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January 31, 2014

Re: Soil and Groundwater Investigation, Updated Conceptual Site Model, First Quarter 2014
Groundwater Monitoring and Sampling Report and Case Closure Request
Atlantic Richfield Company Station #2111
1156 Davis Street, San Leandro, California
ACEH Case #RO0000494

"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:



**SOIL AND GROUNDWATER INVESTIGATION, UPDATED
CONCEPTUAL SITE MODEL, FIRST QUARTER 2014
GROUNDWATER MONITORING AND SAMPLING REPORT AND
CASE CLOSURE REQUEST**

Atlantic Richfield Company Station No.2111
1156 Davis Street
San Leandro, California

Prepared for

Mr. Chuck Carmel
Environmental Business Manager
Atlantic Richfield Company
P.O. Box 1257
San Ramon, California 94583

Prepared by



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January 31, 2014

Project No. 06-88-615



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January 31, 2014

Project No. 06-88-615

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

Attn.: Mr. Chuck Carmel

Re: **Soil and Groundwater Investigation, Updated Conceptual Site Model, First Quarter 2014 Groundwater Monitoring and Sampling Report and Case Closure Request**
Atlantic Richfield Company Station No.2111
1156 Davis Street, San Leandro, California
ACEH Case No.RO0000494

Dear Mr. Carmel:

Broadbent & Associates, Inc. (Broadbent) is pleased to submit this *Soil and Groundwater Investigation, Updated Conceptual Site Model, First Quarter 2014 Groundwater Monitoring and Sampling Report and Case Closure Request* for Atlantic Richfield Company Station No.2111 located at 1156 Davis Street, San Leandro, California (Site). This document was prepared to document the recently conducted field work intended to evaluate the downgradient extent of petroleum hydrocarbons, current onsite soil and groundwater conditions, confirm Site geology/lithology, provide an updated conceptual Site model (CSM), and document first quarter monitoring and sampling activities. Based on the data presented in the included updated CSM, case closure is also recommended in this document.

Should you have questions or require additional information, please do not hesitate to contact me at (707) 455-7290.

Sincerely,
BROADBENT & ASSOCIATES, INC.

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



Enclosures

cc: Mr. Jerry Wickham, Alameda County Environmental Health (Submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

**SOIL AND GROUNDWATER INVESTIGATION, UPDATED CONCEPTUAL SITE MODEL, FIRST
QUARTER 2014 GROUNDWATER MONITORING AND SAMPLING REPORT AND CASE CLOSURE REQUEST
Atlantic Richfield Company Station No.2111
1156 Davis Street, San Leandro, California
Fuel Leak Case No. RO0000494**

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**SOIL AND GROUNDWATER INVESTIGATION, UPDATED CONCEPTUAL SITE MODEL, FIRST
QUARTER GROUNDWATER MONITORING AND SAMPLING REPORT AND CASE CLOSURE REQUEST
Atlantic Richfield Company Station No.2111
1156 Davis Street, San Leandro, California
Fuel Leak Case No. RO0000494**

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company (ARC)- a BP affiliated company, Broadbent & Associates, Inc. (Broadbent) has prepared this *Soil and Groundwater Investigation, Updated Conceptual Site Model, First Quarter 2014 Groundwater Monitoring and Sampling Report and Case Closure Request* (Report) for the Atlantic Richfield Company (ARC) Station No. 2111, located at 1156 Davis Street, San Leandro, California (Site). This Report has been prepared in compliance with the following documents (collectively hereinafter noted as "Work Plan Documents):

- *Revised Soil & Groundwater Investigation Work Plan* dated November 6, 2012 (Broadbent, 2012)
- *Revised Soil & Groundwater Investigation Work Plan* dated February 28, 2013 (Broadbent, 2013a)
- *Addendum to the Revised Soil & Groundwater Investigation Work Plan* dated June 19, 2013 (Broadbent, 2013b).

The scope of work outlined in these Work Plans and Addendum were approved by the ACEH in a letter dated August 9, 2013 (ACEH, 2013). A copy of this letter is included in Appendix A.

2.0 BACKGROUND INFORMATION

The Site is located at 1156 Davis Street in San Leandro, California, and is an active ARCO branded gasoline station. Current improvements at the Site include two gasoline underground storage tanks (USTs) believed to have been installed in 2000, two fuel dispenser islands with a total of four double-sided dispensers, and a station building. The majority of the Site surface is paved with asphalt and concrete. The Site is bound by Preda Street to the east, Davis Street to the south, single-family residential dwellings to the north and the First Christian Church property and a preschool immediately to the west. A Site Location Map is provided as Drawing 1. A recent aerial photo showing the Site and local area development is provided as Drawing 2. A detailed Site history description is presented as Appendix B. Historic Site Data is included in Appendix C.

A Conceptual Site Model (CSM) was prepared and included in the Work Plan Addendum dated June 19, 2013. This CSM has been updated with the results of this current investigation and is included as Table 1. Additional Site background information including regional and Site geology, nearby receptors, and historical soil and groundwater data is presented in this table.

3.0 FIELD INVESTIGATION

The work described herein was carried out in order to move this Site towards closure based on the Low Threat UST Closure Policy (LTCP). Based on a review of Site data, several data gaps were initially identified in the Work Plan Documents. Specific data gaps identified were as follows:

- Downgradient characterization of petroleum compounds in first-encountered groundwater

- Evaluation of necessity of onsite vertical assessment in groundwater
- Onsite shallow soil sampling to determine the current, post-remediation, concentrations of petroleum compounds
- Assessment of the need for offsite soil vapor assessment based on the current investigation
- Additional information needed regarding presence of downgradient domestic well, as identified by Closure Solutions, Inc. (Closure Solutions) in Sensitive Receptor Survey (SRS) (Closure Solutions, 2012).

In response to the data gaps identified in CSM and the Revised Work Plans, Broadbent carried out following scope of work:

- Advanced seven CPT borings at the locations indicated in Drawing 2
- Collected soil and groundwater samples from boreholes
- Conducted additional well survey activities including a well records request from the Alameda County Public Works Agency (ACPWA)
- Conducted additional well sampling activities at well MW-3 to evaluate a potential former waste oil tank release

CPT boring were advanced to address data gaps regarding downgradient plume definition, Site lithology, and current, post-remediation concentrations of petroleum compounds in soil. Soil borings SB-3, SB-4, SB-6, SB-7, and SB-8 were advanced for downgradient plume definition. Soil boring SB-9 was advanced to collect current, post remediation soil and groundwater data, and evaluate the necessity for vertical groundwater characterization. Soil boring SB-10 was advanced to evaluate lithology near to onsite well MW-8, where some inconsistent data has been historically noted (See Table 1, CSM). Details of the CPT boring advancement and other activities conducted are presented below.

3.1 CPT Boring Advancement

Details of the CPT boring advancement are presented below.

3.1.2 Prefield Activities

Prior to conducting field activities, Broadbent notified the property owners at 1190 Davis Street of the upcoming work, where four of the borings were advanced (SB-3, SB-6, SB-7, and SB-8). An access agreement was already in place at that time from previous work. Additionally, a letter and several phone calls were made to the property owners at 1290 Davis Street to obtain access for advancing a boring in the parking lot of the property (previously noted in the Work Plan documents as SB-5). As was the case during previous attempts, the property owner was not responsive to our access requests so the remainder of the scope of work not including this boring (SB-5) was carried out.

Necessary permits including drilling permits from the Alameda County Public Works Agency (ACPWA) and an encroachment permit (for boring SB-4 located in Douglas Ct., see Drawing 2) from the City of San Leandro were secured prior to carrying out the field investigation. Copies of these permits are included in Appendix D. 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 E.

Upon completion of access, notifications, and utility clearance activities, Gregg Drilling & Testing (Gregg) mobilized to the Site on November 18, 19 and 23 to clear the boring locations to 6.5 feet below ground surface (bgs). Borings SB-9 and SB-10 were cleared on November 18, boring SB-4 on November 19, and borings SB-3, SB-6, SB-7, and SB-8 were cleared on November 23, 2013. All work for these borings were performed on Saturday, November 23, 2013 at a request of the property owner.

3.1.3 CPT Boring Activities

On November 20, 21, and 23, 2013 Gregg advanced CPT borings as described above at locations shown in Drawing 2. A Broadbent field geologist observed the soil borings advancement. All CPT borings were advanced to approximately 30 feet bgs, with the exception of source area boring SB-9, which was advanced to approximately 50 feet bgs. Soils were logged by the contractor using the CPT designated soil behavior types. These soil behavior types are based on measurements made by the CPT rig including sleeve friction, tip friction, and pore pressure. All borings were logged beginning at a depth of 6.5 feet following borehole clearance, to total depth. The CPT report including the borehole logs are included in Appendix F.

Soil samples from the capillary fringe within each boring were collected and submitted to the laboratory for chemical analysis. For each soil boring, historic encountered groundwater was evaluated to observe possible fluctuations relative to historical measurements and samples were collected at different levels within the smear zone (approximately 12 and 16 feet bgs). Additionally, shallow soil samples (3 and 7 feet bgs) were collected from boring SB-9 to evaluate current, post-remediation vadose soil concentrations of residual petroleum hydrocarbons.

Collection of one grab-groundwater sample from each boring was attempted using a hydropunch-type sampler. However, discrete-depth hydropunch-type sampling was not possible in some locations due to low-flow groundwater conditions. For borings SB-4 and SB-6, an open-hole sample was collected after the hydropunch sample did not contain water after waiting 15 minutes. In these cases, a separate hole was advanced to 28 and 25 feet bgs, respectively and temporary casing was placed in the borehole and left to sit for several hours so that water was allowed to accumulate. The same procedure was attempted for boring SB-7, but after approximately six hours of equilibration time, no water had accumulated in the borehole.

Groundwater sampling was conducted by lowering a small-diameter bailer into the CPT rods or temporary casing. Upon completion, the soil borings were abandoned by filling cement bentonite grout mix from the bottom of the borehole to the surface.

3.1.4 Soil Collection and Analysis

Soil samples were collected in stainless steel sampling sleeves for laboratory analysis and were capped with Teflon tape and plastic caps, placed on ice and submitted under chain-of-custody protocol to TestAmerica Environmental Laboratories, Inc. of Irvine, California, a State-certified environmental laboratory. Soil samples were analyzed for GRO (hydrocarbon chain lengths of C6-12) by EPA Method 8015B; benzene, toluene, ethylbenzene, and xylenes (BTEX); methyl-tert butyl ether (MTBE); tert-butyl alcohol (TBA); t-amyl methyl ether (TAME), ethyl-tert butyl ether (ETBE), di isopropyl ether (DIPE); ethylene dibromide (EDB); 1,2 dichloroethane (1,2-DCA), and Ethanol by EPA Method 8260. Select soil

samples were additionally analyzed for Naphthalene. Soil analytical results are included in Table 2. Laboratory analytical reports are presented in Appendix G.

3.1.5 Groundwater Collection and Analysis

Groundwater samples were collected in a 45 mL Volatile Organic Analysis (VOA) vial preserved with hydrochloric acid, placed on ice, and were submitted under chain-of-custody protocol to TestAmerica. Groundwater samples collected during this phase of investigation were analyzed for the following: for GRO (hydrocarbon chain lengths of C6-12) by EPA Method 8015B; BTEX, MTBE, TBA, TAME, ETBE, DIPE, EDB, 1,2-DCA, and Ethanol by EPA Method 8260. Grab-groundwater analytical results from the November 2013 investigation are presented in Table 3. Laboratory analytical reports are presented in Appendix G.

3.1.6 Investigation-Derived Waste

Investigation-derived residuals are being temporarily stored onsite in 55-gallon, DOT-approved drums, pending characterization, removal and transportation of surplus soils and liquids to appropriate California-regulated facilities.

3.2 Sensitive Receptor Survey

Results of a SRS performed by Closure Solutions (Closure Solutions, 2012) indicated potential private-use wells are located downgradient of the Site. One potential downgradient well located approximately 820 feet northwest (downgradient) of the Site. In addition to the SRS activities already conducted by Closure Solutions (which included a Department of Water Resources [DWR] records request), a well records search with ACPWA for the locations and/or uses of any wells in the vicinity of the Site was carried out. The results from Closure Solutions and the current ACPWA well search are included in Table 1 (CSM) and Appendix H.

3.3 Additional Monitoring Well Sampling

Soil samples were historically collected at the time of waste oil tank removal (see Section 2.2), and these samples were tested for a variety of analyses including volatile organic compounds (VOCs) and poly aromatic hydrocarbons (PAHs). However, the reporting limits at the time were elevated, and groundwater in the area has not been analyzed for these compounds. Data collected to date indicates that naphthalene is not present in soil above 10 ft bgs above concentrations listed in the LTCP, and little if any was ever present in groundwater due to the non-detect historic soil concentrations. However concentrations of VOCs and PAHs in groundwater have not been evaluated explicitly. Although the existing data strongly indicates that "the unauthorized release consists only of petroleum" (SWRCB, 2012), well MW-3 was sampled one time for a full list of VOCs by EPA Method 8260 and poly aromatic hydrocarbons (PAHs) by EPA Method 8270 to definitively confirm the absence of non-petroleum related compounds in groundwater. The additional sampling was carried out during regularly scheduled semi-annual groundwater monitoring activities during the first quarter on January 9, 2014. Due to sample container breakage, well MW-3 was resampled (PAHs only) on January 16, 2014. Well sampling procedures are described in Section 4.0, below.

4.0 FIRST QUARTER 2014 GROUNDWATER MONITORING AND SAMPLING EVENT

Monitoring activities at the Site were performed in accordance with an agency directive issued by ACEH, and additional sampling as described in Section 3.3. Details of work performed are provided below.

4.1 Groundwater Monitoring Activities

WORK PERFORMED THIS QUARTER (First Quarter 2014):

1. Conducted the first quarter monitoring and sampling event on January 9 and 16, 2014.
2. Prepared and submitted *Fourth Quarter 2013 Status Report* on January 24, 2014.
3. Prepared and submitted *Soil and Groundwater Investigation, Updated CSM, First Quarter 2014 Groundwater Monitoring Report, and Case Closure Request* (contained herein).

WORK SCHEDULED FOR NEXT QUARTER (Second Quarter 2014):

1. No environmental activities are scheduled at this time.

4.2 Quarterly Monitoring Plan Summary:

Groundwater level gauging:

MW-1 through MW-8 (Semi-Annually, 1Q & 3Q)

Groundwater sample collection:

MW-1 through MW-5, MW-7 and MW-8 (Semi-Annually, 1Q & 3Q)
MW-6 (Annually, 3Q)

4.3 Quarterly Results Summary:

LNAPL

LNAPL observed this quarter: No (yes\no)

LNAPL recovered this quarter: None (gal)

Cumulative LNAPL recovered: None (gal)

Groundwater Elevation and Gradient:

Depth to groundwater: 16.15 (MW-6) to 18.82 (MW-1) (ft below TOC)

Gradient direction: West-Northwest (compass direction)

Gradient magnitude: 0.006 (ft/ft)

Average change in elevation: -0.36 (ft since last measurement)

Laboratory Analytical Data

Summary:

Analytical results are as follows:

- GRO was detected in two wells with concentrations of 73 µg/L and 500 µg/L in wells MW-2 and MW-7, respectively.
- Benzene was detected in well MW-2 with a concentration of 0.58 µg/L.
- MTBE was detected in five wells with a maximum concentration of 100 µg/L in well MW-7.
- TBA was detected in two wells with concentrations of 230 µg/L and 27,000 µg/L in wells MW-2 and MW-7, respectively.

- The remaining petroleum hydrocarbon constituents were below the laboratory reporting limits, with the exception of additional analytes which are discussed below in Section 5.3.
-

4.4 Activities Conducted and Results

First quarter groundwater monitoring was conducted at the Site on January 9, 2014 by Broadbent personnel in accordance with the monitoring plan summary detailed above. No irregularities were noted during water level gauging. Depth to water measurements ranged from 16.15 ft bgs at MW-6 to 18.82 ft bgs at MW-1. Resulting groundwater surface elevations ranged from 20.58 ft above msl in well MW-5 to 21.51 ft above msl in well MW-7. Groundwater elevations are summarized in Table 4. Water level elevations yielded a potentiometric groundwater gradient to the west-northwest at approximately 0.006 ft/ft. Field methods used during groundwater monitoring are provided in Appendix I. Field data sheets are included in Appendix J. A Site Location Map is provided as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 3.

Groundwater samples were collected on January 9, 2014, consistent with the current monitoring schedule. 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, ETBE, TAME, DIPE, EDB, 1,2-DCA, TBA, and Ethanol by EPA Method 8260B. Additionally, groundwater from well MW-3 was analyzed for VOCs and PAHs. Due to sample container breakage in transport, this well was resampled on January 16, 2014 (PAHs only; see Section 3.3 above). No irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix G. Routine groundwater analytical sampling results are presented in Tables 4 and 5. A summary of historical groundwater gradient directions and magnitudes is included as Table 6.

Results of the sampling event are included in the laboratory analytical summary presented above. These results indicate that the highest overall concentrations of petroleum hydrocarbons are present in well MW-7, which is consistent with previous data. All detected hydrocarbon concentrations were within historical ranges. Further discussion of these results is presented below.

5.0 INVESTIGATION RESULTS

5.1 Lithology

CPT logs were generated for each borehole location investigated. Lithology encountered as detailed in these CPT logs were generally consistent with previous data. Clays were largely encountered in borings SB-3, SB-6, SB-7, and SB-8, and SB-10. Of the CPT borings recently advanced, only onsite boring SB-9 indicated sand and gravel. The log for this boring indicated a large sand layer present from approximately 24 to 36 feet bgs. All other lithologies noted were clay or silty clay.

Lithologic cross sections were created for the Site including the new CPT borings. A cross section location map is included as Drawing 4. The cross sections are included as Drawings 5 through 7. Similar to the discussion above, the Site subsurface is largely dominated by fine-grained clays and silts. Cross section A-A', which extends west to east through the middle of the Site, shows that clay is dominant to the west of the Site, with a sand/gravelly layer present in boring SB-9 and offsite, upgradient well MW-6.

Cross Section B-B' parallels the alley/driveway located in between the offsite church and apartment buildings. Lithology in this cross section indicates that clays and silts are dominant with only minor sand lenses present. A minor sand layer was previously noted in this area in 2003 when boring H-2 was drilled. However, the current CPT data from boring SB-3, advanced directly adjacent to former boring H-2, did not contain any sand in the entire borehole. It appears that any sand in this area, if present, is very limited in extent.

Cross section C-C' extends north to south along the western property edge. A small gravel layer is noted in boring SB-2 and well MW-2, but not noted further north in boring SB-10 and well MW-8. Cross section D-D' extends from north to south near the eastern property edge and, similar to C-C', sands/gravels are indicated in southernmost well MW-4 and boring SB-9, but is absent further south in well MW-7. Based on these observations, it appears lithology at the Site is consistent with sand channel or alluvial deposits, consisting of few large intervals of sand and gravel with minor amounts of thin, discontinuous sand lenses encased in clays and silts.

It had been noted in previous Work Plan Documents that data from well MW-8 had seemed inconsistent with other Site well data and had a different screened interval. In order to evaluate why this well may have suspect data, CPT boring SB-10 was advanced near well MW-8. As noted in the CPT log, boring SB-10 consisted entirely of clay to a total depth of 32 feet bgs. Additionally, very slow groundwater recharge was noted in this borehole. It is likely that the difference in groundwater elevation data from this well compared to the remaining Site wells is due in part to these very slow recharge conditions, and the different screen interval of this well. However, groundwater analytical data from boring SB-10 indicates that the data from MW-8 is comparable to boring SB-10. The groundwater analytical data is discussed in further detail below.

Overall, the Site lithology indicates a slow recharge and flat gradient direction. Groundwater movement is potentially occurring in the noted gravel layer in boring SB-9, but this gravelly layer/channel does not extend in the downgradient direction.

5.2 Soil Analytical Results

Soil samples were collected in each borehole location at depths of approximately 12 and 16 feet bgs. Soil samples collected at these depths were selected to evaluate soil concentrations in the capillary fringe zone. Additionally, in boring SB-9, shallower samples (3 and 7 feet bgs) were collected in order to evaluate vadose, post-remediation samples. Soil analytical data from the current CPT investigation is presented Table 2.

As indicated in Table 2, the highest residual concentrations of petroleum compounds in soil were detected in boring SB-9, which is located near the former source area, at approximately 17 feet bgs. Petroleum compounds detected included GRO at 13 milligrams per kilogram (mg/kg), ethylbenzene at 0.065 mg/kg, total xylenes at 0.0044 mg/kg, MTBE at 0.022 mg/kg, and naphthalene at 0.26 mg/kg. Additionally, TBA was detected at 0.17 mg/kg at 12.5 feet bgs in boring SB-9. In borings SB-4, SB-7, SB-8, and SB-10, no petroleum compounds were detected. In borings SB-3 and SB-6, only minor concentrations of GRO (maximum of 1.8 mg/kg) were detected in select samples, but no other constituents were detected. In boring SB-10, only TBA at 0.49 mg/kg and MTBE at a maximum concentration of 0.26 mg/kg was detected, and no other petroleum compounds (including GRO) were detected. Overall, the concentrations detected in soil samples indicate that minimal to no hydrocarbon impacts remain in soil in the capillary fringe at the Site. Additionally, no petroleum compounds were

detected in either sample collected at 3 and 7 feet bgs, indicating that current soil vadose soil conditions in the former source area have been effectively remediated by previous DPE activities and natural biodegradation processes.

5.3 Analytical Results from Grab-Groundwater and Well Samples

Groundwater samples were collected from each CPT boring advanced during the current investigation, with the exception of boring SB-7, where, as noted above, water did not accumulate in the borehole after leaving it open to approximately 26 feet bgs for a total of six hours. No petroleum compounds were detected in groundwater samples from borings SB-3, SB-4, SB-6, SB-8, and SB-9, with the exception of MTBE at a maximum concentration of 2.1 µg/L. The groundwater samples collected from boring SB-10 contained GRO at 120 µg/L, benzene at 1.3 µg/L, MTBE at 10 µg/L, and TBA at 270 µg/L. This data indicates that groundwater near the former source area (SB-9) has been effectively remediated by former DPE and natural biodegradation processes, and only minimal concentrations of residual impacts are present on the edge of the property (SB-10). These concentrations will degrade over time to non-detect. Natural biodegradation in this area is evidenced by the relatively higher concentration of TBA, indicating the MTBE is being broken down in this area. Further downgradient (borings SB-3, SB-6, SB-8, SB-4), impacts above cleanup levels are not noted, with the exception of GRO at 270 µg/L in SB-6. Historically, groundwater near SB-3 has contained higher concentrations. In 2004, boring H-2 was advanced adjacent to boring SB-3, and GRO was detected at a concentration of 260,000 µg/L. As current data indicates that almost no concentrations of petroleum compounds are present adjacent to this location in soil or groundwater (only MTBE and GRO at concentrations below cleanup levels were detected in groundwater from SB-3; see Table 3), it appears that onsite remedial activities were successful in eliminating the source for these offsite impacts, and natural attenuation has already nearly completely remediated any offsite impacts that remained after onsite remediation.

Residual impacts of GRO at boring SB-6 appear to be isolated, and likely the result of the fact that prior to remedial activities, the petroleum plume was much larger and extended somewhat offsite. This observation is supported by the data from the 2004 offsite groundwater investigation (Appendix C). Due to the fine-grain nature of soils at the Site, a small amount of residual mass is likely trapped in the soil matrix in this location. Additionally, because the nature of collecting grab-groundwater samples in clays, the concentration is likely biased higher. This bias can happen when dissolved-phase hydrocarbons adhere to soil particles present in grab-groundwater samples. These higher concentrations are even more likely if the water collected is sourced from clays, which are comprised of very fine grains. GRO is not typically detected in well MW-8, thus it appears that impacts noted in boring SB-6 are not connected to the Site plume, and are the result of a small amount of petroleum trapped in the clays in this area. No GRO was detected in downgradient boring SB-4. No benzene or MTBE above maximum contaminant levels (MCLs) were detected in boring SB-6. Based on these observations and analysis, the small residual impacts noted in boring SB-6 are not a risk for vapor intrusion to offsite properties, and do not threaten any offsite wells.

Although the concentrations of petroleum detected in boring SB-10 are higher than generally detected in adjacent well MW-8, it is likely due to often noted higher impacts in grab-groundwater samples as opposed to well samples. As noted above, the lithology in boring SB-10 is comprised entirely of clay. Well MW-8 has a similar lithology, however due to the filtration of the sand pack a cleaner sample is collected. Additionally, the concentrations noted in boring SB-10 do not indicate high residual concentrations. Therefore, data from well MW-8 is considered valid.

As noted above, the groundwater sample collected from well MW-3 during routine, first quarter 2014 groundwater monitoring and sampling activities was analyzed for additional analytes including VOCs and PAHs. No petroleum compounds were reported in this well (with the exception of one detection of naphthalene slightly above the 8270 reporting limit of 0.24 µg/L), indicating that any historical impacts from the former Waste Oil Tank, if ever existed, have completely degraded over time due to onsite DPE and natural attenuation. Details of the groundwater monitoring activities are presented in Section 4 above.

No PAHs or VOCs with the exception of tetrachloroethylene (PCE) and chloroform were detected in this groundwater sample (Table 7). The cause of these VOCs present in this groundwater is likely the result of nearby solvent plumes (Caterpillar Inc., located at 800 Davis Street; San Leandro Crossing; see Appendix K). Concentrations of PCE related to this Site have been recently reported in vicinity near the concentration detected in well MW-3. Since no other contaminant concentrations are present, PCE impacts resulting from a former waste oil tank release are less likely than the impacts being related to the upgradient solvent plume. Recent data from nearby solvent sites are included in Appendix K. A summary of detected compounds for additional sampling at well MW-3 is included as Table 7.

5.4 Sensitive Receptor Survey Results

Additional sensitive receptor survey activities included conducting a well search with the ACPWA, as indicated above. The results of this survey are included in Appendix H. A number of wells being primarily irrigation, were located within 2000 feet of the Site. These wells are primarily located to the west of this Site along or slightly to the north of near Davis Street. One domestic well was noted to the northwest (downgradient) of the Site at approximately 820 feet from the Site, similar to the results of the 2012 Closure Solutions SRS. No wells were identified within 250 feet of the edge of the Site property.

Based on the small size of the low-concentration residual plume, the wells identified during the ACWPA well survey activities are not threatened by residual petroleum associated with the Site.

5.5 Updated Conceptual Site Model

As noted above, the CSM that was initially submitted with the June 13, 2013 Work Plan Addendum has been updated to reflect the data collected during this current Site investigation. This CSM is included as Table 1.

6.0 JUSTIFICATION FOR SITE CLOSURE

The Site was evaluated for Closure based on comparing data presented in the CSM (Table 1) against the Low Threat UST Closure Policy. Closure Criteria in the Low Threat UST Closure Policy are organized into the following categories:

- General Criteria
- Media Specific Criteria-Groundwater
- Media Specific Criteria – Petroleum Vapor Intrusion to Indoor Air
- Media Specific Criteria – Direct Contact and Outdoor Air Exposure
- Additional Criteria

The following sections present the details of the evaluation.

6.1 General Criteria

The general criteria relate to the Site use, presence of free product, sources, and completeness of the Site understanding. As evidenced in the data presented in the CSM, a sufficiently good understanding of Site conditions, on- and offsite receptors, and Site history has been established. These general criteria and a discussion of how the Site is consistent with these criteria are presented below.

The unauthorized release is located within the service area of a public water system

The Site is located within the East Bay Municipal Utilities District Service Area.

The unauthorized release consists only of petroleum

The release at the Site occurred in the area of the former UST farm dispensing system. Additionally, all analytical data collected to date has shown no indication of any other contaminant releases other than petroleum (Tables 2, 3 and 7), with the exception of PCE detected in one Site well, most likely related to an upgradient solvent plume (Appendix K). The Site has been a retail service station and there is no evidence that any other activities have occurred at the Site which may have caused non-petroleum releases.

PCE and chloroform were detected in well MW-3 during the most recent well sampling, however these analytes are likely associated with nearby solvent sites (Caterpillar, San Leandro Crossing; Appendix K), where PCE concentrations similar to those detected in well MW-3 have been recently reported.

The unauthorized release has been stopped

The USTs and pipelines where the releases occurred have been removed and/or replaced, and the waste oil tank has been removed; thereby, removing the primary sources of releases (Table 1).

Free product has been removed to the extent possible

Measurable Free product has not been observed in any groundwater monitoring well since October 24, 2006, after Site remediation activities began. Therefore, LNAPL has been removed to the extent possible.

A conceptual site model that assesses the nature, extent, and mobility of the release has been developed

A CSM has been prepared and updated with recent data for this Site and is presented as Table 1.

Secondary source has been removed to the extent practical

Soils around the former UST complex, former product pipelines, and former waste oil tank has been previously overexcavated. In addition, operation of the dual phase extraction (DPE) and treatment system performed between 2007 and 2009 removed approximately 895 pounds of total hydrocarbons (as GRO) from the Site. Therefore, the secondary source has been removed to the extent practical.

Soil and groundwater have been tested for MTBE and results reported in accordance with Health and Safety Code 25296.15

Soil and groundwater samples collected have been analyzed for gasoline range organics (GRO), benzene, and methyl tert-butyl ether (MTBE). Based on recent and historical data, the MTBE plume has been fully delineated. Maximum concentration of MTBE was observed in a grab-groundwater sample collected in

March 2004 from boring H-2 at a concentration of 7,600 µg/L. However, groundwater data from current, adjacent boring SB-3 contained MTBE at 1.4 µg/L, below cleanup objectives and only slightly above reporting limits. An MTBE isoconcentration contour map for the most recent groundwater monitoring and sampling event (1Q14) is presented as Drawing 10. MTBE concentration trend graphs for wells MW-2, MW-5, MW-7, and MW-8 are included in Appendix I. These graphs show a strong decreasing trend for MTBE in all Site wells, indicating a shrinking plume.

Nuisance as defined by the Water Code section 13050 does not exist at this site

A nuisance as defined by the water code section 13050 does not exist at this Site.

6.2 Media-Specific Criteria - Groundwater

The Low Threat UST Closure Policy lists four scenarios for groundwater plumes. Recent groundwater monitoring (1Q14) and CPT investigation results (November 2013) indicates that the petroleum hydrocarbon concentrations only exceed cleanup levels in three sampling locations, well MW-7 and borings SB-6 and SB-10. Isoconcentration maps based on the current data are included in Drawings 8 through 10. These drawings show a plume length of less than 100 feet. Based on current well data, it appears that the small concentration of GRO in boring SB-6 is likely isolated, and the result of a small amount of residual dissolved mass trapped in the fine-grained clay matix in this area, and also likely biased high due to the sampling methodology and lithology (as explained in Section 5.3 above). This isolated GRO concentration does not appear connected to the onsite plume.

Free-product has not been observed at the Site since prior onsite remediation in 2006. Furthermore, the nearest water supply well and surface water are over 250 feet away, as presented in the CSM table (Table 1). The combination of these factors indicates Criteria 1 of the LTCP is met, and a very low to no threat to possible drinking or surface water from the petroleum plume at the Site.

6.3 Media Specific Criteria – Petroleum Vapor Intrusion to Indoor Air

The Site is an active service station, therefore the Low Threat UST Closure Policy considers that petroleum vapors from onsite fueling activities are a far greater risk than those associated with exposure to vapors from historic petroleum releases; therefore, this Site meets this criteria from closure according to the Low Threat UST Closure Policy. Additionally, recent groundwater analytical from samples collected offsite (borings SB-3, SB-4, SB-6, and SB-8) contain no significant petroleum compounds no offsite plume migration of volatiles above cleanup levels is occurring to non-service station locations, so the exemption applies. GRO was detected in boring SB-6 above cleanup levels, but this concentration is likely biased high and is not considered a risk for vapor intrusion to offsite building occupants.

6.4 Media Specific Criteria – Direct Contact and Outdoor Air Exposure

For the direct contact and outdoor air exposure, only current soil data was considered. One soil boring (SB-9) was advanced near the former source areas at the Site in November 2013, as described above. Soil samples were collected from two intervals above 10 ft bgs (3 and 7 ft). The soil samples had no detections above the laboratory reporting limits for benzene, ethylbenzene, MTBE, and naphthalene, indicating values listed in the Low Threat UST closure Policy a Commercial/Industrial exposure scenario are not exceeded, and there no significant risk of adversely affecting human health from any remaining compounds. Soil sample analytical results are presented in Table 2.

6.5 Recommendation for Case Closure

As presented above and in the attached CSM table (Table 1), this Site appears to meet all applicable criteria for case closure under the Low Threat Closure Policy. Over 20 years of groundwater monitoring history has shown petroleum compounds at the site has been effectively remediated by the previous DPE activities and natural attenuation. Previous high petroleum hydrocarbon concentrations in offsite locations (2004 boring H-2) are no longer present as evidenced by recently collected nearby groundwater samples (boring SB-3). Since no significant offsite impacts are present, vapor intrusion risks are not present to offsite building occupants. The closest surface water and potential offsite drinking water well is 820 feet from the Site, with locations where groundwater samples were non-detect in between the Site and the offsite well. Adequate Site characterization both on- and offsite, evaluation of receptors, historical descriptions, and technical analysis have been performed at the Site and in this document to support a recommendation for case closure. We hereby recommend that a determination of No Further Action be made for this Site. Upon concurrence of this recommendation from the ACEH, closure activities including well decommissioning should be carried out.

7.0 REFERENCES

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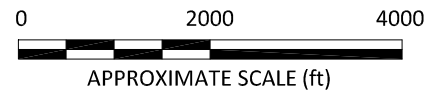
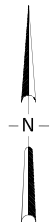
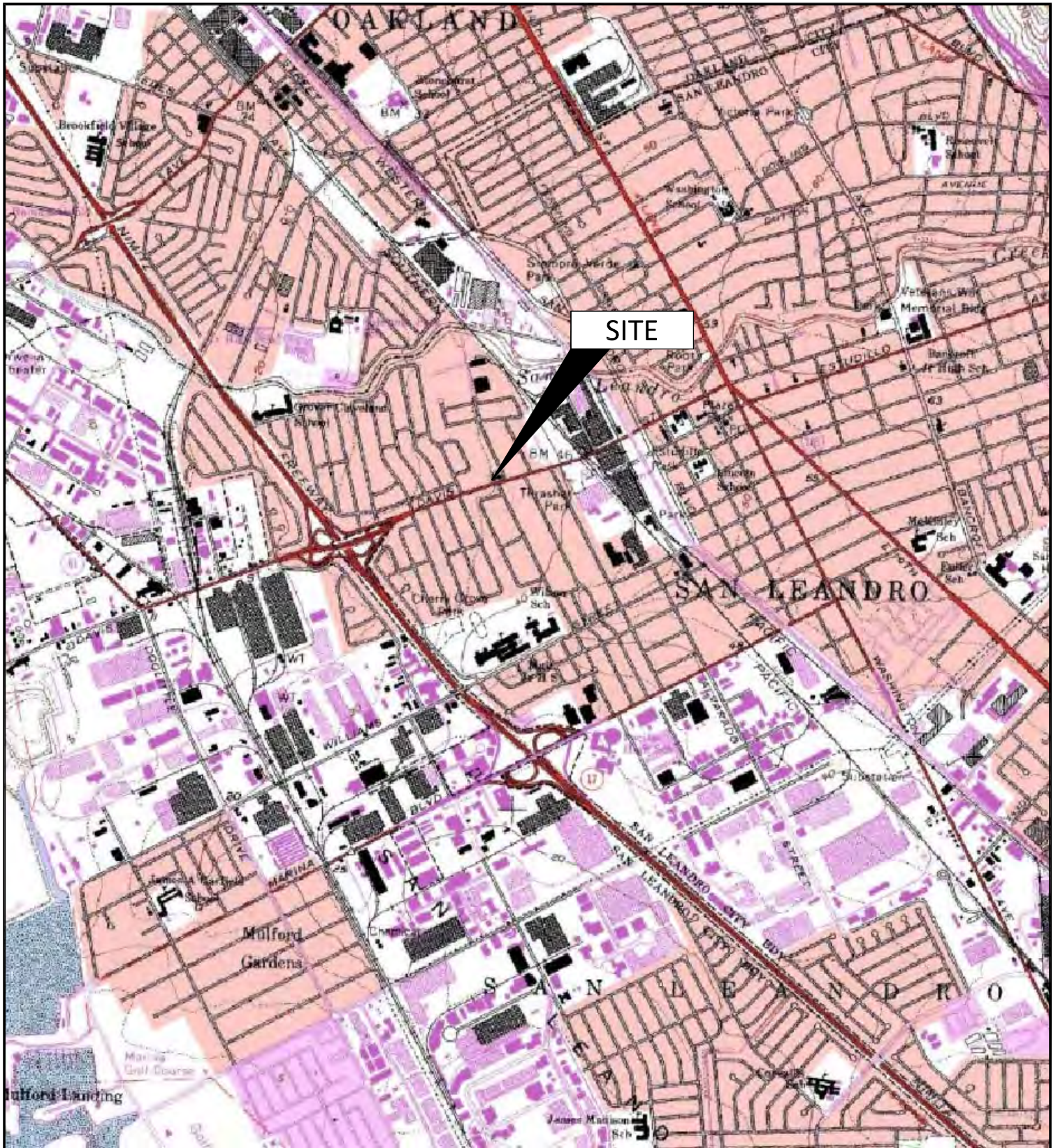


IMAGE SOURCE: USGS



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Chico, California 95926

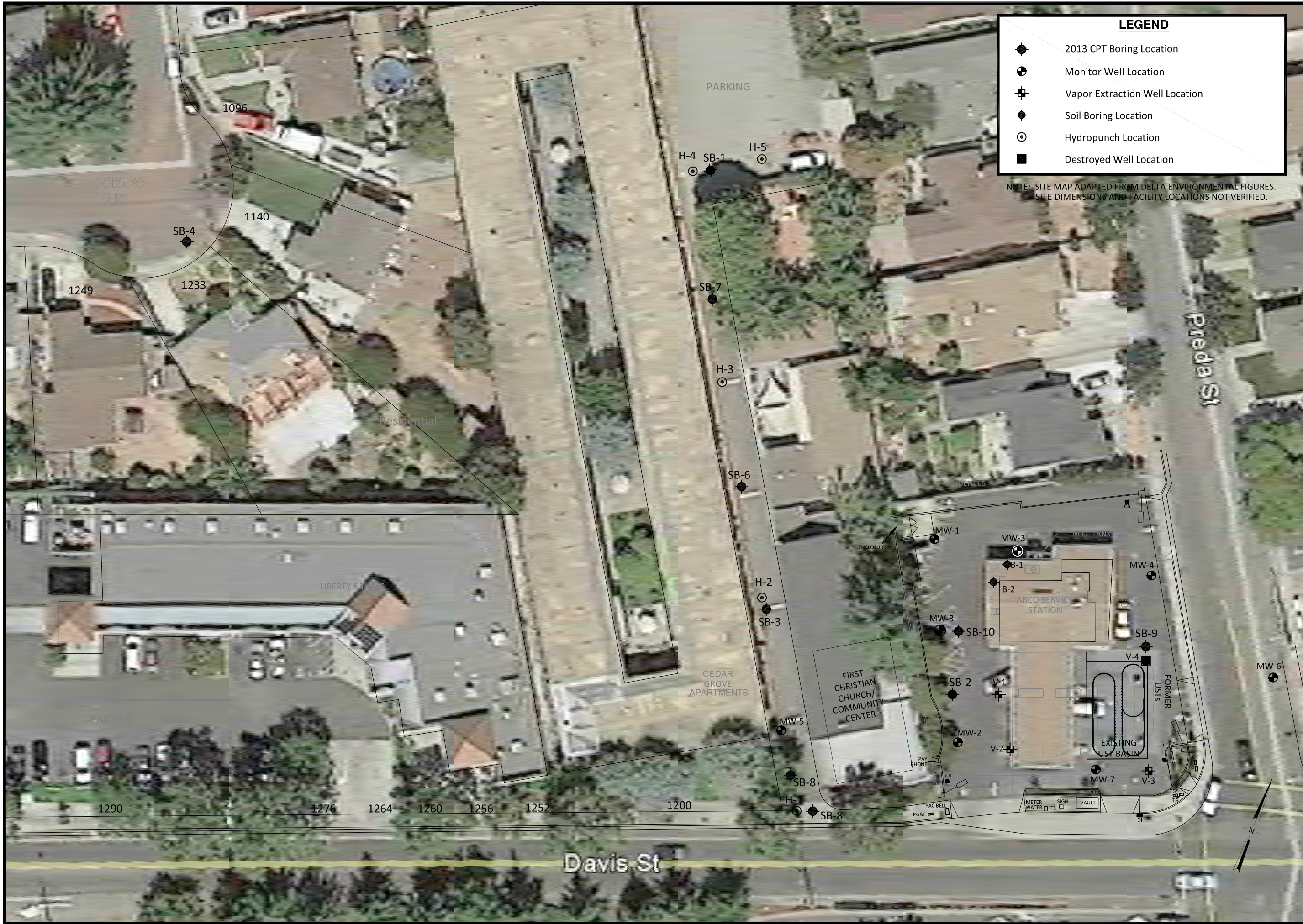
Project No.: 06-88-615 Date: 9/13/2013

Station No.2111
1156 Davis Street
San Leandro, California

Site Location Map

Drawing

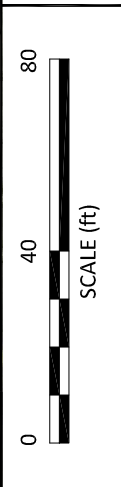
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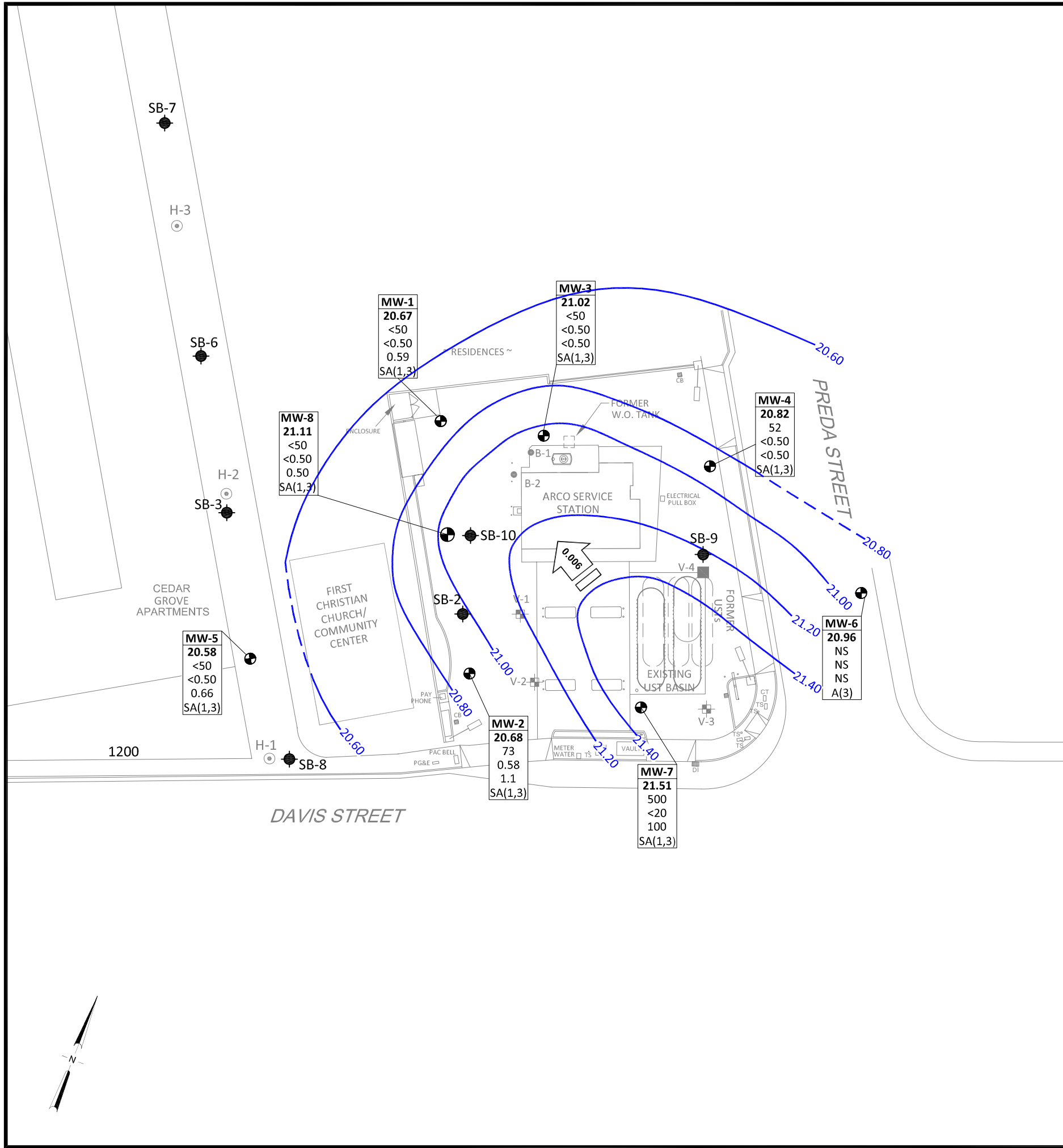


