25.14	101	75-125	2	0-20	
Silver	ND	12.50	12.83	103	13.65	109	75-125	6	0-20	
Thallium	ND	25.00	24.78	99	26.02	104	75-125	5	0-20	
Vanadium	6.508	25.00	32.08	102	33.32	107	75-125	4	0-20	
Zinc	10.47	25.00	35.73	101	36.40	104	75-125	2	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 7471A Total
	Method:	EPA 7471A
Project: MacArthur Square / 60540359.02000		Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
17-04-0610-50	**Sample**	**Solid**	**Mercury 08**	**04/11/17**	**04/11/17 14:11**	**170411S01**
17-04-0610-50	**Matrix Spike**	**Solid**	**Mercury 08**	**04/11/17**	**04/11/17 14:14**	**170411S01**
17-04-0610-50	**Matrix Spike Duplicate**	**Solid**	**Mercury 08**	**04/11/17**	**04/11/17 14:16**	**170411S01**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Mercury	ND	0.8350	0.8743	105	0.8930	107	71-137	2	0-14	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

AECOM Environment		Date Received:	04/05/17
999 Town and Country Road, 4th Floor		Work Order:	17-04-0324
Orange, CA 92868-4713		Preparation:	EPA 5030C
		Method:	EPA 8260B
Project: MacArthur Square / 60540359.02000			Page 4 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
IDW	**Sample**	**Solid**	**GC/MS T**	**04/06/17**	**04/06/17 12:11**	**170406S005**
IDW	**Matrix Spike**	**Solid**	**GC/MS T**	**04/06/17**	**04/06/17 13:11**	**170406S005**
IDW	**Matrix Spike Duplicate**	**Solid**	**GC/MS T**	**04/06/17**	**04/06/17 13:41**	**170406S005**

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	43.90	88	46.76	94	70-130	6	0-20	
Benzene	ND	50.00	43.03	86	39.91	80	61-127	8	0-20	
Bromobenzene	ND	50.00	42.01	84	38.87	78	70-130	8	0-20	
Bromochloromethane	ND	50.00	42.89	86	40.35	81	70-130	6	0-20	
Bromodichloromethane	ND	50.00	42.84	86	39.96	80	70-130	7	0-20	
Bromoform	ND	50.00	37.47	75	37.12	74	70-130	1	0-20	
Bromomethane	ND	50.00	39.61	79	37.59	75	70-130	5	0-20	
2-Butanone	ND	50.00	41.78	84	41.85	84	70-130	0	0-20	
n-Butylbenzene	ND	50.00	42.00	84	37.39	75	77-123	12	0-25	3
sec-Butylbenzene	ND	50.00	42.89	86	38.83	78	70-130	10	0-20	
tert-Butylbenzene	ND	50.00	42.44	85	38.63	77	70-130	9	0-20	
Carbon Disulfide	ND	50.00	40.77	82	36.98	74	70-130	10	0-20	
Carbon Tetrachloride	ND	50.00	42.64	85	36.82	74	51-135	15	0-29	
Chlorobenzene	ND	50.00	42.50	85	38.88	78	57-123	9	0-20	
Chloroethane	ND	50.00	41.41	83	42.50	85	70-130	3	0-20	
Chloroform	ND	50.00	39.03	78	35.99	72	70-130	8	0-20	
Chloromethane	ND	50.00	38.29	77	40.15	80	70-130	5	0-20	
2-Chlorotoluene	ND	50.00	42.31	85	37.86	76	70-130	11	0-20	
4-Chlorotoluene	ND	50.00	41.98	84	38.29	77	70-130	9	0-20	
Dibromochloromethane	ND	50.00	41.67	83	39.18	78	70-130	6	0-20	
1,2-Dibromo-3-Chloropropane	ND	50.00	43.70	87	42.98	86	70-130	2	0-20	
1,2-Dibromoethane	ND	50.00	44.48	89	42.70	85	64-124	4	0-20	
Dibromomethane	ND	50.00	42.35	85	40.42	81	70-130	5	0-20	
1,2-Dichlorobenzene	ND	50.00	41.04	82	37.99	76	35-131	8	0-25	
1,3-Dichlorobenzene	ND	50.00	40.29	81	36.80	74	70-130	9	0-20	
1,4-Dichlorobenzene	ND	50.00	39.61	79	36.40	73	70-130	8	0-20	
Dichlorodifluoromethane	ND	50.00	39.93	80	40.46	81	70-130	1	0-20	
1,1-Dichloroethane	ND	50.00	40.82	82	37.64	75	70-130	8	0-20	
1,2-Dichloroethane	ND	50.00	42.51	85	40.19	80	70-130	6	0-20	
1,1-Dichloroethene	ND	50.00	42.82	86	36.94	74	47-143	15	0-25	
c-1,2-Dichloroethene	ND	50.00	41.63	83	37.94	76	70-130	9	0-20	
t-1,2-Dichloroethene	ND	50.00	41.82	84	38.72	77	70-130	8	0-20	
1,2-Dichloropropane	ND	50.00	43.27	87	39.33	79	79-115	10	0-25	
1,3-Dichloropropane	ND	50.00	43.80	88	41.19	82	70-130	6	0-20	
2,2-Dichloropropane	ND	50.00	41.35	83	37.10	74	70-130	11	0-20	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - Spike/Spike Duplicate

