Atlantic Richfield Company

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February 28, 2014

Re: Monitoring Well Installation and Vapor Intrusion Assessment Report
Former Richfield Oil Company Station #402
1450 Fruitvale Avenue, Oakland, California
ACEH Case #RO0000307

"I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Submitted by,

Chuck Carmel
Remediation Management Project Manager

Attachment:

MONITORING WELL INSTALLATION
AND
VAPOR INTRUSION ASSESSMENT REPORT
Former Richfield Oil Company Station #402
1450 Fruitvale Avenue
Oakland, Alameda County, California
ACEH Case #RO0000307

Prepared for:

Mr. Chuck Carmel
Atlantic Richfield Company
P.O. Box 1257
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Prepared by:

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February 28, 2014

Project No. 08-88-602

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CREATING SOLUTIONS. BUILDING TRUST.

February 28, 2014

Project #08-88-602

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn.: Mr. Chuck Carmel

Re: Monitoring Well Installation and Vapor Intrusion Assessment Report
Former Richfield Oil Company Station #402, 1450 Fruitvale Ave., Oakland, Alameda County
ACEH Case #RO0000307

Dear Mr. Carmel:

Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Monitoring Well Installation and Vapor Intrusion Assessment Report* (Report) on behalf of Atlantic Richfield Company (a BP affiliated company), for Former Richfield Oil Company Station #402 located at 1450 Fruitvale Avenue, Oakland, Alameda County, California (the Site). This Report presents a description of recently conducted activities including installation of monitoring wells and a vapor intrusion assessment. This work was carried out in accordance with the *Revised Work Plan for Monitoring Well Installation and Vapor Intrusion Assessment* dated May 28, 2013 (Broadbent, 2013).

Please do not hesitate to contact me at (707) 455-7290.

Sincerely,
BROADBENT & ASSOCIATES, INC.

PROFESSIONAL GEOLOGIST
KRISTENE TIDWELL
No. 969
CERTIFIED HYDRO GEOLOGIST
Sep 12/31/14
STATE OF CALIFORNIA

Kristene Tidwell, P.G., C. Hg.
Senior Geologist

cc: Ms. Karel Detterman, P.G., Alameda County Environmental Health (submitted via ACEH ftp site)
Mr. Bill Phua, Fruitvale-Farnum Associates, LLC, 638 Webster St., #300, Oakland, CA 94607
Mr. Hugh K. Phares, III, Attorney at Law, 911 Paru St., Alameda, CA 94501-4033
Electronic copy uploaded to GeoTracker

MONITORING WELL INSTALLATION
AND VAPOR INTRUSION ASSESSMENT REPORT
Former Richfield Oil Company Station #402
1450 Fruitvale Avenue
Oakland, Alameda County, California
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1450 Fruitvale Avenue
Oakland, Alameda County, California
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1.0 INTRODUCTION

Broadbent & Associates, Inc. (Broadbent) has prepared this *Monitoring Well Installation and Vapor Intrusion Assessment Report* (Report) on behalf of the Atlantic Richfield Company (ARC) – a BP affiliated company, for Former Richfield Oil Company Station #402 located at 1450 Fruitvale Avenue in Oakland, Alameda County, California (Site). A Site Location Map is presented as Drawing 1.

This Report documents well installation and vapor intrusion assessment activities recently conducted. These activities included installing four new onsite groundwater monitoring wells to assess current groundwater conditions; and installing six soil vapor sampling probes (three locations with two distinct depths). A Site description, background, details of field activities, a discussion of results, conclusions and recommendations are presented in the following Sections.

2.0 SITE DESCRIPTION AND BACKGROUND

The Site is currently occupied by the Fruitvale Commercial Center office building located on the northeast corner of Farnam Street and Fruitvale Avenue in Oakland, Alameda County, California (Drawing 2). The building has a slab-on-grade foundation with no basement and has a vapor barrier beneath the slab (AEI, 2002). A restaurant and large Laundromat occupy the first floor of this three-story building. A health & dental clinic occupy the second floor, and a tax preparation service and real estate mortgage company occupy the third floor of the building. Open space areas west and east of the three-story building are concrete covered parking lots with narrow landscape planter strips along the western and southern edges of the property.

The Site was reportedly developed and operated as a gas station between 1950 and at least until 1983 by Richfield Oil Company. Four underground storage tanks (USTs) were formerly located at the Site. The fuel dispenser island was located on the northwestern portion of the west parking lot. AEI Consultants (AEI) conducted research at the City of Oakland Fire and Building Departments for records relating to the location of the USTs and associated piping. Although formal UST removal records were not located, available records indicated that USTs were formerly located along Farnam Street, as indicated on Drawing 2 (AEI, 1999).

In May 1999 AEI conducted two excavations in order to determine the presence of USTs remaining onsite. The approximate locations of these excavations are depicted on Drawing 2. No tanks were encountered and soils removed from the larger excavation (Excavation A) appeared to be consistent with imported fill material commonly used to backfill former tank basins. A total of six soil samples and one grab-groundwater sample (labeled AEI GW 8') were collected from the former UST pit (Excavation A). The analytical results indicated minimal concentrations of petroleum hydrocarbons. Historic Site soil and groundwater laboratory analytical results from this investigation are summarized in Appendix A (AEI, 1999).

Between July 1998 and June 2002, a total of 22 soil borings (GP-1 through GP-8 and AEI-9 through AEI-22) were advanced and three monitoring wells (MW-1 through MW-3) were installed at the Site. A Site Map with historic boring and monitor well locations is presented as Drawing 2. Historic soil analytical and groundwater data are presented in Appendix A and historic soil boring/well construction logs and a geologic cross-section are provided in Appendix B.

On September 26, 2002, AEI advanced an additional three shallow soil borings (AEI-23 through AEI-25) with a hand auger in the vicinities of the former dispenser (AEI-23), product piping (AEI-24), and beneath the proposed building (AEI-25). The purpose of these borings was to confirm the absence of hydrocarbon impacts within the shallow soil (vadose zone) and to collect a soil samples for grain size analysis. Residual petroleum hydrocarbon concentrations were not present in the vadose zone (AEI, 2002a).

In 2002, AEI prepared a *Site Summary and Risk Evaluation Report* (AEI, 2002b), which included an analysis of groundwater, soil, and vapor exposure pathways at the Site and presented the results of a preferential pathway study. A comparative analysis of Site groundwater and soil analytical data with Regional Water Quality Control Board risk-based screening levels and City of Oakland screening levels was included in this report. Based on the results of this evaluation, AEI recommended formal case closure. The ACEH did not grant closure and requested that additional groundwater investigation activities be conducted following redevelopment of the property.

On March 7, 2005, AEI submitted a *Work Plan – Monitoring Well Installation*, which proposed installing four additional monitoring wells to further assess the extent of the hydrocarbon contaminant plume. However, the work activities proposed within that Work Plan were not conducted.

A total of eight groundwater monitoring/sampling events were conducted at the Site between October 2000 and September 2002 using the three original onsite wells MW-1, MW-2 and MW-3. These three wells appear to have been paved over with concrete or otherwise abandoned, although a record of proper destruction/decommissioning has not been filed with the Alameda County Public Work Agency (ACPWA).

Groundwater analytical data collected previous to wells being abandoned/lost indicates that the highest concentrations of GRO and benzene were reported near the former UST pit and dispensers (former well MW-3 and boring AEI-22). Concentrations of GRO were generally limited to onsite, with concentrations less than near cleanup levels of 100 µg/L in former borings AEI-20, AE1-16, and AEI-14. The GRO plume was defined to the south and southeast on Farnam Street by former borings AEI-13 and AEI-18, where none was detected. Benzene was historically defined to below 0.5 µg/L in all directions with exception to the north, where one minor detection (0.81 µg/L) was detected in former boring AE-16.

3.0 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Setting

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fan deposits. The alluvial fill thickness ranges from 300 to 700 feet deep

and there are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area have historically pumped one to two million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due in part to low recharge potential. The Merrit sand in West Oakland was an important part of the early water supply for the City of Oakland. It is shallow (up to 60 feet), but before the turn of the last century, septic systems contaminated the water supply wells.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of groundwater flow is from east to west or from the Hayward Fault to the San Francisco Bay. Groundwater flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction.

3.2 Historic Site-Specific Conditions

Based on the eight monitoring events between October 2000 and September 2002, depth-to-water (DTW) measurements range historically from approximately 8 to 18 feet below ground surface (bgs). The groundwater gradient direction associated with the Site varied, but the predominant direction was to the southeast. However, the historic well network was small with wells being located close together, so the accuracy of these former groundwater gradient calculations is unclear. Based on review of historic geologic boring logs, soil beneath the Site generally consists of mixed silty, sandy, and gravely clays, which have been encountered to the maximum boring depth of 35 feet bgs.

4.0 MONITORING WELL INSTALLATION ACTIVITIES

The purpose of this recently conducted investigation was to collect data in order to evaluate current subsurface Site conditions, including the presence and extent of residual hydrocarbon impacts in soil and groundwater. As previously noted, historic onsite wells were, at a minimum, paved over during previous Site redevelopment if not destroyed. In order to evaluate current groundwater conditions, four new monitoring wells (MW-4 through MW-7) were installed. Well MW-4 was installed near the former source area, and wells MW-5 through MW-7 were installed to assess the upgradient and downgradient extent of the plume, and also to provide a sufficient well network for accurate groundwater direction and gradient calculations. These new well locations are presented in Drawing 2.

4.1 Preliminary Activities, Local Permitting, and Notification

Necessary permits including drilling permits from the ACPWA were secured prior to carrying out the field investigation. Copies of these permits are included in Appendix C. Additionally, all borings were marked and areas were outlined with white spray paint, and an Underground Service Alert (USA) ticket was secured to notify all utility companies on the area of the upcoming activities. Additionally, all boring locations were cleared for underground utilities by NorCal Geophysical (Norcal) on October 29, 2013. NorCal's utility locate report is included in Appendix D.

The Site-specific HASP was prepared for use by field personnel. The HASP addressed hazards associated with drilling activities. A copy of the HASP was available onsite during work. The subcontractor(s) performing field activities were provided with a copy of the HASP prior to initiating work, and daily safety tailgate meetings were conducted to review hazards and drilling safety associated with execution of the work.

4.2 Soil Borings

Gregg Drilling and Testing, Inc. (Gregg) mobilized to the Site on November 11 through 13, 2013 to perform borehole clearance using an airknife for all proposed well locations. These locations were cleared to a total of 6.5 feet bgs in order to protect any potential unidentified underground utilities from damage. On November 18 and 19, 2013, Broadbent personnel oversaw the soil boring activities in advance of well installations. Soil borings were advanced using hollow-stem augers to total depth. Soil samples were collected using a macrocore sampler lined with acetate tubes. All soil borings were logged for lithology, presence of first-encountered groundwater and identification of potential contamination. Select soil samples collected up to 20 feet bgs (two feet below the lowest groundwater level based on historical data) were collected and submitted for laboratory analytical testing. Deeper sampling was not warranted because saturated soil samples are more representative of groundwater conditions than soil. Soil cores were classified according to the Unified Soil Classification System (USCS), and were additionally logged using visual and manual methods for parameters including odor, staining, color, grain size, and moisture content. Field screening for hydrocarbons will include use of a photo-ionization detector (PID) measurements. Boring/well logs are presented in Appendix E.

4.3 Soil Sampling and Analysis

Collected soil sample cores were sealed with Teflon sheets, capped and placed in a chilled cooler. Samples were then be submitted to TestAmerica Laboratory (TestAmerica) of Irvine, California, a state-certified analytical laboratory, under standard chain-of-custody protocol. Soil samples were analyzed for Gasoline-Range Organics (GRO, C6-C12) by EPA Method 8015M and for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Naphthalene and Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8260B. Table 1 summarizes soil analytical results.

4.4 Groundwater Monitoring Well Construction

Monitoring wells MW-4 through MW-7 were constructed of two-inch diameter, Schedule 40 poly-vinyl chloride (PVC) threaded casing, with 0.010-inch machine-cut slots. In each monitoring well, it was attempted to screen a total of 10 feet across first encountered groundwater. Higher permeability sands/gravel were noted below 20 ft bgs in all borings, so screens were constructed to encompass this permeable zone in all wells. For monitoring wells MW-4 through MW-6, the wells were constructed from 18 to 28 feet bgs, bracketing the permeable layer at approximately 23 or 24 feet bgs (see Appendix E). In well MW-7, this permeable layer was encountered at a greater depth, so the screen interval was set from 22 to 32 feet bgs. No evidence of groundwater was noted in the clays above the permeable layer in the borings.

A filter pack consisting of No.2/12 sand was installed in the annular space from total depth drilled to one foot above the casing screen interval. A one-foot Bentonite clay seal was placed above the filter pack with neat cement grout completing the seal. All wells were completed with traffic-rated locking vaults, set in cement concrete to protect the well head.

4.5 Investigation-Derived Soil and Water Disposal

Soil and water produced during the investigation was temporarily stored on-site in 55-gallon drums, pending characterization for proper disposal. Broadbent coordinated the transportation and disposal of the excess soil and water to the appropriate California-regulated facilities.

4.6 Groundwater Monitoring Well Development

Gregg mobilized to the Site on November 22, 2013 to develop new Site monitoring wells. Wells were developed by surging and bailing each well to remove fine-grained sediments from the well and sand filter pack. A minimum of three and a maximum of ten wetted casing volumes of groundwater were removed until water quality parameters have stabilized. Periodic measurements of the water quality parameters pH, temperature, and conductivity were recorded during the development to establish baseline values for groundwater. Field data sheets for well development are included in Appendix F.

4.7 Monitoring Well Survey

After installation, the monitoring wells were surveyed in accordance with State Water Resource Control Board's standards for the GeoTracker database. The well survey was performed on December 18, 2013 by Morrow Surveying, Inc. (Morrow). The licensed surveyors report is included in Appendix G.

4.8 Groundwater Monitoring and Sampling

Monitoring wells MW-4 through MW-7 were initially monitored and sampled on December 2, 2013. No irregularities were noted during water level gauging. Depth to water measurements ranged from 13.67 ft bgs at MW-5 to 15.35 ft bgs at MW-7. Resulting groundwater surface elevations ranged from 34.12 feet above mean sea level (ft msl) in well MW-4 to 32.93 ft msl in well MW-7. Groundwater elevations are summarized in Table 2. Water level elevations yielded a potentiometric groundwater gradient to the east at approximately 0.01 ft/ft. Field data sheets are included in Appendix E. Potentiometric groundwater elevation contours are presented in Drawing 3.

Groundwater samples were collected on December 2, 2013. No irregularities were reported during sampling activities. Samples were submitted under chain-of-custody protocol to Test America Laboratories, Inc. of Irvine, California, for analysis of GRO, by EPA Method 8015B; for BTEX, MTBE and naphthalene by EPA Method 8260B. No irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix H. Table 3 summarizes groundwater analytical results.

5.0 VAPOR INTRUSION ASSESSMENT ACTIVITIES

The purpose of soil vapor sampling activities discussed herein was to collect data in order to evaluate current subsurface Site conditions including the presence and extent of residual hydrocarbon. Additional soil vapor sampling was conducted to determine whether a vapor intrusion risk to the current building occupants associated with the historic release exists. In order to evaluate this potential risk, six soil vapor probes in three sampling locations (Drawing 2) were installed. Soil vapor sampling activities were performed in accordance with The California Department of Toxic Substances Control's (DTCS's) *Advisory – Active Soil Gas Investigations* (DTSC, 2012)**.**

5.1 Preliminary Activities, Local Permitting, and Notification

Necessary permits including drilling permits from the ACPWA were secured prior to carrying out the field investigation. Copies of these permits are included in Appendix D. Borings were marked and areas were outlined with white spray paint, and an Underground Service Alert (USA) ticket was secured to notify utility companies in the area of the upcoming activities. Additionally, boring locations were cleared for underground utilities by NorCal Geophysical (NorCal) on October 29, 2013. NorCal's utility locate report is included in Appendix E.

The Site-specific HASP was prepared for use by field personnel. The HASP addressed hazards associated with drilling activities. A copy of the HASP was available onsite during work. The subcontractor(s) performing field activities were provided with a copy of the HASP prior to initiating work, and daily safety tailgate meetings were conducted to review hazards and drilling safety associated with execution of the work.

5.2 Soil Vapor Probe Borings

Three soil vapor sampling locations were installed (SG-1A/B, SG-2A/B, SG-3A/B; Drawing 2) on November 11 and 12, 2013 by Gregg. Two soil vapor probes were installed at each location: An "A" soil vapor probe was constructed with the probe installed at 3.5 ft bgs, and a "B" soil vapor probe was constructed with the probe installed at 5.5 ft bgs. The two depth intervals were installed at each location to assess the potential bioattenuation of residual hydrocarbons in soil vapor. Specific bioattenuation indicator parameters (oxygen, argon, methane, and carbon dioxide; see Section 5.4 below) were measured in each interval to determine the presence and length of any zone of bioattenuation.

In lieu of nested multi-level wells, each soil vapor boring was constructed to a specific depth within its own boring, thus minimizing the potential for short-circuiting. Probes SG-1A and SG-1B are located in front of the building in order to quantify risks to potential or future building occupants. Soil vapor probes SG-2A/B were installed on the northeast corner of the property; SG-3A/B were installed in the southeast corner of the property. These locations were intended to evaluate risks the residences to the east of the property. Each probe is horizontally separated by at least three feet at each location.

5.3 Soil Vapor Probe Construction

Soil vapor probes were constructed by attaching a 6-inch long soil vapor probe tip to a 0.125-inch diameter Teflon tubing extending approximately two feet above the surface. The soil vapor probe tips were constructed of double-woven stainless steel wire screen with a 0.057-inch pore diameter, equipped with stainless-steel end fittings. Each soil vapor probe was embedded within the middle of a one-foot thick sand filter pack of #2/12 sorted sand, topped with one-half foot of dry powdered Bentonite clay below a minimum of one-half foot of hydrated powdered Bentonite clay, and completed with a traffic-rated well vault at the surface set with neat cement concrete surface seal to match the existing grade.

5.4 Soil Vapor Probe Sampling

Broadbent personnel conducted soil vapor sampling activities on December 17-18, 2013. No rainfall event of 0.5 inches or more had recently occurred within 24 hours of sampling.

Initially, the soil vapor sampling train was assembled by connecting the Swagelok fitting at the end of the probe's tubing to an inline vacuum gauge with a tee then to a 100-cubic centimeter (cc) calibrated syringe with three-way valve at the tip. Coming off the tee for the sample was a one-liter Summa canister, supplied by the laboratory under high vacuum (-30 inches Mercury, in.Hg), leak checked and batch-certified to be free of contaminants. With the valve of the soil vapor probe closed and the valve to the Summa canister closed, the sampling train was checked for leaks during a, "shut-in" leak test by applying with the calibrated syringe a vacuum of -15 in.Hg for a period of five minutes (-15 in.Hg is fifty percent above the standard threshold of -10 in.Hg considered representative of "No Flow" conditions). When the applied vacuum did not drop during the shut-in test, the sampling train assembly was considered leak-tested tight.

After the shut-in leak test, the closed valve of the soil vapor probe was opened and the sampling train slowly purged of one calculated interior volume using the calibrated syringe. The calculated interior volume included the aboveground tubing, appurtenances, below-ground tubing, probe tip, but not the pore space within the filter pack. The main purpose in waiting to sample for at least one month after installation is to allow the soil vapor in the fine sand filter pack to equilibrate to the soil vapor in the undisturbed soil surrounding the implant location. In the tight permeability soils encountered at this Site, the first soil vapor drawn in from outside the implant tubing was assumed to be the most representative and likely contain highest concentrations than would be encountered through excessive purging.

Following the completion of purging, a clear-plastic shroud was setup over the sampling train to contain the chemical tracer/leak-check compound of Helium gas. The shroud was placed to completely cover the soil vapor sampling implant wellhead, its aboveground tubing, and the tubing, fittings, and sample Summa canister that will make up the sampling train. Once setup, Helium gas was released via tubing under the shroud. A Radiodetection Model MGD-2002 Helium detector was used to monitor the concentration within the shroud by placing its sensor probe within. Prior to and during sampling, a positive-pressure concentration of approximately 20 percent Helium was maintained within the shroud using the compressed gas cylinder's flow regulator.

Once a positive-pressure Helium atmosphere was created under the shroud, the valve to the Summa canister was opened and the sample collected. The sampling rates into the Summa canisters was fixed by laboratory-supplied critical orifice assemblies (i.e. mini flow regulators) with a 0.0060 inch orifice allowing approximately 200 standard cc per minute (cc/min). Samples were collected into the Summa canisters until the vacuum dropped from the initial laboratory-supplied vacuum of -30 in.Hg to -5 in.Hg. Sample start times, end times, starting vacuums, ending vacuums, and Helium concentrations during sampling were recorded in the field notes. These notes are included in Appendix F.

5.5 Laboratory Analysis of Soil Vapor Samples

Collected samples were submitted to TestAmerica under standard chain-of-custody protocol. At the laboratory, soil vapor samples will be analyzed for GRO by EPA Method TO-3 and for BTEX, Naphthalene

and MTBE by EPA Method TO-15. Soil vapor samples will also be analyzed for Oxygen (O_2) and Carbon Dioxide (CO_2), Methane (CH_4) and Helium (tracer/leak-check compound) by Modified ASTM D-1946. Laboratory analyses for soil vapor samples were performed in accordance with EPA standard holding times for Summa canisters. Table 4 summarizes soil vapor sampling results.

6.0 INVESIGATION RESULTS

The following sections summarize the results of the recently conducted Site assessment activities. These results include encountered lithology, groundwater gradient and elevation, soil analytical results, groundwater analytical results and soil vapor analytical results. The analytical results were compared to Environmental Screening Levels (ESLs; CRWQCB, 2013) and applicable Low Threat UST Closure Policy (LTCP; SWRCB, 2012), where appropriate. Soil boring/well logs are included in Appendix E. Soil analytical results and applicable ESLs and LTCP criteria are summarized in Table 1. Table 2 provides a summary of groundwater elevations for Site monitoring wells. Table 3 summarizes groundwater analytical results and applicable ESLs. Table 4 summarizes soil vapor analytical results and applicable ESLs. Drawing 3 depicts groundwater elevation contours. Drawings 4 and 5 depict GRO and benzene isoconcentrations in groundwater.

6.1 Encountered Lithology

Soils encountered during well installation activities consisted of primarily silts and clays with minor variable amounts of fine sands and gravels present. Overall, the permeability of these encountered fine-grained materials was estimated to be very low based on field observations. A layer of moist sands and gravels mixed with fines was noted in well boreholes MW-4 through MW-6 at approximately 23 to 24 feet bgs. This moist, higher permeability layer was noted in borehole MW-7 at approximately 30 feet bgs. Moisture was not noted in boreholes above this higher permeability layer. Since groundwater levels in these monitoring wells range from 13 to 16 feet bgs (much higher than where first water was encountered), it appears that groundwater is present in this higher permeability layer of silts with sand and gravel under confined or semi-confined conditions.

6.2 Groundwater Elevation and Gradient

As noted above, groundwater surface elevations ranged from 34.12 ft above msl in well MW-4 to 32.93 ft above msl in well MW-7. Groundwater elevations are summarized in Table 2. Water level elevations yielded a potentiometric groundwater gradient to the east at approximately 0.01 ft/ft. Potentiometric groundwater elevation contours are presented in Drawing 3. This calculated groundwater gradient is consistent with previous data from former Site wells. Well MW-4 is considered a source area well; wells MW-5 and MW-6 are considered upgradient, and well MW-7 located downgradient.

6.3 Soil Analytical Results

Soil samples were collected in boreholes within and in the suspected smear zone. The highest occurrence of petroleum compounds were detected in soil samples collected from well MW-4, near the former suspected source area. Low concentrations of GRO, benzene, toluene, xylenes, and naphthalene were detected in soil at 7.5 feet bgs in this location. GRO and ethylbenzene were also detected at 19.5 feet bgs at this location. Only GRO was detected in any sample from upgradient locations MW-5 and

MW-6, both at 15.5 feet bgs. The highest overall concentration of GRO was noted in soil from well MW-7 at 15.5 feet bgs at a concentration of 39 mg/kg. Detected concentrations in soil appear to be minor residual resulting from the highly degraded petroleum plume.

Shallow soil samples collected (above 10 feet bgs) did not contain any petroleum concentrations in excess of values listed in Table 1 of the LTCP. Residual concentrations of petroleum in soil do not pose a risk for direct contact. Soil analytical results are summarized in Table 1.

6.4 Groundwater Analytical Results

The highest overall petroleum compound concentrations were detected in the source area well MW-4. These concentrations included GRO at 810 µL, benzene at 38 µg/L, toluene at 0.71 µg/L, ethylbenzene at 57 µg/L, xylenes at 15 µg/L, and DIPE at 1.7 µg/L. No MTBE was detected in this well. However, MTBE was detected in upgradient wells MW-5 and MW-6. No other petroleum compounds were detected in these upgradient wells. Given the age of the Site used for fuel dispensing, it is likely that MTBE in the upgradient wells are not associated with the onsite plume, and are the result of infiltration of contaminants from the adjacent street. In downgradient well MW-7, only GRO and ethybenzene were detected.

Concentrations in excess of ESLs were detected only in well MW-4 (with the exception of the likely unrelated MTBE in well MW-6). GRO, benzene, and ethylbenzene exceeded the ESLs in this well. However, concentrations in downgradient well MW-7 are below ESLs for these compounds, so the extent of petroleum in groundwater is defined. Table 3 summarizes groundwater analytical results and ESLs. Laboratory analytical reports are included in Appendix H. GRO and benzene contaminant isoconcentration maps are included as Drawings 4 and 5.

6.5 Soil Vapor Analytical Results

No GRO, benzene, toluene, ethylbenzene, xylenes, MTBE, or naphthalene were detected in any of the six soil vapor samples collected, with the exception of one minor concentration of GRO in probe SG-1B. This GRO concentration was below Tier 1 ESLs. Soil vapor analytical results are summarized in Table 4.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the recently conducted investigation indicates that residual impacts are present, primarily in groundwater, at highest concentrations near the suspected source area (well MW-4), with lesser impacts located in the downgradient direction (MW-7). These residual impacts are largely present in the thin, comparatively permeable silt with sand and gravel noted in well logs at approximately 23 to 30 feet bgs. Groundwater was encountered in this interval, and is under confined or semi-confined conditions. Groundwater gradient is relatively flat (0.01 ft/ft), which is consistent with the noted lithology and the regional geologic conditions and depositional environment. Therefore, residual contaminant migration of petroleum hydrocarbons remaining in groundwater is limited both laterally and vertically by lithologic conditions.

The areal extent of remaining petroleum in groundwater is defined. GRO, benzene, and ethylbenzene were detected in source area well MW-4 at concentrations in excess of their respective ESLs, however in downgradient well MW-7, no impacts in excess of ESLs were noted. Well MW-7 is approximately 120

feet downgradient of well MW-4. In that distance, GRO decreases from 810 µg/L (MW-4) to 96 µg/L (MW-7), benzene decreases from 38 µg/L to non-detect, and ethylbenzene decreases from 57 µg/L to 1.5 µg/L. Additionally, groundwater samples collected from upgradient well MW-5 and MW-6 contained no petroleum compounds, with the exception of minor concentrations of MTBE, likely unrelated to Site hydrocarbon impacts (see Section 6.4 above). Based on these data, observations, and analysis, the extent of remaining petroleum hydrocarbons in groundwater is defined.

Soil vapor analytical and soil analytical results indicate that no concentrations above ESLs or applicable LTCP criteria exist. These data indicate minimal to no risk for the onsite building occupants from potential petroleum vapor intrusion to indoor air, outdoor air exposure and potential direct contact with soil.

Overall, recent data indicates that residual petroleum hydrocarbons have degraded since Site groundwater was sampled in 1999 to 2002, likely due to natural attenuation. Due to the Site conditions, it is unlikely that the residual petroleum hydrocarbons in the subsurface are of any significant risk to human health or the environment. It is recommended that wells MW-4 through MW-7 be sampled at a minimum during the first quarter (March 2014) and the second quarter (June 2014) to confirm the results of the initial sampling discussed herein. At that time, it is recommended that a conceptual site model (CSM) and sensitive receptor survey (SRS) be prepared. The CSM should identify any additional data gaps and recommendations for future Site activities.

8.0 REFERENCES

AEI Consultants, Inc., June 11, 1999. *Subsurface Investigation,* 1450 Fruitvale Avenue, Oakland, California. Prepared for Jay-Phares Corporation.

AEI Consultants, Inc., October 11, 1999. *Phase II Subsurface Investigation,* 1450 Fruitvale Avenue, Oakland, California. Prepared for Jay-Phares Corporation, and forwarded to ACEH.

AEI Consultants, Inc., April 5, 2002. *Quarterly Groundwater Monitoring Report,* 1450 Fruitvale Avenue, Oakland, California.

AEI Consultants, Inc., July 5, 2002. *Groundwater Investigation Report,* 1450 Fruitvale Avenue, Oakland, California. Prepared for Fruitvale-Farnam Associates, LLP, and forwarded to ACEH and Mr. Bill Phua care of Jay-Phares Corporation.

AEI Consultants, Inc., October 9, 2002. *Site Summary and Risk Evaluation Report,* 1450 Fruitvale Avenue, Oakland, California. Prepared for Fruitvale-Farnam Associates, LLP, and forwarded to ACEH.

California Department of Toxic Substances Control (DTSC), April 2012. *Advisory – Active Soil Gas Investigations.*

California Regional Water Quality Control Board (CRWQCB), December, 2013. *Screening for Sites with Contaminated Soil and Groundwater, Interim Final.*

California State Water Resources Control Board, (SWRCB), April 17, 2012. *Low Threat UST Closure Policy.*

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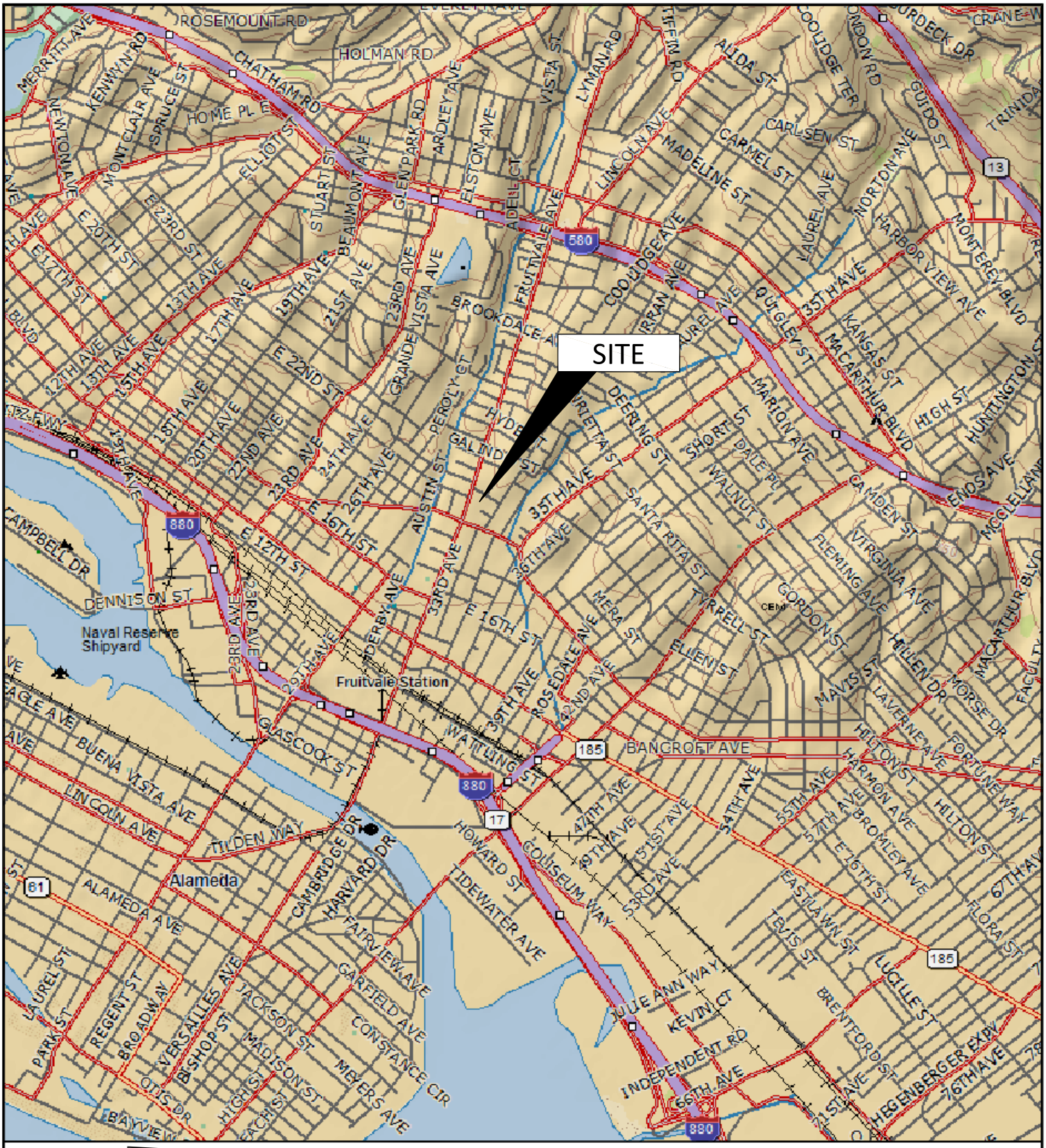


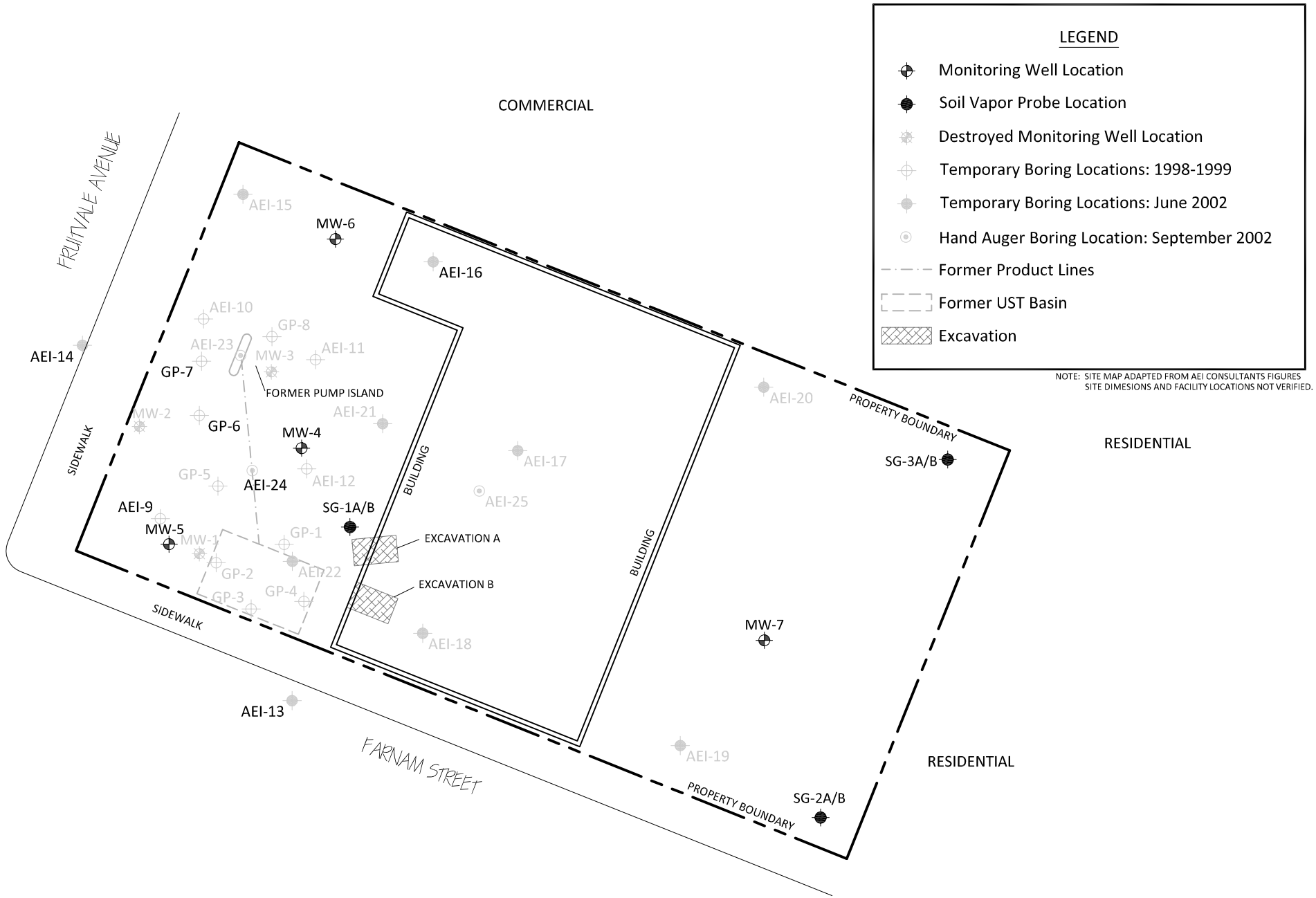
IMAGE SOURCE: DeLorme Topo USA 7.0

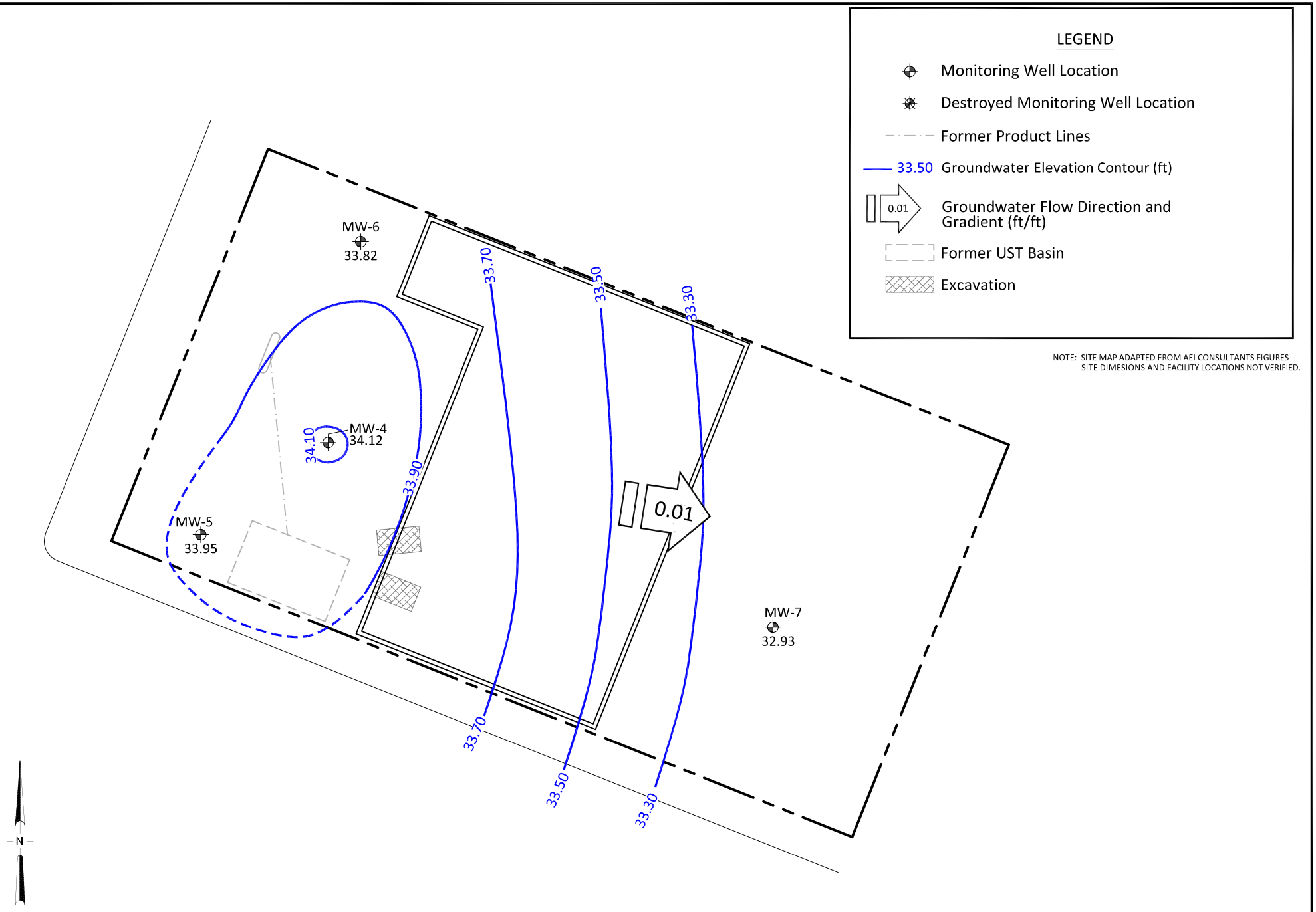
BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 08-88-602 Date: 3/8/2013

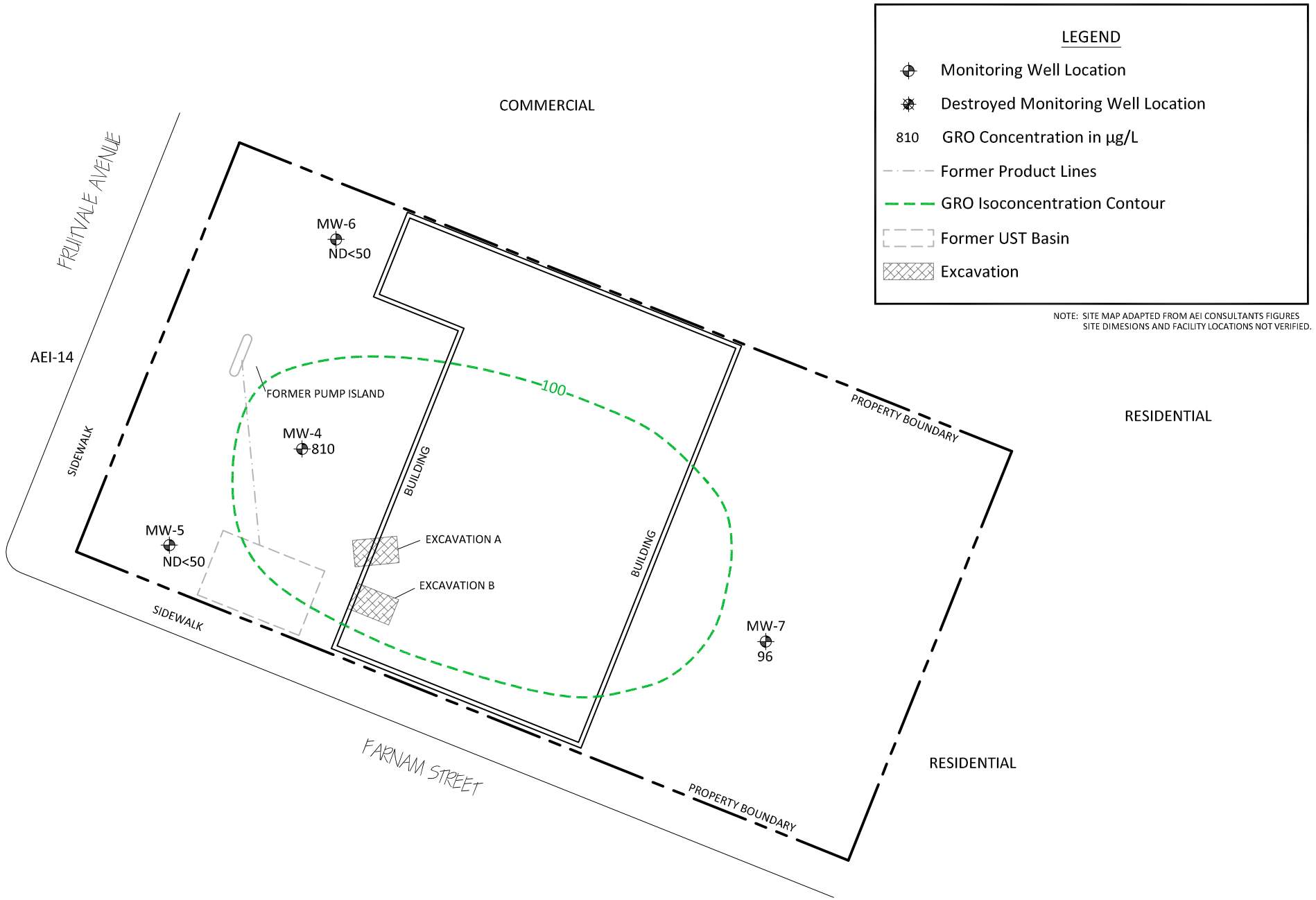
Former BP Station #402
1450 Fruitvale Avenue
Oakland, California

Site Location Map

Drawing
1


LEGEND
Monitoring Well Location
Soil Vapor Probe Location
Destroyed Monitoring Well Location
Temporary Boring Locations: 1998-1999
Temporary Boring Locations: June 2002
Hand Auger Boring Location: September 2002
Former Product Lines
Former UST Basin
Excavation
NOTE: SITE MAP ADAPTED FROM AEI CONSULTANTS FIGURES
SITE DIMESIONS AND FACILITY LOCATIONS NOT VERIFIED.
COMMERCIAL
FRUITVALE AVENUE
SIDEWALK
AEI-14
AEI-15
MW-6
AEI-16
AEI-10
GP-8
AEI-23
MW-3
AEI-11
GP-7
FORMER PUMP ISLAND
MW-2
GP-6
AEI-21
MW-4
BUILDING
AEI-17
GP-5
AEI-24
AEI-12
AEI-25
AEI-9
SG-1A/B
MW-5
MW-1
GP-1
EXCAVATION A
GP-2
AEI-22
EXCAVATION B
GP-3
GP-4
SIDEWALK
AEI-18
MW-7
AEI-13
FARNAM STREET
AEI-19
PROPERTY BOUNDARY
SG-2A/B
AEI-20
PROPERTY BOUNDARY
RESIDENTIAL
SG-3A/B
RESIDENTIAL
N
0
30
60
SCALE (ft)
BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 08-88-602 Date: 01/20/2014
ARCO Former Station № 402
1450 Fruitvale Avenue
Oakland, California
Site Map with Former and
Current Site Features
Drawing
2


LEGEND
Monitoring Well Location
Destroyed Monitoring Well Location
Former Product Lines
33.50 Groundwater Elevation Contour (ft)
0.01 Groundwater Flow Direction and Gradient (ft/ft)
Former UST Basin
Excavation
NOTE: SITE MAP ADAPTED FROM AEI CONSULTANTS FIGURES
SITE DIMESIONS AND FACILITY LOCATIONS NOT VERIFIED.
MW-6
33.82
MW-4
34.12
MW-5
33.95
MW-7
32.93
34.10
33.90
33.70
33.50
33.30
0.01
N
0
30
60
SCALE (ft)
BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 08-88-602 Date: 01/20/2014
ARCO Former Station № 402
1450 Fruitvale Avenue
Oakland, California
Groundwater Elevation Map –
December 2, 2013
Drawing
3

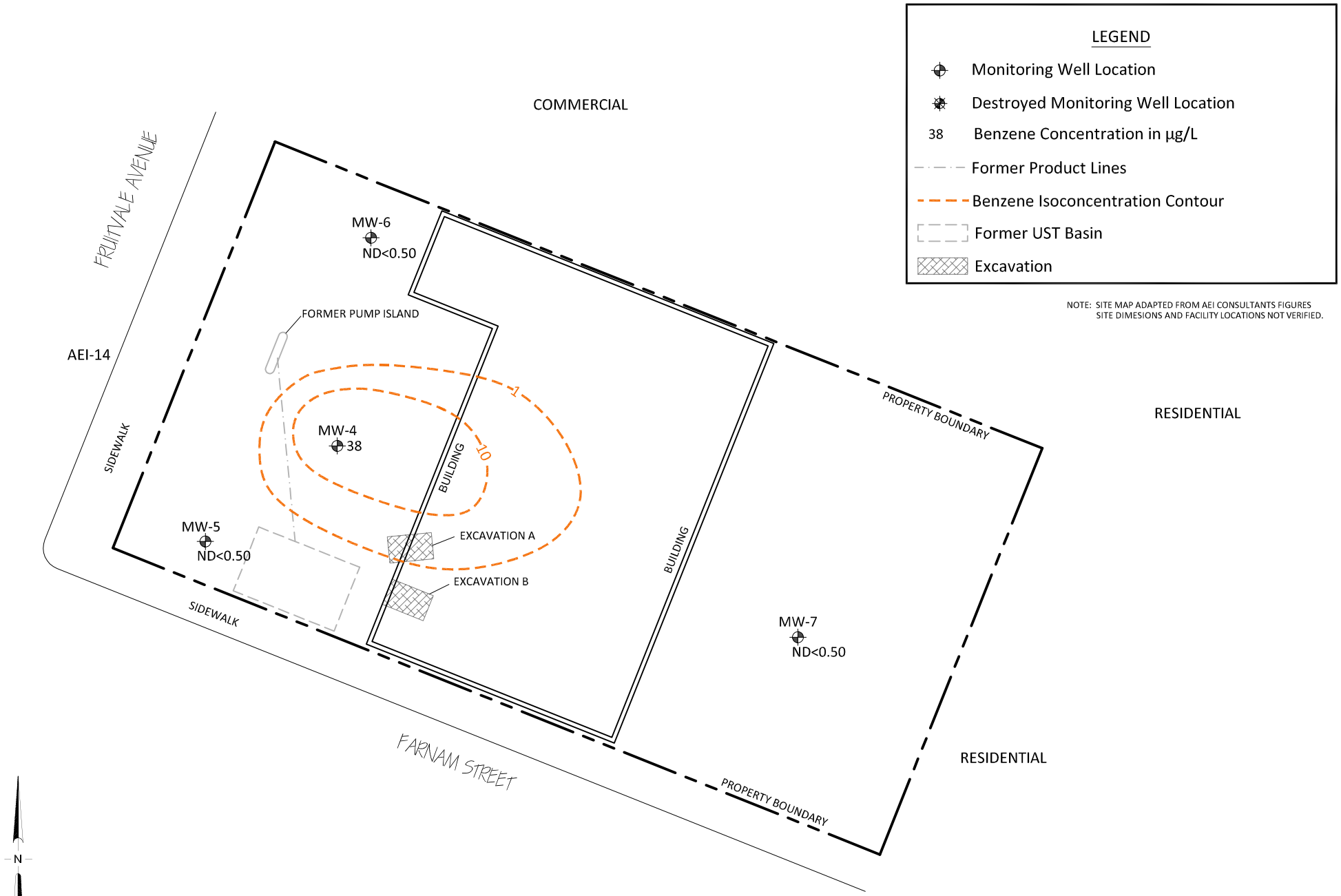


BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 08-88-602 Date: 01/20/2014