LEGEND

- 2013 CPT Boring Location
- Monitor Well Location
- Vapor Extraction Well Location
- Soil Boring Location
- Hydropunch Location
- Destroyed Well Location

NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



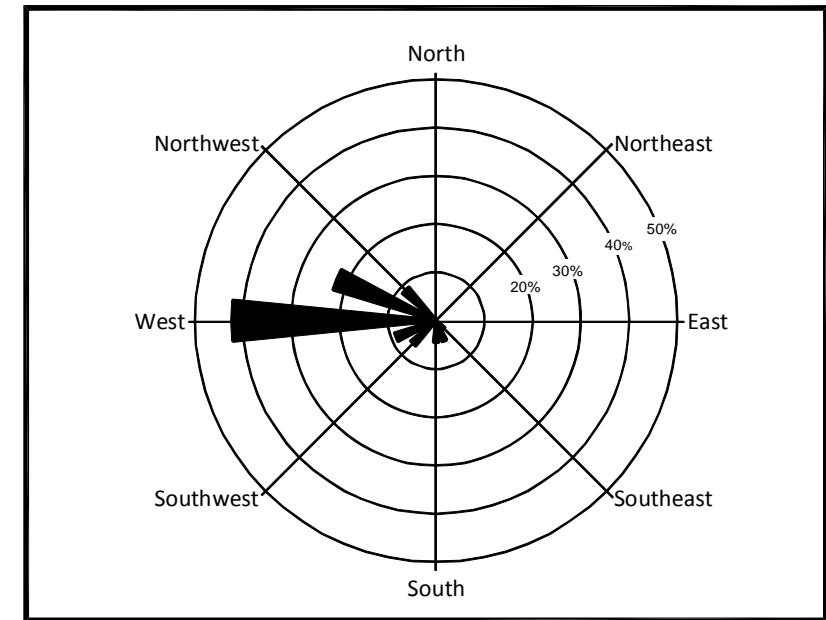


LEGEND

- 2013 CPT Boring
- Monitor Well Location
- Vapor Extraction Well Location
- Soil Boring Location
- Hydropunch Location
- Destroyed Well Location
- SA(1,3) Sampled Semi-Annually
- A(3) Sampled Annually, Third Quarter
- < Not Detected at or above Laboratory Reporting Limit
- 21.20 Groundwater Elevation Contour (ft)
- 0.006 Approximate Groundwater Gradient (ft/ft)

Well	Well Designation
ELEV	Groundwater Elevation (ft)
GRO	GRO, Benzene, and MTBE Concentrations (µg/L)
A/Q	Sampling Frequency

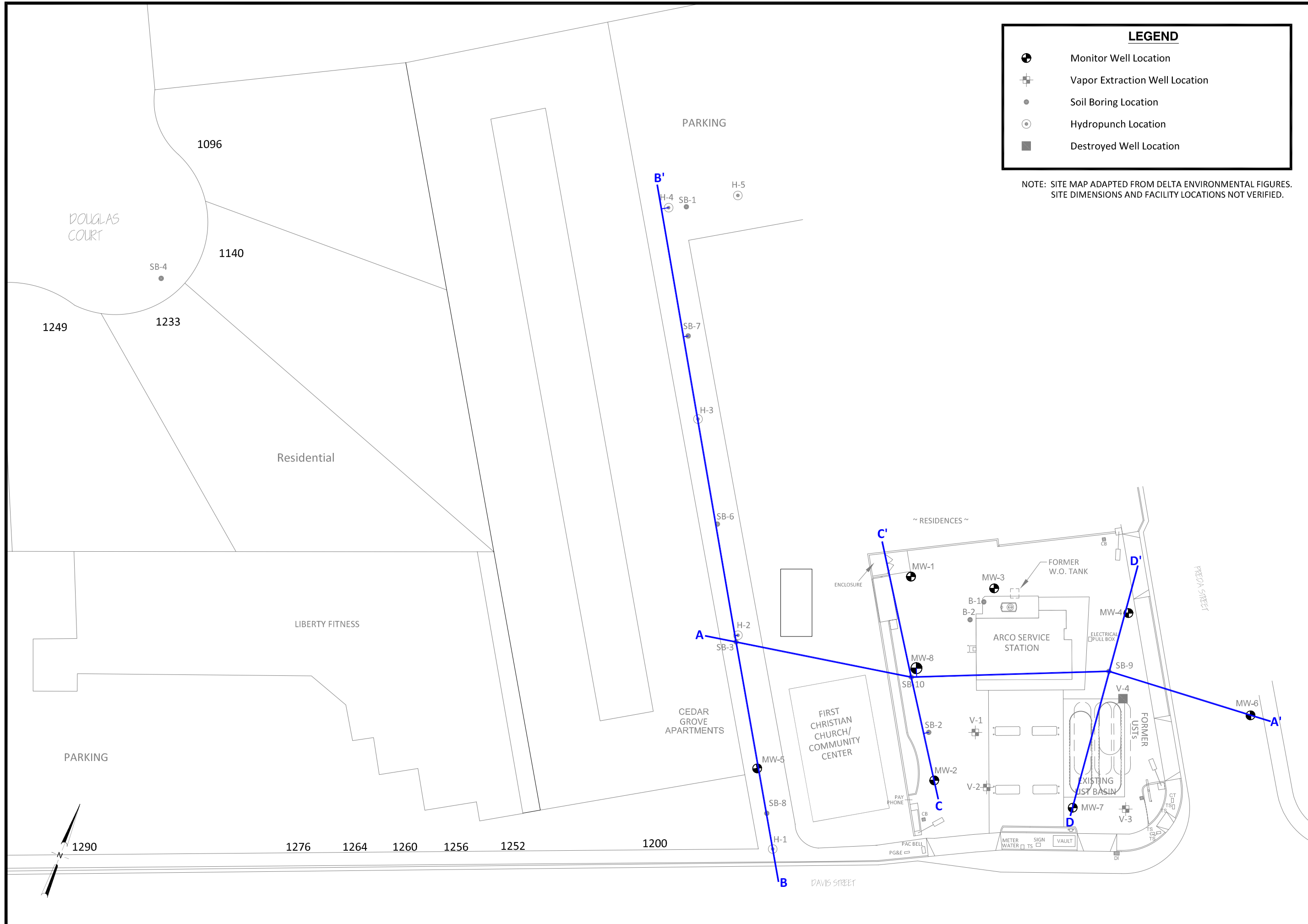
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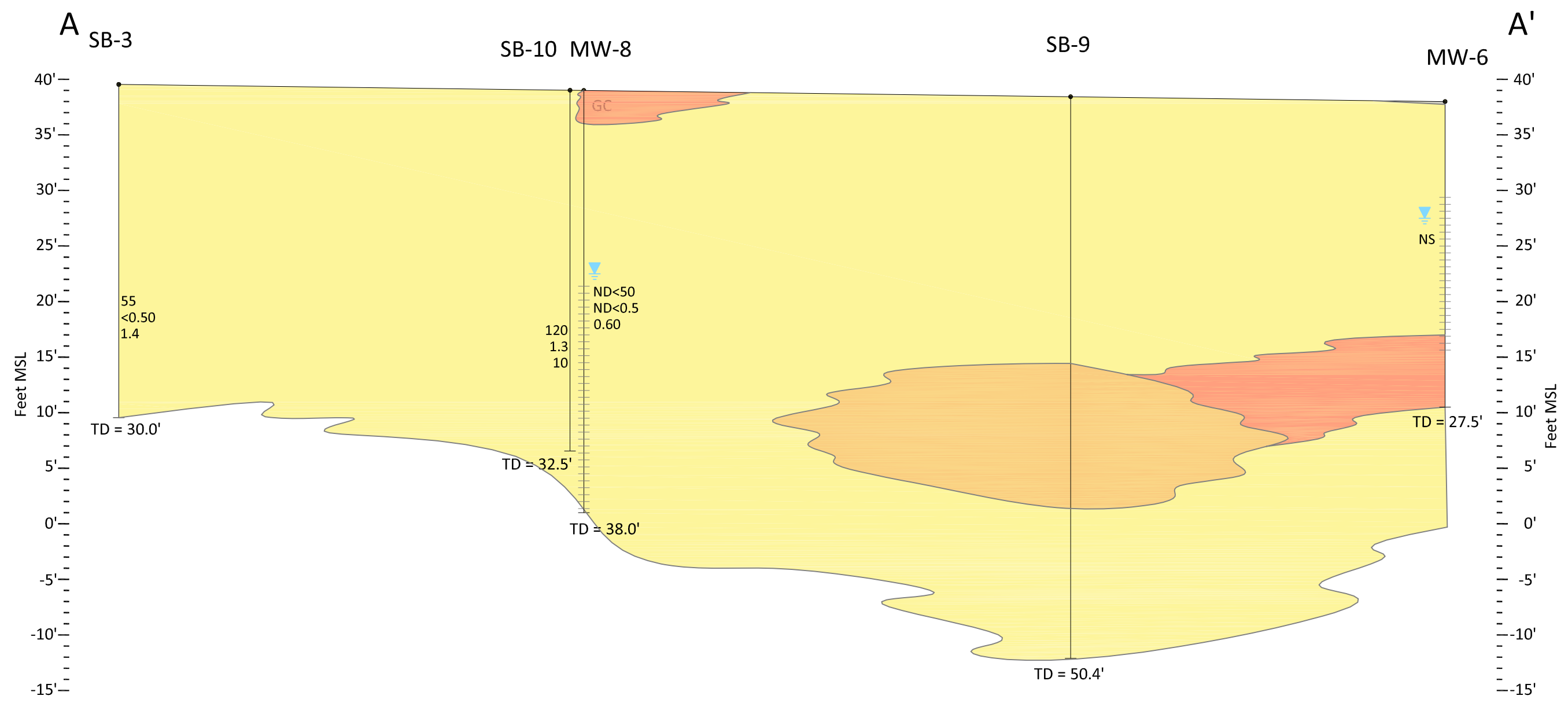


LEGEND

- Monitor Well Location
- ⊕ Vapor Extraction Well Location
- Soil Boring Location
- ⊙ Hydropunch Location
- Destroyed Well Location

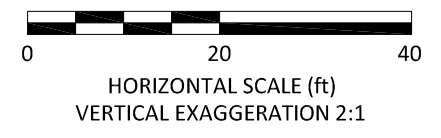
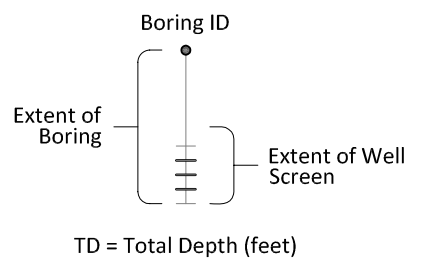
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SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

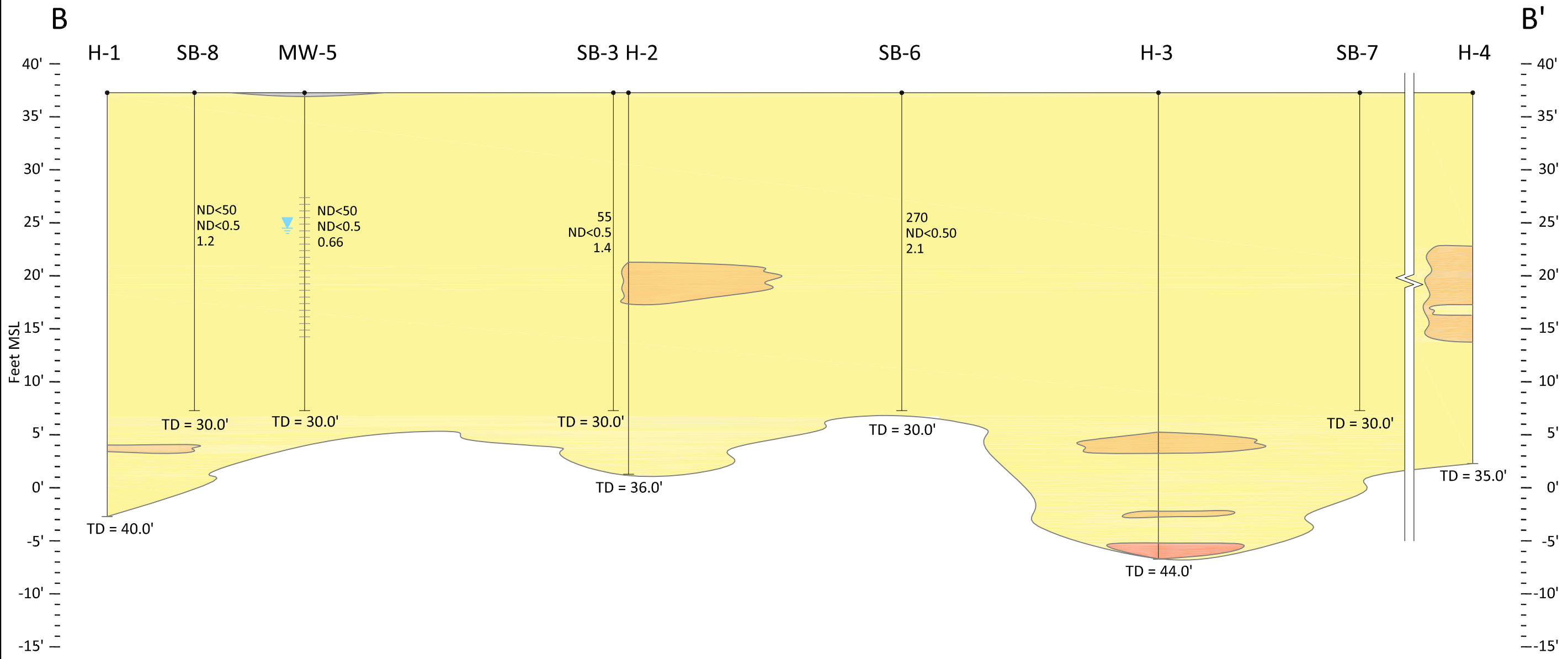




- Asphalt/Backfill
- Gravels
- Sands
- Silts/Clays
- Groundwater Elevation in ft Above MSL-1/9/14

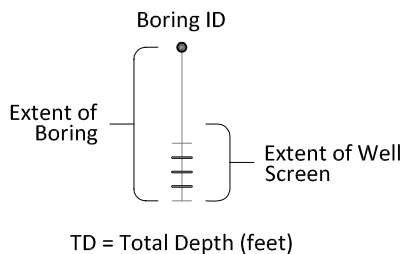
270 } GRO, Benzene, and MTBE Concentrations ($\mu\text{g/L}$)
 ND<math><0.50</math> } in Groundwater Samples-
 2.1 } November 2013 (Borings)
 January 9, 2014 (Monitoring Wells)

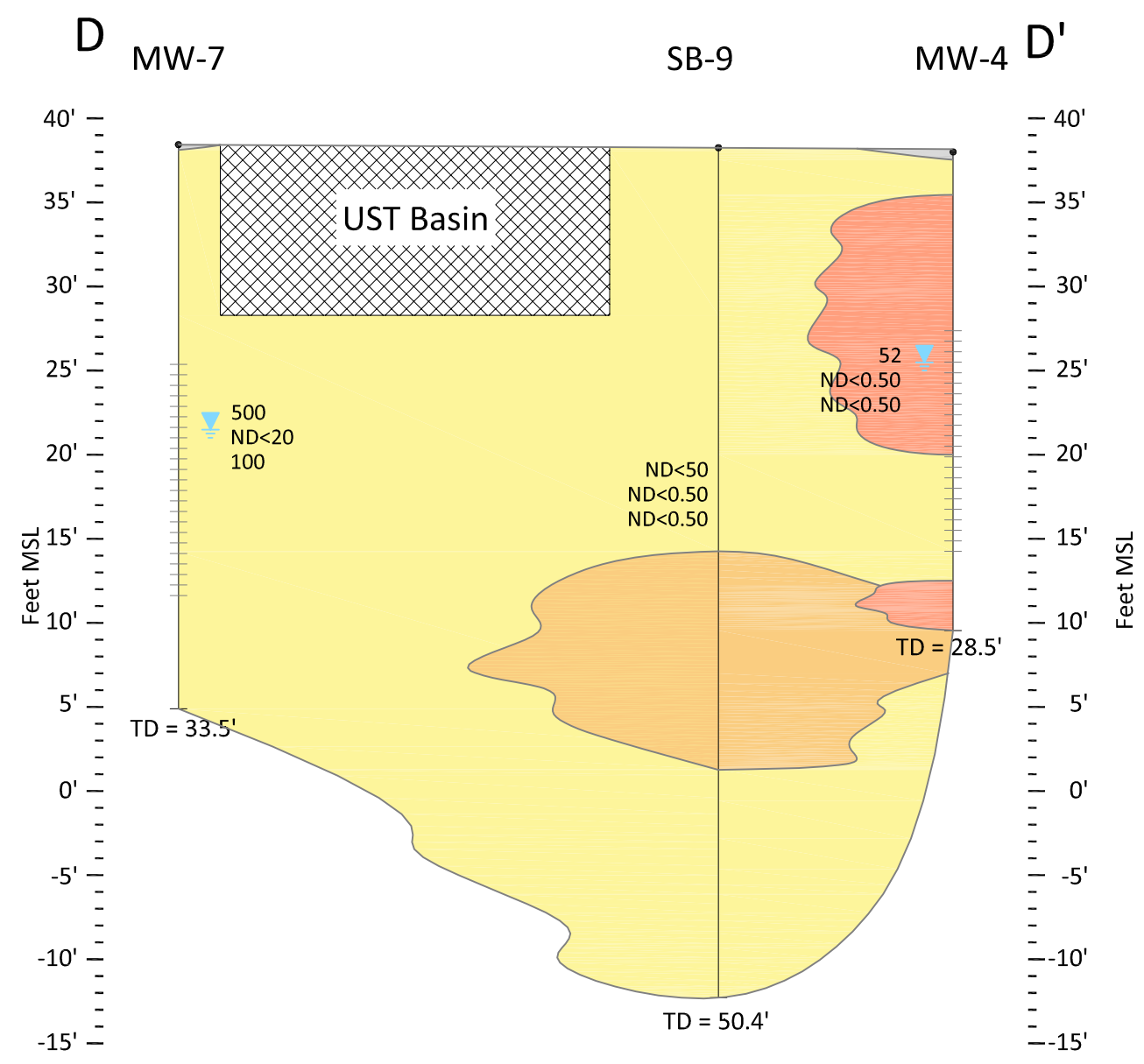
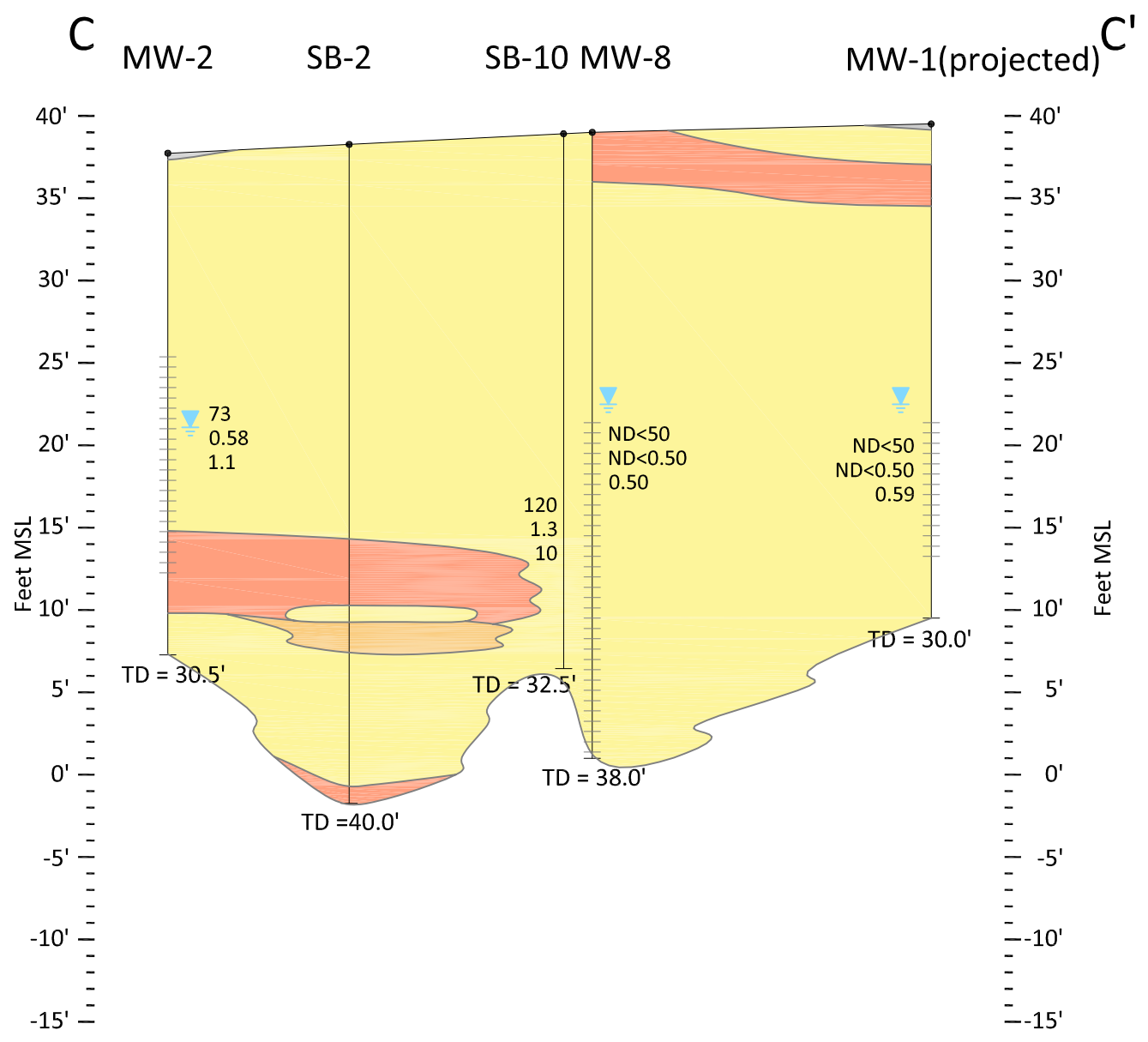




- Asphalt/Backfill
- Gravels
- Sands
- Silts/Clays
- Groundwater Elevation in ft Above MSL-1/9/14

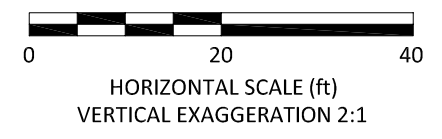
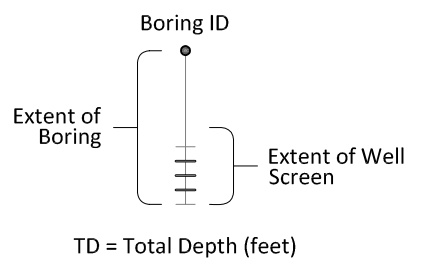
270 } GRO, Benzene, and MTBE Concentrations (µg/L)
 ND<0.50 } in Groundwater Samples-
 2.1 } November 2013 (Borings)
 } January 9, 2014 (Monitoring Wells)





- Asphalt/Backfill
- Gravels
- Sands
- Silts/Clays
- Groundwater Elevation in ft Above MSL-1/9/14

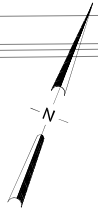
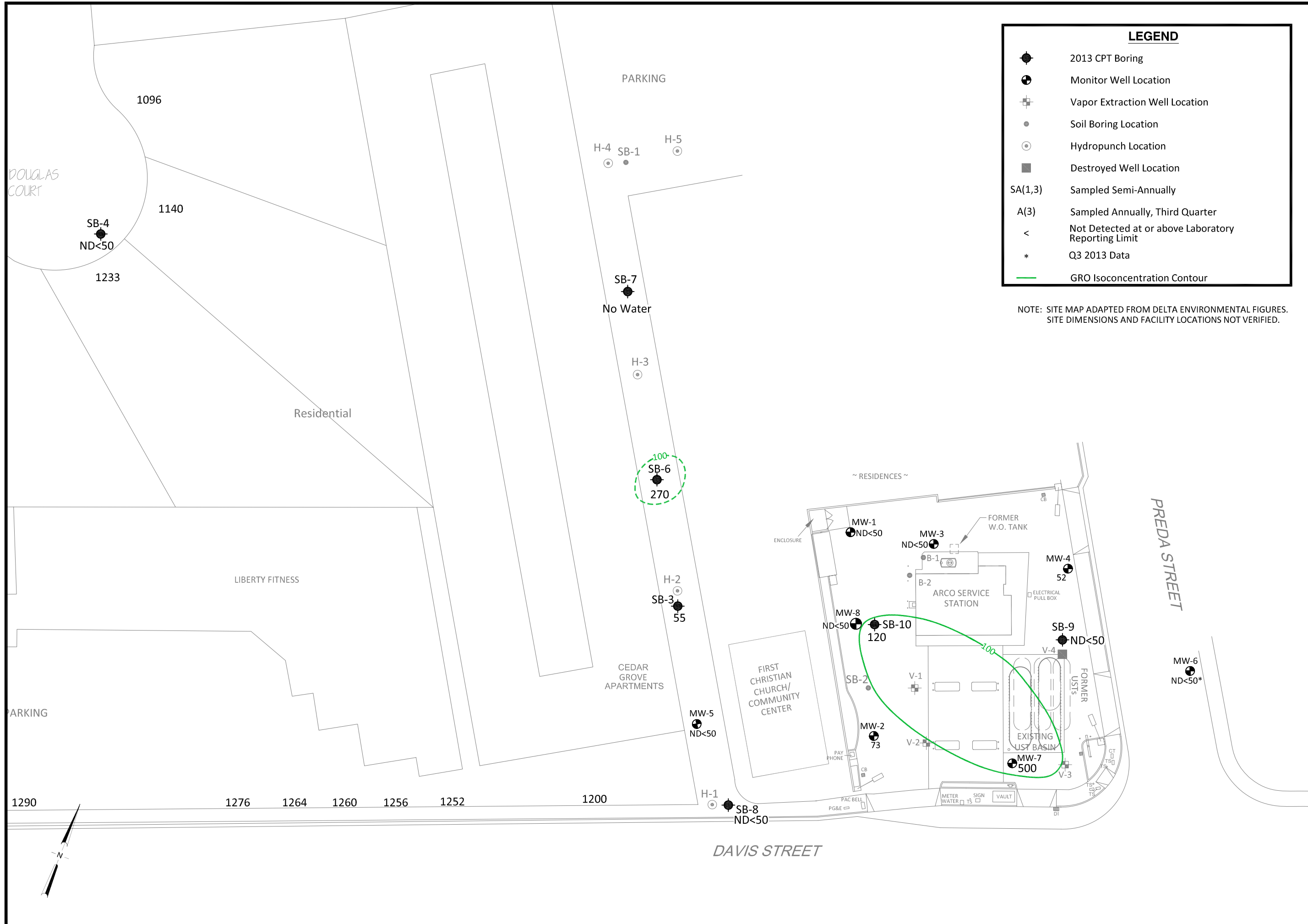
270 } GRO, Benzene, and MTBE Concentrations (µg/L)
 ND<0.50 } in Groundwater Samples-
 2.1 } November 2013 (Borings)
 January 9, 2014 (Monitoring Wells)



LEGEND

- 2013 CPT Boring
- Monitor Well Location
- Vapor Extraction Well Location
- Soil Boring Location
- Hydropunch Location
- Destroyed Well Location
- SA(1,3) Sampled Semi-Annually
- A(3) Sampled Annually, Third Quarter
- < Not Detected at or above Laboratory Reporting Limit
- * Q3 2013 Data
- GRO Isoconcentration Contour

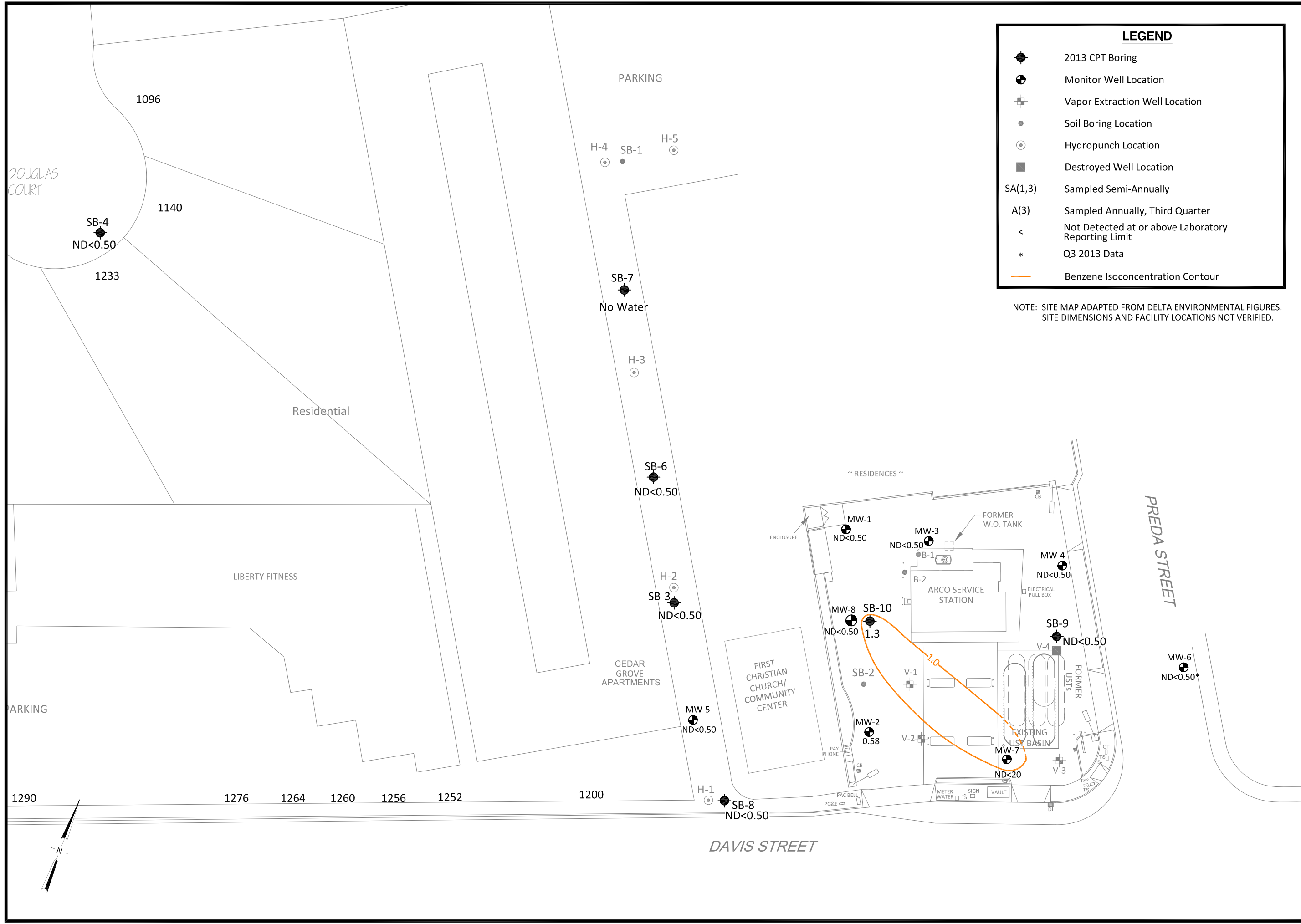
NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



LEGEND

- 2013 CPT Boring
- Monitor Well Location
- Vapor Extraction Well Location
- Soil Boring Location
- Hydropunch Location
- Destroyed Well Location
- SA(1,3) Sampled Semi-Annually
- A(3) Sampled Annually, Third Quarter
- < Not Detected at or above Laboratory Reporting Limit
- * Q3 2013 Data
- Benzene Isoconcentration Contour

NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES.
SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



LEGEND

- 2013 CPT Boring
- Monitor Well Location
- Vapor Extraction Well Location
- Soil Boring Location
- Hydropunch Location
- Destroyed Well Location
- SA(1,3) Sampled Semi-Annually
- A(3) Sampled Annually, Third Quarter
- < Not Detected at or above Laboratory Reporting Limit
- * Q3 2013 Data
- MTBE Isoconcentration Contour

NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

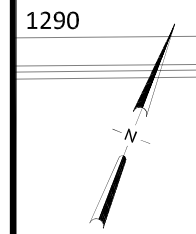
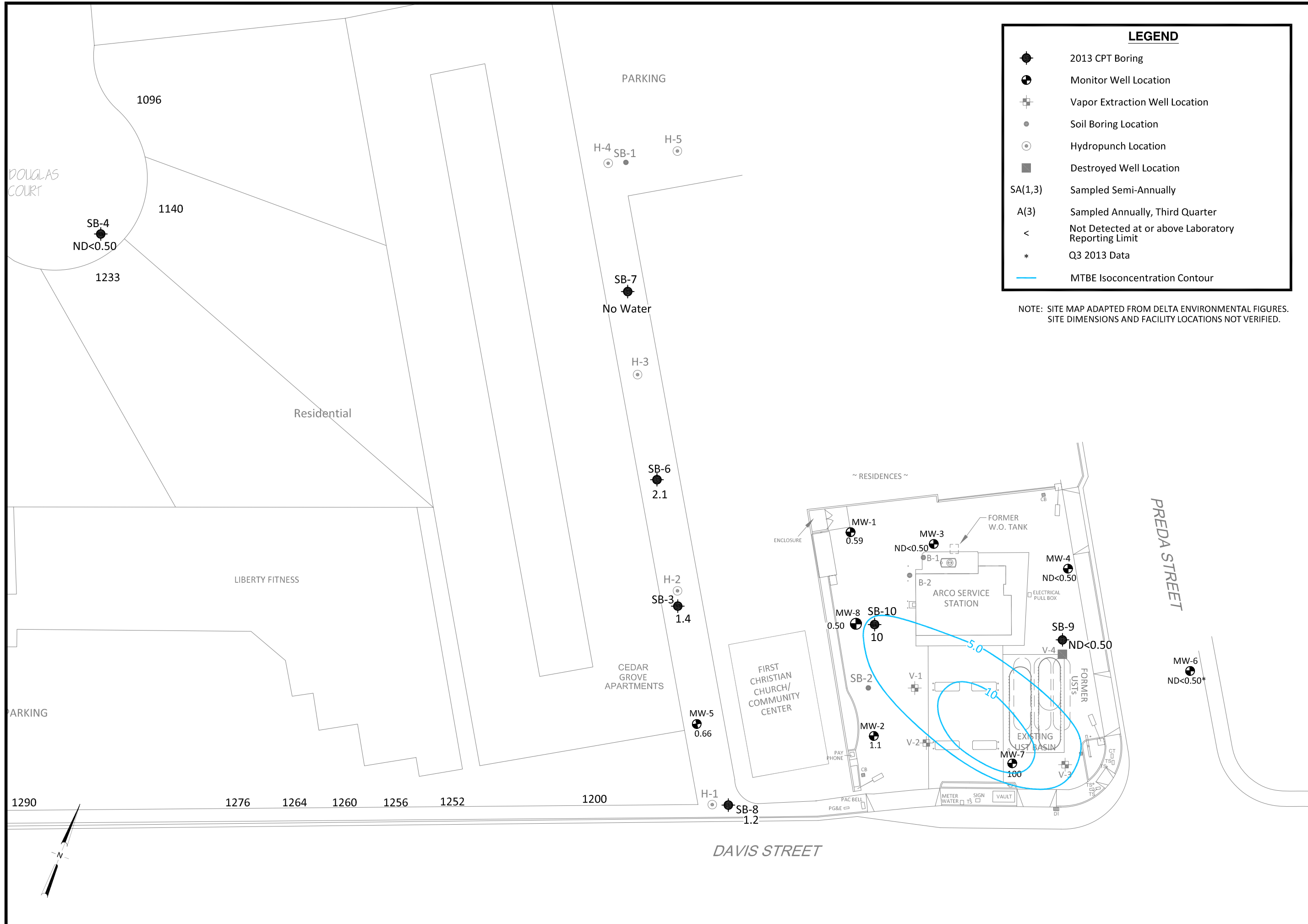


TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station No. 2111
1156 Davis Street
San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	According to the <i>East Bay Plain Groundwater Basin Beneficial Use Evaluation Report</i> (SFRWQCB, June 1999), the Site is located within the San Leandro Sub-Area, near the northern boundary of the San Lorenzo Sub-Area, in the East Bay Plain of the San Francisco Basin. These Sub-Areas share the same hydrogeologic characteristics, yet are separated by the junction of the surface trace between the San Leandro and San Lorenzo alluvial fans. These Sub-Areas consist primarily of alluvial fan sediments with the distinction of the Yerba Buena Mud extending west into the San Leandro and San Lorenzo Sub-Areas, unlike the northern Sub-Areas. The Yerba Buena Mud forms a major aquitard between the shallow and deep aquifers throughout much of southwestern area of the East Bay Plain. The San Leandro and San Lorenzo Sub-Areas alluvial fans are finer grained and produce less groundwater than the Niles Cone basin to the south.	None	NA
	Site	<p>Sediments encountered during previous Site investigations consist of silty clay and clayey silt near the surface to approximately 50 ft bgs. Varying thicknesses of beds and lenses of clay, clayey sand, sandy clay, sandy silts, gravel, and gravely sand are located below the silty clay and clayey silt layer to maximum depth explored. The lithology data presented in the boring log from well MW-8 has been validated by the CPT log from boring SB-10. It appears that the very clay dominant lithology in this area causes low-flow groundwater conditions, and potential anomalies in groundwater elevation data.</p> <p>Towards the eastern portion of the Site, and across Preda Street, the underlying layer from the surface to 25 ft bgs consists of beds and lenses of varying thicknesses of clay, clayey gravel, and sandy clay. The groundwater was first encountered in soil at an approximate depth ranging from 13.5 to 17.5 ft bgs. Lithologic cross-sections are</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology (continued)	Site (continued)	included as Drawings 4 through 7. The lithology represented in the cross-sections is consistent with the geologic environment of sand channel or alluvial deposits and consistent with the regional geologic environment. Historical depth to groundwater in Site wells have ranged from 10.56 to 24.10 ft bgs. Average groundwater flow direction is to the west-northwest and is shown on the groundwater contour map (Drawing 3).		
Surface Water Bodies		Results of a Sensitive Receptor Survey performed by Closure Solutions, Inc. in October 2012 identified the nearest surface water body as the San Leandro Creek, located approximately 1,600 ft north and cross-gradient of the Site. The San Leandro Creek eventually empties into the Pacific Ocean at San Leandro Bay located approximately 2.6 mile northwest of the Site.	None	NA
Nearby Wells		Results of a Sensitive Receptor Survey performed by Closure Solutions identified the presence of 10 wells within a half-mile radius. Two of the 10 wells are located within 1,000 ft from the Site. The closest well, located approximately 820 ft west-northwest and downgradient of the Site, appears to be a domestic well. The second well, located 950 ft southeast and upgradient of the Site, is of unknown use. Additional well survey activities were recently conducted including checking the Alameda County Public Works Agency (ACPWA) records. The results were similar to those gathered during the previous well survey, with the closest well being located 800 to 900 feet northwest (downgradient) of the Site, as was indicated during the DWR records search in 2012. However, based on the plume size (less than 100 feet; see Drawings 8 through 10) that no petroleum compounds were detected in groundwater collected from boring SB-4 (located in Douglas Court, between the Site and the potential downgradient well), there is no risk to this well from petroleum hydrocarbons migrating to this well.	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Constituents of Concern	Light-Non Aqueous Phase Liquid (LNAPL)	Periodically between January 28, 1999 and October 24, 2006, measurable LNAPL had been observed in monitoring well MW-2. LNAPL was also detected in well MW-7 on February 9, 2000; however, LNAPL has not been observed prior to or after the February 9, 2000 detection. Thus, the single observation of LNAPL may be an isolated event. Measurable LNAPL has not been observed in any groundwater monitoring well since October 24, 2006.	None	NA
	Gasoline Range Organics (GRO)	<p>Historically, concentrations of GRO have been detected in monitoring wells MW-1 through MW-5 and MW-7 through MW-8. Concentrations of GRO in well MW-6 have not been detected, with the exception of one detection on July 23, 2010 at 210 µg/L. Since concentrations of GRO have not been observed prior to and after the July 23, 2010 sampling event in well MW-6, it is assumed that the single detection was an anomaly. One GRO detection of 52 µg/L GRO was detected during the first quarter 2014 event. However, this concentration is only slightly above the reporting limit of 50 µg/L. A historical maximum concentration of GRO was reported in well MW-2 at 160,000 µg/L in January 28, 1999. Maximum detected concentration within the last four monitoring events was reported in well MW-7 at 600 µg/L, indicating a strong decreasing GRO trend over time.</p> <p>Based on recent and historical data, the GRO plume has been delineated, except to the south near the two dispensers. Historic and current groundwater gradient has generally been to the west/northwest and the Site GRO plume has decreased significantly over time and will continue to degrade; therefore, migration up-gradient (south and southeast) of the Site is not anticipated. Historically offsite and downgradient (to the west and northwest) migration was noted at a maximum concentration of GRO in boring H-2 at a concentration of 260,000 µg/L. However,</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Constituents of Concern (continued)	GRO (continued)	groundwater sampling of an adjacent boring (SB-3; Drawing 2) in 2013 indicates that GRO is largely not currently present at offsite, downgradient locations. One detection of 270 µg/L GRO was noted in groundwater collected from downgradient boring SB-6. However, based on Site data it appears that this concentration is not continuous with the onsite plume. It is likely a very small amount of degraded GRO is trapped in the very fine-grained matrix. The isolated GRO in this area will degrade over time. A GRO isoconcentration contour map for the most recent groundwater monitoring and sampling event (1Q14) is presented as Drawing 8. GRO concentration trend graphs for wells MW-2, MW-5, MW-7, and MW-8 are included in Appendix L. These graphs show a strong decreasing trend for GRO in all Site wells, indicating a shrinking plume.		
	Benzene	<p>Historically, concentrations of benzene have been detected in monitoring wells MW-1 through MW-4 and MW-7. Benzene concentrations have been detected sporadically and in low concentrations in wells MW-5 and MW-8, and have not been detected in well MW-6. Historical maximum concentration of benzene was reported in well MW-2 at 6,900 µg/L in June 25, 1999. Detected concentrations within the last four monitoring events have been reported at less than 20 µg/L, indicating a strong decreasing benzene trend over time.</p> <p>Based on recent and historical data, the benzene plume has been delineated. During the recent downgradient investigation, benzene was not detected above the cleanup level, with the exception of one 1.3 µg/L in groundwater collected at boring SB-10. Additional downgradient borings advanced west of the Site to further delineate the extent of the benzene plume in 2013 indicates that benzene is not present offsite, and has been fully delineated in the offsite, downgradient direction (borings SB-3, SB-6, and SB-8; Drawing 2). A benzene isoconcentration contour map for the most recent</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Constituents of Concern (continued)	Benzene (continued)	groundwater monitoring and sampling event (1Q14) is presented as Drawing 9. Benzene concentration trend graphs for wells MW-2, MW -5, MW-7, and MW-8 are included in Appendix L. These graphs show a strong decreasing trend for benzene in all Site wells, indicating a shrinking plume.		
	Methyl tert-butyl ether (MTBE)	<p>Historically, concentrations of MTBE have been detected in monitoring wells MW-1 through MW-5 and MW-7 through MW-8. MTBE concentrations have been detected sporadically and in low concentrations in well MW-6. Historical maximum concentration of MTBE was reported in well MW-7 at 120,000 µg/L in October 9, 2002. Maximum detected concentration within the last four monitoring events was reported in well MW-7 at 210 µg/L, indicating a strong decreasing MTBE trend over time. In all monitoring wells, with the exception of monitoring well MW-7, current concentrations of MTBE did not exceed 5 µg/L, indicating that MTBE in groundwater has almost completely degraded over time. In groundwater samples collected recently from CPT borings, no MTBE was detected over 5 µg/L with the exception of boring SB-10, located near well MW-8.</p> <p>Based on recent and historical data, the MTBE plume has been fully delineated. Maximum concentration of MTBE was observed in a grab-groundwater sample collected in March 2004 from boring H-2 at a concentration of 7,600 µg/L. However, groundwater data from current, adjacent boring SB-3 contained MTBE at 1.4 µg/L, below cleanup objectives and only slightly above reporting limits. An MTBE isoconcentration contour map for the most recent groundwater monitoring and sampling event (1Q14) is presented as Drawing 10. MTBE concentration trend graphs for wells MW-2, MW-5, MW-7, and MW-8 are included in Appendix L. These graphs show a strong decreasing trend for MTBE in all Site wells, indicating a shrinking plume.</p>	None	NA

TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station No. 2111
1156 Davis Street
San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Potential Sources	Onsite	<p>The exact release source and volume released at the Site is unknown; however, it is assumed that the source was the former UST and former waste oil tank complex located at the southeastern and northern portion of the Site, respectively. These assumptions are supported by historical data including proximity to historical free product and higher dissolved-phase petroleum hydrocarbon concentrations. Additional areas of documented soil contamination occurred beneath a hydraulic hoist, dispensers, and associated product pipelines, particularly the northwestern and southern end of the Site, respectively. An unknown amount of residual petroleum hydrocarbon contamination is presently within the soil matrix in these areas, and dissolved in groundwater beneath the Site. A fluctuating groundwater table has likely caused a contaminant smear zone where the residual hydrocarbon mass remains. However, the trends for the residual petroleum compounds in groundwater indicate that the concentrations in this smear zone have degraded over time and are impacting the groundwater beneath the Site to a far lesser degree than in the past, and will likely continue to degrade over time (Appendix L).</p> <p>The removal and/or replacement of the hydraulic hoist, waste-oil tank, storage, and dispensing system was conducted to stop the potential release. The removal of the hydraulic hoist activities were documented in the <i>Letter Report of The Results of Soil Sampling Associated with Hydraulic Hoist Removal</i>, ARCO Service Station 2111 (GSI, 1993). The removal of the waste-oil tank activities were documented in the <i>Report for Waste-Oil Tank Removal Activities at ARCO Station 2111</i>. The UST removal activities were documented in the <i>Tank Basin, Product Line, and Dispenser Island Sampling Results, ARCO Station No. 2111</i> (Delta Environmental Consultants, Inc., 2001).</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Potential Sources (continued)	Offsite	An offsite potential petroleum source has not been identified near the Site. However, several chlorinated solvent sites are present in the area, most notably a Caterpillar, Inc. Site located at 800 Davis Street, to the east and upgradient of the Site. This upgradient solvent site is likely source of chlorinated solvents and various other contaminants to the Site and offsite receptors. The Caterpillar site is also likely the source of detected PCE and chloroform concentrations in Site well MW-3.	None	NA
Nature and Extent of Environmental Impacts	Extent in Soil	Soil appears defined at the Site. Downgradient soil borings MW-1 and MW-5, installed by EMCON in 1995 and 1996, respectively, had no detections of petroleum hydrocarbons. Crossgradient soil borings MW-3 and MW-4, installed by EMCON in 1995, had no detections of petroleum hydrocarbons. Upgradient soil boring MW-6, performed by EMCON in 1996, had no detections of petroleum hydrocarbons. Based on historical data, the highest concentrations of GRO and benzene were detected at the southern portion of the Site, near the southern dispenser island and the northern end of the former UST complex. The highest concentrations were generally reported at approximately 15 ft bgs, which is consistent with the capillary fringe zone at the Site. A DPE system operated on Site between 2007 and 2009. Additional soil borings have not been advanced in the areas of historical high petroleum hydrocarbon concentrations to evaluate the effect of the remediation system. The highest GRO concentration (1,100 mg/kg) in soil was detected on the northern end of the former UST complex. Soil was defined laterally to non-detect for all petroleum compounds to the north (MW-3 and MW-4), northeast (MW-6), northwest (MW-8), and southwest (MW-5). Soil been defined laterally to the south and southeast. Lowest GRO concentrations to the south and southeast are 230 mg/kg and 76 mg/kg, respectively. However, the most recent onsite, source area petroleum soil concentrations indicate no remaining impacts. Considering the south and southeast directions are upgradient	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Soil (continued)	<p>and all other impacts have almost completely degraded, the extent of hydrocarbon concentrations in soil is defined. In addition, the Site petroleum hydrocarbon plume has decreased significantly over time and will continue to degrade; therefore, migration upgradient (south and southeast) of the Site is not anticipated.</p> <p>The source areas have been removed and these concentrations were representative of overall soil concentrations at the time of sampling, it is likely that these concentrations have further attenuated over the last 15 years. Current groundwater sampling data from the CPT investigation confirms that the majority of hydrocarbons have degraded to near non-detectable concentrations.</p>		
	Extent in Shallow Groundwater	<p>The groundwater monitoring network at the Site includes source area wells (MW-2, MW-7, and MW-8); an upgradient well (MW-6); crossgradient wells (MW-3 and MW-4); and downgradient wells (MW-1 and MW-5). Isoconcentration maps for the most recent groundwater monitoring and sampling event (1Q14) for GRO, benzene, and MTBE are included as Drawings 8 through 10, respectively. Concentrations of petroleum hydrocarbon have decreased significantly in all monitoring wells since their initial sampling (Tables 4 and 5, and Appendix L). In addition, monitoring wells MW-1 and MW-3 through MW-6 did not contain any petroleum hydrocarbon compounds over the last four groundwater monitoring events, with the exception of minor detections (<0.9 µg/L) of MTBE in MW-5 and one detection of GRO in well MW-4 slightly above reporting limits. Based on these data, the extent of petroleum compounds is well defined to the north (MW-3 and MW-4), northeast (MW-6), northwest (MW-1 and MW-8), and southwest (MW-5), and is predominately limited to onsite. However, based on the observed decreasing trends, the extent of petroleum compounds is small and the plume appears to be shrinking and will</p>	No	None

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Shallow Groundwater (continued)	<p>continue to degrade (Appendix L). In addition, historic and current groundwater gradient has predominately been to the west; therefore, migration upgradient (south and southeast) of the Site is not anticipated. Offsite borings to the north and northwest were advanced in 2013 and no significant petroleum impacts are currently present in these locations, with the exception of one minor, isolated GRO concentration. Therefore, the extent of petroleum compound shallow groundwater has been delineated in the downgradient direction.</p> <p>Free product was last observed at the Site in 2006 and dissolved petroleum concentrations are decreasing.</p>		
	Extent in Deeper Groundwater	<p>The extent of environmental impact in deeper groundwater was investigated offsite in downgradient borings (H-4 and H-5) performed in 2004 (URS, 2004). Five discrete grab-groundwater samples were collected from each boring at depths ranging between 27 and 40 ft bgs. Hydrocarbon concentrations were not detected at any depth, with the exception of one GRO detection of 53 µg/L in H-5-40 and one total xylenes detection of 0.72 µg/L in H-4-27. Based on the low to no concentrations of petroleum hydrocarbons in the deep zone borings, it appears that the migration from the Site to deeper zone aquifers has not occurred. Additionally, onsite boring SB-9 was advanced to 50 feet bgs to determine if any deeper water-bearing zones were present in the former source area that may have been historically impacted. Clay was noted from 42 to 50 feet bgs, indicating that any previous downward migration of hydrocarbons would have been limited by this low permeability clay.</p>	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Nature and Extent of Environmental Impacts (continued)	Extent in Soil Vapor	The 2013 offsite investigation indicated that no soil or groundwater impacts for benzene above cleanup levels (ESLs) were detected in any offsite location. Impacts are present in boring SB-10 near the property edge, but these concentrations are only slightly above cleanup levels and are very unlikely to extend offsite. Since the Site is an active gasoline service station, no onsite soil vapor investigation is necessary, as the LTCP assumes that the risks from service station operations exceeds any potential soil vapor intrusion risk. The risk to the offsite building occupants is insignificant due to the offsite soil and groundwater containing almost no concentrations of petroleum compounds, and the concentrations near the property boundary being only slightly above cleanup levels. Furthermore, the high occurrence of clays in the subsurface lithology makes the possibility of any minor petroleum present in vapors less likely to percolate to the ground surface due to the inherent low permeability of the soils. Therefore, a soil vapor investigation is not warranted based on the Site data.	None	NA
Migration Pathways	Potential Conduits	A potential transmissive conduit study has not been performed on Site. Thus, there is a potential for sewer and/or storm drains to be located along Preda and Davis Street. However, sewer and storm drains generally tend to be shallow (above 10 ft bgs), and depth to groundwater at the Site is between 10.56 and 24.10 ft bgs. Therefore, migration through the utility trenches is unlikely to occur. Furthermore, current and historic groundwater gradient is predominately to the west, denoting that groundwater flow is moving away from Preda and Davis Street. In addition, groundwater monitoring data from well MW-6, located upgradient of the Site and across Preda Street, has not contained any hydrocarbon concentrations since its installation, with the exception of detections of GRO and TBA in July 2010 and MTBE in April 2002, indicating migration through the utility trenches have not likely	None	NA

TABLE 1**CONCEPTUAL SITE MODEL**

Atlantic Richfield Company Station No. 2111
 1156 Davis Street
 San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
		occurred. Furthermore, the 2013 onsite investigation indicated that petroleum compounds in soil and groundwater at the Site have almost completely degraded. Due to the lack of current petroleum impacts and the current groundwater levels (approximately 18 feet bgs), the potential for migration of petroleum compounds through utility trenches is minimal.		
Potential Receptors	Onsite	No onsite water supply wells or surface water exists. The only potential onsite receptor would be onsite workers exposed to gasoline vapors. However, the exposure from current fueling operations represents a greater risk than any associated with potential groundwater or soil vapor exposure.	None	NA
	Offsite	As discussed above, the nearest surface water body is the San Leandro Creek, located approximately 1,600 ft north and crossgradient of the Site. Results of receptor surveys noted above indicate two wells were identified within 1,000 ft from the Site Review of available satellite images (Google Maps or equivalent) was conducted to identify any sensitive land uses such as schools, day care facilities, hospitals, or elder care facilities within 500 ft of the Site. Two facilities were identified: Davis Street Children Center; and WellBound of San Leandro. Davis Street Children Center is located at 1190 Davis Street, San Leandro, California, adjacent to and west of the Site. Additional offsite soil borings were advanced and are not considered a risk to the building occupants. WellBound of San Leandro, a Satellite Healthcare which provides personalized training and support for dialysis patients, is located at 1040 Davis Street, Suite 101, San Leandro, California approximately 450 ft east (up-gradient) of the Site. Monitoring well MW-6, located east of the Site, has not contained concentrations of petroleum hydrocarbons since its installation, with the exception of minor and	None	NA

TABLE 1

CONCEPTUAL SITE MODEL

Atlantic Richfield Company Station No. 2111
1156 Davis Street
San Leandro, California

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Potential Receptors (continued)	Offsite (continued)	sporadic GRO, MTBE, and TBA concentrations. Which indicates plume migrations to the east (upgradient) has not occurred. In addition, the Site petroleum hydrocarbon plume has decreased significantly over time and will continue to degrade; therefore, migration up-gradient of the Site is not anticipated. One downgradient domestic well was identified during both the DWR and ACPWA well records search as being approximately 820 feet northwest of (downgradient) of the Site. However, due to the small extent of the residual hydrocarbon plume, and the presence of a data point (boring SB-4; Drawing 2) with no petroleum impacts in groundwater between the Site and the domestic well, this well is not considered threatened by the residual petroleum impacts associated with the Site.		

Notes:

ARCO = Atlantic Richfield Company
bgs = below ground surface
BTEX = benzene, toluene, ethylbenzene, xylenes
CSM = Conceptual Site Model
DPE = Dual-phase extraction
ft = foot
GRO = Gasoline Range Organics
GSI = GeoStrategies, Inc.
LNAPL = Light-Non Aqueous Phase Liquid
mg/kg = milligrams per kilogram
MTBE = Methyl tert-butyl Ether
No. = Number
PCE = tetrachloroethylene
ppmv = parts per million by volume
SFRWQCB = California Regional Water Quality Control Board – San Francisco Bay Region.
TBA = tert-butyl alcohol
TCE = trichloroethylene
UST = Underground Storage Tank
µg/L = micrograms per liter

All report references are included in Section 7 of the preceding report

Table 2
Soil Analytical Results
November 2013 CPT Investigation
ARCO Station No. 2111
1156 Davis Street, San Leandro, California

Boring 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)	1,2-DCA (mg/kg)	EDB (mg/kg)	Ethanol (mg/kg)	Naphthalene (mg/kg)
SB-3	11.5	11/23/2013	ND<0.40	ND<0.00098	ND<0.00098	ND<0.00098	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00098	ND<0.00098	ND<0.20	NA
SB-3	12	11/23/2013	ND<0.39	ND<0.00098	ND<0.00098	ND<0.00098	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00098	ND<0.00098	ND<0.20	NA
SB-3	16	11/23/2013	1.6	ND<0.00098	ND<0.00098	ND<0.00098	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00098	ND<0.00098	ND<0.20	NA
SB-3	16.5	11/23/2013	1.8	ND<0.00098	ND<0.00098	ND<0.00098	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00098	ND<0.00098	ND<0.20	NA
SB-4	12	11/21/2013	ND<0.40	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<0.0010	ND<0.20	ND<0.0020
SB-4	12.5	11/21/2013	ND<0.40	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<0.00099	ND<0.20	ND<0.0020
SB-4	16	11/21/2013	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<0.00099	ND<0.20	ND<0.0020
SB-4	16.5	11/21/2013	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<0.050	ND<0.0020	ND<0.00099	ND<0.00099	ND<0.20	ND<0.0020
SB-6	11.5	11/23/2013	ND<0.38	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<0.0010	ND<0.20	NA
SB-6	12	11/23/2013	ND<0.40	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<0.00099	ND<0.20	NA
SB-6	16	11/23/2013	0.96	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<0.0010	ND<0.20	NA
SB-6	16.5	11/23/2013	1.6	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<0.00099	ND<0.20	NA
SB-7	11.5	11/23/2013	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<0.0010	ND<0.20	NA
SB-7	12	11/23/2013	ND<0.40	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<0.0010	ND<0.20	NA
SB-7	16	11/23/2013	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<0.0010	ND<0.20	NA
SB-7	16.5	11/23/2013	ND<0.40	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<0.0010	ND<0.20	NA
SB-8	11.5	11/23/2013	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<0.0010	ND<0.20	NA
SB-8	12	11/23/2013	ND<0.40	ND<0.00098	ND<0.00098	ND<0.00098	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.049	ND<0.0020	ND<0.00098	ND<0.00098	ND<0.20	NA
SB-8*	16	11/23/2013	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<0.050	ND<0.0020	ND<0.0010	ND<0.0010	ND<0.20	NA
SB-8*	16.5	11/23/2013	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<0.050	ND<0.0020	ND<0.0010	ND<0.0010	ND<0.20	NA
SB-9	3	11/18/2013	ND<0.40	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<0.0010	ND<0.20	ND<0.0020
SB-9	7	11/18/2013	ND<0.38	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<0.0010	ND<0.20	ND<0.0020
SB-9	12	11/20/2013	ND<0.39	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0020	0.0031	ND<0.0020	ND<0.0020	0.066	ND<0.0020	ND<0.0010	ND<0.0010	ND<0.20	ND<0.0020
SB-9	12.5	11/20/2013	ND<0.39	ND<0.00099	ND<0.00099	ND<0.00099	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	0.17	ND<0.0020	ND<0.00099	ND<0.00099	ND<0.20	ND<0.0020
SB-9	16.5	11/20/2013	0.59	ND<0.00099	ND<0.00099	0.0012	ND<0.0020	0.020	ND<0.0020	ND<0.0020	0.069	ND<0.0020	ND<0.00099	ND<0.00099	ND<0.20	0.11
SB-9	17	11/20/2013	13	ND<0.00097	ND<0.00097	0.065	0.0044	0.022	ND<0.0019	ND<0.0019	ND<0.049	ND<0.0019	ND<0.00097	ND<0.00097	ND<0.19	0.26
SB-10	12	11/20/2013	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<0.00099	ND<0.20	ND<0.0020
SB-10	12.5	11/20/2013	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<0.050	ND<0.0020	ND<0.0010	ND<0.0010	ND<0.20	ND<0.0020
SB-10	16.5	11/20/2013	ND<0.39	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	0.26	ND<0.0020	ND<0.0010	ND<0.0010	ND<0.20	ND<0.0020
SB-10	17.5	11/20/2013	ND<0.40	ND<0.00099	ND<0.00099	ND<0.000999	ND<0.0020	0.0056	ND<0.0020	ND<0.0020	0.49	ND<0.0020	ND<0.00099	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	NA	45
LTCP Criteria - 5 to 10 feet bgs			NA	12	NA	134	NA	NA	NA	NA	NA	NA	NA	NA	NA	45
LTCP Criteria -Utility Worker			NA	14	NA	314	NA	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 3
Grab-Groundwater Analytical Results
November 2013 CPT Investigation
ARC Station No. 2111
1156 Davis Street, San Leandro, California

Boring Identification	Grab-Groundwater Sample Depth (feet bgs)	Date Collected	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes* (µg/L)	MTBE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	DIPE (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Ethanol (µg/L)	Naphthalene (µg/L)
SB-3	23	11/23/2013	55	ND<0.50	ND<0.50	ND<0.50	ND<1.0	1.4	ND<0.50	ND<0.50	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<150	NA
SB-4	Open Hole	11/21/2013	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<150	ND<1.0
SB-6	Open Hole	11/23/2013	270	ND<0.50	ND<0.50	ND<0.50	ND<1.0	2.1	ND<0.50	ND<0.50	10	ND<0.50	ND<0.50	ND<0.50	ND<150	NA
SB-8	23	11/23/2013	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	1.2	ND<0.50	ND<0.50	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<150	NA
SB-9	22	11/20/2013	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<10	ND<0.50	ND<0.50	ND<0.50	ND<150	ND<1.0
SB-10	24	11/20/2013	120	1.3	ND<0.50	ND<0.50	ND<1.0	10	ND<0.50	ND<0.50	270	ND<0.50	ND<0.50	ND<0.50	ND<150	2.5
ESLs			100	1.0	40	30	20	5	NA	NA	NA	NA	0.5	0.5	5000	17

Notes:

feet bgs = feet below ground surface
µg/L = 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 = Environmental Screening Levels as presented in *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater - Interim Final December 2013* assuming a commercial/industrial exposure scenario where groundwater is a potential drinking water resource

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1															
6/26/2000	--	39.60	12.50	26.00	16.46	23.14	--	--	--	--	--	--	--	--	
7/20/2000	--		12.50	26.00	16.89	22.71	360	110	<0.5	<0.5	2.7	2,100	--	--	
9/19/2000	--		12.50	26.00	17.62	21.98	290	76	<0.5	<0.5	2.3	1,500	--	--	
12/21/2000	--		12.50	26.00	17.39	22.21	257	64	2.89	1.31	4.57	1,080/1,060	--	--	
3/13/2001	--		12.50	26.00	15.70	23.90	<500	52.5	<5.0	<5.0	<5.0	1,430/1,370	--	--	
9/18/2001	--		12.50	26.00	18.24	21.36	<500	64	7.3	<5.0	52	810/1,100	--	--	
12/28/2001	--		12.50	26.00	15.95	23.65	<500	<5.0	<5.0	5	22	1,200/1,100	--	--	
3/14/2002	--		12.50	26.00	16.01	23.59	<50	<0.5	<0.5	<0.5	<0.5	34/40	--	--	
4/23/2002	--		12.50	26.00	15.43	24.17	<50	<0.5	<0.5	<0.5	<0.5	30	--	--	
7/17/2002	NP		12.50	26.00	17.50	22.10	<50	1.2	<0.50	<0.50	<0.50	29	6.9	6.9	
10/9/2002	--		12.50	26.00	18.27	21.33	240	4.9	<1.0	4.1	7.0	290	6.5	6.5	c
1/13/2003	--		12.50	26.00	15.37	24.23	760	34	11	17	56	300	6.8	6.8	c
04/07/03	--		12.50	26.00	16.61	22.99	<50	<0.50	<0.50	<0.50	<0.50	22	6.8	6.8	
7/9/2003	--		12.50	26.00	17.27	22.33	<2,500	<25	<25	<25	<25	690	6.7	6.7	
02/05/2004	NP	39.49	12.50	26.00	16.28	23.21	2,800	31	<25	<25	<25	1,100	0.9	6.5	m
04/05/2004	NP		12.50	26.00	16.25	23.24	5,800	46	<25	<25	<25	1,700	1.0	--	
07/13/2004	NP		12.50	26.00	17.57	21.92	<1,000	<10	<10	<10	<10	730	0.5	6.6	
11/04/2004	NP		12.50	26.00	17.78	21.71	560	<5.0	<5.0	<5.0	<5.0	380	0.8	6.5	
01/20/2005	NP		12.50	26.00	15.50	23.99	670	<5.0	<5.0	<5.0	<5.0	570	0.6	6.0	
04/11/2005	NP		12.50	26.00	14.82	24.67	<2,500	<25	<25	<25	25	1,100	0.9	6.9	
08/01/2005	NP		12.50	26.00	16.77	22.72	2,200	33	<10	110	<10	1,400	1.27	7.3	
10/21/2005	NP		12.50	26.00	17.71	21.78	<2,500	<25	<25	<25	<25	970	1.17	6.6	
01/18/2006	NP		12.50	26.00	14.70	24.79	300	<2.5	<2.5	<2.5	<2.5	330	1.07	6.6	n
04/14/2006	NP		12.50	26.00	13.41	26.08	330	<2.5	<2.5	<2.5	<2.5	310	0.79	6.6	
7/19/2006	NP		12.50	26.00	15.86	23.63	<250	<2.5	<2.5	<2.5	<2.5	180	1.2	6.7	q
10/24/2006	P		12.50	26.00	17.15	22.34	710	4.2	<2.5	19	13	360	--	6.68	
1/15/2007	P		12.50	26.00	16.81	22.68	470	2.8	<2.5	14	8.4	220	1.14	7.12	
4/18/2007	NP		12.50	26.00	16.69	22.80	100	<2.5	<2.5	<2.5	<2.5	150	1.20	6.85	
7/17/2007	NP		12.50	26.00	20.85	18.64	<50	<1.0	<1.0	<1.0	<1.0	94	1.91	6.98	
10/11/2007	NP		12.50	26.00	18.10	21.39	66	<0.50	<0.50	<0.50	<0.50	62	1.60	7.00	

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-1 Cont.															
1/8/2008	NP	39.49	12.50	26.00	15.97	23.52	140	<0.50	<0.50	<0.50	<0.50	90	1.19	5.60	n
4/8/2008	NP		12.50	26.00	16.53	22.96	88	<0.50	<0.50	<0.50	<0.50	110	1.73	6.89	
8/20/2008	NP		12.50	26.00	18.32	21.17	<50	<0.50	<0.50	<0.50	<0.50	3.3	2.37	6.95	
11/17/2008	NP		12.50	26.00	18.38	21.11	<50	<0.50	<0.50	<0.50	<0.50	21	0.94	6.96	
2/3/2009	NP		12.50	26.00	18.08	21.41	<50	<0.50	<0.50	<0.50	<0.50	16	1.66	6.95	
5/12/2009	NP		12.50	26.00	17.05	22.44	<50	<0.50	<0.50	<0.50	<0.50	9.3	0.88	6.88	
8/13/2009	NP		12.50	26.00	18.01	21.48	<50	<0.50	<0.50	<0.50	<0.50	5.5	0.14	7.02	u
2/18/2010	NP		12.50	26.00	16.14	23.35	<50	<0.50	<0.50	<0.50	<0.50	1.4	2.22	6.69	
7/23/2010	NP		12.50	26.00	17.11	22.38	<50	<0.50	<0.50	<0.50	<0.50	1.3	0.77	6.7	
2/10/2011	NP		12.50	26.00	16.42	23.07	<50	<0.50	<0.50	<0.50	<0.50	1.1	1.19	7.2	
8/30/2011	NP		12.50	26.00	17.13	22.36	<50	<0.50	<0.50	<0.50	<0.50	2.1	0.98	6.9	
2/17/2012	P		12.50	26.00	17.41	22.08	<50	<0.50	<0.50	<0.50	<0.50	0.85	1.39	7.05	
8/30/2012	P		12.50	26.00	17.92	21.57	<50	<0.50	<0.50	<0.50	<1.0	0.74	1.71	7.04	
2/7/2013	P		12.50	26.00	16.44	23.05	<50	<0.50	<0.50	<0.50	<1.0	0.87	1.89	7.33	
8/15/2013	P		12.50	26.00	18.49	21.00	<50	<0.50	<0.50	<0.50	<1.0	<0.50	4.65	6.87	
1/9/2014	P		12.50	26.00	18.82	20.67	<50	<0.50	<0.50	<0.50	<1.0	0.59	3.64	5.41	
MW-2															
6/26/2000	--	37.99	12.00	26.00	14.60	23.39	--	--	--	--	--	--	--	--	a
7/20/2000	--		12.00	26.00	15.14	22.85	95,000	2,300	18,000	2,500	19,000	13,000	--	--	
9/19/2000	--		12.00	26.00	15.95	22.04	63,000	1,200	6,300	2,000	14,000	19,000	--	--	
12/21/2000	--		12.00	26.00	15.60	22.39	5,010	360	189	213	626	54,300/89,200	--	--	b
12/21/2000	--		12.00	26.00	15.60	22.39	45,900	--	2,130	1,160	9,460	22,400/24,700	--	--	
3/13/2001	--		12.00	26.00	13.77	24.22	<20,000	525	466	408	1,460	91,700/76,000	--	--	b
3/13/2001	--		12.00	26.00	13.77	24.22	3,650	98.1	<5.0	<5.0	6.42	3,590/3,260	--	--	
9/18/2001	--		12.00	26.00	16.86	21.13	--	--	--	--	--	--	--	--	a
12/28/2001	--		12.00	26.00	14.28	23.71	31,000	1,500	3,800	1,300	4,800	9,300/8,800	--	--	
3/14/2002	--		12.00	26.00	14.15	23.84	1,800	25	43	43	270	990/960	--	--	
4/23/2002	--		12.00	26.00	13.60	24.39	9,000	220	110	470	2,500	8,500	--	--	
7/17/2002	NP		12.00	26.00	15.75	22.24	74,000	280	290	820	10,000	19,000/0.4	6.8	6.8	a, c
10/9/02	NP		12.00	26.00	16.69	21.30	--	--	--	--	--	--	--	--	g

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-2 Cont.															
1/13/03	--	37.99	12.00	26.00	13.59	24.40	--	--	--	--	--	--	--	--	g, h
04/07/03	--		12.00	26.00	14.70	23.29	--	--	--	--	--	--	--	--	g, h
07/09/03	--		12.00	26.00	15.48	22.51	--	--	--	--	--	--	--	--	g, h
02/05/2004	NP	37.86	12.00	26.00	14.43	23.43	--	--	--	--	--	--	--	--	g,m
04/05/2004	NP		12.00	26.00	14.35	23.51	2,300	33	<5.0	<5.0	200	750	0.6	--	
07/13/2004	NP		12.00	26.00	15.79	22.07	59,000	380	<50	2,100	7,900	5,800	0.3	6.4	
08/31/2004	--		12.00	26.00	15.89	21.97	--	--	--	--	--	--	--	--	
11/04/2004	--		12.00	26.00	15.92	21.94	--	--	--	--	--	--	--	--	g, h
01/20/2005	NP		12.00	26.00	13.71	24.15	30,000	450	<50	1,300	3,300	7,000	0.7	6.2	o
04/11/2005	NP		12.00	26.00	12.70	25.16	11,000	170	<50	580	630	2,700	0.9	6.8	
08/01/2005	NP		12.00	26.00	14.89	22.97	24,000	170	<50	1,100	2,700	2,700	0.64	6.9	
10/21/2005	--		12.00	26.00	16.05	21.81	--	--	--	--	--	--	--	--	a
01/18/2006	NP		12.00	26.00	12.81	25.05	21,000	71	<50	470	1,400	1,600	1.18	6.6	a
04/14/2006	NP		12.00	26.00	12.24	25.62	7,800	78	<50	94	130	2,100	0.81	6.7	a
7/19/2006	NP		12.00	26.00	14.00	23.86	4,900	31	<10	98	75	930	1.1	6.5	q
10/24/2006	--		12.00	26.00	15.38	22.48	--	--	--	--	--	--	--	6.45	g
1/15/2007	P		12.00	26.00	15.00	22.86	5,000	51	<10	49	34	1,400	1.85	7.13	
4/18/2007	NP		12.00	26.00	14.82	23.04	3,000	39	<10	32	22	1,100	1.95	7.10	
7/17/2007	NP		12.00	26.00	18.00	19.86	1,100	53	<10	28	<10	1,300	4.84	7.09	n
10/11/2007	NP		12.00	26.00	16.38	21.48	1,800	17	<10	<10	11	1,000	1.52	7.05	
1/8/2008	NP		12.00	26.00	14.10	23.76	1,900	65	<10	37	28	1,300	1.06	4.22	n
4/8/2008	NP		12.00	26.00	14.70	23.16	200	34	<0.50	<0.50	<0.50	690	3.24	6.95	
8/20/2008	NP		12.00	26.00	16.66	21.20	990	21	<10	<10	<10	190	1.54	6.91	
11/17/2008	NP		12.00	26.00	19.28	18.58	290	9.3	<5.0	<5.0	<5.0	89	0.71	6.75	
2/3/2009	NP		12.00	26.00	16.45	21.41	86	3.5	<2.5	<2.5	<2.5	31	2.71	6.96	
5/12/2009	NP		12.00	26.00	15.30	22.56	390	1.3	<0.50	<0.50	0.82	25	0.82	6.96	
8/13/2009	NP		12.00	26.00	16.88	20.98	330	<10	<10	<10	<10	39	0.81	7.12	u
2/18/2010	NP		12.00	26.00	14.20	23.66	950	<5.0	<5.0	<5.0	<5.0	<5.0	1.18	6.94	
7/23/2010	NP		12.00	26.00	15.37	22.49	330	<2.0	<2.0	<2.0	<2.0	6.5	1.70	6.7	v (GRO)
2/10/2011	NP		12.00	26.00	14.53	23.33	960	<4.0	<4.0	<4.0	<4.0	12	0.58	6.8	v (GRO)

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-2 Cont.															
8/30/2011	NP	37.86	12.00	26.00	15.35	22.51	200	<0.50	<0.50	<0.50	<0.50	4.5	0.67	6.7	w (GRO)
2/17/2012	P		12.00	26.00	15.63	22.23	190	<2.5	<2.5	<2.5	<2.5	2.9	0.80	7.00	w (GRO)
8/30/2012	P		12.00	26.00	16.18	21.68	67	<0.50	<0.50	<0.50	<1.0	2.4	1.23	6.92	
2/7/2013	P		12.00	26.00	14.60	23.26	53	<0.50	<0.50	<0.50	<1.0	2.7	1.35	7.25	
8/15/2013	P		12.00	26.00	16.80	21.06	94	0.69	<0.50	<0.50	<1.0	1.6	3.92	6.77	
1/9/2014	P		12.00	26.00	17.18	20.68	73	0.58	<0.50	<0.50	<1.0	1.1	2.26	5.30	
MW-3															
6/26/2000	--	39.32	12.00	26.00	15.96	23.36	--	--	--	--	--	--	--	--	
7/20/2000	--		12.00	26.00	16.42	22.90	<50	<0.5	<0.5	<0.5	<1.0	130	--	--	
9/19/2000	--		12.00	26.00	17.18	22.14	190	17	<0.5	1.4	2.4	160	--	--	
12/21/2000	--		12.00	26.00	16.97	22.35	187	17.8	<0.5	2.47	2.5	143/125	--	--	
3/13/2001	--		12.00	26.00	15.17	24.15	72.4	2.83	<0.5	<0.5	<0.5	126/122	--	--	
9/18/2001	--		12.00	26.00	17.81	21.51	140	6.4	<0.5	3.5	1.6	110/75	--	--	
12/28/2001	--		12.00	26.00	15.44	23.88	130	5.9	<0.5	0.99	0.55	90/63	--	--	
3/14/2002	--		12.00	26.00	15.50	23.82	<50	<0.5	<0.5	<0.5	<0.5	100/88	--	--	
4/23/2002	--		12.00	26.00	14.96	24.36	<50	<0.5	<0.5	<0.5	<0.5	77	--	--	
7/17/2002	NP		12.00	26.00	17.09	22.23	<50	<0.50	<0.50	<0.50	<0.50	47	7.2	7.2	
10/9/2002	NP		12.00	26.00	17.87	21.45	<50	<0.50	<0.50	<0.50	<0.50	26/29	7.2	7.2	
1/13/2003	NP		12.00	26.00	14.78	24.54	<50	<0.50	<0.50	<0.50	<0.50	59	6.8	6.8	l
04/07/03	NP		12.00	26.00	16.15	23.17	88	<0.50	<0.50	<0.50	<0.50	75	7.0	7.0	
7/9/2003	--		12.00	26.00	16.79	22.53	100	<0.50	<0.50	<0.50	<0.50	52	6.5	6.5	
02/05/2004	NP	39.19	12.00	26.00	15.66	23.53	240	<0.50	<0.50	<0.50	<0.50	37	0.5	--	m
04/05/2004	NP		12.00	26.00	15.78	23.41	140	<0.50	<0.50	<0.50	0.60	53	1.0	6.6	
07/13/2004	NP		12.00	26.00	17.20	21.99	120	<0.50	<0.50	<0.50	<0.50	35	0.8	6.7	
11/04/2004	NP		12.00	26.00	17.32	21.87	160	<0.50	<0.50	<0.50	<0.50	25	0.8	6.5	
01/20/2005	NP		12.00	26.00	15.07	24.12	160	<0.50	<0.50	<0.50	<0.50	27	0.6	6.1	
04/11/2005	NP		12.00	26.00	14.24	24.95	<50	<0.50	<0.50	<0.50	<0.50	21	0.6	6.1	
08/01/2005	NP		12.00	26.00	16.29	22.90	<50	<0.50	<0.50	<0.50	<0.50	23	1.04	7.2	
10/21/2005	NP		12.00	26.00	17.41	21.78	88	<0.50	<0.50	<0.50	<0.50	19	1.9	6.6	
01/18/2006	NP		12.00	26.00	13.80	25.39	73	<0.50	<0.50	<0.50	<0.50	13	1.13	6.6	

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-3 Cont.															
04/14/2006	NP	39.19	12.00	26.00	12.55	26.64	<50	<0.50	<0.50	<0.50	<0.50	6.7	0.71	6.6	
7/19/2006	NP		12.00	26.00	15.04	24.15	<50	<0.50	<0.50	<0.50	<0.50	11	2.0	6.6	q
10/24/2006	P		12.00	26.00	16.45	22.74	<50	<0.50	<0.50	<0.50	<0.50	33	--	6.77	
1/15/2007	P		12.00	26.00	16.00	23.19	<50	<0.50	<0.50	0.61	<0.50	29	1.11	7.03	
4/18/2007	NP		12.00	26.00	15.87	23.32	<50	<0.50	<0.50	<0.50	<0.50	9.5	1.67	7.07	
7/17/2007	NP		12.00	26.00	19.40	19.79	<50	<0.50	<0.50	<0.50	<0.50	19	4.25	7.27	
10/11/2007	NP		12.00	26.00	17.43	21.76	<50	<0.50	<0.50	<0.50	<0.50	5.3	1.62	7.10	
1/8/2008	NP		12.00	26.00	15.16	24.03	<50	<0.50	<0.50	<0.50	<0.50	8.9	2.02	6.94	
4/8/2008	NP		12.00	26.00	15.75	23.44	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.98	6.80	
8/20/2008	NP		12.00	26.00	17.65	21.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.85	7.62	
11/17/2008	NP		12.00	26.00	17.76	21.43	<50	<0.50	<0.50	<0.50	<0.50	3.6	1.36	6.90	
2/3/2009	NP		12.00	26.00	17.36	21.83	<50	<0.50	<0.50	<0.50	<0.50	2.1	2.55	7.04	
5/12/2009	NP		12.00	26.00	16.30	22.89	<50	<0.50	<0.50	<0.50	<0.50	2.1	1.68	6.98	
8/13/2009	NP		12.00	26.00	18.75	20.44	<50	<0.50	<0.50	<0.50	<0.50	2.7	0.15	7.03	
2/18/2010	NP		12.00	26.00	15.31	23.88	<50	<0.50	<0.50	<0.50	<0.50	0.59	2.07	6.83	v (GRO)
7/23/2010	NP		12.00	26.00	16.34	22.85	<50	<0.50	<0.50	<0.50	<0.50	0.85	1.23	7.4	
2/10/2011	NP		12.00	26.00	15.63	23.56	<50	<0.50	<0.50	<0.50	<0.50	0.51	2.11	6.9	
8/30/2011	NP		12.00	26.00	16.45	22.74	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.83	6.9	
2/17/2012	P		12.00	26.00	16.70	22.49	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.85	7.12	
8/30/2012	P		12.00	26.00	17.15	22.04	<50	<0.50	<0.50	<0.50	<1.0	0.56	1.69	7.11	
2/7/2013	P		12.00	26.00	15.68	23.51	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.78	7.39	
8/15/2013	P		12.00	26.00	17.81	21.38	<50	<0.50	<0.50	<0.50	<1.0	<0.50	5.20	6.71	
1/9/2014	P		12.00	26.00	18.17	21.02	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.83	5.66	
MW-4															
6/26/2000	--	38.10	10.00	24.00	14.59	23.51	--	--	--	--	--	--	--	--	
7/20/2000	--		10.00	24.00	15.04	23.06	97	7.9	<0.5	<0.5	1.1	51	--	--	
9/19/2000	--		10.00	24.00	15.83	22.27	110	7	<0.5	<0.5	<1.0	60	--	--	
12/21/2000	--		10.00	24.00	15.59	22.51	120	5.6	<0.5	1.72	<0.5	46.3/48.6	--	--	
3/13/2001	--		10.00	24.00	13.73	24.37	76	0.796	<0.5	<0.5	<0.5	53.7/50	--	--	
9/18/2001	--		10.00	24.00	16.50	21.60	<50	<0.5	<0.5	<0.5	<0.5	25/26	--	--	