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5030C
Method: EPA 8260B

Project: MacArthur Square / 60540359.02000

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
1,1-Dichloropropene	ND	50.00	41.78	84	37.06	74	70-130	12	0-20	
c-1,3-Dichloropropene	ND	50.00	43.42	87	41.22	82	70-130	5	0-20	
t-1,3-Dichloropropene	ND	50.00	45.03	90	42.60	85	70-130	6	0-20	
Ethylbenzene	ND	50.00	43.95	88	38.95	78	57-129	12	0-22	
2-Hexanone	ND	50.00	43.36	87	45.94	92	70-130	6	0-20	
Isopropylbenzene	ND	50.00	44.95	90	39.75	80	70-130	12	0-20	
p-Isopropyltoluene	ND	50.00	42.67	85	38.63	77	70-130	10	0-20	
Methylene Chloride	ND	50.00	38.58	77	36.07	72	70-130	7	0-20	
4-Methyl-2-Pentanone	ND	50.00	42.67	85	45.96	92	70-130	7	0-20	
Naphthalene	ND	50.00	41.57	83	42.20	84	70-130	2	0-20	
n-Propylbenzene	ND	50.00	43.58	87	38.12	76	70-130	13	0-20	
Styrene	ND	50.00	43.74	87	39.95	80	70-130	9	0-20	
1,1,1,2-Tetrachloroethane	ND	50.00	44.45	89	41.43	83	70-130	7	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	34.41	69	34.36	69	70-130	0	0-20	3
Tetrachloroethene	ND	50.00	69.28	139	61.32	123	70-130	12	0-20	3
Toluene	ND	50.00	41.91	84	38.50	77	63-123	9	0-20	
1,2,3-Trichlorobenzene	ND	50.00	36.64	73	35.12	70	70-130	4	0-20	
1,2,4-Trichlorobenzene	ND	50.00	38.31	77	35.72	71	70-130	7	0-20	
1,1,1-Trichloroethane	ND	50.00	43.55	87	38.32	77	70-130	13	0-20	
1,1,2-Trichloroethane	ND	50.00	43.76	88	41.42	83	70-130	5	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50.00	45.68	91	39.87	80	70-130	14	0-20	
Trichloroethene	ND	50.00	50.85	102	46.13	92	44-158	10	0-20	
1,2,3-Trichloropropane	ND	50.00	44.83	90	44.08	88	70-130	2	0-20	
1,2,4-Trimethylbenzene	ND	50.00	42.08	84	38.18	76	70-130	10	0-20	
Trichlorofluoromethane	ND	50.00	40.00	80	43.32	87	70-130	8	0-20	
1,3,5-Trimethylbenzene	ND	50.00	43.85	88	38.93	78	70-130	12	0-20	
Vinyl Acetate	ND	50.00	11.69	23	11.50	23	70-130	2	0-20	3
Vinyl Chloride	ND	50.00	41.58	83	42.94	86	49-139	3	0-47	
p/m-Xylene	ND	100.0	87.75	88	77.54	78	70-130	12	0-20	
o-Xylene	ND	50.00	43.80	88	39.07	78	70-130	11	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	40.49	81	39.68	79	57-123	2	0-21	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS/LCSD