ARCO Former Station № 402
1450 Fruitvale Avenue
Oakland, California

GRO Isoconcentration Contour Map
– December 2, 2013

Drawing
4



0 30 60

SCALE (ft)

BROADBENT
875 Cotting Lane, Suite G
Vacaville, California 95688
Project No.: 08-88-602 Date: 01/20/2014

ARCO Former Station № 402
1450 Fruitvale Avenue
Oakland, California

Benzene Isoconcentration Contour Map – December 2, 2013

Drawing
5

Table 1
Soil Analytical Results
November 2013
Former ARC Station No. 402
1450 Fruitvale Avenue, Oakland, California

Well Identification	Soil Sample Depth (feet bgs)	Date Collected	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes* (mg/kg)	MTBE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	DIPE (mg/kg)	EDB (mg/kg)	Ethanol (mg/kg)	Naphthalene (mg/kg)
MW-4	3.5	11/14/2013	ND<0.39	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.051	ND<0.0020	ND<0.0010	ND<0.20	ND<0.0020
MW-4	6.5	11/14/2013	ND<0.40	ND<0.00095	ND<0.00095	ND<0.00095	ND<0.0019	ND<0.0019	ND<0.0019	ND<0.0019	ND<0.047	ND<0.0019	ND<0.00095	ND<0.19	ND<0.0019
MW-4	7.5	11/18/2013	0.99	0.0095	0.0057	0.26	0.06	ND<0.0052	ND<0.0052	ND<0.0052	ND<0.13	ND<0.0052	ND<0.0026	ND<0.52	0.21
MW-4	19.5	11/18/2013	1.8	ND<0.10	ND<0.10	0.66	ND<0.20	ND<0.25	ND<0.25	ND<0.25	ND<5.0	ND<0.25	ND<0.10	ND<15	ND<0.25
MW-5	7.5	11/18/2013	ND<0.37	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.050	ND<0.0020	ND<0.0010	ND<0.20	ND<0.0020
MW-5	15.5	11/18/2013	1.3	ND<0.00099	ND<0.00099	ND<0.00099	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.050	ND<0.0020	ND<0.00099	ND<0.20	ND<0.0020
MW-5	19.5	11/18/2013	ND<0.39	ND<0.00099	ND<0.00099	ND<0.00099	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.050	ND<0.0020	ND<0.00099	ND<0.20	ND<0.0020
MW-6	7.5	11/19/2013	ND<0.38	ND<0.00099	ND<0.00099	ND<0.00099	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00099	ND<0.20	ND<0.0020
MW-6	15.5	11/19/2013	16	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.050	ND<0.0020	ND<0.0020	ND<0.20	ND<0.0020
MW-7	7.5	11/19/2013	ND<0.38	ND<0.00099	ND<0.00099	ND<0.00099	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00099	ND<0.20	ND<0.0020
MW-7	15.5	11/19/2013	39	ND<0.00099	ND<0.00099	0.0053	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.050	ND<0.0020	ND<0.00099	ND<0.20	ND<0.0020
LTCP Criteria - 0 to 5 feet bgs			NA	**8.2**	NA	**89**	NA	NA	NA	NA	NA	NA	NA	NA	**45**
LTCP Criteria - 5 to 10 feet bgs			NA	**12**	NA	**134**	NA	NA	NA	NA	NA	NA	NA	NA	**45**
LTCP Criteria -Utiliity Worker			NA	**14**	NA	**314**	NA	NA	NA	NA	NA	NA	NA	NA	**219**

Notes:

feet bgs = feet below ground surface
mg/kg = milligrams per kilogram
GRO = gasoline range organics (C6-C12)
MTBE = methyl tert-butyl ether
ETBE = ethyl tert-butyl ether
TAME = tert-amyl methyl ether
TBA = tert butyl alcohol
DIPE = di isopropyl ether
1,2-DCA = 1,2-dichloroethane
EDB = 1,2-dibromomethane

ND<X.XX = not detected above reporting limit of X.XX
NA = not analyzed
LTCP = Low Threat UST Closure Policy, California State Water Resources Control Board (SWRCB), August 17, 2012
LTCP Criteria listed in Table 1, page 8 of the LTCP for a commercial/industrial exposure scenario

Table 2
Monitoring Well Details and Groundwater Elevation Results
December 2013
Former ARC Station No. 402
1450 Fruitvale Avenue Oakland, California

Well Identification	Top of Casing Elevation (feet msl)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Groundwater Monitoring Date	Depth to Water (feet bgs)	Groundwater Elevation (feet msl)
MW-4	48.18	28	18-28	12/2/2013	14.06	34.12
MW-5	47.62	28	18-28	12/2/2013	13.67	33.95
MW-6	48.89	28	18-28	12/2/2013	15.07	33.82
MW-7	48.28	32	22-32	12/2/2013	15.35	32.93

Notes:

feet msl = feet above mean sea level
feet bgs = feet below ground surface

Table 3
Groundwater Analytical Results
December 2013
Former ARC Station No. 402
1450 Fruitvale Avenue Oakland, California

Well Identification	Date Collected	GRO (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes* (ug/L)	MTBE (ug/L)	ETBE (ug/L)	TAME (ug/L)	TBA (ug/L)	DIPE (ug/L)
MW-4	12/2/2013	**810**	**38**	0.71	**57**	15	ND<0.50	ND<0.50	ND<0.50	ND<10	1.7
MW-5	12/2/2013	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	0.69	ND<0.50	ND<0.50	ND<10	ND<0.50
MW-6	12/2/2013	ND<50	ND<0.05	ND<0.50	ND<0.50	ND<1.0	**10**	ND<0.50	ND<0.50	ND<10	ND<0.50
MW-7	12/2/2013	96	ND<0.50	ND<0.50	1.5	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<10	ND<0.50
ESLs		**100**	**1.0**	**40**	**30**	**20**	**5**	NA	NA	NA	NA

Notes:

µg/Liter = micrograms per liter
GRO = gasoline range organics (C6-C12)
MTBE = methyl tert-butyl ether
ETBE = ethyl tert-butyl ether
TAME = tert-amyl methyl ether
TBA = tert butyl alcohol
DIPE = di isopropyl ether
1,2-DCA = 1,2-dichloroethane
EDB = 1,2-dibromomethane

ND<X.XX = not detected above reporting limit of X.XX µg/L
NA = not analyzed
ESLs - Tier 1 Environmental Screening Levels, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater,* California Regional Water Quality Control Board (CRWQCB), Interim Final, December 2013.
Commercial/Industrical exposure scenario, assuming groundwater is a potential drinking water resource

Table 4
Soil Vapor Analytical Results
December 17, 2013
Former ARC Station No. 402
1450 Fruitvale Avenue, Oakland, California

Soil Vapor Probe Identification	Probe Sample Depth (feet bgs)	Date Collected	GRO (µg/m^3)	Benzene (µg/m^3)	Toluene (µg/m^3)	Ethylbenzene (µg/m3)	Total Xylenes* (µg/m^3)	MTBE (µg/m^3)	Naphthalene (µg/m^3)	Carbon Dioxide (%)	Methane (%)	Oxygen (%)
SG-1A	3-3.5	12/17/2013	ND<8,100	ND<13	ND<15	ND<17	ND<17	ND<14	ND<21	1.7	0.00035	18.0
SG-1B	5-5.5	12/17/2013	46,000	ND<13	ND<15	ND<17	ND<17	ND<14	ND<21	1.1	0.0042	8.0
SG-2A	3-3.5	12/18/2013	ND<8,000	ND<13	ND<15	ND<17	ND<17	ND<14	ND<21	<0.98	0.0038	28.0
SG-2B	5-5.5	12/18/2013	ND<7,800	ND<13	ND<15	ND<17	ND<17	ND<14	ND<21	1.1	0.00076	20.0
SG-3A	3-3.5	12/17/2013	ND<8,000	ND<13	ND<15	ND<17	ND<17	ND<14	ND<21	1.0	0.00029	19.0
SG-3B	5-5.5	12/17/2013	ND<7,600	ND<13	ND<15	ND<17	ND<17	ND<14	ND<21	2.1	0.00027	18.0
ESLs			**2,500,000**	**420.0**	**1,300,000**	**4,900**	**440,000**	**47,000**	**360**	NA	NA	NA

Notes:

feet bgs = feet below ground surface
µg/m^3= micrograms per cubic meter
GRO = gasoline range organics (C6-C12)
MTBE = methyl tert-butyl ether

ND<X.XX = not detected above reporting limit of X.XX µg/m^3
NA = not analyzed
ESLs - Tier 1 Environmental Screening Levels, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater,* California Regional Water Quality Control Board (CRWQCB), Interim Final, December 2013. Commercial/Industrical exposure scenario; Table E-2

APPENDIX A

Historic Site Soil and Groundwater Data

Table 2 - Groundwater Sample Analytical Data: Temporary Borings
1450 Fruitvale Avenue, Oakland, CA - AEI Project # 10460

Sample ID	Consultant	Date	TPH-g µg/L	MTBE µg/L	Benzene µg/L	Toluene µg/L	Ethyl-Benzene µg/L	Xylenes µg/L
GP 1	Glenfos	7/9/1998	170	-	0.53	<0.5	1.2	2.0
GP 4	Glenfos	7/9/1998	210	-	<0.5	<0.5	0.58	<1
GP 5	Glenfos	7/9/1998	17,000	-	42	24	820	110
GP 8	Glenfos	7/9/1998	20,000	<10	1,000	19	420	290
AEI GW 8'	AEI	5/27/1999	<50	<5.0	<0.5	<0.5	<0.5	<0.5
AEI-9W	AEI	8/23/1999	690	3.8	72	0.79	29	24
AEI-13 W	AEI	610-12/02	<50	<5.0	<0.5	<0.5	<0.5	<0.5
AEI-14 W	AEI	610-12/02	830	<5.0	0.56	2.7	1.2	2.9
AEI-15 W	AEI	610-12/02	<50	14*	<0.5	<0.5	<0.5	<0.5
AEI-16 W	AEI	610-12/02	190	<5.0	0.86	1.0	0.75	1.3
AEI-17 W	AEI	610-12/02	1,700	<0.5*	56	2.5	89	69
AEI-18 W	AEI	610-12/02	780	<5.0	10	1.1	41	20
AEI-19 W	AEI	610-12/02	<50	<5.0	<0.5	<0.5	<0.5	<0.5
AEI-20 W	AEI	610-12/02	170	<5.0	0.81	0.55	7.7	3.1
AEI-21 W	AEI	610-12/02	2,200	2.8*	36	<5.0	110	58
AEI-22 W	AEI	610-12/02	25000	<12*	3800	290	1100	1900

MDL = Method Detection Limit

ND = Not detected above the Method Detection Limit (unless otherwise noted)

µg/L = micrograms per liter (ppb)

- Sample not analyzed for this chemical

TPH-g = Total petroleum hydrocarbons as gasoline

* MTBE by EPA method 8260, all others by 602/8020

Table 3 - Groundwater Elevation Data
1450 Fruitvale Avenue, Oakland, CA - AEI Project # 10460

Well ID (Screen - ft bgs)	Date	Well Elevation (ft msl)	Depth to Water (ft)	Groundwater Elevation (ft msl)
MW-1	10/16/00	42.13	17.72	24.41
(15-30)	1/19/01	42.13	9.15	32.98
	4/26/01	42.13	9.40	32.73
	8/3/01	42.13	12.38	29.75
	11/5/01	42.13	16.22	25.91
	3/29/02	42.13	7.96	34.17
	6/11/02	42.13	12.18	29.95
	9/16/02	**42.13**	**11.35**	**30.78**
MW-2	10/16/00	42.08	14.98	27.10
(15-30)	1/19/01	42.08	9.00	33.08
	4/26/01	42.08	8.34	33.74
	8/3/01	42.08	11.70	30.38
	11/5/01	42.08	15.08	27.00
	3/29/02	42.08	8.96	33.12
	6/11/02	42.08	12.49	29.59
	9/16/02	**42.08**	**10.52**	**31.56**
MW-3	10/16/00	42.55	17.98	24.57
(15-30)	1/19/01	42.55	10.90	31.65
	4/26/01	42.55	9.21	33.34
	8/3/01	42.55	12.67	29.88
	11/5/01	42.55	15.90	26.65
	3/29/02	42.55	9.20	33.35
	6/11/02	42.55	11.83	30.72
	9/16/02	**42.55**	**11.42**	**31.13**

Episode #	Date	Average Water Table (ft msl)	Change from Previous Episode	Flow direction (gradient)
1	10/16/00	25.36	-	E/SE (0.116)
2	1/19/01	32.57	+7.21	E/NE (0.041)
3	4/26/01	33.27	+0.70	SE (0.034)
4	8/3/01	30.00	-3.27	ESE (0.024)
5	11/5/01	26.52	-3.48	SE (0.033)
6	3/29/02	33.55	+7.03	NW (0.032)
7	6/11/02	30.09	-3.46	SW (0.040)
8	**9/16/02**	**31.16**	**+1.07**	**SE (0.028)**

Notes:
All well elevations are measured from the top of the casings
ft msl = feet above mean sea level

Table 4 - Groundwater Monitoring Well Analytical Data
1450 Fruitvale Avenue, Oakland, CA - AEI Project # 10460

Well/Sample ID	Date Collected	Consultant/ Lab	TPHg µg/L EPA 8015	MTBE µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L
				EPA method 8020				
MW-1	10/16/00	AEI/MAI	4,500	<20	560	14	53	62
	01/19/01	AEI/MAI	13,000	<100	790	46	1,100	210
	04/26/01	AEI/MAI	7,500	<30	470	23	720	120
	08/03/01	AEI/MAI	4,500	<10	440	11	55	6.6
	11/05/01	AEI/MAI	1,700	<10	100	6.0	4.6	2.1
	03/29/02	AEI/MAI	9,500	ND<100	880	32	400	59
	06/11/02	AEI/MAI	3,400	<50	620	9.7	75	11
	09/16/02	**AEI/MAI**	**3,800**	**<10**	**190**	**15.0**	**14**	**7.7**
MW-2	10/16/00	AEI/MAI	4,600	<300	380	3.8	95	33
	01/19/01	AEI/MAI	4,200	<10	450	4.7	120	50
	04/26/01	AEI/MAI	5,600	<20	810	12	210	65
	08/03/01	AEI/MAI	2,900	<20	360	3	97	46
	11/05/01	AEI/MAI	2,400	<85	280	3.2	76	25
	03/29/02	AEI/MAI	7,100	ND<100	930	11	220	39
	06/11/02	AEI/MAI	4,400	<150	680	8.1	160	38
	09/16/02	**AEI/MAI**	**7,400**	**<250**	**360**	**8.4**	**150**	**38**
MW-3	10/16/00	AEI/MAI	12,000	<10	570	32	680	1,200
	01/19/01	AEI/MAI	27,000	<200	3,400	110	2,200	2,700
	04/26/01	AEI/MAI	33,000	<200	3,300	190	2,800	3,400
	08/03/01	AEI/MAI	23,000	<50	2,300	52	1,800	1,400
	11/05/01	AEI/MAI	30,000	<200	1,900	58	2,000	1,600
	03/29/02	AEI/MAI	29,000	ND<100	2,100	57	2,500	1,700
	06/11/02	AEI/MAI	22,000	<50	2,100	44	2,300	1,600
	09/16/02	**AEI/MAI**	**25,000**	**<220**	**2,000**	**47**	**2,200**	**1,100**
MRL			50.0	5.0	0.5	0.5	0.5	0.5

Fuel Oxygenates

Well/Sample ID	Date Collected	DIPE µg/L	ETBE µg/L	MTBE µg/L	TAME µg/L	TBA µg/L	EDB µg/L	1,2-DCA µg/L
					EPA method 8260			
MW-1	**06/11/02**	-	-	2.4	-	-	-	-
	09/16/02	**0.56**	**<0.5**	**<3.0**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-2	**06/11/02**	-	-	23	-	-	-	-
	09/16/02	**7.30**	**<1.2**	**92**	**<1.2**	**<1.2**	**<1.2**	**<1.2**
MW-3	**06/11/02**	-	-	<2.5	-	-	-	-
	09/16/02	**<5.0**	**<5.0**	**<5.0**	**<5.0**	**<50**	**<5.0**	**<5.0**
MRL		0.5	0.5	0.5	0.5	5.0	0.5	0.5

MRL = Method Reporting Limit, unless otherwise shown
µg/L = micrograms per liter
AEI = AEI Consultants
MAI = McCampbell Analytical, Inc.
TPHg = total petroleum hydrocarbons as gasoline
MTBE = methyl tertiary butyl ether

Table 1 - Soil Sample Analytical Data
1450 Fruitvale Avenue, Oakland, CA - AEI Project # 10460

Sample ID	Consul-tant	Sample Date	TPH-g mg/kg	MTBE mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylenes mg/kg	Total Lead mg/kg
GP-1 10'	Glenfos	7/9/1998	10	-	<0.005	0.022	0.015	<0.01	-
GP-2 10'	Glenfos	7/9/1998	1.5	-	0.017	<0.005	<0.005	<0.01	-
GP-2 15'	Glenfos	7/9/1998	27	-	0.017	0.056	0.052	0.51	-
GP-2 30'	Glenfos	7/9/1998	2.5	-	<0.005	<0.005	<0.005	<0.01	-
GP-3 10'	Glenfos	7/9/1998	95	-	0.59	0.42	1.1	1.5	7.3
GP-3 15'	Glenfos	7/9/1998	2.5	-	0.055	0.018	0.055	0.26	-
GP-3 20'	Glenfos	7/9/1998	1.6	-	0.02	<0.005	0.02	0.032	-
GP-3 25'	Glenfos	7/9/1998	<1	-	<0.005	<0.005	<0.005	<0.01	-
GP-4 10'	Glenfos	7/9/1998	2.5	-	0.017	<0.005	0.003	0.021	4.1
GP-5 10'	Glenfos	7/9/1998	6.5	-	<0.005	0.022	0.018	0.041	-
GP-5 15'	Glenfos	7/9/1998	19	-	0.077	0.016	0.43	0.49	-
GP-5 20'	Glenfos	7/9/1998	<1	-	<0.005	<0.005	<0.005	<0.01	-
GP-6 5'	Glenfos	7/9/1998	<1	-	<0.005	<0.005	<0.005	<0.01	-
GP-6 10'	Glenfos	7/9/1998	7.7	-	0.008	0.015	0.012	0.047	6.2
GP-6 15'	Glenfos	7/9/1998	190	-	0.34	0.53	2.3	4.7	-
GP-6 20'	Glenfos	7/9/1998	28	-	0.083	0.081	0.052	0.19	-
GP-7 10'	Glenfos	7/9/1998	86	-	<0.005	0.088	0.09	0.5	-
GP-7 15'	Glenfos	7/9/1998	2.7	-	0.008	0.012	<0.005	0.031	-
GP-8 10'	Glenfos	7/9/1998	24	-	0.022	0.061	0.071	0.45	-
GP-8 15'	Glenfos	7/9/1998	5.8	-	0.021	0.014	0.022	0.06	-
GP-8 20'	Glenfos	8/23/1999	<1	-	<0.005	<0.005	<0.005	<0.01	-
AEI-9 10'	AEI	8/23/1999	<1	<0.05	<0.005	<0.005	<0.005	<0.005	-
AEI-9 20'	AEI	8/23/1999	<1	<0.05	<0.005	<0.005	<0.005	<0.005	-
AEI-10 10'	AEI	8/23/1999	77	<0.05	<0.005	<0.005	0.078	<0.005	-
AEI-10 15'	AEI	8/23/1999	69	0.071	0.1	0.21	0.23	<0.005	-
AEI-11 10'	AEI	8/23/1999	<1	<0.05	<0.005	<0.005	<0.005	<0.005	-
AEI-11 15'	AEI	8/23/1999	210	<0.40	<0.020	1.1	1.2	2.4	-
AEI-12 10'	AEI	8/23/1999	24	<0.05	<0.005	0.12	<0.005	<0.005	-
AEI-12 15'	AEI	8/23/1999	120	<0.40	<0.020	<0.020	1.6	1.6	-
MW-1 6.5'	AEI	9/25-26/00	<1.0	<.05	<.005	<.005	<.005	<.005	-
MW-1 11.5'	AEI	9/25-26/00	15.0	<.05	<.005	0.31	<.005	0.011	-
MW-2 6.5'	AEI	9/25-26/00	<1.0	<.05	<.005	<.005	<.005	<.005	-
MW-2 11'	AEI	9/25-26/00	73.0	<.05	<.005	0.044	0.0080	0.040	-
MW-3 6.5'	AEI	9/25-26/00	<1.0	<.05	<.005	<.005	<.005	<.005	-
MW-3 16'	AEI	9/25-26/00	360.0	<1.0	0.42	2.1	6.5	11.0	-
MDL			1.0	0.05	0.005	0.005	0.005	0.005	

MDL = Method Detection Limit

mg/kg = milligrams per kilogram (ppm)

- Sample not analyzed for this chemical

TPH-g = Total petroleum hydrocarbons as gasoline

Table 1 - Soil Sample Analytical Data: Continued
1450 Fruitvale Avenue, Oakland, CA - AEI Project # 10460

Sample ID	Date	TPH-g mg/kg	MTBE mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylenes mg/kg
AEI-13 10'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-14 10'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-15 10'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-16 10'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-16 19'	610-12/02	41	<0.2	<0.02	<0.02	0.038	0.079
AEI-17 10'	610-12/02	<1	<0.5	<0.005	<0.005	<0.005	<0.005
AEI-17 20'	610-12/02	290	<0.05	0.84	1.3	1.8	2.8
AEI-18 4'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-18 14'	610-12/02	290	<0.02*	<0.2	0.91	2.3	2.9
AEI-19 15'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-20 10'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-20 20'	610-12/02	42	<0.5	<0.05	0.20	0.12	0.15
AEI-21 5'	610-12/02	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-21 13'	610-12/02	12	<0.05	<0.005	0.090	0.028	<0.005
AEI-22 10'	610-12/02	74	<0.1	0.0086	0.58	0.11	0.26
AEI-22 20'	610-12/02	5	<0.05	0.30	0.016	0.26	0.42
AEI-23 2.5'	9/27/2002	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-24 2.5'	9/27/2002	<1	<0.05	<0.005	<0.005	<0.005	<0.005
AEI-25 2.5'	9/27/2002	<1	<0.05	<0.005	<0.005	<0.005	<0.005
MDL		1.0	0.05	0.005	0.005	0.005	0.005

MDL = Method Detection Limit

mg/kg = milligrams per kilogram (ppm)

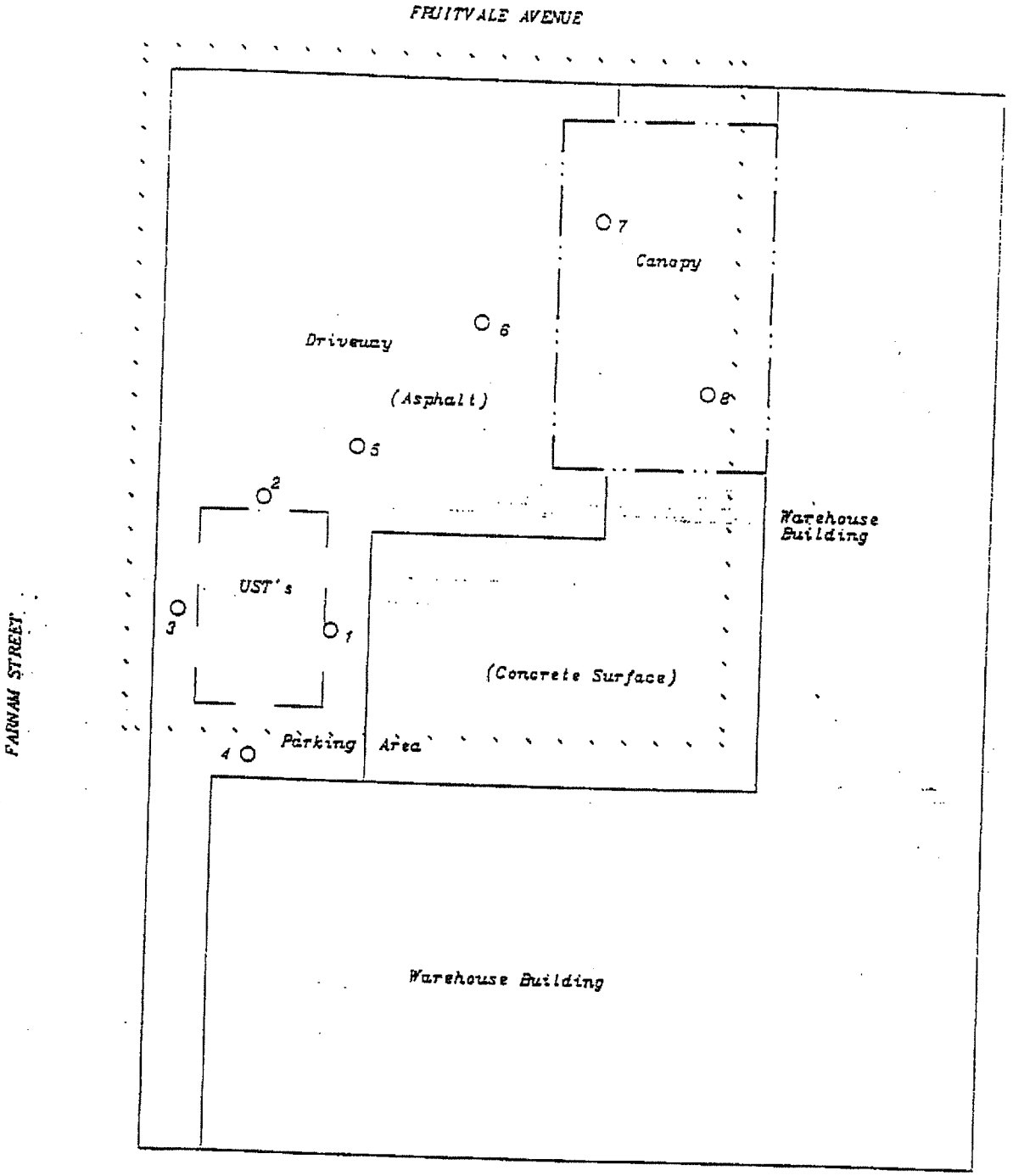
- Sample not analyzed for this chemical

TPH-g = Total petroleum hydrocarbons as gasoline

* MTBE by EPA method 8260, all others by 602/8020

Table 5 - Sample Analtyical Data: Exploratory Excavation Project
1450 Fruitvale Avenue, Oakland, CA - AEI Project # 10460

Sample ID	Location	TPH-g mg/kg	TPH-d mg/kg	TOG mg/kg	MTBE mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Xylenes mg/kg	Total Lead mg/kg
AEI EBA 6'	Exc. A - Bottom	<1.0	<1.0	<50.0	<0.05	<0.005	<0.005	<0.005	<0.005	**6.9**
AEI EBB 6'	Exc. B - Bottom	<1.0	<1.0	<50.0	<0.05	<0.005	<0.005	<0.005	<0.005	**9.1**
AEI EBW 8'	Exc. C - West	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	**9.4**
AEI EBE 8'	Exc. C - East	**11**	<1.0	-	<0.05	<0.005	**0.059**	**0.028**	**0.042**	**32**
AEI EBN 8'	Exc. C - North	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	**8.7**
AEI EBS 8'	Exc. C - South	<1.0	<1.0	-	<0.05	<0.005	<0.005	<0.005	<0.005	**80**



150 Fruitvale Avenue
Sacramento, CA 94601
-94601-061798

LENFOS, Inc.
20 TOPANGA CANYON PLACE SUITE F
CHATSWORTH, CA 91311

FACILITY LAYOUT MAP

N

NOT TO SCALE

FIGURE 2

APPENDIX B

Historic Boring Logs and Cross Sections

SOIL BORING LOG

Drilling Company: Gregg Drilling	Station Name:		Boring Number: GP-1
Drillers:	Address:	1450 Fruitvale	Date Drilled: July 9,1998
Rig Type: Geoprobe GH-40	City:	Oakland	Depth Drilled: 12 feet
Rig Number	State, Zip:	CA, 94601	Boring Diameter: 2 inches
Sampling Tech.: Hydraulic Push	Nearest X-Street:	Fruitvale	Casing Diameter: NA
Logged By: Bill Mitchell			

DEPTH BELOW SURFACE (ft.)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
5	X	0			GC	1-inch asphalt, no base Fill-Clayey Gravel, some fine to coarse sand, light brown, moist, no odors
10	X	0				Same, no odor
15						Same, soil saturated, no Hydrocarbon odor
20						
25						
30						
35						
40						
45						
50						
55					TD = 12 feet	

Note: Collected groundwater sample GP-1. Groundwater appears clean, and perched in the UST tank pit.

CLIENT NAME:	Glendale Federal Bank
PROJECT NAME:	1450 Fruitvale
PROJECT NUMBER:	P1/P2-94601-081798

GLENFOS, INC.
Global Environmental Focus
9620 Topanga Canyon Place
Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company: Greco Drilling	Station Name:		Boring Number: GP-1
Drillers:	Address: 1450 Fruitvale Avenue		Date Drilled: July 9,1998
Rig Type: Geoprobe GH-40	City: Oakland		Depth Drilled: 30 feet
Rig Number	State, Zip: CA 94601		Boring Diameter 2 Inches
Sampling Tech.: Hydraulic Push	Nearest X-Street: Foreman Street		Casing Diameter NA
Logged By: Bill Mitchell			

DEPTH BELOW SURFACE (ft.)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION (Color, Texture, Moisture)
5	X	0			ML	1- inch asphalt, no base. Clayey silt, greyish brown, moist, no Hydrocarbon odor
10	X	0				Same as above, moist, no Hydrocarbon odor
15	X					Same, except streaks of dark grey, and a slight odor.
20					CL	Silty clay, dark brown to grey, moist, slight to moderate Hydrocarbon odor
25						
30	X	0			TD = 30 feet	Same - no Hydrocarbon odor
35						
40						
45						
50						
55						Notes: Groundwater not encountered.

CLIENT NAME:	Glendale Federal Bank	GLENFOS, INC.
PROJECT NAME:	1450 Fruitvale	Global Environmental Focus
PROJECT NUMBER:	P1/P2-94601-061798	9620 Topanga Canyon Place Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company:	Gregg Drilling	Station Name:		Boring Number:	GP-1
Drillers:		Address:	1450 Fruitvale	Date Drilled:	July 9,1998
Rig Type:	Geoprobe GH-60	City:	Oakland	Depth Drilled:	28 feet
Rig Number		State, Zip:	CA 94601	Boring Diameter	2 Inches
Sampling Tech.:	Hydraulic Push	Nearest X-Street:	Conger Avenue	Casing Diameter	NA
Logged By:	Bill Mitchell				

DEPTH BELOW SURFACE (ft.)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
						1- inch asphalt no base
5	X	0				Clayey silt, greenish brown, moist, no Hydrocarbon odor
10	X	210			ML	Same, moist no Hydrocarbon odor.
15	X	2				Same, moist, slight to moderate Hydrocarbon odor
20	X	39				Same, moderate Hydrocarbon odor
25	X	1			GP	Sandy Gravel, some clay, light brown, moist, no Hydrocarbon odor.
30					TD = 28 feet	
35						
40						
45						
50						
55						Note: Groundwater not encoutered

CLIENT NAME:	Glendale Federal Bank	GLENFOS, INC.
PROJECT NAME:	1450 Fruitvale	Global Environmental Focus
PROJECT NUMBER:	P1/P2-94601-061798	9620 Topanga Canyon Place
		Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company: Gregg Drilling	Station Name:	Boring Number: GP-4	
Drillers:	Address: 1450 Fruitvale Avenue	Date Drilled: July 9, 1998	
Rig Type: Geoprobe GH-40	City: Oakland	Depth Drilled: 28 feet	
Rig Number	State, Zip: CA, 94601	Boring Diameter 2 inches	
Sampling Tech.: Hydraulic Push	Nearest X-Street: Foreman	Casing Diameter NA	
Logged By: Bill Mitchell			

DEPTH BELOW SURFACE (ft)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
5	X	0			GC	1- inch asphalt, no base. Fill- Clayey Gravel, some fine to coarse sand, light brown, moist, no Hydrocarbon odor Same, moist, no Hydrocarbon odor.
10	X	468			ML TD = 12 feet	Sandy Silt, some gravel, light brown with streaks of greenish grey, strong Hydrocarbon odor
15						
20						
25						
30						
35						
40						
45						
50						
55						

Note: Groundwater collected at a depth of 10 feet. Obtained sample GP-4 Groundwater had no Hydrocarbon odor and appears to have been perched i UST pit.

CLIENT NAME:	Glendale Federal Bank
PROJECT NAME:	1450 Fruitvale
PROJECT NUMBER:	P1/P2-94601-061798

GLENFOS, INC.
Global Environmental Focus
9620 Topanga Canyon Place
Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company:	Gregg Drilling	Station Name:		Boring Number:	GP-5
Drillers:		Address:	1450 Fruitvale	Date Drilled:	July 9, 1998
Rig Type:	Geoprobe GH-40	City:	Oakland	Depth Drilled:	11 feet
Rig Number		State, Zip:	CA 94601	Boring Diameter:	2 Inches
Sampling Tech.:	Hydraulic Push	Nearest X-Street:	Foreman	Casing Diameter:	NA
Logged By:	Sid Mitchell				

DEPTH BELOW SURFACE (ft.)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
						1 inch asphalt, no base
						Clayey silt, greyish brown, moist, no Hydrocarbon odor
5	X				ML	Same, moist, no Hydrocarbon odor.
10	X					Clayey silt, greyish brown to grey, with black streaks, moist moderate Hydrocarbon odor.
15	X				CL	
20	X				ML	Silty clay, dark brown to grey, moist moderate Hydrocarbon odor.
25					TD = 22 feet	Clayey silt, some fine gravel, greyish brown with black streaks, moist slight Hydrocarbon odor.
30						
35						
40						
45						
50						
55						

CLIENT NAME:	Glendale Federal Bank
PROJECT NAME:	1450 Fruitvale
PROJECT NUMBER:	P1/P2-94601

GLENFOS, INC.
Global Environmental Focus
9620 Topanga Canyon Place
Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company:	Gregg Drilling	Station Name:		Boring Number:	GP-4
Drillers:		Address:	1450 Fruitvale	Date Drilled:	July 9,1998
Rig Type:	Geoprobe GH-40	City:	Oakland	Depth Drilled:	22 feet
Rig Number		State, Zip:	CA 94601	Boring Diameter	2 inches
Sampling Tech.:	Hydraulic Push	Nearest X-Street:	Fruitvale	Casing Diameter	NA
Logged By:	Bill Mitchell				

DEPTH BELOW SURFACE (ft.)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
5	X	0			ML	1-inch asphalt, no base Clayey silt- greyish brown, moist, no Hydrocarbon odor Same, moist, no Hydrocarbon odor
10	X	15				Clayey silt, greyish brown with black streaks, moist, moderate Hydrocarbon
15	X	14			CL	Silty Clay, dark brown to gray, moist, moderate Hydrocarbon odor
20	X	1			GP TD = 22 feet	Clayey silt, some fine gravel, greyish brown with black streaks, moist, slight Hydrocarbon odor
25						
30						
35						
40						
45						
50						
55						

Notes: Groundwater encountered at 20 feet, rose to 9 feet in 10 minuteS. Collected sample GP-4. Strong Hydrocarbon odor, and a petroleum sheen observed.

CLIENT NAME:	Glendale Federal Bank
PROJECT NAME:	1450 Fruitvale
PROJECT NUMBER:	P1/P2-94601-081798

GLENFOS, INC.
Global Environmental Focus
9620 Topanga Canyon Place
Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company:	Gregg Drilling	Station Name:		Boring Number:	GP-7
Drillers:		Address:	1450 Fruitvale	Date Drilled:	July 9,1998
Rig Type:	Geoprobe GH-40	City:	Oakland	Depth Drilled:	22 feet
Rig Number		State, Zip:	CA 94601	Boring Diameter	2 inches
Sampling Tech:	Hydraulic Push	Nearest X-Street:	Fairoaks	Casing Diameter	NA
Logged By:	Bill Mitchell				

DEPTH BELOW SURFACE (ft)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
						1-inch asphalt, no base
					ML	Clayey silt, greyish brown, moist, no Hydrocarbon odor
5	X	100				
						Same, moist, strong Hydrocarbon odor
10	X	323				Sandy silt, some gravel, light brown with streaks of
					ML	greenish grey, moist, strong Hydrocarbon odor
15	X	25				Silty Clay, dark brown to grey, moist, moderate Hydrocarbon odor
					TD = 16 feet	
20		136				Sandy gravel, some clay, light brown, moist, moderate Hydrocarbon odor
25						
30						
35						
40						
45						
50						
						note: Groundwater not encountered
55						

CLIENT NAME:	Glendale Federal Bank	GLENFOS, INC.
PROJECT NAME:	1450 Fruitvale	Global Environmental Focus
PROJECT NUMBER:	P1/P2-94601-051798	9620 Topanga Canyon Place
		Chatsworth, CA 91311

SOIL BORING LOG

Drilling Company: Gregg Drilling	Station Name:		Boring Number: GP-8
Drillers:	Address:	1450 Fruitvale	Date Drilled: July 9,1998
Rig Type: Geoprobe GH-40	City:	Oakland	Depth Drilled: 16 feet
Rig Number	State, Zip:	CA 94601	Boring Diameter 2 Inches
Sampling Tech.: Hydraulic Push	Nearest X-Street:	Fernam	Casing Diameter NA
Logged By: Bill Mitchell			

DEPTH BELOW SURFACE (ft.)	SAMPLE INTERVAL	OVA READING (ppm)	BLOW COUNTS	GRAPHIC LOG	SOIL CLASSIFICATION	SOIL DESCRIPTION Color, Texture, Moisture
5	X	5			ML	0.5 inch concrete, no base Clayey silt, grayish brown, moist, no Hydrocarbon odor
						Same, moist, slight Hydrocarbon odor
10	X	85			ML	Sandy silt, some gravel, light brown with streaks of grey, strong Hydrocarbon odor
15	X	38				Same, moist, slight to moderate Hydrocarbon odor
20	X				GP	TD = 22 feet
25						
30						
35						
40						
45						
50						
55						Note: Groundwater not encountered

CLIENT NAME:	Glendale Federal Bank
PROJECT NAME:	1450 Fruitvale Avenue
PROJECT NUMBER:	P1/P2-94601-061798

GLENFOS, INC.
Global Environmental Focus
9620 Topanga Canyon Place
Chatsworth, CA 91311

Project No: 3397

Sheet: 1 of 1

Project Name: FRUITVALE

Client: JAY-PHARES CORP

Location: WESTERN CORNER

Log of Borehole: AEI-9

Depth (ft)	Depth (m)	Soil Symbol	Subsurface Description	Sample Data: Sample Label	Sample Data: Type	Sample Data: Blow Counts/	Sample Data: Recovery	Well Data	Remarks
0	0		Ground Surface						
1			***ASPHALT***						
2			***CLAY*** Silty and sandy clay						
3	1								
4									
5				AEI-9 5'	SS		100		No hydrocarbon odor
6									
7	2								
8									
9									
10	3		Sandy clay with gravel up to 2 cm	AEI-9 10'	SS		100		No hydrocarbon odor
11									
12									
13	4								
14								▼	Groundwater after 15 min.
15			Stiff silty clay	AEI-9 15'	SS		45		
16	5								No hydrocarbon odor
17									
18									
19									
20	6			AEI-9 20'	SS		80		Strong hydrocarbon odor
21									
22									
23	7		***GRAVEL*** Coarse sandy gravel up to 3 cm, clast supported						
24									
25									
26	8								
27									
28									
29									
30	9								No hydrocarbon odor
31			***CLAY*** Silty clay with gravel up to 2.5 cm	AEI-9 30'	SS		90		Groundwater initially observed
32									
33	10		End of Borehole						
34									
35									
36									

Drill Date 9/28/99

Drill Method: DIRECT PUSH

Total Depth: 32 ft.

Depth to Water: 14 ft.

Reviewed by: JPD

Logged by: PJM

AEI Consultants
901 Moraga Road, Suite C
Lafayette, CA 94549
(800) 801-3224

Project No: 3397

Sheet: 1 of 1

Project Name: FRUITVALE

Log of Borehole: AEI-10

Client: JAY-PHARES CORP

Location: SOUTHERN PORTION, NEAREST EXCAVATION

Depth (ft)	Depth (m)	Soil Symbol	Subsurface Description	Sample Data: Sample Label	Sample Data: Type	Sample Data: Blow Counts/	Sample Data: Recovery	Well Data	Remarks
0	0		Ground Surface						
0	0		***CONCRETE***						
1			***CLAY***						
2			Silty clay, moderately plastic						
3	1								
4									
5				AEI-10 5'	SS		100		Moderate hydrocarbon odor
6	2								
7									
8									
9									
10	3		Stiff silty clay with fine sand	AEI-10 10'	SS		100		Moderate hydrocarbon odor
11									
12									
13	4								
14									
15				AEI-10 15'	SS		100		
16	5								Mild hydrocarbon odor
17									
18									
19									
20	6		Sandy clay, damp	AEI-10 20'	SS		100		No hydrocarbon odor
21									
22									
23	7								
24									
25				AEI-10 25'	SS		50		No hydrocarbon odor
26	8								
27									
28									
29									
30	9		Stiff silty clay	AEI-10 30'	SS		100		No hydrocarbon odor
31									
32									No groundwater generation
33	10		End of Borehole						
34									
35									
36									

Drill Date 9/28/99

Drill Method: DIRECT PUSH

Total Depth: 33 ft.

Depth to Water: NA

Reviewed by: JPD

Logged by: PJM

AEI Consultants
901 Moraga Road, Suite C
Lafayette, CA 94549
(800) 801-3224

Project No: 3397

Sheet: 1 of 1

Project Name: FRUITVALE

Log of Borehole: AEI-11

Client: JAY-PHARES CORP

Location: SOUTH EAST OF FORMER DISPENSERS

Depth (ft)	Depth (m)	Soil Symbol	Subsurface Description	Sample Data: Sample Label	Sample Data: Type	Sample Data: Blow Counts/	Sample Data: Recovery	Well Data	Remarks
0	0		Ground Surface						
1			***ASPHALT***						
2			***CLAY*** Silty clay, moderately plastic						
3	1								
4									
5			Gravel present at 5%	AEI-11 5'	SS		60		No hydrocarbon odor
6									
7	2								
8									
9									
10	3		Stiff silty clay	AEI-11 10'	SS		100		No hydrocarbon odor
11									
12									
13	4								
14									
15				AEI-11 15'	SS		100		
16	5								Strong hydrocarbon odor
17									
18									
19									
20	6			AEI-11 20'	SS		5		No sample recovery
21									
22									
23	7								
24			Stiff sandy clay, locally damp						
25									
26	8								
27									
28									
29									No hydrocarbon odor
30	9			AEI-11 30'	SS		20		Not sufficient soil collected
31									
32									No groundwater generation
33	10		End of Borehole						
34									
35									
36									

Drill Date 9/28/99

Drill Method: DIRECT PUSH

Total Depth: 33 ft.

Depth to Water: NA

Reviewed by: JPD

Logged by: PJM

AEI Consultants
901 Moraga Road, Suite C
Lafayette, CA 94549
(800) 801-3224

Project No: 3397

Sheet: 1 of 1

Project Name: FRUITVALE

Client: JAY-PHARES CORP

Location: NORTH OF FORMER DISPENSERS

Log of Borehole: AEI-12

Depth (ft)	Depth (m)	Soil Symbol	Subsurface Description	Sample Data: Sample Label	Sample Data: Type	Sample Data: Blow Counts/	Sample Data: Recovery	Well Data	Remarks
0	0		Ground Surface						
0–1			***CONCRETE***						
1–4	1		***CLAY*** Stiff clay with minor sand						
5				AEI-12 5'	SS		60		No hydrocarbon odor
5–9	2								
10	3		Sandy clay w/ coarse gravel up to 2.5 cm, unconsolidated	AEI-12 10'	SS		90		Mild hydrocarbon odor
10–14	4								
15			Stiff silty clay, dry	AEI-12 15'	SS		85		Moderate hydrocarbon odor
15–19	5								
20	6			AEI-12 20'	SS		15		No sample recovery
20–24			Silty clay						
24–29	7–9								
30–34	9–10								Groundwater sample exposed between 30 and 34 feet bgs. No groundwater generation
34			End of Borehole						

Drill Date 9/28/99

Drill Method: DIRECT PUSH

Total Depth: 34 ft.