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
12/28/2001	--	38.10	10.00	24.00	14.03	24.07	<50	<0.5	<0.5	<0.5	<0.5	15/11	--	--	
3/14/2002	--		10.00	24.00	14.10	24.00	<50	<0.5	<0.5	<0.5	<0.5	31/28	--	--	
4/23/2002	--		10.00	24.00	13.57	24.53	<50	2.8	<0.5	<0.5	<0.5	42	--	--	
7/17/2002	NP		10.00	24.00	15.76	22.34	<50	<0.50	<0.50	<0.50	<0.50	16	7.1	7.1	
10/9/2002	NP		10.00	24.00	16.59	21.51	<50	2.2	<0.50	<0.50	<0.50	20/23	7.1	7.1	
1/13/2003	NP		10.00	24.00	13.43	24.67	52	<0.50	1.6	<0.50	<0.50	22	6.6	6.6	d
04/07/03	NP		10.00	24.00	14.74	23.36	65	<0.50	<0.50	<0.50	<0.50	24	6.6	6.6	
7/9/2003	--		10.00	24.00	15.44	22.66	120	<0.50	<0.50	<0.50	<0.50	34	6.6	6.6	
02/05/2004	NP	37.99	10.00	24.00	14.39	23.60	120	<0.50	<0.50	<0.50	<0.50	22	0.5	6.6	m
04/05/2004	NP		10.00	24.00	14.37	23.62	110	<0.50	<0.50	<0.50	<0.50	27	1.1	6.5	
07/13/2004	NP		10.00	24.00	15.96	22.03	77	<0.50	<0.50	<0.50	<0.50	27	0.6	6.6	
11/04/2004	NP		10.00	24.00	16.02	21.97	<50	<0.50	<0.50	<0.50	<0.50	19	1.2	6.7	
01/20/2005	NP		10.00	24.00	13.72	24.27	65	<0.50	<0.50	<0.50	<0.50	18	0.6	6.1	
04/11/2005	NP		10.00	24.00	12.80	25.19	51	<0.50	<0.50	<0.50	<0.50	14	0.7	6.2	
08/01/2005	NP		10.00	24.00	14.88	23.11	<50	<0.50	<0.50	<0.50	<0.50	18	1.46	7.3	
10/21/2005	NP		10.00	24.00	15.01	22.98	<50	<0.50	<0.50	<0.50	<0.50	15	1.24	7.6	
01/18/2006	NP		10.00	24.00	12.92	25.07	<50	<0.50	<0.50	<0.50	<0.50	8.9	0.77	6.5	
04/14/2006	NP		10.00	24.00	11.41	26.58	<50	<0.50	<0.50	<0.50	<0.50	4.2	0.84	6.6	
7/19/2006	NP		10.00	24.00	13.86	24.13	<50	<0.50	<0.50	<0.50	<0.50	3.4	1.0	6.7	
10/24/2006	P		10.00	24.00	15.35	22.64	<50	<0.50	<0.50	2.0	<0.50	3.5	--	6.90	
1/15/2007	P		10.00	24.00	14.96	23.03	<50	<0.50	<0.50	0.96	<0.50	3.8	--	7.04	
4/18/2007	NP		10.00	24.00	14.80	23.19	<50	<0.50	<0.50	<0.50	<0.50	5.6	5.33	6.93	
7/17/2007	NP		10.00	24.00	16.10	21.89	<50	<0.50	<0.50	<0.50	<0.50	6.6	3.73	6.87	
10/11/2007	NP		10.00	24.00	16.45	21.54	<50	<0.50	<0.50	<0.50	<0.50	0.81	2.68	7.07	
1/8/2008	NP		10.00	24.00	14.10	23.89	<50	<0.50	<0.50	<0.50	<0.50	1.2	3.50	6.74	
4/8/2008	NP		10.00	24.00	14.68	23.31	<50	<0.50	<0.50	<0.50	<0.50	1.7	2.54	6.80	
8/20/2008	NP		10.00	24.00	16.65	21.34	<50	<0.50	<0.50	<0.50	<0.50	0.70	2.36	6.90	
11/17/2008	NP		10.00	24.00	16.73	21.26	<50	<0.50	<0.50	<0.50	<0.50	0.73	1.07	6.83	
2/3/2009	NP		10.00	24.00	16.36	21.63	<50	<0.50	<0.50	<0.50	<0.50	0.67	3.92	7.34	
5/12/2009	NP		10.00	24.00	15.26	22.73	<50	<0.50	<0.50	<0.50	<0.50	0.62	0.81	6.98	

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-4 Cont.															
8/13/2009	NP	37.99	10.00	24.00	16.87	21.12	<50	<0.50	<0.50	<0.50	<0.50	0.65	0.94	7.12	u
2/18/2010	NP		10.00	24.00	14.22	23.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.20	6.25	
7/23/2010	NP		10.00	24.00	15.36	22.63	<50	<0.50	<0.50	<0.50	<0.50	0.52	0.68	7.0	
2/10/2011	NP		10.00	24.00	14.54	23.45	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.52	6.8	
8/30/2011	NP		10.00	24.00	15.38	22.61	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.03	7.0	
2/17/2012	P		10.00	24.00	15.66	22.33	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.96	7.06	
8/30/2012	P		10.00	24.00	16.18	21.81	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.54	7.02	
2/7/2013	P		10.00	24.00	14.57	23.42	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.44	7.33	
8/15/2013	P		10.00	24.00	16.82	21.17	<50	<0.50	<0.50	<0.50	<1.0	<0.50	4.58	6.52	
1/9/2014	P		10.00	24.00	17.17	20.82	52	<0.50	<0.50	<0.50	<1.0	<0.50	2.35	5.45	
MW-5															
6/26/2000	--	37.21	9.50	23.50	14.27	22.94	--	--	--	--	--	--	--	--	
7/20/2000	--		9.50	23.50	14.69	22.52	55	<0.5	<0.5	<0.5	<1.0	14,000	--	--	
9/19/2000	--		9.50	23.50	15.36	21.85	54	<0.5	<0.5	<0.5	<1.0	13,000	--	--	
12/21/2000	--		9.50	23.50	15.15	22.06	72.9	2.51	<0.5	<0.5	0.961	19,200/21,200	--	--	
3/13/2001	--		9.50	23.50	13.50	23.71	<500	<5	<5	<5	<5	15,900/20,000	--	--	
9/18/2001	--		9.50	23.50	15.94	21.27	<10,000	<100	<100	<100	<1,000	22,000/20,000	--	--	
12/28/2001	--		9.50	23.50	13.45	23.76	<10,000	<100	<100	<100	<100	10,000/10,000	--	--	
3/14/2002	--		9.50	23.50	13.82	23.39	<5,000	<50	<50	<50	<50	7,100/7,700	--	--	
4/23/2002	--		9.50	23.50	13.25	23.96	<5,000	<50	<50	<50	<50	8,900	--	--	
7/17/2002	NP		9.50	23.50	15.27	21.94	7,900	<50	<50	<50	<50	13,000	7.5	7.5	d
10/9/2002	NP		9.50	23.50	16.02	21.19	2,400	<20	<20	<20	<20	7,300/7,500	6.7	6.7	e
1/13/2003	NP		9.50	23.50	13.20	24.01	6,400	<50	<50	<50	<50	8,900	6.8	6.8	e, k, j
04/07/03	NP		9.50	23.50	14.42	22.79	<10,000	<100	<100	<100	<100	3,700	6.8	6.8	
7/9/2003	--		9.50	23.50	15.01	22.20	11,000	<50	<50	<50	<50	6,500	6.9	6.9	
02/05/2004	NP	37.12	9.50	23.50	14.10	23.02	8,100	<50	<50	<50	<50	7,900	1.5	--	m
04/05/2004	NP		9.50	23.50	14.14	22.98	4,000	<25	<25	<25	<25	2,000	1.0	6.6	
07/13/2004	NP		9.50	23.50	15.37	21.75	<5,000	<50	<50	<50	<50	4,000	0.8	6.7	
11/04/2004	NP		9.50	23.50	15.53	21.59	7,400	<50	<50	<50	<50	6,300	3.5	6.7	
01/20/2005	NP		9.50	23.50	13.51	23.61	6,500	<50	<50	<50	<50	6,900	0.7	6.5	n

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ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-5 Cont.															
04/11/2005	NP	37.12	9.50	23.50	12.75	24.37	<5,000	<50	<50	<50	<50	2,600	0.5	7.0	
08/01/2005	NP		9.50	23.50	14.59	22.53	110	<1.0	<1.0	<1.0	<1.0	130	1.36	7.5	
10/21/2005	NP		9.50	23.50	15.57	21.55	<250	<2.5	<2.5	<2.5	<2.5	86	1.53	6.8	
01/18/2006	NP		9.50	23.50	12.60	24.52	<250	<2.5	<2.5	<2.5	<2.5	100	1.2	6.7	
04/14/2006	NP		9.50	23.50	11.74	25.38	310	<2.5	<2.5	<2.5	<2.5	240	0.93	6.6	
7/19/2006	NP		9.50	23.50	13.78	23.34	<50	<2.5	<2.5	<2.5	<2.5	84	1.2	6.6	
10/24/2006	P		9.50	23.50	14.95	22.17	61	<0.50	<0.50	<0.50	<0.50	17	--	6.69	
1/15/2007	P		9.50	23.50	14.63	22.49	73	<0.50	<0.50	<0.50	<0.50	36	2.8	6.73	
4/18/2007	NP		9.50	23.50	14.50	22.62	93	<2.5	<2.5	<2.5	<2.5	16	1.66	6.84	n, EBZ present in method blank
7/17/2007	NP		9.50	23.50	15.55	21.57	53	<2.5	<2.5	<2.5	<2.5	6.6	5.02	7.02	n
10/11/2007	NP		9.50	23.50	15.83	21.29	<50	<0.50	<0.50	<0.50	<0.50	4.8	2.92	7.23	
1/8/2008	NP		9.50	23.50	13.82	23.30	<50	<0.50	<0.50	<0.50	<0.50	5.6	1.80	6.91	
4/8/2008	NP		9.50	23.50	14.38	22.74	<50	<0.50	<0.50	<0.50	<0.50	8.0	1.14	6.76	
8/20/2008	NP		9.50	23.50	16.11	21.01	<50	<1.0	<1.0	<1.0	<1.0	3.6	1.65	6.86	
11/17/2008	NP		9.50	23.50	16.15	20.97	<50	<0.50	<0.50	<0.50	<0.50	1.3	0.66	6.93	
2/3/2009	NP		9.50	23.50	15.83	21.29	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.38	6.77	
5/12/2009	NP		9.50	23.50	14.48	22.64	<50	<0.50	<0.50	<0.50	<0.50	2.5	0.41	6.83	
8/13/2009	NP		9.50	23.50	16.30	20.82	<50	<1.0	<1.0	<1.0	<1.0	1.3	0.78	7.06	u
2/18/2010	NP		9.50	23.50	13.95	23.17	<50	<0.50	<0.50	<0.50	<0.50	2.2	1.36	6.40	
7/23/2010	NP		9.50	23.50	14.98	22.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.75	7.2	
2/10/2011	NP		9.50	23.50	14.24	22.88	<50	<0.50	<0.50	<0.50	<0.50	0.73	0.83	6.7	
8/30/2011	NP		9.50	23.50	14.99	22.13	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.64	8.2	
2/17/2012	P		9.50	23.50	15.16	21.96	<50	<0.50	<0.50	<0.50	<0.50	0.98	0.85	7.05	
8/30/2012	P		9.50	23.50	15.69	21.43	<50	<0.50	<0.50	<0.50	<1.0	1.5	1.60	7.10	
2/7/2013	P		9.50	23.50	14.27	22.85	<50	<0.50	<0.50	<0.50	<1.0	1.5	1.95	7.26	
8/15/2013	P		9.50	23.50	16.21	20.91	<50	<0.50	<0.50	<0.50	<1.0	1.0	5.17	6.91	
1/9/2014	P		9.50	23.50	16.54	20.58	<50	<0.50	<0.50	<0.50	<1.0	0.66	3.02	5.69	
MW-6															
6/26/2000	--	37.11	10.00	25.00	13.46	23.65	--	--	--	--	--	--	--	--	
7/20/2000	--		10.00	25.00	13.94	23.17	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-6 Cont.															
9/19/2000	--	37.11	10.00	25.00	14.41	22.70	<50	<0.5	<0.5	<0.5	<1.0	<3.0	--	--	
12/21/2000	--		10.00	25.00	14.53	22.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/13/2001	--		10.00	25.00	12.67	24.44	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/18/2001	--		10.00	25.00	15.42	21.69	<50	<0.5	<0.5	<0.5	<0.5	<2.5/<2.0	--	--	
12/28/2001	--		10.00	25.00	12.96	24.15	<50	<0.5	<0.5	<0.5	<0.5	12/<0.5	--	--	
3/14/2002	--		10.00	25.00	12.98	24.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/23/2002	--		10.00	25.00	12.44	24.67	<50	<0.5	<0.5	<0.5	<0.5	3.1	--	--	
7/17/2002	NP		10.00	25.00	14.65	22.46	<50	<0.50	<0.50	<0.50	<0.50	<2.5	7.3	7.3	
10/9/2002	NP		10.00	25.00	15.51	21.60	<50	<0.50	<0.50	<0.50	<0.50	<2.5	7.1	7.1	
1/13/2003	NP		10.00	25.00	12.27	24.84	<50	<0.50	<0.50	<0.50	<0.50	<2.5	6.8	6.8	
04/07/03	NP		10.00	25.00	13.61	23.50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	6.6	6.6	
7/9/2003	--		10.00	25.00	14.34	22.77	<50	<0.50	<0.50	<0.50	<0.50	<0.50	7	7.0	
02/05/2004	--		10.00	25.00	13.38	23.73	--	--	--	--	--	--	--	--	m
04/05/2004	--		10.00	25.00	13.31	23.80	--	--	--	--	--	--	--	--	
07/13/2004	NP		10.00	25.00	14.65	22.46	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.7	6.8	
11/04/2004	--		10.00	25.00	14.95	22.16	--	--	--	--	--	--	--	--	
01/20/2005	--		10.00	25.00	12.57	24.54	--	--	--	--	--	--	--	--	
04/11/2005	--		10.00	25.00	12.05	25.06	--	--	--	--	--	--	--	--	
08/01/2005	NP		10.00	25.00	13.79	23.32	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.6	
10/21/2005	--		10.00	25.00	14.60	22.51	--	--	--	--	--	--	--	--	
01/18/2006	--		10.00	25.00	11.80	25.31	--	--	--	--	--	--	--	--	
04/14/2006	--		10.00	25.00	10.92	26.19	--	--	--	--	--	--	--	--	
7/19/2006	NP		10.00	25.00	12.92	24.19	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	6.9	
10/24/2006	--		10.00	25.00	14.23	22.88	--	--	--	--	--	--	--	--	
1/15/2007	--		10.00	25.00	13.80	23.31	--	--	--	--	--	--	--	--	
4/18/2007	--		10.00	25.00	13.67	23.44	--	--	--	--	--	--	--	--	
7/17/2007	NP		10.00	25.00	14.08	23.03	<50	<0.50	<0.50	<0.50	<0.50	<0.50	4.40	7.02	
10/11/2007	--		10.00	25.00	15.28	21.83	--	--	--	--	--	--	--	--	
1/8/2008	--		10.00	25.00	13.08	24.03	--	--	--	--	--	--	--	--	
4/8/2008	--		10.00	25.00	13.52	23.59	--	--	--	--	--	--	--	--	

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-6 Cont.															
8/20/2008	NP	37.11	10.00	25.00	15.59	21.52	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.66	6.83	
11/17/2008	--		10.00	25.00	15.61	21.50	--	--	--	--	--	--	--	--	
2/3/2009	--		10.00	25.00	15.23	21.88	--	--	--	--	--	--	--	--	
5/12/2009	--		10.00	25.00	14.09	23.02	--	--	--	--	--	--	--	--	
8/13/2009	NP		10.00	25.00	15.80	21.31	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.85	7.02	u
2/18/2010	--		10.00	25.00	12.96	24.15	--	--	--	--	--	--	--	--	
7/23/2010	NP		10.00	25.00	13.91	23.20	210	<0.50	<0.50	<0.50	<0.50	<0.50	0.65	6.73	
2/10/2011	--		10.00	25.00	13.15	23.96	--	--	--	--	--	--	--	--	
8/30/2011	NP		10.00	25.00	13.10	24.01	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.60	7.2	
2/17/2012	--		10.00	25.00	14.46	22.65	--	--	--	--	--	--	--	--	
8/30/2012	P		10.00	25.00	14.22	22.89	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.54	6.97	
2/7/2013	--		10.00	25.00	13.44	23.67	--	--	--	--	--	--	--	--	
8/15/2013	P		10.00	25.00	15.72	21.39	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.95	7.03	
1/9/2014	--		10.00	25.00	16.15	20.96	--	--	--	--	--	--	--	--	
MW-7															
6/26/2000	--	38.68	12.00	27.00	14.34	24.34	--	--	--	--	--	--	--	--	
7/20/2000	--		12.00	27.00	15.26	23.42	14,000	5.4	<0.5	2.8	5.9	71,000	--	--	
9/19/2000	--		12.00	27.00	15.70	22.98	8,400	420	38	470	220	5,600	--	--	
12/21/2000	--		12.00	27.00	16.02	22.66	--	--	--	--	--	--	--	--	
3/13/2001	--		12.00	27.00	14.18	24.50	<2,000	154	63	46.3	127	75,000/160,000	--	--	
9/18/2001	--		12.00	27.00	17.02	21.66	<100,000	1,900	<1,000	<1,000	2,800	90,000/370,000	--	--	
12/28/2001	--		12.00	27.00	14.81	23.87	<20,000	<200	<200	<200	<200	84,000/72,000	--	--	
3/14/2002	--		12.00	27.00	14.60	24.08	<50,000	<500	<500	<500	<500	85,000/85,000	--	--	
4/23/2002	--		12.00	27.00	13.94	24.74	<20,000	530	200	220	800	67,000	--	--	
7/17/2002	NP		12.00	27.00	16.27	22.41	26,000	720	<250	<250	860	120,000	6.9	6.9	d
10/9/2002	NP		12.00	27.00	17.16	21.52	110,000	1,500	4,400	820	5,400	97,000/120,000	6.8	6.8	d
1/13/2003	NP		12.00	27.00	13.82	24.86	<50,000	<500	<500	<500	2,200	33,000	6.6	6.6	f
04/07/03	NP		12.00	27.00	14.52	24.16	<2,500	30	<25	<25	<25	710	7.0	7.0	
7/9/2003	--		12.00	27.00	15.97	22.71	66,000	<500	<500	<500	<500	36,000	6.7	6.7	
02/05/2004	NP	38.54	12.00	27.00	14.75	23.79	55,000	300	<250	<250	<250	34,000	1.0	6.7	m

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ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-7 Cont.															
04/05/2004	NP	38.54	12.00	27.00	14.63	23.91	62,000	520	<250	<250	380	37,000	1.0	6.7	
07/13/2004	NP		12.00	27.00	16.31	22.23	<100,000	<1,000	<1,000	<1,000	<1,000	56,000	0.7	6.7	
11/04/2004	--		12.00	27.00	16.46	22.08	70,000	<500	<500	<500	<500	71,000	2.0	6.6	
01/20/2005	NP		12.00	27.00	14.05	24.49	34,000	<250	<250	<250	<250	36,000	0.6	6.3	n
04/11/2005	NP		12.00	27.00	12.55	25.99	<2,500	46	<25	<25	<25	1,200	0.7	6.8	
08/01/2005	NP		12.00	27.00	15.11	23.43	<25,000	<250	<250	<250	<250	4,800	1.78	7.3	
10/21/2005	NP		12.00	27.00	15.65	22.89	14,000	350	<100	<100	110	12,000	1.41	6.6	p
01/18/2006	NP		12.00	27.00	12.60	25.94	16,000	310	<100	<100	110	13,000	0.87	6.7	
04/14/2006	NP		12.00	27.00	12.09	26.45	<10,000	<100	<100	<100	<100	4,700	0.88	6.9	
7/19/2006	NP		12.00	27.00	13.58	24.96	1,300	23	<10	18	26	1,600	1.1	6.8	q
10/24/2006	P		12.00	27.00	15.13	23.41	6,800	100	<5.0	16	15	14,000	--	6.93	
1/15/2007	P		12.00	27.00	14.43	24.11	2,500	<100	<100	<100	<100	3,900	2.12	7.44	n
4/18/2007	NP		12.00	27.00	14.30	24.24	3,000	50	<50	<50	<50	2,700	4.47	7.22	n
7/17/2007	NP		12.00	27.00	23.75	14.79	560	<25	<25	<25	<25	890	4.23	7.41	n
10/11/2007	NP		12.00	27.00	16.18	22.36	210	<2.5	<2.5	<2.5	<2.5	370	2.99	7.33	t (GRO)
1/8/2008	NP		12.00	27.00	13.90	24.64	5,100	45	<25	<25	<25	6,100	2.50	7.23	n
4/8/2008	NP		12.00	27.00	14.22	24.32	270	0.50	<0.50	1.2	0.66	1,200	1.67	7.17	
8/20/2008	NP		12.00	27.00	16.57	21.97	<50	<0.50	<0.50	<0.50	<0.50	39	2.12	7.04	
11/17/2008	NP		12.00	27.00	22.91	15.63	68	1.8	1.9	0.54	2.0	28	1.14	6.95	
2/3/2009	NP		12.00	27.00	17.86	20.68	<50	<0.50	<0.50	<0.50	<0.50	18	2.58	6.97	
5/12/2009	NP		12.00	27.00	15.36	23.18	110	2.0	<0.50	<0.50	2.9	390	0.72	7.14	
8/13/2009	NP		12.00	27.00	24.10	14.44	<50	<0.50	<0.50	<0.50	<0.50	21	0.84	7.11	u
2/18/2010	NP		12.00	27.00	14.21	24.33	190	<25	<25	<25	<25	1,300	1.52	7.06	v (GRO)
7/23/2010	NP		12.00	27.00	15.50	23.04	<50	<0.50	<0.50	<0.50	<0.50	1,000	0.57	6.89	v (GRO)
2/10/2011	P		12.00	27.00	14.44	24.10	440	<25	<25	<25	<25	310	0.76	7.0	v (GRO)
8/30/2011	NP		12.00	27.00	15.10	23.44	480	<25	<25	<25	<25	180	0.80	6.9	w (GRO)
2/17/2012	P		12.00	27.00	15.46	23.08	220	0.84	<0.50	<0.50	<0.50	110	1.99	7.50	w (GRO)
8/30/2012	P		12.00	27.00	15.94	22.60	230	<10	<10	<10	<20	210	1.15	7.15	
2/7/2013	P		12.00	27.00	14.19	24.35	310	8.9	<0.50	<0.50	<1.0	98	1.30	7.65	
8/15/2013	P		12.00	27.00	16.66	21.88	280	<10	<10	<10	<20	85	3.61	7.10	

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-7 Cont.															
1/9/2014	P	38.54	12.00	27.00	17.03	21.51	500	<20	<20	<20	<40	100	1.39	6.61	
MW-8															
02/05/2004	P	38.91	--	--	15.61	23.30	3,600	<25	<25	<25	<25	1,900	6.9	6.8	m
04/05/2004	P		--	--	15.64	23.27	1,900	<10	<10	<10	<10	1,200	3.2	6.7	
07/13/2004	P		--	--	17.22	21.69	<1,000	<10	<10	<10	<10	760	1.6	6.7	
11/04/2004	P		--	--	17.19	21.72	960	<5.0	<5.0	<5.0	<5.0	820	1.8	6.7	
01/20/2005	P		--	--	15.25	23.66	<2,500	<25	<25	<25	<25	1,400	1.5	6.4	
04/11/2005	P		--	--	14.17	24.74	700	<5.0	<5.0	<5.0	<5.0	610	1.1	7.1	
08/01/2005	P		--	--	16.10	22.81	<1,000	<10	<10	<10	<10	900	2.58	7.7	
10/21/2005	P		--	--	17.18	21.73	530	<5.0	<5.0	<5.0	<5.0	490	1.4	6.7	n
01/18/2006	P		--	--	13.60	25.31	<500	<5.0	<5.0	<5.0	<5.0	500	2.28	6.6	
04/14/2006	P		--	--	12.36	26.55	<500	<5.0	<5.0	<5.0	<5.0	300	1.97	6.6	
7/19/2006	P		--	--	14.75	24.16	4,500	<25	<25	<25	<25	4,200	1.2	6.6	
10/24/2006	--		--	--	--	--	--	--	--	--	--	--	--	--	s
1/15/2007	P		--	--	15.67	23.24	<50	<0.50	<0.50	<0.50	<0.50	67	1.35	6.68	
4/18/2007	P		--	--	15.53	23.38	100	0.51	<0.50	<0.50	<0.50	130	1.49	6.86	n
7/17/2007	NP		--	--	16.76	22.15	63	<0.50	<0.50	<0.50	<0.50	96	1.85	6.97	n
10/11/2007	P		--	--	16.99	21.92	100	0.52	<0.50	<0.50	<0.50	130	1.67	7.18	
1/8/2008	P		--	--	14.83	24.08	51	<0.50	<0.50	<0.50	<0.50	49	1.30	6.88	n
4/8/2008	P		--	--	15.38	23.53	<50	<0.50	<0.50	<0.50	<0.50	32	1.60	6.77	
8/20/2008	P		--	--	17.80	21.11	<50	<0.50	<0.50	<0.50	<0.50	13	1.18	6.94	
11/17/2008	P		--	--	17.47	21.44	<50	<0.50	<0.50	<0.50	<0.50	14	3.74	6.63	
2/3/2009	P		--	--	16.96	21.95	<50	<0.50	<0.50	<0.50	<0.50	16	0.83	6.9	
5/12/2009	P		--	--	15.93	22.98	<50	<0.50	<0.50	<0.50	<0.50	30	0.31	6.90	
8/13/2009	P		--	--	17.50	21.41	<50	<0.50	<0.50	<0.50	<0.50	7.5	0.65	7.44	
2/18/2010	P		--	--	14.93	23.98	<50	<0.50	<0.50	<0.50	<0.50	12	0.64	6.62	
7/23/2010	P		--	--	16.02	22.89	<50	<0.50	<0.50	<0.50	<0.50	8.2	0.94	6.7	
2/10/2011	P		--	--	15.28	23.63	<50	<0.50	<0.50	<0.50	<0.50	4.5	1.08	6.8	
8/30/2011	P		--	--	16.08	22.83	<50	<0.50	<0.50	<0.50	<0.50	3.6	0.86	6.8	
2/17/2012	P		--	--	16.34	22.57	<50	<0.50	<0.50	<0.50	<0.50	1.8	0.83	7.10	

Table 4. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
MW-8 Cont.															
8/30/2012	P	38.91	--	--	16.84	22.07	<50	<0.50	<0.50	<0.50	<1.0	1.9	1.58	7.02	
2/7/2013	P		--	--	15.31	23.60	<50	<0.50	<0.50	<0.50	<1.0	3.6	1.56	7.36	
8/15/2013	P		--	--	17.45	21.46	<50	<0.50	<0.50	<0.50	<1.0	0.65	4.39	6.97	
1/9/2014	P		--	--	17.80	21.11	<50	<0.50	<0.50	<0.50	<1.0	0.50	2.09	5.63	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DTW = Depth to water in ft bgs
ft bgs = feet below ground surface
ft MSL = feet above mean sea level
GRO = Gasoline range organics
GWE = Groundwater elevation in ft MSL
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing elevation in ft MSL
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter

Footnotes:

a = Product sheen noted
b = Well was sampled after batch extraction event
c = Chromatogram Pattern: Gasoline C6-C10 for GRO/TPH-g
d = Hydrocarbon pattern was present in the requested fuel quantitation range but did not resemble the pattern of the requested fuel for GRO/TPH-g
e = Discrete peak @C6-C7 for GRO/TPH-g
f = This sample was analyzed beyond the EPA recommended holding time for TPH-g, benzene, toluene, ethylbenzene, and total xylenes (BTEX), and MTBE. The results may still be useful for their intended purpose
g = Well not sampled due to the detection of free product (FP)
h = GWE adjusted for FP: (thickness of FP x 0.8) + measured GWE
j = The closing calibration for benzene and total xylenes was outside acceptance limits by 1%. This should be considered in evaluating the result. The average % difference for all analytes met the 15% requirement and the QC suggested that calibration linearity was not a factor
k = The closing calibration was outside acceptance limits by 6%. This should be considered in evaluating the result. The average % difference for all analytes met the 15% requirement and the QC suggested that calibration linearity was not a factor
l = Toluene and MTBE were not confirmed using a secondary column in accordance to client contract
m = TOC elevations re-surveyed to NAVD '88 on February 23, 2004
n = Hydrocarbon result for GRO partly due to indiv. peak(s) in quantitative range
o = Light to moderate sheen
p = Result for MTBE partly due to individual peak(s) in quant. range
q = Gauged with tubing in well
r = Calib. verif. is within method limits but outside contract limits
s = Well inaccessible
t = Initial analysis within holding time but required dilution
u = Sample taken from VOA vial with air bubble > 6mm diameter
v = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
w = Quantitated against gasoline

Notes:

Beginning with the second quarter 2003 sampling event (04/07/03), TPH-g, BTEX, and MTBE analyzed by EPA method 8260B. Prior to 04/07/03, TPH-g was analyzed by EPA method 8015 modified and MTBE was analyzed by EPA methods 8020/ 8260B

Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported

Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12

Values for DO and pH were obtained through field measurements

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
7/20/2000	--	--	2,100	--	--	--	--	--	
9/19/2000	--	--	1,500	--	--	--	--	--	
12/21/2000	--	--	1,080/1,060	--	--	--	--	--	
3/13/2001	--	--	1,430/1,370	--	--	--	--	--	
9/18/2001	--	--	810/1,100	--	--	--	--	--	
12/28/2001	--	--	1,200/1,100	--	--	--	--	--	
3/14/2002	--	--	34/40	--	--	--	--	--	
4/23/2002	--	--	30	--	--	--	--	--	
7/17/2002	--	--	29	--	--	--	--	--	
10/9/2002	--	--	290	--	--	--	--	--	
1/13/2003	--	--	300	--	--	--	--	--	
04/07/03	<100	<20	22	<0.50	<0.50	<0.50	--	--	
7/9/2003	<5,000	<1,000	690	<25	<25	<25	--	--	
02/05/2004	<5,000	<1,000	1,100	<25	<25	32	<25	<25	
04/05/2004	<5,000	<1,000	1,700	<25	<25	38	<25	<25	a
07/13/2004	<2,000	780	730	<10	<10	19	<10	<10	a
11/04/2004	<1,000	<200	380	<5.0	<5.0	12	<5.0	<5.0	
01/20/2005	<1,000	<200	570	<5.0	<5.0	17	<5.0	<5.0	a
04/11/2005	<5,000	<1,000	1,100	<25	<25	34	<25	<25	
08/01/2005	<2,000	<400	1,400	<10	<10	40	<10	<10	
10/21/2005	<5,000	<1,000	970	<25	<25	<25	<25	<25	
01/18/2006	<1,500	<100	330	<2.5	<2.5	9.7	<2.5	<2.5	
04/14/2006	<1,500	<100	310	<2.5	<2.5	9.3	<2.5	<2.5	
7/19/2006	<1,500	<100	180	<2.5	<2.5	3.2	<2.5	<2.5	
10/24/2006	<1,500	<100	360	<2.5	<2.5	10	<2.5	<2.5	
1/15/2007	<1,500	<100	220	<2.5	<2.5	6.8	<2.5	<2.5	
4/18/2007	<1,500	<100	150	<2.5	<2.5	<2.5	<2.5	<2.5	
7/17/2007	<600	<40	94	<1.0	<1.0	2.3	<1.0	<1.0	
10/11/2007	<300	<20	62	<0.50	<0.50	<0.50	<0.50	<0.50	
1/8/2008	<300	74	90	<0.50	<0.50	2.5	<0.50	<0.50	a
4/8/2008	<300	57	110	<0.50	<0.50	2.6	<0.50	<0.50	
8/20/2008	<300	<10	3.3	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1 Cont.									
11/17/2008	<300	<10	21	<0.50	<0.50	0.52	<0.50	<0.50	
2/3/2009	<300	<10	16	<0.50	<0.50	<0.50	<0.50	<0.50	
5/12/2009	<300	<10	9.3	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<300	<10	5.5	<0.50	<0.50	<0.50	<0.50	<0.50	b
2/18/2010	<300	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	
7/23/2010	<300	<10	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2011	<300	<10	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2011	<300	<10	2.1	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2012	<300	<10	0.85	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<150	<10	0.74	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2013	<150	<10	0.87	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1/9/2014	<150	<10	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-2									
7/20/2000	--	--	13,000	--	--	--	--	--	
9/19/2000	--	--	19,000	--	--	--	--	--	
12/21/2000	--	--	54,300/89,200	--	--	--	--	--	
12/21/2000	--	--	22,400/24,700	--	--	--	--	--	
3/13/2001	--	--	91,700/76,000	--	--	--	--	--	
3/13/2001	--	--	3,590/3,260	--	--	--	--	--	
12/28/2001	--	--	9,300/8,800	--	--	--	--	--	
3/14/2002	--	--	990/960	--	--	--	--	--	
4/23/2002	--	--	8,500	--	--	--	--	--	
7/17/2002	--	--	19,000/0.4	--	--	--	--	--	
04/05/2004	<1,000	<200	750	<5.0	<5.0	<5.0	<5.0	<5.0	
07/13/2004	<10,000	12,000	5,800	<50	<50	<50	<50	<50	a
08/31/2004	--	--	--	--	--	--	--	--	a
01/20/2005	<10,000	<2,000	7,000	<50	<50	<50	<50	<50	a
04/11/2005	<10,000	<2,000	2,700	<50	<50	<50	<50	<50	
08/01/2005	<10,000	<2,000	2,700	<50	<50	<50	<50	<50	
01/18/2006	<30,000	<2,000	1,600	<50	<50	<50	<50	<50	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
04/14/2006	<30,000	<2,000	2,100	<50	<50	<50	<50	<50	
7/19/2006	<6,000	<400	930	<10	<10	<10	<10	<10	
1/15/2007	<6,000	1,900	1,400	<10	<10	<10	<10	<10	
4/18/2007	<6,000	1,200	1,100	<10	<10	<10	<10	<10	
7/17/2007	<6,000	1,000	1,300	<10	<10	<10	<10	<10	
10/11/2007	<6,000	1,300	1,000	<10	<10	<10	<10	<10	
1/8/2008	<6,000	2,600	1,300	<10	<10	<10	<10	<10	a
4/8/2008	<300	970	690	<0.50	<0.50	3.3	<0.50	<0.50	
8/20/2008	<6,000	470	190	<10	<10	<10	<10	<10	
11/17/2008	<3,000	740	89	<5.0	<5.0	<5.0	<5.0	<5.0	
2/3/2009	<1,500	230	31	<2.5	<2.5	<2.5	<2.5	<2.5	
5/12/2009	<300	590	25	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<6,000	2,300	39	<10	<10	<10	<10	<10	b
2/18/2010	<3,000	1,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
7/23/2010	<1,200	410	6.5	<2.0	<2.0	<2.0	<2.0	<2.0	
2/10/2011	<2400	2800	12	<4.0	<4.0	<4.0	<4.0	<4.0	
8/30/2011	<300	340	4.5	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2012	<1,500	920	2.9	<2.5	<2.5	<2.5	<2.5	<2.5	
8/30/2012	<150	190	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2013	<150	230	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	180	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
1/9/2014	<150	230	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-3									
7/20/2000	--	--	130	--	--	--	--	--	
9/19/2000	--	--	160	--	--	--	--	--	
12/21/2000	--	--	143/125	--	--	--	--	--	
3/13/2001	--	--	126/122	--	--	--	--	--	
9/18/2001	--	--	110/75	--	--	--	--	--	
12/28/2001	--	--	90/63	--	--	--	--	--	
3/14/2002	--	--	100/88	--	--	--	--	--	
4/23/2002	--	--	77	--	--	--	--	--	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
7/17/2002	--	--	47	--	--	--	--	--	
10/9/2002	--	--	26/29	--	--	--	--	--	
1/13/2003	--	--	59	--	--	--	--	--	
04/07/03	<100	<20	75	<0.50	<0.50	6.5	--	--	
7/9/2003	<100	<20	52	<0.50	<0.50	4.2	--	--	
02/05/2004	<100	<20	37	<0.50	<0.50	3.1	<0.50	<0.50	
04/05/2004	<100	<20	53	<0.50	<0.50	3.7	<0.50	<0.50	a
07/13/2004	<100	44	35	<0.50	<0.50	3.2	<0.50	<0.50	
11/04/2004	<100	<20	25	<0.50	<0.50	2.2	<0.50	<0.50	
01/20/2005	<100	<20	27	<0.50	<0.50	2.6	<0.50	<0.50	
04/11/2005	<100	<20	21	<0.50	<0.50	2.0	<0.50	<0.50	
08/01/2005	<100	<20	23	<0.50	<0.50	1.9	<0.50	<0.50	
10/21/2005	<100	<20	19	<0.50	<0.50	2.0	<0.50	<0.50	
01/18/2006	<300	<20	13	<0.50	<0.50	1.3	<0.50	<0.50	
04/14/2006	<300	<20	6.7	<0.50	<0.50	0.61	<0.50	<0.50	
7/19/2006	<300	<20	11	<0.50	<0.50	0.72	<0.50	<0.50	r
10/24/2006	<300	<20	33	<0.50	<0.50	2.8	<0.50	<0.50	
1/15/2007	<300	<20	29	<0.50	<0.50	2.9	<0.50	<0.50	
4/18/2007	<300	<20	9.5	<0.50	<0.50	0.90	<0.50	<0.50	
7/17/2007	<300	<20	19	<0.50	<0.50	1.5	<0.50	<0.50	
10/11/2007	<300	<20	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	
1/8/2008	<300	<20	8.9	<0.50	<0.50	0.84	<0.50	<0.50	a
4/8/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
11/17/2008	<300	<10	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	
2/3/2009	<300	<10	2.1	<0.50	<0.50	<0.50	<0.50	<0.50	
5/12/2009	<300	<10	2.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<300	<10	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	<10	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
7/23/2010	<300	14	0.85	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2011	<300	<10	0.51	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
2/17/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<150	<10	0.56	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1/9/2014	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4									
7/20/2000	--	--	51	--	--	--	--	--	
9/19/2000	--	--	60	--	--	--	--	--	
12/21/2000	--	--	46.3/48.6	--	--	--	--	--	
3/13/2001	--	--	53.7/50	--	--	--	--	--	
9/18/2001	--	--	25/26	--	--	--	--	--	
12/28/2001	--	--	15/11	--	--	--	--	--	
3/14/2002	--	--	31/28	--	--	--	--	--	
4/23/2002	--	--	42	--	--	--	--	--	
7/17/2002	--	--	16	--	--	--	--	--	
10/9/2002	--	--	20/23	--	--	--	--	--	
1/13/2003	--	--	22	--	--	--	--	--	
04/07/03	<100	<20	24	<0.50	<0.50	7.3	--	--	
7/9/2003	<100	<20	34	<0.50	<0.50	9.8	--	--	
02/05/2004	<100	<20	22	<0.50	<0.50	6.2	<0.50	<0.50	
04/05/2004	<100	<20	27	<0.50	<0.50	7.2	<0.50	<0.50	a
07/13/2004	<100	26	27	<0.50	<0.50	7.4	<0.50	<0.50	a
11/04/2004	<100	<20	19	<0.50	<0.50	5.1	<0.50	<0.50	
01/20/2005	<100	<20	18	<0.50	<0.50	5.2	<0.50	<0.50	
04/11/2005	<100	<20	14	<0.50	<0.50	4.0	<0.50	<0.50	
08/01/2005	<100	<20	18	<0.50	<0.50	3.9	<0.50	<0.50	
10/21/2005	<100	<20	15	<0.50	<0.50	4.6	<0.50	<0.50	
01/18/2006	<300	<20	8.9	<0.50	<0.50	2.5	<0.50	<0.50	
04/14/2006	<300	<20	4.2	<0.50	<0.50	1.3	<0.50	<0.50	
7/19/2006	<300	<20	3.4	<0.50	<0.50	0.69	<0.50	<0.50	r
10/24/2006	<300	<20	3.5	<0.50	<0.50	0.91	<0.50	<0.50	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-4 Cont.									
1/15/2007	<300	<20	3.8	<0.50	<0.50	0.98	<0.50	<0.50	
4/18/2007	<300	<20	5.6	<0.50	<0.50	1.1	<0.50	<0.50	
7/17/2007	<300	<20	6.6	<0.50	<0.50	1.7	<0.50	<0.50	
10/11/2007	<300	<20	0.81	<0.50	<0.50	<0.50	<0.50	<0.50	
1/8/2008	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	a
4/8/2008	<300	<10	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2008	<300	<10	0.70	<0.50	<0.50	<0.50	<0.50	<0.50	
11/17/2008	<300	<10	0.73	<0.50	<0.50	<0.50	<0.50	<0.50	
2/3/2009	<300	<10	0.67	<0.50	<0.50	<0.50	<0.50	<0.50	
5/12/2009	<300	<10	0.62	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<300	<10	0.65	<0.50	<0.50	<0.50	<0.50	<0.50	b
2/18/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/23/2010	<300	<10	0.52	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1/9/2014	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-5									
7/20/2000	--	--	14,000	--	--	--	--	--	
9/19/2000	--	--	13,000	--	--	--	--	--	
12/21/2000	--	--	19,200/21,200	--	--	--	--	--	
3/13/2001	--	--	15,900/20,000	--	--	--	--	--	
9/18/2001	--	--	22,000/20,000	--	--	--	--	--	
12/28/2001	--	--	10,000/10,000	--	--	--	--	--	
3/14/2002	--	--	7,100/7,700	--	--	--	--	--	
4/23/2002	--	--	8,900	--	--	--	--	--	
7/17/2002	--	--	13,000	--	--	--	--	--	
10/9/2002	--	--	7,300/7,500	--	--	--	--	--	

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ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-5 Cont.									
1/13/2003	--	--	8,900	--	--	--	--	--	
04/07/03	<20,000	<4,000	3,700	<100	<100	<100	--	--	
7/9/2003	<10,000	<2,000	6,500	<50	<50	<50	--	--	
02/05/2004	<10,000	<2,000	7,900	<50	<50	<50	<50	<50	a
04/05/2004	<5,000	<1,000	2,000	<25	<25	<25	<25	<25	a
07/13/2004	<10,000	3,200	4,000	<50	<50	<50	<50	<50	a
11/04/2004	<10,000	<2,000	6,300	<50	<50	<50	<50	<50	
01/20/2005	<10,000	<2,000	6,900	<50	<50	<50	<50	<50	a
04/11/2005	<10,000	3,600	2,600	<50	<50	<50	<50	<50	
08/01/2005	<200	1,600	130	<1.0	<1.0	<1.0	<1.0	<1.0	
10/21/2005	<500	1,400	86	<2.5	<2.5	<2.5	<2.5	<2.5	
01/18/2006	<1,500	2,200	100	<2.5	<2.5	<2.5	<2.5	<2.5	
04/14/2006	<1,500	2,100	240	<2.5	<2.5	<2.5	<2.5	<2.5	
7/19/2006	<1,500	2,800	84	<2.5	<2.5	<2.5	<2.5	<2.5	r
10/24/2006	<300	1,200	17	<0.50	<0.50	<0.50	<0.50	<0.50	a
1/15/2007	<300	990	36	<0.50	<0.50	<0.50	<0.50	<0.50	
4/18/2007	<1,500	2,000	16	<2.5	<2.5	<2.5	<2.5	<2.5	
7/17/2007	<1,500	1,100	6.6	<2.5	<2.5	<2.5	<2.5	<2.5	
10/11/2007	<300	750	4.8	<0.50	<0.50	<0.50	<0.50	<0.50	
1/8/2008	<300	220	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	a
4/8/2008	<300	300	8.0	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2008	<600	520	3.6	<1.0	<1.0	<1.0	<1.0	<1.0	
11/17/2008	<300	160	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
2/3/2009	<300	94	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
5/12/2009	<300	29	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<600	180	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	b
2/18/2010	<300	17	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
7/23/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2011	<300	<10	0.73	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2011	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2012	<300	<10	0.98	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<150	<10	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	