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Project: MacArthur Square / 60540359.02000

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 3550B
Method: EPA 8015B (M)
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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-490-2574	**LCS**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 15:04**	**170406B07**
099-15-490-2574	**LCSD**	**Solid**	**GC 45**	**04/06/17**	**04/06/17 15:25**	**170406B07**

Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
TPH as Diesel	400.0	409.7	102	403.0	101	75-123	2	0-12	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

AECOM Environment		Date Received:	04/05/17
999 Town and Country Road, 4th Floor		Work Order:	17-04-0324
Orange, CA 92868-4713		Preparation:	EPA 3050B
		Method:	EPA 6010B
Project: MacArthur Square / 60540359.02000			Page 2 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
097-01-002-24587	**LCS**	**Solid**	**ICP 7300**	**04/07/17**	**04/10/17 14:14**	**170407L02**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Antimony	25.00	21.39	86	80-120	73-127	
Arsenic	25.00	22.43	90	80-120	73-127	
Barium	25.00	25.03	100	80-120	73-127	
Beryllium	25.00	21.79	87	80-120	73-127	
Cadmium	25.00	23.50	94	80-120	73-127	
Chromium	25.00	24.26	97	80-120	73-127	
Cobalt	25.00	24.57	98	80-120	73-127	
Copper	25.00	24.66	99	80-120	73-127	
Lead	25.00	24.63	99	80-120	73-127	
Molybdenum	25.00	25.68	103	80-120	73-127	
Nickel	25.00	24.09	96	80-120	73-127	
Selenium	25.00	22.48	90	80-120	73-127	
Silver	12.50	12.10	97	80-120	73-127	
Thallium	25.00	24.37	97	80-120	73-127	
Vanadium	25.00	23.10	92	80-120	73-127	
Zinc	25.00	23.57	94	80-120	73-127	

Total number of LCS compounds: 16
Total number of ME compounds: 0
Total number of ME compounds allowed: 1
LCS ME CL validation result: Pass

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

AECOM Environment	Date Received: 04/05/17
999 Town and Country Road, 4th Floor	Work Order: 17-04-0324
Orange, CA 92868-4713	Preparation: EPA 7471A Total
	Method: EPA 7471A
Project: MacArthur Square / 60540359.02000	Page 3 of 5

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-272-2942	**LCS**	**Solid**	**Mercury 08**	**04/11/17**	**04/11/17 14:09**	**170411L01**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	Qualifiers
Mercury	0.8350	0.8528	102	85-121	

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RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

AECOM Environment
999 Town and Country Road, 4th Floor
Orange, CA 92868-4713

Date Received: 04/05/17
Work Order: 17-04-0324
Preparation: EPA 5030C
Method: EPA 8260B

Project: MacArthur Square / 60540359.02000

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-14-314-746	**LCS**	**Solid**	**GC/MS T**	**04/06/17**	**04/06/17 09:17**	**170406L016**