Depth to Water: NA

Reviewed by: JPD

Logged by: PJM

AEI Consultants
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Lafayette, CA 94549
(800) 801-3224

Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-13

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Hand Auger*** Black, earthy soils						
4									Slight HC odor
6			***Clay*** Sandy, grey color	AEI-13 5'	SS				PID <1 ppm
8									
10			***Clay*** Firm clay, less sand, redish/grey mottled appearance	AEI-13 10'	SS				Slight HC odor
12									PID <1 ppm
14								▼	
16			***Clay*** Stiff, tan color, very few sands	AEI-13 15'	SS				
18			***Clay*** Gravelly, sandy						PID <1 ppm
20				AEI-13 20'	SS				
22									
24			***Clay*** Stiff, tan color, 10-20 % sands						PID <1 ppm
26				AEI-25'	SS				
28									Slight HC odor
30			***Sand*** Silty w/ lots of gravels						
32			End of Borehole	AEI-13 30'	SS				
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 30

Depth to Water: 14.5

Reviewed by:

Logged by: AW

AEI Consultants
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Lafayette, CA 94549
(925) 283-6000

Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-14

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Hand Auger*** Black, earthy soils						
4									
6			***Clay*** Sandy, brown color						
8									
10			***Clay*** Stiff, olive green color, some gravels	AEI-14 10'	SS				PID 2 ppm
12			***Clay*** Firm, very sandy, green/brown mottled appearance						Slight HC odor
14									
16			***Clay*** Stiff, olive green color	AEI-14 15'	SS				PID 1 ppm
18									Slight HC odor
20			***Clay*** Gravelly, 30% gravels, olive color	AEI-14 20'	SS				PID 4 ppm
22									
24									No HC odor
26			***Clay*** Soft, very wet, tan color	AEI-14 25'	SS				
28									
30				AEI-14 30'	SS				
32			***Sand*** Clayey w/ some gravels, wet and dry layers					▼	
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 35

Depth to Water: 32

Reviewed by:

Logged by: AW

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(925) 283-6000

Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-15

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Sand*** Clayey, some gravels, black color						No HC odor
4									
6			***Clay*** Very sandy, some gravels, tan color	AEI-15 5'	SS				PID <1ppm
8									
10				AEI-15 10'	SS				
12			***Clay*** Gravelly, black color						
14			***Sand*** Black color, gravelly						PID <1 ppm
16				AEI-15 15'	SS				
18			***Clay*** Dry, sandy, gravelly, brown color	AEI-15 18'	SS				No HC odor
20									PID <1 ppm
22								▼	
24				AEI-15 24'	SS				No HC odor
26			***Gravel*** Mixed with firm brown clays and some sands						
28									
30			End of Borehole	AEI-15 30'	SS				
32									
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 30

Depth to Water: 23

Reviewed by:

Logged by: AW

AEI Consultants
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Lafayette, CA 94549
(925) 283-6000

Project No: 5183

Sheet: 1 of 1

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Log of Borehole: SB-16

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Clay*** Stiff, gravelly 10-20%, black						No HC odor
4									
6				AEI-16 5'	SS				PID <1ppm
8									
10			***Clay*** Firm, gravel 50%, brown color	AEI-16 10'	SS				
12									
14									
16			***Clay*** Stiff, tan color	AEI-16 15'	SS				PID <1 ppm HC odor
18									
20			***Clay*** Stiff, olive green color, minor gravels	AEI-16 19'	SS				PID 309 ppm
22			***Clay*** Stiff, sandy, brownish/green mottled color						
24									PID 17 ppm
26			***Clay*** Gravelly, sandy, wet	AEI-16 25'	SS				
28			***Clay*** Mottled grey/green/bron appearance, gravelly, wet					▼	
30			End of Borehole						
32									
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 30

Depth to Water: 28

Reviewed by:

Logged by: AW

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(925) 283-6000

Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-17

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Soil*** Firm, clayey, black color						
4			***Clay*** Firm, green color, some gravels and sands 20-30%						No HC odor
10				AEI-17 10'	SS				
12			***Sand*** Brown, gravelly, some clay						No HC odor
14									
16				AEI-17 15'	SS				Strong HC odor
18			***Clay*** Stiff, olive green color, minor gravels						
20				AEI-17 20'	SS				Slight HC odor
22								▼	
24									
26			***Clay*** Stiff, green color	AEI-17 25'	SS				
28									
30				AEI-17 30'	SS				Strong HC odor
32			***Clay*** Stiff. green						
34			***Clay*** Tan, saturated						

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 35

Depth to Water: 23.5

Reviewed by:

Logged by: AW

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Lafayette, CA 94549
(925) 283-6000

Project No: 5183

Sheet: 1 of 1

Project Name: Fruitvale

Log of Borehole: SB-18

Client: PHUA

Location: Oakland, CA

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Soil*** Firm, black color, 20% gravels						
4				AEI-18 4'	SS				PID 112 ppm
6			***Clay*** Stiff, brownish, 20% sand						Slight HC odor
8									
10				AEI-18 10'	SS				Strong HC odor
12			***Clay*** Stiff, green color						PID 112 ppm
14				AEI-18 14'	SS				PID 181 ppm
16			***Clay*** Stiff, 40% sand and gravels, olive green/orange mottled appearance						Slight HC odor
18									
20									PID 46 ppm
22			***Clay*** Firm, brownish color, slightly wet						
24									Strong HC odor
26				AEI-18 25'	SS			▼	
28			***Clay*** Stiff. green						
30			***Silt*** Isolated lens						PID <1 ppm
32				AEI-18 30'	SS				
34			***Clay*** Stiff, brown, 40% gravels						

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 35

Depth to Water: 25.3

Reviewed by:

Logged by: AW

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Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-19

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Soil*** Firm, black color, 20% gravels						
4									
6									
8									No HC odor
10			***Clay*** Stiff, brownish, 20% gravels	AEI-19 10'	SS				PID <1 ppm
12									
14									PID <1 ppm
16				AEI-19 15'	SS				
18			***Clay*** Stiff, green color, fine grained						HC odor
20				AEI-19 20'	SS			▼	PID 9 ppm
22									PID 3 ppm
24			***Clay*** Firm, brown, 20% gravels						
26			End of Borehole	AEI-19 25'	SS				
28									
30									
32									
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 25

Depth to Water: 20.5

Reviewed by:

Logged by: AW

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(925) 283-6000

Project No: 5183

Sheet: 1 of 1

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Log of Borehole: SB-20

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Soil*** Firm, black color, sandy						
4									
6			***Clay*** Soft, brown, 30% sand	AEI-20 5'	SS				PID <1 ppm
8									
10				AEI-20 10'	SS				PID 2 ppm
12									Slight HC odor
14			***Clay*** Stiff, green color						
16				AEI-20 15'	SS				PID 4 ppm
18			***Clay*** Firm, brown, 30% sand						HC odor
20			***Clay*** Stiff, green color, 40% gravels	AEI-20 20'	SS				PID 12 ppm
22								▼	
24									HC odor
26			***Clay*** Stiff, green/grey color w/ some orange sands	AEI-20 25'	SS				PID 13 ppm
28									PID 8 ppm
30									
32									Slight HC odor
34			***Sand*** Firm, wet, clayey	AEI-20 33'	SS				

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 35

Depth to Water: 22

Reviewed by:

Logged by: AW

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(925) 283-6000

Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-21

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Soil*** Firm, black color, 30% sand						Slight HC odor
4									
6				AEI-21 5'	SS				HC odor
8			***Clay*** Firm, olive green color, 5% sand						
10				AEI-21 9'	SS				
12			***Clay*** Stiff, olive green color, 20% gravels					▼	Strong HC odor
14				AEI-21 13'	SS				
16			***Clay*** Stiff, olive green color, fine grained, 5% sands	AEI-21 15'	SS				PID 239 ppm
18									PID 38 ppm
20				AEI-21 20'	SS				
22			***Gravels*** Isolated layer						
24			***Sand*** Firm, grey color, clayey	AEI-21 24'	SS				PID 124 ppm
26			***Clay*** Very sandy w/ gravels, brown color						
28			End of Borehole						
30									
32									
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 28

Depth to Water: 13

Reviewed by:

Logged by: AW

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Lafayette, CA 94549
(925) 283-6000

Project No: 5183

Project Name: Fruitvale

Client: PHUA

Location: Oakland, CA

Sheet: 1 of 1

Log of Borehole: SB-22

Depth	USCS Symbol	USCS Label	Subsurface Description	Sample Data: Sample Label	Type	Blow/ft	Recovery	Well Data	Remarks
0			Ground Surface						
2			***Soil*** Firm, sands and gravels present						
4									
6			***Clay*** Stiff w/ fine sands and silts, dk brown	AEI-22 5'	SS				
8									
10				AEI-22 10'	SS				
12									HC odor
14			***Clay*** Stiff, olive green color, 10% gravels						
16				AEI-22 15'	SS				
18								▼	
20				AEI-22 20'	SS				Slight HC odor
22			***Clay*** Stiff, olive green color, gravel locally						
24									
26				AEI-22 25'	SS				
28			End of Borehole						
30									
32									
34									

Drill Date 6/10/02

Drill Method: Direct Push

Total Depth: 25

Depth to Water: 19

Reviewed by:

Logged by: AW

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(925) 283-6000

Project No: 3581

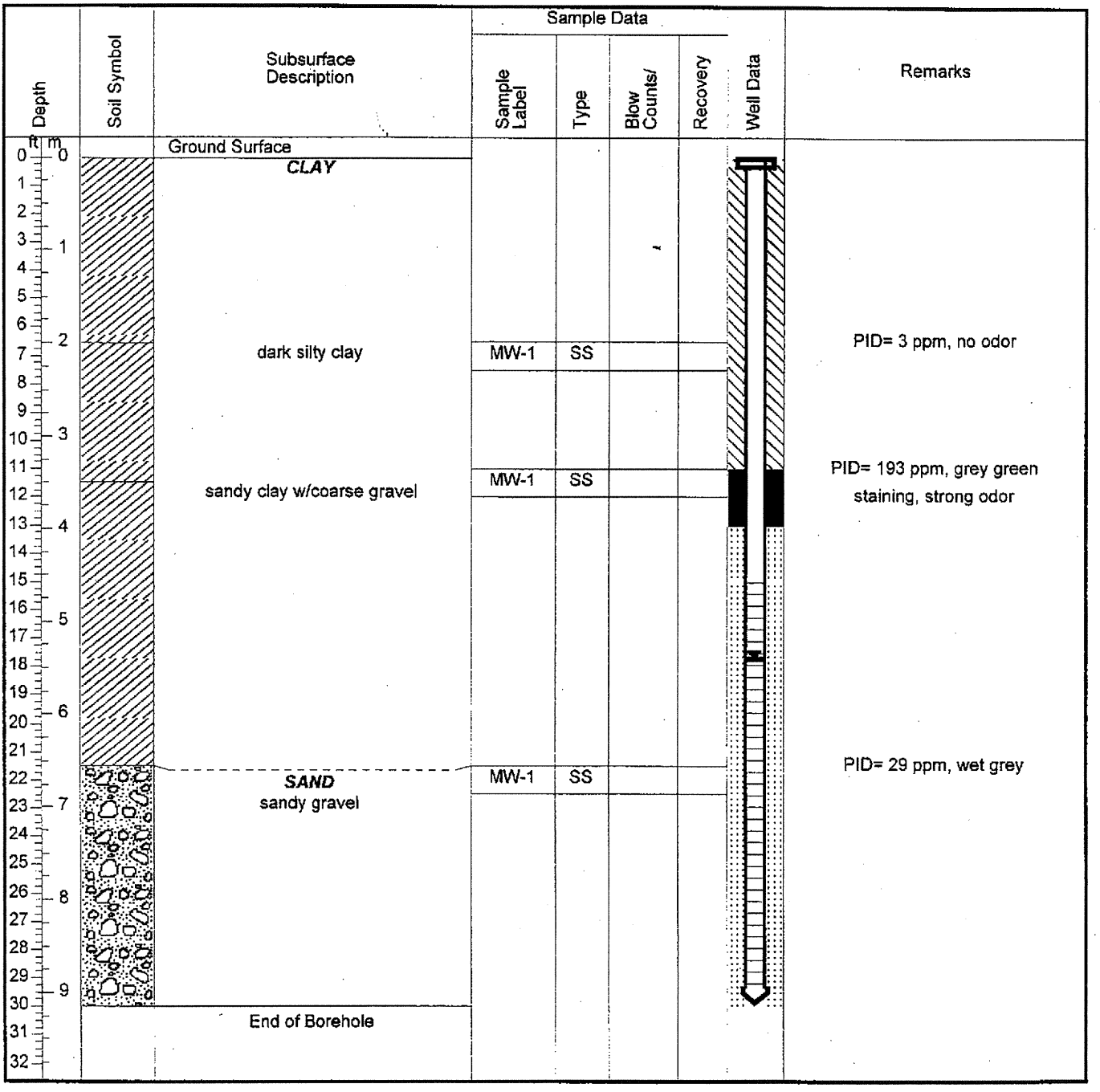
Sheet: 1 of 1

Project Name: Jay Phares Corp.

Client: Ken Phares

Location: 1450 Fruitvale Avenue

Log of Borehole: MW-1



Drill Date 09/25/00

Drill Method: HS

Total Depth: 30'

Depth to Water: ~15'

Reviewed by: PM

Logged by: NW

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Lafayette, CA 94549
(925) 283-6000

Project No: 3581

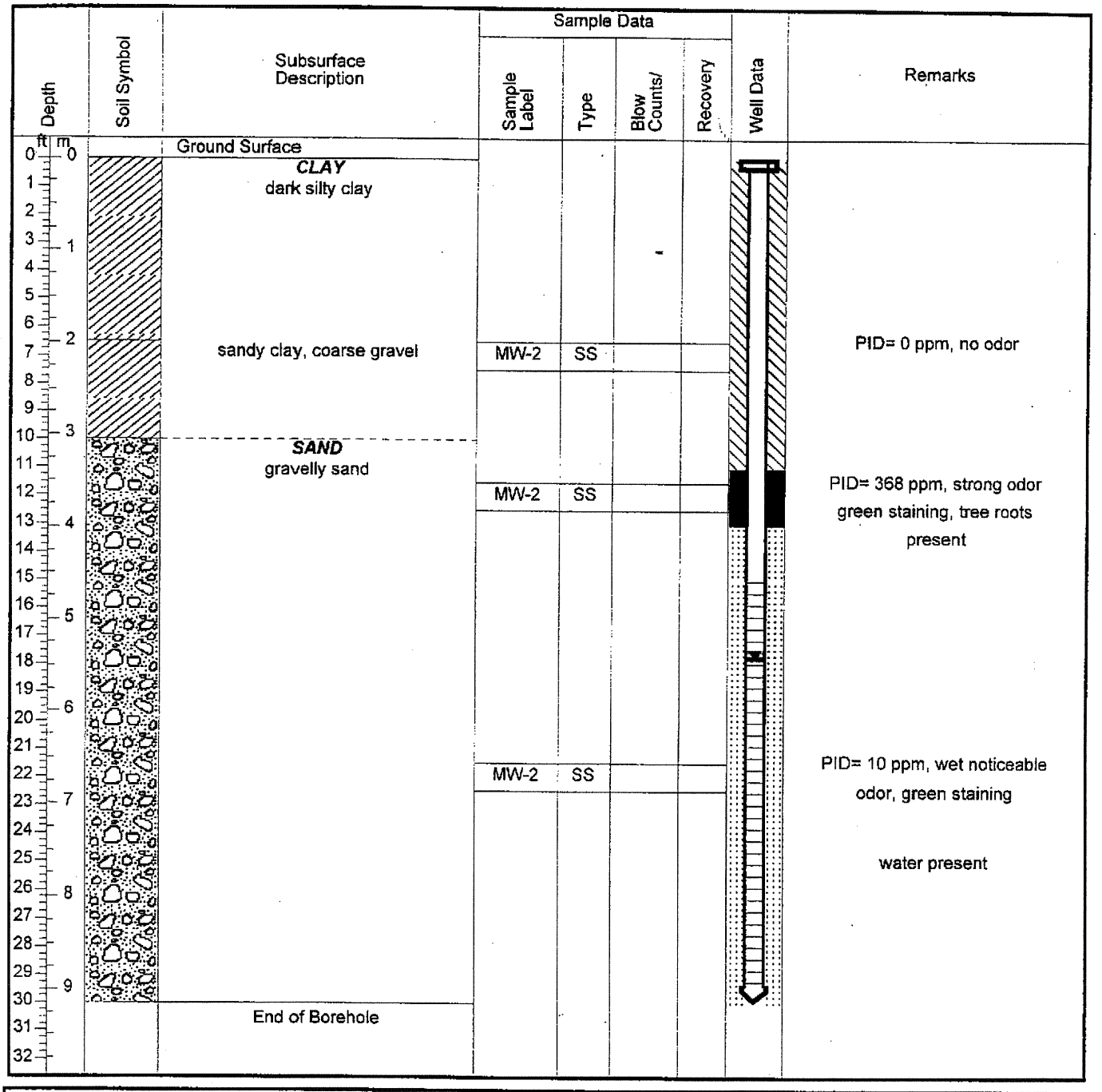
Sheet: 1 of 1

Project Name: Jay Phares Corp.

Client: Ken Phares

Location: 1450 Fruitvale Avenue

Log of Borehole: MW-2



Drill Date 09/25/00

Drill Method: HS

Total Depth: 30'

Depth to Water: ~15'

Reviewed by: PM

Logged by: NW

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Lafayette, CA 94549
(925) 283-6000

Project No: 3581

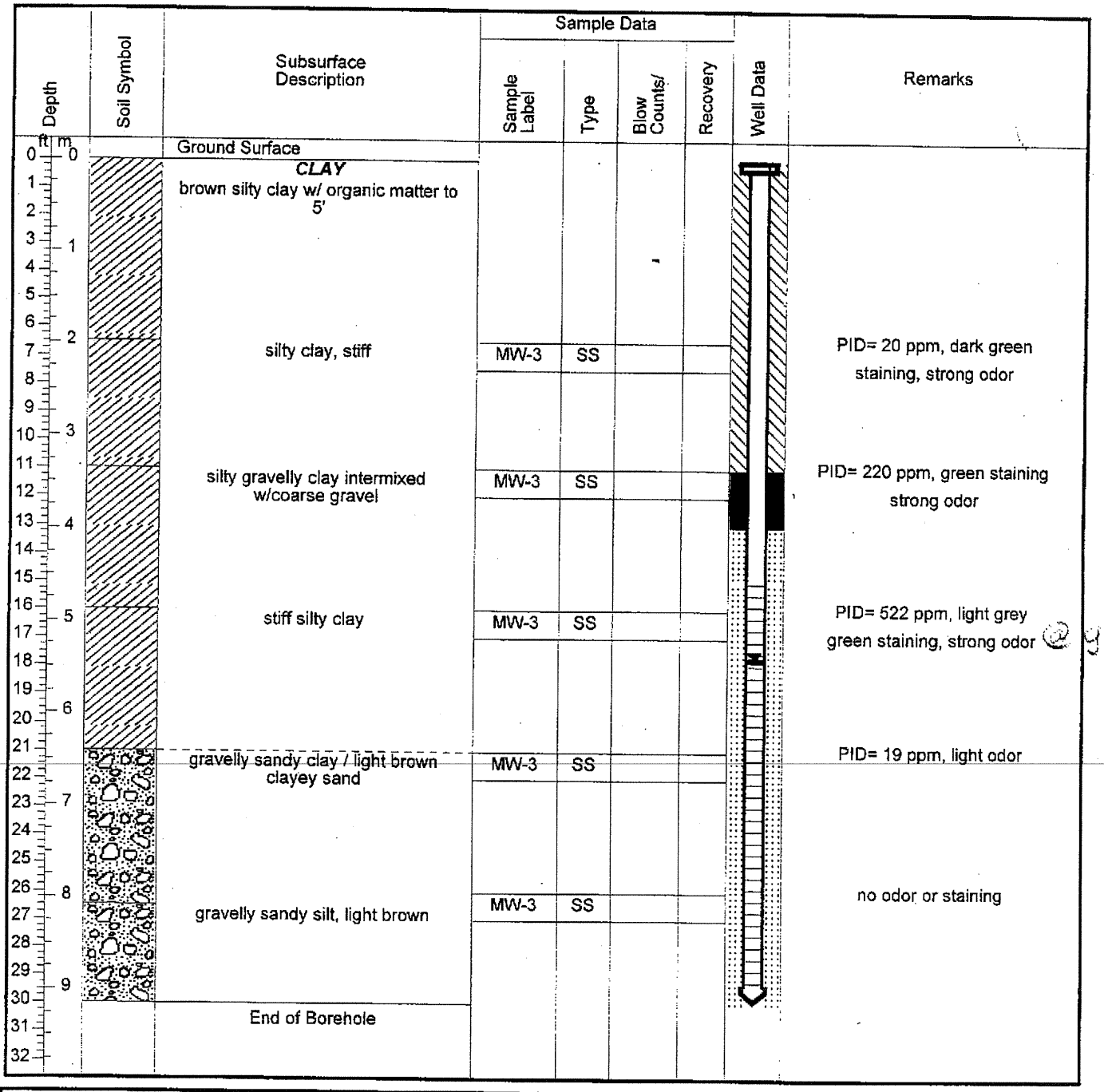
Sheet: 1 of 1

Project Name: Jay Phares Corp.

Client: Ken Phares

Location: 1450 Fruitvale Avenue

Log of Borehole: MW-3



Drill Date 09/25/00

Drill Method: HS

Total Depth: 30'

Depth to Water: ~15'

Reviewed by: PM

Logged by: NW

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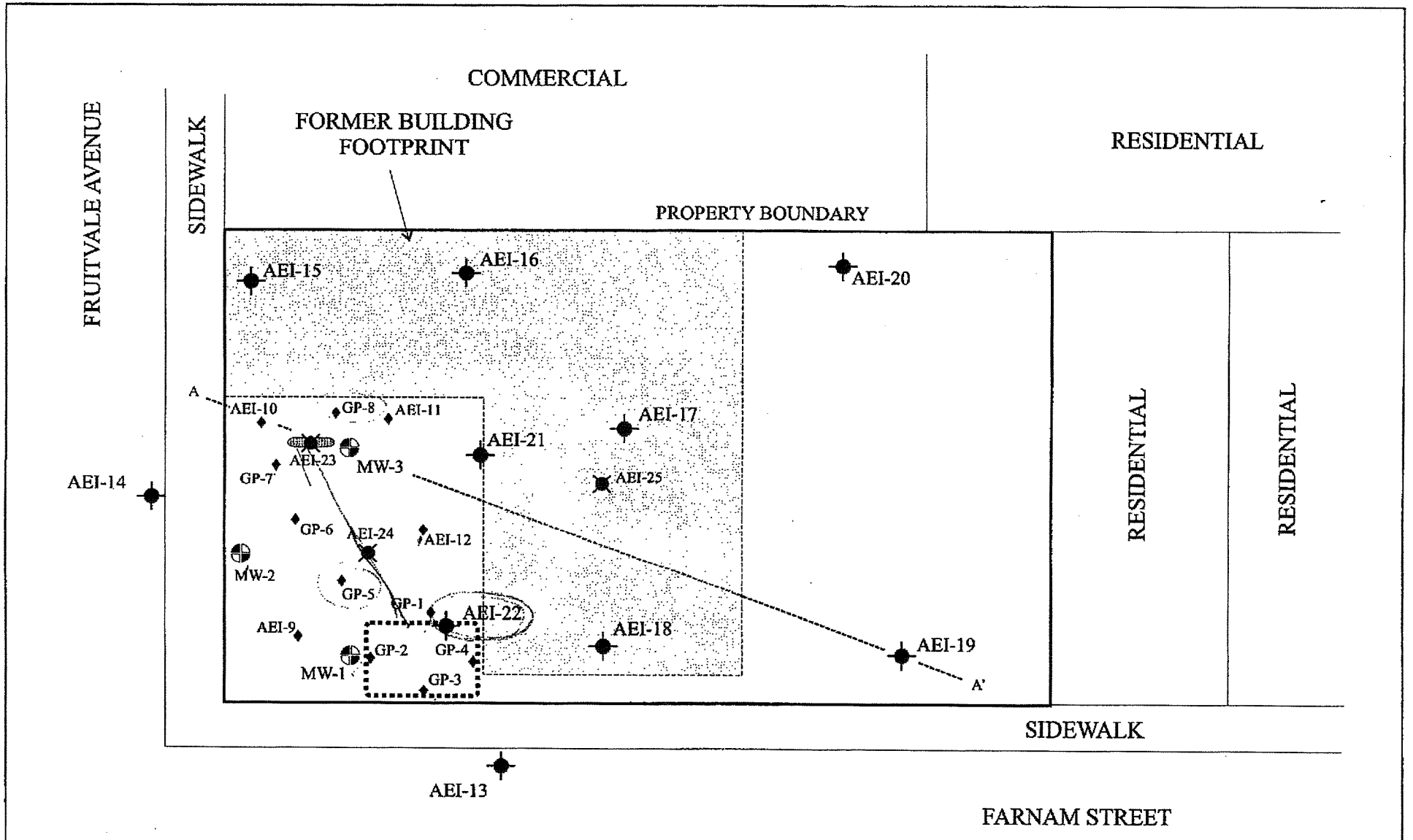
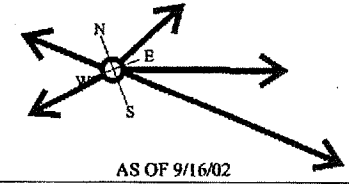


KEY

- Existing 2" Monitoring Wells
- Temporary Borings: 1998-1999
- Temporary Borings: June 2002
- Hand Auger Borings: Sept. 2002

GROUNDWATER FLOW DIRECTION ROSE DIAGRAM (½ in = 1 episode)



AS OF 9/16/02

SCALE: 1 in = 30 ft

0' 15' 30'

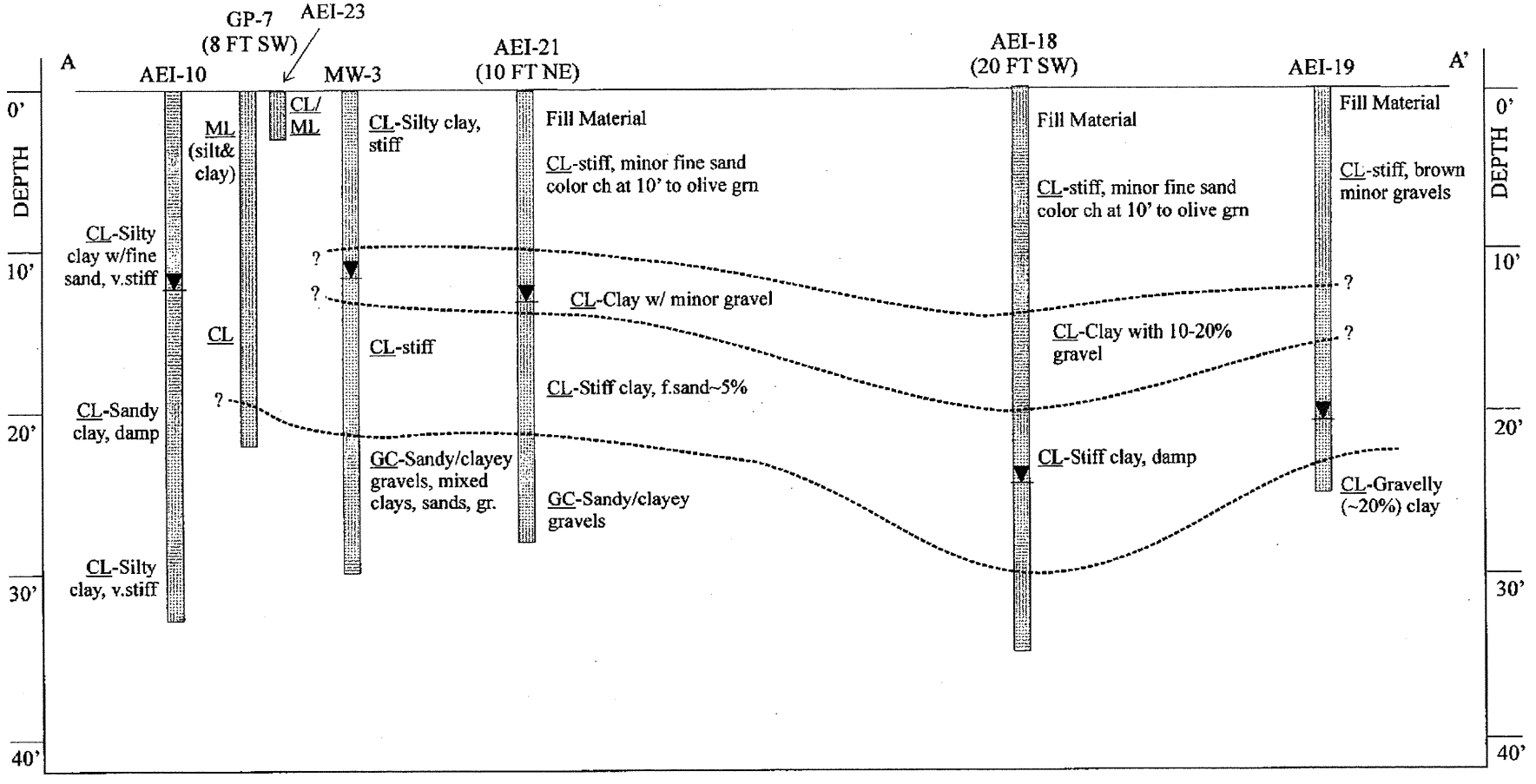
AEI CONSULTANTS

3210 OLD TUNNEL ROAD, SUITE B, LAFAYETTE, CA

BORING AND WELL LOCATIONS

1450 FRUITVALE AVENUE
OAKLAND, CALIFORNIA

FIGURE 4
AEI PROJECT NO 5624



APPROXIMATE SOIL TYPE BOUNDARY

WATER LEVEL MEASURED IN WELLS OR TEMPORARY BORINGS

VERTICAL SCALE: 1in = ~ 10 ft
HORIZONTAL SCALE: 1 in = ~20 ft

Abbreviations
ML = Silts
GC = Clayey Gravel
CL = Clay, silty, sandy, or gravelly clay

AEI CONSULTANTS
2500 CAMINO DIABLO, SUITE 200, WALNUT CREEK, CA

CROSS SECTION A-A'

1450 FRUITVALE AVENUE
OAKLAND, CALIFORNIA

FIGURE 6
AEI PROJECT NO 10460

APPENDIX C

Drilling Permits

Alameda County Public Works Agency - Water Resources Well Permit

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

Application Approved on: 09/26/2013 By jamesy

Permit Numbers: W2013-0817 to W2013-0821
Permits Valid from 10/01/2013 to 12/31/2014

Application Id: 1378933189700
City of Project Site: Oakland
Site Location: 1450 Fruitvale Avenue
Oakland, CA
Project Start Date: 10/01/2013
Completion Date: 12/31/2014
Assigned Inspector: Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org

Applicant: Broadbent & Associates, Inc. - Alejandra Hernandez
875 Cotting Lane, Suite G, Vacaville, CA 95688
Phone: 707-455-7290 x207

Property Owner: Bill Phua
638 Webster Street, #300, Oakland, CA 94607
Phone: --

Client: Chuck Carmel
P.O. Box 1257, San Ramon, CA 94583
Phone: --

Contact: Kristene Tidwell
Phone: 707-455-7290 x204
Cell: 707-430-7133

Total Due: $1853.00
Receipt Number: WR2013-0370 **Total Amount Paid:** $1853.00
Payer Name : Broadbent & Associates, Inc. Paid By: CHECK **PAID IN FULL**

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 4 Wells
Driller: Gregg Drilling & Testing, Inc. - Lic #: 485165 - Method: hstem **Work Total: $1588.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2013-0817	09/26/2013	12/30/2013	MW-4	6.00 in.	2.00 in.	1.00 ft	30.00 ft
W2013-0818	09/26/2013	12/30/2013	MW-5	6.00 in.	2.00 in.	1.00 ft	30.00 ft
W2013-0819	09/26/2013	12/30/2013	MW-6	6.00 in.	2.00 in.	1.00 ft	30.00 ft
W2013-0820	09/26/2013	12/30/2013	MW-7	6.00 in.	2.00 in.	1.00 ft	30.00 ft

Specific Work Permit Conditions

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

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

3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required

for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Include permit number and site map.

5. Applicant shall submit the copies of the approved encroachment permit to this office within 60 days.

6. Applicant shall contact Steve Miller for an inspection time at (510) 670-5517 or email to stevem@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

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

8. Minimum surface seal thickness is two inches of cement grout placed by tremie.

9. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.

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

Well Construction-Vapor monitoring well-Vapor monitoring well - 3 Wells
Driller: Gregg Drilling & Testing, Inc. - Lic #: 485165 - Method: hstem **Work Total: $265.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2013-0821	09/26/2013	12/30/2013	SG-1A/1B	6.00 in.	0.13 in.	1.00 ft	5.50 ft
W2013-0821	09/26/2013	12/30/2013	SG-2A/2B	6.00 in.	0.13 in.	1.00 ft	5.50 ft
W2013-0821	09/26/2013	12/30/2013	SG-3A/3B	6.00 in.	0.13 in.	1.00 ft	5.50 ft

Specific Work Permit Conditions

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

2. Compliance with the above well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate state reporting-requirements related to well destruction (Sections 13750 through 13755 (Division 7, Chapter

10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days, including permit number and site map.

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

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

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

6. Applicant shall submit the copies of the approved encroachment permit to this office within 60 days.

7. Applicant shall contact Steve Miller for an inspection time at (510) 670-5517 or email to stevem@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

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

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

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

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

APPENDIX D

Utility Clearance Report

PERSONNEL: D. Bissini

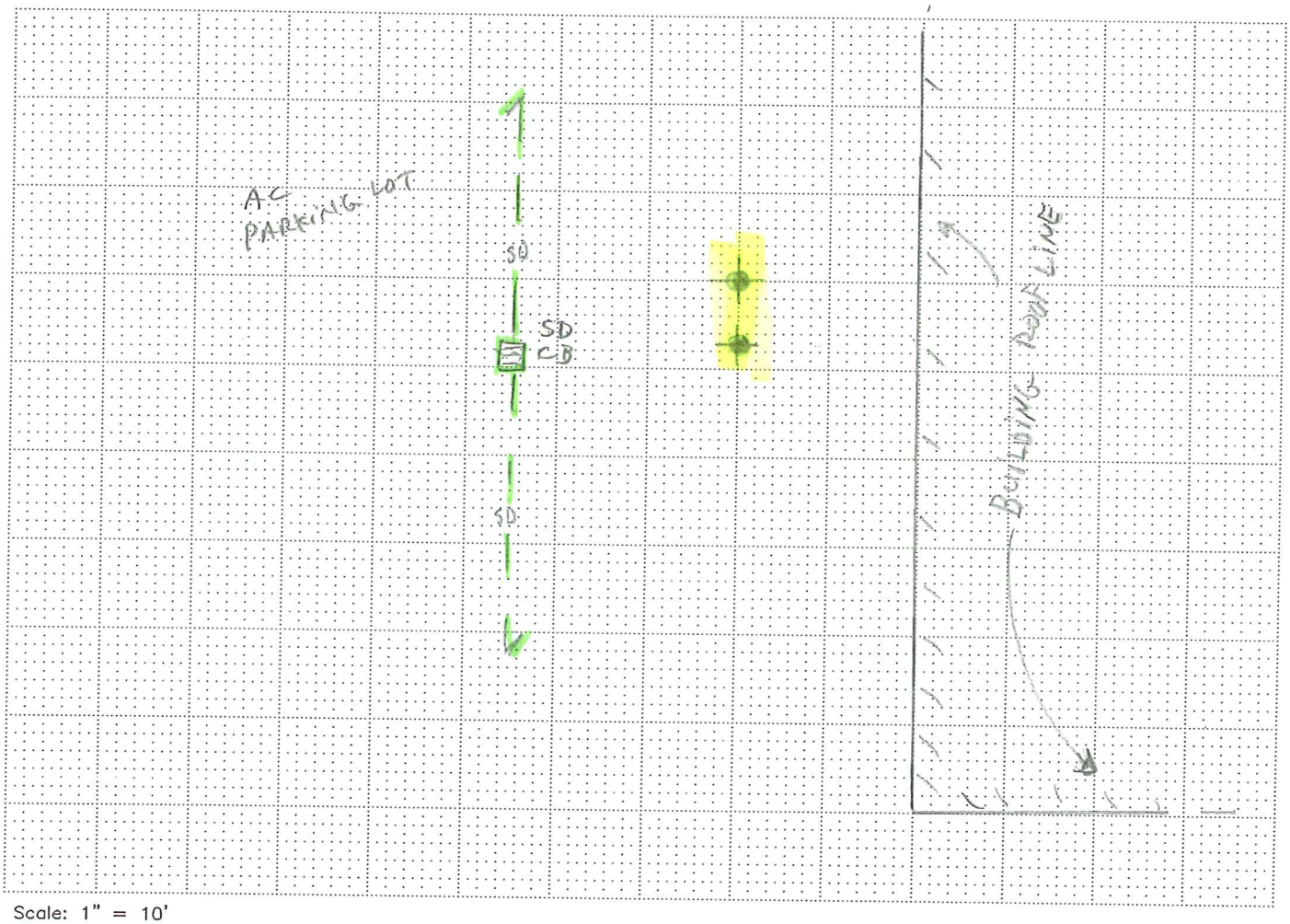
JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland, Calif

BORING: SB-1A & SB-1B



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- _ E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- ✓ SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- _ RC (Reinforced Concrete)
- ✓ AC (Asphalt)
- _ C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- ✓ GPR (Radar)
- ✓ RD 4000
- _ M Scope
- _ other

Procedure:
- _ EMC (Conduction)
- ✓ EMI (Induction)
- ✓ Ambient
- ✓ GPR

Surface Conditions:
- _ Wet
- ✓ Dry
- _ other

REMARKS

SD CB - STORM DRAIN CATCH BASIN

PERSONNEL: D. Bissini

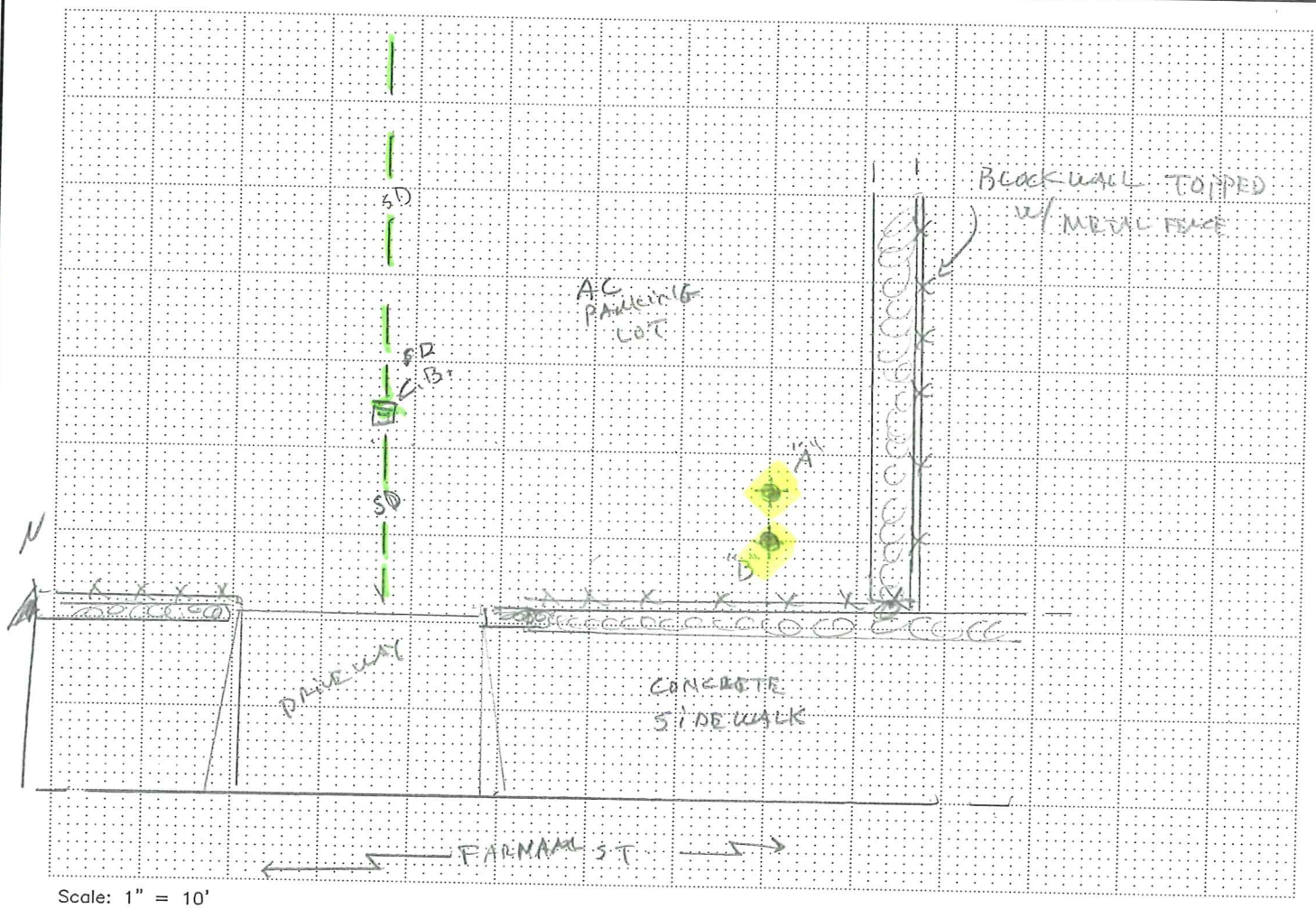
JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland, CA

BORING: SG-2A & SG-2B



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- _ E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- _ RC (Reinforced Concrete)
- _ AC (Asphalt)
- _ C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- _ GPR (Radar)
- _ RD 4000
- _ M Scope
- _ other

Procedure:
- _ EMC (Conduction)
- _ EMI (Induction)
- _ Ambient
- _ GPR

Surface Conditions:
- _ Wet
- _ Dry
- _ other

REMARKS

SD
CB – STORM DRAIN CATCH BASIN

PERSONNEL: D. Bissiri

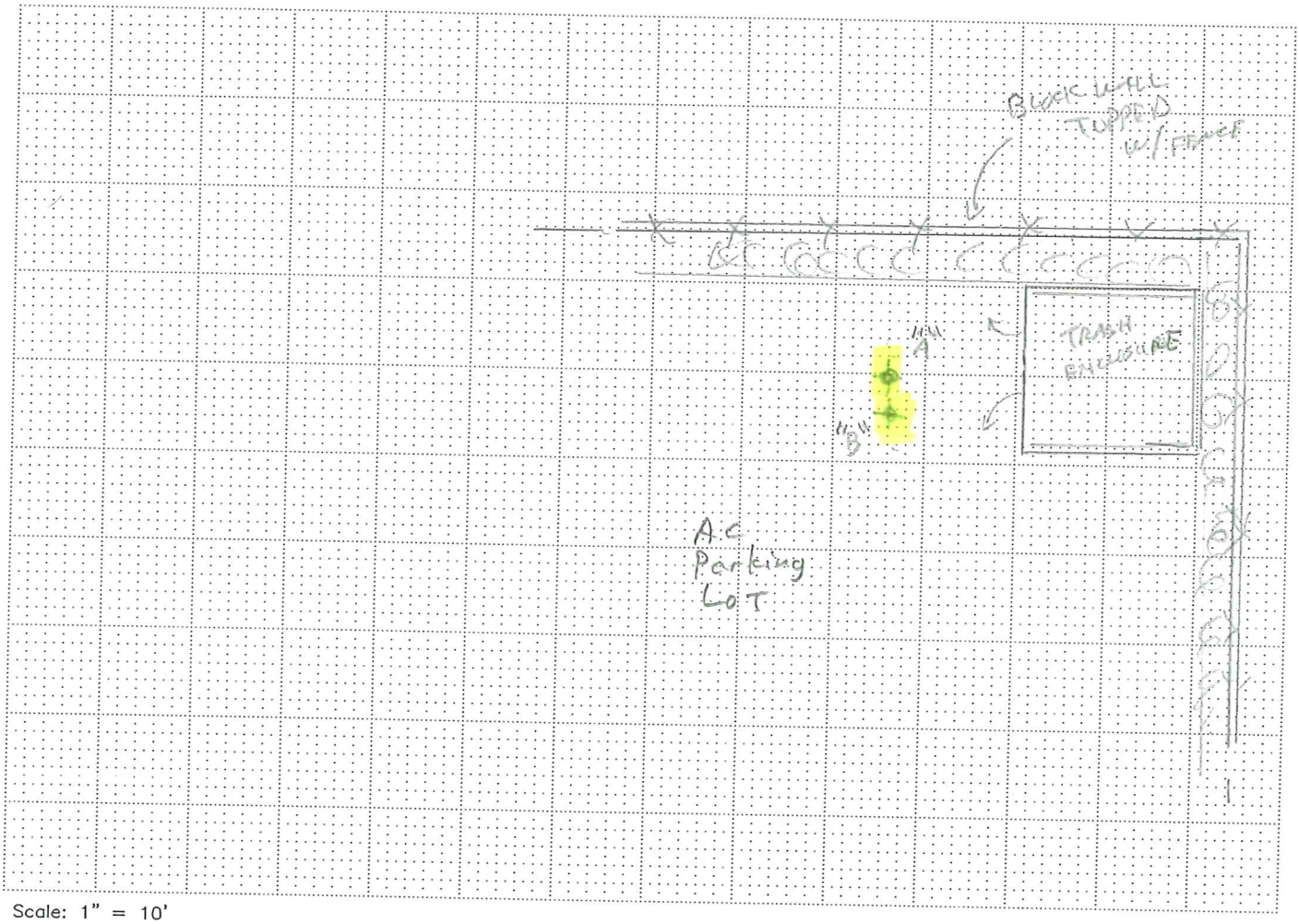
JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland, Calif

BORING: SG-3A & SG-3B



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- _ E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- _ SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- _ RC (Reinforced Concrete)
- _ AC (Asphalt)
- _ C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- GPR (Radar)
- RD 4000
- M Scope
- other

Procedure:
- EMC (Conduction)
- EMI (Induction)
- Ambient
- GPR

Surface Conditions:
- Wet
- Dry
- other

REMARKS

PERSONNEL: D. Bissiri

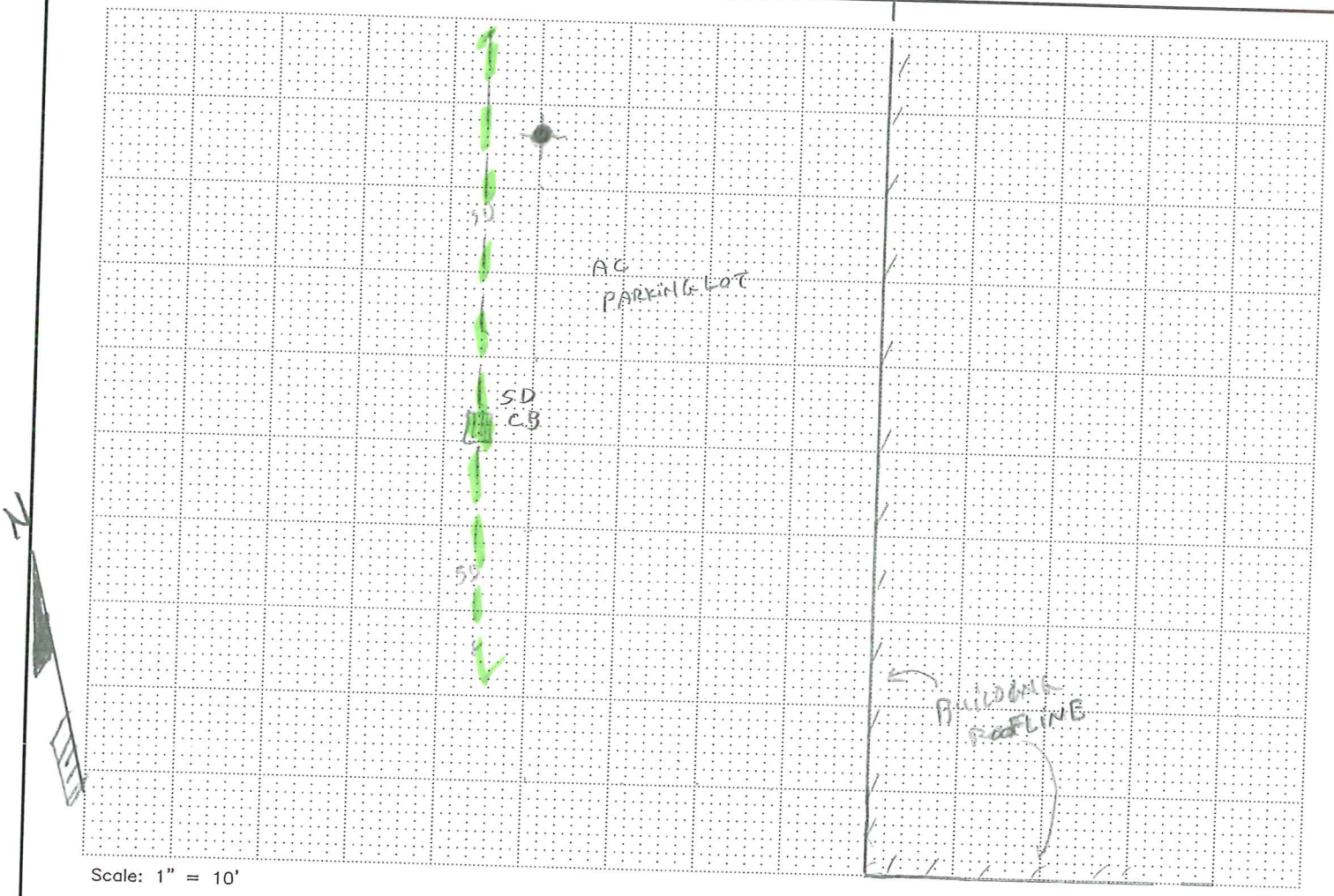
JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland, Calif.

BORING: MW-4



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- _ E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- ✓ SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- _ RC (Reinforced Concrete)
- ✓ AC (Asphalt)
- _ C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- ✓ GPR (Radar)
- _ RD 4000
- _ M Scope
- _ other

Procedure:
- _ EMC (Conduction)
- ✓ EMI (Induction)
- _ Ambient
- _ GPR

Surface Conditions:
- _ Wet
- ✓ Dry
- _ other

REMARKS

SD CB — STORM DRAIN CATCH BASIN

PERSONNEL: D. Bissiri

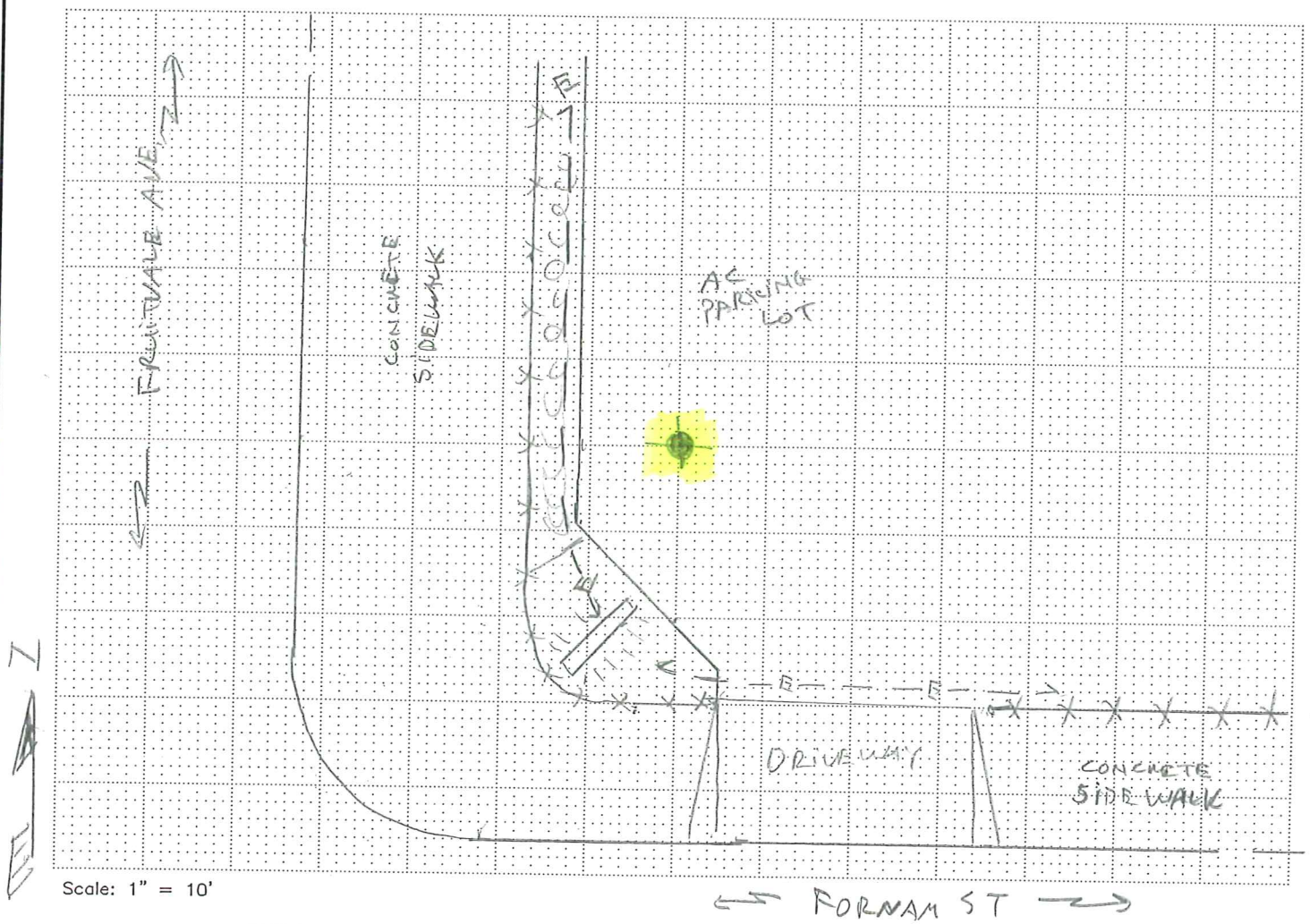
JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland, Calif

BORING: MW-5



EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- _ SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- RC (Reinforced Concrete)
- AC (Asphalt)
- C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- _ GPR (Radar)
- RD 4000
- M Scope
- _ other

Procedure:
- _ EMC (Conduction)
- EMI (Induction)
- Ambient
- GPR

Surface Conditions:
- _ Wet
- Dry
- _ other

REMARKS

PERSONNEL: D. Bissiri

JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland, Calif

BORING: MW-6

EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- _ E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- _ SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- _ RC (Reinforced Concrete)
- _ AC (Asphalt)
- _ C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- _ GPR (Radar)
- _ RD 4000
- _ M Scope
- _ other

Procedure:
- _ EMC (Conduction)
- _ EMI (Induction)
- _ Ambient
- _ GPR

Surface Conditions:
- _ Wet
- _ Dry
- _ other

REMARKS

SD CB – Storm Drain Catch Basin

PERSONNEL: D. Bissert

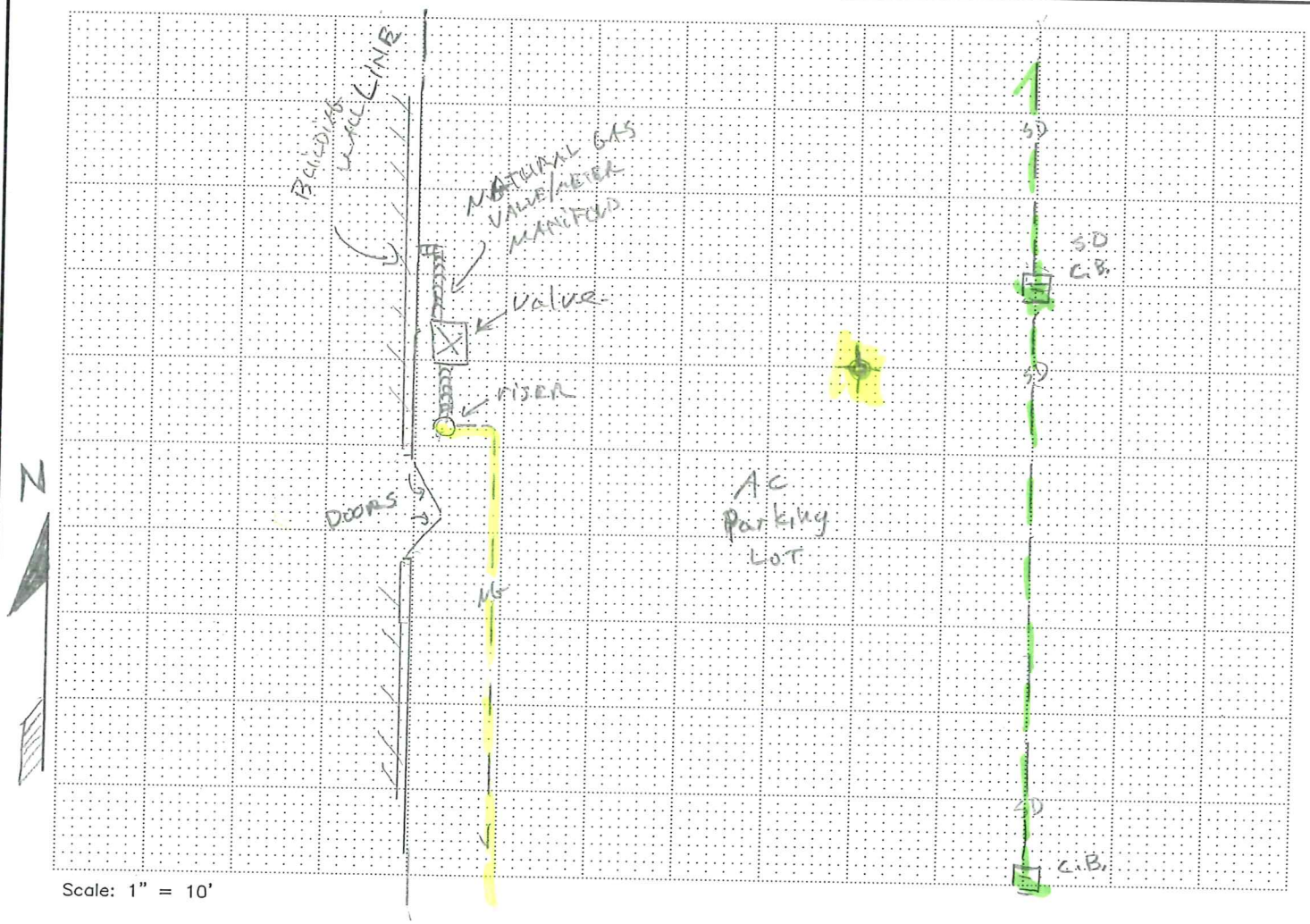
JOB: 13-1034.13 | DATE: 10-24-13

NORCAL GEOPHYSICAL CONSULTANTS INC.