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ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-5 Cont.									
2/7/2013	<150	57	1.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	<10	1.0	<0.50	<0.50	<0.50	<0.50	<0.50	
1/9/2014	<150	<10	0.66	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-6									
7/20/2000	--	--	<3.0	--	--	--	--	--	
9/19/2000	--	--	<3.0	--	--	--	--	--	
12/21/2000	--	--	<2.5	--	--	--	--	--	
3/13/2001	--	--	<2.5	--	--	--	--	--	
9/18/2001	--	--	<2.5/<2.0	--	--	--	--	--	
12/28/2001	--	--	12/<0.5	--	--	--	--	--	
3/14/2002	--	--	<2.5	--	--	--	--	--	
4/23/2002	--	--	3.1	--	--	--	--	--	
7/17/2002	--	--	<2.5	--	--	--	--	--	
10/9/2002	--	--	<2.5	--	--	--	--	--	
1/13/2003	--	--	<2.5	--	--	--	--	--	
04/07/03	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
7/9/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
07/13/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
08/01/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
7/19/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	r
7/17/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
7/23/2010	<300	15	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-7									
7/20/2000	--	--	71,000	--	--	--	--	--	
9/19/2000	--	--	5,600	--	--	--	--	--	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-7 Cont.									
3/13/2001	--	--	75,000/160,000	--	--	--	--	--	
9/18/2001	--	--	90,000/370,000	--	--	--	--	--	
12/28/2001	--	--	84,000/72,000	--	--	--	--	--	
3/14/2002	--	--	85,000/85,000	--	--	--	--	--	
4/23/2002	--	--	67,000	--	--	--	--	--	
7/17/2002	--	--	120,000	--	--	--	--	--	
10/9/2002	--	--	7,000/120,000	--	--	--	--	--	
1/13/2003	--	--	33,000	--	--	--	--	--	
04/07/03	<5,000	<1,000	710	<25	<25	<25	--	--	
7/9/2003	<100,000	<20,000	36,000	<500	<500	<500	--	--	
02/05/2004	<50,000	<10,000	34,000	<250	<250	<250	<250	<250	
04/05/2004	<50,000	<10,000	37,000	<250	<250	<250	<250	<250	
07/13/2004	<200,000	<40,000	56,000	<1,000	<1,000	1,300	<1,000	<1,000	
11/04/2004	<100,000	<20,000	71,000	<500	<500	<500	<500	<500	
01/20/2005	<50,000	<10,000	36,000	<250	<250	<250	<250	<250	a
04/11/2005	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
08/01/2005	<50,000	<10,000	4,800	<250	<250	<250	<250	<250	
10/21/2005	<20,000	24,000	12,000	<100	<100	<100	<100	<100	
01/18/2006	<60,000	15,000	13,000	<100	<100	<100	<100	<100	
04/14/2006	<60,000	<4,000	4,700	<100	<100	<100	<100	<100	
7/19/2006	<6,000	720	1,600	<10	<10	<10	<10	<10	
10/24/2006	<3,000	10,000	14,000	<5.0	<5.0	31	<5.0	<5.0	a
1/15/2007	<60,000	9,300	3,900	<100	<100	<100	<100	<100	
4/18/2007	<30,000	<2,000	2,700	<50	<50	<50	<50	<50	
7/17/2007	<15,000	<1,000	890	<25	<25	<25	<25	<25	
10/11/2007	<1,500	150	370	<2.5	<2.5	<2.5	<2.5	<2.5	
1/8/2008	<15,000	1,400	6,100	<25	<25	32	<25	<25	
4/8/2008	<300	700	1,200	<0.50	<0.50	5.1	<0.50	<0.50	
8/20/2008	<300	34	39	<0.50	<0.50	<0.50	<0.50	<0.50	
11/17/2008	<300	44	28	<0.50	<0.50	<0.50	<0.50	<0.50	
2/3/2009	<300	66	18	<0.50	<0.50	<0.50	<0.50	<0.50	
5/12/2009	<300	75	390	<0.50	<0.50	1.2	<0.50	<0.50	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-7 Cont.									
8/13/2009	<300	19	21	<0.50	<0.50	<0.50	<0.50	<0.50	b
2/18/2010	<15,000	2,300	1,300	<25	<25	<25	<25	<25	
7/23/2010	<300	7,800	1,000	<0.50	<0.50	3.6	<0.50	<0.50	
2/10/2011	<15,000	9900	310	<25	<25	<25	<25	<25	
8/30/2011	<15,000	9,500	180	<25	<25	<25	<25	<25	
2/17/2012	<300	12,000	110	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<3,000	14,000	210	<10	<10	<10	<10	<10	
2/7/2013	<150	7,700	98	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<3,000	18,000	85	<10	<10	<10	<10	<10	
1/9/2014	<6,000	27,000	100	<20	<20	<20	<20	<20	
MW-8									
02/05/2004	<5,000	<1,000	1,900	<25	<25	<25	<25	<25	
04/05/2004	<2,000	<400	1,200	<10	<10	12	<10	<10	a
07/13/2004	<2,000	770	760	<10	<10	<10	<10	<10	a
11/04/2004	<1,000	<200	820	<5.0	<5.0	9.6	<5.0	<5.0	
01/20/2005	<5,000	<1,000	1,400	<25	<25	<25	<25	<25	a
04/11/2005	<1,000	<200	610	<5.0	<5.0	8.1	<5.0	<5.0	
08/01/2005	<2,000	<400	900	<10	<10	<10	<10	<10	
10/21/2005	<1,000	<200	490	<5.0	<5.0	<5.0	<5.0	<5.0	
01/18/2006	<3,000	<200	500	<5.0	<5.0	5.2	<5.0	<5.0	
04/14/2006	<3,000	<200	300	<5.0	<5.0	<5.0	<5.0	<5.0	
7/19/2006	<15,000	<1,000	4,200	<25	<25	45	<25	<25	
1/15/2007	<300	52	67	<0.50	<0.50	0.88	<0.50	<0.50	
4/18/2007	<300	120	130	<0.50	<0.50	1.9	<0.50	<0.50	
7/17/2007	<300	110	96	<0.50	<0.50	1.2	<0.50	<0.50	
10/11/2007	<300	350	130	<0.50	<0.50	1.7	<0.50	<0.50	
1/8/2008	<300	59	49	<0.50	<0.50	0.80	<0.50	<0.50	
4/8/2008	<300	110	32	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2008	<300	62	13	<0.50	<0.50	<0.50	<0.50	<0.50	
11/17/2008	<300	24	14	<0.50	<0.50	<0.50	<0.50	<0.50	
2/3/2009	<300	17	16	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 5. Summary of Fuel Additives Analytical Data
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-8 Cont.									
5/12/2009	<300	18	30	<0.50	<0.50	<0.50	<0.50	<0.50	
8/13/2009	<300	28	7.5	<0.50	<0.50	<0.50	<0.50	<0.50	
2/18/2010	<300	37	12	<0.50	<0.50	<0.50	<0.50	<0.50	
7/23/2010	<300	53	8.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2011	<300	23	4.5	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2011	<300	<10	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	
2/17/2012	<300	<10	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
8/30/2012	<150	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2013	<150	<10	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/15/2013	<150	<10	0.65	<0.50	<0.50	<0.50	<0.50	<0.50	
1/9/2014	<150	<10	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Symbols & Abbreviations:

-- = Not analyzed/applicable/measured/available

< = Not detected at or above specified laboratory reporting limit

1,2-DCA = 1,2-Dichloroethane

DIPE = Diisopropyl ether

EDB = 1,2-Dibromoethane

ETBE = Ethyl tert-butyl ether

MTBE = Methyl tert-butyl ether

TAME = tert-Amyl methyl ether

TBA = tert-Butyl alcohol

µg/L = Micrograms per Liter

Footnotes:

a = The continuing calibration verification for ethanol was outside of client contractual acceptance limits. However, it was within method acceptance limits. The data should still be considered useful for its intended purpose

b = Sample taken from VOA vial with air bubble > 6mm diameter

Notes:

All volatile organic compounds analyzed using EPA Method 8260B

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 6. Summary of Groundwater Gradient - Direction and Magnitude

ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
7/20/2000	West-Northwest	0.006
9/19/2000	West-Northwest	0.004
12/21/2000	West-Northwest	0.004
3/13/2001	West-Northwest	0.005
5/30/2001	West-Northwest	0.004
9/18/2001	West-Northwest	0.003
12/28/2001	West-Northwest	0.003
3/14/2002	West	0.004
4/23/2002	West	0.006
7/17/2002	West	0.003
10/9/2002	West	0.002
1/13/2003	Southwest	0.0043
4/7/2003	West-Northwest	0.009 to 0.011
7/9/2003	West-Northwest	0.004
10/1/2003	West	0.002
2/5/2004	West	0.004
4/5/2004	West-Southwest	0.004
7/13/2004	West-Southwest	0.003
11/4/2004	West	0.003
1/20/2005	West	0.009
4/11/2005	North to West	0.009 to 0.01
8/1/2005	West to Northwest	0.006 to 0.004
10/21/2005	West	0.008
1/18/2006	North and West	0.01
4/14/2006	South	0.008
7/19/2006	Northwest to Southwest	0.004 to 0.008
10/24/2006	West	0.003
1/15/2007	Southwest	0.004
4/18/2007	West	0.009
7/17/2007	Southeast	0.05
10/11/2007	West	0.01
1/8/2008	West	0.008
4/8/2008	West	0.006
8/20/2008	West	0.006
11/17/2008	South-Southeast	0.05
2/3/2009	South-Southeast	0.01
5/12/2009	North to West	0.004
8/13/2009	South	0.006
2/18/2010	West-Southwest	0.001
7/23/2010	West-Southwest	0.002
2/10/2011	West	0.002
8/30/2011	West	0.01
2/17/2012	North to West	0.008
8/30/2012	West	0.005
2/7/2013	West	0.004

Table 6. Summary of Groundwater Gradient - Direction and Magnitude
ARCO Service Station #2111, 1156 Davis St, San Leandro, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
8/15/2013	Northwest	0.005
1/9/2014	Northwest	0.006

Notes:

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 7
Summary of Detected Additional Analytes in Well MW-3 – January 2014

November 2013 CPT Investigation
ARC Station No. 2111
1156 Davis Street, San Leandro, California

Compound	Date Collected	Concentration (µg/L)	Well Identification
PCE	1/9/2014	25	MW-3
Chloroform	1/9/2014	8.6	MW-3
Naphthalene	1/9/2014*	0.24	MW-3

Notes:

µg/L = micrograms per liter

PCE = tetrachloroethylene

All other poly aromatic hydrocarbons (PAHs by 8270) and volatile organic compounds (VOCs by 8260) were not detected above reporting limits

*Well MW-3 was resampled on January 16, 2014 due to sample breakage for 8270 only

APPENDIX A

Recent Regulatory Correspondence



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

August 9, 2013

Chuck Carmel (*Sent via E-mail to: charles.carmel@bp.com*)
Operations Project Manager
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Subject: Fuel Leak Case No. RO0000494 and GeoTracker Global ID T0600101764, ARCO
#2111, 1156 Davis Street, San Leandro, CA 94577

Dear Mr. Carmel:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the following documents prepared by Broadbent & Associates (Broadbent) on your behalf entitled *Addendum to the Revised Soil & Groundwater Investigation Plan*, dated June 19, 2013 and the *Revised Soil & Groundwater Investigation Work Plan*, dated February 28, 2013 (collectively referred to herein as the Work Plans). The Work Plans propose to implement the scope of work in a phased approach. The first phase of the investigation consists of advancement of six offsite borings to further characterize groundwater downgradient of the site, advancement of two onsite borings to evaluate the effectiveness of the dual phase extraction system in remediating the soil and groundwater adjacent to the USTs and to evaluate potentially suspect data collected from well MW-8; and contacting owners of wells located within 1,000 feet of the site to determine the status of the wells and use. The second phase of the investigation is proposed to be implemented if warranted based the results of the first phase of the investigation and will consist of installing offsite soil vapor borings to evaluate vapor intrusion to indoor air on parcels downgradient and potentially impacted by site contaminants, and conducting a preferential pathway study to evaluate migration from the site plume via utility trenches.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, and the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria e (Site Conceptual Model), f (Secondary Source Removal), and h (Nuisance), and the Media-Specific Criteria for Groundwater, and Vapor Intrusion to Indoor Air.

ACEH generally concurs that the proposed scope of work presented in the Work Plans will address the remaining data gaps at the site and therefore requests that you implement the work and submit the requested reports in accordance with the Technical Comments and Technical Work/Report sections below.

TECHNICAL COMMENTS

- 1. Investigation Report and Updated Site Conceptual Model** – Please implement the soil and groundwater investigation and submit a Soil and Groundwater Investigation Report documenting the results. The report should include at a minimum a narrative description of field operations, analytical methods used, deviations from the approved work plan, data inconsistencies, QA/QC procedures, analytical results, data validation, analysis and updated SCM based on data obtained from the soil and groundwater investigation, and conclusions and recommendations regarding implementation of the Phase 2 investigation activities.

Please include tables and diagrams including a site plan and sample location maps, boring logs, summary tables for soil and groundwater analytical data, legible copies of field and laboratory notes or logs, analytical results and QA/QC information, corrective actions and effect on the data, and raw data including chromatograms and calibration data.

In order to expedite review, ACEH requests the tabular SCM presented in the June 19, 2013 Work Plan be updated with data collected in the investigation and remaining data gaps identified which need to be addressed to progress the site to case closure under the LTCP. Please see Attachment A “Site Conceptual Model Requisite Elements”.

Please implement the work and submit the report in accordance with the schedule provided in the Technical Work/Report section.

- 2. Semi-Annual Groundwater Monitoring** – Please continue to conduct semi-annual groundwater monitoring activities at the site including groundwater level gauging in monitoring wells MW-1 through MW 8 and groundwater sample collection in wells MW-1 through MW-5, MW-7 and MW-8 (1st and 3rd quarters), and annual groundwater sample collection in well MW-6 (3rd quarter). Please perform the work and submit the results in Semi-Annual Groundwater Monitoring Reports in accordance with the schedule provided in the Technical Work/Report section.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork, including routine groundwater sampling.

TECHNICAL WORK/REPORT REQUEST

Please submit technical reports to ACEH (Attention: Dilan Roe), according to Attachment 1 and the following naming convention and schedule:

- **October 11, 2013** – Implementation of Phase 1 Soil and Groundwater Investigation

Mr. Carmel
RO0000494
August 9, 2009, Page 3

- **October 31, 2013** – 3rd Quarter 2013 Groundwater Monitoring Report
(File to be named: RO494_GWM_R_YYYY-MM-DD)
- **November 8, 2013** – Soil and Groundwater Investigation Report and Updated SCM
(File to be named: RO_494_SWI_SCM_R_YYYY-MM-DD)

Date to be Determined – Implementation of Phase 2 Investigation

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

If you have any questions, please call me at (510) 567-6767 or send me an electronic mail message at dilan.roe@acgov.org.

Sincerely,

Dilan Roe
Program Manager – Local Oversight Program

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Kristine Tidwell, Broadbent & Associates, 1324 Mangrove Avenue, Suite 212, Chico, CA 95926
(Sent via E-mail to: Ktidwell@broadbentinc.com)

Dilan Roe, ACEH (Sent via E-mail to: dilan.roe@acgov.org)
GeoTracker
File

ATTACHMENT A

Site Conceptual Model Requisite Elements

ATTACHMENT A

Site Conceptual Model

The site conceptual model (SCM) is an essential decision-making and communication tool for all interested parties during the site characterization, remediation planning and implementation, and closure process. A SCM is a set of working hypotheses pertaining to all aspects of the contaminant release, including site geology, hydrogeology, release history, residual and dissolved contamination, attenuation mechanisms, pathways to nearby receptors, and likely magnitude of potential impacts to receptors.

The SCM is initially used to characterize the site and identify data gaps. As the investigation proceeds and the data gaps are filled, the working hypotheses are modified, and the overall SCM is refined and strengthened until it is said to be "validated". At this point, the focus of the SCM shifts from site characterization towards remedial technology evaluation and selection, and later remedy optimization, and forms the foundation for developing the most cost-effective corrective action plan to protect existing and potential receptors.

For ease of review, Alameda County Environmental Health (ACEH) requests utilization of tabular formats to (1) highlight the major SCM elements and their associated data gaps which need to be addressed to progress the site to case closure (see Table 1 of attached example), and (2) highlight the identified data gaps and proposed investigation activities (see Table 2 of the attached example). ACEH requests that the tables presenting the SCM elements, data gaps, and proposed investigation activities be updated as appropriate at each stage of the project and submitted with work plans, feasibility studies, corrective action plans, and requests for closures to support proposed work, conclusions, and/or recommendations.

The SCM should incorporate, but is not limited to, the topics listed below. Please support the SCM with the use of large-scaled maps and graphics, tables, and conceptual diagrams to illustrate key points. Please include an extended site map(s) utilizing an aerial photographic base map with sufficient resolution to show the facility, delineation of streets and property boundaries within the adjacent neighborhood, downgradient irrigation wells, and proposed locations of transects, monitoring wells, and soil vapor probes.

- a. Regional and local (on-site and off-site) geology and hydrogeology. Include a discussion of the surface geology (e.g., soil types, soil parameters, outcrops, faulting), subsurface geology (e.g., stratigraphy, continuity, and connectivity), and hydrogeology (e.g., water-bearing zones, hydrologic parameters, impermeable strata). Please include a structural contour map (top of unit) and isopach map for the aquitard that is presumed to separate your release from the deeper aquifer(s), cross sections, soil boring and monitoring well logs and locations, and copies of regional geologic maps.
- b. Analysis of the hydraulic flow system in the vicinity of the site. Include rose diagrams for depicting groundwater gradients. The rose diagram shall be plotted on groundwater elevation contour maps and updated in all future reports submitted for your site. Please address changes due to seasonal precipitation and groundwater pumping, and evaluate the potential interconnection between shallow and deep aquifers. Please include an analysis of vertical hydraulic gradients, and effects of pumping rates on hydraulic head from nearby water supply wells, if appropriate. Include hydraulic head in the different water bearing zones and hydrographs of all monitoring wells.
- c. Release history, including potential source(s) of releases, potential contaminants of concern (COC) associated with each potential release, confirmed source locations, confirmed release locations, and existing delineation of release areas. Address primary leak source(s) (e.g., a tank, sump, pipeline, etc.) and secondary sources (e.g., high-

ATTACHMENT A

Site Conceptual Model (continued)

concentration contaminants in low-permeability lithologic soil units that sustain groundwater or vapor plumes). Include local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.).

- d. Plume (soil gas and groundwater) development and dynamics including aging of source(s), phase distribution (NAPL, dissolved, vapor, residual), diving plumes, attenuation mechanisms, migration routes, preferential pathways (geologic and anthropogenic), magnitude of chemicals of concern and spatial and temporal changes in concentrations, and contaminant fate and transport. Please include three-dimensional plume maps for groundwater and two-dimensional soil vapor plume plan view maps to provide an accurate depiction of the contaminant distribution of each COC.
- e. Summary tables of chemical concentrations in different media (i.e., soil, groundwater, and soil vapor). Please include applicable environmental screening levels on all tables. Include graphs of contaminant concentrations versus time.
- f. Current and historic facility structures (e.g., buildings, drain systems, sewer systems, underground utilities, etc.) and physical features including topographical features (e.g., hills, gradients, surface vegetation, or pavement) and surface water features (e.g. routes of drainage ditches, links to water bodies). Please include current and historic site maps.
- g. Current and historic site operations/processes (e.g., parts cleaning, chemical storage areas, manufacturing, etc.).
- h. Other contaminant release sites in the vicinity of the site. Hydrogeologic and contaminant data from those sites may prove helpful in testing certain hypotheses for the SCM. Include a summary of work and technical findings from nearby release sites, including the two adjacent closed LUFT sites, (i.e., Montgomery Ward site and the Quest Laboratory site).
- i. Land uses and exposure scenarios on the facility and adjacent properties. Include beneficial resources (e.g., groundwater classification, wetlands, natural resources, etc.), resource use locations (e.g., water supply wells, surface water intakes), subpopulation types and locations (e.g., schools, hospitals, day care centers, etc.), exposure scenarios (e.g. residential, industrial, recreational, farming), and exposure pathways, and potential threat to sensitive receptors. Include an analysis of the contaminant volatilization from the subsurface to indoor/outdoor air exposure route (i.e., vapor pathway). Please include copies of Sanborn maps and aerial photographs, as appropriate.
- j. Identification and listing of specific data gaps that require further investigation during subsequent phases of work. Proposed activities to investigate and fill data gaps identified.

**TABLE 1
INITIAL SITE CONCEPTUAL MODEL**

CSM Element	CSM Sub-Element	Description	Data Gap	How to Address
Geology and Hydrogeology	Regional	<p>The site is in the northwest portion of the Livermore Valley, which consists of a structural trough within the Diablo Range and contains the Livermore Valley Groundwater Basin (referred to as "the Basin") (DWR, 2006). Several faults traverse the Basin, which act as barriers to groundwater flow, as evidenced by large differences in water levels between the upgradient and downgradient sides of these faults (DWR, 2006). The Basin is divided into 12 groundwater basins, which are defined by faults and non-water-bearing geologic units (DWR, 1974).</p> <p>The hydrogeology of the Basin consists of a thick sequence of fresh-water-bearing continental deposits from alluvial fans, outwash plains, and lacustrine environments to up to approximately 5,000 feet bgs (DWR, 2006). Three defined fresh-water bearing geologic units exist within the Basin: Holocene Valley Fill (up to approximately 400 feet bgs in the central portion of the Basin), the Plio-Pleistocene Livermore Formation (generally between approximately 400 and 4,000 feet bgs in the central portion of the Basin), and the Pliocene Tassajara Formation (generally between approximately 250 and 5,000 or more feet bgs) (DWR, 1974). The Valley Fill units in the western portion of the Basin are capped by up to 40 feet of clay (DWR, 2006).</p>	None	NA
	Site	<p>Geology: Borings advanced at the site indicate that subsurface materials consist primarily of finer-grained deposits (clay, sandy clay, silt and sandy silt) with interbedded sand lenses to 20 feet below ground surface (bgs), the approximate depth to which these borings were advanced. The documented lithology for one on-site boring that was logged to approximately 45 feet bgs indicates that beyond approximately 20 feet bgs, fine-grained soils are present to approximately 45 feet bgs. A cone penetrometer technology test indicated the presence of sandier lenses from approximately 45 to 58 feet bgs and even coarser materials (interbedded with finer-grained materials) from approximately 58 feet to 75 feet bgs, the total depth drilled. The lithology documented at the site is similar to that reported at other nearby sites, specifically the Montgomery Ward site (7575 Dublin Boulevard), the Quest laboratory site (6511 Golden Gate Drive), the Shell-branded Service Station site (11989 Dublin Boulevard), and the Chevron site (7007 San Ramon Road).</p> <p>Hydrogeology: Shallow groundwater has been encountered at depths of approximately 9 to 15 feet bgs. The hydraulic gradient and groundwater flow direction have not been specifically evaluated at the site.</p>	<p>As noted, most borings at the site have been advanced to approximately 20 feet bgs, and one boring has been advanced and logged to 45 feet bgs; CPT data was collected to 75 feet bgs at one location. Lithologic data will be obtained from additional borings that will be advanced on site to further the understanding of the subsurface, especially with respect to deeper lithology.</p> <p>The on-site shallow groundwater horizontal gradient has not been confirmed. Additionally, it is not known if there may be a vertical component to the hydraulic gradient.</p>	<p>Two direct push borings and four multi-port wells will be advanced to depth (up to approximately 75 feet bgs) and soil lithology will be logged. See items 4 and 5 on Table 2.</p> <p>Shallow and deeper groundwater monitoring wells will be installed to provide information on lateral and vertical gradients. See Items 2 and 5 on Table 2.</p>
Surface Water Bodies		The closest surface water bodies are culverted creeks. Martin Canyon Creek flows from a gully west of the site, enters a culvert north of the site, and then bends to the south, passing approximately 1,000 feet east of the site before flowing into the Alamo Canal. Dublin Creek flows from a gully west of the site, enters a culvert approximately 750 feet south of the site, and then joins Martin Canyon Creek approximately 750 feet southeast of the site.	None	NA
Nearby Wells		The State Water Resources Control Board's GeoTracker GAMA website includes information regarding the approximate locations of water supply wells in California. In the vicinity of the site, the closest water supply wells presented on this website are depicted approximately 2 miles southeast of the site; the locations shown are approximate (within 1 mile of actual location for California Department of Public Health supply wells and 0.5 mile for other supply wells). No water-producing wells were identified within 1/4 mile of the site in the well survey conducted for the Quest Laboratory site (6511 Golden Gate Drive; documented in 2009); information documented in a 2005 report for the Chevron site at 7007 San Ramon Road indicates that a water-producing well may exist within 1/2 mile of the site.	A formal well survey is needed to identify water-producing, monitoring, cathodic protection, and dewatering wells.	Obtain data regarding nearby, permitted wells from the California Department of Water Resources and Zone 7 Water Agency (Item 11 on Table 2).

TABLE 2
DATA GAPS AND PROPOSED INVESTIGATION

Item	Data Gap	Proposed Investigation	Rationale	Analysis
5	Evaluate the possible presence of impacts to deeper groundwater. Evaluate deeper groundwater concentration trends over time. Obtain data regarding the vertical groundwater gradient. Obtain more lithological data below 20 feet bgs.	Install four continuous multichannel tubing (CMT) groundwater monitoring wells (aka multi-port wells) to approximately 65 feet bgs in the northern parking lot with ports at three depths (monitoring well locations may be adjusted pending results of shallow grab groundwater samples; we will discuss any potential changes with ACEH before proceeding). Groundwater monitoring frequency to be determined. Soil samples will be collected only if there are field indications of impacts. Soil lithology will be logged. However, information regarding the moisture content of soil may not be reliable using sonic drilling technology (two borings will be logged using direct push technology; see Item 4, above).	One well is proposed at the western (upgradient) property boundary to confirm that there are no deeper groundwater impacts from upgradient. Two wells are proposed near the center of the northern parking lot to evaluate potential impacts in an area where deeper impacts, if any, would most likely to be found. One well is proposed at the eastern (downgradient) property boundary to confirm that there are no impacts extending off-site. Port depths will be chosen based on the locations of saturated soils (as logged in direct push borings; see Item 4, above), but are expected at approximately 15, 45, and 60 feet bgs.	<i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
6	Evaluate possible off-site migration of impacted soil vapor in the downgradient direction (east). Evaluate concentration trends over time.	Install 4 temporary nested soil vapor probes at approximately 4 and 8 feet bgs along the eastern property boundary. Based on the results of the sampling, two sets of nested probes will be converted to vapor monitoring wells to allow for evaluation of VOC concentration trends over time.	Available data indicate that PCE and TCE are present in soil vapor in the eastern portion of the northern parking lot. Samples are proposed on approximately 50-foot intervals along the eastern property boundary to provide a transect of concentrations through the vapor plume. The depths of 4 and 8 feet bgs are chosen to provide data closest to the source (i.e., groundwater) while avoiding saturated soil, and also provide shallower data to help evaluate potential attenuation within the soil column. Two sets of nested vapor probes will be converted into vapor monitoring wells (by installing well boxes at ground surface); the locations of the permanent wells will be chosen based on the results of samples from the temporary probes.	<i>Soil vapor:</i> VOCs by EPA Method TO-15.
7	Evaluate potential for off-site migration of impacted groundwater in the downgradient direction (east).	Advance two borings to approximately 20 feet bgs in the parking lot of the property east of the Crown site for collection of grab groundwater samples.	Two borings are proposed off-site, on the property east of the Crown site, just east of the building in the expected area of highest potential VOC concentrations.	<i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance.
8	Evaluate VOC concentrations just north of the highest concentration area.	Advance two borings to approximately 20 feet bgs north of Building A for collection of soil and grab groundwater samples. Soil samples will be collected at two depths in the vadose zone. Soil samples will be collected based on field indications of impacts (PID readings, odor, staining) or, in the absence of field indications of impacts, at 5 and 10 feet bgs.	The highest concentrations of PCE in groundwater were detected at boring NM-B-32, just north of Building A. The nearest available data to the north are approximately 75 feet away. One of the borings will be advanced approximately 20 feet north of NM-B-32 to provide data close to the highest concentration area. A second boring will be advanced approximately halfway between the first boring and former boring NM-B-33 to provide additional spatial data for contouring purposes. These borings will be part of a transect in the highest concentration area.	<i>Groundwater:</i> VOCs by EPA Method 8260, dissolved oxygen, oxidation/reduction potential, temperature, pH, and specific conductance. <i>Soil:</i> VOCs by EPA Method 8260 (soil samples to be collected using field preservation in accordance with EPA Method 5035).
9	Evaluate VOC concentrations in soil vapor in the south parcel of the site.	Install four temporary soil vapor probes at approximately 5 feet bgs around boring SV-25, where PCE was detected in soil vapor at a low concentration.	PCE was detected in soil vapor sample SV-25 in the southern parcel, although was not detected in groundwater in that area. Three probes will be installed approximately 30 feet from of boring SV-25 to attempt to delineate the extent of impacts. A fourth probe is proposed west of the original sample, close to the property boundary and the location of mapped utility lines, which may be a potential conduit, to evaluate potential impacts from the west.	<i>Soil vapor:</i> VOCs by EPA Method TO-15.
10	Obtain additional information regarding subsurface structures and utilities to further evaluate migration pathways and sources.	Ground penetrating radar (GPR) and other utility locating methodologies will be used, as appropriate, to further evaluate the presence of unknown utilities and structures at the site.	Utilities have been identified at the site that include an on-site sewer lateral and drain line, and shallow water, electric, and gas lines. Given the current understanding of the distribution of PCE in groundwater at the site, it is possible that other subsurface utilities, and specifically sewer laterals, exist that may act as a source or migration pathway for distribution of VOCs in the subsurface.	NA

ATTACHMENT 1

**Responsible Party(ies) Legal Requirements/Obligations
& ACEH Electronic Report Upload (ftp) Instructions**

Attachment 1

Responsible Party(ies) Legal Requirements/Obligations

REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

Submission of reports to the ACEH FTP site is in addition to requirements for electronic submittal of information (ESI) to the State Water Resources Control Board's (SWRCB) Geotracker website. In April 2001, the SWRCB adopted 23 CCR, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1 (Electronic Submission of Laboratory Data for UST Reports). Article 12 required electronic submittal of analytical laboratory data submitted in a report to a regulatory agency (effective September 1, 2001), and surveyed locations (latitude, longitude and elevation) of groundwater monitoring wells (effective January 1, 2002) in Electronic Deliverable Format (EDF) to Geotracker. Article 12 was subsequently repealed in 2004 and replaced with Article 30 (Electronic Submittal of Information) which expanded the ESI requirements to include electronic submittal of any report or data required by a regulatory agency from a cleanup site. The expanded ESI submittal requirements for petroleum UST sites subject to the requirements of 23 CCR, Division, 3, Chapter 16, Article 11, became effective December 16, 2004. All other electronic submittals required pursuant to Chapter 30 became effective January 1, 2005. Please visit the SWRCB website for more information on these requirements. (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 7835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)	REVISION DATE: July 25, 2012
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	SUBJECT: Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (petroleum UST and SCP) require submission of all reports in electronic form to the county's FTP site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as a **single Portable Document Format (PDF) with no password protection.**
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

- 1) Obtain User Name and Password
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to .loptoxic@acgov.org
 - b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses,** and the **Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to <://alcoftp1.acgov.org>
 - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
 - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to .loptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload.** (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
 - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

APPENDIX B

Site History

Previous Environmental Activities at Site

On August 30, 1993 GeoStrategies, Inc. (GSI) observed the removal of a hydraulic hoist and underlying material. GSI collected four soil samples from the excavation pit S-7-HL (7.0 feet below ground surface, ft bgs), S-7½-HL (7.5 ft bgs), S-8-HL (8 ft bgs), and S-9-HL (9 ft bgs). The concentrations of total extractable petroleum hydrocarbons (TEPH) as hydraulic oil ranged from 9,200 milligrams per kilogram (mg/kg) to 27,000 mg/kg in samples S-9-HL and S-7-HL, respectively (GSI, 10/4/1993). Historical analytical results are tabulated within Appendix C.

On March 4, 1994 GSI observed the advancement of two soil borings (B-1 and B-2) to find the extent of the hydraulic oil contamination. Both borings were advanced to a depth of approximately 20.0 ft bgs in the vicinity of the former hydraulic hoist. During the investigation eight soil samples were collected with concentrations ranging from non-detect (less than or equal to 1.0 mg/kg) to 11 parts per million (ppm) in samples B1-4.5 and B2-20 respectively. GSI concluded that the hydraulic oil had not significantly impacted the surrounding area. However, GSI also concluded that unidentified hydrocarbons had impacted the capillary fringe beneath the northwestern corner of the service station building (GSI, 4/13/1994).

On August 15, 1994 GSI observed the removal of a 280 gallon waste-oil tank and over excavation of the surrounding area. Seven soil samples were collected during the excavation, four of which (soil samples WO-N, WO-1, WO-B and WO-B2) contained petroleum hydrocarbon at maximum concentrations of: 310 ppm total petroleum hydrocarbons as gasoline (TPH-g); 780 mg/kg total petroleum hydrocarbons as diesel (TPH-d); 2,000 ppm total petroleum hydrocarbons as motor oil range (TPH-mo); 7,900 mg/kg total recoverable petroleum hydrocarbons (TRPH) (GSI, 9/27/1994). On September 12, 1994, GSI observed the installation of a 600 gallon waste-oil tank in the same area as the former waste-oil tank.

On July 12 and 13, 1995, EMCON observed the installation of onsite monitoring wells MW-1 through MW-4. The total depths for the monitoring well borings ranged between 27.5 ft bgs and 40 ft bgs. Soil samples collected from borings for wells MW-1, MW-3, and MW-4 did not contain any petroleum hydrocarbon contamination. However, soil samples collected from the boring for well MW-2 contained maximum concentrations of TPH-g at 320 mg/kg, benzene at 0.26 mg/kg, ethylbenzene at 3.4 mg/kg, and Total Xylenes at 1.5 mg/kg (EMCON, 11/8/1995). Historical boring locations are depicted in Drawing 2. Tabulated historic soil and groundwater analytical results are provided within Appendix C.

Between February 28 and March 1, 1996, EMCON observed the installation of offsite monitoring wells MW-5 and MW-6, onsite monitoring well MW-7, and onsite vapor extraction wells VW-1 through VW-4. Soil samples collected from offsite wells MW-5 and MW-6 did not contain petroleum hydrocarbons. Soil samples from onsite well MW-7 adjacent to the corner of the underground storage tanks (UST) pit contained up to 55 mg/kg of TPH-g, up to 0.11 mg/kg of benzene, up to 0.80 mg/kg of ethylbenzene, and up to 1.5 mg/kg of total xylenes. Soil samples from each of vapor extraction wells VW-1 through VW-4 contained petroleum hydrocarbons, with the most significant concentrations being in VW-2 and VW-4: up to 1,100 mg/kg of TPH-g (VW-4), up to 0.30 mg/kg of benzene (VW-2), up to 0.50 mg/kg of ethylbenzene (VW-1), and up to 3 mg/kg of total xylenes (VW-4) (EMCON, 9/19/1996).

In October 2000, Petcon Technologies, Inc. removed the three 12,000-gallon former USTs, product lines and dispensers from the Site. Approximately 930 cubic yards (yd³) of soil was excavated from under the former gasoline USTs (to a depth of 17 ft bgs), product lines and dispenser islands. A representative of

Delta Environmental Consultants, Inc. (Delta) collected soil samples from former USTs, product lines and dispenser islands. In the area of the former gasoline USTs, soil samples T1-S, T1-N, T2-S, T2-N, T2-M, T3-S, and T3-N contained maximum concentrations of TPH-g at 4,400 mg/kg (T2-N), methyl tertiary butyl ether (MTBE) at 89 mg/kg, benzene, toluene, ethylbenzene, and total xylenes (BTEX) at 7.7 mg/kg, 190 mg/kg, 58 mg/kg, and 300 mg/kg, respectively. Soil samples collected under the product lines contained at 430 mg/kg of TPH-g (PL-1), MTBE at 4.7 mg/kg, and BTEX at 0.16 mg/kg, 0.02 mg/kg, 2.1 mg/kg, and 3.6 mg/kg, respectively. Soil samples collected under the dispenser islands contained 2,100 mg/kg of TPH-g, 13 mg/kg of MTBE, and BTEX at 2.0 mg/kg, 20 mg/kg, 30 mg/kg, and 170 mg/kg, respectively. The highest product line (PL-1) and dispenser island soil confirmation sample concentrations (DP-1) were from the southeast dispenser pump area. This area was over-excavated up to 10 ft bgs, with confirmation samples still containing 19 mg/kg of TPH-g, 7.7 mg/kg of MTBE, and BTEX at 0.4 mg/kg, 0.81 mg/kg, 0.42 mg/kg, and 2.6 mg/kg, respectively. The excavations were reportedly backfilled with clean pea gravel (Delta, 2/2/2001).

On May 5, 2001, Delta conducted soil sampling during the removal and upgrade of a sump within the service station building. A Delta representative collected one soil core sample at two feet (ft) below the bottom of the sump following its removal. Laboratory analysis of the soil sample reported 305 mg/kg of TPH-g, 465 mg/kg of TPH-d, and 543 mg/kg of TRPH. No concentrations of benzene, toluene, or MTBE were detected above the laboratory reporting limits. Minor to trace concentrations of ethylbenzene, total xylenes, sec-butylbenzene, p-isopropyltoluene, naphthalene, 2-methylnaphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene (Delta, 8/9/2001).

In January 2002, Delta conducted a three-day dual-phase soil vapor and groundwater extraction (DPE) pilot test from the vapor extraction well VW-2, and then limited DPE pilot tests from monitoring wells MW-2 and MW-7. Water levels typically decreased several feet in the extraction wells and exhibited varied responses in the observation wells. Estimated average vapor-phase removal rates were 11.6 pounds of TPH-g per day from well VW-2 and 7.32 pounds of TPH-g per day from well MW-7. Grab groundwater samples collected showed a decreasing trend in petroleum hydrocarbon concentrations from well VW-2 during the short-term pilot test. Concentrations of petroleum hydrocarbons in soil vapor before and after the pilot tests remained approximately the same order of magnitude. A total of 14,900 gallons of water was extracted during the DPE pilot test. Delta concluded that limited DPE was possible at the Site. Even though in the short term they admitted that DPE was limited in its ability to quickly lower groundwater levels to expose impacted soils for soil vapor extraction (SVE), they hypothesized that given enough time of system operation it was reasonable to expect that the groundwater levels could be adequately lowered. Furthermore, Delta noted that even though significant hydrocarbon vapor recovery rates might not be reasonably expected from DPE due to the fine-grained soils, the overall effect of reducing the groundwater levels in itself might allow the soils to be exposed to atmospheric oxygen from SVE, which in turn might enhance the natural attenuation of the impacted soils and groundwater. The test also indicated that just those wells completed in finer-grained materials onsite would be effective in a DPE system, whereas monitoring well MW-2 would not serve as a practical DPE well due to its excessive groundwater production rates (Delta, 7/16/2002).

On November 26, 2003, URS observed the installation of onsite monitoring well MW-8. Eight soil samples were collected from the borehole advanced prior to the installation of well MW-8 with a maximum concentration of 150 mg/kg of TPH-g at 16.5 ft bgs. On March 20 and 21, 2004, URS observed the drilling of six off-site borings (H-1 through H-5 and SB-1) and one on-site boring (SB-2) using direct-push technology. Five of the seven borings (H-1 through H-5) had sufficient groundwater for grab samples. Grab groundwater samples were collected from H-1, H-2, and H-3 while multiple

depth-discrete groundwater samples were collected from borings H-4 and H-5. Borings SB-1 and SB-2 were advanced for lithologic logging purposes and were not sampled. Groundwater samples H-1, H-2, and H-5 at 40 ft bgs contained gasoline range organics (GRO) at 820 micrograms per liter ($\mu\text{g/L}$), 260,000 $\mu\text{g/L}$, and 53 $\mu\text{g/L}$, respectively. Grab groundwater sample H-2 also contained ethylbenzene at 5,800 $\mu\text{g/L}$, total xylenes at 11,000 $\mu\text{g/L}$, and MTBE at 7,600 $\mu\text{g/L}$. Depth-discrete groundwater sample H-4 at 27 ft bgs also contained 0.72 $\mu\text{g/L}$ of total xylenes. Benzene, toluene, ethanol, tert-butyl alcohol (TBA), di-isopropyl alcohol (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), 1,2-dichloroethane (1,2-DCA), and 1,2-dibromomethane (EDB) were not detected above the various laboratory reporting limits (URS, 5/6/2004).

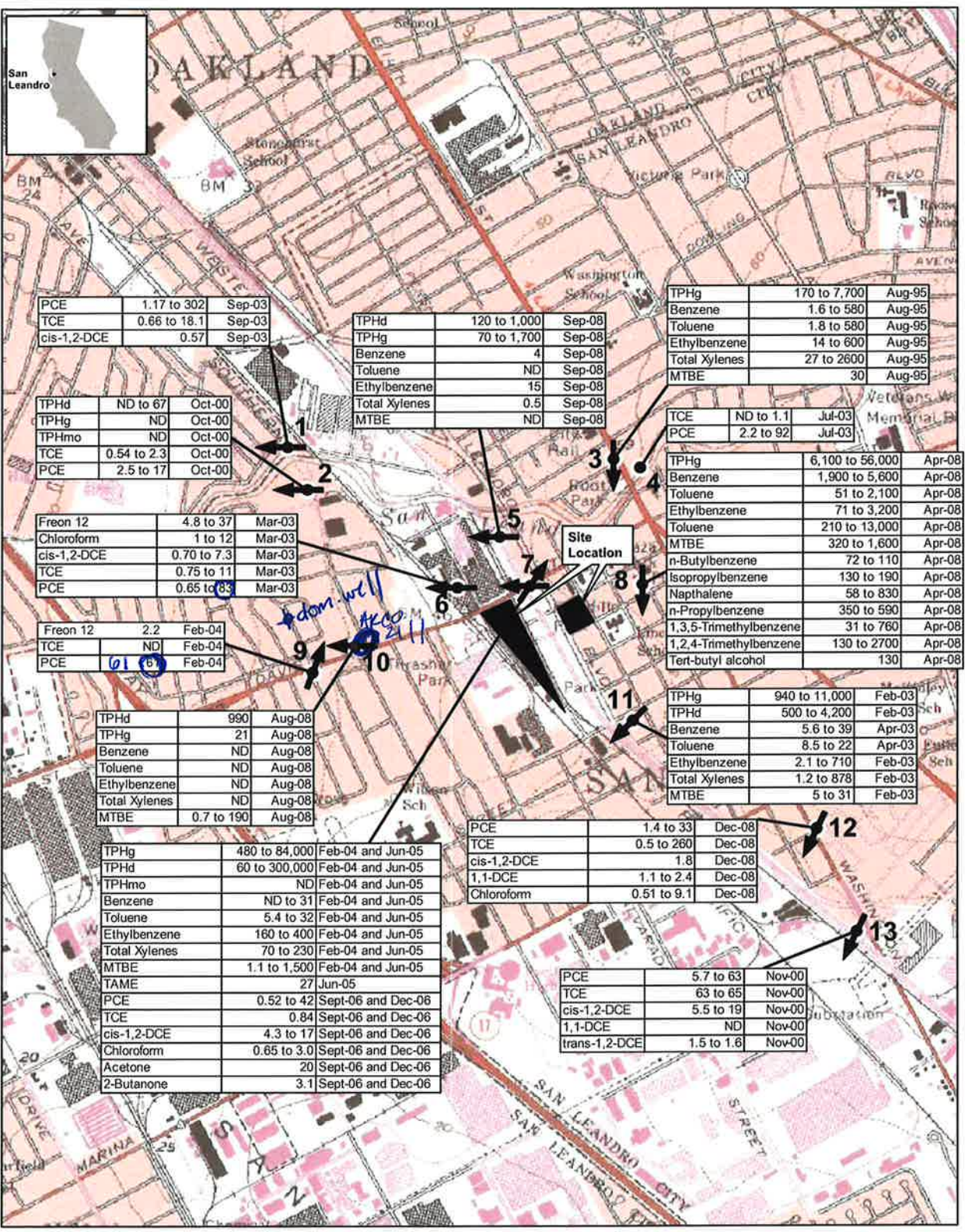
During the First Quarter of 2007, a DPE system was started up at the Site that extracted soil vapor and groundwater from wells V-1, V-2, V-3, MW-1, MW-2 (groundwater extraction only), MW-3, and MW-7. The DP system operated until September 2009, when it was shut down due to asymptotic mass removal rates (Broadbent, 2009). In July 2012 the DPE system, which had been sitting idle since 2009, was removed. All equipment was removed and properly disposed of by Belshire Environmental.