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Acetone	50.00	42.78	86	70-130	60-140	
Benzene	50.00	48.46	97	78-120	71-127	
Bromobenzene	50.00	49.61	99	70-130	60-140	
Bromochloromethane	50.00	45.43	91	70-130	60-140	
Bromodichloromethane	50.00	48.84	98	70-130	60-140	
Bromoform	50.00	44.73	89	70-130	60-140	
Bromomethane	50.00	41.96	84	70-130	60-140	
2-Butanone	50.00	42.06	84	70-130	60-140	
n-Butylbenzene	50.00	54.09	108	77-123	69-131	
sec-Butylbenzene	50.00	53.14	106	70-130	60-140	
tert-Butylbenzene	50.00	55.60	111	70-130	60-140	
Carbon Disulfide	50.00	46.03	92	70-130	60-140	
Carbon Tetrachloride	50.00	50.30	101	49-139	34-154	
Chlorobenzene	50.00	48.65	97	79-120	72-127	
Chloroethane	50.00	43.84	88	70-130	60-140	
Chloroform	50.00	42.86	86	70-130	60-140	
Chloromethane	50.00	43.08	86	70-130	60-140	
2-Chlorotoluene	50.00	50.66	101	70-130	60-140	
4-Chlorotoluene	50.00	49.97	100	70-130	60-140	
Dibromochloromethane	50.00	49.85	100	70-130	60-140	
1,2-Dibromo-3-Chloropropane	50.00	50.96	102	70-130	60-140	
1,2-Dibromoethane	50.00	49.58	99	70-130	60-140	
Dibromomethane	50.00	44.86	90	70-130	60-140	
1,2-Dichlorobenzene	50.00	49.92	100	75-120	68-128	
1,3-Dichlorobenzene	50.00	49.21	98	70-130	60-140	
1,4-Dichlorobenzene	50.00	48.12	96	70-130	60-140	
Dichlorodifluoromethane	50.00	42.07	84	70-130	60-140	
1,1-Dichloroethane	50.00	44.25	89	70-130	60-140	
1,2-Dichloroethane	50.00	45.76	92	70-130	60-140	
1,1-Dichloroethene	50.00	47.45	95	74-122	66-130	
c-1,2-Dichloroethene	50.00	44.57	89	70-130	60-140	
t-1,2-Dichloroethene	50.00	47.71	95	70-130	60-140	
1,2-Dichloropropane	50.00	47.37	95	79-115	73-121	
1,3-Dichloropropane	50.00	47.59	95	70-130	60-140	
2,2-Dichloropropane	50.00	47.66	95	70-130	60-140	
1,1-Dichloropropene	50.00	45.38	91	70-130	60-140	
c-1,3-Dichloropropene	50.00	49.83	100	70-130	60-140	
t-1,3-Dichloropropene	50.00	53.82	108	70-130	60-140	

RPD: Relative Percent Difference. CL: Control Limits

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Quality Control - LCS

AECOM Environment	Date Received:	04/05/17
999 Town and Country Road, 4th Floor	Work Order:	17-04-0324
Orange, CA 92868-4713	Preparation:	EPA 5030C
	Method:	EPA 8260B
Project: MacArthur Square / 60540359.02000		Page 5 of 5

Parameter	Spike Added	Conc. Recovered	LCS %Rec.	%Rec. CL	ME CL	Qualifiers
Ethylbenzene	50.00	51.43	103	76-120	69-127	
2-Hexanone	50.00	48.83	98	70-130	60-140	
Isopropylbenzene	50.00	53.40	107	70-130	60-140	
p-Isopropyltoluene	50.00	53.13	106	70-130	60-140	
Methylene Chloride	50.00	41.13	82	70-130	60-140	
4-Methyl-2-Pentanone	50.00	46.39	93	70-130	60-140	
Naphthalene	50.00	50.57	101	70-130	60-140	
n-Propylbenzene	50.00	52.58	105	70-130	60-140	
Styrene	50.00	51.01	102	70-130	60-140	
1,1,1,2-Tetrachloroethane	50.00	53.18	106	70-130	60-140	
1,1,2,2-Tetrachloroethane	50.00	47.70	95	70-130	60-140	
Tetrachloroethene	50.00	52.12	104	70-130	60-140	
Toluene	50.00	48.28	97	77-120	70-127	
1,2,3-Trichlorobenzene	50.00	48.88	98	70-130	60-140	
1,2,4-Trichlorobenzene	50.00	50.75	101	70-130	60-140	
1,1,1-Trichloroethane	50.00	48.75	97	70-130	60-140	
1,1,2-Trichloroethane	50.00	47.59	95	70-130	60-140	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	50.12	100	70-130	60-140	
Trichloroethene	50.00	48.45	97	70-130	60-140	
1,2,3-Trichloropropane	50.00	50.22	100	70-130	60-140	
1,2,4-Trimethylbenzene	50.00	51.00	102	70-130	60-140	
Trichlorofluoromethane	50.00	46.20	92	70-130	60-140	
1,3,5-Trimethylbenzene	50.00	52.33	105	70-130	60-140	
Vinyl Acetate	50.00	44.50	89	70-130	60-140	
Vinyl Chloride	50.00	44.44	89	68-122	59-131	
p/m-Xylene	100.0	102.9	103	70-130	60-140	
o-Xylene	50.00	50.92	102	70-130	60-140	
Methyl-t-Butyl Ether (MTBE)	50.00	43.25	87	77-120	70-127	