CLIENT: Broadbent & Associates

LOCATION: Former ARCO 402
1450 Fruitvale Ave, Oakland Calif.

BORING: MW-7



EXPLANATION

- Original Boring Location
- Final Boring Location
- Existing Well Location
- GPR Traverse
- OR — Localized GPR Anomaly
- Utility Alignment

Utilities

- _ T (Telephone, Comm.)
- _ E (Electric)
- _ NG (Natural Gas)
- _ CA (Compressed Air)
- _ STM (Steam)
- _ SS (Sanitary Sewer)
- _ SD (Storm Drain)
- _ W (Water)
- _ FS (Fire Supression)
- _ UU (Undifferentiated Utility)

Surface

- _ RC (Reinforced Concrete)
- _ AC (Asphalt)
- _ C (Concrete)
- _ Soil
- _ Gravel
- _ other

NOTES

Equipment:
- _ GPR (Radar)
- _ RD 4000
- _ M Scope
- _ other

Procedure:
- _ EMC (Conduction)
- _ EMI (Induction)
- _ Ambient
- _ GPR

Surface Conditions:
- _ Wet
- _ Dry
- _ other

REMARKS

SD – STORM DRAIN
CB – CATCH BASIN

APPENDIX E

Boring/Well Logs

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

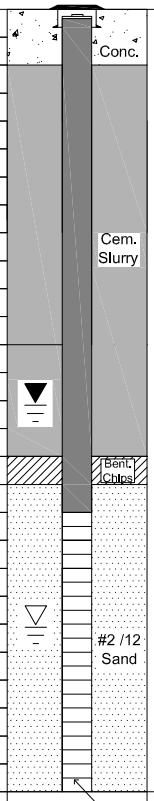
PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale , Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Kristene Tidwell | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11-18-2013 | START: 0845 | DRILLING COMPANY: Gregg Drilling | DRILLER: Vince

WELLID: MW-4 | STOP: 0950 | DRILLING METHOD: 8 In. Hollow Stem Auger | SAMPLE METHOD: Direct Push



DEPTH (FEET)	SAMPLE ID	PID (ppm)	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
						Air knife to 6.5' bgs		
6	MW-9 @ 7.5		Damp	Reddish Brown / Olive Gray	Firm	Silty clay (75,25,0,0)	CL	No Odor
10						Silty clay (60,40,0,0)		HC Odor
12				Yellow / Lt. Brown		Some gravel, coarse grained, sub-angular		
14				Olive Gray	Firm	Silty Clay (75,25,0,0)	CL	HC Odor
16			Damp	Yellow Brown	Firm	Some gravel, coarse grained		
18								HC Odor
20		2.5	Moist	Olive Gray	Firm	Sandy silt with gravel (20,45,15,20)	ML	No Odor
26			Damp	Light Brown	Firm	Silty Clay (75,25,0,0)	CL	

TOTAL BORING DEPTH: 28 ft | PAGE NO: 1 OF 1

ESTIMATED FIRST ENCOUNTERED GROUNDWATER DEPTH: 22 ft

STATIC GROUNDWATER DEPTH: 14.06 ft

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

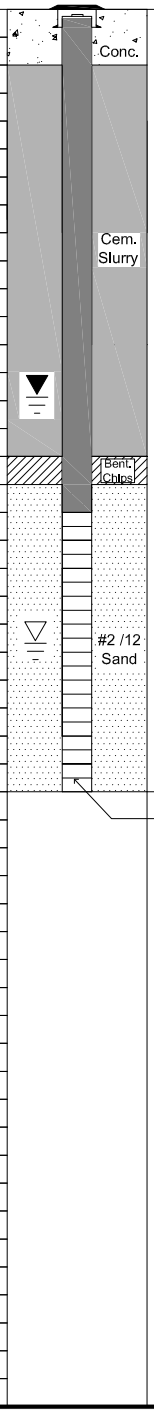
PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale , Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Kristene Tidwell | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11-18-2013 | START: 1230 | DRILLING COMPANY: Gregg Drilling | DRILLER: Vince

WELLID: MW-5 | STOP: 1330 | DRILLING METHOD: 8 In. Hollow Stem Auger | SAMPLE METHOD: Direct Push



DEPTH (FEET)	SAMPLE ID	PID (ppm)	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
						Air knife to 6.5' bgs		
6	MW-5 @ 7.5		Damp	Light Brown	Firm	Silty (30,70,0,0)	ML	No Odor
8				Green	Loose	Some gravels		
10				Green		Silty clay (70,30,0,0)	CL	
16			Damp			Silty with sand and gravel (20,50,20,30) Gravels course, sub-angular to round	ML	No Odor
22			Moist	Brown w/Reddish	Loose			
24				Reddish Brown		Clay (70,30,0,0)	CL	No Odor
26			Moist Wet Moist					

TOTAL BORING DEPTH: 28 ft | PAGE NO: 1 OF 1

▽ ESTIMATED FIRST ENCOUNTERED GROUNDWATER DEPTH: 22.5 ft

▼ STATIC GROUNDWATER DEPTH: 13.67 ft

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

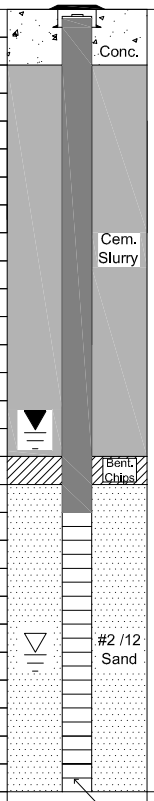
PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale , Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Kristene Tidwell | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11-19-2013 | START: 0800 | DRILLING COMPANY: Gregg Drilling | DRILLER: Vince

WELLID: MW-6 | STOP: 0840 | DRILLING METHOD: 8 In. Hollow Stem Auger | SAMPLE METHOD: Direct Push



DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID (ppm)	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
							Air knife to 6.5' bgs		
				Damp	Brown	Firm	Silty clay (70,30,0,0) Some mottling	CL	No Odor
				Damp	Olive green/ green				
					Black		Gravel layer, almost asphalt like texture	GM	No Odor
					Light Brown	Loose	Silt w/gravelly sand (20, 40, 20, 20) Cobble @ 20'	CL	
				Moist	Reddish Brown		Silt w/gravel and sand (20, 40, 20, 20) Cobble up 2 " , sub-angular	ML	
				Wet	Brown		Gravel (10, 30, 10, 50) Sub-angular to round, coarse	GM	No Odor

TOTAL BORING DEPTH: 28 ft | PAGE NO: 1 OF 1

ESTIMATED FIRST ENCOUNTERED GROUNDWATER DEPTH: 23 ft

STATIC GROUNDWATER DEPTH: 15.07 ft

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

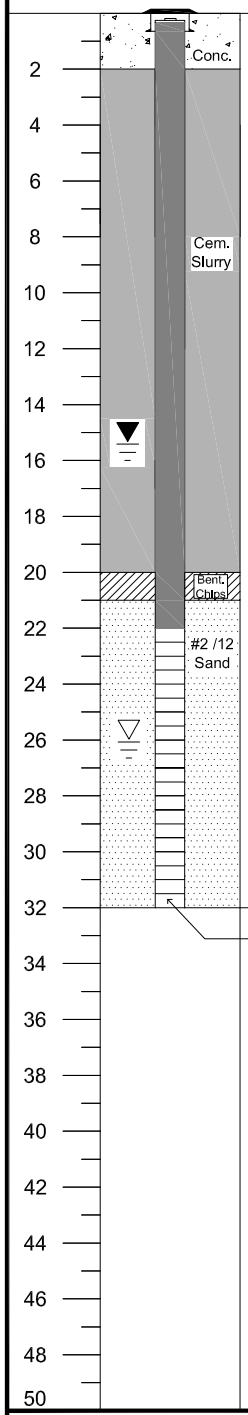
PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale , Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Kristene Tidwell | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11-19-2013 | START: 0700 | DRILLING COMPANY: Gregg Drilling | DRILLER: Vince

WELLID: MW-7 | STOP: 1400 | DRILLING METHOD: 8 In. Hollow Stem Auger | SAMPLE METHOD: Direct Push



DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID (ppm)	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
							Air knife to 6.5' bgs		
				Damp	Brown	Firm	Silty clay (70,30,0,0)	CL	No Odor
					Reddish Brown		minor hard sub-angular gravelly almost asphalt like texture		
					Green				
				Moist					
				Wet			Silt with sand and gravel (10,40,15,35)	ML	No Odor

TOTAL BORING DEPTH: 32 ft | PAGE NO: 1 OF 1

▽ ESTIMATED FIRST ENCOUNTERED GROUNDWATER DEPTH: 26 ft

▼ STATIC GROUNDWATER DEPTH: 15.35 ft

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale Ave, Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Alex Martinez | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11/12/2013 | START: 1115 | DRILLING COMPANY: Gregg Drilling | DRILLER: Daniel Galosa

WELLID: SG-1A | STOP: 1130 | DRILLING METHOD: Hand Auger | SAMPLE METHOD:

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE / CLASSIFICATION		REMARKS & ODORS
1	Grout						Concrete		
2	Bent. Chips		0.0 ppm	Slightly Damp	Dark Brown	Stiff	Silty clay; low plasticity, little to no gravels; sub-angular. (>1, 0, 15,84) Color change to light brown @ 3 '. Mottling as well. Plasticity increase @ 3.5' to medium. Silt less prevalent as clay content increases. (0,0,10,90)	CL	None
3	#2 Sand		0.5 ppm						
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

TOTAL BORING DEPTH: 3.5 ft | PAGE NO: 1 OF 1 | ESTIMATED GROUND WATER DEPTH: NA

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

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BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale Ave, Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Alex Martinez | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11/12/2013 | START: 0830 | DRILLING COMPANY: Gregg Drilling | DRILLER: Daniel Galosa

WELLID: SG-1B | STOP: 1030 | DRILLING METHOD: Hand Auger | SAMPLE METHOD:

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
	Grout						Concrete		
1			0.0 ppm	Slightly Damp	Dark Brown	Firm	Silty clay; some mottling, little to no gravels (sub-rounded), low plasticity; wood fragments present.	CL	None
2									
3	Bent. Chips		0.2 ppm				Slight color change to brown & increased mottling. (1,0,10,89)	CL	None
4			0.2 ppm 0.9 ppm	Slightly Damp	Light Brown	Stiff	Silty clay; low plasticity (1,0,10,89)	CL	
5	#2 Sand			Slightly Damp	Light Brown	Firm	Silty/sandy clay; mottling, low medium plasticity, fine to medium sand particles. (0,<5, 20, 75)	CL	None
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

TOTAL BORING DEPTH: 5.5 ft | PAGE NO: 1 OF 1 | ESTIMATED GROUND WATER DEPTH: NA

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale Ave, Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Alex Martinez | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11/13/2013 | START: 1010 | DRILLING COMPANY: Gregg Drilling | DRILLER: Daniel Galosa

WELLID: SG-2A | STOP: 1020 | DRILLING METHOD: Hand Auger | SAMPLE METHOD:

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	Grout						Concrete		
2	Bent. Chips			Dry	Brown	Firm	Clayey silt; no - low plasticity. (0,0,85,15)	CL	None
3	#2 Sand			Dry	Brown	Stiff	Silty clay;some mottling & some sand fragments (coarse) (0,>5,20,75)	CL	None
4									
5									
6									
7									
8									
9									
10									
11									
12									
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24									
25									

TOTAL BORING DEPTH: 3.5 ft | PAGE NO: 1 OF 1 | ESTIMATED GROUND WATER DEPTH: NA

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF ACTUAL CONDITIONS ENCOUNTERED.

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BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale Ave, Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Alex Martinez | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11/13/2013 | START: 0950 | DRILLING COMPANY: Gregg Drilling | DRILLER: Daniel Galosa

WELLID: SG-2B | STOP: 1010 | DRILLING METHOD: Hand Auger | SAMPLE METHOD:

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	Grout		0.4 ppm	Dry	Brown	Firm	Concrete Clayey silt; no - low plasticity. (0,0,85,15)	CL	None
2			0.5 ppm						
3	Bent. Chips			Dry	Brown	Stiff	Silty clay;some mottling & some sand fragments (coarse) (0,>5,20,75)	CL	None
4			0.4 ppm 0.3 ppm	Slightly Damp	Light Brown	Stiff	Sandy/silty clay; molting, fine sands, low plasticity (1,0,10,89)	CL	None
5	#2 Sand		1.9 ppm				Increased sub angular gravel @ 5.5'		
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

TOTAL BORING DEPTH: 5.5 ft | PAGE NO: 1 OF 1 | ESTIMATED GROUND WATER DEPTH: NA

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale Ave, Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Alex Martinez | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11/13/2013 | START: 1120 | DRILLING COMPANY: Gregg Drilling | DRILLER: Daniel Galosa

WELLID: SG-3A | STOP: 1135 | DRILLING METHOD: Hand Auger | SAMPLE METHOD:

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE / CLASSIFICATION		REMARKS & ODORS
1	Grout						Concrete		
2	Bent. Chips		3.1 ppm	Slightly Damp	Dark Brown	Firm	Silty clay; low plasticity (0,0,15,85)	CL	None
3	#2 Sand		2.3 ppm 1.6 ppm	Damp	Lt. Brown	Firm	Silty/sandy clay; low plasticity, sand are fine-medium grains (0,5,15,80)	CL	None
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

TOTAL BORING DEPTH: 3.5 ft | PAGE NO: 1 OF 1 | ESTIMATED GROUND WATER DEPTH: NA

BROADBENT LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP 402 | SITE ADDRESS: 1450 Fruitvale Ave, Oakland, California

PROJECT NUMBER: 08-88-602 | LEGAL DESC: | APN:

LOGGED BY: Alex Martinez | FACILITY ID OR WAIVER: | NOI NUMBER:

DATE: 11/13/2013 | START: 1120 | DRILLING COMPANY: Gregg Drilling | DRILLER: Daniel Galosa

WELLID: SG-3B | STOP: 1135 | DRILLING METHOD: Hand Auger | SAMPLE METHOD:

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE	COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	Grout						Concrete		
2			3.1 ppm	Slightly Damp	Brown	Firm	Silty clay; low plasticity (0,0,15,85)	CL	None
3	Bent. Chips		2.3 ppm	Damp	Reddish Brown	Stiff	Silty/sandy clay; low plasticity, sand are fine-medium grains (0,5,15,80)	CL	None
4			1.6 ppm	Slightly Damp	Reddish Brown	Stiff	Clay; low plasticity (0,0,>5,95)	CL	None
5	#2 Sand		2.5 ppm	Damp	Lt. Brown	Soft	Sandy clay; low plasticity, fine-medium sand (0,15,5,80)	CL	None
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

TOTAL BORING DEPTH: 5.5 ft | PAGE NO: 1 OF 1 | ESTIMATED GROUND WATER DEPTH: NA

APPENDIX F

Field Well Development and Sampling Sheets

GREGG

MONITORING WELL DEVELOPMENT LOG

All measurements taken from: ☑ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID _____

Well Number MW-7 | Borehole Diameter 8" | Qty. of Drilling Fluid Lost Ø

Date 11-22-13 | Screen Length 10' | Minimum Gal. to be Purged _____

Time Start: 1:45 End: 3:10 | Measured Depth (pre-development) 31.60 | Development Method SURGE, BAIL AND pump

Client BROADBENT AND ASSOCIATES | Measured Depth (post-development) 31.60 | Purging Equipment 2" S.S. BAILER

Project FORMER ARCO 402 | Static Water Level (ft.) 16.40 | Water Level Equipment SOLINST

Job Number _____ | Standing Water Column (ft.) 15.20 | pH/EC Meter HORIBA U-10

Installation Date _____ | One Casing Volume (gal.) 2.58 | Turbidity Meter _____

Well Diameter 2" | One Annulus Vol. (gal.) _____ | Other _____

Time	Amount Purged (gal.)	Field Parameters Measured							Comments	Field Tech.
		pH	EC	Turbidity	D.O.	Temperature	SAL.	GPM / W.L.		
1:45	-	SURGING	2" WELL						HARD BOTTOM	
2:00	-	STOP SURGING/	START	BAILING					SURGED WELL FOR 15 MIN	
2:10	-	STOP	BAILING/	BAIL 5 GALLONS			W.L: 21.30			
2:15	-	START	PUMPING AT .5 GPM			W.L: 16.80				
2:21	3/3	6.62	1.37	7999	—	21.3	—	.5 gpm	W.L: 22.20	
2:27	3/6	6.44	1.31	7999	—	20.9	—	.5 gpm	W.L: 24.10	
2:33	3/9	6.10	1.29	7999	—	20.6	—	.5 gpm	W.L: 26.40	
2:39	3/12	6.10	1.12	7999	—	20.5	—	.5 gpm	W.L 28.90	
2:45	3/15	6.12	1.11	7999	—	20.4	—	.5 gpm	W.L 29.50	
2:55	3/18	6.15	1.07	30	—	20.6	—	.3 gpm	W.L: N/A SLOW RECHARGE	
3:02	3/21	6.15	1.09	0	—	20.5		.3 gpm	W.L: N/A	

FINAL FIELD PARAMETER MEASUREMENTS

* 3:10 26 GALLONS TOTAL REMOVED.

GREGG

MONITORING WELL DEVELOPMENT LOG

All measurements taken from: ☑ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID _____

Well Number MW-5 | Borehole Diameter 8" | Qty. of Drilling Fluid Lost 0

Date 11-22-15 | Screen Length 10' | Minimum Gal. to be Purged _____

Time Start: 11:15 End: 12:30 | Measured Depth (pre-development) 27.60 | Development Method SURGE BAIL AND PUMP

Client BROADBENT AND ASSOCIATES | Measured Depth (post-development) 27.60 | Purging Equipment 2" S.S. BAILER

Project FORMER ARCO 401 | Static Water Level (ft.) 14.70 | Water Level Equipment SOLINST

Job Number - | Standing Water Column (ft.) 12.90 | pH/EC Meter HORIBA U-10

Installation Date - | One Casing Volume (gal.) 2.19 | Turbidity Meter "

Well Diameter 2" | One Annulus Vol. (gal.) _____ | Other _____

Time	Amount Purged (gal.)	Field Parameters Measured							Comments	Field Tech.
		pH	EC	Turbidity	D.O.	Temperature	SAL.	GPM / W.L.		
11:15	-	SURGING	2"	WELL	—				TAG BOTTOM	
11:30	STOP	SURGING	/	START	BAILING	-		SURGE	WELL FOR 15 MIN	
11:40	- STOP	BAILING	-	BAIL	5 GALLONS	-	W.L:	17.40		
11:45	- START	PUMPING		AT .5 gpm			W.L=	14.50		
11:51	3/3	6.54	1.36	408	-	20.8	—	.5 gpm	W.L=	14.35
11:57	3/6	6.53	.783	120	-	20.5	—	.5 gpm	W.L:	21.50
12:03	3/9	6.33	1.51	80	-	20.5	-	.5 gpm	W.L:	23.90
12:09	3/12	6.31	1.51	40	-	20.6	—	.5 gpm	W.L:	N/A TIP OF SOLINST @ TOP OF PUMP
12:15	3/15	6.30	1.50	32	-	20.5	—	.5 gpm	W.L:	N/A
12:21	3/18	6.28	1.50	0	-	20.6	-	.5 gpm	W.L:	N/A
12:27	3/21	6.29	1.51	0	-	20.6	—	.5 gpm	W.L:	N/A
FINAL FIELD PARAMETER MEASUREMENTS										
12:30	* 26 GALLONS TOTAL REMOVED *									

GREGG

MONITORING WELL DEVELOPMENT LOG

All measurements taken from: ☑ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID _____

Well Number MW-4 | Borehole Diameter 8" | Qty. of Drilling Fluid Lost ϕ

Date 11-22-13 | Screen Length 10' | Minimum Gal. to be Purged _____

Time Start: 8:15 End: 1:22 | Measured Depth (pre-development) 27.60 | Development Method SURGE, BAIL AND PUMP

Client BROADENT AND ASSOCIATES | Measured Depth (post-development) 27.60 | Purging Equipment 2" S.S. BAILER

Project FORMER ARCO 402 | Static Water Level (ft.) 11.62 | Water Level Equipment SOLINST

Job Number — | Standing Water Column (ft.) 15.98 | pH/EC Meter HORIBA U-10

Installation Date — | One Casing Volume (gal.) 2.71 | Turbidity Meter "

Well Diameter 2" | One Annulus Vol. (gal.) _____ | Other _____

Time	Amount Purged (gal.)	Field Parameters Measured							Comments	Field Tech.
		pH	EC	Turbidity	D.O.	Temperature	SAL.	GPM / W.L.		
8:15	-	SURGING	2"	WELL	—				HARD BOTTOM	
8:30	-	STOP SURGING / START BAILING			—				SURGED WELL FOR 15 MIN	
8:43	-	STOP BAILING -	BAIL 5	GALLONS	-			W.L - 17.30		
8:58	-	START PUMPING	AT	.5 gpm				W.L: 17.35		
9:03	2.5/2.5	7.47	1.39	847	—	19.3	—	.5 gpm	W.L: 17.50	
9:08	2.5/5	7.25	1.35	191	—	19.2	—	.5 gpm	W.L: 19.10	
9:13	2.5/7.5	6.54	1.24	71	—	19.5	—	.5 gpm	W.L: 19.35	
9:18	2.5/10	6.54	1.17	0	—	19.5	—	.5 gpm	W.L 19.40	
9:23	2.5/12.5	6.50	1.16	0	—	19.5	—	.5 gpm	W.L 19.45	
9:25	*	17.5	GALLONS	TOTAL	REMOVED.			*		

FINAL FIELD PARAMETER MEASUREMENTS

GREGG

MONITORING WELL DEVELOPMENT LOG

All measurements taken from: ☑ Top of Casing ☐ Protective Casing ☐ Ground Level

Sample ID _____

Well Number MW-6 | Borehole Diameter 8" | Qty. of Drilling Fluid Lost Ø

Date 1-22-13 | Screen Length 10' | Minimum Gal. to be Purged _____

Time Start: 9:50 End: 10:50 | Measured Depth (pre-development) 27.80 | Development Method SURGE, BAIL AND PUMP

Client BROADBENT AND ASSOCIATES | Measured Depth (post-development) 27.80 | Purging Equipment 2" S.S. BAILER

Project FORMER ARCO 402 | Static Water Level (ft.) 13.80 | Water Level Equipment SOLINST

Job Number - | Standing Water Column (ft.) 14.0 | pH/EC Meter HORIBA U-10

Installation Date _____ | One Casing Volume (gal.) 2.3Ø | Turbidity Meter _____

Well Diameter 2" | One Annulus Vol. (gal.) _____ | Other _____

Time	Amount Purged (gal.)	Field Parameters Measured							Comments	Field Tech.
		pH	EC	Turbidity	D.O.	Temperature	SAL.	GPM / W.L.		
9:50	-	SURGING	2" WELL						HARD BOTTOM	
10:05	-	STOP SURGING	—	START	BAILING	—			SURGED WELL FOR 15 MINUTES	
10:15	-	STOP BAILING	- BAIL	5 GALLONS		W.L.			16.90	
10:20	-	START PUMPING		.5 GPM	-	WL=		13.80		
10:26	3/3	6.64	127	>999	—	18.9	—	.5 GPM	WL= 17.40	
10:32	3/6	6.56	.264	449	—	19.0	—	.5 GPM	WL= 17.90	
10:38	3/9	6.35	.260	25	—	18.5	—	.5 GPM	WL= 18.00	
10:44	3/12	6.32	.259	0	-	19.1	-	.5 GPM	WL= 18.0	
10:50	3/15	6.30	.260	0	-	19.1	-	.5 GPM	WL= 19.17	
10:53	*	20 GALLONS TOTAL REMOVED						*		
FINAL FIELD PARAMETER MEASUREMENTS										

BROADBENT

GROUNDWATER MONITORING SITE SHEET

Page ____ of ____

Project: BP 402 Project No.: 08-88-602 Date: 12/2/13

Field Representative: JR, KCG Elevation: ____

Formation recharge rate is historically: High Low *(circle one)*

W. L. Indicator ID #: ____ Oil/Water Interface ID #: ____ *(List #s of all equip used.)*

WELL ID RECORD					WELL GAUGING RECORD					LAB ANALYSES					
Well ID	Well Sampling Order	As-Built Well Diameter (inches)	As-Built Well Screen Interval (ft)	Previous Depth to Water (ft)	Time (24:00)	Depth to LNAPL (ft)	Apparent LNAPL Thickness (ft)*	Depth to Water (ft)	Well Total Depth (ft)						
MW-4					0904			14.86	27.82						
MW-5					0941			13.67	27.81						
MW-6					1012			15.07	27.82						
MW-7					0830			15.35	31.82						

* Device used to measure LNAPL thickness: Bailer Oil/Water Interface Meter *(circle one)*

If bailer used, note bailer dimensions (inches): Entry Diameter ____ Chamber Diameter ____

Signature: ____

Revision: 1/24/2012

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 402 Project No.: 08-88-602 Date: 12/2/13

Field Representative: JK / KCB

Well ID: MW-4 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

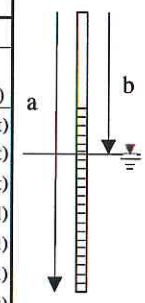
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) (2" | (0.17)) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): ____ (ft)
Initial Depth to Water (b): ____ (ft)
Water Column Height (WCH) = (a - b): 13.76 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)
Three Casing Volumes = WCV x 3: ____ (gal)
Five Casing Volumes = WCV x 5: ____ (gal)
Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)
Total Well Depth (a): 27.82 (ft)
Initial Depth to Water (b): 14.06 (ft)
Pump In-take Depth = b + (a-b)/2: 20.94 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.72 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C / F	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0907	0	62.2	6.55	1.70	2.66	143	117	
0909	0.5	63.1	6.42	1.59	1.86	145	104	
0911	1.0	63.5	6.34	1.48	1.73	144	101	
0913	1.5	63.8	6.28	1.38	1.39	142	104	
0915	2.0	64.0	6.22	1.30	1.60	141	122	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 14.58 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-4 Sample Collection Time: 0915 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: ____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 402 Project No.: 08-88-602 Date: 12/2/13

Field Representative: JR/KCB

Well ID: MW-5 Start Time: ____ End Time: ____ Total Time (minutes): ____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ^ Flow Cell
X Disp. Tubing ___ 12V Pump ^ Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

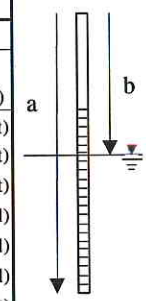
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) (2" | (0.17)) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

Total Well Depth (a): ____ (ft)
Initial Depth to Water (b): ____ (ft)
Water Column Height (WCH) = (a - b): 14.14 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: ____ (gal)
Three Casing Volumes = WCV x 3: ____ (gal)
Five Casing Volumes = WCV x 5: ____ (gal)
Pump Depth (if pump used): ____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: ____ (lpm)
Total Well Depth (a): 27.81 (ft)
Initial Depth to Water (b): 13.67 (ft)
Pump In-take Depth = b + (a-b)/2: 20.74 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.77 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0944	0	63.2	6.43	1.03	6.54	167	17.8	
0946	0.5	64.0	6.35	1.01	5.57	188	15.3	
0948	1.0	64.3	6.31	1.00	5.09	206	12.5	
0950	1.5	64.6	6.28	0.998	4.80	224	12.8	
0952	2.0	64.8	6.28	0.997	4.70	232	11.8	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 14.88 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-5 Sample Collection Time: 0955 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: ____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 402 Project No.: 08-88-602 Date: 12/2/13

Field Representative: JR/KCG

Well ID: MW-6 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

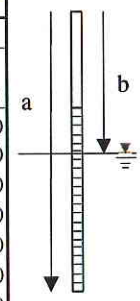
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) (2" | (0.17)) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): _____ (ft)
Initial Depth to Water (b): _____ (ft)
Water Column Height (WCH) = (a - b): 12.75 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)
Three Casing Volumes = WCV x 3: _____ (gal)
Five Casing Volumes = WCV x 5: _____ (gal)
Pump Depth (if pump used): _____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)
Total Well Depth (a): 27.82 (ft)
Initial Depth to Water (b): 15.07 (ft)
Pump In-take Depth = b + (a-b)/2: 21.44 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.59 (ft)
Low-Flow Purge Rate: 0.2 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C F	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1016	0	67.6	6.74	0.780	3.35	194		
1018	0.5	63.5	6.37	0.777	1.50	207		
1020	1.0	64.1	6.31	0.781	1.37	209		
1022	1.5	64.3	6.27	0.796	1.30	210		
1024	2.0	64.5	6.25	0.810	1.25	210		
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 15.70 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-6 Sample Collection Time: 1025 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: _____ ___ Other: _____
___ Other: _____ ___ Other: _____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 402 Project No.: 08-88-602 Date: 12/2/13

Field Representative: JR/KG

Well ID: MW-7 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump X Flow Cell
X Disp. Tubing ___ 12V Pump X Peristaltic Pump Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments:
(Good) Improvement Needed *(circle one)*

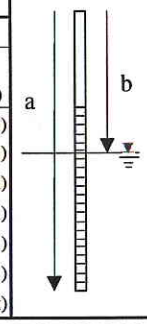
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) (2" | (0.17)) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): _____ (ft)
Initial Depth to Water (b): _____ (ft)
Water Column Height (WCH) = (a - b): 16.47 (ft)
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)
Three Casing Volumes = WCV x 3: _____ (gal)
Five Casing Volumes = WCV x 5: _____ (gal)
Pump Depth (if pump used): _____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)
Total Well Depth (a): 31.82 (ft)
Initial Depth to Water (b): 15.35 (ft)
Pump In-take Depth = b + (a-b)/2: 23.59 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.05 (ft)
Low-Flow Purge Rate: 0.25 (Lpm)*
Comments:

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or (L)	Temperature °C F	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0833	0	61.3	6.50	1.30	7.45	127	105	
0835	0.5	62.9	6.44	1.25	6.61	129	103	
0837	1.0	63.5	6.40	1.22	6.02	130	106	
0839	1.5	63.9	6.37	1.19	~~6.37~~ 5.57	134	118	
0841	2.0	64.0	6.36	1.18	5.35	135	140	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD X Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 15.54 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: MW-7 Sample Collection Time: 0845 (24:00)
Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

SOIL VAPOR SAMPLING DATA SHEET

Date: 12-17-13
Personnel: JR/AM
Weather: Overcast; 50°F

Site Name: BP-102
Project No.: 08-88-602

Well ID: SG-1A
Canister #: 3400215
Flow Controller #: 7098

Time	Helium Concentration (%)	Summa Canister Pressure (in.Hg)	Comments
1036	26	-29	• Held 15 in. Hg for 5 mins
1038	31	-27	
1040	28	-25	
1042	25	-23	
1044	24	-21	
1046	21	-18	
1048	19	-16	
1050	20	-15	
1052	24	-13	
1054	24	-12	
1056	21	-10	
1058	21	-9	
1100	22	-8	
1102	18	-6	
1104	18	-5	

BROADBENT

SOIL VAPOR SAMPLING DATA SHEET

Date: 12/17/13
Personnel: JR/AM
Weather: Overcast; 50°F

Site Name: BP 402
Project No.: 08-88-002

Well ID: SG-1B
Canister #: 34001333
Flow Controller #: 4945

Time	Helium Concentration (%)	Summa Canister Pressure (in.Hg)	Comments
1135	26	-29	• Held 15 in. Hg for 5 minutes
1137	19	-27	
1139	23	-25	
1141	28	-23	
1143	17	-27	
1145	18	-19	
1147	20	-16	
1149	21	-14	
1151	22	-12	
1153	23	-10	
1155	24	-9	
1157	26	-8	
1159	25	-6	
1201	26	-5	
KM			

BROADBENT

SOIL VAPOR SAMPLING DATA SHEET

Date: 12/17/13
Personnel: JR/AM
Weather: Overcast

Site Name: BP 402
Project No.: 08-80-002

Well ID: SG-3A
Canister #: 34000349

Flow Controller #: ~~489~~ 7234

Time	Helium Concentration (%)	Summa Canister Pressure (in.Hg)	Comments
1310	19	-30	*Held 15 in. Hg for 5 minutes
1312	11	-28	
1314	19	-25	
1316	25	-23	
1318	23	-21	
1320	19	-19	
1322	20	-18	
1324	20	-15	
1326	18	-14	
1328	25	-12	
1330	20	-10	
1332	18	-9	
1334	22	-8	
1336	17	-6	
1338	18	-5	

BROADBENT

SOIL VAPOR SAMPLING DATA SHEET

Date: 12/17/13
Personnel: JR/AM
Weather: Overcast

Site Name: BP 402
Project No.: 08-88-602

Well ID: SG-3B
Canister #: 34000820
Flow Controller #: 7313

Time	Helium Concentration (%)	Summa Canister Pressure (in.Hg)	Comments
1355	19	-30	• Held 15 in Hg for 5minutes
1357	28	-26	
1359	28	-26	
1401	26	-24	
1403	22	-22	
1405	15	-19	
1407	26	-17	
1409	23	-16	
1411	23	-13	
1413	21	-11	
1415	18	-10	
1417	26	-8	
1419	25	-6	
1421	24	-5	

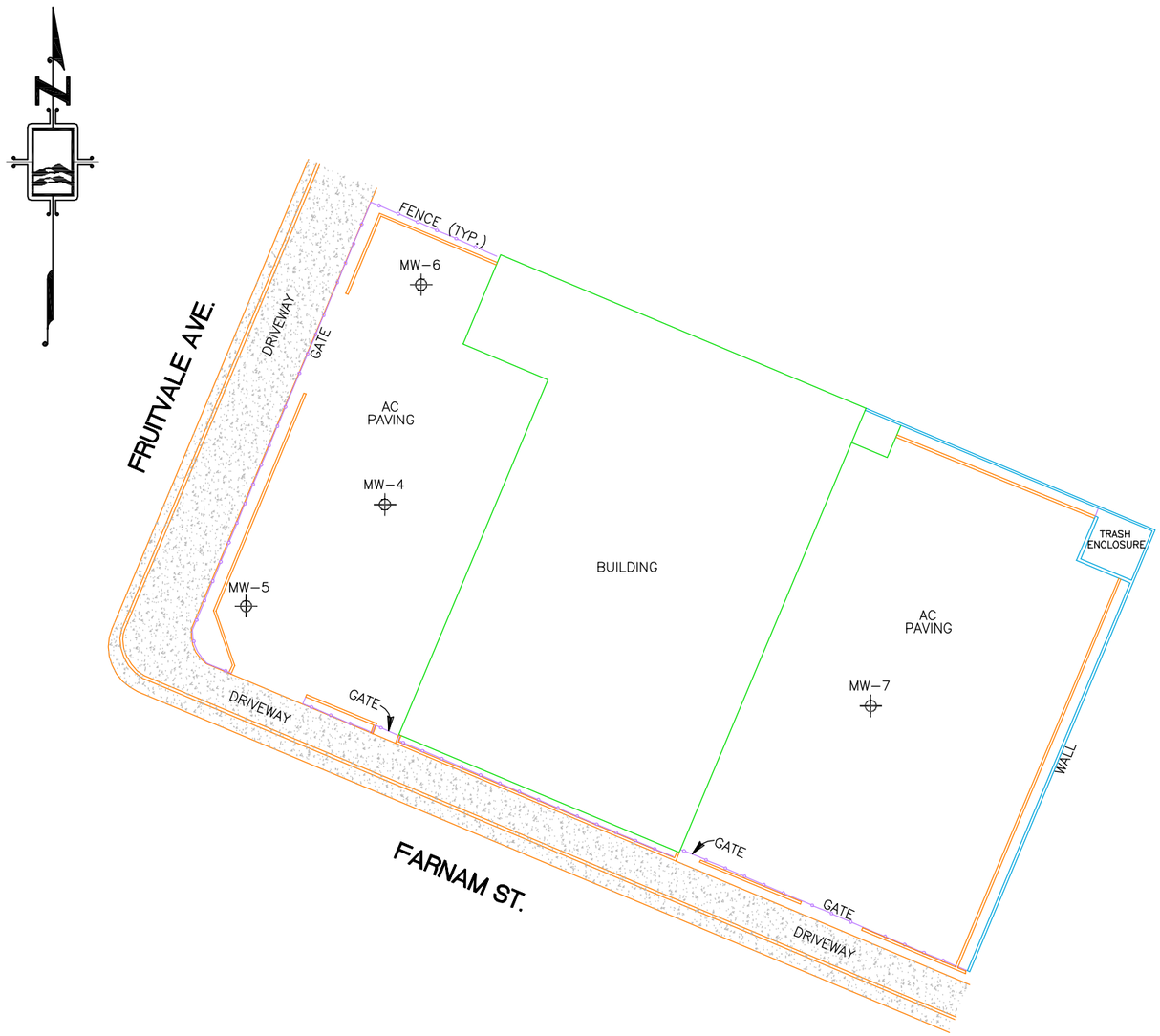
APPENDIX G

Licensed Surveyor's Report

Monitoring Well Exhibit

Prepared For:

Broadbent and Associates



BASIS OF COORDINATES AND ELEVATIONS:

COORDINATES ARE CALIFORNIA STATE PLANE ZONE 3 COORDINATES FROM GPS OBSERVATIONS USING CSDS VIRTUAL SURVEY NETWORK.

COORDINATE DATUM IS NAD 83.

REFERENCE GEOID IS GEOID03.

VERTICAL DATUM IS NAVD 88 FROM GPS OBSERVATIONS.

DESC.	NORTHING	EASTING	LATITUDE	LONGITUDE	EL. PVC	EL. RIM
MW-4	2110436.9	6063076.0	37.7782515	-122.2252725	48.18	48.54
MW-5	2110415.9	6063047.2	37.7781924	-122.2253707	47.62	48.04
MW-6	2110482.4	6063083.5	37.7783770	-122.2252494	48.89	49.19
MW-7	2110395.2	6063176.7	37.7781421	-122.2249216	48.28	48.67

0 15 30 60 90

SCALE IN FEET

Former BP Station #402
1450 Fruitvale Ave.
Oakland
Alameda County
California

Morrow Surveying
LAND SURVEYORS

1255 Starboard Drive
West Sacramento
California 95691
(916) 372-8124
mark@morrowsurveying.com

Date: December, 2013
Field: 12-17-13 SF
Scale: 1"=30'
Revised:
Field Book: MW-57
Dwg. No. 0719-010 MAM

APPENDIX H

Laboratory Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-5440-1
Client Project/Site: ARCO 0402, Oakland
Revision: 1

For:
Broadbent & Associates, Inc.
875 Cotting Lane
Suite G
Vacaville, California 95688

Attn: Kristene Tidwell

Beth Riley

Authorized for release by:
2/13/2014 1:50:38 PM

Beth Riley, Project Manager II
(714)258-8610
beth.riley@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
LH	Surrogate Recoveries were higher than QC limits

Air - GC VOA

Qualifier	Qualifier Description
LW	Quantitated against gasoline

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 320-5440-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-5440-1

This report was revised on 2/13/14 to add the second unit of ug/m3 to the TO-15 and TO-3 results. No other data was changed.

Receipt
The samples were received on 12/21/2013 12:00 PM; the samples arrived in good condition.

Air - GC VOA
Argon was requested by ASTM D1946 but TestAmerica does not analyze for argon. The client was notified upon receipt of the samples
No analytical or quality issues were noted.