References

- Broadbent & Associates, Inc., 30 October 2009. *Third Quarter 2009 Ground-Water Monitoring and Remediation System Status Report, Atlantic Richfield Company Station #2111, 1156 Davis Street, San Leandro, California; ACEH Case #RO0000494*
- Delta Environmental Consultants, Inc., 2 February 2001. *Tank Basin, Product Line and Dispenser Island Sampling Results, ARCO Station No.2111, 1156 Davis Street, San Leandro, California.*
- Delta Environmental Consultants, Inc., 9 August 2001. *Sump Sampling Results, ARCO Service Station No.2111, 1156 Davis Street, San Leandro, California.*
- Delta Environmental Consultants, Inc., 16 July 2002. *Results of a Dual Phase Extraction Pilot Test, ARCO Service Station No.2111, 1156 Davis Street, San Leandro, California.*
- EMCON, 8 November 1995. *Site Characterization, ARCO Service Station 2111, 1156 Davis Street, San Leandro, California.*
- EMCON, 19 September 1996. *Soil and Groundwater Assessment Report, ARCO Service Station 2111, San Leandro, California.*
- GeoStrategies, Inc., 4 October 1993. *Letter Report of The Results of Soil Sampling Associated with Hydraulic Hoist Removal at ARCO Station 2111, 1156 Davis Street in San Leandro, California.*
- GeoStrategies, Inc., 13 April 1994. *Report of Initial Subsurface Investigation, ARCO Station 2111, 1156 Davis Street, San Leandro, California.*
- GeoStrategies, Inc., 27 September 1994. *Report for Waste-Oil Tank Removal Activities at ARCO Station 2111, 1156 Davis Street, San Leandro, California.*
- URS Consultants, Inc., 6 May 2004. *Additional Subsurface Investigation Report, ARCO Service Station #2111, 1156 Davis Street, Hayward [sic], California.*

APPENDIX C

Historic Site Data



EXPLANATION:

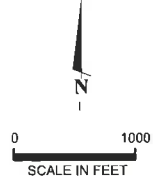
- Approximate groundwater monitoring location
- ← Approximate groundwater flow direction

Chemical detected

Range of concentrations detected in micrograms per liter (µg/L)

TPHg	6,100 to 56,000	Apr-08
Benzene	1,900 to 5,600	Apr-08

Date of groundwater sampling



San Leandro Crossings

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Regional Groundwater Contamination
San Leandro Crossing
San Leandro, California

Figure
3

Drafter: EC

Date: 01/08/10

Contract Number: 08-616-B

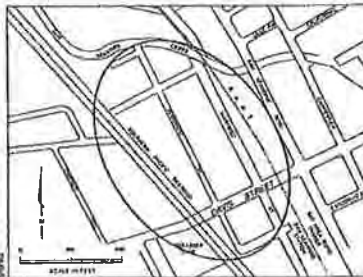
~ 1800 feet away

AT 415

**California Environmental Protection Agency
Department of Toxic Substances Control**



Former Caterpillar Manufacturing Site



FOR MORE INFORMATION

Copies of site-related documents are available for public review at the information repository located at:

San Leandro Community Library Center,
Reference Desk
300 Estudillo Avenue, San Leandro, California 94577
(510) 577-3490

Hours: Monday - Thursday: 10a.m. - 5p.m.
Friday: 10a.m. - 5:30p.m., Saturday: 10a.m. - 5p.m.

If you would like more information about the Site, please contact the DTSC Public Participation Coordinator or Project Manager by telephone or write:

Mr. Stan Giorgi
Public Participation Coordinator
510-540-3920

Mr. Ted K. Park, P.E.
Project Manager
510-540-3845

California Environmental Protection Agency
Department of Toxic Substances Control
Building F, Second Floor
700 Henz Avenue
Berkeley, California 94710-2737

CATERPILLAR FACT SHEET NO. 1

Caterpillar has been conducting soil and groundwater testing in and around the former Caterpillar facility near Davis and Alvarado streets in San Leandro, California. This testing has been conducted as part of an overall study of the area (known as a Remedial Investigation) and indicates that shallow groundwater is affected with volatile organic compounds (VOCs). The site is designated as that area encompassed by the limits of VOCs that have been found in the groundwater downgradient of the former Caterpillar facility. As directed by the Department of Toxic Substances Control (DTSC), the lead regulatory agency overseeing work at the site, Caterpillar has developed an Interim Remedial Measures Plan (IRM Plan) and has performed a Public Health Evaluation (PHE) for the study area.

This fact sheet provides:

- Site description and history;
- Summary of soil and groundwater investigations;
- Summary of interim remedial actions;
- Health and environmental issues;
- Future site activities; and
- Public involvement information.

Throughout this fact sheet, words or phrases in *italized* type are defined in the Glossary.

SITE DESCRIPTION AND HISTORY

The Site was developed in the 1920s by Caterpillar and manufacturing operations in California ceased in 1980. Former Site uses include the administrative headquarters and manufacturing of parts for earth moving equipment.

Several structures have been constructed at the location of the former Caterpillar facility, including a three-story office building and a two-story office complex at the corner of Davis and Alvarado streets. Other portions of the former Caterpillar site may be developed in the future.

SOIL AND GROUNDWATER INVESTIGATIONS

Concurrent with the sale of the Caterpillar property to local developers, soil and groundwater investigations were conducted on the property, and groundwater monitoring wells were constructed. Analyses of water samples from the monitoring wells indicated that concentrations of several VOCs exceeded the Maximum Contaminant Levels (MCLs) for drinking water sources established by the State of California.

In the summer of 1988, soil remediation was conducted at the Site. Approximately 16,000 cubic yards of soil containing motor oil, diesel fuel, and VOCs was excavated, remediated, and hauled to a permitted landfill.

Caterpillar subsequently prepared a series of studies, including a Phase I Hydrogeologic and Groundwater Quality Investigation, and Phase II Parts A, B, C and D reports. These studies examined site stratigraphy, hydrogeology and concentrations of VOCs in the groundwater at the Site and surrounding area using a variety of subsurface exploratory techniques. These studies also evaluated the subsurface characteristics that may affect applications of groundwater extraction in controlling the migration of groundwater containing VOCs. Caterpillar has also prepared and implemented a groundwater monitoring plan. The reports discussed in this Fact Sheet are available for public review in the information repository located in the San Leandro Public Library.

INTERIM REMEDIAL MEASURES

Caterpillar evaluated different methods of remediation in a report entitled "Remedial Alternatives Evaluation". Subsequently, an IRM Plan was prepared for the initial phase of groundwater remediation. This plan describes the installation of three groundwater extraction and treatment systems. System one will extract and treat the groundwater with the highest

concentration of VOCs within the plume, while systems 2 & 3 will hydraulically control migration of groundwater containing VOCs. These systems will extract groundwater from wells and remove VOCs from the water by passing it through activated carbon prior to discharge into the storm sewer. The first extraction and treatment system, located near the intersection of Dabner and Lucille streets, is in place and start-up is scheduled for June 1993. Two additional systems are planned for installation in late-1993 near the intersection of Davis Street and Interstate 880 in San Leandro and on 105th Avenue near San Leandro Creek in Oakland.

HEALTH AND ENVIRONMENTAL ISSUES

East Bay Municipal Utility District provides the public water supply to the area. Such water supply is typically used for drinking, cooking, showering and bathing ("domestic use"). Residents who are using this system are not exposed to any contaminants.

Private wells are sometimes used for landscape irrigation and for gardening ("irrigation"). DTSC does not believe there is a significant health risk associated with using groundwater for irrigation.

However, as previously stated in DTSC's publication entitled "Well Testing Information Fact Sheet" (dated October, 1991), DTSC believes that a potential health risk may exist for San Leandro residents who regularly use their private wells for drinking, cooking, showering or bathing purposes. DTSC has previously issued a public health advisory to the users of private wells in the area. The advisory recommends that private wells not be used for drinking, cooking, showering or bathing purposes unless the wells have been tested for common chemical contaminants.

No soil contamination or air pollution problem exists in connection with this site.

FUTURE ACTIVITIES

Caterpillar has evaluated the extent of the VOCs in soil and groundwater on- and off-site, as well as prepared an interim remedial measure plan. Anticipated future work includes the following activities:

Implementation of the IRM Plan;

Quarterly sampling of the groundwater monitoring wells; and

Preparation of a Remedial Action Plan (RAP) after the three groundwater extraction and treatment systems are in operation.

PUBLIC INVOLVEMENT

Throughout the site mitigation process, Caterpillar will elicit comments from community members on the remedial activities and progress with remediation. Caterpillar implemented a Public Participation Program in 1991, under guidance from the DTSC, to facilitate community involvement in this project. Caterpillar provided copies of reports to the San Leandro Public Library for public review. In addition, community representatives have been interviewed and their comments have been incorporated into the Public Participation Plan (PPP).

A public meeting will be held, and a 30-day public comment period will be open, at the completion of the draft RAP. This meeting is anticipated to occur in 1994. Community members are encouraged to review site-related documents and contact DTSC representatives with any questions concerning the information in this fact sheet and/or other site-related issues.

GLOSSARY

Activated Carbon—Highly absorbent carbon, obtained by heating granulated charcoal, which is a reliable technology used to absorb volatile organic compounds and remove them from water.

Groundwater—Water beneath the earth's surface that flows through soil and rock openings and often serves as a primary source of drinking water.

Hydrogeology—The interrelationships of geologic materials with water.

Interim Remedial Measures Plan (IRM Plan)—A plan to begin implementation of site clean up while the RAP is being developed; also known as "Interim Remedial Action Plan".

Maximum Contaminant Levels (MCLs)—If well water contains concentrations of a substance greater than the MCL for that substance, the water can not be used for domestic purposes, according to State Law. Domestic purposes include drinking, showering or bathing, and cooking.

Monitoring Wells—Specially constructed wells used exclusively for testing water quality.

Public Health Evaluation (PHE)—A study whose purpose is to assess human health risks due to potential exposure to hazardous substances; also known as "Baseline Risk Assessment".

Public Participation Plan—A plan to keep community members informed about progress being made at the site.

Remedial Action Plan (RAP)—A plan, approved by DTSC, that outlines a specific program leading to the remediation of a site. Once the Draft RAP is prepared, a public meeting is held and comments from the public are solicited for a period of no less than 30 days. After the public comment period has ended, DTSC approves the final remedy for the site (final RAP) and responds in writing to comments received.

Remedial Alternatives Evaluation—An evaluation to assess the most technically sound and cost effective alternatives for remediation.

Remedial Investigation (RI)—An environmental study to determine the type, extent, and source of contamination at a site.

Remediation—Action taken at a site to reduce potential risks to human health or the environment.

Stratigraphy—The study of the layering of rocks or sediment deposits and their characteristics in terms of mode or origin and geologic history.

Volatile Organic Compounds (VOCs)—An organic (carbon containing) compound that evaporates (becomes a gas) readily at room temperature. Common forms of VOCs include industrial solvents such as Trichloroethylene and Tetrachloroethylene.

Table 2
Groundwater Analytical Results
ARCO #2111
1156 Davis St., San Leandro, CA

Well Number	Date Sampled	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (mg/L)	1,2-DBA (mg/L)
H-1	03/21/04	820	ND<5	ND<5	ND<5	ND<5	ND<1000	ND<200	550	ND<5	ND<5	ND<5	ND<5	ND<5
H-2	03/21/04	260,000*	ND<500	ND<500	5,800	11,000	ND<100,000	ND<500	7,600	ND<500	ND<500	ND<500	ND<500	ND<500
H-3	03/21/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-4-27	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	0.72	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-4-35	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-5-27	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-5-32	03/20/04	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
H-5-40	03/21/04	53	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<100	ND<20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50

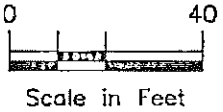
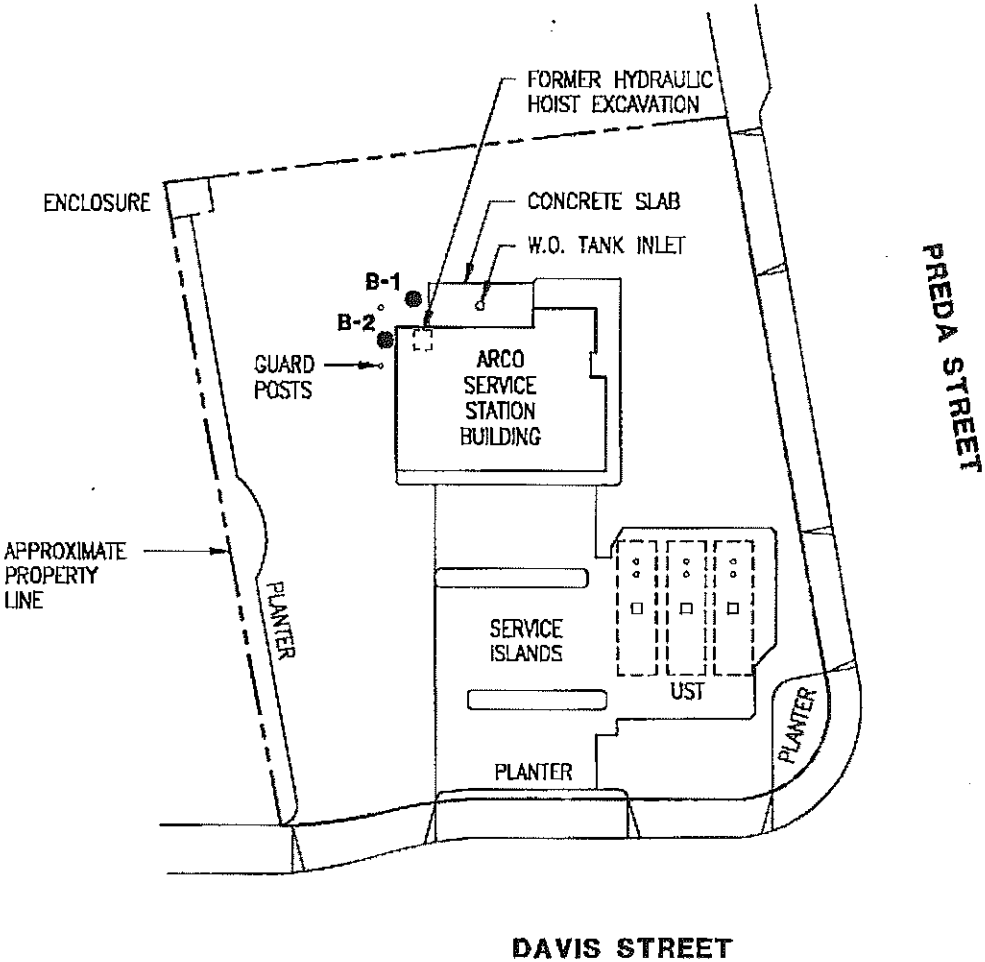
Notes:

- GRO = Gasoline Range Organics
- BTEX = Benzene, Toluene, Ethyl-benzene, and Total Xylenes analyzed by EPA method 8260B.
- MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8260B.
- TBA = tert-Butyl alcohol
- DIE = Di-isopropyl ether
- ETBE = Ethyl tert-butyl ether
- TAME = tert-Amyl methyl ether
- 1,2-DCA = 1,2-Dichloroethane
- 1,2-DBA = 1,2-Dibromoethane (EDB)
- µg/L = Micrograms per liter
- MSL = Mean sea level
- ND< = Not detected at or above specified laboratory method detection limit
- * = Groundwater elevation measurements are from first encountered groundwater during drilling.

Source : The data within this table collected prior to July 2002 was provided to URS by Group Environmental Management Company and their previous consultants. URS has not verified the accuracy of this information.

EXPLANATION

● Soil boring



Base Map: ARCO Petroleum Products Company
 conversion to MP & G tune-up
 dwg. dated 6/6/85 sht. 1 of 1



GeoStrategies Inc.

SITE PLAN
 ARCO Service Station #2111
 1156 Davis Street
 San Leandro, California

PLATE
2

JOB NUMBER
 7940

REVIEWED BY

DATE
 3/94

REVISED DATE

ARCO Station 2111
Initial Subsurface Investigation
7940.03

April 13, 1994

TABLE 2
RESULTS OF LABORATORY ANALYSES
OF SOIL SAMPLES - Fuel Fingerprint as Hydraulic Oil
ARCO Station 2111
San Leandro, California

Sample ID	Fuel Fingerprint as Hydraulic Oil	TPH-G	BTEX	TCLP BTEX	TCLP TPH-G	STLC Lead	RCI
<u>March 4, 1994</u>							
B1-4.5	3.0*	NA	NA	NA	NA	NA	NA
B1-10	<1.0	NA	NA	NA	NA	NA	NA
B1-15	<1.0	NA	NA	NA	NA	NA	NA
B1-20	1.7**	NA	NA	NA	NA	NA	NA
B2-5	1.7	NA	NA	NA	NA	NA	NA
B2-10	<1.0	NA	NA	NA	NA	NA	NA
B2-15	2.0***	NA	NA	NA	NA	NA	NA
B2-20	11****	NA	NA	NA	NA	NA	NA
CSS-1A-1D	NA	<0.0050	<1.0	<50	<0.5	0.18	NH

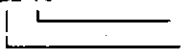
All results shown in parts per million (ppm), except TCLP TPH-G and BTEX are shown in parts per billion (ppb). Fuel fingerprint as hydraulic oil was performed using EPA Methods 3550/8015.

TPH-G = Total petroleum hydrocarbons as gasoline using EPA modified Method 8015.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes using EPA Method 8020.
TCLP = Toxicity Characteristic Leaching Procedure
STLC = Soluble Threshold Limit Concentration
RCI = Reactivity, ignitability, and corrosivity

NH = Non hazardous. Compositd Sample indicated non-reactivity with sulfide, cyanide, and water, a pH of 7.0 and ignitability of greater than 100 degrees centigrade.

* = Unidentified hydrocarbons greater than C9.
** = Unidentified hydrocarbons greater ranging from C11 to C15.
*** = Discrete peaks - unidentified.
**** = Unidentified hydrocarbons ranging from C11 to C24.

Sample Identification:

B2-10

 Sample Depth in Feet
Soil Boring

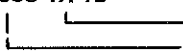
CSS 1A-1D

 Sample Numbers
Composite Soil Sample

Table 1
Well Details
ARCO Service Station 2111

Well ID	Installation Date	Total Depth of Well (feet)	Casing Diameter (inches)	Screened Interval (feet)
MW-1	7/12/95	27.0	4.0	12.5 - 26.2
MW-2	7/12/95	27.0	4.0	12.0 - 26.2
MW-3	7/13/95	27.0	4.0	11.9 - 26.2
MW-4	7/13/95	25.0	4.0	10.0 - 24.0
MW-5	3/1/96	25.0	2.0	9.4 - 23.4
MW-6	3/1/96	25.0	2.0	10.0 - 25.0
MW-7	2/29/96	27.0	4.0	12.0 - 27.0
V-1	2/29/96	20.0	4.0	5.0 - 20.0
V-2	2/29/96	20.0	4.0	5.0 - 20.0
V-3	2/28/96	20.0	4.0	5.0 - 20.0
V-4	2/28/96	20.0	4.0	6.5 - 19.5

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
 1156 Davis Street, San Leandro, California

Date: 09-17-96

Well Designation	Water Level Field Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Flouating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8020	Toluene EPA 8020	Ethylbenzene EPA 8020	Total Xylenes EPA 8020	MTBE EPA 8020	TRPH EPA 418.1	TPHD LUFT Method
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-1	08-01-95	39.60	17.45	22.15	ND	NR	NR	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
MW-1	12-14-95	39.60	17.09	22.51	ND	W	0.002	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-1	03-21-96	39.60	14.72	24.88	ND	WSW	0.005	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-1	05-24-96	39.60	15.94	23.66	ND	W	0.003	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-1	08-09-96	39.60	17.89	21.71	ND	WNW	0.01	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-2	08-01-95	37.99	15.67	22.32	ND	NR	NR	08-01-95	23000	1300	310	500	3500	--	--	--
MW-2	12-14-95	37.99	15.36	22.63	ND	W	0.002	12-14-95	7300	900	25	180	1000	<200*	--	--
MW-2	03-21-96	37.99	12.84	25.15	ND	WSW	0.005	03-21-96	9600	850	30	280	1400	250	--	--
MW-2	05-24-96	37.99	14.03	23.96	ND	W	0.003	05-24-96	2300	300	<5*	73	310	<25*	--	--
MW-2	08-09-96	37.99	16.10	21.89	ND	WNW	0.01	08-09-96	2800	290	6	75	320	50	--	--
MW-3	08-01-95	39.32	17.00	22.32	ND	NR	NR	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	600	76^
MW-3	12-14-95	39.32	16.70	22.62	ND	W	0.002	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<3	<500	<50
MW-3	03-21-96	39.32	14.17	25.15	ND	WSW	0.005	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<3	<500	<50
MW-3	05-24-96	39.32	15.30	24.02	ND	W	0.003	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<3	<500	<50
MW-3	08-09-96	39.32	17.58	21.74	ND	WNW	0.01	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<3	<0.5	--
MW-4	08-01-95	38.10	15.65	22.45	ND	NR	NR	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--
MW-4	12-14-95	38.10	15.35	22.75	ND	W	0.002	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-4	03-21-96	38.10	12.74	25.36	ND	WSW	0.005	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-4	05-24-96	38.10	14.03	24.07	ND	W	0.003	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-4	08-09-96	38.10	16.10	22.00	ND	WNW	0.01	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--
MW-5	03-21-96	37.21	12.60	24.61	ND	WSW	0.005	03-22-96	<50	<0.5	<0.5	<0.5	<0.5	82	--	--
MW-5	05-24-96	37.21	13.71	23.50	ND	W	0.003	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	7	--	--
MW-5	08-09-96	37.21	15.60	21.61	ND	WNW	0.01	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	8	--	--

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
 1156 Davis Street, San Leandro, California

Date: 09-17-96

Well Designation	Water Level Field Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8020	Toluene EPA 8020	Ethylbenzene EPA 8020	Total Xylenes EPA 8020	MTBE EPA 8020	TRPH EPA 418.1	TPHD LUFT Method
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-6	03-21-96	37.11	11.55	25.56	ND	WSW	0.005	03-22-96	<50	<0.5	1.9	<0.5	<0.5	<3	--	--
MW-6	05-24-96	37.11	12.80	24.31	ND	W	0.003	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	6	--	--
MW-6	08-09-96	37.11	Not surveyed: Car parked on well					08-09-96	Not sampled: Car parked on well							
MW-7	03-21-96	38.68	13.32	25.36	ND	WSW	0.005	03-22-96	32000	870	450	970	4900	280	--	--
MW-7	05-24-96	38.68	14.58	24.10	ND	W	0.003	05-24-96	22000	570	40	42	1900	<200*	--	--
MW-7	08-09-96	38.68	15.33	23.35	ND	WNW	0.01	08-09-96	14000	390	<10*	180	470	<200*	--	--

ft-MSL: elevation in feet, relative to mean sea level
 MWN: ground-water flow direction and gradient apply to the entire monitoring well network
 ft/ft: foot per foot
 TPHG: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
 µg/L: micrograms per liter
 EPA: United States Environmental Protection Agency
 MTBE: Methyl-tert-butyl ether
 TRPH: total recoverable petroleum hydrocarbons
 TPHD: total petroleum hydrocarbons as diesel, California DHS LUFT Method
 NR: not reported; data not available or not measurable
 ND: none detected
 W: west
 WSW: west-southwest
 NW: northwest
 ^: chromatogram fingerprint is not characteristic of diesel
 *: method reporting limit was raised due to: (1) high analyte concentration requiring sample dilution, or (2) matrix interference
 -: not available

Table 3

**Soil Analytical Data
ARCO Service Station 2111**

Sample Identification	Date Sampled	Depth (feet)	TPHG ²	Benzene	Toluene	Ethylbenzene	Xylenes	TRPH	TPHD
MW-1	7/12/95	6.5	ND	ND	ND	ND	ND	NA	NA
MW-1	7/12/95	11.5	ND	ND	ND	ND	ND	NA	NA
MW-1	7/12/95	16.5	ND	ND	ND	ND	ND	NA	NA
MW-1	7/12/95	21.5	ND	ND	ND	ND	ND	NA	NA
MW-1	7/12/95	26	ND	ND	ND	ND	ND	NA	NA
MW-2	7/12/95	6.5	ND	ND	ND	ND	ND	NA	NA
MW-2	7/12/95	11.5	ND	ND	ND	ND	ND	NA	NA
MW-2	7/12/95	16.5	2	0.045	ND	0.027	0.04	NA	NA
MW-2	7/12/95	19	29	0.26	ND	0.3	1.5	NA	NA
MW-2	7/12/95	21	320	<0.5**	<1**	3.4	1.4	NA	NA
MW-3	7/13/95	6.5	ND	ND	ND	ND	ND	10	ND
MW-3	7/13/95	11	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	14	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	17	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	19.5	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	22.5	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	27.5	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	36	ND	ND	ND	ND	ND	ND	ND
MW-3	7/13/95	40	ND	ND	ND	ND	ND	ND	ND
MW-4	7/13/95	6.5	ND	ND	ND	ND	ND	NA	NA
MW-4	7/13/95	11.5	ND	ND	ND	ND	ND	NA	NA
MW-4	7/13/95	16.5	ND	ND	ND	ND	ND	NA	NA
MW-4	7/13/95	21.5	ND	ND	ND	ND	ND	NA	NA
MW-5	3/1/96	5	ND	ND	ND	ND	ND	NA	NA
MW-5	3/1/96	10	ND	ND	ND	ND	ND	NA	NA
MW-5	3/1/96	15	ND	ND	ND	ND	ND	NA	NA
MW-5	3/1/96	30	ND	ND	ND	ND	ND	NA	NA
MW-6	3/1/96	5	ND	ND	ND	ND	ND	NA	NA
MW-6	3/1/96	10	ND	ND	ND	ND	ND	NA	NA
MW-6	3/1/96	15	ND	ND	ND	ND	ND	NA	NA
MW-6	3/1/96	27	ND	ND	ND	ND	ND	NA	NA

Table 3

**Soil Analytical Data
ARCO Service Station 2111**

(continued)

Sample Identification	Date Sampled	Depth (feet)	TPHG ²	Benzene	Toluene	Ethylbenzene	Xylenes	TRPH	TPHD
MW-7	2/29/96	5.5	ND	ND	ND	ND	ND	NA	NA
MW-7	2/29/96	10	ND	0.01	ND	ND	ND	NA	NA
MW-7	2/29/96	15	1	0.11	ND	0.080	0.90	NA	NA
MW-7	2/29/96	21	55	<0.1*	<0.2*	0.80	1.5	NA	NA
MW-7	2/29/96	33	ND	ND	ND	ND	0.006	NA	NA
VW-1	2/29/96	5.5	ND	ND	ND	ND	ND	NA	NA
VW-1	2/29/96	10.5	ND	ND	ND	ND	ND	NA	NA
VW-1	2/29/96	13	1	0.020	ND	ND	ND	NA	NA
VW-1	2/29/96	19.5	40	0.10	ND	0.50	0.80	NA	NA
VW-2	2/29/96	5.5	ND	ND	ND	ND	ND	NA	NA
VW-2	2/29/96	10.5	ND	ND	ND	ND	ND	NA	NA
VW-2	2/29/96	13	4	0.20	<0.025*	0.080	0.080	NA	NA
VW-2	2/29/96	15.5	18	0.30	<0.05*	0.30	0.40	NA	NA
VW-2	2/29/96	19.5	230	<0.5*	<1*	<1*	2	NA	NA
VW-3	2/28/96	5	ND	ND	ND	ND	ND	NA	NA
VW-3	2/28/96	10	ND	0.020	ND	ND	0.005	NA	NA
VW-3	2/28/96	15	ND	ND	ND	ND	ND	NA	NA
VW-3	2/28/96	19.5	76	<0.1*	<0.2*	0.4	0.8	NA	NA
VW-4	2/28/96	5	ND	ND	ND	ND	ND	NA	NA
VW-4	2/28/96	10.5	12	<0.05*	<0.1*	<0.1*	<0.1*	NA	NA
VW-4	2/28/96	15	1,100	<1*	<2	<2*	3	NA	NA
VW-4	2/28/96	19.5	420	<0.5*	<1*	<1*	3	NA	NA

¹ mg/kg = milligrams per kilogram
² TPHG = total petroleum hydrocarbons as gasoline
³ TRPH = total recoverable petroleum hydrocarbons
⁴ TPHD = total petroleum hydrocarbons as diesel
⁵ NA = not analyzed
< indicates laboratory minimum reporting limit
* raised MRL due to high analyte concentration requiring sample dilution

TABLE 1

ANALYTICAL RESULTS OF SOIL SAMPLES
COLLECTED FROM BENEATH THE FORMER WASTE-OIL TANK
AT ARCO STATION 2111
1155 Davis Street
San Leandro, California

Sample ID	Date	Depth feet	TPHmo (ppm)	TPHd (ppm)	TPHg (ppm)	TRPH (ppm)	VOCs (ppm)	PCBs/BNAs (ppm)	Cadmium (ppm)	Chromium (ppm)	Nickel (ppm)	Lead (ppm)	Zinc (ppm)
WO-E	8/15/94	10	<10	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-W	8/15/94	10.5	<10	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-N	8/15/94	14	12	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-S	8/15/94	12.5	<10	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-1	8/15/94	9.5	NA	780	310	7,900	<2.5 <0.5	<5.0	0.79	38	34	58	50
WO-B	8/15/94	14.5	800	860	NA	NA	NA	NA	NA	NA	NA	NA	NA
WO-B2	8/16/94	18.5	2,000	400	130	2,800	<2.5	<5.0	0.90	46	8.6	55	53
CCS-1A-1D	9/14/94	—	840	NA	5.7	960	<0.5	<0.5	<0.01	0.13	0.81	0.27	4.4
CCS-2A-2D	9/14/94	—	1,400	NA	6.1	2,300	<0.5	<0.5	0.011	0.11	0.96	1.4	0.63

TPHmo = Total petroleum hydrocarbons reported as motor oil by Standard Method (SM) 5520E&F.

TPHd = Total petroleum hydrocarbons reported as diesel by Environmental Protection Agency (EPA) Methods 5030/8015 (modified).

TPHg = Total petroleum hydrocarbons reported as gasoline by EPA Methods 5030/8015 (modified).

TRPH = Total recoverable petroleum hydrocarbons by SM 5520E&F.

VOCs = Volatile organic compounds by EPA Method 8240.

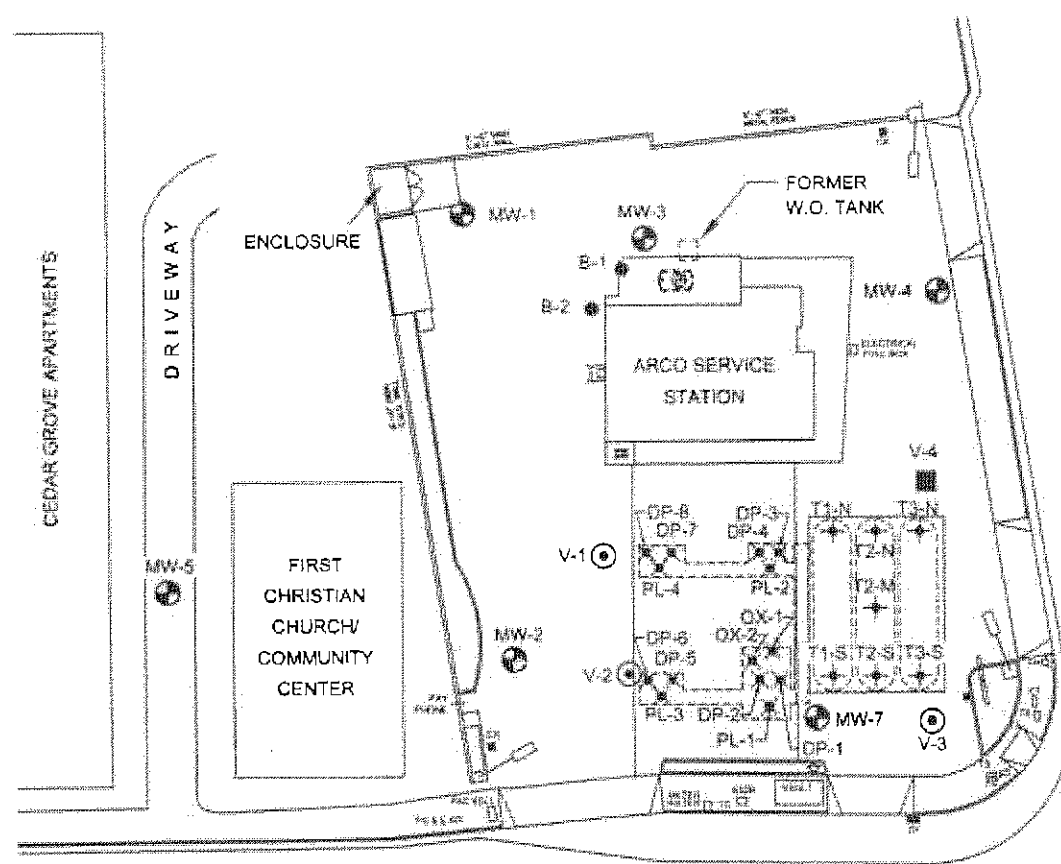
PCBs/BNAs = Polychlorinated biphenyls and base/acid neutrals by EPA Method 8270.

ppm = Parts per million.

Metals were analyzed using EPA Methods 6010/7010 series.

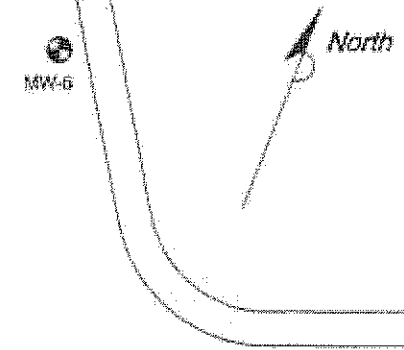
Notes: 1. All data listed as <x indicates a not detected concentration.

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DISPENSER PUMP & PRODUCT LINES

SAMPLE I.D.	SAMPLE DEPTH
DP-1	5.0 FEET
DP-2	8.0 FEET
DP-3	4.0 FEET
DP-4	4.5 FEET
DP-5	4.0 FEET
DP-6	4.0 FEET
DP-7	5.0 FEET
DP-8	5.0 FEET
PL-1	4.0 FEET
PL-2	6.0 FEET
PL-3	6.0 FEET
PL-4	5.0 FEET
OX-1	10.0 FEET
OX-2	9.5 FEET



DAVIS STREET

LEGEND:

- MW-1 MONITORING WELL LOCATION
- V-1 VAPOR EXTRACTION WELL LOCATION
- B-1 SOIL BORING LOCATION
- V-4 DESTROYED WELL LOCATION
- T-1N TANK BASIN SOIL SAMPLE LOCATIONS
- PL-1 FORMER PRODUCT LINE/ DISPENSER PUMP SOIL SAMPLE LOCATIONS

FORMER TANK BASIN

SAMPLE I.D.	SAMPLE DEPTH
T1-N	17 FEET
T2-N	17 FEET
T3-N	16 FEET
T2-M	16 FEET
T1-S	16 FEET
T2-S	16 FEET
T3-S	16 FEET

FIGURE 3
SOIL SAMPLE LOCATION MAP
ARCO SERVICE STATION NO. 2111
1156 DAVIS STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO 0000-358	DRAWN BY TLA 11/20/00
FILE NO	PREPARED BY TLA
REVISION NO 1	REVIEWED BY



TABLE 1

SOIL SAMPLE LABORATORY ANALYTICAL RESULTS

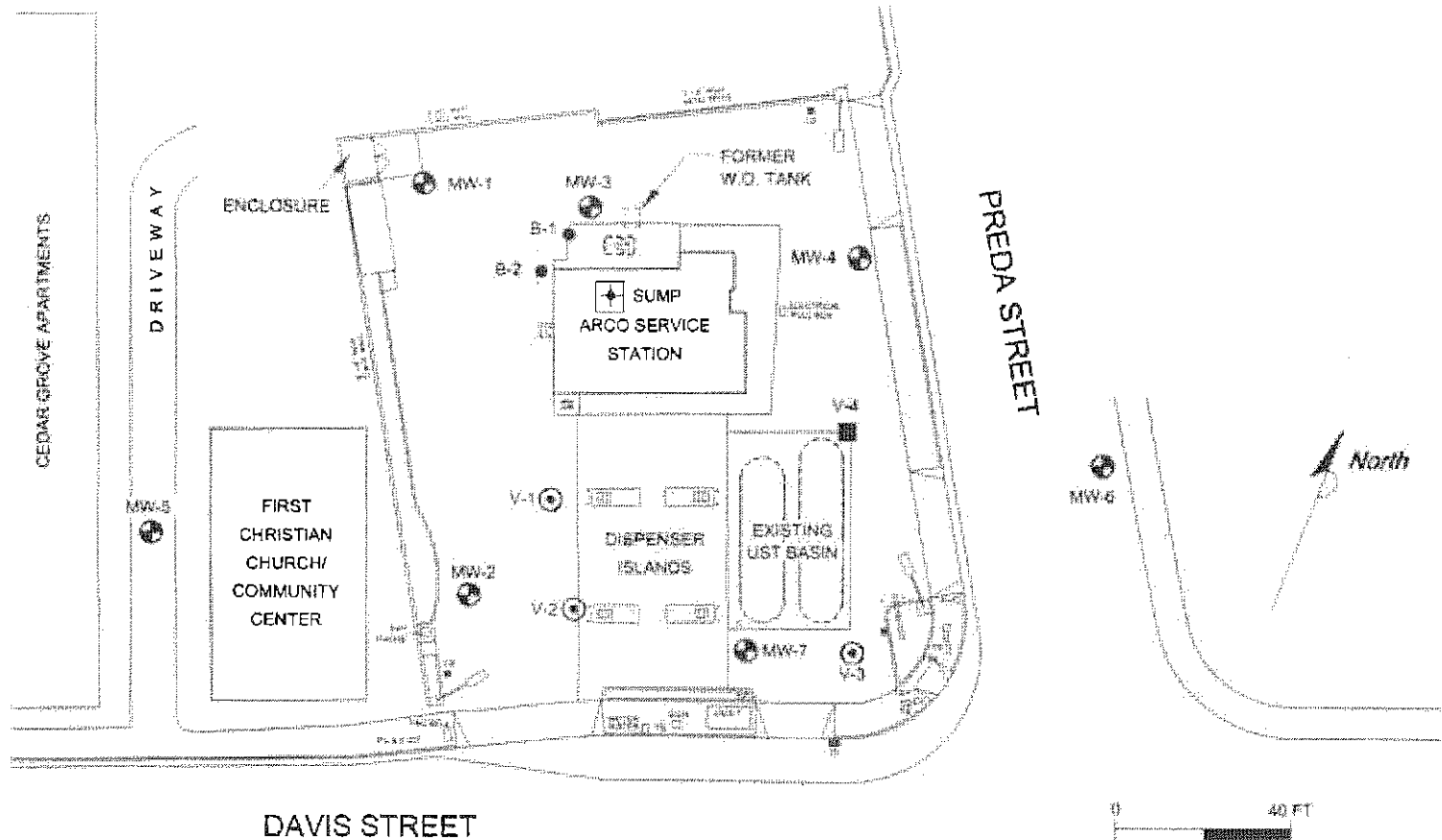
ARCO Service Station No. 2111
1156 Davis Street
San Leandro California

Sample ID	Date	Depth (ft)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TPH as Gasoline (mg/kg)	MTBE (mg/kg)	Lead (mg/kg)
Dispenser Island Samples									
DP-1	10/17/00	5.0	2	20	30	170	2,100	13	15
DP-2	10/17/00	8.0	0.77	0.84	7.4	32	440	4.4	13
DP-3	10/17/00	4.0	0.014	0.12	0.26	1.9	31	2.2	15
DP-4	10/17/00	4.5	0.0056	0.059	0.1	0.68	9.4	0.9	12
DP-5	10/17/00	4.0	0.0061	<0.005	<0.005	<0.005	<1.0	1.5	14
DP-6	10/17/00	4.0	<0.005	<0.005	<0.005	<0.005	<1.0	0.2	25
DP-7	10/17/00	5.0	<0.005	<0.005	<0.005	<0.005	2.2	2.4	13
DP-8	10/17/00	5.0	<0.005	<0.005	<0.005	0.092	<1.0	0.35	13
Product Line Samples									
PL-1	10/17/00	4.0	0.16	<0.05	2.1	3.6	430	0.36	14
PL-2	10/17/00	6.0	<0.005	0.02	0.0077	0.6	14	4.7	12
PL-3	10/17/00	5.0	<0.005	<0.005	<0.005	<0.005	<1.0	0.17	12
PL-4	10/17/00	5.0	<0.005	<0.005	<0.005	0.043	1.3	0.86	11
Tank Basin Samples									
T1-S	10/19/00	17.0	0.21	2.1	1.6	8.5	110	33	8.9
T1-N	10/19/00	16.0	4.7	79	30	170	1,900	89	10
T2-S	10/19/00	16.0	1.1	26	14	77	1,100	18	8.1
T2-M	10/19/00	16.0	1.9	38	11	59	800	59	8.3
T2-N	10/19/00	17.0	7.7	190	58	300	4,400	76	13
T3-S	10/19/00	16.0	1.3	8.4	29	120	340	6.5	12
T3-N	10/19/00	16.0	5.0	76	28	140	1,800	83	12
Soil Overexcavation Samples									
OX-1	10/26/00	10.0	0.4	<0.005	<0.005	0.0091	2.7	1.5	9.7
OX-2	10/26/00	9.5	0.18	0.81	0.42	2.6	19	7.7	11
Soil Stockpile Results									
STK-1	10/19/00	Composite	0.019	0.017	0.052	0.27	8	NA	11
STK-2	10/26/00	Composite	0.054	0.48	0.64	3.8	86	0.91	9.6

TPH = Total petroleum hydrocarbons.