Total number of LCS compounds: 66
Total number of ME compounds: 0
Total number of ME compounds allowed: 3
LCS ME CL validation result: Pass

RPD: Relative Percent Difference. CL: Control Limits

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Sample Analysis Summary Report

Work Order: 17-04-0324 Page 1 of 1

Method	Extraction	Chemist ID	Instrument	Analytical Location
EPA 6010B	EPA 3050B	935	ICP 7300	1
EPA 7471A	EPA 7471A Total	868	Mercury 08	1
EPA 8015B (M)	EPA 3550B	1027	GC 45	1
EPA 8260B	EPA 5030C	316	GC/MS T	2

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Glossary of Terms and Qualifiers

Work Order: 17-04-0324 Page 1 of 1

Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

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CHAIN OF CUSTODY RECORD

Date: 4/5/17

Page 1 of 3

17-04-0324

☐ Data Requested in GISKey Format

Lab Name: CalScience
AECOM Project/PO Number: 60540359.02000
Client Name/Project Name/Location: MacArthur Square
GeoTracker Information:
AECOM Project Manager: Cynthia Shen
EDF Reporting: Y N Global ID:
Sampler Name and Signature: Michelle Baroldi [signature]
COELT Log Number:

Requested Analyses: VOCs 8260/5035; HOLD

#	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	VOCs 8260/5035	HOLD	Special Instructions:
1	SV-11-5	4/5/17	0805	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
2	SV-11-10	↓	0812	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
3	SV-11-15		0820	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
4	SV-8-5		0930	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terracore	4	X		
5	SV-8-10		0935	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
6	SV-8-15		0945	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
7	SV-9-5		1030	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
8	SV-9-10		~~1030~~ MB 1042	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
9	SV-9-15	↓	1053	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	4	X		
10	SV-9-15D	4/5/17	1115	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ___ml Amb. Plas. Glass VOA Terra core	3	X		

Relinquished by:	Date:	Received By:	Date/Time:
Michelle Baroldi [signature]	4/5/17	[signature] ECI	4/5/17 1758
[signature]	4/5/17	[signature] ECI	4/5/17 19:00

Turnaround Time: (Check)
Same Day:___ 72 Hour:___
24 Hour:___ 5 Day:___
48 Hour:___ Standard:___

Lab Use Only
Cooler Temperature*:________
*Record upon arrival

AECOM

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to AECOM at Dropoff

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Orange, CA 92868
(714) 567-2400
FAX (714) 567-2594

CHAIN OF CUSTODY RECORD

Date: 4 / 5 / 17

0324

PA2017-107

☐ Data Requested in GISKey Format

Lab Name: CalScience	AECOM Project/PO Number: 60540359
Client Name/Project Name/Location: MacArthur Square	SeaTracker Information:
AECOM Project Manager: Cynthia Shen	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Michelle Barold	COELT Log Number:

	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	Requested Analyses: Title 22 6010B/7471A	VOCs 8260B	TPHcc 8015M	HOLD	Special Instructions:
1	IDW	4/5/17	1500	Y (N)	(S) L G	Acetate SS. Brass (Jar) Encore ____ml Amb. Plas. Glass VOA	1	X	X	X		
2				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
3				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
4				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
5				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
6				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
7				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
8				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
9				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						
#				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA						

F3-146

Relinquished by: Michelle Barold	Date: 4/5/17	Received By: ECL	Date/Time: 4/5/17 1758
Relinquished by:	Date: 4/5/17	Received By:	Date/Time: 4/5/17 19:00
Relinquished by:	Date:	Received By:	Date/Time:

Turnaround Time: (Check)