Air - GC/MS VOA
Method(s) TO-15 MOD: Surrogate recovery for the following sample(s) was outside control limits: SG-1B (320-5440-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

Detection Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 320-5440-1

Client Sample ID: SG-1A — Lab Sample ID: 320-5440-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	1.7		0.99		% v/v	1.98		D1946	Total/NA
Methane (FID)	0.00035		0.00020		% v/v	1.98		D1946	Total/NA
Oxygen	18		0.40		% v/v	1.98		D1946	Total/NA

Client Sample ID: SG-1B — Lab Sample ID: 320-5440-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	1.1		0.50		% v/v	1		D1946	Total/NA
Methane (FID)	0.0042		0.00020		% v/v	2.04		D1946	Total/NA
Oxygen	8.0		0.20		% v/v	1		D1946	Total/NA
GRO (C6-C12)	11	LW	2.0		ppm v/v	2.04		TO3	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
GRO (C6-C12)	46000	LW	8300		ug/m3	2.04		TO3	Total/NA

Client Sample ID: SG-2A — Lab Sample ID: 320-5440-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Helium	22		0.20		% v/v	1.96		D1946	Total/NA
Methane (FID)	0.0038		0.00020		% v/v	1.96		D1946	Total/NA
Oxygen	28		0.39		% v/v	1.96		D1946	Total/NA

Client Sample ID: SG-2B — Lab Sample ID: 320-5440-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	1.1		0.96		% v/v	1.91		D1946	Total/NA
Methane (FID)	0.00076		0.00019		% v/v	1.91		D1946	Total/NA
Oxygen	20		0.38		% v/v	1.91		D1946	Total/NA

Client Sample ID: SG-3A — Lab Sample ID: 320-5440-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	1.0		0.98		% v/v	1.95		D1946	Total/NA
Helium	0.68		0.20		% v/v	1.95		D1946	Total/NA
Methane (FID)	0.00029		0.00020		% v/v	1.95		D1946	Total/NA
Oxygen	19		0.39		% v/v	1.95		D1946	Total/NA

Client Sample ID: SG-3B — Lab Sample ID: 320-5440-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	2.1		0.93		% v/v	1.86		D1946	Total/NA
Methane (FID)	0.00027		0.00019		% v/v	1.86		D1946	Total/NA
Oxygen	18		0.37		% v/v	1.86		D1946	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SG-1A

Lab Sample ID: 320-5440-1

Date Collected: 12/17/13 10:36

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0040		ppm v/v			01/08/14 00:02	1
Ethylbenzene	ND		0.0040		ppm v/v			01/08/14 00:02	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0040		ppm v/v			01/08/14 00:02	1
Toluene	ND		0.0040		ppm v/v			01/08/14 00:02	1
m,p-Xylene	ND		0.0080		ppm v/v			01/08/14 00:02	1
o-Xylene	ND		0.0040		ppm v/v			01/08/14 00:02	1
Xylenes, Total	ND		0.0040		ppm v/v			01/08/14 00:02	1
Naphthalene	ND		0.0040		ppm v/v			01/08/14 00:02	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		13		ug/m3			01/08/14 00:02	1
Ethylbenzene	ND		17		ug/m3			01/08/14 00:02	1
Methyl-t-Butyl Ether (MTBE)	ND		14		ug/m3			01/08/14 00:02	1
Toluene	ND		15		ug/m3			01/08/14 00:02	1
m,p-Xylene	ND		35		ug/m3			01/08/14 00:02	1
o-Xylene	ND		17		ug/m3			01/08/14 00:02	1
Xylenes, Total	ND		17		ug/m3			01/08/14 00:02	1
Naphthalene	ND		21		ug/m3			01/08/14 00:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*01/08/14 00:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*01/08/14 00:02*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*01/08/14 00:02*	*1*

Method: D1946 - Fixed Gases in Air (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	**1.7**		0.99		% v/v			12/26/13 09:37	1.98
Helium	ND		0.20		% v/v			12/26/13 09:37	1.98
Methane (FID)	**0.00035**		0.00020		% v/v			12/30/13 07:50	1.98
Oxygen	**18**		0.40		% v/v			12/26/13 09:37	1.98

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	2.0		ppm v/v			12/23/13 11:55	1.98

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	8100		ug/m3			12/23/13 11:55	1.98

Client Sample ID: SG-1B

Lab Sample ID: 320-5440-2

Date Collected: 12/17/13 11:35

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0040		ppm v/v			01/08/14 00:50	1
Ethylbenzene	ND		0.0040		ppm v/v			01/08/14 00:50	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0040		ppm v/v			01/08/14 00:50	1
Toluene	ND		0.0040		ppm v/v			01/08/14 00:50	1
m,p-Xylene	ND		0.0080		ppm v/v			01/08/14 00:50	1
o-Xylene	ND		0.0040		ppm v/v			01/08/14 00:50	1

Client Sample ID: SG-1B

Lab Sample ID: 320-5440-2

Date Collected: 12/17/13 11:35

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.0040		ppm v/v			01/08/14 00:50	1
Naphthalene	ND		0.0040		ppm v/v			01/08/14 00:50	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		13		ug/m3			01/08/14 00:50	1
Ethylbenzene	ND		17		ug/m3			01/08/14 00:50	1
Methyl-t-Butyl Ether (MTBE)	ND		14		ug/m3			01/08/14 00:50	1
Toluene	ND		15		ug/m3			01/08/14 00:50	1
m,p-Xylene	ND		35		ug/m3			01/08/14 00:50	1
o-Xylene	ND		17		ug/m3			01/08/14 00:50	1
Xylenes, Total	ND		17		ug/m3			01/08/14 00:50	1
Naphthalene	ND		21		ug/m3			01/08/14 00:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*01/08/14 00:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*280*	*LH*	*70 - 130*		*01/08/14 00:50*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*01/08/14 00:50*	*1*

Method: D1946 - Fixed Gases in Air (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	**1.1**		0.50		% v/v			12/26/13 09:50	1
Helium	ND		0.10		% v/v			12/26/13 09:50	1
Methane (FID)	**0.0042**		0.00020		% v/v			12/30/13 08:01	2.04
Oxygen	**8.0**		0.20		% v/v			12/26/13 09:50	1

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**11**	**LW**	2.0		ppm v/v			12/23/13 12:19	2.04

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**46000**	**LW**	8300		ug/m3			12/23/13 12:19	2.04

Client Sample ID: SG-2A

Lab Sample ID: 320-5440-3

Date Collected: 12/18/13 08:44

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0040		ppm v/v			01/08/14 01:38	1
Ethylbenzene	ND		0.0040		ppm v/v			01/08/14 01:38	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0040		ppm v/v			01/08/14 01:38	1
Toluene	ND		0.0040		ppm v/v			01/08/14 01:38	1
m,p-Xylene	ND		0.0080		ppm v/v			01/08/14 01:38	1
o-Xylene	ND		0.0040		ppm v/v			01/08/14 01:38	1
Xylenes, Total	ND		0.0040		ppm v/v			01/08/14 01:38	1
Naphthalene	ND		0.0040		ppm v/v			01/08/14 01:38	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		13		ug/m3			01/08/14 01:38	1
Ethylbenzene	ND		17		ug/m3			01/08/14 01:38	1
Methyl-t-Butyl Ether (MTBE)	ND		14		ug/m3			01/08/14 01:38	1

Client Sample ID: SG-2A

Lab Sample ID: 320-5440-3

Date Collected: 12/18/13 08:44

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		15		ug/m3			01/08/14 01:38	1
m,p-Xylene	ND		35		ug/m3			01/08/14 01:38	1
o-Xylene	ND		17		ug/m3			01/08/14 01:38	1
Xylenes, Total	ND		17		ug/m3			01/08/14 01:38	1
Naphthalene	ND		21		ug/m3			01/08/14 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*		*01/08/14 01:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*01/08/14 01:38*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*01/08/14 01:38*	*1*

Method: D1946 - Fixed Gases in Air (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		0.98		% v/v			12/26/13 09:57	1.96
Helium	**22**		0.20		% v/v			12/26/13 09:57	1.96
Methane (FID)	**0.0038**		0.00020		% v/v			12/30/13 08:15	1.96
Oxygen	**28**		0.39		% v/v			12/26/13 09:57	1.96

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	2.0		ppm v/v			12/23/13 12:44	1.96

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	8000		ug/m3			12/23/13 12:44	1.96

Client Sample ID: SG-2B

Lab Sample ID: 320-5440-4

Date Collected: 12/18/13 09:33

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0040		ppm v/v			01/08/14 02:27	1
Ethylbenzene	ND		0.0040		ppm v/v			01/08/14 02:27	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0040		ppm v/v			01/08/14 02:27	1
Toluene	ND		0.0040		ppm v/v			01/08/14 02:27	1
m,p-Xylene	ND		0.0080		ppm v/v			01/08/14 02:27	1
o-Xylene	ND		0.0040		ppm v/v			01/08/14 02:27	1
Xylenes, Total	ND		0.0040		ppm v/v			01/08/14 02:27	1
Naphthalene	ND		0.0040		ppm v/v			01/08/14 02:27	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		13		ug/m3			01/08/14 02:27	1
Ethylbenzene	ND		17		ug/m3			01/08/14 02:27	1
Methyl-t-Butyl Ether (MTBE)	ND		14		ug/m3			01/08/14 02:27	1
Toluene	ND		15		ug/m3			01/08/14 02:27	1
m,p-Xylene	ND		35		ug/m3			01/08/14 02:27	1
o-Xylene	ND		17		ug/m3			01/08/14 02:27	1
Xylenes, Total	ND		17		ug/m3			01/08/14 02:27	1
Naphthalene	ND		21		ug/m3			01/08/14 02:27	1

Client Sample ID: SG-2B

Lab Sample ID: 320-5440-4

Date Collected: 12/18/13 09:33
Matrix: Air
Date Received: 12/21/13 12:00
Sample Container: Summa Canister 6L

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*01/08/14 02:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*		*01/08/14 02:27*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*01/08/14 02:27*	*1*

Method: D1946 - Fixed Gases in Air (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	**1.1**		0.96		% v/v			12/26/13 10:19	1.91
Helium	ND		0.19		% v/v			12/26/13 10:19	1.91
Methane (FID)	**0.00076**		0.00019		% v/v			12/30/13 08:32	1.91
Oxygen	**20**		0.38		% v/v			12/26/13 10:19	1.91

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	1.9		ppm v/v			12/23/13 13:08	1.91

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	7800		ug/m3			12/23/13 13:08	1.91

Client Sample ID: SG-3A

Lab Sample ID: 320-5440-5

Date Collected: 12/17/13 13:10
Matrix: Air
Date Received: 12/21/13 12:00
Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0040		ppm v/v			01/08/14 03:15	1
Ethylbenzene	ND		0.0040		ppm v/v			01/08/14 03:15	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0040		ppm v/v			01/08/14 03:15	1
Toluene	ND		0.0040		ppm v/v			01/08/14 03:15	1
m,p-Xylene	ND		0.0080		ppm v/v			01/08/14 03:15	1
o-Xylene	ND		0.0040		ppm v/v			01/08/14 03:15	1
Xylenes, Total	ND		0.0040		ppm v/v			01/08/14 03:15	1
Naphthalene	ND		0.0040		ppm v/v			01/08/14 03:15	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		13		ug/m3			01/08/14 03:15	1
Ethylbenzene	ND		17		ug/m3			01/08/14 03:15	1
Methyl-t-Butyl Ether (MTBE)	ND		14		ug/m3			01/08/14 03:15	1
Toluene	ND		15		ug/m3			01/08/14 03:15	1
m,p-Xylene	ND		35		ug/m3			01/08/14 03:15	1
o-Xylene	ND		17		ug/m3			01/08/14 03:15	1
Xylenes, Total	ND		17		ug/m3			01/08/14 03:15	1
Naphthalene	ND		21		ug/m3			01/08/14 03:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*01/08/14 03:15*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 130*		*01/08/14 03:15*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*01/08/14 03:15*	*1*

Method: D1946 - Fixed Gases in Air (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	**1.0**		0.98		% v/v			12/26/13 10:28	1.95

Client Sample ID: SG-3A

Lab Sample ID: 320-5440-5

Date Collected: 12/17/13 13:10

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: D1946 - Fixed Gases in Air (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Helium	**0.68**		0.20		% v/v			12/26/13 10:28	1.95
Methane (FID)	**0.00029**		0.00020		% v/v			12/30/13 08:47	1.95
Oxygen	**19**		0.39		% v/v			12/26/13 10:28	1.95

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	2.0		ppm v/v			12/23/13 14:20	1.95

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	8000		ug/m3			12/23/13 14:20	1.95

Client Sample ID: SG-3B

Lab Sample ID: 320-5440-6

Date Collected: 12/17/13 13:55

Matrix: Air

Date Received: 12/21/13 12:00

Sample Container: Summa Canister 6L

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0040		ppm v/v			01/08/14 04:03	1
Ethylbenzene	ND		0.0040		ppm v/v			01/08/14 04:03	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0040		ppm v/v			01/08/14 04:03	1
Toluene	ND		0.0040		ppm v/v			01/08/14 04:03	1
m,p-Xylene	ND		0.0080		ppm v/v			01/08/14 04:03	1
o-Xylene	ND		0.0040		ppm v/v			01/08/14 04:03	1
Xylenes, Total	ND		0.0040		ppm v/v			01/08/14 04:03	1
Naphthalene	ND		0.0040		ppm v/v			01/08/14 04:03	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		13		ug/m3			01/08/14 04:03	1
Ethylbenzene	ND		17		ug/m3			01/08/14 04:03	1
Methyl-t-Butyl Ether (MTBE)	ND		14		ug/m3			01/08/14 04:03	1
Toluene	ND		15		ug/m3			01/08/14 04:03	1
m,p-Xylene	ND		35		ug/m3			01/08/14 04:03	1
o-Xylene	ND		17		ug/m3			01/08/14 04:03	1
Xylenes, Total	ND		17		ug/m3			01/08/14 04:03	1
Naphthalene	ND		21		ug/m3			01/08/14 04:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*01/08/14 04:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*01/08/14 04:03*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*01/08/14 04:03*	*1*

Method: D1946 - Fixed Gases in Air (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	**2.1**		0.93		% v/v			12/26/13 10:49	1.86
Helium	ND		0.19		% v/v			12/26/13 10:49	1.86
Methane (FID)	**0.00027**		0.00019		% v/v			12/30/13 09:02	1.86
Oxygen	**18**		0.37		% v/v			12/26/13 10:49	1.86

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 320-5440-1

Client Sample ID: SG-3B
Lab Sample ID: 320-5440-6
Date Collected: 12/17/13 13:55
Matrix: Air
Date Received: 12/21/13 12:00
Sample Container: Summa Canister 6L

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	1.9		ppm v/v			12/23/13 14:44	1.86

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	7600		ug/m3			12/23/13 14:44	1.86

Surrogate Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 320-5440-1

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Matrix: Air **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
		BFB	12DCE	TOL						
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)						
320-5440-1	SG-1A	95	94	98						
320-5440-2	SG-1B	92	280 LH	98						
320-5440-3	SG-2A	92	92	100						
320-5440-4	SG-2B	95	93	100						
320-5440-5	SG-3A	95	94	101						
320-5440-6	SG-3B	96	92	101						
LCS 320-33329/4	Lab Control Sample	95	97	99						
LCSD 320-33329/5	Lab Control Sample Dup	93	96	101						
MB 320-33329/9	Method Blank	95	92	100						

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-33329/9
Matrix: Air
Analysis Batch: 33329

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00080		ppm v/v			01/07/14 18:20	1
Ethylbenzene	ND		0.00080		ppm v/v			01/07/14 18:20	1
Methyl-t-Butyl Ether (MTBE)	ND		0.00080		ppm v/v			01/07/14 18:20	1
Toluene	ND		0.00080		ppm v/v			01/07/14 18:20	1
m,p-Xylene	ND		0.0016		ppm v/v			01/07/14 18:20	1
o-Xylene	ND		0.00080		ppm v/v			01/07/14 18:20	1
Xylenes, Total	ND		0.00080		ppm v/v			01/07/14 18:20	1
Naphthalene	ND		0.00080		ppm v/v			01/07/14 18:20	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.6		ug/m3			01/07/14 18:20	1
Ethylbenzene	ND		3.5		ug/m3			01/07/14 18:20	1
Methyl-t-Butyl Ether (MTBE)	ND		2.9		ug/m3			01/07/14 18:20	1
Toluene	ND		3.0		ug/m3			01/07/14 18:20	1
m,p-Xylene	ND		6.9		ug/m3			01/07/14 18:20	1
o-Xylene	ND		3.5		ug/m3			01/07/14 18:20	1
Xylenes, Total	ND		3.5		ug/m3			01/07/14 18:20	1
Naphthalene	ND		4.2		ug/m3			01/07/14 18:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*01/07/14 18:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 130*		*01/07/14 18:20*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*01/07/14 18:20*	*1*

Lab Sample ID: LCS 320-33329/4
Matrix: Air
Analysis Batch: 33329

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.103	0.114		ppm v/v		111	70 - 130
Ethylbenzene	0.102	0.108		ppm v/v		106	70 - 130
Methyl-t-Butyl Ether (MTBE)	0.103	0.102		ppm v/v		99	70 - 130
Toluene	0.104	0.112		ppm v/v		108	70 - 130
m,p-Xylene	0.198	0.209		ppm v/v		106	70 - 130
o-Xylene	0.101	0.105		ppm v/v		104	70 - 130
Xylenes, Total	0.306	0.315		ppm v/v		103	70 - 130
Naphthalene	0.105	0.0875		ppm v/v		83	70 - 130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	330	364		ug/m3		111	70 - 130
Ethylbenzene	440	470		ug/m3		106	70 - 130
Methyl-t-Butyl Ether (MTBE)	370	369		ug/m3		99	70 - 130
Toluene	390	422		ug/m3		108	70 - 130
m,p-Xylene	860	909		ug/m3		106	70 - 130
o-Xylene	440	457		ug/m3		104	70 - 130
Xylenes, Total	1300	1370		ug/m3		103	70 - 130
Naphthalene	550	458		ug/m3		83	70 - 130

Method: TO-15 MOD - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 320-33329/4
Matrix: Air
Analysis Batch: 33329

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 320-33329/5
Matrix: Air
Analysis Batch: 33329

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.103	0.110		ppm v/v		107	70 - 130	4	25
Ethylbenzene			0.102	0.103		ppm v/v		101	70 - 130	5	25
Methyl-t-Butyl Ether (MTBE)			0.103	0.101		ppm v/v		98	70 - 130	1	25
Toluene			0.104	0.108		ppm v/v		104	70 - 130	3	25
m,p-Xylene			0.198	0.199		ppm v/v		101	70 - 130	5	25
o-Xylene			0.101	0.0997		ppm v/v		99	70 - 130	5	25
Xylenes, Total			0.306	0.299		ppm v/v		98	70 - 130	5	25
Naphthalene			0.105	0.0898		ppm v/v		85	70 - 130	3	25

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			330	351		ug/m3		107	70 - 130	4	25
Ethylbenzene			440	446		ug/m3		101	70 - 130	5	25
Methyl-t-Butyl Ether (MTBE)			370	365		ug/m3		98	70 - 130	1	25
Toluene			390	408		ug/m3		104	70 - 130	3	25
m,p-Xylene			860	865		ug/m3		101	70 - 130	5	25
o-Xylene			440	433		ug/m3		99	70 - 130	5	25
Xylenes, Total			1300	1300		ug/m3		98	70 - 130	5	25
Naphthalene			550	471		ug/m3		85	70 - 130	3	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
Toluene-d8 (Surr)	*101*		*70 - 130*

Method: D1946 - Fixed Gases in Air (GC)

Lab Sample ID: MB 320-32593/8
Matrix: Air
Analysis Batch: 32593

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		0.50		% v/v			12/26/13 08:56	1
Methane (TCD)	ND		0.50		% v/v			12/26/13 08:56	1
Oxygen	ND		0.20		% v/v			12/26/13 08:56	1

Method: D1946 - Fixed Gases in Air (GC) (Continued)

Lab Sample ID: MB 320-32593/9
Matrix: Air
Analysis Batch: 32593

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Helium	ND		0.10		% v/v			12/26/13 09:17	1

Lab Sample ID: LCS 320-32593/5
Matrix: Air
Analysis Batch: 32593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	25.5	24.0		% v/v		94	80 - 120
Methane (TCD)	24.6	23.7		% v/v		97	80 - 120

Lab Sample ID: LCS 320-32593/6
Matrix: Air
Analysis Batch: 32593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Helium	15.7	16.4		% v/v		105	80 - 120
Oxygen	15.5	14.7		% v/v		95	80 - 120

Lab Sample ID: MB 320-32796/3
Matrix: Air
Analysis Batch: 32796

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.00010		% v/v			12/30/13 07:20	1

Lab Sample ID: LCS 320-32796/2
Matrix: Air
Analysis Batch: 32796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (FID)	0.0502	0.0445		% v/v		89	80 - 120

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)

Lab Sample ID: MB 320-32444/6
Matrix: Air
Analysis Batch: 32444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	1.0		ppm v/v			12/23/13 11:28	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND	LW	4100		ug/m3			12/23/13 11:28	1

Method: TO3 - Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC) (Continued)

Lab Sample ID: LCS 320-32444/3
Matrix: Air
Analysis Batch: 32444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
TPH (as Gasoline)	100	110		ppm v/v		110	80 - 131

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
TPH (as Gasoline)	410000	448000		ug/m3		110	80 - 131

Lab Sample ID: LCSD 320-32444/4
Matrix: Air
Analysis Batch: 32444

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
TPH (as Gasoline)	100	108		ppm v/v		108	80 - 131	1	20

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
TPH (as Gasoline)	410000	442000		ug/m3		108	80 - 131	1	20

Air - GC/MS VOA

Analysis Batch: 33329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-5440-1	SG-1A	Total/NA	Air	TO-15 MOD	
320-5440-2	SG-1B	Total/NA	Air	TO-15 MOD	
320-5440-3	SG-2A	Total/NA	Air	TO-15 MOD	
320-5440-4	SG-2B	Total/NA	Air	TO-15 MOD	
320-5440-5	SG-3A	Total/NA	Air	TO-15 MOD	
320-5440-6	SG-3B	Total/NA	Air	TO-15 MOD	
LCS 320-33329/4	Lab Control Sample	Total/NA	Air	TO-15 MOD	
LCSD 320-33329/5	Lab Control Sample Dup	Total/NA	Air	TO-15 MOD	
MB 320-33329/9	Method Blank	Total/NA	Air	TO-15 MOD	

Air - GC VOA

Analysis Batch: 32444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-5440-1	SG-1A	Total/NA	Air	TO3	
320-5440-2	SG-1B	Total/NA	Air	TO3	
320-5440-3	SG-2A	Total/NA	Air	TO3	
320-5440-4	SG-2B	Total/NA	Air	TO3	
320-5440-5	SG-3A	Total/NA	Air	TO3	
320-5440-6	SG-3B	Total/NA	Air	TO3	
LCS 320-32444/3	Lab Control Sample	Total/NA	Air	TO3	
LCSD 320-32444/4	Lab Control Sample Dup	Total/NA	Air	TO3	
MB 320-32444/6	Method Blank	Total/NA	Air	TO3	

Analysis Batch: 32593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-5440-1	SG-1A	Total/NA	Air	D1946	
320-5440-2	SG-1B	Total/NA	Air	D1946	
320-5440-3	SG-2A	Total/NA	Air	D1946	
320-5440-4	SG-2B	Total/NA	Air	D1946	
320-5440-5	SG-3A	Total/NA	Air	D1946	
320-5440-6	SG-3B	Total/NA	Air	D1946	
LCS 320-32593/5	Lab Control Sample	Total/NA	Air	D1946	
LCS 320-32593/6	Lab Control Sample	Total/NA	Air	D1946	
MB 320-32593/8	Method Blank	Total/NA	Air	D1946	
MB 320-32593/9	Method Blank	Total/NA	Air	D1946	

Analysis Batch: 32796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-5440-1	SG-1A	Total/NA	Air	D1946	
320-5440-2	SG-1B	Total/NA	Air	D1946	
320-5440-3	SG-2A	Total/NA	Air	D1946	
320-5440-4	SG-2B	Total/NA	Air	D1946	
320-5440-5	SG-3A	Total/NA	Air	D1946	
320-5440-6	SG-3B	Total/NA	Air	D1946	
LCS 320-32796/2	Lab Control Sample	Total/NA	Air	D1946	
MB 320-32796/3	Method Blank	Total/NA	Air	D1946	

Client Sample ID: SG-1A

Lab Sample ID: 320-5440-1

Date Collected: 12/17/13 10:36

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	33329	01/08/14 00:02	TAD	TAL SAC
Total/NA	Analysis	TO3		1.98	1 mL	1 mL	32444	12/23/13 11:55	TAD	TAL SAC
Total/NA	Analysis	D1946		1.98	50 mL	50 mL	32593	12/26/13 09:37	TAD	TAL SAC
Total/NA	Analysis	D1946		1.98	50 mL	50 mL	32796	12/30/13 07:50	TAD	TAL SAC

Client Sample ID: SG-1B

Lab Sample ID: 320-5440-2

Date Collected: 12/17/13 11:35

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	33329	01/08/14 00:50	TAD	TAL SAC
Total/NA	Analysis	TO3		2.04	1 mL	1 mL	32444	12/23/13 12:19	TAD	TAL SAC
Total/NA	Analysis	D1946		1	50 mL	50 mL	32593	12/26/13 09:50	TAD	TAL SAC
Total/NA	Analysis	D1946		2.04	50 mL	50 mL	32796	12/30/13 08:01	TAD	TAL SAC

Client Sample ID: SG-2A

Lab Sample ID: 320-5440-3

Date Collected: 12/18/13 08:44

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	33329	01/08/14 01:38	TAD	TAL SAC
Total/NA	Analysis	TO3		1.96	1 mL	1 mL	32444	12/23/13 12:44	TAD	TAL SAC
Total/NA	Analysis	D1946		1.96	50 mL	50 mL	32593	12/26/13 09:57	TAD	TAL SAC
Total/NA	Analysis	D1946		1.96	50 mL	50 mL	32796	12/30/13 08:15	TAD	TAL SAC

Client Sample ID: SG-2B

Lab Sample ID: 320-5440-4

Date Collected: 12/18/13 09:33

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	33329	01/08/14 02:27	TAD	TAL SAC
Total/NA	Analysis	TO3		1.91	1 mL	1 mL	32444	12/23/13 13:08	TAD	TAL SAC
Total/NA	Analysis	D1946		1.91	50 mL	50 mL	32593	12/26/13 10:19	TAD	TAL SAC
Total/NA	Analysis	D1946		1.91	50 mL	50 mL	32796	12/30/13 08:32	TAD	TAL SAC

Client Sample ID: SG-3A

Lab Sample ID: 320-5440-5

Date Collected: 12/17/13 13:10

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	33329	01/08/14 03:15	TAD	TAL SAC

Client Sample ID: SG-3A

Lab Sample ID: 320-5440-5

Date Collected: 12/17/13 13:10

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO3		1.95	1 mL	1 mL	32444	12/23/13 14:20	TAD	TAL SAC
Total/NA	Analysis	D1946		1.95	50 mL	50 mL	32593	12/26/13 10:28	TAD	TAL SAC
Total/NA	Analysis	D1946		1.95	50 mL	50 mL	32796	12/30/13 08:47	TAD	TAL SAC

Client Sample ID: SG-3B

Lab Sample ID: 320-5440-6

Date Collected: 12/17/13 13:55

Matrix: Air

Date Received: 12/21/13 12:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 MOD		1	50 mL	250 mL	33329	01/08/14 04:03	TAD	TAL SAC
Total/NA	Analysis	TO3		1.86	1 mL	1 mL	32444	12/23/13 14:44	TAD	TAL SAC
Total/NA	Analysis	D1946		1.86	50 mL	50 mL	32593	12/26/13 10:49	TAD	TAL SAC
Total/NA	Analysis	D1946		1.86	50 mL	50 mL	32796	12/30/13 09:02	TAD	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 320-5440-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NE-OS-22-13	01-31-14
A2LA	DoD ELAP		2928-01	03-31-14
Alaska (UST)	State Program	10	UST-055	02-28-14 *
Arizona	State Program	9	AZ0708	08-11-14
Arkansas DEQ	State Program	6	88-0691	06-17-14
California	State Program	9	2897	01-31-15
Colorado	State Program	8	N/A	08-31-14
Connecticut	State Program	1	PH-0691	06-30-15
Florida	NELAP	4	E87570	06-30-14
Guam	State Program	9	N/A	08-31-14
Hawaii	State Program	9	N/A	01-29-15
Illinois	NELAP	5	200060	03-17-15
Kansas	NELAP	7	E-10375	10-31-14
Louisiana	NELAP	6	30612	06-30-14
Michigan	State Program	5	9947	02-28-14 *
Nebraska	State Program	7	NE-OS-22-13	02-28-14 *
Nevada	State Program	9	CA44	07-31-14
New Jersey	NELAP	2	CA005	06-30-14
New York	NELAP	2	11666	03-31-14
Northern Mariana Islands	State Program	9	MP0007	02-28-14 *
Oregon	NELAP	10	CA200005	01-29-15
Pennsylvania	NELAP	3	68-01272	03-31-14
South Carolina	State Program	4	87014	06-30-14
Texas	NELAP	6	T104704399-08-TX	05-31-14
US Fish & Wildlife	Federal		LE148388-0	12-31-14
USDA	Federal		P330-11-00436	12-30-14
USEPA UCMR	Federal	1	CA00044	11-06-14
Utah	NELAP	8	QUAN1	02-28-15
Washington	State Program	10	C581	05-05-14
Wyoming	State Program	8	8TMS-Q	02-28-14 *

* Expired certification is currently pending renewal and is considered valid.

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 320-5440-1

Method	Method Description	Protocol	Laboratory
TO-15 MOD	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC
D1946	Fixed Gases in Air (GC)	ASTM	TAL SAC
TO3	Volatile Organic Compounds in Ambient Air, Cryogenic Pre-Conc Techniques (GC)	EPA	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 320-5440-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-5440-1	SG-1A	Air	12/17/13 10:36	12/21/13 12:00
320-5440-2	SG-1B	Air	12/17/13 11:35	12/21/13 12:00
320-5440-3	SG-2A	Air	12/18/13 08:44	12/21/13 12:00
320-5440-4	SG-2B	Air	12/18/13 09:33	12/21/13 12:00
320-5440-5	SG-3A	Air	12/17/13 13:10	12/21/13 12:00
320-5440-6	SG-3B	Air	12/17/13 13:55	12/21/13 12:00

bp rm — *Laboratory Management Program LaMP* Chain of Custody Record

Page _____ of _____

BP Site Node Path: 08-88-602 | Req Due Date (mm/dd/yy): _____ | Rush TAT: Yes ___ No X

BP Facility No: 402 | Lab Work Order Number: _____

Lab Name: Test America	Facility Address: 1450 Fruitvale Avenue	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 880 Riverside Parkway, Sacramento, Ca	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: 08-88-602
Lab PM: Beth Riley	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacaville, CA
Lab Phone: 916-373-5600	California Global ID No.: T06019734265	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 1103-6633-7	Enfos Proposal No. 60640-003	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email EDD To: ktidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info.	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP x Contractor ___

BP Project Manager (PM): Chuck Carmel

BP PM Phone: 925-275-3804

BP PM Email: chuck.carmel@bp.com

Report Type & QC Level

Standard x

Full Data Package ___

Lab No.	Sample Description	Date	Time Start	Time Stop	Canister Vacuum in Field, 'Hg (start)'	Canister Vacuum in Field, 'Hg (Stop)'	Flow Controller ID	Canister ID	GRO by TO-3	BTEX & MTBE by TO-15	Naphthalene by TO-15	Oxygen & Argon by Modified ASTM D-1946	Carbon Dioxide and Methane by Modified ASTM D-1946	Helium (tracer/leak-check compound) by Modified ASTM D-1946					Comments
	SG-1A	12/17/13	1036	1104	-29	-5	7098	0215	x	x	x	x	x	x					
	SG-1B	12/17/13	1135	1201	-29	-5	4945	1333	x	x	x	x	x	x					
	SG-2A	12/18/13	0844	0910	-28	-5	7339	1155	x	x	x	x	x	x					
	SG-2B	12/18/13	0933	0951	-29	-5	7692	1426	x	x	x	x	x	x					
	SG-3A	12/17/13	1310	1338	-30	-5	7234	0349	x	x	x	x	x	x					
	SG-3B	12/17/13	1355	1421	-30	-5	7313	0820	x	x	x	x	x	x					

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description

320-5440 Chain of Custody

Sampler's Name: James Ramos / Alex Martinez	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent and Associates	/Broadbent	12/19/13				
Shipment Method: Fed Ex Ship Date: 12/20/2013	/BAI	12/19/13		12/21/13		12:0
Shipment Tracking No						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place Yes / No | Temp Blank. Yes / No | Cooler Temp on Receipt: _____°F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CANISTER FIELD DATA RECORD

Sacramento

JOB # 320-5440
Sample # 1

Client/Project:	Broadbent and Associates/32005072	VFR ID:		
Canister Serial #:	34000215	Duration:		☐ Hrs ☐ Min
Cleaning Job:	320-4945	Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD

READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM	10:36	29	12/17/13	
FINAL FIELD READING	11:04	5	12/17/13	

LABORATORY

READING	PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)	29.8	12/04/13	JMT
☐ Helium Pre-dilution - Final Pressure (INCHES Hg)			
INITIAL PRESSURE (PSIA)	12.16	12/21/13	AO
FINAL PRESSURE (PSIA)	24.03	12/21/13	AO
Pressurization Gas: ☐ N2 ☐ He	SCREENED ☐	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor = 1.98			

CANISTER REPRESSURIZATION

Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors

Date	Instr.	File #
1/7/2014	MS2	

Canister DF = 1.98 X Load DF = 0.5050505 (LVf (mLs) 50, LVi (mLs) 99) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF 1

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

JOB # 320-5440
Sample # 2

Client/Project:	Broadbent and Associates/32005072	VFR ID:		
Canister Serial #:	34001333	Duration:		☐ Hrs ☐ Min
Cleaning Job:	320-4945	Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD

READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM	11:35	29	12/17/13	
FINAL FIELD READING	12:01	5	12/17/13	

LABORATORY

READING	PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)	29.8	12/04/13	JMT
☐ Helium Pre-dilution - Final Pressure (INCHES Hg)			
INITIAL PRESSURE (PSIA)	11.80	12/21/13	AO
FINAL PRESSURE (PSIA)	24.02	12/21/13	AO
Pressurization Gas: ☐ N2 ☐ He	SCREENED ☐	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor = 2.04			

CANISTER REPRESSURIZATION

Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors

							Date	Instr.	File #		
							1/7/2014	MS2			FINAL DF
Canister DF =	2.04	X	Load DF =	0.4901961	X	Bag DF =	1	=	1
			LVf (mLs)	50		BVf (mLs)			
			LVi (mLs)	102		Bvi (mLs)			
							Date	Instr.	File #		
											FINAL DF
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	#DIV/0!
			LVf (mLs)			BVf (mLs)			
			LVi (mLs)			Bvi (mLs)			
							Date	Instr.	File #		
											FINAL DF
Canister DF =		X	Load DF =	#DIV/0!	X	Bag DF =	1	=	#DIV/0!
			LVf (mLs)			BVf (mLs)			
			LVi (mLs)			Bvi (mLs)			

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CANISTER FIELD DATA RECORD

Sacramento

JOB # 320-5440
Sample # 3

Client/Project:	Broadbent and Associates/32005072	VFR ID:		
Canister Serial #:	34001155	Duration:		☐ Hrs ☐ Min
Cleaning Job:	320-4945	Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD

READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM	8:44	28	12/17/13	
FINAL FIELD READING	9:10	5	12/17/13	

LABORATORY

READING	PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)	29.8	12/04/13	JMT
☐ Helium Pre-dilution - Final Pressure (INCHES Hg)			
INITIAL PRESSURE (PSIA)	12.10	12/21/13	AO
FINAL PRESSURE (PSIA)	23.71	12/21/13	AO
Pressurization Gas: ☐ N2 ☐ He	SCREENED ☐	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor = 1.96			

CANISTER REPRESSURIZATION

Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors

Date	Instr.	File #
1/7/2014	MS2	

Canister DF = 1.96 X Load DF = 0.5102041 (LVf (mLs) 50, LVi (mLs) 98) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF 1

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

CANISTER FIELD DATA RECORD

Sacramento

JOB # 320-5440
Sample # 4

Client/Project:	Broadbent and Associates/32005072	VFR ID:		
Canister Serial #:	34001426	Duration:		☐ Hrs ☐ Min
Cleaning Job:	320-4945	Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM	9:33	30	12/17/13	
FINAL FIELD READING	9:51	5	12/17/13	

LABORATORY			
READING	PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)	29.8	12/04/13	JMT
☐ Helium Pre-dilution - Final Pressure (INCHES Hg)			
INITIAL PRESSURE (PSIA)	12.28	12/21/13	AO
FINAL PRESSURE (PSIA)	23.50	12/21/13	AO
Pressurization Gas: ☐ N2 ☐ He	SCREENED ☐	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor = 1.91			

CANISTER REPRESSURIZATION

Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors

Date	Instr.	File #
1/7/2014	MS2	

Canister DF = 1.91 X Load DF = 0.5263158 (LVf (mLs) 50, LVi (mLs) 95) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF 1.005263158

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

CANISTER FIELD DATA RECORD

Sacramento

JOB # 320-5440
Sample # 5

Client/Project:	Broadbent and Associates/32005072	VFR ID:		
Canister Serial #:	34000349	Duration:		☐ Hrs ☐ Min
Cleaning Job:	320-4945	Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD				
READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM	13:10	30	12/17/13	
FINAL FIELD READING	13:38	5	12/17/13	

LABORATORY			
READING	PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)	29.8	12/04/13	JMT
☐ Helium Pre-dilution - Final Pressure (INCHES Hg)			
INITIAL PRESSURE (PSIA)	12.22	12/21/13	AO
FINAL PRESSURE (PSIA)	23.85	12/21/13	AO
Pressurization Gas: ☐ N2 ☐ He	SCREENED ☐	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor = 1.95			

CANISTER REPRESSURIZATION

Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors

Date	Instr.	File #
1/7/2014	MS2	

Canister DF = 1.95 X Load DF = 0.5154639 (LVf (mLs) 50, LVi (mLs) 97) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF 1.005154639

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

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CANISTER FIELD DATA RECORD

Sacramento

JOB # 320-5440
Sample # 6

Client/Project:	Broadbent and Associates/32005072	VFR ID:		
Canister Serial #:	34000820	Duration:		☐ Hrs ☐ Min
Cleaning Job:	320-4945	Flow:		mL/min
Client ID:		Initials:		
Site Location:				

FIELD

READING	TIME	PRESS.	DATE	INITIALS
INITIAL FIELD VACUUM	13:55	30	12/17/13	
FINAL FIELD READING	14:21	5		

LABORATORY

READING	PRESS.	DATE	INITIALS
INITIAL VACUUM CHECK (INCHES Hg)	29.8	12/04/13	JMT
☐ Helium Pre-dilution - Final Pressure (INCHES Hg)			
INITIAL PRESSURE (PSIA)	12.61	12/21/13	AO
FINAL PRESSURE (PSIA)	23.40	12/21/13	AO
Pressurization Gas: ☐ N2 ☐ He	SCREENED ☐	SCRN DIL. VS 250mLs:	
Initial Canister Dilution Factor = 1.86			

CANISTER REPRESSURIZATION

Date	Pi (PSIA)	Pf (PSIA)	Initial DF	Initials	NEW DF
					#DIV/0!
					#DIV/0!
					#DIV/0!

Analytical Dilution Factors

Date	Instr.	File #
1/7/2014	MS2	

Canister DF = 1.86 X Load DF = 0.5376344 (LVf (mLs) 50, LVi (mLs) 93) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF 1

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

Date	Instr.	File #

Canister DF = X Load DF = #DIV/0! (LVf (mLs), LVi (mLs)) X Bag DF = 1 (BVf (mLs), Bvi (mLs)) = FINAL DF #DIV/0!

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 320-5440-1

Login Number: 5440

List Number: 1

Creator: Ortiz, Ana M

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Canister QC Certification
Individual Certification

320-4945 Chain of Custody

Certification Type: TO-15

Date Cleaned/Batch ID: 011113 320-4945

Date of QC: 11/12/13

Canister ID	Filename	Canister ID	Filename
34000164	MS111215		
0191	MS111209		
0215	MS111217		
0349	MS111211		
0422	MS111210		
0820	MS111216		
0921	MS111214		
1155	MS111213		
1154	MS111218		
1333	MS111212		
1426	MS111208		
1516	—		

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "*Certification Type*" indicated above.

[signature] 1st level Reviewed By: — Date: 11/13/13

[signature] 2nd level Reviewed By: — Date: 11/14/2013 (13 corrected to 14, initialed MW)

Q:\FORMS\QA-821 IND CAN QC 20130729.DOC
QA-821

ERS 7/29/2013

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000164 Lab Sample ID: 320-4945-1

Matrix: Air Lab File ID: MS111215.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 22:10

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000164 Lab Sample ID: 320-4945-1

Matrix: Air Lab File ID: MS111215.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 22:10

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000164 Lab Sample ID: 320-4945-1

Matrix: Air Lab File ID: MS111215.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 22:10

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111215.D
Lims ID: 320-4945-A-1 Lab Sample ID: 320-4945-1
Client ID: 34000164
Sample Type: Client
Inject. Date: 12-Nov-2013 22:10:30 ALS Bottle#: 10 Worklist Smp#: 16
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000164
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:08:27 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 12:08:27

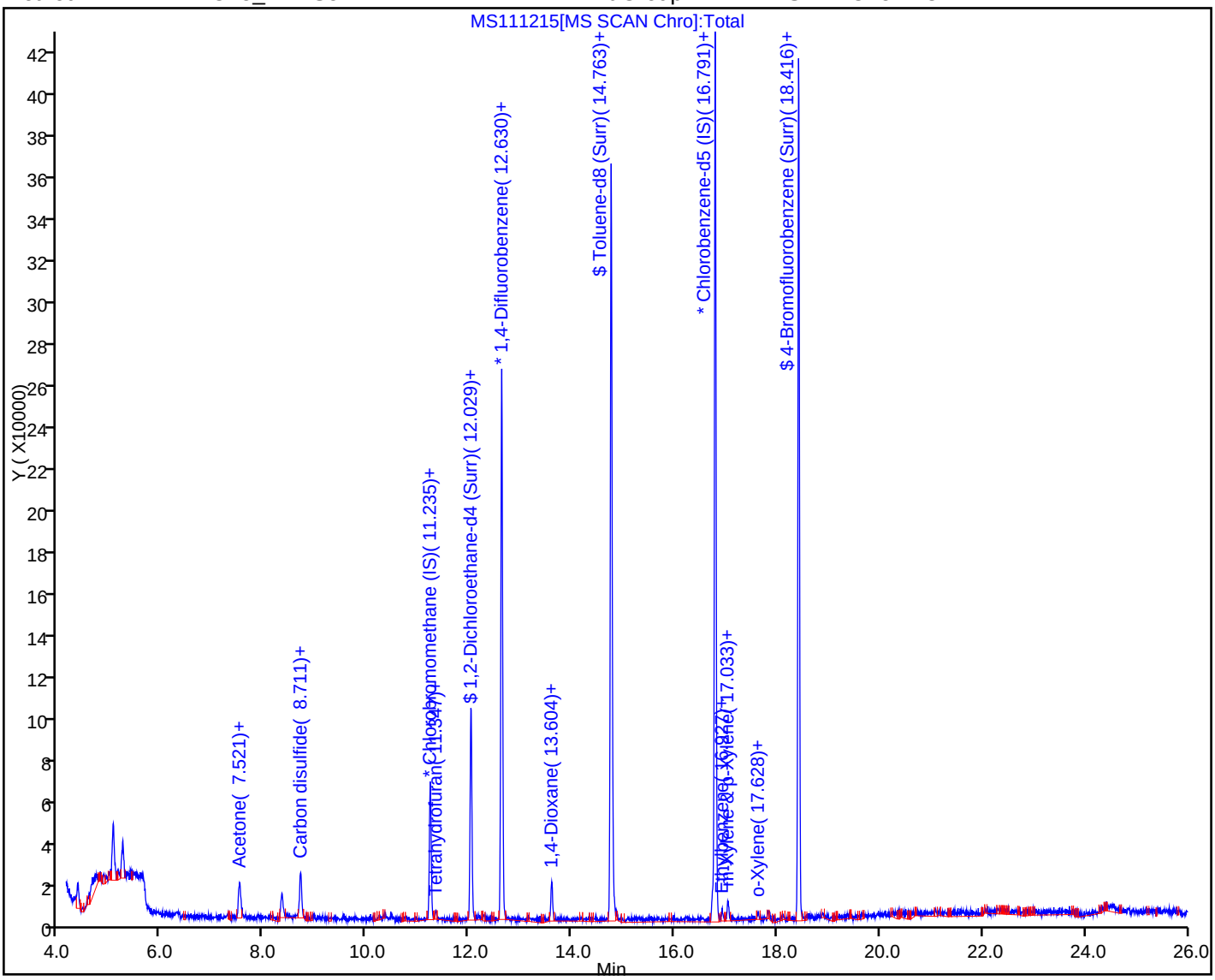
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.235	11.241	-0.006	97	29967	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	275913	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	317031	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.035	12.029	0.006	13	68013	3.84	
$ 5 Toluene-d8 (Surr)	100	14.763	14.764	-0.001	94	203534	3.98	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	94	171586	3.56	
11 Propene	41	4.321	4.321	0.0	92	2220	0.0607	
32 Acrolein	56	7.397	7.397	0.0	5	632	0.0498	
33 Acetone	43	7.515	7.521	-0.007	95	34351	0.2899	
41 Carbon disulfide	76	8.711	8.711	0.0	99	42391	0.3970	
49 2-Butanone (MEK)	72	10.491	10.479	0.012	76	1065	0.0614	
55 Tetrahydrofuran	42	11.340	11.341	-0.001	46	2575	0.0578	
69 1,4-Dioxane	88	13.598	13.604	-0.006	97	13134	0.5907	
86 Ethylbenzene	91	16.927	16.928	-0.001	37	3326	0.0193	
88 m-Xylene & p-Xylene	91	17.045	17.039	0.006	71	6933	0.0524	
89 o-Xylene	91	17.616	17.628	-0.012	1	2650	0.0193	

Report Date: 13-Nov-2013 12:08:28 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111215.D

Injection Date:	12-Nov-2013 22:10:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-1	Lab Sample ID:	320-4945-1		
Client ID:	34000164				
Operator ID:	AO	ALS Bottle#:	10	Worklist Smp#:	16
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000191 Lab Sample ID: 320-4945-2

Matrix: Air Lab File ID: MS111209.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 17:42

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000191 Lab Sample ID: 320-4945-2

Matrix: Air Lab File ID: MS111209.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 17:42

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000191 Lab Sample ID: 320-4945-2

Matrix: Air Lab File ID: MS111209.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 17:42

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	96		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111209.D
Lims ID: 320-4945-A-2 Lab Sample ID: 320-4945-2
Client ID: 34000191
Sample Type: Client
Inject. Date: 12-Nov-2013 17:42:30 ALS Bottle#: 4 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000191
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 11:49:34 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 11:49:34

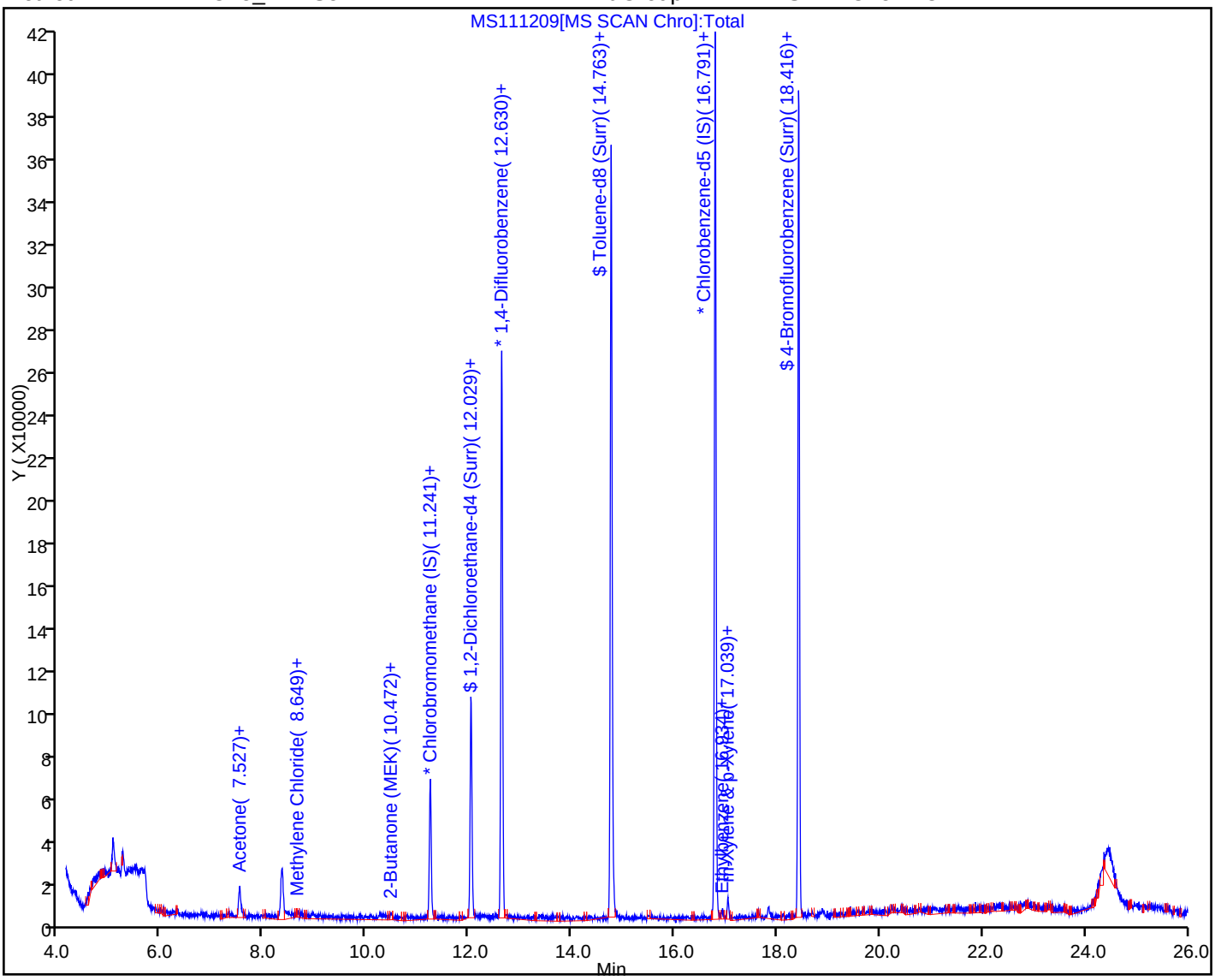
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.241	11.241	0.0	93	29651	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	283629	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	84	314148	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	13	68002	3.74	
$ 5 Toluene-d8 (Surr)	100	14.763	14.764	-0.001	93	205781	3.91	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	93	164516	3.45	
33 Acetone	43	7.521	7.521	0.0	90	26703	0.2278	
40 Methylene Chloride	49	8.649	8.643	0.006	53	1505	0.0296	
49 2-Butanone (MEK)	72	10.472	10.479	-0.007	58	425	0.0248	
74 n-Octane	43	14.720	14.733	-0.012	24	2544	0.0244	
75 Toluene	91	14.856	14.869	-0.013	28	1763	0.0117	
86 Ethylbenzene	91	16.934	16.928	0.006	2	2710	0.0159	
88 m-Xylene & p-Xylene	91	17.045	17.039	0.006	67	6576	0.0501	

Report Date: 13-Nov-2013 11:49:34 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111209.D

Injection Date:	12-Nov-2013 17:42:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-2	Lab Sample ID:	320-4945-2		
Client ID:	34000191				
Operator ID:	AO	ALS Bottle#:	4	Worklist Smp#:	10
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000215 Lab Sample ID: 320-4945-3

Matrix: Air Lab File ID: MS111217.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 23:40

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000215 Lab Sample ID: 320-4945-3

Matrix: Air Lab File ID: MS111217.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 23:40

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000215 Lab Sample ID: 320-4945-3

Matrix: Air Lab File ID: MS111217.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 23:40

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	85		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	100		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111217.D
Lims ID: 320-4945-A-3 Lab Sample ID: 320-4945-3
Client ID: 34000215
Sample Type: Client
Inject. Date: 12-Nov-2013 23:40:30 ALS Bottle#: 12 Worklist Smp#: 18
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000215
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:11:28 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 12:11:28

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.235	11.241	-0.006	97	28700	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	279897	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	84	307164	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	15	69831	3.89	
$ 5 Toluene-d8 (Surr)	100	14.764	14.764	0.0	94	204210	3.94	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	94	158994	3.41	
11 Propene	41	4.315	4.321	-0.006	68	1806	0.0515	
33 Acetone	43	7.527	7.521	0.006	96	28691	0.2529	
40 Methylene Chloride	49	8.656	8.643	0.013	56	1722	0.0350	
41 Carbon disulfide	76	8.724	8.711	0.013	62	1191	0.0116	
75 Toluene	91	14.863	14.869	-0.006	0	1824	0.0122	
86 Ethylbenzene	91	16.934	16.934	0.006	1	3264	0.0195	M
88 m-Xylene & p-Xylene	91	17.033	17.039	-0.006	81	7275	0.0567	
89 o-Xylene	91	17.628	17.628	0.0	1	2910	0.0219	

QC Flag Legend

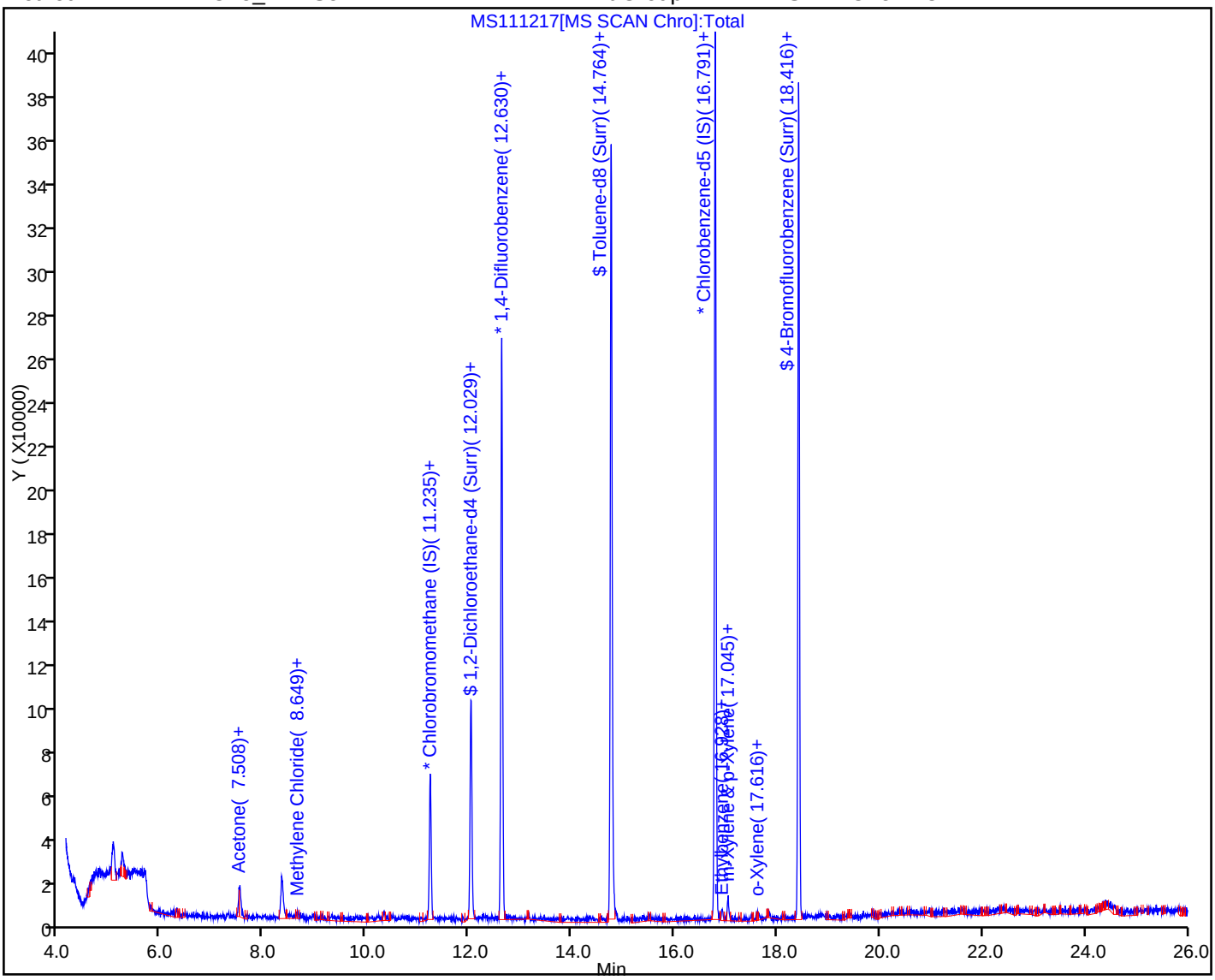
Review Flags
M - Manually Integrated

Report Date: 13-Nov-2013 12:11:29 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111217.D

Injection Date:	12-Nov-2013 23:40:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-3	Lab Sample ID:	320-4945-3		
Client ID:	34000215				
Operator ID:	AO	ALS Bottle#:	12	Worklist Smp#:	18
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