MTBE = Methyl tertiary butyl ether (analyzed by EPA Method 8260)

NA = Not Analyzed



LEGEND:






-  MW-1 MONITORING WELL LOCATION
-  V-1 VAPOR EXTRACTION WELL LOCATION
-  B-1 SDI BORING LOCATION
-  V-4 DESTROYED WELL LOCATION
-  SUMP SUMP SAMPLE LOCATION

FIGURE 2
SITE MAP
ARCO SERVICE STATION NO. 2111
1158 DAVIS STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 0006-108	DRAWN BY T.L.A. 8/20/01
FILE NO. 2111-1	PREPARED BY T.L.A.
REVISION NO. 2	REVIEWED BY



TABLE 1

SOIL CHEMICAL ANALYTICAL DATA

ARCO Service Station No. 2111
1156 Davis Street
San Leandro, California

Sample ID	Date Collected	Depth (feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPHg (mg/kg)	TPHd (mg/kg)	MTBE (mg/kg)	PCB (mg/kg)	TRPH (mg/kg)	VOC ¹ (mg/kg)	VOC ² (mg/kg)	SVOC (mg/kg)	Total Metals (mg/kg)
Sump	5/5/2001	2	<0.025	<0.025	0.0616	0.209	305	465	*0.25	ND	543	ND	0.637 ^a , 1.11 ^b , 4.47 ^c , 0.575 ^d , 9.81 ^e , 3.30 ^f , 0.219 ^g	0.51 ^h , 0.61 ⁱ	38 ^h , 52 ^h , 8.7, 60 ^h

Explanations:

BTEX = benzene, toluene, ethylbenzene, and total xylenes

TPHg = total petroleum hydrocarbons as gasoline

TPHd = total petroleum hydrocarbons as diesel

MTBE = methyl tertiary butyl ether

PCB = polychlorinated biphenyls

TRPH = total recoverable petroleum hydrocarbons (oil & grease)

VOC = volatile organic compounds

VOC¹VOC²

SVOC = semi-volatile organic compounds

Total Metals

Analytical Methods

DHS LUFT

DHS LUFT

DHS LUFT

DHS LUFT

EPA Method 8082

APHA/EPA Methods

EPA Method 8010

EPA Method 8260A

EPA Method 8270C

EPA 600/3-7000 Series Methods

^a = sec-butylbenzene, ^b = p-isopropyltoluene, ^c = naphthalene,^d = o-propylbenzene, ^e = 1,2,4-trimethylbenzene,^f = 1,3,5-trimethylbenzene, ^g = m,p-xylene^h = chromium, ⁱ = nickel, ^j = lead, ^k = zinc^l = 2-methylnaphthalene

ND = Non detected (see laboratory reports for specific detection levels)

TABLE 1
PILOT TEST AIR ANALYTICAL DATA

ARCO Service Station No. 2111
1156 Davis Street
San Leandro, California

Sample	I.D.	Date Sampled	Time	Benzene (ppmv)	Toluene (ppmv)	Ethyl-benzene (ppmv)	Total Xylenes (ppmv)	TPHg (ppmv)	MTBE (8020) (ppmv)	MTBE (8260) (ppmv)
VW-2 (V-2)		01/07/02	10:45	4.1	0.82	1.8	4.5	55 ^a	84	84
1-7-02 (V-2)		01/07/02	16:00	2.1	0.34	0.68	1.5	25	NA	64
1-8-02 (V-2)		01/08/02	8:00	2.9	1.0	1.3	2.2	97	NA	209
1-9-02 (V-2)		01/09/02	8:00	5.5	2.3	2.1	3.8	210	NA	179
1-10-02 (V-2)		01/10/02	8:00	3.9	1.3	1.9	4.2	190	53	95
1-11-02 (MW-7)		01/11/02	9:00	2.0	2.3	0.85	2.3	80	72	128

^a = Hydrocarbon pattern is present in the requested fuel quantitation but does not resemble the pattern of the requested fuel.

TPH = Total Petroleum Hydrocarbons

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted

µg/L = Micrograms per liter

NA = Not analyzed

TABLE 2

PILOT TEST WATER ANALYTICAL DATA

ARCO Service Station No. 2111
 1156 Davis Street
 San Leandro, California

Sample	I.D.	Date Sampled	Time	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TPH (µg/L)	MTBE (8020) (µg/L)	MTBE (8260) (µg/L)
VW-2 (V-2)		01/07/02	10:50	860	<500	<500	1,400	<50,000	160,000	180,000
1-7-02 (V-2)		01/07/02	16:00	240	51	93	280	18,000 ^a	NA	98,000
1-8-02 (V-2)		01/08/02	8:00	42	11	<0.5	53	1,800	NA	16,000
1-9-02 (V-2)		01/09/02	8:00	46	45	81	360	6,600	NA	8,100
1-10-02 (V-2)		01/10/02	8:00	28	<20	25	71	<2,000	6,300	5,600
1-11-02 (MW-7)		01/11/02	9:00	<20	23	<20	52	<2,000	6,800	5,800

^a = Hydrocarbon pattern is present in the requested fuel quantitation but does not resemble the pattern of the requested fuel.

TPH = Total Petroleum Hydrocarbons

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted

µg/L = Micrograms per liter

NA = Not analyzed

TABLE 3

DUAL PHASE EXTRACTION PILOT TEST VAPOR RESULTS TABLE

ARCO Service Station No. 2111
1156 Davis Street
San Leandro, California

V-2 PILOT TEST VAPOR EXTRACTION RESULTS - 2002

Date & Time Sampled	Influent Flowrate (ft ³ /min)	Laboratory TPHg Influent (ppmv)	Influent Non-methane Hydrocarbons by FID (ppmv)	Laboratory Benzene Influent (ppmv)	TPH Extraction Rate (lbs/hour)	Non- Methane Hydrocarbons by FID (lbs/hour)	Benzene Extraction Rate (lbs/hour)	Cumulative Volume of Processed Air (cubic feet)	Cumulative Laboratory TPHg Extraction (lbs)	Cumulative FID Non-Methane Hydrocarbon Extraction (lbs)	Total Hours Operated	Change in Hours of Operation
1/7/02 9:00	236	NA	260	NA	NC	0.82	NC	0	NC	0.0	0.00	0.00
1/7/02 9:30	236	NA	260	NA	NC	0.94	NC	7,080	NC	0.4	0.50	0.50
1/7/02 9:45	226	NA	262	NA	NC	0.91	NC	10,470	NC	0.7	0.75	0.25
1/7/02 10:00	226	NA	216	NA	NC	0.75	NC	13,860	NC	0.9	1.00	0.25
1/7/02 10:30	247	NA	112	NA	NC	0.42	NC	21,270	NC	1.2	1.50	0.50
1/7/02 10:45	247	55	112	4.1	0.18	0.37	0.34	24,975	0.3	1.3	1.75	0.25
1/7/02 12:00	238	NA	197	NA	NC	0.72	NC	42,825	NC	2.0	3.00	1.25
1/7/02 16:00	260	25	884	2.1	0.09	3.06	0.18	105,225	1.0	9.5	7.00	4.00
1/7/02 17:00	263	NA	808	NA	NC	3.26	NC	121,005	NC	12.7	8.00	1.00
1/7/02 18:00	261	NA	1,087	NA	NC	4.36	NC	136,665	NC	18.5	9.00	1.00
1/8/02 8:00	274	97	381	2.9	0.35	1.39	0.27	366,825	4.5	58.7	23.00	14.00
1/9/02 8:00	263	210	417	5.5	0.74	1.46	0.48	745,545	17.6	91.0	47.00	24.00
1/10/02 8:00	224	190	381	3.9	0.57	1.14	0.29	1,068,105	33.3	122.1	71.00	24.00
1/10/02 15:45	261	190*	185	3.9*	0.66	0.64	0.34	1,189,470	38.0	129.0	78.75	7.75

TPHg = Total petroleum hydrocarbons as gasoline.

ppmv = Parts per million by volume.

* = assumed to be same as previous sample results

NC = Not Calculated

NA = Not Analyzed

Gallons of Vapor Equivalent Gasoline Removed: 6.2
Average Vapor Gallons Removed per Minute: 0.001

TABLE 3

DUAL PHASE EXTRACTION PILOT TEST VAPOR RESULTS TABLE

ARCO Service Station No. 2111
1156 Davis Street
San Leandro, California

MW-7 PILOT TEST VAPOR EXTRACTION RESULTS - 2002

Date & Time Sampled	Influent Flowrate (ft ³ /min)	Laboratory TPHg Influent (ppmv)	Influent Non-methane Hydrocarbons by FID (ppmv)	Laboratory Benzene Influent (ppmv)	Laboratory TPHg Extraction Rate (lbs/hour)	Non- Methane Hydrocarbons by FID (lbs/hour)	Benzene Extraction Rate (lbs/hour)	Cumulative Volume of Processed Air (cubic feet)	Cumulative Laboratory TPHg Extraction (lbs)	Cumulative FID Non-Methane Hydrocarbon Extraction (lbs)	Total Hours Operated	Change in Hours of Operation
1/10/02 16:00	NM	NA	NM	NA	NC	NC	NC	0	0.0	NC	0.00	0.00
1/10/02 17:00	NM	NA	NM	NA	NC	NC	NC	15,000	0.3	NC	1.00	1.00
1/11/02 9:00	250	80	NM	2	0.31	NC	0.17	255,000	5.2	NC	17.00	16.00
1/11/02 10:00	NM	NA	NM	NA	NC	NC	NC	270,000	5.5	NC	18.00	1.00
1/11/02 11:00	NM	NA	NM	NA	NC	NC	NC	285,000	5.8	NC	19.00	1.00
1/11/02 12:00	NM	NA	NM	NA	NC	NC	NC	300,000	6.1	NC	20.00	1.00

TPHg = Total petroleum hydrocarbons as gasoline.

ppmv = Parts per million by volume.

Note : Laboratory results and flow rates are assumed to be consistant for entire event on MW-7. FID did not function properly during test on MW-7 therefore, no recordings were made.

NC = Not Calculated

NA = Not Analyzed

Gallons of Vapor Equivalent Gasoline Removed: 1.0
Average Vapor Gallons Removed per Minute: 0.001

TABLE 3

DUAL PHASE EXTRACTION PILOT TEST VAPOR RESULTS TABLE

ARCO Service Station No. 2111
1156 Davis Street
San Leandro, California

MW-2 PILOT TEST VAPOR EXTRACTION RESULTS - 2002

Date & Time Sampled	Influent Flowrate (ft ³ /min)	Laboratory TPHg Influent (ppmv)	Influent Non-methane Hydrocarbons by FID (ppmv)	Laboratory Benzene Influent (ppmv)	Laboratory TPHg Extraction Rate (lbs/hour)	Non- Methane Hydrocarbons by FID (lbs/hour)	Benzene Extraction Rate (lbs/hour)	Cumulative Volume of Processed Air (cubic feet)	Cumulative Laboratory TPHg Extraction (lbs)	Cumulative FID Non-Methane Hydrocarbon Extraction (lbs)	Total Hours Operated	Change in Hours of Operation
1/11/02 12:00	292	NA	10,176	NA	NC	45.65	NC	0	NC	0.0	0.00	0.00
1/11/02 12:15	NM	NA	2,406	NA	NC	10.79	NC	4,380	NC	7.1	0.25	0.25
1/11/02 12:30	NM	NA	971	NA	NC	4.36	NC	8,760	NC	8.9	0.50	0.25
1/11/02 13:00	NM	NA	690	NA	NC	3.09	NC	17,520	NC	10.8	1.00	0.50
1/11/02 14:00	NM	NA	300	NA	NC	1.35	NC	35,040	NC	13.0	2.00	1.00
1/11/02 15:00	NM	NA	351	NA	NC	1.58	NC	52,560	NC	14.5	3.00	1.00
1/11/02 17:00	NM	NA	351	NA	NC	1.58	NC	87,600	NC	17.6	5.00	2.00

TPHg = Total petroleum hydrocarbons as gasoline.

ppmv = Parts per million by volume.

NC = Not Calculated

NA = Not Analyzed

Gallons of Vapor Equivalent Gasoline Removed:

2.9

Average Vapor Gallons Removed per Minute:

0.016

TABLE 4

DUAL PHASE EXTRACTION SYSTEM FIELD DATA

ARCO Service Station No. 2111
 1156 Davis Street
 San Leandro, California

Pilot Test on V-2

		System Readings					V-2		MW-2		MW-7		V-1		V-3		MW-1	
Date	Time	System Vacuum (°Hg)	System Conc (ppmv)	System Flowrate (ft ³ /min)	Water Meter (gallons)	Total Discharge (gpm)	Vacuum Reading (°H ₂ O)	Depth to Water (Feet)	Vacuum Reading (°H ₂ O)	Depth to Water (Feet)	Vacuum Reading (°H ₂ O)	Depth to Water (Feet)	Vacuum Reading (°H ₂ O)	Depth to Water (Feet)	Vacuum Reading (°H ₂ O)	Depth to Water (Feet)	Vacuum Reading (°H ₂ O)	Depth to Water (Feet)
1/7/02	9:00	24	260.3	236	NM	NC	NM	13.48	NM	13.20	NM	13.60	NM	14.14	NM	12.99	NM	15.09
1/7/02	9:30	24	260.3	236	2,552,890	NC	265	NM	0.10	13.22	0.00	13.62	0.00	14.12	0.00	13.00	0.00	15.12
1/7/02	9:45	24	261.7	226	NM	NC	265	NM	0.10	13.21	0.00	13.61	0.00	14.14	0.00	13.01	0.00	15.11
1/7/02	10:00	24	216.4	NM	2,552,980	3.00	NM	NM	0.05	13.24	0.01	13.60	0.00	14.16	0.00	13.01	0.02	15.13
1/7/02	10:30	24	112.4	247	NM	NC	265	NM	0.05	13.25	0.01	13.60	0.00	14.16	0.00	13.01	0.02	15.14
1/7/02	11:00	24	60.3	224	NM	NC	NM	NM	0.05	13.24	0.01	13.60	0.00	14.25	0.00	13.00	0.02	15.14
1/7/02	12:00	20	196.7	238	NM	NC	220	NM	0.05	13.25	0.01	13.60	0.00	14.15	0.00	13.00	0.02	15.14
1/7/02	13:00	22	320.4	247	2,553,140	0.89	230	NM	0.05	13.25	0.01	13.60	0.00	14.16	0.00	13.01	0.02	15.14
1/7/02	14:00	22	387.4	263	NM	NC	230	NM	0.05	13.25	0.01	13.60	0.00	14.16	0.00	13.01	0.02	15.14
1/7/02	15:00	NM	System Down		NM	NC	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
1/7/02	16:00	NM	883.7	260	NM	NC	NM	NM	0.05	13.24	0.01	13.60	0.00	14.15	0.00	13.00	0.02	15.14
1/7/02	17:00	22	807.6	263	2,553,250	0.46	230	NM	0.05	13.25	0.01	13.60	0.00	14.15	0.00	13.01	0.02	15.14
1/7/02	18:00	24	1087	261	NM	NC	265	NM	0.05	13.25	0.01	13.61	0.00	14.15	0.00	13.01	0.02	15.14
1/8/02	8:00	24	380.7	274	2,554,700	1.61	265	15+	NM	13.31	NM	13.64	NM	14.24	NM	13.04	NM	15.17
1/9/02	8:00	24	416.6	263	2,557,220	1.75	265	19+	0.08	13.35	0.00	13.68	0.00	14.25	0.00	13.11	0.02	15.25
1/10/02	8:00	24	380.7	224	2,559,570	1.63	240	NM	0.22	13.39	0.00	13.69	0.00	14.29	0.00	13.16	0.03	15.27
1/10/02	15:45	24	184.7	261	2,560,010	0.95	240	19+	0.22	13.46	0.00	13.70	0.00	14.36	0.00	13.20	0.02	15.30
Totals/Avg:		4725	23.3	388.6	248.2	7,120	1.51	248.3	5.52	0.26	0.10	0.22	0.21	0.21	0.21	0.21	0.21	0.21

ppmv = parts per million by volume.
 °Hg = inches of Mercury
 °H₂O = inches of water column
 NM = Not Measured

TABLE 4

DUAL PHASE EXTRACTION SYSTEM FIELD DATA

ARCO Service Station No. 2111
 1156 Davis Street
 San Leandro, California

Pilot Test on MW-7

		System Readings					V-2		MW-2		MW-7		V-1		V-3		MW-1	
Date	Time	System Vacuum ("Hg)	System Conc (ppmv)	System Flowrate (ft ³ /min)	Water Meter (gallons)	Total Discharge (gpm)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)
1/10/02	16:00	24	NM	250	2,560,010	NC	NM	13.69	NM	13.45	240.00	13.77	NM	14.35	NM	13.20	NM	15.32
1/11/02	12:00	24	NM	250	2,561,910	1.58	NM	13.67	NM	13.50	240.00	13.89	NM	14.37	NM	13.20	NM	15.35
Totals/Avg:		1200		250	1,900	1.58		-0.02		0.05	240.0	0.12		0.02		0.00		0.03

Pilot Test on MW-2

		System Readings					V-2		MW-2		MW-7		V-1		V-3		MW-1	
Date	Time	System Vacuum ("Hg)	System Conc (ppmv)	System Flowrate (ft ³ /min)	Water Meter (gallons)	Total Discharge (gpm)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)	Vacuum Reading ("H ₂ O)	Depth to Water (Feet)
1/11/02	12:00	18	10,176	342	2,561,910	NC	NM	13.67	NM	13.50	NM	13.80	NM	14.37	NM	13.21	NM	15.35
1/11/02	17:00	18	351.4	292	2,567,870	19.87	NM	13.71	150.00	13.69	NM	13.87	NM	14.38	NM	13.20	NM	15.35
Totals/Avg:		300		317	5,960	19.87		0.04	150.0	0.19		0.07		0.01		-0.01		0.00

ppmv = parts per million by volume.

"Hg = inches of Mercury

"H₂O = inches of water column

NM = Not Measured

Table 1
Soil Analytical Results
ARCO #2111
1156 Davis St., San Leandro, CA

Well Number	Date Sampled	TPH-g (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	TBA (mg/kg)	MTBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)
MW-8-5	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.005	ND<0.010	ND<0.005	ND<0.005
MW-8-10	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	ND<0.005	ND<0.010	ND<0.005	ND<0.005
MW-8-15	11/26/04	2.1	ND<0.005	ND<0.005	ND<0.005	ND<0.005	0.017	0.032	ND<0.010	ND<0.005	ND<0.005
MW-8-16.5	11/26/04	150	ND<0.5	ND<0.5	0.60	0.84	ND<2.5	ND<0.50	ND<1.0	ND<0.5	25
MW-8-23	11/26/04	ND<5.0	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.050	1.4	ND<0.050	ND<0.025	ND<0.025
MW-8-28	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	0.12	ND<0.010	ND<0.005	ND<0.005
MW-8-33	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	0.037	ND<0.010	ND<0.005	ND<0.005
MW-8-38	11/26/04	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.010	0.027	ND<0.010	ND<0.005	ND<0.005

Notes:

- TPH-g = Total Petroleum Hydrocarbons analyzed by EPA method 8260B.
- BTEX = Benzene, Toluene, Ethyl-benzene, and Total Xylenes analyzed by EPA method 8260B.
- MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8260B.
- TBA = tert-Butyl alcohol
- DIPE = Di-isopropyl ether
- ETBE = Ethyl tert-butyl ether
- TAME = tert-Amyl methyl ether
- 1,2-DCA = 1,2-Dichloroethane
- 1,2-DBA = 1,2-Dibromoethane (EDB)
- mg/kg = Micrograms per kilogram
- MSL = Mean sea level
- ND< = Not detected at or above specified laboratory method detection limit

**Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents**

**ARCO Service Station 2111
1156 Davis Street, San Leandro, California**

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 µg/L	LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/Not Purged P/NP
MW-1	08-01-95	39.60	17.45	ND	22.15	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-1	12-14-95	39.60	17.09	ND	22.51	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	03-21-96	39.60	14.72	ND	24.88	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	05-24-96	39.60	15.94	ND	23.66	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	08-09-96	39.60	17.89	ND	21.71	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	11-06-96	39.60	18.66	ND	20.94	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	03-24-97	39.60	16.13	ND	23.47	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	05-27-97	39.60	17.23	ND	22.37	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	08-07-97	39.60	18.68	ND	20.92	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	11-10-97	39.60	19.19	ND	20.41	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	02-16-98	39.60	12.61	ND	26.99	02-16-98	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	04-15-98	39.60	14.30	ND	25.30	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	07-24-98	39.60	16.40	ND	23.20	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	10-19-98	39.60	17.90	ND	21.70	10-19-98	<50	<0.5	<0.5	<0.5	<0.5	Δ	--	--	--		
MW-1	01-28-99	39.60	16.85	ND	22.75	01-28-99	<20,000	580	<200	<200	320	14,000	--	--	--		
MW-1	06-25-99	39.60	17.35	ND	22.25	06-25-99	730	140	5	3	2	7,700	--	--	--	0.79	NP
MW-1	08-25-99	39.60	18.20	ND	21.40	08-25-99	390	66	8.5	<2.5	8.6	3,700	--	--	--	1.56	NP
MW-1	11-10-99	39.60	17.77	ND	21.83	11-10-99	360	70	13	2.2	13	980	--	--	--	0.30	NP
MW-1	02-09-00	39.60	16.25	ND	23.35	02-09-00	190	4.5	0.9	<0.5	12	3,500	--	--	--	0.53	NP
MW-2	08-01-95	37.99	15.67	ND	22.32	08-01-95	23,000	1,300	310	500	3,500	--	--	--	--		
MW-2	12-14-95	37.99	15.36	ND	22.63	12-14-95	7,300	900	25	180	1,000	<200	--	--	--		
MW-2	03-21-96	37.99	12.84	ND	25.15	03-21-96	9,600	850	30	280	1,400	250	--	--	--		
MW-2	05-24-96	37.99	14.03	ND	23.96	05-24-96	2,300	300	<5	73	310	<25	--	--	--		
MW-2	08-09-96	37.99	16.10	ND	21.89	08-09-96	2,800	290	6	75	320	50	--	--	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MIBE EPA 8260 µg/L	TRPH EPA 418.1 LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/Not Purged P/NP
MW-2	11-06-96	37.99	16.98	ND	21.01	11-06-96	750	76	<1	15	51	110	--	--	--	--
MW-2	03-24-97	37.99	14.22	ND	23.77	03-24-97	790	18	<1	2	6	280	--	--	--	--
MW-2	05-27-97	37.99	15.42	ND	22.57	05-28-97	750	14	<1	<1	10	150	--	--	--	--
MW-2	08-07-97	37.99	16.92	ND	21.07	08-07-97	360	31	<2.5	<2.5	15	260	--	--	--	--
MW-2	11-10-97	37.99	17.52	ND	20.47	11-10-97	1,300	82	<5	14	49	550	--	--	--	--
MW-2	02-16-98	37.99	12.04	ND	25.95	02-16-98	<2,500	<25	<25	<25	<25	4,200	--	--	--	--
MW-2	04-15-98	37.99	12.34	ND	25.65	04-15-98	<10,000	<100	<100	<100	<100	7,300	--	--	--	--
MW-2	07-24-98	37.99	14.45	ND	23.54	07-24-98	<2,500	<25	<25	<25	<25	1,500	--	--	--	--
MW-2	10-19-98	37.99	16.08	ND	21.91	10-19-98	<1,000	18	<10	<10	<10	1,100	--	--	--	--
MW-2	01-28-99	37.99	15.59	0.02	22.41 [1]	01-28-99	160,000	3,000	24,000	4,400	31,000	23,000	--	--	--	--
MW-2	06-25-99	37.99	19.20	3.73[4]	21.51 [1]	06-25-99	120,000	6,900	21,000	2,600	19,000	18,000	17,000[3]	--	0.49	NP
MW-2	08-25-99	37.99	16.49	0.02	21.51 [1]	08-25-99	92,000	2,200	16,000	3,200	19,000	11,000	9,400[3]	--	0.84	NP
MW-2	11-10-99	37.99	16.08	ND	21.91	11-10-99	56,000	2,400	5,900	1,500	10,000	17,000	21,000[3]	--	0.41	NP
MW-2	02-09-00	37.99	14.85	ND	23.14	02-09-00	1,700	270	14	17	21	70,000	55,000[3]	--	0.97	NP
MW-3	08-01-95	39.32	17.00	ND	22.32	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	600	76[2]	--
MW-3	12-14-95	39.32	16.70	ND	22.62	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	<50	--
MW-3	03-21-96	39.32	14.17	ND	25.15	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	<50	--
MW-3	05-24-96	39.32	15.30	ND	24.02	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	<50	--
MW-3	08-09-96	39.32	17.58	ND	21.74	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	<500	--	--
MW-3	11-06-96	39.32	18.33	ND	20.99	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	--
MW-3	03-24-97	39.32	15.44	ND	23.88	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	--
MW-3	05-27-97	39.32	16.75	ND	22.57	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	--
MW-3	08-07-97	39.32	18.35	ND	20.97	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	--
MW-3	11-10-97	39.32	18.83	ND	20.49	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--	--

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water teet	Free Product Thickness teet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 µg/L	LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/Not Purged Y/NP
MW-3	02-16-98	39.32	11.99	ND	27.33	02-16-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-3	04-15-98	39.32	13.75	ND	25.57	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-3	07-24-98	39.32	15.90	ND	23.42	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-3	10-19-98	39.32	17.45	ND	21.87	10-19-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-3	01-28-99	39.32	16.40	ND	22.92	01-28-99	<100	14	4	<1	6	100	--	--	--		
MW-3	06-25-99	39.32	17.92	ND	21.40	06-25-99	83	9.0	1.4	<0.5	2.5	220	--	--	--	1.11	NP
MW-3	08-25-99	39.32	17.79	ND	21.53	08-25-99	240	41	12	3.7	9.9	160	--	--	--	1.13	NP
MW-3	11-10-99	39.32	17.37	ND	21.95	11-10-99	620	100	9.7	4.1	21	150	--	--	--	0.24	NP
MW-3	02-09-00	39.32	15.77	ND	23.55	02-09-00	<50	<0.5	0.7	<0.5	<1	180	--	--	--	0.62	NP
MW-4	08-01-95	38.10	15.65	ND	22.45	08-01-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	12-14-95	38.10	15.35	ND	22.75	12-14-95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	03-21-96	38.10	12.74	ND	25.36	03-21-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	05-24-96	38.10	14.03	ND	24.07	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	08-09-96	38.10	16.10	ND	22.00	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	11-06-96	38.10	17.00	ND	21.10	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	03-24-97	38.10	14.21	ND	23.89	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	05-27-97	38.10	15.38	ND	22.72	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	08-07-97	38.10	16.95	ND	21.15	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	11-10-97	38.10	17.53	ND	20.57	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	02-16-98	38.10	10.65	ND	27.45	02-16-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	04-15-98	38.10	12.20	ND	25.90	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	07-24-98	38.10	14.47	ND	23.63	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	10-19-98	38.10	16.20	ND	21.90	10-19-98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--		
MW-4	01-28-99	38.10	15.02	ND	23.08	01-28-99	340	52	5.5	<0.5	74	31	--	--	--		

**Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents**

**ARCO Service Station 2111
1156 Davis Street, San Leandro, California**

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/Not Purged
MW-4	06-25-99	38.10	15.57	ND	22.53	06-25-99	510	78	4.1	0.5	18	94	--	--	0.90	NP
MW-4	08-25-99	38.10	16.43	ND	21.67	08-25-99	660	130	21	6.4	39	110	--	--	1.01	NP
MW-4	11-10-99	38.10	16.02	ND	22.08	11-10-99	510	98	5.1	3.1	15	69	--	--	0.28	NP
MW-4	02-09-00	38.10	14.30	ND	23.80	02-09-00	<50	<0.5	0.9	<0.5	<1	55	--	--	0.67	NP
MW-5	03-21-96	37.21	12.60	ND	24.61	03-22-96	<50	<0.5	<0.5	<0.5	<0.5	82	--	--		
MW-5	05-24-96	37.21	13.71	ND	23.50	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	7	--	--		
MW-5	08-09-96	37.21	15.60	ND	21.61	08-09-96	<50	<0.5	<0.5	<0.5	<0.5	8	--	--		
MW-5	11-06-96	37.21	16.36	ND	20.85	11-06-96	<50	<0.5	<0.5	<0.5	<0.5	100	--	--		
MW-5	03-24-97	37.21	13.87	ND	23.34	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	460	--	--		
MW-5	05-27-97	37.21	14.71	ND	22.50	05-28-97	<100	<1	<1	<1	<1	120	--	--		
MW-5	08-07-97	37.21	16.90	ND	20.31	08-07-97	<250	<2.5	<2.5	<2.5	<2.5	250	--	--		
MW-5	11-10-97	37.21	16.88	ND	20.33	11-10-97	<1,000	<10	<10	<10	<10	770	--	--		
MW-5	02-16-98	37.21	10.56	ND	26.65	02-16-98	<200	<2	<2	<2	<2	230	--	--		
MW-5	04-15-98	37.21	12.20	ND	25.01	04-15-98	<500	<5	<5	<5	<5	900	--	--		
MW-5	07-24-98	37.21	14.20	ND	23.01	07-24-98	<500	<5	<5	<5	<5	570	--	--		
MW-5	10-19-98	37.21	15.74	ND	21.47	10-19-98	<250	<2.5	<2.5	<2.5	<2.5	300	--	--		
MW-5	01-28-99	37.21	14.60	ND	22.61	01-28-99	<500	8	<5	<5	<5	290	--	--		
MW-5	06-25-99	37.21	15.10	ND	22.11	06-25-99	<50	<0.5	<0.5	<0.5	<0.5	1,300	--	--	0.76	NP
MW-5	08-25-99	37.21	15.91	ND	21.30	08-25-99	<50	<0.5	<0.5	<0.5	<0.5	6,700	--	--	0.98	NP
MW-5	11-10-99	37.21	15.52	ND	21.69	11-10-99	130	2.0	7.0	1.3	21	5,000	--	--	0.21	NP
MW-5	02-09-00	37.21	14.03	ND	23.18	02-09-00	92	<0.5	0.8	<0.5	1.0	7,900	--	--	0.51	NP
MW-6	03-21-96	37.11	11.55	ND	25.56	03-22-96	<50	<0.5	1.9	<0.5	<0.5	<3	--	--		
MW-6	05-24-96	37.11	12.80	ND	24.31	05-24-96	<50	<0.5	<0.5	<0.5	<0.5	6	--	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 2111
1156 Davis Street, San Leandro, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8021B* µg/L	Toluene EPA 8021B* µg/L	Ethylbenzene EPA 8021B* µg/L	Total Xylenes EPA 8021B* µg/L	MTBE EPA 8021B* µg/L	MTBE EPA 8260 µg/L	TRPH EPA 418.1 LUFT Method µg/L	Dissolved Oxygen mg/L	Purged/Not Purged P/NP
MW-6	08-09-96	37.11	Not surveyed			08-09-96	Not sampled: Car parked on well									
MW-6	11-06-96	37.11	Not surveyed			11-06-96	Not sampled: Car parked on well									
MW-6	03-24-97	37.11	13.06	ND	24.05	03-24-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	05-27-97	37.11	14.30	ND	22.81	05-28-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	08-07-97	37.11	16.40	ND	20.71	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	11-10-97	37.11	16.53	ND	20.58	11-10-97	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	02-16-98	37.11	Not surveyed			02-16-98	Not sampled: Car parked on well									
MW-6	04-15-98	37.11	10.95	ND	26.16	04-15-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	07-24-98	37.11	13.30	ND	23.81	07-24-98	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	10-19-98	37.11	Not surveyed			10-19-98	Not sampled: Car parked on well									
MW-6	01-28-99	37.11	13.92	ND	23.19	01-28-99	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	06-25-99	37.11	15.47	ND	21.64	06-25-99	<50	<0.5	<0.5	<0.5	<0.5	∅	--	--	--	--
MW-6	08-25-99	37.11	15.39	ND	21.72	08-25-99	<50	<0.5	3.4	0.6	3.7	∅	--	--	0.74	NP
MW-6	11-10-99	37.11	14.92	ND	22.19	11-10-99	<50	<0.5	<0.5	<0.5	<1	∅	--	--	0.92	NP
MW-6	02-09-00	37.11	13.30	ND	23.81	02-09-00	<50	<0.5	0.9	<0.5	1.3	∅	--	--	0.79	NP
MW-7	03-21-96	38.68	13.32	ND	25.36	03-22-96	32,000	870	450	970	4,900	280	--	--	--	--
MW-7	05-24-96	38.68	14.58	ND	24.10	05-24-96	22,000	570	40	42	1,900	<200[2]	--	--	--	--
MW-7	08-09-96	38.68	15.33	ND	23.35	08-09-96	14,000	390	<10	180	470	<200[2]	--	--	--	--
MW-7	11-06-96	38.68	16.95	ND	21.73	11-06-96	9,500	440	<10	210	150	<100[2]	--	--	--	--
MW-7	03-24-97	38.68	14.65	ND	24.03	03-24-97	6,400	420	<10	260	13	480	--	--	--	--
MW-7	05-27-97	38.68	15.58	ND	23.10	05-28-97	5,000	420	<5	230	10	460	--	--	--	--
MW-7	08-07-97	38.68	17.10	ND	21.58	08-07-97	3,900	350	<5	200	10	330	--	--	--	--
MW-7	11-10-97	38.68	18.05	ND	20.63	11-10-97	5,600	590	10	370	43	540	--	--	--	--
MW-7	02-16-98	38.68	12.03	ND	26.65	02-16-98	<5,000	390	<50	<50	61	4,300	--	--	--	--

**Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents**

**ARCO Service Station 2111
1156 Davis Street, San Leandro, California**

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Free Product Thickness feet	Groundwater Elevation ft-MSL	Water Sample Field Date	TPHG LUFT Method $\mu\text{g/L}$	Benzene EPA 8021B* $\mu\text{g/L}$	Toluene EPA 8021B* $\mu\text{g/L}$	Ethylbenzen EPA 8021B* $\mu\text{g/L}$	Total Xylenes EPA 8021B* $\mu\text{g/L}$	MTBE EPA 8021B* $\mu\text{g/L}$	MTBE EPA 8260 $\mu\text{g/L}$	TRPH EPA 418.1 LUFT Method $\mu\text{g/L}$	Dissolved Oxygen mg/L	Purged/Not Purged P/NP
MW-7	04-15-98	38.68	13.02	ND	25.66	04-15-98	<10,000	<100	<100	<100	<100	8,900	--	--	--	
MW-7	07-24-98	38.68	14.18	ND	24.50	07-24-98	5,800	180	<50	74	<50	4,200	--	--	--	
MW-7	10-19-98	38.68	15.99	ND	22.69	10-19-98	<2,500	54	<25	72	<25	3,000	--	--	--	
MW-7	01-28-99	38.68	15.69	ND	22.99	01-28-99	4,500	560	250	<50	94	6,200	--	--	--	
MW-7	06-25-99	38.68	15.36	ND	23.32	06-25-99	3,900	520	160	46	100	45,000	63,000[3]	--	--	0.56 NP
MW-7	08-25-99	38.68	16.71	ND	21.97	08-25-99	3,400	730	77	51	110	62,000	76,000[3]	--	--	0.90 NP
MW-7	11-10-99	38.68	16.76	ND	21.92	11-10-99	15,000	340	19	13	20	55,000	91,000[3]	--	--	0.37 NP
MW-7	02-09-00	38.68	14.45	0.03	24.25 [1]	02-09-00	Not sampled: free product present									

ft-MSL: elevation in feet, relative to mean sea level
 TPHG: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
 MTBE: Methyl tert-butyl ether
 TRPH: total recoverable petroleum hydrocarbons
 TPHD: total petroleum hydrocarbons as diesel, California DHS LUFT Method
 *: EPA method 8020 prior to 11/10/99
 EPA: United States Environmental Protection Agency
 $\mu\text{g/L}$: micrograms per liter
 mg/L : milligrams per liter
 ND: none detected
 --: not available or not analyzed
 <: less than laboratory detection limit stated to the right
 [1]: [corrected elevation (Z')] = Z + (h * 0.73) where: Z = measured elevation, h = floating product thickness, 0.73 = density ratio of oil to water
 [2]: chromatogram fingerprint is not characteristic of diesel
 [3]: also analyzed for fuel oxygenates
 [4]: this value is suspected to be erroneous based on subsequent check by bailer (following day). See discussion

APPENDIX D

Drilling and Encroachment 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: W2013-0822
Permits Valid from 10/28/2013 to 11/01/2013

Application Id: 1378942123539
Site Location: 1156 Davis St
Project Start Date: 10/28/2013
Assigned Inspector: Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org

City of Project Site: San Leandro

Completion Date: 11/01/2013

Applicant: Broadbent & Associates - Kristene Tidwell
875 Cotting Lane Ste G, Vacaville, CA 95688
Property Owner: BP West Coast Products, LLC
PO Box 2015 Buena Park, Buena Park, CA 90622
Client: The ARCO
PO Box 1257, San Ramon, CA 94583

Phone: 707-455-7290

Phone: --

Phone: --

Receipt Number: WR2013-0371 Total Due: \$265.00
Payer Name : Broadbent Total Amount Paid: \$265.00
Paid By: CHECK PAID IN FULL

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitoring Study - 6 Boreholes
Driller: Greg Drilling - Lic #: 485165 - Method: CA

Work Total: \$265.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2013-0822	09/26/2013	01/26/2014	6	2.00 in.	40.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
4. Applicant shall contact 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.
5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.
6. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and

Alameda County Public Works Agency - Water Resources Well Permit

coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

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



City of San Leandro
 Engineering and Transportation Department
 835 East 14th Street
 San Leandro, California 94577
 (510) 577-3428



ENCROACHMENT PERMIT

Permit Type **Environmental**

JL

Permit Number: **ENC2013-00618** Job Address: **1156 Davis St**

Issued: **11/15/2013**

Project Name: **BROADBENT & ASSOCIATES, INC.**

Description of Work:

One soil boring will be advanced on Douglas Court, A 2-inch Voring diameter will be advanced vertically up to an approximate depth of 40 ft using cone penetration technology (CPT)

**Customer #
3306**

Planned Start Date : November 18, 2013 Planned Completion Date : December 18, 2013 USA Tag No . 451776

Emergency Contact **Kristene Tidwell** Contact Phone Number **707-430-7133**

Applicant:

Owner:

BROADBENT & ASSOCIATES, INC.
 875 COTTING LANE, SUITE G
 VACAVILLE CA 95688

Bp West Co
 Po Box 5015
 Buena Park CA 90622-5015

Contractor:

Agent:

KRISTENE TIDWELL
 875 COTTING LANE, SUITE G.
 VACAVILLE CA 95688

Associated Permits:

- Building Permit No.
- Oro Loma Permit No.
- Cal State Permit No.
- Ala County Permit No.
- Grading Permit No.

PERMIT FEE: 265 To Acct #3306
 PLAN CHECKER _____ Hrs _____
 RESTORE/INSPECT DEPOSIT _____
 To CN# 3306
 STREET CUT FEE _____ To Acct #3304
 TOTAL: 265

Utility /Job Number

Method of Repair
 Backfill Required

Pavement Section Requir

Min Depth of Cover

All work shall be per City Standard Provisions. Pedestrian safety and access shall be maintained at all times.

- Section 1
- Section 2
- Section 3

Consent Form Pre Video Post Video

Must provide USA # prior to start of work

Call 577-3428 if not heard by 0900

PLEASE CALL (510) 577-3308 FOR INSPECTIONS 24 HOURS PRIOR TO WORK

By the application and acceptance of this permit, the undersigned intending to be legally bound does hereby agree that all work performed will be in accordance with all applicable provisions of this permit and all regulations, provisions, and specifications as adopted by the City. Further, the undersigned agrees that this permit is to serve as a guaranty for payment for all permit and/or inspection charges as billed by the City. Any misrepresentation of information requested from the applicant on this form shall make this permit null and void.

Signature: James Ramos for Kristene

Print Name: KRISTENE TIDWELL

Date: 11/15/2013 9:22:40A

GENERAL PROVISIONS ENC2013-00618

- (a) All work must be performed in accordance with City of San Leandro Standard Plans, Specifications, and Title V Chapter 1 of the Municipal Code.
- (b) Twenty four hours notice required prior to start and/or requests for inspection. All work must be completed between the hours of 8:00AM to 4:00PM. No work is permitted on Saturday, Sunday, City holidays, or Furlough days. The City website has a schedule of holidays and furlough days: <http://www.sanleandro.org/holidayschedule.html>
- (c) City to be notified next working day (by permit application) of all emergency work performed.
- (d) Permittee shall be responsible for all liability imposed by law for personal injury or property damage proximately caused by failure on permittee's part to perform his obligations under said permit respect to maintenance. If any claim of such liability is made against the City of San Leandro or its officers or employees, permittee shall defend, indemnify and hold each of them harmless from such claim.
- (e) No utility contractor or subcontractor shall park their construction equipment, including personal vehicles, entirely or partially in the sidewalk area. Per Section 5610 of the Streets and Highways Code, the permittee shall be responsible for the repair of any damaged sidewalk where utility contractor's or subcontractor's vehicles or equipment are parked whether or not the damage was preexisting.
- (f) Cost of emergency work required to restore unsatisfactorily construction that becomes hazardous will be charged to permittee.
- (g) Permit void 90 days from issue date unless otherwise noted. Extension time may be granted when requested in writing.
- (h) Permit must be readily available at work site. Permit is not assignable.
- (i) Section 6500 of the Labor Code requires permit from the State Division of Industrial Safety (CAL OSHA) prior to an excavation five feet or deeper.
- (j) Prior to digging or drilling, permittee shall request Undergrounding Service Alert (USA) markings, phone #800-227-2600.
- (k) Trenches are to be inspected prior to backfilling. Backfill compaction tests may be required.
- (l) All tunneling prohibited. Pipe must be bored or jacked or open trenched - including under curb, gutter and/or sidewalk.
- (m) Forms for concrete work must be inspected prior to placing concrete.
- (n) All concrete, including concrete pavement (overlayed with A.C. or not), must be sawcut prior to breakout. Concrete sections to be replaced shall be no smaller than 30 inches in either length or width. All sawcuts must be along scorelines, 1.5" minimum depth (special conditions for concrete pavements). If a sawcut falls within 30 inches of a construction joint, expansion joint, or edge, the concrete shall be removed to the joint or edge. Forms for concrete work must be inspected prior to placing concrete.
- (o) Temporary paving is required in all street and sidewalk areas and is to be placed the same day work is performed. ~~From~~ **October 15** through **April 15** only A.C. paving is to be used. Temporary paving is to be maintained by applicant.
- (p) Permanent paving or sidewalk is to be replaced with **30 days**. Permittee shall notify City before placing surfacing.
- (q) Permittee shall provide, erect, and/or maintain such lights, barriers, warning signs, patrols, watchmen and other safeguards as are necessary to protect the traveling public in accordance with the current State "Manual of Warning Signs, Lights, and Devices for Use in Performance of Work Upon Highways".
- (r) Before any work is begun that will interrupt the normal flow of public traffic, proposed lane closures or advanced warning light, sign, and barricade with flashing light details and layout plans shall be submitted to the City. If flagmen are required copies of certifications must be provided prior to issuance of a permit.
- (s) Open trench one lane at a time, with necessary traffic control, to keep traffic moving in both directions during working hours. If at the end of the work day backfilling operations have not been completed, steel bridging shall be required to make the entire traveled way available to the public traffic.
- (t) Pedestrian safety shall be maintained at all times.
- (u) Permittee shall contact City for final inspection and approval of completed work.