Same Day:____	72 Hour:____
24 Hour:____	5 Day:____
48 Hour:____	Standard:____

Lab Use Only
Cooler Temperature*:_____
*Record upon arrival

AECOM

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to AECOM at Dropoff

Return to Contents

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Orange, CA 92868
(714) 567-2400
FAX (714) 567-2594

CHAIN OF CUSTODY RECORD

Date: 4/5/17

0324

PA2017-107

☐ Data Requested in GISKey Format

Lab Name: CalScience	AECOM Project/PO Number: 60540359.02000
Client Name/Project Name/Location: MacArthur Square	GeoTracker Information:
AECOM Project Manager: Cynthia Shen	EDF Reporting: Y N Global ID:
Sampler Name and Signature: Michelle Baroldi	COELT Log Number:

	Sample Name:	Sample Date:	Sample Time:	Preserved:	Matrix:	Container Type:	# of Cont.:	Requested Analyses: VOCs 8260c/5035	HOLD	Special Instructions:
12	SV-10-5	4/5/17	1220	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terracore	4	X		
13	SV-10-10		1227	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terracore	4	X		
14	SV-10-15		1235	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terracore	4	X		
15	SV-12-5		1330	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	4	X		
16	SV-12-10		1340	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	4	X		Reacted with preservative - bottled in H_2O
17	SV-12-15		1350	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	4	X		Reacted with preservative - bottled in H_2O
18	SV-12-5D	↓	1400	(Y) N	(S) L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA Terra core	3	X		
8				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA				
9				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA				
#				Y N	S L G	Acetate SS. Brass Jar Encore ____ml Amb. Plas. Glass VOA				

F3-147

Relinquished by: Michelle Baroldi	Date: 4/5/17	Received By: Cindy C CC	Date/Time: 4/5/17 1758
Relinquished by:	Date: 4/5/17	Received By: Danny C EC2	Date/Time: 4/5/17 1900
Relinquished by:	Date:	Received By:	Date/Time:

Turnaround Time: (Check)
Same Day:____ 72 Hour:____
24 Hour:____ 5 Day:____
48 Hour:____ Standard:____

Lab Use Only
Cooler Temperature*:____
*Record upon arrival

AECOM

S=Solid L=Liquid G= Gas

White Copy in Final Report, Yellow to File, Pink to AECOM at Dropoff

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WORK ORDER NUMBER: 17-04- 0324

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 2

CLIENT: AECOM

DATE: 04 / 5 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC3B (CF: 0.0°C); Temperature (w/o CF): 2.4 °C (w/ CF): 2.4 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 676

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1053

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☑ 8ozCGJ (10) ☐ 16ozCGJ ☑ Sleeve (7) ☐ EnCores® (____) ☑ TerraCores® (3) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, **s** = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH

Labeled/Checked by: 1053

Reviewed by: 659

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WORK ORDER NUMBER: 17-04- 0324

SAMPLE RECEIPT CHECKLIST

COOLER 2 OF 2

CLIENT: AECOM

DATE: 04 / 5 / 2017

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC3B (CF: 0.0°C); Temperature (w/o CF): 2.3 °C (w/ CF): 2.3 °C; ☐ Blank ☑ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter Checked by: 676

CUSTODY SEAL:

Cooler ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 676

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☑ Not Present ☐ N/A Checked by: 1053

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers			
☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and in good condition	☑	☐	☐
Proper containers for analyses requested	☑	☐	☐
Sufficient volume/mass for analyses requested	☑	☐	☐
Samples received within holding time	☑	☐	☐
Aqueous samples for certain analyses received within 15-minute holding time			
☐ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen	☐	☐	☑
Proper preservation chemical(s) noted on COC and/or sample container	☑	☐	☐
Unpreserved aqueous sample(s) received for certain analyses			
☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals			
Container(s) for certain analysis free of headspace	☐	☐	☑
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)			
☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE: (Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA**h** ☐ VOA**na$_2$** ☐ 100PJ ☐ 100PJ**na$_2$** ☐ 125AGB ☐ 125AGB**h** ☐ 125AGB**p** ☐ 125PB