Manual Integration/User Assign Peak Report

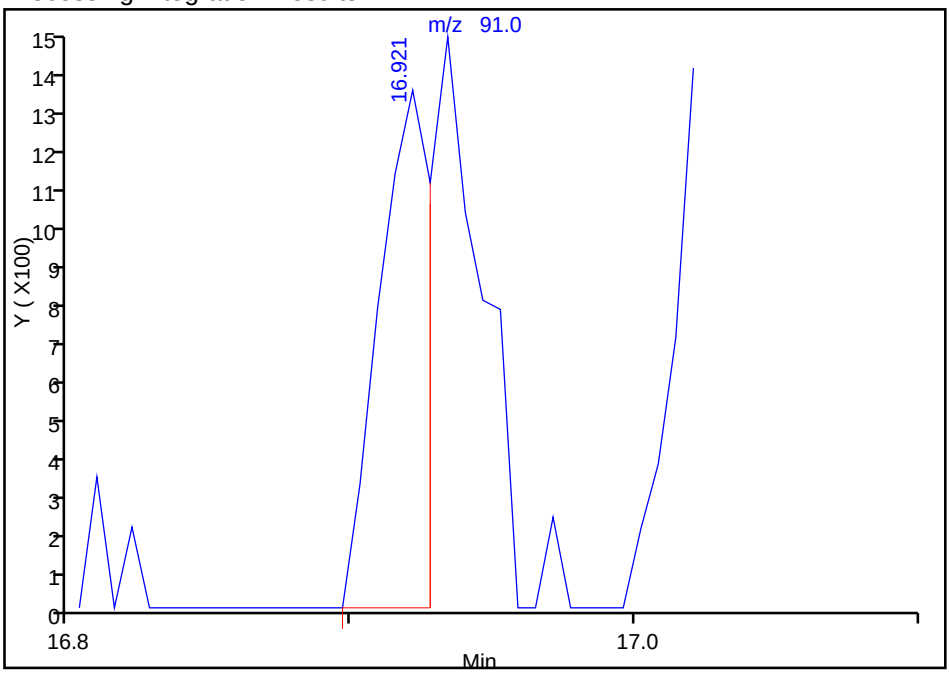
TestAmerica Sacramento

Data File:	\\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111217.D				
Injection Date:	12-Nov-2013 23:40:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-3	Lab Sample ID:	320-4945-3		
Client ID:	34000215				
Operator ID:	AO	ALS Bottle#:	12	Worklist Smp#:	18
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		
Column:		Detector	MS SCAN		

86 Ethylbenzene, CAS: 100-41-4

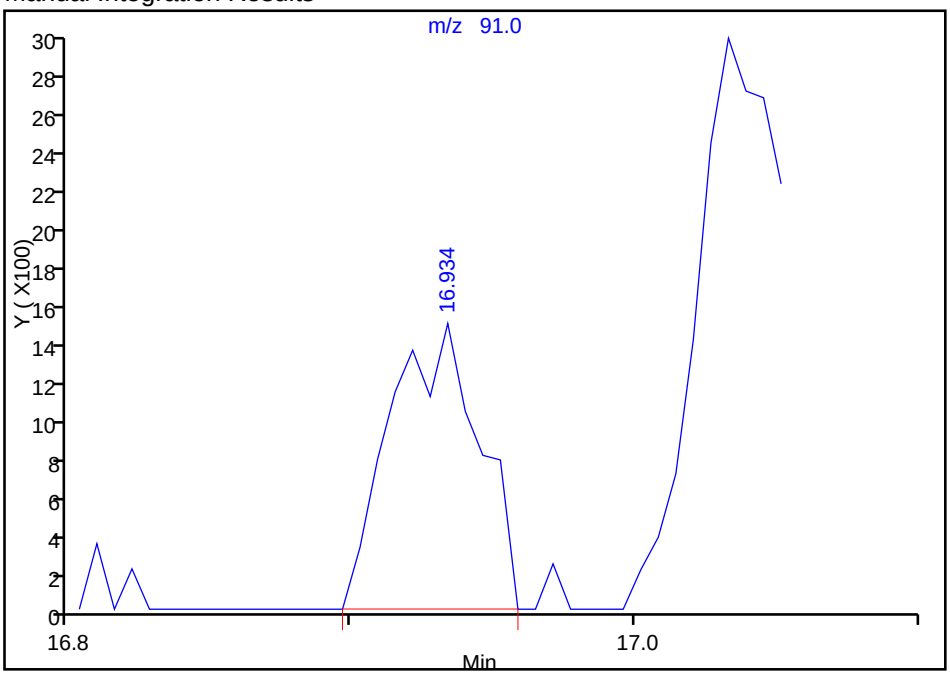
Processing Integration Results

RT: 16.92
Response: 1745
Amount: 0.010446



Manual Integration Results

RT: 16.93
Response: 3264
Amount: 0.019540



Reviewer: ortizam, 13-Nov-2013 12:11:28
Audit Action: Manually Integrated
Audit Reason: Split Peak

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000349 Lab Sample ID: 320-4945-4

Matrix: Air Lab File ID: MS111211.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 19:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000349 Lab Sample ID: 320-4945-4

Matrix: Air Lab File ID: MS111211.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 19:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000349 Lab Sample ID: 320-4945-4

Matrix: Air Lab File ID: MS111211.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 19:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	78		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111211.D
Lims ID: 320-4945-A-4 Lab Sample ID: 320-4945-4
Client ID: 34000349
Sample Type: Client
Inject. Date: 12-Nov-2013 19:09:30 ALS Bottle#: 6 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000349
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 11:58:06 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 11:58:06

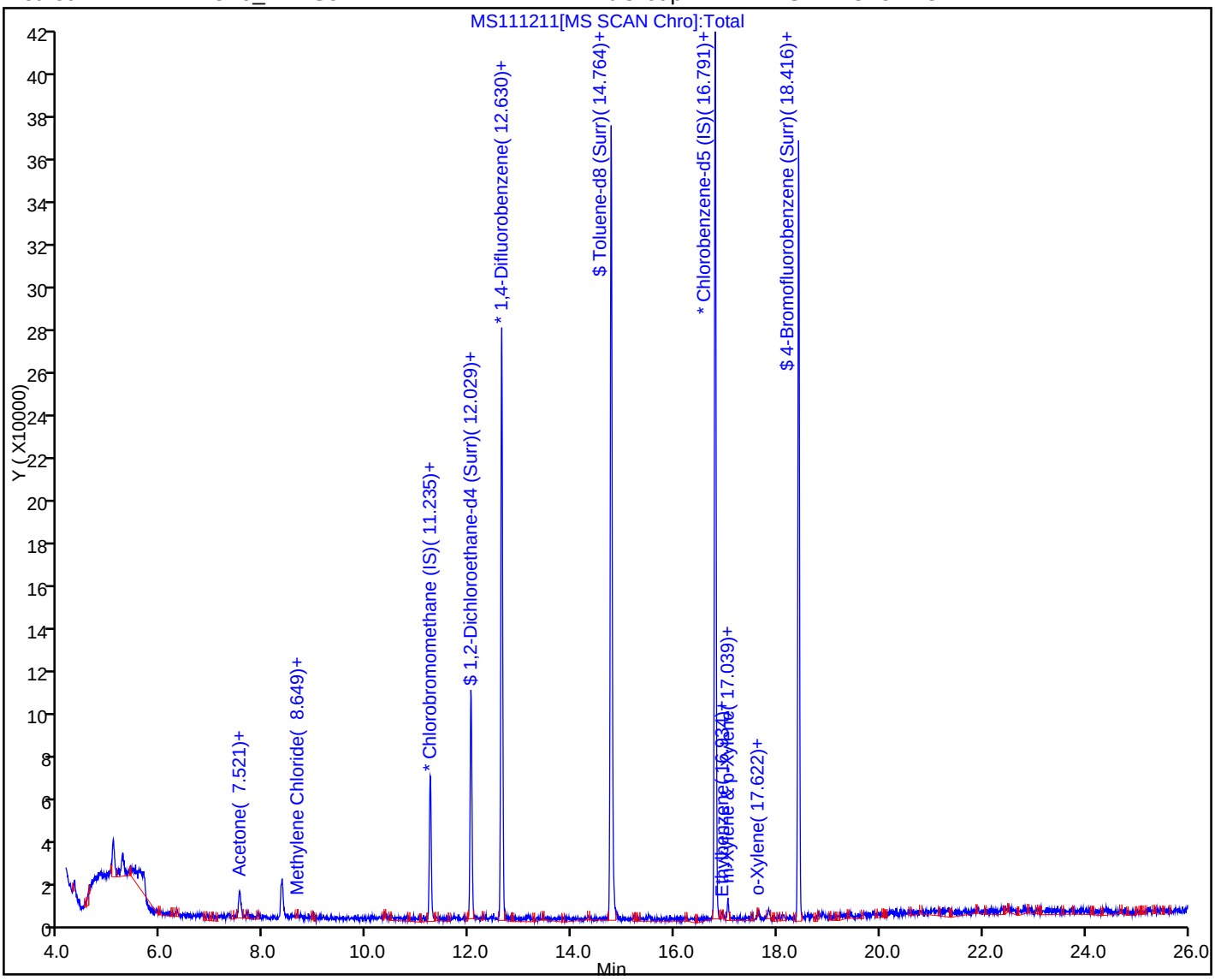
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.235	11.241	-0.006	96	29899	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	290277	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	314407	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	15	71607	3.85	
$ 5 Toluene-d8 (Surr)	100	14.764	14.764	0.0	93	213314	3.96	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	94	148766	3.12	
33 Acetone	43	7.521	7.521	0.0	92	24984	0.2114	
40 Methylene Chloride	49	8.649	8.643	0.006	2	2032	0.0397	
75 Toluene	91	14.869	14.869	0.0	41	2238	0.0145	
86 Ethylbenzene	91	16.921	16.928	-0.007	30	2540	0.0149	
88 m-Xylene & p-Xylene	91	17.039	17.039	0.0	78	7238	0.0551	
89 o-Xylene	91	17.635	17.628	0.007	24	2918	0.0214	

Report Date: 13-Nov-2013 11:58:06 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111211.D

Injection Date:	12-Nov-2013 19:09:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-4	Lab Sample ID:	320-4945-4		
Client ID:	34000349				
Operator ID:	AO	ALS Bottle#:	6	Worklist Smp#:	12
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000422 Lab Sample ID: 320-4945-5

Matrix: Air Lab File ID: MS111210.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 18:26

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000422 Lab Sample ID: 320-4945-5

Matrix: Air Lab File ID: MS111210.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 18:26

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000422 Lab Sample ID: 320-4945-5

Matrix: Air Lab File ID: MS111210.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 18:26

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	83		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111210.D
Lims ID: 320-4945-A-5 Lab Sample ID: 320-4945-5
Client ID: 34000422
Sample Type: Client
Inject. Date: 12-Nov-2013 18:26:30 ALS Bottle#: 5 Worklist Smp#: 11
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000422
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 11:50:42 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 11:50:42

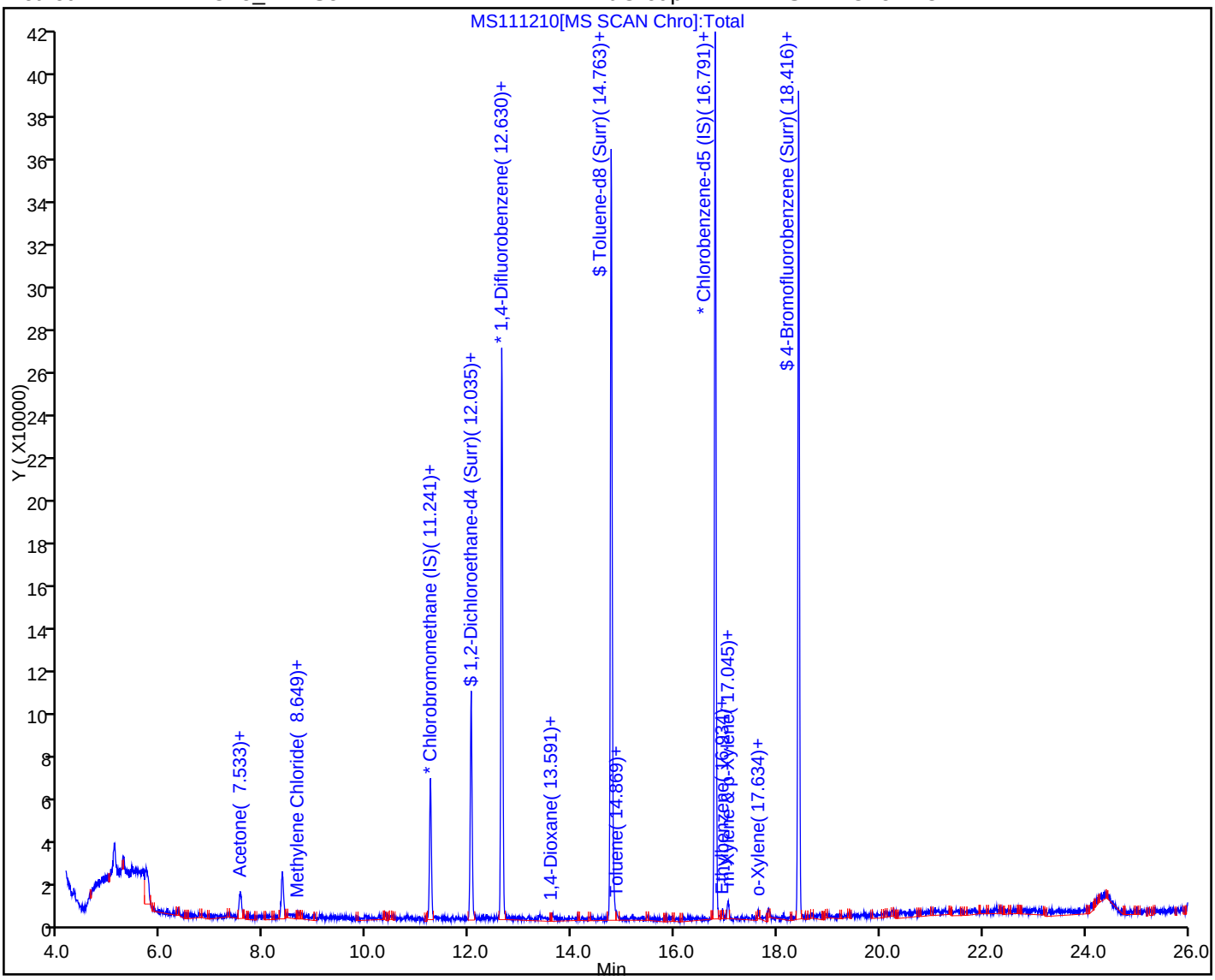
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.241	11.241	0.0	96	29976	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	280056	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	315541	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.035	12.029	0.006	13	68788	3.83	
$ 5 Toluene-d8 (Surr)	100	14.763	14.764	-0.001	94	204084	3.93	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	92	159222	3.32	
33 Acetone	43	7.527	7.521	0.006	94	22848	0.1928	
40 Methylene Chloride	49	8.649	8.643	0.006	38	1277	0.0249	
69 1,4-Dioxane	88	13.604	13.604	0.0	21	1418	0.0628	
74 n-Octane	43	14.726	14.733	-0.006	1	981	0.009358	
75 Toluene	91	14.875	14.869	0.006	6	1956	0.0131	
86 Ethylbenzene	91	16.934	16.928	0.006	30	3246	0.0189	
88 m-Xylene & p-Xylene	91	17.045	17.039	0.006	69	7076	0.0537	
89 o-Xylene	91	17.628	17.628	0.0	17	2655	0.0194	

Report Date: 13-Nov-2013 11:50:42 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111210.D

Injection Date:	12-Nov-2013 18:26:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-5	Lab Sample ID:	320-4945-5		
Client ID:	34000422				
Operator ID:	AO	ALS Bottle#:	5	Worklist Smp#:	11
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000820 Lab Sample ID: 320-4945-6

Matrix: Air Lab File ID: MS111216.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 22:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000820 Lab Sample ID: 320-4945-6

Matrix: Air Lab File ID: MS111216.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 22:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000820 Lab Sample ID: 320-4945-6

Matrix: Air Lab File ID: MS111216.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 22:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111216.D
Lims ID: 320-4945-A-6 Lab Sample ID: 320-4945-6
Client ID: 34000820
Sample Type: Client
Inject. Date: 12-Nov-2013 22:55:30 ALS Bottle#: 11 Worklist Smp#: 17
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000820
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:09:47 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 12:09:47

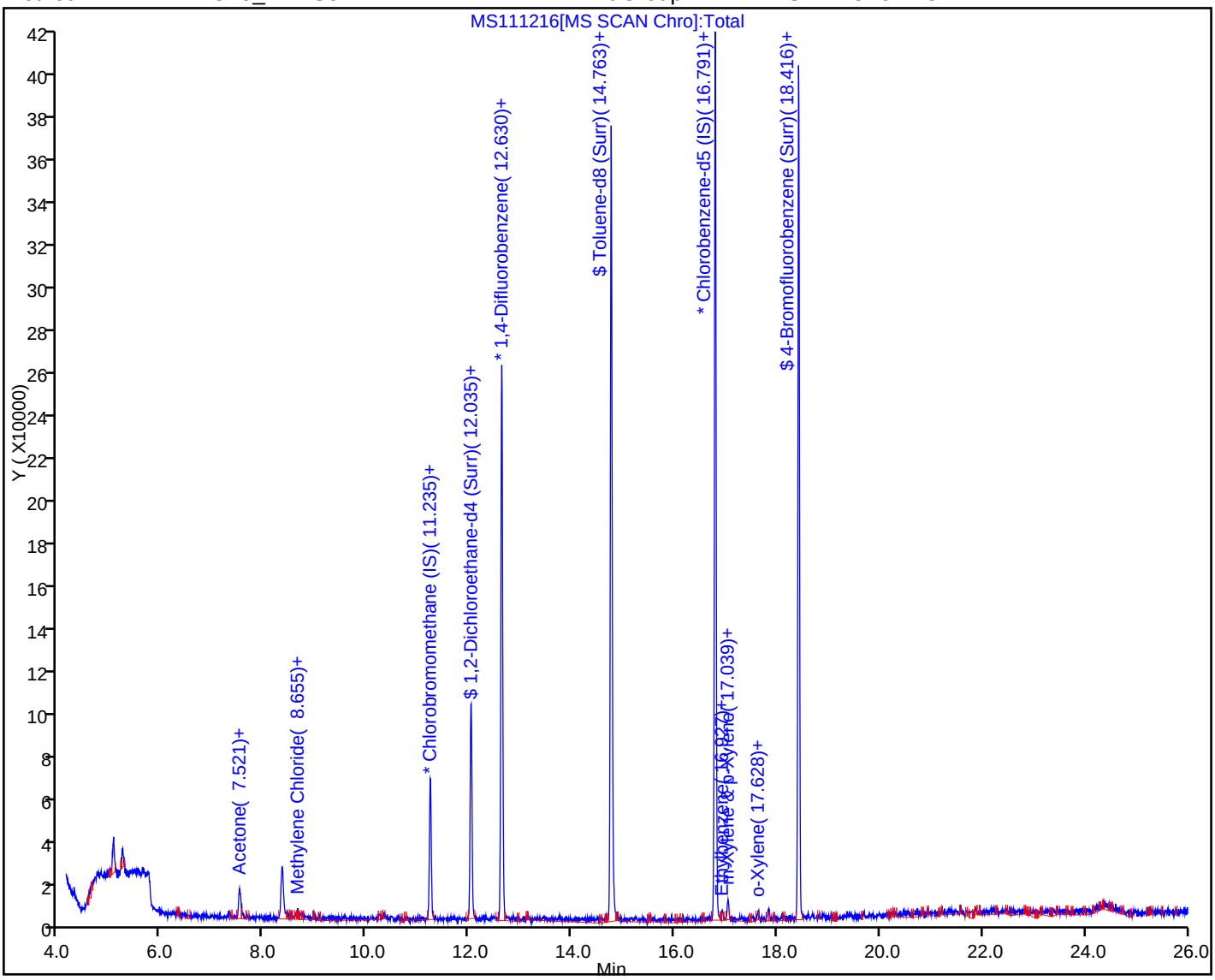
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.247	11.241	0.006	94	30449	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	274823	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	312235	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	10	69738	3.96	
$ 5 Toluene-d8 (Surr)	100	14.763	14.764	-0.001	93	204993	4.02	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	93	163848	3.46	
11 Propene	41	4.290	4.321	-0.031	72	2417	0.0650	
33 Acetone	43	7.521	7.521	0.0	99	26102	0.2168	
40 Methylene Chloride	49	8.655	8.643	0.012	34	1868	0.0358	
86 Ethylbenzene	91	16.921	16.928	-0.007	10	3308	0.0195	
88 m-Xylene & p-Xylene	91	17.039	17.039	0.0	78	6795	0.0521	
89 o-Xylene	91	17.628	17.628	0.0	9	2702	0.0200	

Report Date: 13-Nov-2013 12:09:48 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111216.D

Injection Date:	12-Nov-2013 22:55:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-6	Lab Sample ID:	320-4945-6		
Client ID:	34000820				
Operator ID:	AO	ALS Bottle#:	11	Worklist Smp#:	17
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000921 Lab Sample ID: 320-4945-7

Matrix: Air Lab File ID: MS111214.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 21:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000921 Lab Sample ID: 320-4945-7

Matrix: Air Lab File ID: MS111214.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 21:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34000921 Lab Sample ID: 320-4945-7

Matrix: Air Lab File ID: MS111214.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 21:24

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	83		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111214.D
Lims ID: 320-4945-A-7 Lab Sample ID: 320-4945-7
Client ID: 34000921
Sample Type: Client
Inject. Date: 12-Nov-2013 21:24:30 ALS Bottle#: 9 Worklist Smp#: 15
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34000921
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:07:13 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 12:07:13

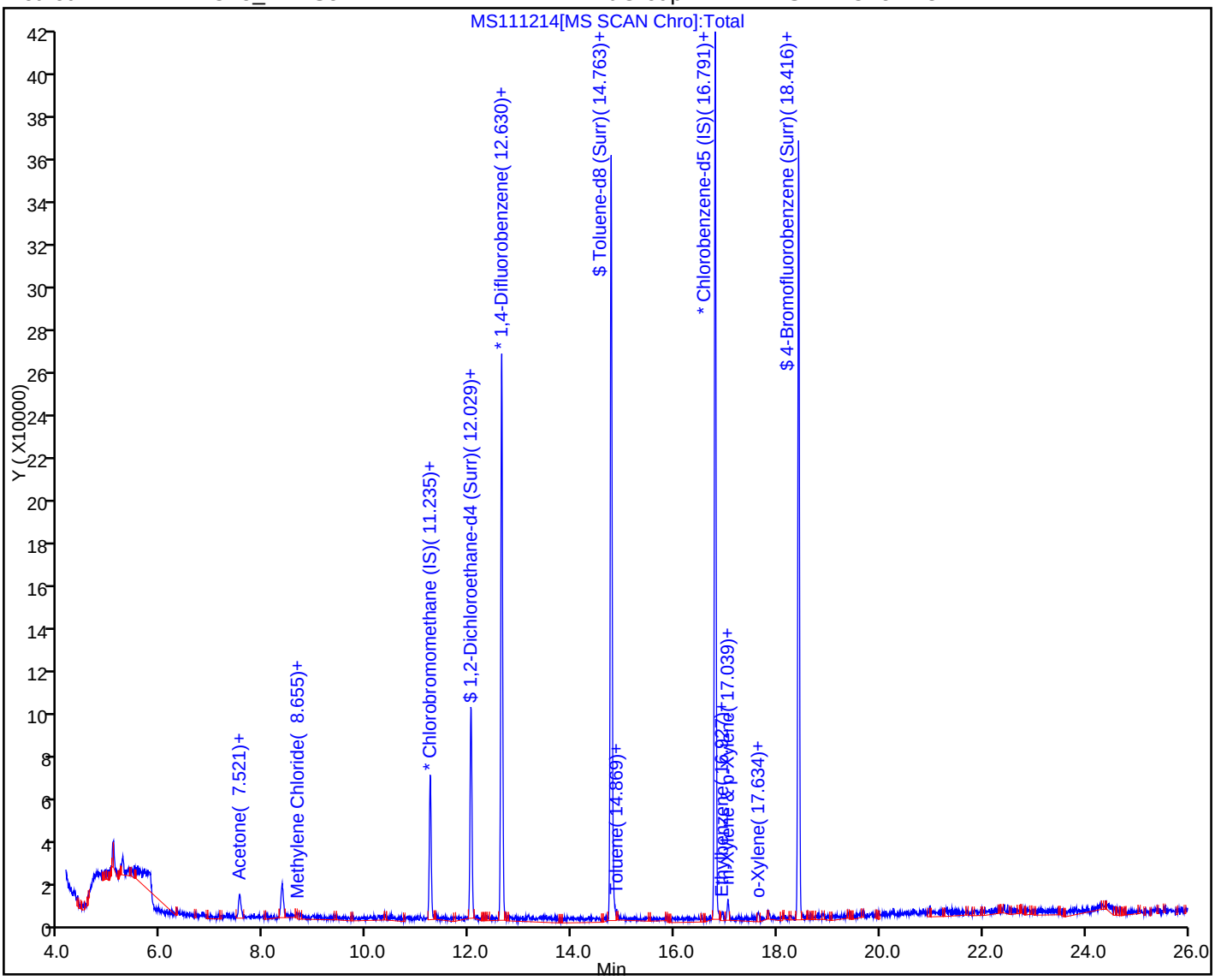
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.241	11.241	0.0	96	30813	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	282643	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	84	311625	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.035	12.029	0.006	12	68787	3.79	
$ 5 Toluene-d8 (Surr)	100	14.763	14.764	-0.001	93	204532	3.90	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	92	156788	3.31	
11 Propene	41	4.309	4.321	-0.012	79	2052	0.0545	
33 Acetone	43	7.515	7.521	-0.007	94	21320	0.1750	
40 Methylene Chloride	49	8.655	8.643	0.012	43	1806	0.0342	
75 Toluene	91	14.869	14.869	0.0	41	2340	0.0155	
86 Ethylbenzene	91	16.934	16.928	0.006	17	3168	0.0187	
88 m-Xylene & p-Xylene	91	17.039	17.039	0.0	64	6905	0.0531	
89 o-Xylene	91	17.628	17.628	0.0	7	2318	0.0172	

Report Date: 13-Nov-2013 12:07:13 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111214.D

Injection Date:	12-Nov-2013 21:24:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-7	Lab Sample ID:	320-4945-7		
Client ID:	34000921				
Operator ID:	AO	ALS Bottle#:	9	Worklist Smp#:	15
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001155 Lab Sample ID: 320-4945-8

Matrix: Air Lab File ID: MS111213.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 20:39

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001155 Lab Sample ID: 320-4945-8

Matrix: Air Lab File ID: MS111213.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 20:39

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001155 Lab Sample ID: 320-4945-8

Matrix: Air Lab File ID: MS111213.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 20:39

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	81		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-130
2037-26-5	Toluene-d8 (Surr)	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111213.D
Lims ID: 320-4945-A-8 Lab Sample ID: 320-4945-8
Client ID: 34001155
Sample Type: Client
Inject. Date: 12-Nov-2013 20:39:30 ALS Bottle#: 8 Worklist Smp#: 14
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34001155
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:05:01 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 12:05:01

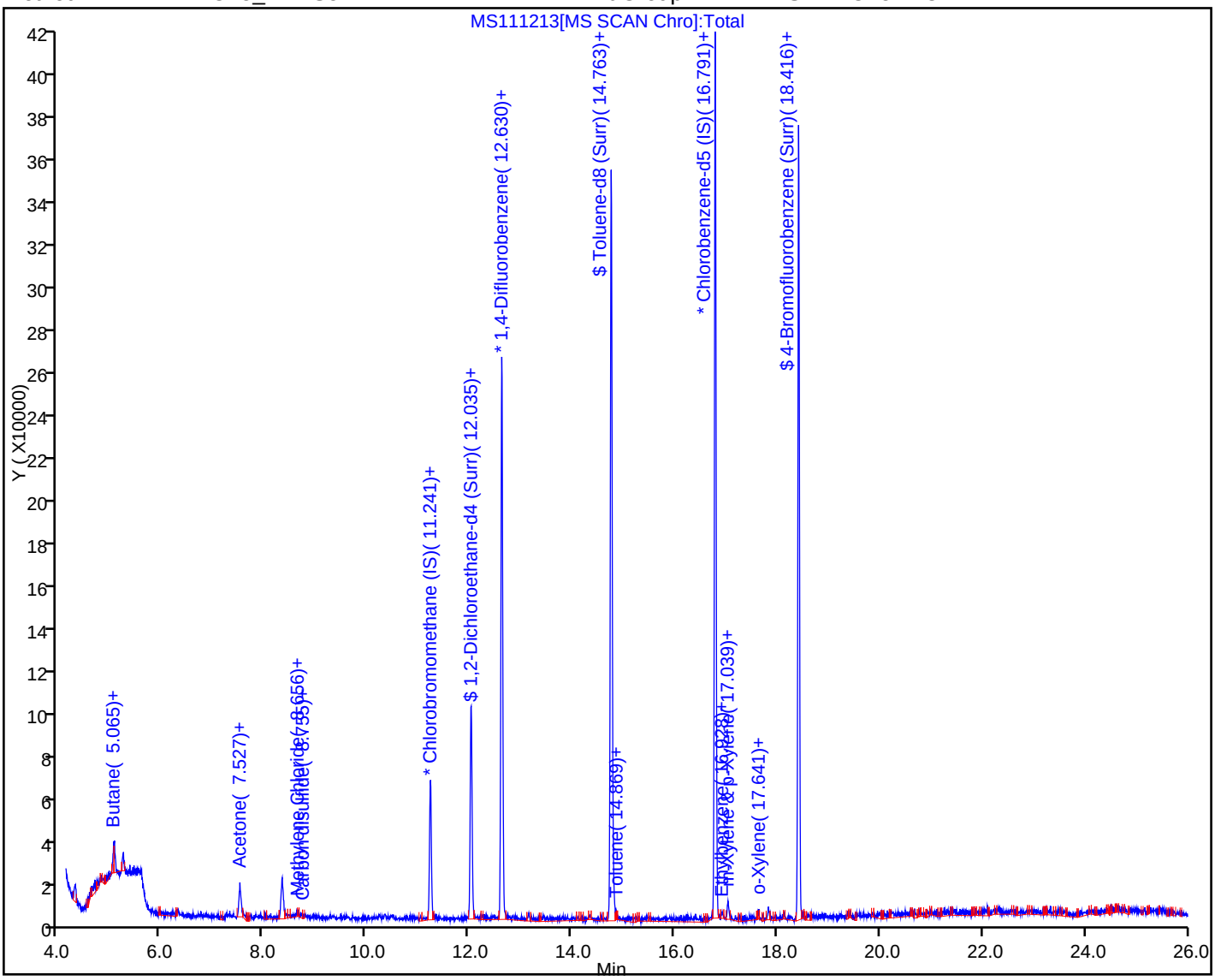
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.241	11.241	0.0	95	29299	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	283160	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	313515	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	19	69852	3.85	
$ 5 Toluene-d8 (Surr)	100	14.763	14.764	-0.001	94	204357	3.89	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	92	155009	3.26	
18 Butane	43	5.040	5.040	0.0	38	2513	0.0369	
33 Acetone	43	7.527	7.521	0.006	93	28660	0.2474	
40 Methylene Chloride	49	8.643	8.643	0.0	52	1901	0.0379	
41 Carbon disulfide	76	8.711	8.711	0.0	6	1115	0.0107	
74 n-Octane	43	14.757	14.733	0.025	9	2731	0.0262	
75 Toluene	91	14.863	14.869	-0.006	39	1760	0.0117	
86 Ethylbenzene	91	16.928	16.928	0.0	1	3105	0.0182	
88 m-Xylene & p-Xylene	91	17.039	17.039	0.0	67	6742	0.0515	
89 o-Xylene	91	17.634	17.628	0.006	7	2638	0.0194	

Report Date: 13-Nov-2013 12:05:01 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111213.D

Injection Date:	12-Nov-2013 20:39:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-8	Lab Sample ID:	320-4945-8		
Client ID:	34001155				
Operator ID:	AO	ALS Bottle#:	8	Worklist Smp#:	14
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001154 Lab Sample ID: 320-4945-9

Matrix: Air Lab File ID: MS111218.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/13/2013 00:27

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001154 Lab Sample ID: 320-4945-9

Matrix: Air Lab File ID: MS111218.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/13/2013 00:27

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001154 Lab Sample ID: 320-4945-9

Matrix: Air Lab File ID: MS111218.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/13/2013 00:27

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	86		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	95		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111218.D
Lims ID: 320-4945-A-9 Lab Sample ID: 320-4945-9
Client ID: 34001154
Sample Type: Client
Inject. Date: 13-Nov-2013 00:27:30 ALS Bottle#: 13 Worklist Smp#: 19
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34001154
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:50:48 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 12:50:48

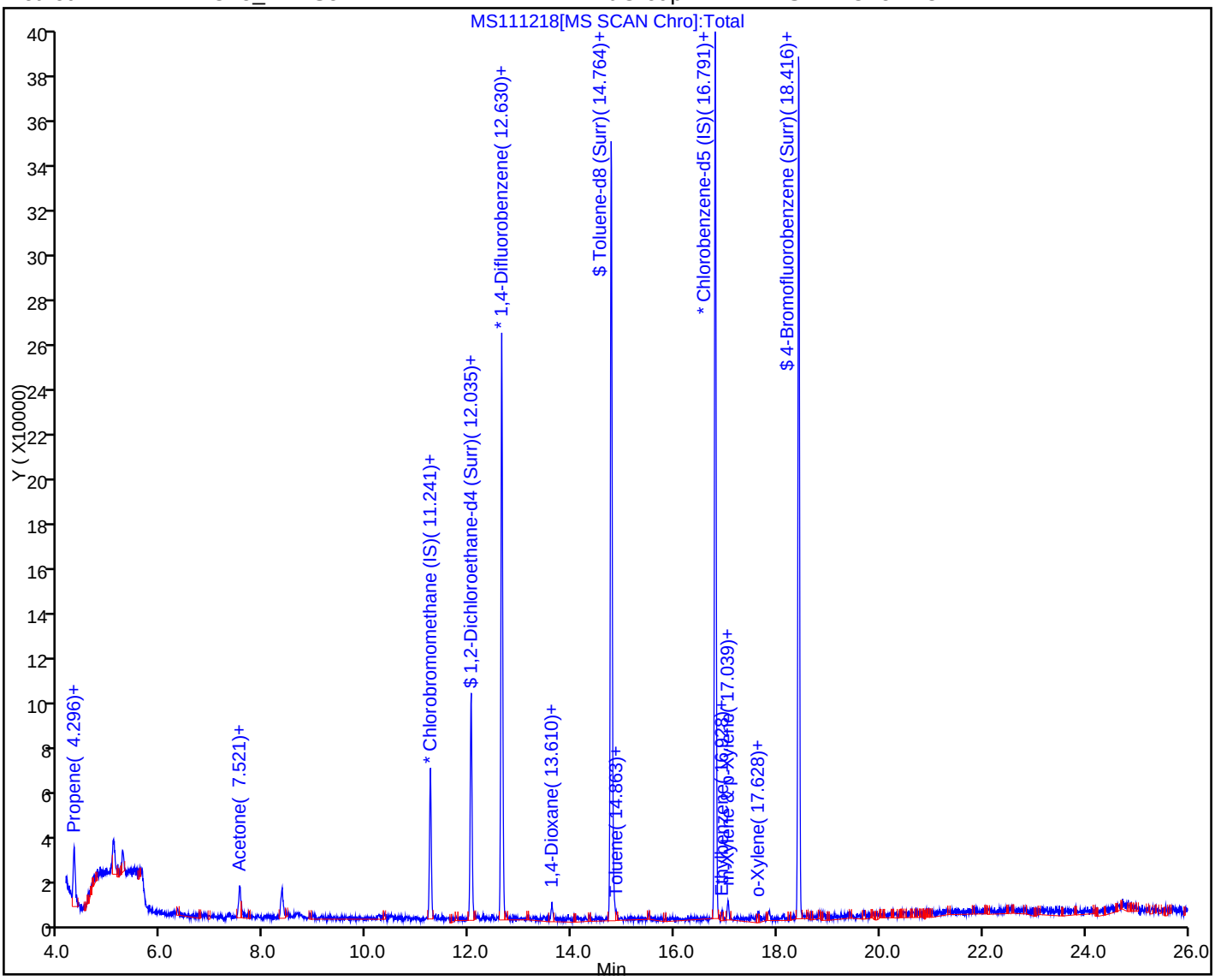
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.241	11.241	0.0	96	28708	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	268482	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	301830	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.035	12.029	0.006	13	63775	3.70	
$ 5 Toluene-d8 (Surr)	100	14.764	14.764	0.0	93	197067	3.96	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	93	158047	3.45	
11 Propene	41	4.315	4.321	-0.006	77	1845	0.0526	
33 Acetone	43	7.527	7.521	0.006	95	27424	0.2416	
40 Methylene Chloride	49	8.643	8.643	0.0	39	1636	0.0333	
69 1,4-Dioxane	88	13.610	13.604	0.006	80	4124	0.1906	
74 n-Octane	43	14.770	14.733	0.038	19	2674	0.0267	
75 Toluene	91	14.875	14.869	0.006	31	1652	0.0116	
86 Ethylbenzene	91	16.928	16.928	0.0	1	3021	0.0184	
88 m-Xylene & p-Xylene	91	17.039	17.039	0.0	67	7078	0.0562	
89 o-Xylene	91	17.628	17.628	0.0	15	2379	0.0182	

Report Date: 13-Nov-2013 12:50:48 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111218.D

Injection Date:	13-Nov-2013 00:27:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-9	Lab Sample ID:	320-4945-9		
Client ID:	34001154				
Operator ID:	AO	ALS Bottle#:	13	Worklist Smp#:	19
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001333 Lab Sample ID: 320-4945-10

Matrix: Air Lab File ID: MS111212.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 19:54

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001333 Lab Sample ID: 320-4945-10

Matrix: Air Lab File ID: MS111212.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 19:54

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001333 Lab Sample ID: 320-4945-10

Matrix: Air Lab File ID: MS111212.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 19:54

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	85		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	98		70-130
2037-26-5	Toluene-d8 (Surr)	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111212.D
Lims ID: 320-4945-A-10 Lab Sample ID: 320-4945-10
Client ID: 34001333
Sample Type: Client
Inject. Date: 12-Nov-2013 19:54:30 ALS Bottle#: 7 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34001333
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 12:04:05 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

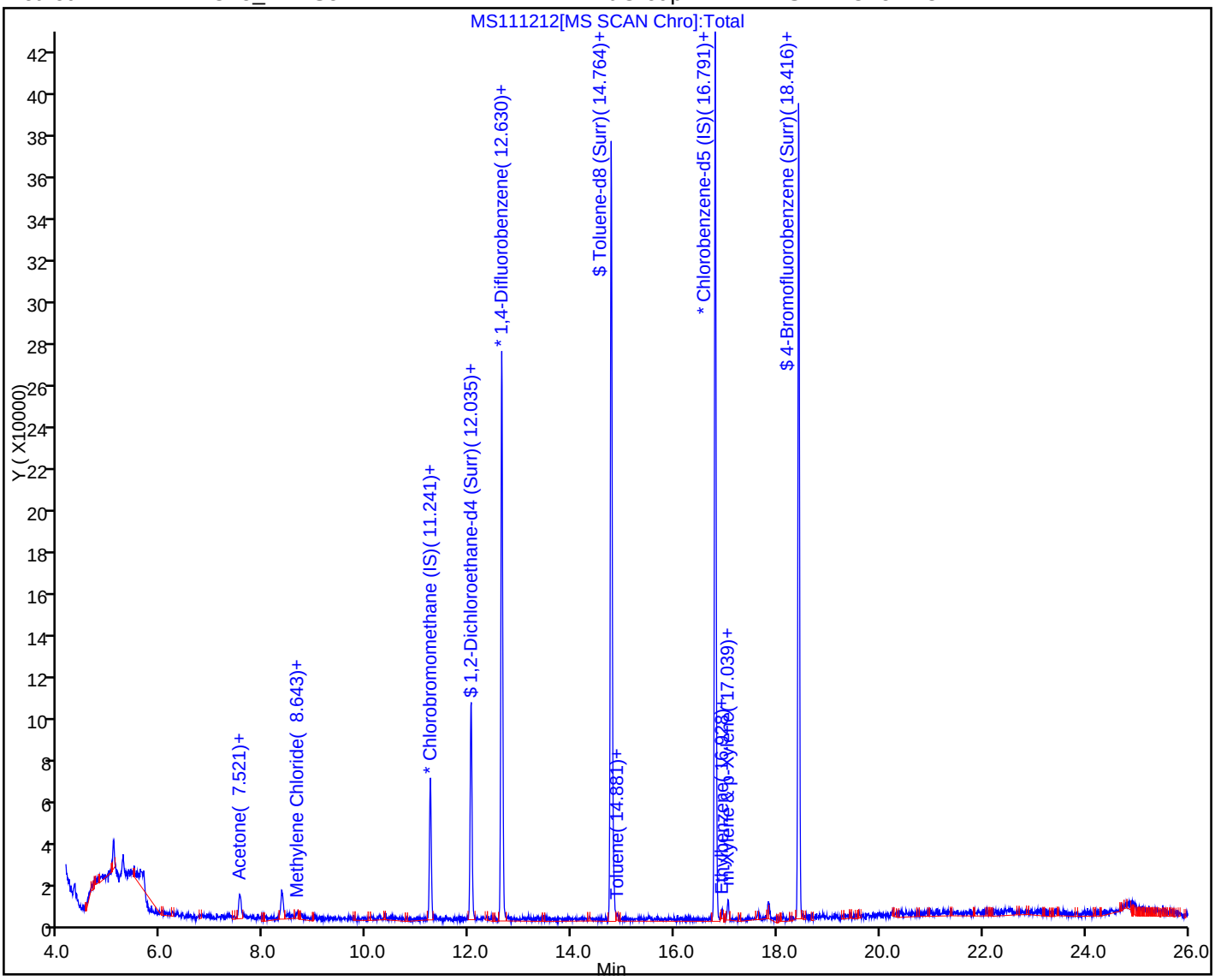
First Level Reviewer: ortizam Date: 13-Nov-2013 12:04:05

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.241	11.241	0.0	95	30359	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	290131	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	85	318650	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	5	70573	3.79	
$ 5 Toluene-d8 (Surr)	100	14.764	14.764	0.0	93	208300	3.87	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	93	164242	3.40	
33 Acetone	43	7.527	7.521	0.006	94	24935	0.2077	
40 Methylene Chloride	49	8.643	8.643	0.0	33	1838	0.0354	
74 n-Octane	43	14.770	14.733	0.038	19	2742	0.0259	
75 Toluene	91	14.869	14.869	0.0	26	1734	0.0112	
86 Ethylbenzene	91	16.928	16.928	0.0	16	3549	0.0205	
88 m-Xylene & p-Xylene	91	17.039	17.039	0.0	82	7241	0.0544	

Report Date: 13-Nov-2013 12:04:05 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File:	\\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111212.D				
Injection Date:	12-Nov-2013 19:54:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-10	Lab Sample ID:	320-4945-10		
Client ID:	34001333				
Operator ID:	AO	ALS Bottle#:	7	Worklist Smp#:	13
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001426 Lab Sample ID: 320-4945-11

Matrix: Air Lab File ID: MS111208.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 16:57

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
67-64-1	Acetone	ND		5.0
107-02-8	Acrolein	ND		2.0
107-13-1	Acrylonitrile	ND		2.0
107-05-1	Allyl chloride	ND		0.80
71-43-2	Benzene	ND		0.40
100-44-7	Benzyl chloride	ND		0.80
75-27-4	Bromodichloromethane	ND		0.30
75-25-2	Bromoform	ND		0.40
74-83-9	Bromomethane	ND		0.80
106-99-0	1,3-Butadiene	ND		0.80
106-97-8	n-Butane	ND		0.40
78-93-3	2-Butanone (MEK)	ND		0.80
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0
104-51-8	n-Butylbenzene	ND		0.40
135-98-8	sec-Butylbenzene	ND		0.40
98-06-6	tert-Butylbenzene	ND		0.80
75-15-0	Carbon disulfide	ND		0.80
56-23-5	Carbon tetrachloride	ND		0.80
108-90-7	Chlorobenzene	ND		0.30
75-45-6	Chlorodifluoromethane	ND		0.80
75-00-3	Chloroethane	ND		0.80
67-66-3	Chloroform	ND		0.30
74-87-3	Chloromethane	ND		0.80
95-49-8	2-Chlorotoluene	ND		0.40
110-82-7	Cyclohexane	ND		0.40
124-48-1	Dibromochloromethane	ND		0.40
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80
74-95-3	Dibromomethane	ND		0.40
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40
95-50-1	1,2-Dichlorobenzene	ND		0.40
541-73-1	1,3-Dichlorobenzene	ND		0.40
106-46-7	1,4-Dichlorobenzene	ND		0.40
75-71-8	Dichlorodifluoromethane	ND		0.40
75-34-3	1,1-Dichloroethane	ND		0.30
107-06-2	1,2-Dichloroethane	ND		0.80
75-35-4	1,1-Dichloroethene	ND		0.80

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001426 Lab Sample ID: 320-4945-11

Matrix: Air Lab File ID: MS111208.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 16:57

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
156-59-2	cis-1,2-Dichloroethene	ND		0.40
156-60-5	trans-1,2-Dichloroethene	ND		0.40
78-87-5	1,2-Dichloropropane	ND		0.40
10061-01-5	cis-1,3-Dichloropropene	ND		0.40
10061-02-6	trans-1,3-Dichloropropene	ND		0.40
123-91-1	1,4-Dioxane	ND		0.80
141-78-6	Ethyl acetate	ND		0.30
100-41-4	Ethylbenzene	ND		0.40
622-96-8	4-Ethyltoluene	ND		0.40
142-82-5	n-Heptane	ND		0.80
87-68-3	Hexachlorobutadiene	ND		2.0
110-54-3	n-Hexane	ND		0.80
591-78-6	2-Hexanone	ND		0.40
98-82-8	Isopropylbenzene	ND		0.80
99-87-6	4-Isopropyltoluene	ND		0.80
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80
80-62-6	Methyl methacrylate	ND		0.80
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40
75-09-2	Methylene Chloride	ND		0.40
98-83-9	alpha-Methylstyrene	ND		0.40
91-20-3	Naphthalene	ND		0.80
111-65-9	n-Octane	ND		0.40
109-66-0	n-Pentane	ND		0.80
115-07-1	Propylene	ND		0.40
103-65-1	N-Propylbenzene	ND		0.40
100-42-5	Styrene	ND		0.40
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40
127-18-4	Tetrachloroethene	ND		0.40
109-99-9	Tetrahydrofuran	ND		0.80
108-88-3	Toluene	ND		0.40
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40
120-82-1	1,2,4-Trichlorobenzene	ND		2.0
71-55-6	1,1,1-Trichloroethane	ND		0.30
79-00-5	1,1,2-Trichloroethane	ND		0.40
79-01-6	Trichloroethene	ND		0.40
75-69-4	Trichlorofluoromethane	ND		0.40

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-4945-1

SDG No.:

Client Sample ID: 34001426 Lab Sample ID: 320-4945-11

Matrix: Air Lab File ID: MS111208.D

Analysis Method: TO-15 Date Collected: 11/12/2013 00:00

Sample wt/vol: 500(mL) Date Analyzed: 11/12/2013 16:57

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: See SOP ID:

% Moisture: Level: (low/med) Low

Analysis Batch No.: 29645 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL
96-18-4	1,2,3-Trichloropropane	ND		0.40
95-63-6	1,2,4-Trimethylbenzene	ND		0.80
108-67-8	1,3,5-Trimethylbenzene	ND		0.40
540-84-1	2,2,4-Trimethylpentane	ND		0.40
108-05-4	Vinyl acetate	ND		0.80
593-60-2	Vinyl bromide	ND		0.80
75-01-4	Vinyl chloride	ND		0.40
179601-23-1	m,p-Xylene	ND		0.80
95-47-6	o-Xylene	ND		0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	99		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111208.D
Lims ID: 320-4945-A-11 Lab Sample ID: 320-4945-11
Client ID: 34001426
Sample Type: Client
Inject. Date: 12-Nov-2013 16:57:30 ALS Bottle#: 2 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 320-4945-
Misc. Info.: 34001426
Operator ID: AO Instrument ID: ATMS5

Method: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\TO15_ATMS5.m
Limit Group: MSA - TO15 - ICAL
Last Update: 13-Nov-2013 11:48:10 Calib Date: 12-Nov-2013 11:19:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111204.D

Column 1 : Detector MS SCAN
Process Host: XAWRK010

First Level Reviewer: ortizam Date: 13-Nov-2013 11:48:10

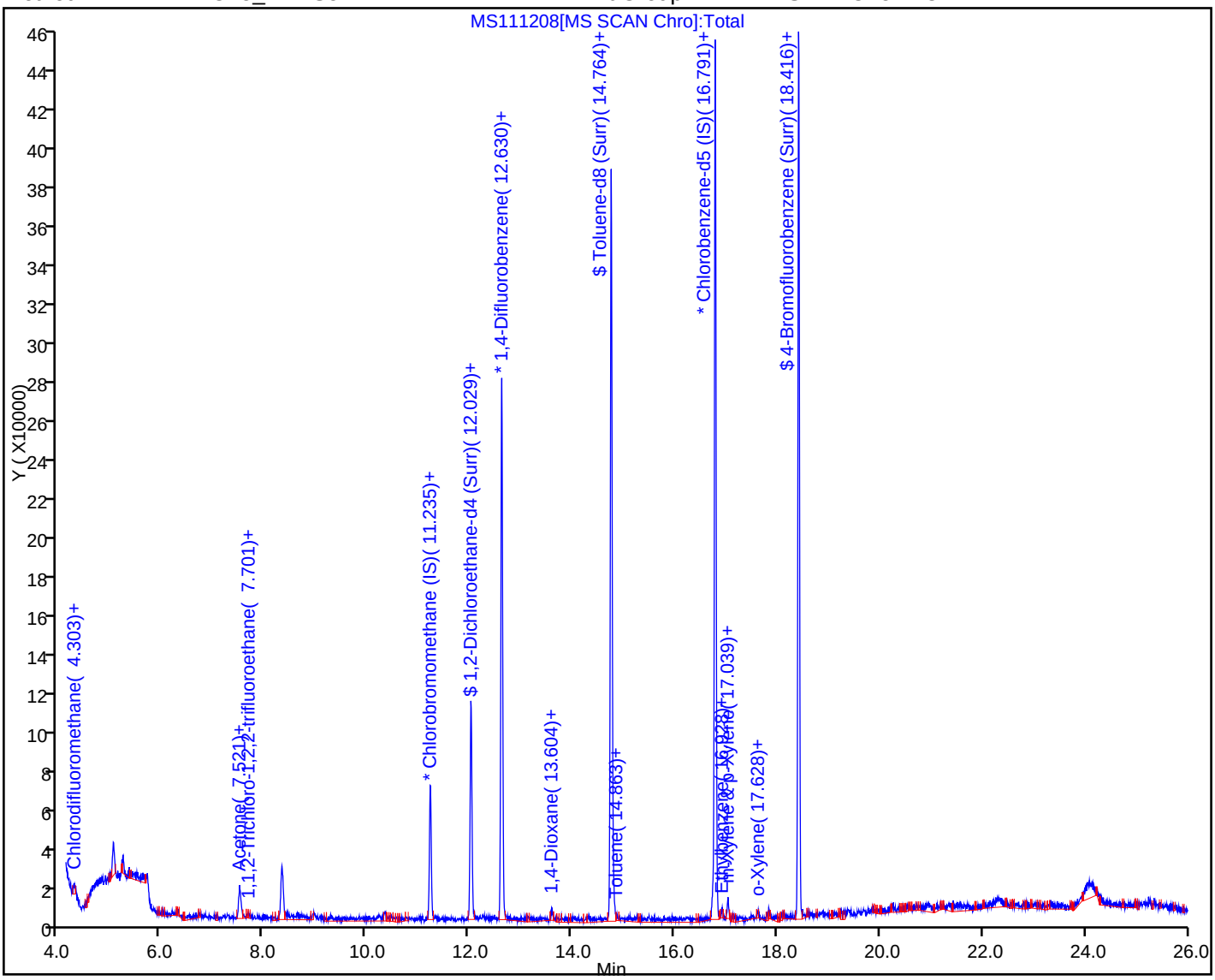
Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	On-Col Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.235	11.241	-0.006	95	31883	3.88	
* 2 1,4-Difluorobenzene	114	12.630	12.630	0.0	94	293519	4.00	
* 3 Chlorobenzene-d5 (IS)	117	16.791	16.791	0.0	83	341259	4.00	
$ 4 1,2-Dichloroethane-d4 (Surr)	65	12.029	12.029	0.0	22	72421	3.85	
$ 5 Toluene-d8 (Surr)	100	14.764	14.764	0.0	93	215915	3.97	
$ 6 4-Bromofluorobenzene (Surr)	95	18.416	18.416	0.0	93	186630	3.60	
11 Propene	41	4.315	4.321	-0.006	74	2023	0.0520	
12 Chlorodifluoromethane	51	4.327	4.334	-0.007	34	3686	0.0500	
33 Acetone	43	7.521	7.521	0.0	95	30976	0.2457	
34 1,1,2-Trichloro-1,2,2-trifluoroe	101	7.694	7.688	0.006	1	1487	0.0169	
69 1,4-Dioxane	88	13.610	13.604	0.006	67	3511	0.1484	
75 Toluene	91	14.869	14.869	0.0	24	2419	0.0155	
86 Ethylbenzene	91	16.928	16.928	0.0	33	2978	0.0160	
88 m-Xylene & p-Xylene	91	17.045	17.039	0.006	74	7170	0.0503	
89 o-Xylene	91	17.628	17.628	0.0	12	2833	0.0192	

Report Date: 13-Nov-2013 11:48:11 Chrom Revision: 2.1 15-Oct-2013 07:52:24

TestAmerica Sacramento

Data File: \\SACCHROM\ChromData\ATMS5\20131112-8600.b\MS111208.D

Injection Date:	12-Nov-2013 16:57:30	Instrument ID:	ATMS5		
Lims ID:	320-4945-A-11	Lab Sample ID:	320-4945-11		
Client ID:	34001426				
Operator ID:	AO	ALS Bottle#:	2	Worklist Smp#:	9
Purge Vol:	5.000 mL	Dil. Factor:	1.0000		
Method:	TO15_ATMS5	Limit Group:	MSA - TO15 - ICAL		



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-63131-1
Client Project/Site: ARCO 0402, Oakland

For:
Broadbent & Associates, Inc.
875 Cotting Lane
Suite G
Vacaville, California 95688

Attn: Kristene Tidwell

Authorized for release by:
12/6/2013 12:24:20 PM

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

LINKS

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Table of Contents

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63131-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-63131-1	MW4@ 7.5	Solid	11/18/13 08:45	11/21/13 09:45
440-63131-2	MW4@ 19.5	Solid	11/18/13 09:10	11/21/13 09:45
440-63131-3	MW5 @ 7.5	Solid	11/18/13 12:55	11/21/13 09:45
440-63131-4	MW5 @ 15.5	Solid	11/18/13 13:00	11/21/13 09:45
440-63131-5	MW5 @ 19.5	Solid	11/18/13 13:05	11/21/13 09:45
440-63131-6	MW6 @ 7.5	Solid	11/19/13 08:00	11/21/13 09:45
440-63131-7	MW6 @ 15.5	Solid	11/19/13 08:05	11/21/13 09:45
440-63131-8	MW7 @ 7.5	Solid	11/19/13 10:50	11/21/13 09:45
440-63131-9	MW7 @ 15.5	Solid	11/19/13 10:55	11/21/13 09:45

Job ID: 440-63131-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-63131-1

Comments
No additional comments.