☐ 125PB**znna** ☐ 250AGB ☐ 250CGB ☐ 250CGB**s** ☐ 250PB ☐ 250PB**n** ☐ 500AGB ☐ 500AGJ ☐ 500AGJ**s**

☐ 500PB ☐ 1AGB ☐ 1AGB**na$_2$** ☐ 1AGB**s** ☐ 1PB ☐ 1PB**na** ☐ _____ ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☑ Sleeve (2) ☐ EnCores® (_____) ☑ TerraCores® (3) ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (_____): ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO_3, **na** = NaOH, **na$_2$** = $Na_2S_2O_3$, **p** = H_3PO_4, Labeled/Checked by: 1053

s = H_2SO_4, **u** = ultra-pure, **x** = Na_2SO_3+$NaHSO_4.H_2O$, **znna** = Zn $(CH_3CO_2)_2$ + NaOH Reviewed by: 659

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ATTACHMENT E

SOIL GAS SCREENING VALUE CALCULATION

Table **E-1**
Calculation of Residential Soil Gas Screening Levels Using DTSC HHRA Note 3 Methodology

Analyte	Residential				
	Indoor Air (ug/m^3)	Existing Building		Future Building	
		Attenuation Factor	Soil Gas (ug/m^3)	Attenuation Factor	Soil Gas (ug/m^3)
Benzene	9.7E-02	0.002	4.9E+01	0.001	9.7E+01
Ethylbenzene	1.1E+00	0.002	5.5E+02	0.001	1.1E+03
Naphthalene	8.3E-02	0.002	4.2E+01	0.001	8.3E+01
Tetrachloroethylene	4.8E-01	0.002	2.4E+02	0.001	4.8E+02
Toluene	3.1E+02	0.002	1.6E+05	0.001	3.1E+05
Trichloroethylene	4.8E-01	0.002	2.4E+02	0.001	4.8E+02
m-Xylene	1.0E+02	0.002	5.0E+04	0.001	1.0E+05
o-Xylene	1.0E+02	0.002	5.0E+04	0.001	1.0E+05
p-Xylene	1.0E+02	0.002	5.0E+04	0.001	1.0E+05

Notes:

Indoor air screening levels from DTSC HHRA Note 3 (DTSC, 2016). If DTSC HHRA Note 3 screening levels were not available, USEPA Regional Screening Levels (RSLs) were used.

Attenuation factors from DTSC's Vapor Intrusion Guidance (DTSC, 2011).

NA = not available

ug/m^3 = micrograms per cubic meter

Table **E-**2

Calculation of Commercial/Industrial Soil Gas Screening Levels Using DTSC HHRA Note 3 Methodology

Analyte	Commercial/Industrial				
		Existing Building		Future Building	
	Indoor Air (ug/m^3)	Attenuation Factor	Soil Gas (ug/m^3)	Attenuation Factor	Soil Gas (ug/m^3)
Benzene	4.2E-01	0.001	4.2E+02	0.0005	8.4E+02
Ethylbenzene	4.9E+00	0.001	4.9E+03	0.0005	9.8E+03
Naphthalene	3.6E-01	0.001	3.6E+02	0.0005	7.2E+02
Tetrachloroethylene	2.1E+00	0.001	2.1E+03	0.0005	4.2E+03
Toluene	1.3E+03	0.001	1.3E+06	0.0005	2.6E+06
Trichloroethylene	3.0E+00	0.001	3.0E+03	0.0005	6.0E+03
m-Xylene	4.4E+02	0.001	4.4E+05	0.0005	8.8E+05
o-Xylene	4.4E+02	0.001	4.4E+05	0.0005	8.8E+05
p-Xylene	4.4E+02	0.001	4.4E+05	0.0005	8.8E+05

Notes:

Indoor air screening levels from DTSC HHRA Note 3 (DTSC, 2016). If DTSC HHRA Note 3 screening levels were not available, USEPA Regional Screening Levels (RSLs) were used.

Attenuation factors from DTSC's Vapor Intrusion Guidance (DTSC, 2011).

NA = not available

ug/m^3 = micrograms per cubic meter