Receipt
The samples were received on 11/21/2013 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5º C.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
Method(s) 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 148126 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The precision for MS/MSD was within limits.

Method(s) 8015B: The sample run at 5 gram was above the calibration limit for GRO, while the second sample run ran at 1 gram was non-detect for the following sample: MW6 @ 15.5 (440-63131-7). Sample is not homogeneous. The 5 gram run has been reported.

No other analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample ID: MW4@ 7.5

Lab Sample ID: 440-63131-1

Date Collected: 11/18/13 08:45

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0095**		0.0026		mg/Kg			11/29/13 16:11	1
Isopropyl Ether (DIPE)	ND		0.0052		mg/Kg			11/29/13 16:11	1
Ethanol	ND		0.52		mg/Kg			11/29/13 16:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.0052		mg/Kg			11/29/13 16:11	1
Ethylbenzene	**0.26**		0.0026		mg/Kg			11/29/13 16:11	1
1,1-Dichloroethane	ND		0.0026		mg/Kg			11/29/13 16:11	1
m,p-Xylene	**0.057**		0.0052		mg/Kg			11/29/13 16:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0052		mg/Kg			11/29/13 16:11	1
o-Xylene	**0.0029**		0.0026		mg/Kg			11/29/13 16:11	1
Tert-amyl-methyl ether (TAME)	ND		0.0052		mg/Kg			11/29/13 16:11	1
tert-Butyl alcohol (TBA)	ND		0.13		mg/Kg			11/29/13 16:11	1
Toluene	**0.0057**		0.0026		mg/Kg			11/29/13 16:11	1
Xylenes, Total	**0.060**		0.0052		mg/Kg			11/29/13 16:11	1
1,2-Dibromoethane (EDB)	ND		0.0026		mg/Kg			11/29/13 16:11	1
Naphthalene	**0.21**		0.0052		mg/Kg			11/29/13 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*79 - 120*		*11/29/13 16:11*	*1*
Dibromofluoromethane (Surr)	*109*		*60 - 120*		*11/29/13 16:11*	*1*
Toluene-d8 (Surr)	*110*		*79 - 123*		*11/29/13 16:11*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**0.99**		0.39		mg/Kg			11/29/13 17:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*65 - 140*		*11/29/13 17:37*	*1*

Client Sample ID: MW4@ 19.5

Lab Sample ID: 440-63131-2

Date Collected: 11/18/13 09:10

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.10		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Isopropyl Ether (DIPE)	ND		0.25		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Ethanol	ND		15		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Ethyl-t-butyl ether (ETBE)	ND		0.25		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Ethylbenzene	**0.66**		0.10		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
m,p-Xylene	ND		0.20		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Methyl-t-Butyl Ether (MTBE)	ND		0.25		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
o-Xylene	ND		0.10		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Tert-amyl-methyl ether (TAME)	ND		0.25		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
tert-Butyl alcohol (TBA)	ND		5.0		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Toluene	ND		0.10		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Xylenes, Total	ND		0.20		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
1,2-Dichloroethane	ND		0.10		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
1,2-Dibromoethane (EDB)	ND		0.10		mg/Kg		11/25/13 13:31	11/26/13 17:50	100
Naphthalene	ND		0.25		mg/Kg		11/25/13 13:31	11/26/13 17:50	100

Client Sample ID: MW4@ 19.5

Lab Sample ID: 440-63131-2

Date Collected: 11/18/13 09:10

Matrix: Solid

Date Received: 11/21/13 09:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*101*		*65 - 140*	*11/25/13 13:31*	*11/26/13 17:50*	*100*
Dibromofluoromethane (Surr)	*93*		*55 - 140*	*11/25/13 13:31*	*11/26/13 17:50*	*100*
Toluene-d8 (Surr)	*102*		*60 - 140*	*11/25/13 13:31*	*11/26/13 17:50*	*100*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	1.8		0.39	mg/Kg			11/29/13 18:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*69*		*65 - 140*		*11/29/13 18:05*	*1*

Client Sample ID: MW5 @ 7.5

Lab Sample ID: 440-63131-3

Date Collected: 11/18/13 12:55

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	mg/Kg			11/29/13 16:42	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			11/29/13 16:42	1
Ethanol	ND		0.20	mg/Kg			11/29/13 16:42	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			11/29/13 16:42	1
Ethylbenzene	ND		0.0010	mg/Kg			11/29/13 16:42	1
1,1-Dichloroethane	ND		0.0010	mg/Kg			11/29/13 16:42	1
m,p-Xylene	ND		0.0020	mg/Kg			11/29/13 16:42	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			11/29/13 16:42	1
o-Xylene	ND		0.0010	mg/Kg			11/29/13 16:42	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			11/29/13 16:42	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			11/29/13 16:42	1
Toluene	ND		0.0010	mg/Kg			11/29/13 16:42	1
Xylenes, Total	ND		0.0020	mg/Kg			11/29/13 16:42	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			11/29/13 16:42	1
Naphthalene	ND		0.0020	mg/Kg			11/29/13 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*101*		*79 - 120*		*11/29/13 16:42*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 120*		*11/29/13 16:42*	*1*
Toluene-d8 (Surr)	*111*		*79 - 123*		*11/29/13 16:42*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.37	mg/Kg			11/29/13 18:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*85*		*65 - 140*		*11/29/13 18:32*	*1*

Client Sample ID: MW5 @ 15.5

Lab Sample ID: 440-63131-4

Date Collected: 11/18/13 13:00

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			11/29/13 17:13	1

Client Sample ID: MW5 @ 15.5

Lab Sample ID: 440-63131-4

Date Collected: 11/18/13 13:00

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			11/29/13 17:13	1
Ethanol	ND		0.20		mg/Kg			11/29/13 17:13	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			11/29/13 17:13	1
Ethylbenzene	ND		0.00099		mg/Kg			11/29/13 17:13	1
1,1-Dichloroethane	ND		0.00099		mg/Kg			11/29/13 17:13	1
m,p-Xylene	ND		0.0020		mg/Kg			11/29/13 17:13	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			11/29/13 17:13	1
o-Xylene	ND		0.00099		mg/Kg			11/29/13 17:13	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			11/29/13 17:13	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			11/29/13 17:13	1
Toluene	ND		0.00099		mg/Kg			11/29/13 17:13	1
Xylenes, Total	ND		0.0020		mg/Kg			11/29/13 17:13	1
1,2-Dibromoethane (EDB)	ND		0.00099		mg/Kg			11/29/13 17:13	1
Naphthalene	ND		0.0020		mg/Kg			11/29/13 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*79 - 120*		*11/29/13 17:13*	*1*
Dibromofluoromethane (Surr)	*105*		*60 - 120*		*11/29/13 17:13*	*1*
Toluene-d8 (Surr)	*109*		*79 - 123*		*11/29/13 17:13*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	1.3		0.40		mg/Kg			11/29/13 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*72*		*65 - 140*		*11/29/13 19:00*	*1*

Client Sample ID: MW5 @ 19.5

Lab Sample ID: 440-63131-5

Date Collected: 11/18/13 13:05

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099		mg/Kg			11/29/13 17:44	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			11/29/13 17:44	1
Ethanol	ND		0.20		mg/Kg			11/29/13 17:44	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			11/29/13 17:44	1
Ethylbenzene	ND		0.00099		mg/Kg			11/29/13 17:44	1
1,1-Dichloroethane	ND		0.00099		mg/Kg			11/29/13 17:44	1
m,p-Xylene	ND		0.0020		mg/Kg			11/29/13 17:44	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			11/29/13 17:44	1
o-Xylene	ND		0.00099		mg/Kg			11/29/13 17:44	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			11/29/13 17:44	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			11/29/13 17:44	1
Toluene	ND		0.00099		mg/Kg			11/29/13 17:44	1
Xylenes, Total	ND		0.0020		mg/Kg			11/29/13 17:44	1
1,2-Dibromoethane (EDB)	ND		0.00099		mg/Kg			11/29/13 17:44	1
Naphthalene	ND		0.0020		mg/Kg			11/29/13 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*79 - 120*		*11/29/13 17:44*	*1*

Client Sample ID: MW5 @ 19.5

Lab Sample ID: 440-63131-5

Date Collected: 11/18/13 13:05

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*104*		*60 - 120*		*11/29/13 17:44*	*1*
Toluene-d8 (Surr)	*110*		*79 - 123*		*11/29/13 17:44*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.39	mg/Kg			11/29/13 19:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*65 - 140*		*11/29/13 19:27*	*1*

Client Sample ID: MW6 @ 7.5

Lab Sample ID: 440-63131-6

Date Collected: 11/19/13 08:00

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			11/29/13 23:36	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			11/29/13 23:36	1
Ethanol	ND		0.20	mg/Kg			11/29/13 23:36	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			11/29/13 23:36	1
Ethylbenzene	ND		0.00099	mg/Kg			11/29/13 23:36	1
1,1-Dichloroethane	ND		0.00099	mg/Kg			11/29/13 23:36	1
m,p-Xylene	ND		0.0020	mg/Kg			11/29/13 23:36	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			11/29/13 23:36	1
o-Xylene	ND		0.00099	mg/Kg			11/29/13 23:36	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			11/29/13 23:36	1
tert-Butyl alcohol (TBA)	ND		0.049	mg/Kg			11/29/13 23:36	1
Toluene	ND		0.00099	mg/Kg			11/29/13 23:36	1
Xylenes, Total	ND		0.0020	mg/Kg			11/29/13 23:36	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			11/29/13 23:36	1
Naphthalene	ND		0.0020	mg/Kg			11/29/13 23:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*79 - 120*		*11/29/13 23:36*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 120*		*11/29/13 23:36*	*1*
Toluene-d8 (Surr)	*115*		*79 - 123*		*11/29/13 23:36*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.38	mg/Kg			11/29/13 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*76*		*65 - 140*		*11/29/13 19:54*	*1*

Client Sample ID: MW6 @ 15.5

Lab Sample ID: 440-63131-7

Date Collected: 11/19/13 08:05

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	mg/Kg			12/02/13 12:54	1

Client Sample ID: MW6 @ 15.5

Lab Sample ID: 440-63131-7

Date Collected: 11/19/13 08:05

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/02/13 12:54	1
Ethanol	ND		0.20		mg/Kg			12/02/13 12:54	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/02/13 12:54	1
Ethylbenzene	ND		0.0010		mg/Kg			12/02/13 12:54	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			12/02/13 12:54	1
m,p-Xylene	ND		0.0020		mg/Kg			12/02/13 12:54	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/02/13 12:54	1
o-Xylene	ND		0.0010		mg/Kg			12/02/13 12:54	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/02/13 12:54	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/02/13 12:54	1
Toluene	ND		0.0010		mg/Kg			12/02/13 12:54	1
Xylenes, Total	ND		0.0020		mg/Kg			12/02/13 12:54	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			12/02/13 12:54	1
Naphthalene	ND		0.0020		mg/Kg			12/02/13 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 120*		*12/02/13 12:54*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 120*		*12/02/13 12:54*	*1*
Toluene-d8 (Surr)	*107*		*79 - 123*		*12/02/13 12:54*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	16	EY	0.38		mg/Kg			11/30/13 04:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*478*	*LH*	*65 - 140*		*11/30/13 04:21*	*1*

Client Sample ID: MW7 @ 7.5

Lab Sample ID: 440-63131-8

Date Collected: 11/19/13 10:50

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099		mg/Kg			11/29/13 19:16	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			11/29/13 19:16	1
Ethanol	ND		0.20		mg/Kg			11/29/13 19:16	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			11/29/13 19:16	1
Ethylbenzene	ND		0.00099		mg/Kg			11/29/13 19:16	1
1,1-Dichloroethane	ND		0.00099		mg/Kg			11/29/13 19:16	1
m,p-Xylene	ND		0.0020		mg/Kg			11/29/13 19:16	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			11/29/13 19:16	1
o-Xylene	ND		0.00099		mg/Kg			11/29/13 19:16	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			11/29/13 19:16	1
tert-Butyl alcohol (TBA)	ND		0.049		mg/Kg			11/29/13 19:16	1
Toluene	ND		0.00099		mg/Kg			11/29/13 19:16	1
Xylenes, Total	ND		0.0020		mg/Kg			11/29/13 19:16	1
1,2-Dibromoethane (EDB)	ND		0.00099		mg/Kg			11/29/13 19:16	1
Naphthalene	ND		0.0020		mg/Kg			11/29/13 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 120*		*11/29/13 19:16*	*1*

Client Sample ID: MW7 @ 7.5

Lab Sample ID: 440-63131-8

Date Collected: 11/19/13 10:50

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*104*		*60 - 120*		*11/29/13 19:16*	*1*
Toluene-d8 (Surr)	*109*		*79 - 123*		*11/29/13 19:16*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.38	mg/Kg			11/30/13 04:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*74*		*65 - 140*		*11/30/13 04:50*	*1*

Client Sample ID: MW7 @ 15.5

Lab Sample ID: 440-63131-9

Date Collected: 11/19/13 10:55

Matrix: Solid

Date Received: 11/21/13 09:45

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			11/30/13 00:36	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			11/30/13 00:36	1
Ethanol	ND		0.20	mg/Kg			11/30/13 00:36	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			11/30/13 00:36	1
Ethylbenzene	**0.0053**		0.00099	mg/Kg			11/30/13 00:36	1
1,1-Dichloroethane	ND		0.00099	mg/Kg			11/30/13 00:36	1
m,p-Xylene	ND		0.0020	mg/Kg			11/30/13 00:36	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			11/30/13 00:36	1
o-Xylene	ND		0.00099	mg/Kg			11/30/13 00:36	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			11/30/13 00:36	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			11/30/13 00:36	1
Toluene	ND		0.00099	mg/Kg			11/30/13 00:36	1
Xylenes, Total	ND		0.0020	mg/Kg			11/30/13 00:36	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			11/30/13 00:36	1
Naphthalene	ND		0.0020	mg/Kg			11/30/13 00:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*113*		*79 - 120*		*11/30/13 00:36*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 120*		*11/30/13 00:36*	*1*
Toluene-d8 (Surr)	*116*		*79 - 123*		*11/30/13 00:36*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**39000**		38000	ug/Kg		12/03/13 18:12	12/03/13 20:06	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*90*		*65 - 140*	*12/03/13 18:12*	*12/03/13 20:06*	*100*

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63131-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63131-1

Client Sample ID: MW4@ 7.5

Lab Sample ID: 440-63131-1

Date Collected: 11/18/13 08:45

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	1.94 g	10 mL	147509	11/29/13 16:11	YK	TAL IRV
Total/NA	Analysis	8015B		1	5.09 g	10 mL	147569	11/29/13 17:37	PH	TAL IRV

Client Sample ID: MW4@ 19.5

Lab Sample ID: 440-63131-2

Date Collected: 11/18/13 09:10

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			9.97 g	10 mL	146699	11/25/13 13:31	WK	TAL IRV
Total/NA	Analysis	8260B		100	9.97 g	10 mL	146850	11/26/13 17:50	AT	TAL IRV
Total/NA	Analysis	8015B		1	5.14 g	10 mL	147569	11/29/13 18:05	PH	TAL IRV

Client Sample ID: MW5 @ 7.5

Lab Sample ID: 440-63131-3

Date Collected: 11/18/13 12:55

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	4.97 g	10 mL	147509	11/29/13 16:42	YK	TAL IRV
Total/NA	Analysis	8015B		1	5.44 g	10 mL	147569	11/29/13 18:32	PH	TAL IRV

Client Sample ID: MW5 @ 15.5

Lab Sample ID: 440-63131-4

Date Collected: 11/18/13 13:00

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.05 g	10 mL	147509	11/29/13 17:13	YK	TAL IRV
Total/NA	Analysis	8015B		1	5.06 g	10 mL	147569	11/29/13 19:00	PH	TAL IRV

Client Sample ID: MW5 @ 19.5

Lab Sample ID: 440-63131-5

Date Collected: 11/18/13 13:05

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.04 g	10 mL	147509	11/29/13 17:44	YK	TAL IRV
Total/NA	Analysis	8015B		1	5.18 g	10 mL	147569	11/29/13 19:27	PH	TAL IRV

Client Sample ID: MW6 @ 7.5

Lab Sample ID: 440-63131-6

Date Collected: 11/19/13 08:00

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.07 g	10 mL	147696	11/29/13 23:36	MP	TAL IRV
Total/NA	Analysis	8015B		1	5.22 g	10 mL	147569	11/29/13 19:54	PH	TAL IRV

Client Sample ID: MW6 @ 15.5

Lab Sample ID: 440-63131-7

Date Collected: 11/19/13 08:05

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.02 g	10 mL	147833	12/02/13 12:54	AT	TAL IRV
Total/NA	Analysis	8015B		1	5.32 g	10 mL	147674	11/30/13 04:21	TL	TAL IRV

Client Sample ID: MW7 @ 7.5

Lab Sample ID: 440-63131-8

Date Collected: 11/19/13 10:50

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.07 g	10 mL	147509	11/29/13 19:16	YK	TAL IRV
Total/NA	Analysis	8015B		1	5.21 g	10 mL	147674	11/30/13 04:50	TL	TAL IRV

Client Sample ID: MW7 @ 15.5

Lab Sample ID: 440-63131-9

Date Collected: 11/19/13 10:55

Matrix: Solid

Date Received: 11/21/13 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.04 g	10 mL	147696	11/30/13 00:36	MP	TAL IRV
Total/NA	Prep	5030B			5.26 g	5 mL	148343	12/03/13 18:12	PH	TAL IRV
Total/NA	Analysis	8015B		100	5.26 g	5 mL	148241	12/03/13 20:06	PH	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: 550-14800-I-5-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 146850 — **Prep Batch: 146694**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		4.28	4.08		mg/Kg		95	55 - 140
Isopropyl Ether (DIPE)	ND		4.28	3.79		mg/Kg		89	60 - 150
Ethanol	ND		42.8	40.8		mg/Kg		95	30 - 160
Ethyl-t-butyl ether (ETBE)	ND		4.28	3.91		mg/Kg		91	60 - 150
Ethylbenzene	ND		4.28	4.45		mg/Kg		104	50 - 150
m,p-Xylene	ND		8.56	8.72		mg/Kg		102	60 - 145
Methyl-t-Butyl Ether (MTBE)	ND		4.28	4.10		mg/Kg		96	55 - 155
o-Xylene	ND		4.28	4.22		mg/Kg		99	55 - 145
Tert-amyl-methyl ether (TAME)	ND		4.28	4.13		mg/Kg		97	60 - 150
tert-Butyl alcohol (TBA)	ND		21.4	23.1		mg/Kg		108	60 - 155
Toluene	ND		4.28	4.29		mg/Kg		100	55 - 140
1,2-Dichloroethane	ND		4.28	3.95		mg/Kg		92	60 - 145
1,2-Dibromoethane (EDB)	ND		4.28	4.26		mg/Kg		100	65 - 145
Naphthalene	ND		4.28	4.86		mg/Kg		113	35 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*65 - 140*
Dibromofluoromethane (Surr)	*93*		*55 - 140*
Toluene-d8 (Surr)	*101*		*60 - 140*

Lab Sample ID: 550-14800-I-5-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 146850 — **Prep Batch: 146694**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		4.28	3.81		mg/Kg		89	55 - 140	7	25
Isopropyl Ether (DIPE)	ND		4.28	3.66		mg/Kg		85	60 - 150	4	25
Ethanol	ND		42.8	40.3		mg/Kg		94	30 - 160	1	40
Ethyl-t-butyl ether (ETBE)	ND		4.28	3.92		mg/Kg		92	60 - 150	0	25
Ethylbenzene	ND		4.28	4.21		mg/Kg		98	50 - 150	6	25
m,p-Xylene	ND		8.56	8.30		mg/Kg		97	60 - 145	5	25
Methyl-t-Butyl Ether (MTBE)	ND		4.28	4.20		mg/Kg		98	55 - 155	2	30
o-Xylene	ND		4.28	3.99		mg/Kg		93	55 - 145	6	25
Tert-amyl-methyl ether (TAME)	ND		4.28	4.02		mg/Kg		94	60 - 150	3	25
tert-Butyl alcohol (TBA)	ND		21.4	22.8		mg/Kg		106	60 - 155	1	25
Toluene	ND		4.28	4.00		mg/Kg		94	55 - 140	7	25
1,2-Dichloroethane	ND		4.28	3.92		mg/Kg		92	60 - 145	1	25
1,2-Dibromoethane (EDB)	ND		4.28	4.21		mg/Kg		98	65 - 145	1	25
Naphthalene	ND		4.28	4.90		mg/Kg		115	35 - 160	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*
Dibromofluoromethane (Surr)	*90*		*55 - 140*
Toluene-d8 (Surr)	*100*		*60 - 140*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-146850/4
Matrix: Solid
Analysis Batch: 146850

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.10		mg/Kg			11/26/13 08:48	100
Isopropyl Ether (DIPE)	ND		0.25		mg/Kg			11/26/13 08:48	100
Ethanol	ND		15		mg/Kg			11/26/13 08:48	100
Ethyl-t-butyl ether (ETBE)	ND		0.25		mg/Kg			11/26/13 08:48	100
Ethylbenzene	ND		0.10		mg/Kg			11/26/13 08:48	100
m,p-Xylene	ND		0.20		mg/Kg			11/26/13 08:48	100
Methyl-t-Butyl Ether (MTBE)	ND		0.25		mg/Kg			11/26/13 08:48	100
o-Xylene	ND		0.10		mg/Kg			11/26/13 08:48	100
Tert-amyl-methyl ether (TAME)	ND		0.25		mg/Kg			11/26/13 08:48	100
tert-Butyl alcohol (TBA)	ND		5.0		mg/Kg			11/26/13 08:48	100
Toluene	ND		0.10		mg/Kg			11/26/13 08:48	100
1,2-Dichloroethane	ND		0.10		mg/Kg			11/26/13 08:48	100
Xylenes, Total	ND		100		mg/Kg			11/26/13 08:48	100
1,2-Dibromoethane (EDB)	ND		0.10		mg/Kg			11/26/13 08:48	100
Naphthalene	ND		0.25		mg/Kg			11/26/13 08:48	100

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*65 - 140*		*11/26/13 08:48*	*100*
Dibromofluoromethane (Surr)	*101*		*55 - 140*		*11/26/13 08:48*	*100*
Toluene-d8 (Surr)	*105*		*60 - 140*		*11/26/13 08:48*	*100*

Lab Sample ID: LCS 440-146850/5
Matrix: Solid
Analysis Batch: 146850

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			2.50	2.55		mg/Kg		102	65 - 120		
Isopropyl Ether (DIPE)			2.50	2.58		mg/Kg		103	60 - 140		
Ethanol			25.0	27.6		mg/Kg		110	35 - 160		
Ethyl-t-butyl ether (ETBE)			2.50	2.77		mg/Kg		111	60 - 140		
Ethylbenzene			2.50	2.78		mg/Kg		111	80 - 120		
m,p-Xylene			5.00	5.42		mg/Kg		108	70 - 125		
Methyl-t-Butyl Ether (MTBE)			2.50	2.99		mg/Kg		120	55 - 145		
o-Xylene			2.50	2.62		mg/Kg		105	70 - 125		
Tert-amyl-methyl ether (TAME)			2.50	2.88		mg/Kg		115	60 - 145		
tert-Butyl alcohol (TBA)			12.5	13.2		mg/Kg		105	65 - 140		
Toluene			2.50	2.60		mg/Kg		104	80 - 120		
1,2-Dichloroethane			2.50	2.90		mg/Kg		116	60 - 145		
1,2-Dibromoethane (EDB)			2.50	2.87		mg/Kg		115	70 - 130		
Naphthalene			2.50	2.79		mg/Kg		111	50 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*65 - 140*
Dibromofluoromethane (Surr)	*110*		*55 - 140*
Toluene-d8 (Surr)	*113*		*60 - 140*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 440-146850/6
Matrix: Solid
Analysis Batch: 146850

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			2.50	2.48		mg/Kg		99	65 - 120	3	20
Isopropyl Ether (DIPE)			2.50	2.64		mg/Kg		106	60 - 140	2	20
Ethanol			25.0	27.5		mg/Kg		110	35 - 160	0	30
Ethyl-t-butyl ether (ETBE)			2.50	2.75		mg/Kg		110	60 - 140	1	20
Ethylbenzene			2.50	2.76		mg/Kg		111	80 - 120	0	20
m,p-Xylene			5.00	5.27		mg/Kg		105	70 - 125	3	20
Methyl-t-Butyl Ether (MTBE)			2.50	2.96		mg/Kg		118	55 - 145	1	25
o-Xylene			2.50	2.63		mg/Kg		105	70 - 125	0	20
Tert-amyl-methyl ether (TAME)			2.50	2.83		mg/Kg		113	60 - 145	2	25
tert-Butyl alcohol (TBA)			12.5	12.2		mg/Kg		97	65 - 140	8	20
Toluene			2.50	2.60		mg/Kg		104	80 - 120	0	20
1,2-Dichloroethane			2.50	2.76		mg/Kg		110	60 - 145	5	20
1,2-Dibromoethane (EDB)			2.50	2.77		mg/Kg		111	70 - 130	4	20
Naphthalene			2.50	2.77		mg/Kg		111	50 - 140	1	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*65 - 140*
Dibromofluoromethane (Surr)	*109*		*55 - 140*
Toluene-d8 (Surr)	*110*		*60 - 140*

Lab Sample ID: MB 440-147509/4
Matrix: Solid
Analysis Batch: 147509

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/Kg			11/29/13 09:33	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			11/29/13 09:33	1
Ethanol	ND		0.20		mg/Kg			11/29/13 09:33	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			11/29/13 09:33	1
Ethylbenzene	ND		0.0010		mg/Kg			11/29/13 09:33	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			11/29/13 09:33	1
m,p-Xylene	ND		0.0020		mg/Kg			11/29/13 09:33	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			11/29/13 09:33	1
o-Xylene	ND		0.0010		mg/Kg			11/29/13 09:33	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			11/29/13 09:33	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			11/29/13 09:33	1
Toluene	ND		0.0010		mg/Kg			11/29/13 09:33	1
Xylenes, Total	ND		0.0020		mg/Kg			11/29/13 09:33	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			11/29/13 09:33	1
Naphthalene	ND		0.0020		mg/Kg			11/29/13 09:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*79 - 120*		*11/29/13 09:33*	*1*
Dibromofluoromethane (Surr)	*101*		*60 - 120*		*11/29/13 09:33*	*1*
Toluene-d8 (Surr)	*108*		*79 - 123*		*11/29/13 09:33*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-147509/5
Matrix: Solid
Analysis Batch: 147509

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0551		mg/Kg		110	65 - 120
Isopropyl Ether (DIPE)	0.0500	0.0604		mg/Kg		121	60 - 140
Ethanol	0.500	0.451		mg/Kg		90	35 - 160
Ethyl-t-butyl ether (ETBE)	0.0500	0.0583		mg/Kg		117	60 - 140
Ethylbenzene	0.0500	0.0542		mg/Kg		108	70 - 125
1,1-Dichloroethane	0.0500	0.0587		mg/Kg		117	70 - 130
m,p-Xylene	0.100	0.102		mg/Kg		102	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0609		mg/Kg		122	60 - 140
o-Xylene	0.0500	0.0525		mg/Kg		105	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0617		mg/Kg		123	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.281		mg/Kg		112	70 - 135
Toluene	0.0500	0.0526		mg/Kg		105	70 - 125
1,2-Dibromoethane (EDB)	0.0500	0.0602		mg/Kg		120	70 - 130
Naphthalene	0.0500	0.0521		mg/Kg		104	55 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*79 - 120*
Dibromofluoromethane (Surr)	*104*		*60 - 120*
Toluene-d8 (Surr)	*108*		*79 - 123*

Lab Sample ID: 440-62864-A-1 MS
Matrix: Solid
Analysis Batch: 147509

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0506	0.0558		mg/Kg		110	65 - 130
Isopropyl Ether (DIPE)	ND		0.0506	0.0554		mg/Kg		110	60 - 150
Ethanol	ND		0.506	0.431		mg/Kg		85	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		0.0506	0.0522		mg/Kg		103	60 - 145
Ethylbenzene	ND		0.0506	0.0542		mg/Kg		107	70 - 135
1,1-Dichloroethane	ND		0.0506	0.0565		mg/Kg		112	65 - 135
m,p-Xylene	ND		0.101	0.103		mg/Kg		102	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0506	0.0534		mg/Kg		105	55 - 155
o-Xylene	ND		0.0506	0.0523		mg/Kg		103	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0506	0.0553		mg/Kg		109	60 - 150
tert-Butyl alcohol (TBA)	ND		0.253	0.269		mg/Kg		106	65 - 145
Toluene	ND		0.0506	0.0519		mg/Kg		103	70 - 130
1,2-Dibromoethane (EDB)	ND		0.0506	0.0555		mg/Kg		110	65 - 140
Naphthalene	ND		0.0506	0.0492		mg/Kg		97	40 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*79 - 120*
Dibromofluoromethane (Surr)	*100*		*60 - 120*
Toluene-d8 (Surr)	*109*		*79 - 123*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-62864-A-1 MSD
Matrix: Solid
Analysis Batch: 147509

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0504	0.0531		mg/Kg		105	65 - 130	5	20
Isopropyl Ether (DIPE)	ND		0.0504	0.0562		mg/Kg		112	60 - 150	1	25
Ethanol	ND		0.504	0.460		mg/Kg		91	30 - 165	7	40
Ethyl-t-butyl ether (ETBE)	ND		0.0504	0.0539		mg/Kg		107	60 - 145	3	30
Ethylbenzene	ND		0.0504	0.0520		mg/Kg		103	70 - 135	4	25
1,1-Dichloroethane	ND		0.0504	0.0557		mg/Kg		111	65 - 135	1	25
m,p-Xylene	ND		0.101	0.0959		mg/Kg		95	70 - 130	7	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0504	0.0563		mg/Kg		112	55 - 155	5	35
o-Xylene	ND		0.0504	0.0499		mg/Kg		99	65 - 130	5	25
Tert-amyl-methyl ether (TAME)	ND		0.0504	0.0575		mg/Kg		114	60 - 150	4	25
tert-Butyl alcohol (TBA)	ND		0.252	0.272		mg/Kg		108	65 - 145	1	30
Toluene	ND		0.0504	0.0506		mg/Kg		100	70 - 130	2	20
1,2-Dibromoethane (EDB)	ND		0.0504	0.0551		mg/Kg		109	65 - 140	1	25
Naphthalene	ND		0.0504	0.0525		mg/Kg		104	40 - 150	7	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*79 - 120*
Dibromofluoromethane (Surr)	*100*		*60 - 120*
Toluene-d8 (Surr)	*108*		*79 - 123*

Lab Sample ID: MB 440-147696/3
Matrix: Solid
Analysis Batch: 147696

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/Kg			11/29/13 20:36	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			11/29/13 20:36	1
Ethanol	ND		0.20		mg/Kg			11/29/13 20:36	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			11/29/13 20:36	1
Ethylbenzene	ND		0.0010		mg/Kg			11/29/13 20:36	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			11/29/13 20:36	1
m,p-Xylene	ND		0.0020		mg/Kg			11/29/13 20:36	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			11/29/13 20:36	1
o-Xylene	ND		0.0010		mg/Kg			11/29/13 20:36	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			11/29/13 20:36	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			11/29/13 20:36	1
Toluene	ND		0.0010		mg/Kg			11/29/13 20:36	1
Xylenes, Total	ND		0.0020		mg/Kg			11/29/13 20:36	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			11/29/13 20:36	1
Naphthalene	ND		0.0020		mg/Kg			11/29/13 20:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*79 - 120*		*11/29/13 20:36*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 120*		*11/29/13 20:36*	*1*
Toluene-d8 (Surr)	*116*		*79 - 123*		*11/29/13 20:36*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-147696/4
Matrix: Solid
Analysis Batch: 147696

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0491		mg/Kg		98	65 - 120
Isopropyl Ether (DIPE)	0.0500	0.0524		mg/Kg		105	60 - 140
Ethanol	0.500	0.494		mg/Kg		99	35 - 160
Ethyl-t-butyl ether (ETBE)	0.0500	0.0544		mg/Kg		109	60 - 140
Ethylbenzene	0.0500	0.0505		mg/Kg		101	70 - 125
1,1-Dichloroethane	0.0500	0.0500		mg/Kg		100	70 - 130
m,p-Xylene	0.100	0.0983		mg/Kg		98	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0565		mg/Kg		113	60 - 140
o-Xylene	0.0500	0.0493		mg/Kg		99	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0552		mg/Kg		110	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.258		mg/Kg		103	70 - 135
Toluene	0.0500	0.0508		mg/Kg		102	70 - 125
1,2-Dibromoethane (EDB)	0.0500	0.0531		mg/Kg		106	70 - 130
Naphthalene	0.0500	0.0598		mg/Kg		120	55 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*79 - 120*
Dibromofluoromethane (Surr)	*113*		*60 - 120*
Toluene-d8 (Surr)	*117*		*79 - 123*

Lab Sample ID: 440-63131-A-3 MS
Matrix: Solid
Analysis Batch: 147696

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0481	0.0474		mg/Kg		99	65 - 130
Isopropyl Ether (DIPE)	ND		0.0481	0.0497		mg/Kg		103	60 - 150
Ethanol	ND		0.481	0.445		mg/Kg		93	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		0.0481	0.0517		mg/Kg		108	60 - 145
Ethylbenzene	ND		0.0481	0.0508		mg/Kg		106	70 - 135
1,1-Dichloroethane	ND		0.0481	0.0473		mg/Kg		98	65 - 135
m,p-Xylene	ND		0.0962	0.0983		mg/Kg		102	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0481	0.0539		mg/Kg		112	55 - 155
o-Xylene	ND		0.0481	0.0492		mg/Kg		102	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0481	0.0524		mg/Kg		109	60 - 150
tert-Butyl alcohol (TBA)	ND		0.240	0.252		mg/Kg		105	65 - 145
Toluene	ND		0.0481	0.0500		mg/Kg		104	70 - 130
1,2-Dibromoethane (EDB)	ND		0.0481	0.0510		mg/Kg		106	65 - 140
Naphthalene	ND		0.0481	0.0554		mg/Kg		115	40 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*79 - 120*
Dibromofluoromethane (Surr)	*112*		*60 - 120*
Toluene-d8 (Surr)	*117*		*79 - 123*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63131-A-3 MSD
Matrix: Solid
Analysis Batch: 147696

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0486	0.0480		mg/Kg		99	65 - 130	1	20
Isopropyl Ether (DIPE)	ND		0.0486	0.0504		mg/Kg		104	60 - 150	1	25
Ethanol	ND		0.486	0.493		mg/Kg		101	30 - 165	10	40
Ethyl-t-butyl ether (ETBE)	ND		0.0486	0.0523		mg/Kg		107	60 - 145	1	30
Ethylbenzene	ND		0.0486	0.0512		mg/Kg		105	70 - 135	1	25
1,1-Dichloroethane	ND		0.0486	0.0476		mg/Kg		98	65 - 135	1	25
m,p-Xylene	ND		0.0973	0.0996		mg/Kg		102	70 - 130	1	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0486	0.0541		mg/Kg		111	55 - 155	0	35
o-Xylene	ND		0.0486	0.0496		mg/Kg		102	65 - 130	1	25
Tert-amyl-methyl ether (TAME)	ND		0.0486	0.0526		mg/Kg		108	60 - 150	1	25
tert-Butyl alcohol (TBA)	ND		0.243	0.254		mg/Kg		104	65 - 145	1	30
Toluene	ND		0.0486	0.0510		mg/Kg		105	70 - 130	2	20
1,2-Dibromoethane (EDB)	ND		0.0486	0.0517		mg/Kg		106	65 - 140	1	25
Naphthalene	ND		0.0486	0.0586		mg/Kg		120	40 - 150	6	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*79 - 120*
Dibromofluoromethane (Surr)	*110*		*60 - 120*
Toluene-d8 (Surr)	*117*		*79 - 123*

Lab Sample ID: MB 440-147833/3
Matrix: Solid
Analysis Batch: 147833

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/Kg			12/02/13 09:06	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/02/13 09:06	1
Ethanol	ND		0.20		mg/Kg			12/02/13 09:06	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/02/13 09:06	1
Ethylbenzene	ND		0.0010		mg/Kg			12/02/13 09:06	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			12/02/13 09:06	1
m,p-Xylene	ND		0.0020		mg/Kg			12/02/13 09:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/02/13 09:06	1
o-Xylene	ND		0.0010		mg/Kg			12/02/13 09:06	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/02/13 09:06	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/02/13 09:06	1
Toluene	ND		0.0010		mg/Kg			12/02/13 09:06	1
Xylenes, Total	ND		0.0020		mg/Kg			12/02/13 09:06	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			12/02/13 09:06	1
Naphthalene	ND		0.0020		mg/Kg			12/02/13 09:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*79 - 120*		*12/02/13 09:06*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 120*		*12/02/13 09:06*	*1*
Toluene-d8 (Surr)	*106*		*79 - 123*		*12/02/13 09:06*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-147833/4
Matrix: Solid
Analysis Batch: 147833

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0500	0.0476		mg/Kg		95	65 - 120
Isopropyl Ether (DIPE)	0.0500	0.0481		mg/Kg		96	60 - 140
Ethanol	0.500	0.455		mg/Kg		91	35 - 160
Ethyl-t-butyl ether (ETBE)	0.0500	0.0498		mg/Kg		100	60 - 140
Ethylbenzene	0.0500	0.0492		mg/Kg		98	70 - 125
1,1-Dichloroethane	0.0500	0.0465		mg/Kg		93	70 - 130
m,p-Xylene	0.100	0.0948		mg/Kg		95	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0533		mg/Kg		107	60 - 140
o-Xylene	0.0500	0.0488		mg/Kg		98	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0529		mg/Kg		106	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.270		mg/Kg		108	70 - 135
Toluene	0.0500	0.0483		mg/Kg		97	70 - 125
1,2-Dibromoethane (EDB)	0.0500	0.0551		mg/Kg		110	70 - 130
Naphthalene	0.0500	0.0525		mg/Kg		105	55 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*79 - 120*
Dibromofluoromethane (Surr)	*100*		*60 - 120*
Toluene-d8 (Surr)	*107*		*79 - 123*

Lab Sample ID: 440-63003-A-1 MS
Matrix: Solid
Analysis Batch: 147833

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0499	0.0537		mg/Kg		108	65 - 130
Isopropyl Ether (DIPE)	ND		0.0499	0.0547		mg/Kg		110	60 - 150
Ethanol	ND		0.499	0.615		mg/Kg		123	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		0.0499	0.0565		mg/Kg		113	60 - 145
Ethylbenzene	ND		0.0499	0.0565		mg/Kg		113	70 - 135
1,1-Dichloroethane	ND		0.0499	0.0527		mg/Kg		106	65 - 135
m,p-Xylene	ND		0.0998	0.105		mg/Kg		105	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0499	0.0583		mg/Kg		117	55 - 155
o-Xylene	ND		0.0499	0.0552		mg/Kg		111	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0499	0.0587		mg/Kg		118	60 - 150
tert-Butyl alcohol (TBA)	ND		0.250	0.349		mg/Kg		140	65 - 145
Toluene	ND		0.0499	0.0556		mg/Kg		111	70 - 130
1,2-Dibromoethane (EDB)	ND		0.0499	0.0600		mg/Kg		120	65 - 140
Naphthalene	ND		0.0499	0.0594		mg/Kg		119	40 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*79 - 120*
Dibromofluoromethane (Surr)	*92*		*60 - 120*
Toluene-d8 (Surr)	*106*		*79 - 123*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63003-A-1 MSD
Matrix: Solid
Analysis Batch: 147833

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0499	0.0497		mg/Kg		100	65 - 130	8	20
Isopropyl Ether (DIPE)	ND		0.0499	0.0520		mg/Kg		104	60 - 150	5	25
Ethanol	ND		0.499	0.527		mg/Kg		106	30 - 165	15	40
Ethyl-t-butyl ether (ETBE)	ND		0.0499	0.0531		mg/Kg		106	60 - 145	6	30
Ethylbenzene	ND		0.0499	0.0530		mg/Kg		106	70 - 135	6	25
1,1-Dichloroethane	ND		0.0499	0.0494		mg/Kg		99	65 - 135	6	25
m,p-Xylene	ND		0.0998	0.0958		mg/Kg		96	70 - 130	9	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0499	0.0559		mg/Kg		112	55 - 155	4	35
o-Xylene	ND		0.0499	0.0514		mg/Kg		103	65 - 130	7	25
Tert-amyl-methyl ether (TAME)	ND		0.0499	0.0559		mg/Kg		112	60 - 150	5	25
tert-Butyl alcohol (TBA)	ND		0.250	0.315		mg/Kg		126	65 - 145	10	30
Toluene	ND		0.0499	0.0517		mg/Kg		104	70 - 130	7	20
1,2-Dibromoethane (EDB)	ND		0.0499	0.0575		mg/Kg		115	65 - 140	4	25
Naphthalene	ND		0.0499	0.0526		mg/Kg		105	40 - 150	12	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*79 - 120*
Dibromofluoromethane (Surr)	*93*		*60 - 120*
Toluene-d8 (Surr)	*106*		*79 - 123*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-147569/7
Matrix: Solid
Analysis Batch: 147569

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40		mg/Kg			11/29/13 12:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*		*11/29/13 12:30*	*1*

Lab Sample ID: LCS 440-147569/5
Matrix: Solid
Analysis Batch: 147569

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			1.60	1.39		mg/Kg		87	70 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: LCSD 440-147569/6
Matrix: Solid
Analysis Batch: 147569

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)			1.60	1.41		mg/Kg		88	70 - 135	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*65 - 140*

Lab Sample ID: 440-63010-A-6 MS
Matrix: Solid
Analysis Batch: 147569

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		1.49	1.31		mg/Kg		87	60 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: 440-63010-A-6 MSD
Matrix: Solid
Analysis Batch: 147569

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		1.57	1.37		mg/Kg		88	60 - 140	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*65 - 140*

Lab Sample ID: MB 440-147674/18
Matrix: Solid
Analysis Batch: 147674

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40		mg/Kg			11/29/13 16:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*		*11/29/13 16:34*	*1*

Lab Sample ID: LCS 440-147674/16
Matrix: Solid
Analysis Batch: 147674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			1.60	1.46		mg/Kg		91	70 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: LCSD 440-147674/17
Matrix: Solid
Analysis Batch: 147674

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)			1.60	1.45		mg/Kg		91	70 - 135	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*

Lab Sample ID: 440-63071-A-11 MS
Matrix: Solid
Analysis Batch: 147674

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		1.53	1.31		mg/Kg		86	60 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*65 - 140*

Lab Sample ID: 440-63071-A-11 MSD
Matrix: Solid
Analysis Batch: 147674

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		1.58	1.35		mg/Kg		86	60 - 140	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*86*		*65 - 140*

Lab Sample ID: MB 440-148241/4
Matrix: Solid
Analysis Batch: 148241

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		40000		ug/Kg			12/03/13 15:31	100

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*65 - 140*		*12/03/13 15:31*	*100*

Lab Sample ID: LCS 440-148241/2
Matrix: Solid
Analysis Batch: 148241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			160000	147000		ug/Kg		92	70 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*119*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: LCSD 440-148241/3
Matrix: Solid
Analysis Batch: 148241

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)			160000	148000		ug/Kg		92	70 - 135	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*119*		*65 - 140*

GC/MS VOA

Prep Batch: 146694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-14800-I-5-B MS	Matrix Spike	Total/NA	Solid	5035	
550-14800-I-5-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 146699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63131-2	MW4@ 19.5	Total/NA	Solid	5030B	

Analysis Batch: 146850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63131-2	MW4@ 19.5	Total/NA	Solid	8260B	146699
550-14800-I-5-B MS	Matrix Spike	Total/NA	Solid	8260B	146694
550-14800-I-5-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	146694
LCS 440-146850/5	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 440-146850/6	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 440-146850/4	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 147509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-62864-A-1 MS	Matrix Spike	Total/NA	Solid	8260B	
440-62864-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
440-63131-1	MW4@ 7.5	Total/NA	Solid	8260B	
440-63131-3	MW5 @ 7.5	Total/NA	Solid	8260B	
440-63131-4	MW5 @ 15.5	Total/NA	Solid	8260B	
440-63131-5	MW5 @ 19.5	Total/NA	Solid	8260B	
440-63131-8	MW7 @ 7.5	Total/NA	Solid	8260B	
LCS 440-147509/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-147509/4	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 147696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63131-6	MW6 @ 7.5	Total/NA	Solid	8260B	
440-63131-9	MW7 @ 15.5	Total/NA	Solid	8260B	
440-63131-A-3 MS	Matrix Spike	Total/NA	Solid	8260B	
440-63131-A-3 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
LCS 440-147696/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-147696/3	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 147833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63003-A-1 MS	Matrix Spike	Total/NA	Solid	8260B	
440-63003-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
440-63131-7	MW6 @ 15.5	Total/NA	Solid	8260B	
LCS 440-147833/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-147833/3	Method Blank	Total/NA	Solid	8260B	

GC VOA

Analysis Batch: 147569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63010-A-6 MS	Matrix Spike	Total/NA	Solid	8015B	

GC VOA (Continued)

Analysis Batch: 147569 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63010-A-6 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
440-63131-1	MW4@ 7.5	Total/NA	Solid	8015B	
440-63131-2	MW4@ 19.5	Total/NA	Solid	8015B	
440-63131-3	MW5 @ 7.5	Total/NA	Solid	8015B	
440-63131-4	MW5 @ 15.5	Total/NA	Solid	8015B	
440-63131-5	MW5 @ 19.5	Total/NA	Solid	8015B	
440-63131-6	MW6 @ 7.5	Total/NA	Solid	8015B	
LCS 440-147569/5	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-147569/6	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-147569/7	Method Blank	Total/NA	Solid	8015B	

Analysis Batch: 147674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63071-A-11 MS	Matrix Spike	Total/NA	Solid	8015B	
440-63071-A-11 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
440-63131-7	MW6 @ 15.5	Total/NA	Solid	8015B	
440-63131-8	MW7 @ 7.5	Total/NA	Solid	8015B	
LCS 440-147674/16	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-147674/17	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-147674/18	Method Blank	Total/NA	Solid	8015B	

Analysis Batch: 148241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63131-9	MW7 @ 15.5	Total/NA	Solid	8015B	148343
LCS 440-148241/2	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-148241/3	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-148241/4	Method Blank	Total/NA	Solid	8015B	

Prep Batch: 148343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63131-9	MW7 @ 15.5	Total/NA	Solid	5030B	

Qualifiers

GC VOA

Qualifier	Qualifier Description
LH	Surrogate Recoveries were higher than QC limits
EY	Result exceeds normal dynamic range; reported as a min. est.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63131-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-14
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-14
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

bp rm — Laboratory Management Program LaMP Chain of Custody Record

Page ____ of ____

BP Site Node Path: 08-88-602 | Req Due Date (mm/dd/yy): ____ | Rush TAT: Yes ____ No ____

BP Facility No: 402 | Lab Work Order Number: ____

Lab Name: Test America	Facility Address: 1450 Fruitvale Avenue	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Derian Avenue Suite #100, Irvine, CA 92641	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: 08-88-602
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacaville, CA 95688
Lab Phone: 949-261-1022	California Global ID No.: T06019734265	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 1103-6633-7	Enfos Proposal No: 0064Q-0003	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision _x_ OOC-BU ____ OOC-RM ____	Email EDD To: ktidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (60) Activity: Project Spend (81)	Invoice To: BP _x_ Contractor ____
BP Project Manager (PM): Chuck Carmel		
BP PM Phone: 925-275-3804		
BP PM Email: chuck.carmel@bp.com		

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Container	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: GRO by 8015M	BTEX/5 FO & EDB by 8260	1,2-DCA & Ethanol by 8260	Naphthalene by 8260B
	MW-4@7.5	11/18/13	0845	X				1	X					X	X	X	X
	MW-4@19.5		0910	X				1	X					X	X	X	X
	MW-5@7.5		1255	X				1	X					X	X	X	X
	MW-5@15.5		1300	X				1	X					X	X	X	X
	MW-5@19.5		1305	X				1	X					X	X	X	X
	MW-6@7.5	11/19/13	8000	X	8005			1	X					X	X	X	X
	MW-6@15.5		8055	X	8054			1	X					X	X	X	X
	MW-7@7.5		1050	X				1	X					X	X	X	X
	MW-7@15.5		1055	X				1	X					X	X	X	X

Report Type & QC Level: Standard _x_ / Full Data Package ____

Comments: Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

11/21/13 2150

Sampler's Name: Kristene Tidwell	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent and Associates	BAC	11/20/13	1400			
Shipment Method: Fed Ex Ship Date: 11/20/13						
Shipment Tracking No:				Cha Cinelas	11/21/13	9:45

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt 23.6/15.5 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-63131-1

Login Number: 63131

List Source: TestAmerica Irvine

List Number: 1

Creator: Soderblom, Tim

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-63469-1
Client Project/Site: ARCO 0402, Oakland

For:
Broadbent & Associates, Inc.
875 Cotting Lane
Suite G
Vacaville, California 95688

Attn: Kristene Tidwell

Authorized for release by:
12/11/2013 9:24:29 PM

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

Table of Contents

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63469-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-63469-1	Soil 1	Solid	11/22/13 14:15	11/26/13 11:40
440-63469-2	Soil 2	Solid	11/22/13 14:20	11/26/13 11:40
440-63469-3	Soil 3	Solid	11/22/13 14:25	11/26/13 11:40
440-63469-4	Soil 4	Solid	11/22/13 14:30	11/26/13 11:40
440-63469-5	Drum Water	Water	11/22/13 14:35	11/26/13 11:40

Job ID: 440-63469-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-63469-1

Comments
No additional comments.

Receipt
The samples were received on 11/26/2013 7:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
Method(s) 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The precision (%RPD) for MS/MSD was within limits.

No other analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample ID: Soil 1

Lab Sample ID: 440-63469-1

Date Collected: 11/22/13 14:15

Matrix: Solid

Date Received: 11/26/13 11:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099		mg/Kg			12/05/13 13:45	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/05/13 13:45	1
Ethanol	ND		0.20		mg/Kg			12/05/13 13:45	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/05/13 13:45	1
Ethylbenzene	**0.015**		0.00099		mg/Kg			12/05/13 13:45	1
1,1-Dichloroethane	ND		0.00099		mg/Kg			12/05/13 13:45	1
m,p-Xylene	**0.0089**		0.0020		mg/Kg			12/05/13 13:45	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/05/13 13:45	1
o-Xylene	ND		0.00099		mg/Kg			12/05/13 13:45	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/05/13 13:45	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/05/13 13:45	1
Toluene	ND		0.00099		mg/Kg			12/05/13 13:45	1
Xylenes, Total	**0.0089**		0.0020		mg/Kg			12/05/13 13:45	1
1,2-Dibromoethane (EDB)	ND		0.00099		mg/Kg			12/05/13 13:45	1
1,2-Dichloroethane	ND		0.00099		mg/Kg			12/05/13 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*79 - 120*		*12/05/13 13:45*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 120*		*12/05/13 13:45*	*1*
Toluene-d8 (Surr)	*106*		*79 - 123*		*12/05/13 13:45*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**2.5**		0.38		mg/Kg			11/30/13 00:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*77*		*65 - 140*		*11/30/13 00:36*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6.4**		2.0		mg/Kg		12/02/13 15:16	12/03/13 19:56	5

Client Sample ID: Soil 2

Lab Sample ID: 440-63469-2

Date Collected: 11/22/13 14:20

Matrix: Solid

Date Received: 11/26/13 11:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/Kg			12/05/13 14:14	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/05/13 14:14	1
Ethanol	ND		0.20		mg/Kg			12/05/13 14:14	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/05/13 14:14	1
Ethylbenzene	**0.0058**		0.0010		mg/Kg			12/05/13 14:14	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			12/05/13 14:14	1
m,p-Xylene	**0.0031**		0.0020		mg/Kg			12/05/13 14:14	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/05/13 14:14	1
o-Xylene	ND		0.0010		mg/Kg			12/05/13 14:14	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/05/13 14:14	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/05/13 14:14	1
Toluene	ND		0.0010		mg/Kg			12/05/13 14:14	1

Client Sample ID: Soil 2

Lab Sample ID: 440-63469-2

Date Collected: 11/22/13 14:20

Matrix: Solid

Date Received: 11/26/13 11:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	**0.0031**		0.0020		mg/Kg			12/05/13 14:14	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			12/05/13 14:14	1
1,2-Dichloroethane	ND		0.0010		mg/Kg			12/05/13 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*79 - 120*		*12/05/13 14:14*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 120*		*12/05/13 14:14*	*1*
Toluene-d8 (Surr)	*106*		*79 - 123*		*12/05/13 14:14*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**1.9**		0.39		mg/Kg			11/30/13 01:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*70*		*65 - 140*		*11/30/13 01:05*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**5.6**		2.0		mg/Kg		12/02/13 15:16	12/03/13 20:01	5

Client Sample ID: Soil 3

Lab Sample ID: 440-63469-3

Date Collected: 11/22/13 14:25

Matrix: Solid

Date Received: 11/26/13 11:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099		mg/Kg			12/05/13 14:42	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/05/13 14:42	1
Ethanol	ND		0.20		mg/Kg			12/05/13 14:42	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/05/13 14:42	1
Ethylbenzene	ND		0.00099		mg/Kg			12/05/13 14:42	1
1,1-Dichloroethane	ND		0.00099		mg/Kg			12/05/13 14:42	1
m,p-Xylene	ND		0.0020		mg/Kg			12/05/13 14:42	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/05/13 14:42	1
o-Xylene	ND		0.00099		mg/Kg			12/05/13 14:42	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/05/13 14:42	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/05/13 14:42	1
Toluene	ND		0.00099		mg/Kg			12/05/13 14:42	1
Xylenes, Total	ND		0.0020		mg/Kg			12/05/13 14:42	1
1,2-Dibromoethane (EDB)	ND		0.00099		mg/Kg			12/05/13 14:42	1
1,2-Dichloroethane	ND		0.00099		mg/Kg			12/05/13 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*79 - 120*		*12/05/13 14:42*	*1*
Dibromofluoromethane (Surr)	*96*		*60 - 120*		*12/05/13 14:42*	*1*
Toluene-d8 (Surr)	*106*		*79 - 123*		*12/05/13 14:42*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.38		mg/Kg			11/30/13 01:35	1

Client Sample ID: Soil 3

Lab Sample ID: 440-63469-3

Date Collected: 11/22/13 14:25

Matrix: Solid

Date Received: 11/26/13 11:40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*90*		*65 - 140*		*11/30/13 01:35*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**7.3**		2.0		mg/Kg		12/02/13 15:16	12/03/13 20:03	5

Client Sample ID: Soil 4

Lab Sample ID: 440-63469-4

Date Collected: 11/22/13 14:30

Matrix: Solid

Date Received: 11/26/13 11:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0018**		0.0010		mg/Kg			12/05/13 15:11	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/05/13 15:11	1
Ethanol	ND		0.20		mg/Kg			12/05/13 15:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/05/13 15:11	1
Ethylbenzene	**0.061**		0.0010		mg/Kg			12/05/13 15:11	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			12/05/13 15:11	1
m,p-Xylene	**0.0055**		0.0020		mg/Kg			12/05/13 15:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/05/13 15:11	1
o-Xylene	ND		0.0010		mg/Kg			12/05/13 15:11	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/05/13 15:11	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/05/13 15:11	1
Toluene	ND		0.0010		mg/Kg			12/05/13 15:11	1
Xylenes, Total	**0.0055**		0.0020		mg/Kg			12/05/13 15:11	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			12/05/13 15:11	1
1,2-Dichloroethane	ND		0.0010		mg/Kg			12/05/13 15:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*105*		*79 - 120*		*12/05/13 15:11*	*1*
Dibromofluoromethane (Surr)	*106*		*60 - 120*		*12/05/13 15:11*	*1*
Toluene-d8 (Surr)	*105*		*79 - 123*		*12/05/13 15:11*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**0.54**		0.39		mg/Kg			12/03/13 01:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*85*		*65 - 140*		*12/03/13 01:32*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**6.2**		2.0		mg/Kg		12/02/13 15:16	12/03/13 20:05	5

Client Sample ID: Drum Water

Lab Sample ID: 440-63469-5

Date Collected: 11/22/13 14:35

Matrix: Water

Date Received: 11/26/13 11:40

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			12/05/13 02:37	1
1,2-Dichloroethane	ND		0.50		ug/L			12/05/13 02:37	1

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63469-1

Client Sample ID: Drum Water
Date Collected: 11/22/13 14:35
Date Received: 11/26/13 11:40

Lab Sample ID: 440-63469-5
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.9**		0.50		ug/L			12/05/13 02:37	1
Ethanol	ND		150		ug/L			12/05/13 02:37	1
Ethylbenzene	**21**		0.50		ug/L			12/05/13 02:37	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			12/05/13 02:37	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			12/05/13 02:37	1
m,p-Xylene	**7.8**		1.0		ug/L			12/05/13 02:37	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			12/05/13 02:37	1
o-Xylene	**1.6**		0.50		ug/L			12/05/13 02:37	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			12/05/13 02:37	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			12/05/13 02:37	1
Toluene	**1.6**		0.50		ug/L			12/05/13 02:37	1
Xylenes, Total	**9.4**		1.0		ug/L			12/05/13 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*12/05/13 02:37*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 132*		*12/05/13 02:37*	*1*
Toluene-d8 (Surr)	*106*		*80 - 128*		*12/05/13 02:37*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**360**		50		ug/L			12/03/13 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*65 - 140*		*12/03/13 19:21*	*1*

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63469-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8260B/5030B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B	Gasoline Range Organics - (GC)	SW846	TAL IRV
8015B/5030B	Gasoline Range Organics (GC)	SW846	TAL IRV
6010B	Metals (ICP)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client Sample ID: Soil 1

Lab Sample ID: 440-63469-1

Date Collected: 11/22/13 14:15

Matrix: Solid

Date Received: 11/26/13 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.04 g	10 mL	148700	12/05/13 13:45	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.24 g	10 mL	147719	11/30/13 00:36	TL	TAL IRV
Total/NA	Prep	3050B			2.01 g	50 mL	147994	12/02/13 15:16	DT	TAL IRV
Total/NA	Analysis	6010B		5	2.01 g	50 mL	148414	12/03/13 19:56	VS	TAL IRV

Client Sample ID: Soil 2

Lab Sample ID: 440-63469-2

Date Collected: 11/22/13 14:20

Matrix: Solid

Date Received: 11/26/13 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 g	10 mL	148700	12/05/13 14:14	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.07 g	10 mL	147719	11/30/13 01:05	TL	TAL IRV
Total/NA	Prep	3050B			2.00 g	50 mL	147994	12/02/13 15:16	DT	TAL IRV
Total/NA	Analysis	6010B		5	2.00 g	50 mL	148414	12/03/13 20:01	VS	TAL IRV

Client Sample ID: Soil 3

Lab Sample ID: 440-63469-3

Date Collected: 11/22/13 14:25

Matrix: Solid

Date Received: 11/26/13 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.04 g	10 mL	148700	12/05/13 14:42	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.23 g	10 mL	147719	11/30/13 01:35	TL	TAL IRV
Total/NA	Prep	3050B			2.02 g	50 mL	147994	12/02/13 15:16	DT	TAL IRV
Total/NA	Analysis	6010B		5	2.02 g	50 mL	148414	12/03/13 20:03	VS	TAL IRV

Client Sample ID: Soil 4

Lab Sample ID: 440-63469-4

Date Collected: 11/22/13 14:30

Matrix: Solid

Date Received: 11/26/13 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5.01 g	10 mL	148700	12/05/13 15:11	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.16 g	10 mL	147884	12/03/13 01:32	TL	TAL IRV
Total/NA	Prep	3050B			2.02 g	50 mL	147994	12/02/13 15:16	DT	TAL IRV
Total/NA	Analysis	6010B		5	2.02 g	50 mL	148414	12/03/13 20:05	VS	TAL IRV

Client Sample ID: Drum Water

Lab Sample ID: 440-63469-5

Date Collected: 11/22/13 14:35

Matrix: Water

Date Received: 11/26/13 11:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	148621	12/05/13 02:37	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	148184	12/03/13 19:21	IM	TAL IRV

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63469-1

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-148700/3
Matrix: Solid
Analysis Batch: 148700

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/Kg			12/05/13 08:35	1
Ethanol	ND		0.20		mg/Kg			12/05/13 08:35	1
Ethylbenzene	ND		0.0010		mg/Kg			12/05/13 08:35	1
1,1-Dichloroethane	ND		0.0010		mg/Kg			12/05/13 08:35	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020		mg/Kg			12/05/13 08:35	1
Isopropyl Ether (DIPE)	ND		0.0020		mg/Kg			12/05/13 08:35	1
m,p-Xylene	ND		0.0020		mg/Kg			12/05/13 08:35	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020		mg/Kg			12/05/13 08:35	1
o-Xylene	ND		0.0010		mg/Kg			12/05/13 08:35	1
Tert-amyl-methyl ether (TAME)	ND		0.0020		mg/Kg			12/05/13 08:35	1
tert-Butyl alcohol (TBA)	ND		0.050		mg/Kg			12/05/13 08:35	1
Toluene	ND		0.0010		mg/Kg			12/05/13 08:35	1
Xylenes, Total	ND		0.0020		mg/Kg			12/05/13 08:35	1
1,2-Dibromoethane (EDB)	ND		0.0010		mg/Kg			12/05/13 08:35	1
1,2-Dichloroethane	ND		0.0010		mg/Kg			12/05/13 08:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 120*		*12/05/13 08:35*	*1*
Dibromofluoromethane (Surr)	*93*		*60 - 120*		*12/05/13 08:35*	*1*
Toluene-d8 (Surr)	*105*		*79 - 123*		*12/05/13 08:35*	*1*

Lab Sample ID: LCS 440-148700/4
Matrix: Solid
Analysis Batch: 148700

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.0500	0.0468		mg/Kg		94	65 - 120		
Ethanol			0.500	0.420		mg/Kg		84	35 - 160		
Ethylbenzene			0.0500	0.0484		mg/Kg		97	70 - 125		
1,1-Dichloroethane			0.0500	0.0460		mg/Kg		92	70 - 130		
Ethyl-t-butyl ether (ETBE)			0.0500	0.0475		mg/Kg		95	60 - 140		
Isopropyl Ether (DIPE)			0.0500	0.0471		mg/Kg		94	60 - 140		
m,p-Xylene			0.100	0.0930		mg/Kg		93	70 - 125		
Methyl-t-Butyl Ether (MTBE)			0.0500	0.0495		mg/Kg		99	60 - 140		
o-Xylene			0.0500	0.0460		mg/Kg		92	70 - 125		
Tert-amyl-methyl ether (TAME)			0.0500	0.0505		mg/Kg		101	60 - 145		
tert-Butyl alcohol (TBA)			0.250	0.251		mg/Kg		101	70 - 135		
Toluene			0.0500	0.0485		mg/Kg		97	70 - 125		
Naphthalene			50.0	44.0		ug/Kg		88	55 - 135		
1,2-Dibromoethane (EDB)			0.0500	0.0496		mg/Kg		99	70 - 130		
1,2-Dichloroethane			0.0500	0.0500		mg/Kg		100	60 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*79 - 120*
Dibromofluoromethane (Surr)	*98*		*60 - 120*
Toluene-d8 (Surr)	*108*		*79 - 123*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63351-A-1 MS
Matrix: Solid
Analysis Batch: 148700

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0499	0.0475		mg/Kg		95	65 - 130
Ethanol	ND		0.499	0.432		mg/Kg		87	30 - 165
Ethylbenzene	ND		0.0499	0.0512		mg/Kg		103	70 - 135
1,1-Dichloroethane	ND		0.0499	0.0459		mg/Kg		92	65 - 135
Ethyl-t-butyl ether (ETBE)	ND		0.0499	0.0474		mg/Kg		95	60 - 145
Isopropyl Ether (DIPE)	ND		0.0499	0.0468		mg/Kg		94	60 - 150
m,p-Xylene	ND		0.0998	0.0983		mg/Kg		99	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0499	0.0505		mg/Kg		101	55 - 155
o-Xylene	ND		0.0499	0.0492		mg/Kg		99	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0499	0.0499		mg/Kg		100	60 - 150
tert-Butyl alcohol (TBA)	ND		0.250	0.280		mg/Kg		112	65 - 145
Toluene	ND		0.0499	0.0485		mg/Kg		97	70 - 130
Naphthalene	ND		49.9	50.9		ug/Kg		102	40 - 150
1,2-Dibromoethane (EDB)	ND		0.0499	0.0550		mg/Kg		110	65 - 140
1,2-Dichloroethane	ND		0.0499	0.0515		mg/Kg		103	60 - 150

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*79 - 120*
Dibromofluoromethane (Surr)	*98*		*60 - 120*
Toluene-d8 (Surr)	*107*		*79 - 123*

Lab Sample ID: 440-63351-A-1 MSD
Matrix: Solid
Analysis Batch: 148700

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0496	0.0478		mg/Kg		96	65 - 130	1	20
Ethanol	ND		0.496	0.445		mg/Kg		90	30 - 165	3	40
Ethylbenzene	ND		0.0496	0.0504		mg/Kg		102	70 - 135	2	25
1,1-Dichloroethane	ND		0.0496	0.0463		mg/Kg		93	65 - 135	1	25
Ethyl-t-butyl ether (ETBE)	ND		0.0496	0.0465		mg/Kg		94	60 - 145	2	30
Isopropyl Ether (DIPE)	ND		0.0496	0.0462		mg/Kg		93	60 - 150	1	25
m,p-Xylene	ND		0.0992	0.0979		mg/Kg		99	70 - 130	0	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0496	0.0485		mg/Kg		98	55 - 155	4	35
o-Xylene	ND		0.0496	0.0486		mg/Kg		98	65 - 130	1	25
Tert-amyl-methyl ether (TAME)	ND		0.0496	0.0482		mg/Kg		97	60 - 150	4	25
tert-Butyl alcohol (TBA)	ND		0.248	0.287		mg/Kg		116	65 - 145	3	30
Toluene	ND		0.0496	0.0491		mg/Kg		99	70 - 130	1	20
Naphthalene	ND		49.6	49.3		ug/Kg		99	40 - 150	3	40
1,2-Dibromoethane (EDB)	ND		0.0496	0.0516		mg/Kg		104	65 - 140	6	25
1,2-Dichloroethane	ND		0.0496	0.0509		mg/Kg		103	60 - 150	1	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*79 - 120*
Dibromofluoromethane (Surr)	*98*		*60 - 120*
Toluene-d8 (Surr)	*107*		*79 - 123*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-148621/4
Matrix: Water
Analysis Batch: 148621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			12/04/13 20:53	1
Ethanol	ND		150		ug/L			12/04/13 20:53	1
Ethylbenzene	ND		0.50		ug/L			12/04/13 20:53	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			12/04/13 20:53	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			12/04/13 20:53	1
m,p-Xylene	ND		1.0		ug/L			12/04/13 20:53	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			12/04/13 20:53	1
o-Xylene	ND		0.50		ug/L			12/04/13 20:53	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			12/04/13 20:53	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			12/04/13 20:53	1
Toluene	ND		0.50		ug/L			12/04/13 20:53	1
Xylenes, Total	ND		1.0		ug/L			12/04/13 20:53	1
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			12/04/13 20:53	1
1,2-Dichloroethane	ND		0.50		ug/L			12/04/13 20:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*12/04/13 20:53*	*1*
Dibromofluoromethane (Surr)	*97*		*76 - 132*		*12/04/13 20:53*	*1*
Toluene-d8 (Surr)	*104*		*80 - 128*		*12/04/13 20:53*	*1*

Lab Sample ID: LCS 440-148621/5
Matrix: Water
Analysis Batch: 148621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			25.0	23.9		ug/L		95	68 - 130		
Ethanol			250	286		ug/L		114	50 - 149		
Ethylbenzene			25.0	24.5		ug/L		98	70 - 130		
Ethyl-t-butyl ether (ETBE)			25.0	24.0		ug/L		96	60 - 136		
Isopropyl Ether (DIPE)			25.0	25.5		ug/L		102	58 - 139		
m,p-Xylene			50.0	48.3		ug/L		97	70 - 130		
Methyl-t-Butyl Ether (MTBE)			25.0	23.7		ug/L		95	63 - 131		
o-Xylene			25.0	24.5		ug/L		98	70 - 130		
Tert-amyl-methyl ether (TAME)			25.0	23.7		ug/L		95	57 - 139		
tert-Butyl alcohol (TBA)			125	127		ug/L		102	70 - 130		
Toluene			25.0	24.1		ug/L		96	70 - 130		
1,2-Dibromoethane (EDB)			25.0	24.1		ug/L		96	70 - 130		
1,2-Dichloroethane			25.0	21.9		ug/L		88	57 - 138		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*76 - 132*
Toluene-d8 (Surr)	*105*		*80 - 128*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63502-B-1 MS
Matrix: Water
Analysis Batch: 148621

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	23.4		ug/L		94	66 - 130
Ethanol	ND		250	266		ug/L		106	54 - 150
Ethylbenzene	ND		25.0	24.4		ug/L		98	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.4		ug/L		97	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	25.4		ug/L		102	64 - 138
m,p-Xylene	ND		50.0	48.2		ug/L		96	70 - 133
Methyl-t-Butyl Ether (MTBE)	1.4		25.0	25.3		ug/L		95	70 - 130
o-Xylene	ND		25.0	24.4		ug/L		98	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	24.4		ug/L		98	68 - 133
tert-Butyl alcohol (TBA)	ND		125	126		ug/L		101	70 - 130
Toluene	ND		25.0	24.0		ug/L		96	70 - 130
1,2-Dibromoethane (EDB)	ND		25.0	24.6		ug/L		98	70 - 131
1,2-Dichloroethane	ND		25.0	21.8		ug/L		87	56 - 146

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*76 - 132*
Toluene-d8 (Surr)	*105*		*80 - 128*

Lab Sample ID: 440-63502-B-1 MSD
Matrix: Water
Analysis Batch: 148621

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		25.0	24.0		ug/L		96	66 - 130	3	20
Ethanol	ND		250	271		ug/L		108	54 - 150	2	30
Ethylbenzene	ND		25.0	25.0		ug/L		100	70 - 130	2	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.6		ug/L		98	70 - 130	1	25
Isopropyl Ether (DIPE)	ND		25.0	25.7		ug/L		103	64 - 138	1	25
m,p-Xylene	ND		50.0	49.2		ug/L		98	70 - 133	2	25
Methyl-t-Butyl Ether (MTBE)	1.4		25.0	25.5		ug/L		96	70 - 130	1	25
o-Xylene	ND		25.0	24.7		ug/L		99	70 - 133	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	24.9		ug/L		100	68 - 133	2	30
tert-Butyl alcohol (TBA)	ND		125	129		ug/L		103	70 - 130	2	25
Toluene	ND		25.0	24.8		ug/L		99	70 - 130	3	20
1,2-Dibromoethane (EDB)	ND		25.0	24.9		ug/L		99	70 - 131	1	25
1,2-Dichloroethane	ND		25.0	22.0		ug/L		88	56 - 146	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*76 - 132*
Toluene-d8 (Surr)	*105*		*80 - 128*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-147719/28
Matrix: Solid
Analysis Batch: 147719

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40		mg/Kg			11/30/13 00:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*		*11/30/13 00:06*	*1*

Lab Sample ID: LCS 440-147719/26
Matrix: Solid
Analysis Batch: 147719

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			1.60	1.58		mg/Kg		99	70 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: LCSD 440-147719/27
Matrix: Solid
Analysis Batch: 147719

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)			1.60	1.63		mg/Kg		102	70 - 135	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: 440-63498-A-2 MS
Matrix: Solid
Analysis Batch: 147719

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		1.60	1.20		mg/Kg		75	60 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*80*		*65 - 140*

Lab Sample ID: 440-63498-A-2 MSD
Matrix: Solid
Analysis Batch: 147719

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		1.55	1.20		mg/Kg		77	60 - 140	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*80*		*65 - 140*

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 440-147884/4
Matrix: Solid
Analysis Batch: 147884

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40		mg/Kg			12/02/13 14:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*65 - 140*		*12/02/13 14:40*	*1*

Lab Sample ID: LCS 440-147884/2
Matrix: Solid
Analysis Batch: 147884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			1.60	1.44		mg/Kg		90	70 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: LCSD 440-147884/3
Matrix: Solid
Analysis Batch: 147884

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)			1.60	1.47		mg/Kg		92	70 - 135	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: 440-63065-B-2 MS
Matrix: Solid
Analysis Batch: 147884

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	2.0		1.58	2.70	LN	mg/Kg		44	60 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: 440-63065-B-2 MSD
Matrix: Solid
Analysis Batch: 147884

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	2.0		1.55	2.46	LN	mg/Kg		29	60 - 140	9	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*65 - 140*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Lab Sample ID: MB 440-148184/3
Matrix: Water
Analysis Batch: 148184

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			12/03/13 13:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*65 - 140*		*12/03/13 13:12*	*1*

Lab Sample ID: LCS 440-148184/2
Matrix: Water
Analysis Batch: 148184

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	750		ug/L		94	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*

Lab Sample ID: 440-62868-C-5 MS
Matrix: Water
Analysis Batch: 148184

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	15000		80000	85700		ug/L		89	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*65 - 140*

Lab Sample ID: 440-62868-C-5 MSD
Matrix: Water
Analysis Batch: 148184

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	15000		80000	84600		ug/L		88	65 - 140	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*65 - 140*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 440-147994/1-A ^5
Matrix: Solid
Analysis Batch: 148414

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 147994

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		2.0		mg/Kg		12/02/13 15:16	12/03/13 19:51	5

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 440-147994/2-A ^5
Matrix: Solid
Analysis Batch: 148414

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 147994

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			49.5	49.3		mg/Kg		100	80 - 120		

Lab Sample ID: 440-63469-1 MS
Matrix: Solid
Analysis Batch: 148414

Client Sample ID: Soil 1
Prep Type: Total/NA
Prep Batch: 147994

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead	6.4		49.8	52.0		mg/Kg		92	75 - 125		

Lab Sample ID: 440-63469-1 MSD
Matrix: Solid
Analysis Batch: 148414

Client Sample ID: Soil 1
Prep Type: Total/NA
Prep Batch: 147994

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	6.4		49.8	52.5		mg/Kg		93	75 - 125	1	20

GC/MS VOA

Analysis Batch: 148621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63469-5	Drum Water	Total/NA	Water	8260B/5030B	
440-63502-B-1 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-63502-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-148621/5	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-148621/4	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 148700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63351-A-1 MS	Matrix Spike	Total/NA	Solid	8260B	
440-63351-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
440-63469-1	Soil 1	Total/NA	Solid	8260B	
440-63469-2	Soil 2	Total/NA	Solid	8260B	
440-63469-3	Soil 3	Total/NA	Solid	8260B	
440-63469-4	Soil 4	Total/NA	Solid	8260B	
LCS 440-148700/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-148700/3	Method Blank	Total/NA	Solid	8260B	

GC VOA

Analysis Batch: 147719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63469-1	Soil 1	Total/NA	Solid	8015B	
440-63469-2	Soil 2	Total/NA	Solid	8015B	
440-63469-3	Soil 3	Total/NA	Solid	8015B	
440-63498-A-2 MS	Matrix Spike	Total/NA	Solid	8015B	
440-63498-A-2 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
LCS 440-147719/26	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-147719/27	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-147719/28	Method Blank	Total/NA	Solid	8015B	

Analysis Batch: 147884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63065-B-2 MS	Matrix Spike	Total/NA	Solid	8015B	
440-63065-B-2 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
440-63469-4	Soil 4	Total/NA	Solid	8015B	
LCS 440-147884/2	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-147884/3	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-147884/4	Method Blank	Total/NA	Solid	8015B	

Analysis Batch: 148184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-62868-C-5 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-62868-C-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
440-63469-5	Drum Water	Total/NA	Water	8015B/5030B	
LCS 440-148184/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-148184/3	Method Blank	Total/NA	Water	8015B/5030B	

Metals

Prep Batch: 147994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63469-1	Soil 1	Total/NA	Solid	3050B	
440-63469-1 MS	Soil 1	Total/NA	Solid	3050B	
440-63469-1 MSD	Soil 1	Total/NA	Solid	3050B	
440-63469-2	Soil 2	Total/NA	Solid	3050B	
440-63469-3	Soil 3	Total/NA	Solid	3050B	
440-63469-4	Soil 4	Total/NA	Solid	3050B	
LCS 440-147994/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
MB 440-147994/1-A ^5	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 148414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63469-1	Soil 1	Total/NA	Solid	6010B	147994
440-63469-1 MS	Soil 1	Total/NA	Solid	6010B	147994
440-63469-1 MSD	Soil 1	Total/NA	Solid	6010B	147994
440-63469-2	Soil 2	Total/NA	Solid	6010B	147994
440-63469-3	Soil 3	Total/NA	Solid	6010B	147994
440-63469-4	Soil 4	Total/NA	Solid	6010B	147994
LCS 440-147994/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	147994
MB 440-147994/1-A ^5	Method Blank	Total/NA	Solid	6010B	147994

Qualifiers

GC VOA

Qualifier	Qualifier Description
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-63469-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-14
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-14
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

Laboratory Management Program LaMP Chain of Custody Record

Page ____ of ____

BP Site Node Path: 08-88-602 | Req Due Date (mm/dd/yy): ____ | Rush TAT: Yes ____ No ____

BP Facility No: 402 | Lab Work Order Number: ____

Lab Name: Test America	Facility Address: 1450 Fruitvale Avenue	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Derian Avenue Suite #100, Irvine, CA 92641	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: 08-88-602
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacville, CA 95688
Lab Phone: 949-261-1022	California Global ID No.: T06019734265	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 1103-6633-7	Enfos Proposal No: 0064Q-0003	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision x OOC-BU ____ OOC-RM ____	Email EDD To: ktidwell@broadbentinc.com and to lab enfosdoc@bp.com
Other Info:	Stage: Execute (60) Activity: Project Spend (81)	Invoice To: BP x Contractor ____

BP Project Manager (PM): Chuck Carmel

BP PM Phone: 925-275-3804

BP PM Email: chuck.carmel@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Container	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: GRO by 8015M	BTEX/5 FO & EDB by 8260	1,2-DCA & Ethanol by 8260	Total Lead	Report Type & QC Level: Comments
	Soil 1	11/22/13	1415	X				1						X	X	X	X	
	Soil 2		1420	X				1						X	X	X	X	
	Soil 3		1425	X				1						X	X	X	X	
	Soil 4		1430	X				1						X	X	X	X	
	DRUM WATER	—	1435		X			6						X	X	X		
	~~BP~~ 402-11252013	—	—															ON HOLD
														MS 11/26/13				
															12:50			

Standard x

Full Data Package ____

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Sampler's Name: Kristene Tidwell / James Ramos	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent and Associates	[signature] / BROADBENT	11/25/13	1700			
Shipment Method: Fed Ex Ship Date: 11/25/13						
Shipment Tracking No:				[signature]	11/26/13	0730

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: (Yes) / No | Temp Blank: Yes (No) | Cooler Temp on Receipt: 2.8/1.4 °F/C | Trip Blank: (Yes) / No | MS/MSD Sample Submitted: Yes (No)

FR-63

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-63469-1

Login Number: 63469

List Source: TestAmerica Irvine

List Number: 1

Creator: Kim, Guerry

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-64131-1
Client Project/Site: ARCO 0402, Oakland

For:
Broadbent & Associates, Inc.
875 Cotting Lane
Suite G
Vacaville, California 95688

Attn: Kristene Tidwell

Authorized for release by:
12/17/2013 2:15:36 PM

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

Table of Contents

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-64131-1	MW-4	Water	12/02/13 09:15	12/04/13 09:40
440-64131-2	MW-5	Water	12/02/13 09:55	12/04/13 09:40
440-64131-3	MW-6	Water	12/02/13 10:25	12/04/13 09:40
440-64131-4	MW-7	Water	12/02/13 08:45	12/04/13 09:40

Job ID: 440-64131-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-64131-1

Comments
No additional comments.

Receipt
The samples were received on 12/4/2013 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 3.7º C.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client Sample ID: MW-4

Lab Sample ID: 440-64131-1

Date Collected: 12/02/13 09:15

Matrix: Water

Date Received: 12/04/13 09:40

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**38**		0.50		ug/L			12/11/13 09:54	1
Ethylbenzene	**57**		0.50		ug/L			12/11/13 09:54	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			12/11/13 09:54	1
Isopropyl Ether (DIPE)	**1.7**		0.50		ug/L			12/11/13 09:54	1
m,p-Xylene	**14**		1.0		ug/L			12/11/13 09:54	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			12/11/13 09:54	1
o-Xylene	**0.66**		0.50		ug/L			12/11/13 09:54	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			12/11/13 09:54	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			12/11/13 09:54	1
Toluene	**0.71**		0.50		ug/L			12/11/13 09:54	1
Xylenes, Total	**15**		1.0		ug/L			12/11/13 09:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*12/11/13 09:54*	*1*
Dibromofluoromethane (Surr)	*92*		*76 - 132*		*12/11/13 09:54*	*1*
Toluene-d8 (Surr)	*105*		*80 - 128*		*12/11/13 09:54*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**810**		50		ug/L			12/06/13 17:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*65 - 140*		*12/06/13 17:53*	*1*

Client Sample ID: MW-5

Lab Sample ID: 440-64131-2

Date Collected: 12/02/13 09:55

Matrix: Water

Date Received: 12/04/13 09:40

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			12/11/13 10:22	1
Ethylbenzene	ND		0.50		ug/L			12/11/13 10:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			12/11/13 10:22	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			12/11/13 10:22	1
m,p-Xylene	ND		1.0		ug/L			12/11/13 10:22	1
Methyl-t-Butyl Ether (MTBE)	**0.69**		0.50		ug/L			12/11/13 10:22	1
o-Xylene	ND		0.50		ug/L			12/11/13 10:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			12/11/13 10:22	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			12/11/13 10:22	1
Toluene	ND		0.50		ug/L			12/11/13 10:22	1
Xylenes, Total	ND		1.0		ug/L			12/11/13 10:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*12/11/13 10:22*	*1*
Dibromofluoromethane (Surr)	*93*		*76 - 132*		*12/11/13 10:22*	*1*
Toluene-d8 (Surr)	*107*		*80 - 128*		*12/11/13 10:22*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			12/06/13 18:23	1

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

Client Sample ID: MW-5

Lab Sample ID: 440-64131-2

Date Collected: 12/02/13 09:55

Matrix: Water

Date Received: 12/04/13 09:40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*		*12/06/13 18:23*	*1*

Client Sample ID: MW-6

Lab Sample ID: 440-64131-3

Date Collected: 12/02/13 10:25

Matrix: Water

Date Received: 12/04/13 09:40

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	ug/L			12/11/13 13:42	1
Ethylbenzene	ND		0.50	ug/L			12/11/13 13:42	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/11/13 13:42	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/11/13 13:42	1
m,p-Xylene	ND		1.0	ug/L			12/11/13 13:42	1
Methyl-t-Butyl Ether (MTBE)	**10**		0.50	ug/L			12/11/13 13:42	1
o-Xylene	ND		0.50	ug/L			12/11/13 13:42	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/11/13 13:42	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/11/13 13:42	1
Toluene	ND		0.50	ug/L			12/11/13 13:42	1
Xylenes, Total	ND		1.0	ug/L			12/11/13 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*12/11/13 13:42*	*1*
Dibromofluoromethane (Surr)	*95*		*76 - 132*		*12/11/13 13:42*	*1*
Toluene-d8 (Surr)	*107*		*80 - 128*		*12/11/13 13:42*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50	ug/L			12/06/13 18:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*97*		*65 - 140*		*12/06/13 18:53*	*1*

Client Sample ID: MW-7

Lab Sample ID: 440-64131-4

Date Collected: 12/02/13 08:45

Matrix: Water

Date Received: 12/04/13 09:40

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	ug/L			12/11/13 14:11	1
Ethylbenzene	**1.5**		0.50	ug/L			12/11/13 14:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/11/13 14:11	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/11/13 14:11	1
m,p-Xylene	ND		1.0	ug/L			12/11/13 14:11	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			12/11/13 14:11	1
o-Xylene	ND		0.50	ug/L			12/11/13 14:11	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/11/13 14:11	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/11/13 14:11	1
Toluene	ND		0.50	ug/L			12/11/13 14:11	1
Xylenes, Total	ND		1.0	ug/L			12/11/13 14:11	1

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

Client Sample ID: MW-7
Date Collected: 12/02/13 08:45
Date Received: 12/04/13 09:40

Lab Sample ID: 440-64131-4
Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*12/11/13 14:11*	*1*
Dibromofluoromethane (Surr)	*94*		*76 - 132*		*12/11/13 14:11*	*1*
Toluene-d8 (Surr)	*107*		*80 - 128*		*12/11/13 14:11*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	96		50	ug/L			12/06/13 19:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*65 - 140*		*12/06/13 19:22*	*1*

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

Method	Method Description	Protocol	Laboratory
8260B/5030B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B/5030B	Gasoline Range Organics (GC)	SW846	TAL IRV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

Client Sample ID: MW-4

Lab Sample ID: 440-64131-1

Date Collected: 12/02/13 09:15

Matrix: Water

Date Received: 12/04/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	149857	12/11/13 09:54	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	149155	12/06/13 17:53	IM	TAL IRV

Client Sample ID: MW-5

Lab Sample ID: 440-64131-2

Date Collected: 12/02/13 09:55

Matrix: Water

Date Received: 12/04/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	149857	12/11/13 10:22	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	149155	12/06/13 18:23	IM	TAL IRV

Client Sample ID: MW-6

Lab Sample ID: 440-64131-3

Date Collected: 12/02/13 10:25

Matrix: Water

Date Received: 12/04/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	149857	12/11/13 13:42	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	149155	12/06/13 18:53	IM	TAL IRV

Client Sample ID: MW-7

Lab Sample ID: 440-64131-4

Date Collected: 12/02/13 08:45

Matrix: Water

Date Received: 12/04/13 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	149857	12/11/13 14:11	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	149155	12/06/13 19:22	IM	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-149857/3
Matrix: Water
Analysis Batch: 149857

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			12/11/13 08:48	1
Ethylbenzene	ND		0.50		ug/L			12/11/13 08:48	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			12/11/13 08:48	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			12/11/13 08:48	1
m,p-Xylene	ND		1.0		ug/L			12/11/13 08:48	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			12/11/13 08:48	1
o-Xylene	ND		0.50		ug/L			12/11/13 08:48	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			12/11/13 08:48	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			12/11/13 08:48	1
Toluene	ND		0.50		ug/L			12/11/13 08:48	1
Xylenes, Total	ND		1.0		ug/L			12/11/13 08:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*12/11/13 08:48*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 132*		*12/11/13 08:48*	*1*
Toluene-d8 (Surr)	*106*		*80 - 128*		*12/11/13 08:48*	*1*

Lab Sample ID: LCS 440-149857/4
Matrix: Water
Analysis Batch: 149857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane (EDB)			25.0	26.4		ug/L		105	70 - 130		
1,2-Dichloroethane			25.0	25.4		ug/L		101	57 - 138		
Benzene			25.0	22.2		ug/L		89	68 - 130		
Ethanol			250	231		ug/L		92	50 - 149		
Ethylbenzene			25.0	25.1		ug/L		101	70 - 130		
Ethyl-t-butyl ether (ETBE)			25.0	21.8		ug/L		87	60 - 136		
Isopropyl Ether (DIPE)			25.0	21.4		ug/L		86	58 - 139		
m,p-Xylene			50.0	47.2		ug/L		94	70 - 130		
Methyl-t-Butyl Ether (MTBE)			25.0	23.2		ug/L		93	63 - 131		
o-Xylene			25.0	23.6		ug/L		94	70 - 130		
Tert-amyl-methyl ether (TAME)			25.0	23.1		ug/L		92	57 - 139		
tert-Butyl alcohol (TBA)			125	131		ug/L		105	70 - 130		
Toluene			25.0	23.6		ug/L		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*76 - 132*
Toluene-d8 (Surr)	*108*		*80 - 128*

Lab Sample ID: 440-64464-D-31 MS
Matrix: Water
Analysis Batch: 149857

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane (EDB)	ND		25.0	25.7		ug/L		103	70 - 131		

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-64464-D-31 MS
Matrix: Water
Analysis Batch: 149857

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	ND		25.0	25.4		ug/L		101	56 - 146
Benzene	ND		25.0	23.5		ug/L		94	66 - 130
Ethanol	ND		250	253		ug/L		101	54 - 150
Ethylbenzene	ND		25.0	25.6		ug/L		103	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	22.6		ug/L		90	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	22.4		ug/L		90	64 - 138
m,p-Xylene	ND		50.0	47.9		ug/L		96	70 - 133
Methyl-t-Butyl Ether (MTBE)	2.9		25.0	27.2		ug/L		97	70 - 130
o-Xylene	ND		25.0	23.5		ug/L		94	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	23.6		ug/L		95	68 - 133
tert-Butyl alcohol (TBA)	ND		125	147		ug/L		117	70 - 130
Toluene	ND		25.0	24.4		ug/L		98	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*76 - 132*
Toluene-d8 (Surr)	*107*		*80 - 128*

Lab Sample ID: 440-64464-D-31 MSD
Matrix: Water
Analysis Batch: 149857

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	24.5		ug/L		98	70 - 131	5	25
1,2-Dichloroethane	ND		25.0	24.9		ug/L		100	56 - 146	2	20
Benzene	ND		25.0	23.0		ug/L		92	66 - 130	2	20
Ethanol	ND		250	247		ug/L		99	54 - 150	2	30
Ethylbenzene	ND		25.0	24.5		ug/L		98	70 - 130	4	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	22.5		ug/L		90	70 - 130	0	25
Isopropyl Ether (DIPE)	ND		25.0	22.4		ug/L		89	64 - 138	0	25
m,p-Xylene	ND		50.0	46.3		ug/L		93	70 - 133	3	25
Methyl-t-Butyl Ether (MTBE)	2.9		25.0	26.6		ug/L		95	70 - 130	2	25
o-Xylene	ND		25.0	23.2		ug/L		93	70 - 133	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	23.3		ug/L		93	68 - 133	1	30
tert-Butyl alcohol (TBA)	ND		125	141		ug/L		113	70 - 130	4	25
Toluene	ND		25.0	23.6		ug/L		94	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*76 - 132*
Toluene-d8 (Surr)	*106*		*80 - 128*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Lab Sample ID: MB 440-149155/3
Matrix: Water
Analysis Batch: 149155

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			12/06/13 16:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*65 - 140*		*12/06/13 16:46*	*1*

Lab Sample ID: LCS 440-149155/2
Matrix: Water
Analysis Batch: 149155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	859		ug/L		107	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*65 - 140*

Lab Sample ID: 440-64287-A-3 MS
Matrix: Water
Analysis Batch: 149155

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		800	789		ug/L		99	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*65 - 140*

Lab Sample ID: 440-64287-A-3 MSD
Matrix: Water
Analysis Batch: 149155

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	712		ug/L		89	65 - 140	10	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*65 - 140*

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

GC/MS VOA

Analysis Batch: 149857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-64131-1	MW-4	Total/NA	Water	8260B/5030B	
440-64131-2	MW-5	Total/NA	Water	8260B/5030B	
440-64131-3	MW-6	Total/NA	Water	8260B/5030B	
440-64131-4	MW-7	Total/NA	Water	8260B/5030B	
440-64464-D-31 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-64464-D-31 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-149857/4	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-149857/3	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 149155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-64131-1	MW-4	Total/NA	Water	8015B/5030B	
440-64131-2	MW-5	Total/NA	Water	8015B/5030B	
440-64131-3	MW-6	Total/NA	Water	8015B/5030B	
440-64131-4	MW-7	Total/NA	Water	8015B/5030B	
440-64287-A-3 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-64287-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
LCS 440-149155/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-149155/3	Method Blank	Total/NA	Water	8015B/5030B	

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 0402, Oakland

TestAmerica Job ID: 440-64131-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-14
California	LA Cty Sanitation Districts	9	10256	01-31-14
California	NELAP	9	1108CA	01-31-14
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-14 *
Hawaii	State Program	9	N/A	01-31-14
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14
Northern Mariana Islands	State Program	9	MP0002	01-31-14
Oregon	NELAP	10	4005	09-12-14
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

Laboratory Management Program LaMP Chain of Custody Record

Page ____ of ____

BP Site Node Path: BP 402 | Req Due Date (mm/dd/yy): ____ | Rush TAT: Yes ___ No ___

BP Facility No: 402 | Lab Work Order Number: ____

Lab Name: Test America	Facility Address: 1450 Fruitvale Ave	Consultant/Contractor: Broadbent & Associates
Lab Address: 17461 Derian Ave, Suite 100 Irvine, CA	City, State, ZIP Code: Oakland, CA 94601	Consultant/Contractor Project No: 08-88-602
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH; SFB RWQCB	Address: 875 Cotting Lane, Suite G, Vacaville, CA
Lab Phone: 949-261-1022	California Global ID No.: T0601934265	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Accnt: 1103-6633-7	Enfos Proposal No:	Phone: 707 455 7290 Email: Ktidwell@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email EDD To: Ktidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Project Spend (60)	Invoice To: BP X Contractor ___

BP Project Manager (PM): ~~Chuck~~ Chuck Carmel

BP PM Phone: 925 - 275-3803

BP PM Email: charles.carmel@BP.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Container	Unpreserved	H2SO4	HNO3	HCl	Methanol	Requested Analyses: GRO 8015M	Requested Analyses: BTEX / 6 FO 8260
	MW-4	12/2/13	0915		X		Y	6				X		X	X
	MW-5		0955		X		Y	6				X		X	X
	MW-6		1025		X		Y	6				X		X	X
	MW-7		0845		X		Y	6				X		X	X
	TB-402-12022013	—	—		X		N	2				X			
			1240												
	L.L	12-04-13													

Report Type & QC Level: Standard X; Full Data Package ___

Comments: Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

ON HOLD

440-64131 Chain of Custody

Sampler's Name: Broadbent & Associates	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: James Ramos		12/3/13	1700	VuBanh TAI	12/4/13	9:50
Shipment Method: Fed Ex Ship Date: 12/3/13	Kevin Cook Shelton/Broadbent	12/3/13	1700			
Shipment Tracking No:						

Special Instructions: Ktidwell@broadbentinc.com TR-53 Fed. 8025 2344 1982

THIS LINE - LAB USE ONLY: Custody Seals In Place: (Yes) / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 4.2/3.7 °F/C | Trip Blank: (Yes) / No | MS/MSD Sample Submitted: Yes (No)

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-64131-1

Login Number: 64131

List Source: TestAmerica Irvine

List Number: 1

Creator: Kim, Guerry

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	