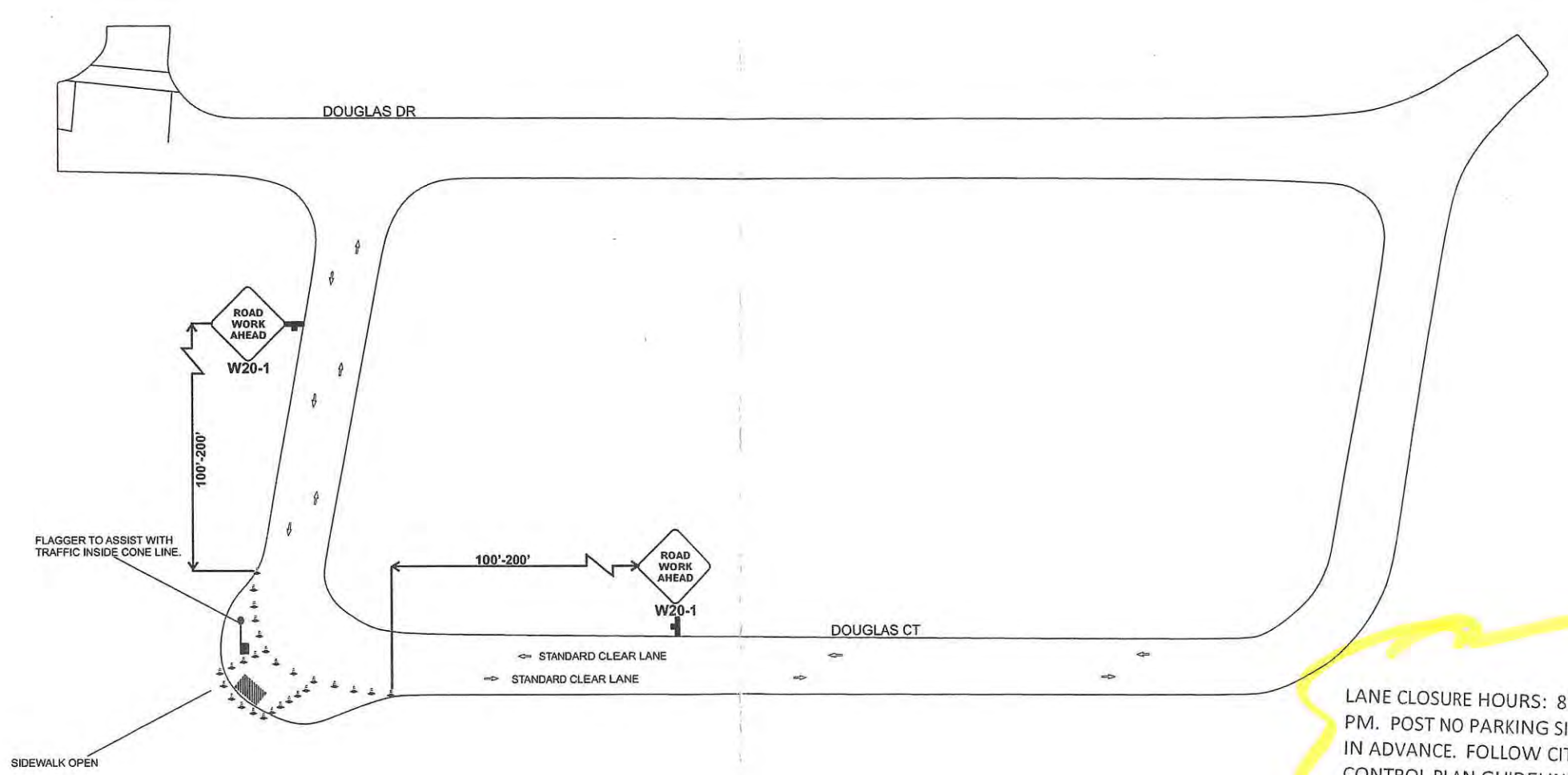
ART • Arterial

Col • Collector

Res - Residential

INSPECTION RECORD

Inspected Date	Comments	Inspector	Hours Charged	Date Charged
		Subtotal		



LANE CLOSURE HOURS: 8:00 AM TO 4:00 PM. POST NO PARKING SIGNS 72 HOURS IN ADVANCE. FOLLOW CITY'S TRAFFIC CONTROL PLAN GUIDELINES TO SET UP TRAFFIC CONTROL DEVICES.



POSTED SPEED: 35 MPH	TAPER LENGTH: 245'	CONE SPACING: 35'	SIGN SPACING: 140-280'	BUFFER ZONE: 250'	CITY OF SAN LEANDRO
	WORK ZONE				Project Name:
	CERTIFIED FLAGGER				ARCO/BP SITE NO. 2111 JOB# 06-88-615
	REFLECTIVE CONE				Prime Contractor:
	TEMPORARY C.A.S.				BROADBENT
	TRAFFIC FLOW				Phone Number:
					707-455-7290
					Date Prepared:
					9/5/2013
					Prepared By:
					STATEWIDE TRAFFIC SAFETY & SIGNS
					Project Sheet #:
					# 2339

APPENDIX E

Utility Clearance Report

November 15, 2013

Broadbent & Associates, Inc.
875 Cotting Lane, Suite G
Vacaville, CA 95688

Subject: Utility Location Survey
BP-ARCO Gasoline Station No. 2111
1156 Davis Street, San Leandro, California
NORCAL Job No: 13-1034.12

Attention: Ms. Kristine Tidwell

This report presents the findings of a utility locating survey performed by NORCAL Geophysical Consultants, Inc. for Broadbent & Associates at the subject facility. The field survey was conducted on October 29, 2013 by NORCAL California Professional Geophysicist David Bissiri (PGp 1009). Logistical support and site and safety information were provided by Mr. Alex Martinez of Broadbent & Associates.

1.0 SITE DESCRIPTION

The BP-ARCO gasoline station is located on the northwest corner of the intersection of Davis and Preda Streets in San Leandro, California. The site is bounded by Davis Street on the south, Preda Street on the east, a residential neighborhood on the north and the First Christian Church and Community Center on the west. Located farther west of the station is the Cedar Grove Apartment complex and the Douglas Court single-family residential neighborhood.

2.0 SCOPE OF WORK

The scope of work, as outlined by Broadbent & Associates, consisted of locating detectable underground utilities and potential subsurface obstructions to drilling within a 10-foot radius of the following seven (7) proposed boring locations:

- SB-4 located in a portion of Douglas Court
- SB-3, SB-6, SB-7, and SB-8 located in the driveway between the First Christian Church and the Cedar Grove Apartments
- SB-9 and SB-10 located on the gasoline station property

The utility location survey was performed as part of an ongoing remediation plan currently managed by Broadbent & Associates. The information will be used to aid in avoiding detectable subsurface obstacles during the drilling of the proposed borings.



3.0 GEOPHYSICAL INVESTIGATION

3.1 METHODOLOGY

We investigated the designated survey areas using the electromagnetic line locating (EMLL), metal detection (MD) and ground penetrating radar (GPR) methods. The EMLL method was used in both the electromagnetic conduction and ambient modes. The conduction mode was used to locate metal utilities that are accessible from the surface in at least one location. This is typically done by applying a tracing signal to a line by either directly connecting a radio transmitter to the exposed utility through a vault or a hose bib or by inducing a signal onto the line via an induction clamp or antenna. The alignment of the utility is then determined by operating a receiver to trace the maximum amplitude of the transmitted signal flowing on the line. The ambient mode was used to locate utilities that emit radio signals from electrical currents already flowing on the line (passive signals). The most common passive signals are generated by live electric and telephone lines, water lines acting as electrical grounds, and metal pipes re-radiating radio signals.

The MD method was used to locate metal utilities that are not accessible at the surface, and isolated buried objects such as USTs, utility vaults, manways, and other large metallic objects or buried debris. This is done by holding the transmitter-receiver unit above the ground and continuously scanning over the surface. Metallic utilities and isolated objects will typically produce a response indicating when the unit is directly over the metal object.

The GPR method was used to confirm the location of the utilities detected with the EMLL and MD methods, and to attempt to locate possible non-metallic utilities. Since the GPR depth of detection is based on site specific soil conditions, not all subsurface features are detectable. Descriptions of the MD, EMLL, and GPR methods are provided in Appendix A.

3.2 FIELD PROCEDURES

We investigated the proposed boring locations for detectable underground utilities and other buried objects using the procedures outlined below:

1. Site Reconnaissance: We visually inspected the immediate area to locate visible utility vaults, valves, clean-outs, meters, hose bibs, etc.
2. EMLL Direct Connect and Induction Survey: We traced accessible utilities using the EMLL direct connect and induction methods, as described above.
3. EMLL Ambient Survey: We used the EMLL ambient procedure to investigate the survey area for non-accessible utilities emitting a passive signal, as described above.



4. EMLL Metal Detection (MD) Survey: We scanned the survey area with the MD to investigate for metal utilities that were not accessible at the surface. Since the specific type of utility (i.e. water, gas, etc.) cannot be determined by this method, they are referred to as undifferentiated utilities. We also used the MD method to investigate the survey area for possible buried metal objects.
5. GPR Survey: Where site conditions allowed, we obtained GPR data from two bidirectional traverses approximately 20-feet long centered on each proposed borehole location. We then examined the GPR records for reflection patterns characteristic of underground utilities and other potential subsurface objects, as well as changes in fill material that may be associated with utility corridors or USTs.
6. Field Survey Map: Upon completion of the area survey, we drafted a scaled site diagram showing the location of the borehole, structures or above ground cultural features that are in close proximity to the site, and the locations of detected subsurface objects and utility alignments.

3.3 RESULTS

The results of the geophysical investigation are summarized on the borehole clearance log sheets provided in Appendix B. These maps depict the locations of pertinent above-ground site features in the vicinity of the designated survey areas and the locations of interpreted subsurface features. The subsurface features in the vicinity of the borings include the following:

- SB-3: A possible north-south trending storm drain is located 3 feet east of the proposed location. A parallel undifferentiated utility is located 5 feet east of the proposed location.
- SB-4: A north-south trending sanitary sewer main is located 5 feet west of the proposed location. This sewer alignment is one of three sewer lines associated with a manway located 10 feet southwest of the proposed location. The other two sewer lines lead away from the proposed location. A northwest-southeast trending water service lateral is located approximately 5 feet south of the location.
- SB-6: A possible north-south trending storm drain is located 3 feet east of the proposed location.
- SB-7: A possible north-south trending storm drain extending southward from a catch basin is located 10 feet south east of the proposed location.



- SB-8: A north-south trending undifferentiated utility is located 4 feet east of the proposed location. An additional undifferentiated utility parallel to the sidewalk along Davis Street is located 3 feet south of the location.
- SB-9: A north-south trending undifferentiated utility line is located 5 feet east of the proposed location. A localized 2-ft x 2-ft metal detector anomaly (MDA) possibly associated with this utility is located 6 feet southeast of the proposed location. An approximately 2-ft wide utility duct-bank is located along the edge of the walkway underneath the roof of the building 10 feet west of the proposed location.
- SB-10: A north-south trending undifferentiated utility within an apparent suspected trench is located 4 feet west of proposed location. An additional east-west undifferentiated utility is located 8 feet south of the location. A parallel east-west electric line is located 13 feet south of the location. A possible line associated with a small vault located 15 feet southwest of the proposed location may extend eastward from the vault to the station building.

4.0 LIMITATIONS

All of the geophysical methods used for this investigation have limitations that may not allow for the detection of certain subsurface features due to subsurface conditions or the proximity of above ground objects. The specific limitations for each method are described in Appendix A

5.0 STANDARD CARE

The scope of NORCAL's services for this project consisted of using geophysical methods to explore the area of investigation for underground utilities. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the level of skill ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

We appreciate having the opportunity to provide our geophysical services to Broadbent & Associates, Inc. If you have any questions, or require additional geophysical services, please do not hesitate to call.



Broadbent & Associates, Inc.
November 15, 2013
Page 5

Respectfully,

NORCAL Geophysical Consultants, Inc.

A handwritten signature in blue ink, appearing to read "David Bissiri".

David Bissiri
Professional Geophysicist, PGp 1009

DJB/KGB/tt

Enclosure: Appendix A: GEOPHYSICAL METHODOLOGY
 Appendix B: FIELD SURVEY MAPS



Appendix A
GEOPHYSICAL METHODOLOGY

Appendix A

ELECTROMAGNETIC LINE LOCATION/METAL DETECTION (EMLL/MD)

METHODOLOGY

Electromagnetic line location techniques (EMLL) are used to locate the magnetic field resulting from an electric current flowing on a line. These magnetic fields can arise from currents already on the line (passive) or currents applied to a line with a transmitter (active). The most common passive signals are generated by live electric lines and re-radiated radio signals. Active signals can be introduced by connecting the transmitter to the line at accessible locations or by induction.

The detection of underground utilities is affected by the composition and construction of the line in question. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless the utilities carry a passive current, they must be exposed at the surface or in accessible utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that are not detectable using standard electromagnetic line location techniques include those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and pipes with insulated connections.

Buried objects can also be detected, without direct contact, by using the metal detection technique (MD). This is used to detect buried near surface metal objects such as rebar, manhole covers, USTs, and various metallic debris. The MD transmitter-receiver unit is held above the ground and continuously scanned over the surface. The unit utilizes two orthogonal coils that are separated by a specified distance. One of the coils transmits an electromagnetic signal (primary magnetic field) which in turn produces a secondary magnetic field about the subsurface metal object. Since the receiver coil is orthogonal to the transmitter coil, it is unaffected by the primary field. Therefore, the secondary magnetic fields produced by buried metal object will generate an audible response from the unit. The peak of this response indicates when the unit is directly over the metal object.

The instrumentation we used for the EMLL and MD survey consists of a Radio Detection RD-400 and a Fisher TW-6 inductive pipe and cable locator.

DATA ANALYSIS

The EMLL/MD instrumentation indicates the presence of buried metal by emitting an audible tone; there are no recorded data to analyze. Therefore, the locations of buried objects detected with these methods are marked on the ground surface during the survey.

LIMITATION

The detection of underground utilities is dependent upon the composition and construction of the line of interest, as well as depth. Utilities detectable with standard line location techniques include any continuously connected metal pipes, cables/wires or utilities with tracer wires. Unless carrying a passive current these utilities must be exposed at the surface or accessible in utility vaults. These generally include water, electric, natural gas, telephone, and other conduits related to facility operations. Utilities that may not be detectable using standard electromagnetic line location techniques include certain abandoned utilities, utilities not exposed at the ground surface, or those made of non-electrically conductive materials such as PVC, fiberglass, vitrified clay, and metal pipes with insulating joints. Pipes generally deeper than about five to seven feet may not be detected.

GROUND PENETRATING RADAR (GPR)

METHODOLOGY

Ground penetrating radar is a method that provides a continuous, high resolution cross-section depicting variations in the electrical properties of the shallow subsurface. The method is particularly sensitive to variations in electrical conductivity and electrical permittivity (the ability of a material to hold a charge when an electrical field is applied).

The GPR system operates by radiating electromagnetic pulses into the ground from a transducer (antenna) as it is moved along a traverse. Since most earth materials are transparent to electromagnetic energy, the signal spreads downward into the subsurface. However, when the signal encounters a variation in electrical permittivity, a portion of the electromagnetic energy is reflected back to the surface. When the signal encounters a metal object, all of the incident energy is reflected. The reflected signals are received by the same transducer and are printed in cross-section form on a graphical recorder. Changes in subsurface reflection character on the GPR records can provide information regarding the location of USTs, sumps, buried debris, underground utilities, and variations in the shallow stratigraphy.

The GPR system used was a Geophysical Survey Systems, Inc. SIR-3000 Subsurface Interface Radar Systems equipped with a 400 megahertz (MHz) transducer, respectively. This transducer is used to provide high resolution at shallow depths.

DATA ANALYSIS

GPR records are examined to identify reflection patterns characteristic of USTs, utilities, septic tanks, and other buried debris. Typically, USTs are manifested by broad localized hyperbolic (upside-down "U" shape) reflection patterns that vary in intensity. The intensity of a reflection pattern is usually dependent upon the condition of the respective UST, its burial depth, and the type of fill over the UST. Utilities and other buried debris are typically manifested by narrow localized hyperbolic reflections that also vary in intensity.



LIMITATIONS

The ability to detect subsurface targets is dependent on site specific conditions. These conditions include depth of burial, the size or diameter of the target, the condition of the specific target in question, the type of backfill material associated with the target, and the surface conditions over the target. Under ideal conditions, the GPR can generally detect objects buried to approximately six feet. However, as the clay content in the subsurface increases, the GPR depth of detection decreases. Therefore, it is possible that on-site soil conditions and target features may limit the depth of detection to the upper one to two feet below ground surface.



Appendix B
FIELD SURVEY MAPS

PERSONNEL: D. Bissini

JOB: 13-1034.12

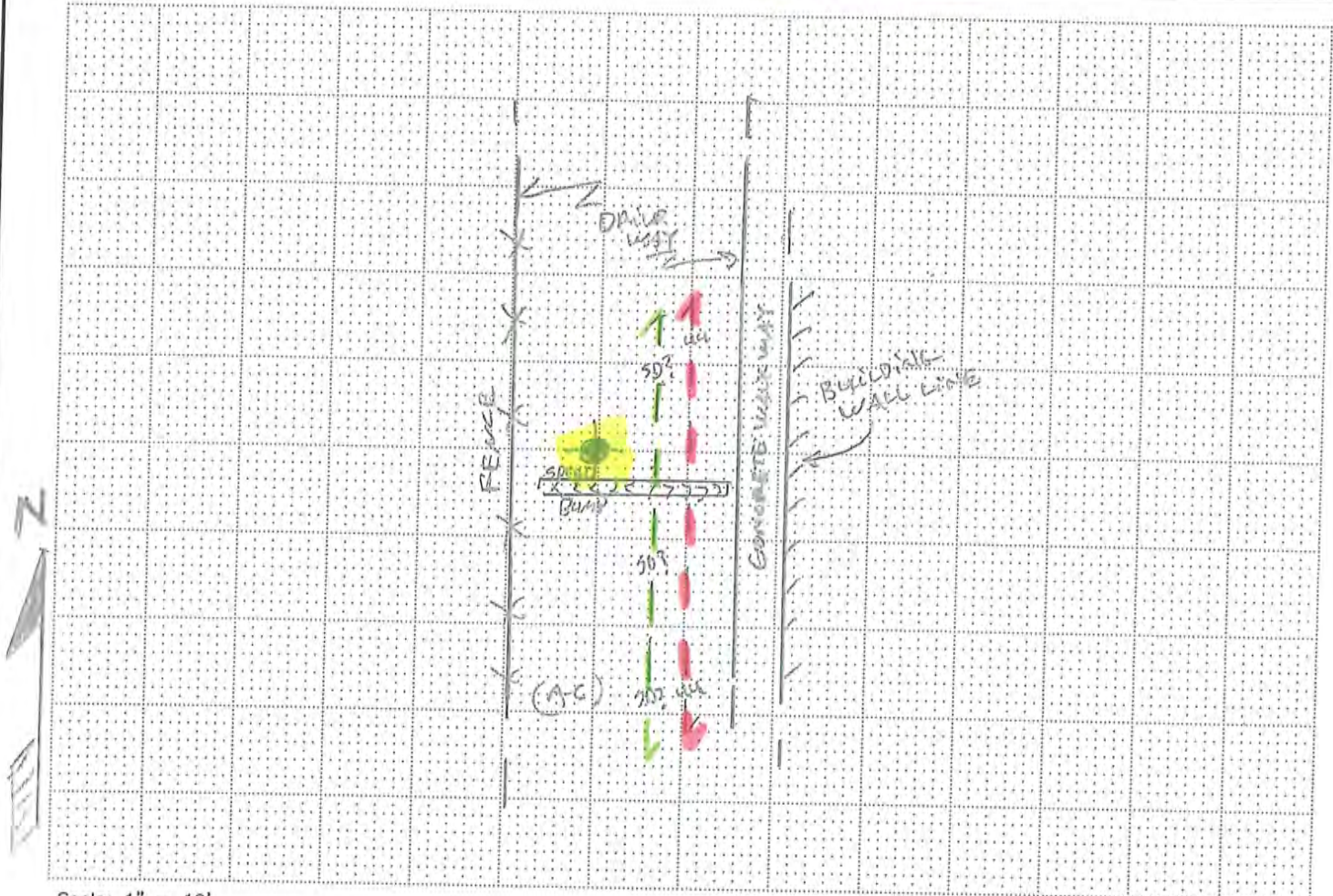
DATE: Oct. 29, '13

CLIENT: Broadbank

LOCATION: BP211 site
1156 Davis St, San Leandro, Calif



BORING: SB-3



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - 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 Suppression)
 - UU (Undifferentiated Utility)
- Surface**
- RC (Reinforced Concrete)
 - AC (Asphalt)
 - C (Concrete)
 - Soil
 - Gravel
 - other

NOTES

- | | | |
|-------------------|--------------------|----------------------------|
| Equipment: | Procedure: | Surface Conditions: |
| - GPR (Radar) | - EMC (Conduction) | - Wet |
| - RD 4000 | - EMI (Induction) | - Dry |
| - M Scope | - Ambient | - other |
| - other | - GPR | |

REMARKS

SD? - STORM DRAIN ALIGNMENT shown is summarized - NOT DETECTED BY NORCAL

PERSONNEL: D. Bissini

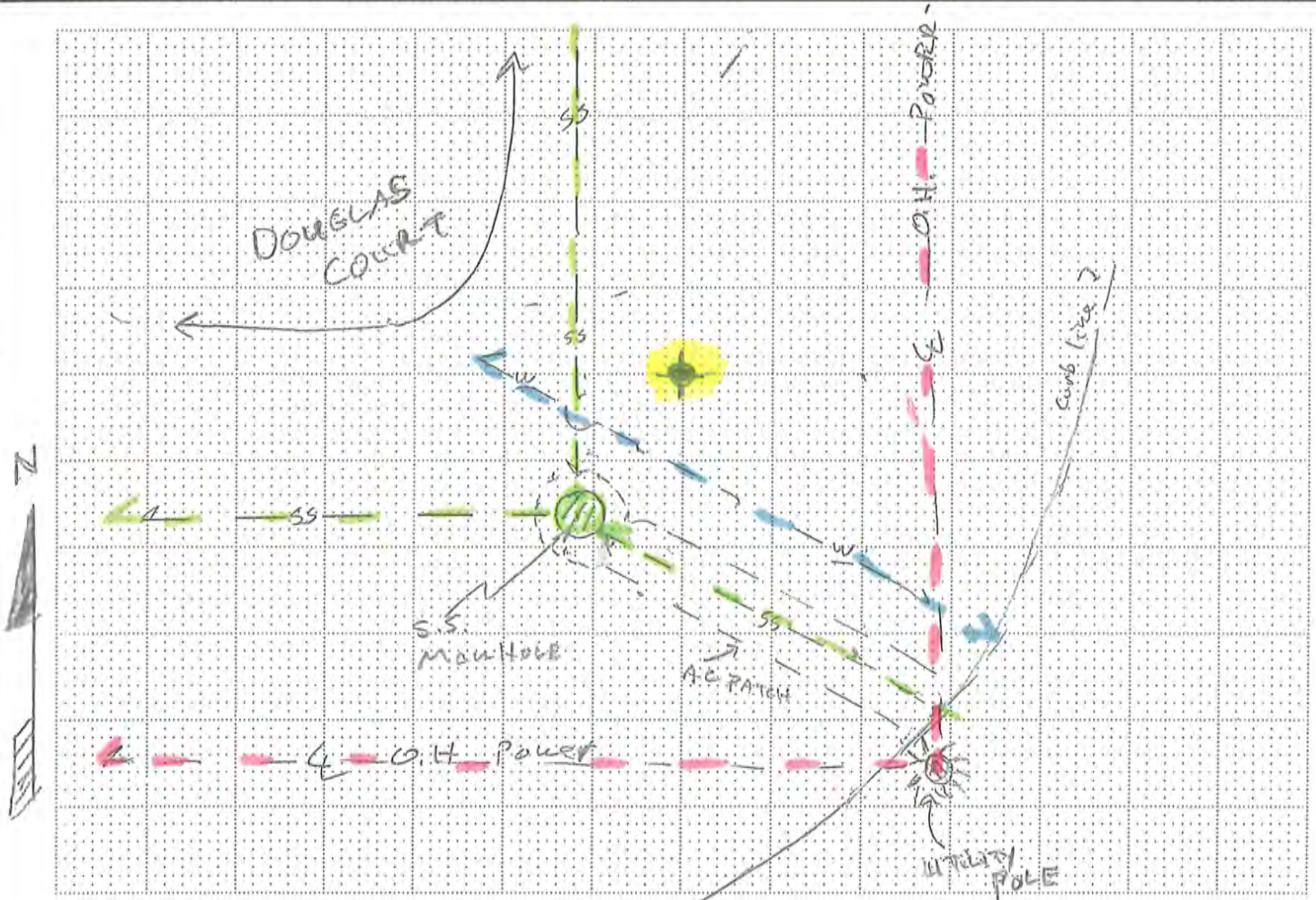
CLIENT: Broadbent & Associates

JOB: 13-1034.12

DATE: Oct. 29, '13

LOCATION: AREA STATION 2111/1156 Davis St.
San Leandro, Calif.

BORING: **SB-4** (Douglas Court OFF-SITE LOCATION)



Scale: 1" = 10'

EXPLANATION

NOTES

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - 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

- | | | |
|-------------------|--------------------|----------------------------|
| <u>Equipment:</u> | <u>Procedure:</u> | <u>Surface Conditions:</u> |
| - GPR (Radar) | - EMC (Conduction) | - Wet |
| - RD 4000 | - EMI (Induction) | - Dry |
| - M Scope | - Ambient | - other |
| - other | - GPR | |

REMARKS

NOTE: beware of overhead (O.H.) Power lines in vicinity

PERSONNEL: D. Bissini

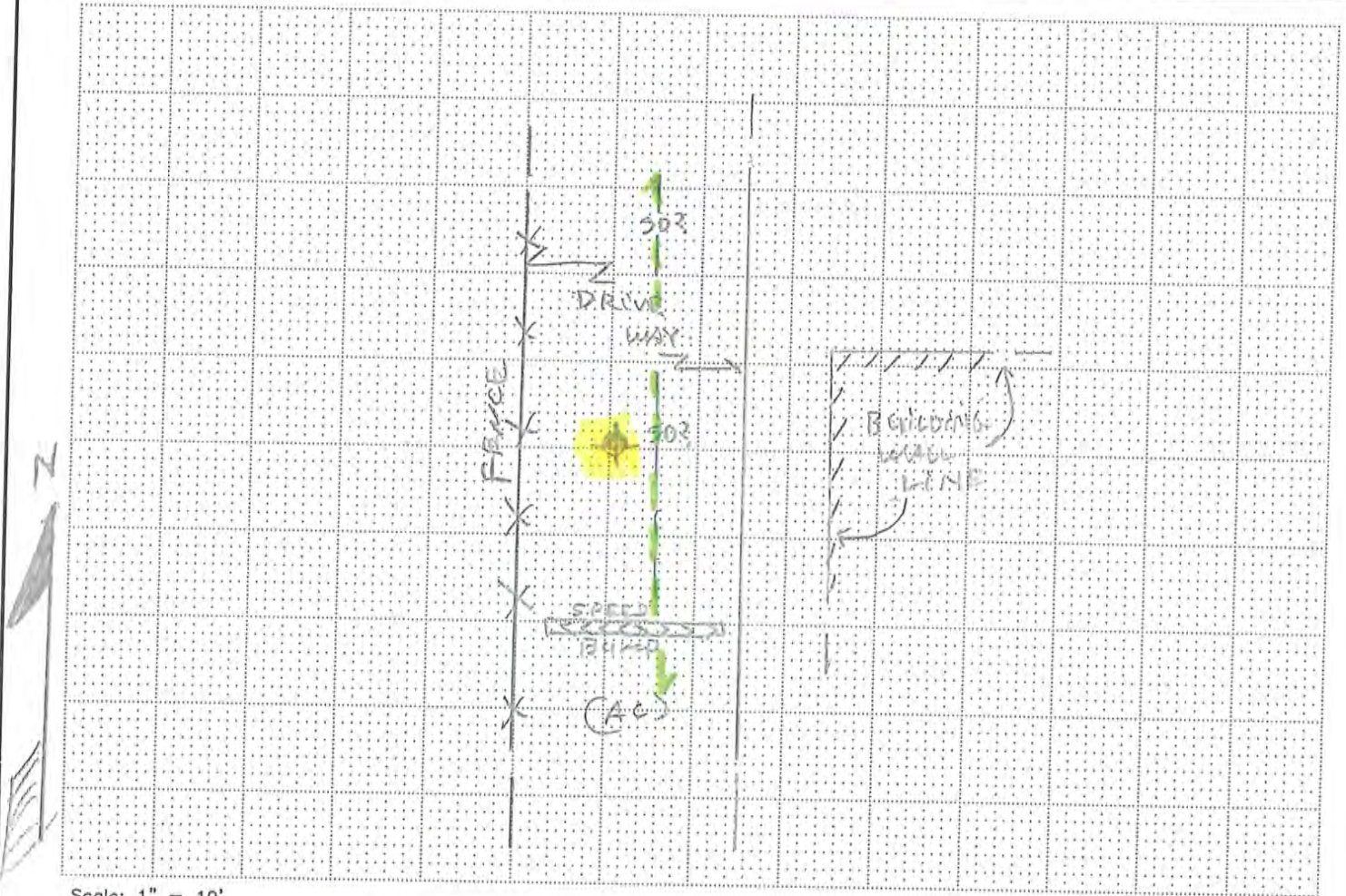
JOB: 13-1034.12

DATE: Oct. 29, '13

CLIENT: Broadbent

LOCATION: BP 2111 site
1156 Davis St., San Leandro

BORING: SB-6



Scale: 1" = 10'

EXPLANATION

NOTES

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - 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 Suppression)
 - UU (Undifferentiated Utility)
- Surface
- RC (Reinforced Concrete)
 - AC (Asphalt)
 - C (Concrete)
 - Soil
 - Gravel
 - other

- | Equipment: | Procedure: | Surface Conditions: |
|---|--|---|
| <input checked="" type="checkbox"/> GPR (Radar) | <input checked="" type="checkbox"/> EMG (Conduction) | <input checked="" type="checkbox"/> Wet |
| <input checked="" type="checkbox"/> RD 4000 | <input checked="" type="checkbox"/> EMI (Induction) | <input checked="" type="checkbox"/> Dry |
| <input checked="" type="checkbox"/> M Scope | <input checked="" type="checkbox"/> Ambient | <input checked="" type="checkbox"/> other |
| <input checked="" type="checkbox"/> other | <input checked="" type="checkbox"/> GPR | |

REMARKS

SD? STORM DRAIN ALIGNMENT SHOWN IS SURMISED

PERSONNEL: D. Bissiri

JOB: 13-1034.12

DATE: Oct. 29 '13

CLIENT: Broad base

LOCATION: BP 2111 site
1156 Davis St.
San Leandro, Calif.

BORING: SB-7



Scale: 1" = 10'

EXPLANATION

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - 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: | Procedure: | Surface Conditions: |
| <input checked="" type="checkbox"/> GPR (Radar) | <input checked="" type="checkbox"/> EMC (Conduction) | <input checked="" type="checkbox"/> Wet |
| <input checked="" type="checkbox"/> RD 4000 | <input checked="" type="checkbox"/> EMI (Induction) | <input checked="" type="checkbox"/> Dry |
| <input checked="" type="checkbox"/> M Scope | <input checked="" type="checkbox"/> Ambient | <input checked="" type="checkbox"/> other |
| <input checked="" type="checkbox"/> other | <input checked="" type="checkbox"/> GPR | |

REMARKS

SD CB - STORM DRAIN CATCH BASIN

DIRT-FILLED - NO OUTLET VISIBLE

OUTLET ALIGNMENT SHOWN IS SURMISED

PERSONNEL: D. Bissini

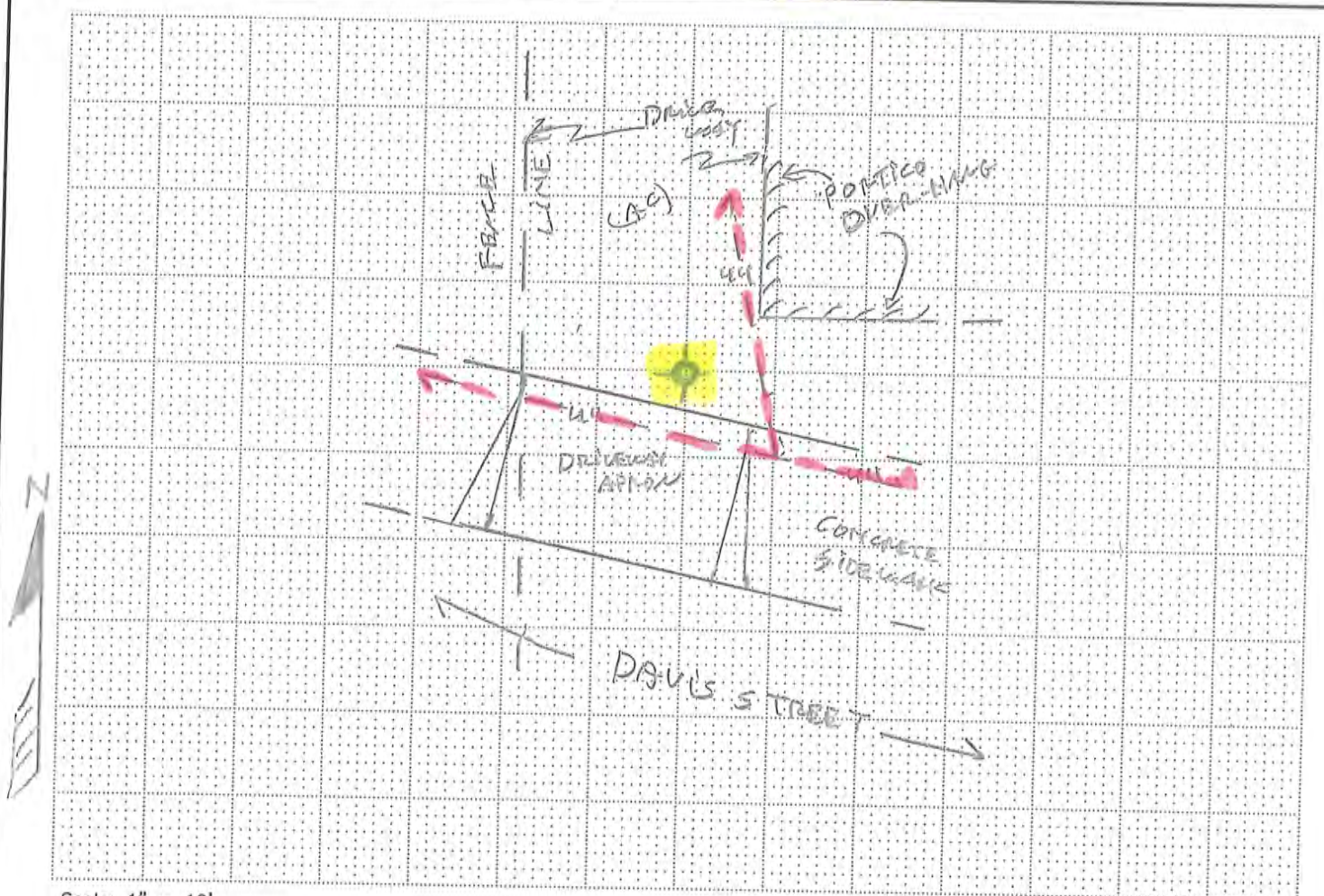
JOB: 13-1034-12

DATE: Oct. 29, '13

CLIENT: Broad base

LOCATION: BP 2111
1156 Davis St, San Leandro, Calif

BORING: SB-8



Scale: 1" = 10'

EXPLANATION

NOTES

- Original Boring Location
 - Final Boring Location
 - Existing Well Location
 - GPR Traverse
 - 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

- | | | |
|---|--|---|
| Equipment: | Procedure: | Surface Conditions: |
| - <input checked="" type="checkbox"/> GPR (Radar) | - <input checked="" type="checkbox"/> EMC (Conduction) | - <input type="checkbox"/> Wet |
| - <input checked="" type="checkbox"/> RD 4000 | - <input checked="" type="checkbox"/> EMI (Induction) | - <input checked="" type="checkbox"/> Dry |
| - <input checked="" type="checkbox"/> M Scope | - <input checked="" type="checkbox"/> Ambient | - <input type="checkbox"/> other |
| - <input type="checkbox"/> other | - <input checked="" type="checkbox"/> GPR | |

REMARKS

PERSONNEL: D. Bissiri

CLIENT: Broadbent & Assoc.

JOB: 13-1034.12

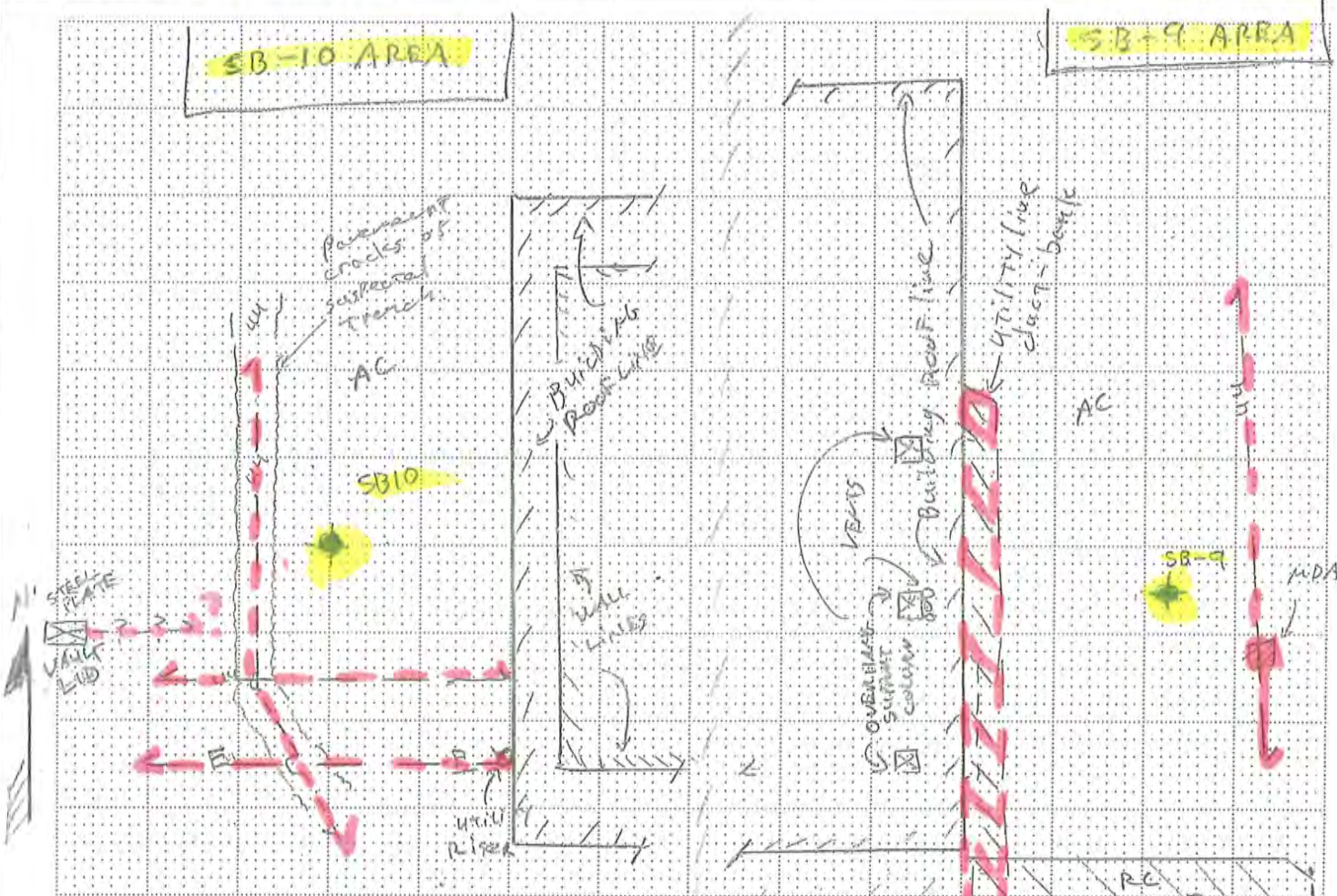
DATE: Oct. 29, '13

LOCATION:

BORING: SB-10 & SB-9 (ON-SITE LOCATIONS)



NORCAL
GEOPHYSICAL CONSULTANTS INC.



Scale: 1" = 10'

EXPLANATION

NOTES

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

- | | | |
|-------------------|--------------------|----------------------------|
| Equipment: | Procedure: | Surface Conditions: |
| - GPR (Radar) | - EMC (Conduction) | - Wet |
| - RD 4000 | - EMI (Induction) | - Dry |
| - M Scope | - Ambient | - other |
| - other | - GPR | |

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

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

REMARKS

- M.A.D.A. (metal detection anomaly)
- utility line duct-bank

APPENDIX F

CPT Report



GREGG DRILLING & TESTING, INC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

November 25, 2013

Broadbent & Associates
Attn: Kristene Tidwell

Subject: CPT Site Investigation
BP 2111, 1156 Davis St.
San Leandro, California
GREGG Project Number: 13-192MA

Dear Ms. Tidwell:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	<input checked="" type="checkbox"/>
2	Pore Pressure Dissipation Tests	(PPD)	<input checked="" type="checkbox"/>
3	Seismic Cone Penetration Tests	(SCPTU)	<input type="checkbox"/>
4	UVOST Laser Induced Fluorescence	(UVOST)	<input type="checkbox"/>
5	Groundwater Sampling	(GWS)	<input checked="" type="checkbox"/>
6	Soil Sampling	(SS)	<input checked="" type="checkbox"/>
7	Vapor Sampling	(VS)	<input type="checkbox"/>
8	Pressuremeter Testing	(PMT)	<input type="checkbox"/>
9	Vane Shear Testing	(VST)	<input type="checkbox"/>
10	Dilatometer Testing	(DMT)	<input type="checkbox"/>

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (925) 313-5800.

Sincerely,
GREGG Drilling & Testing, Inc.

Mary Walden
Operations Manager



Bibliography

Lunne, T., Robertson, P.K. and Powell, J.J.M., "Cone Penetration Testing in Geotechnical Practice"
E & FN Spon. ISBN 0 419 23750, 1997

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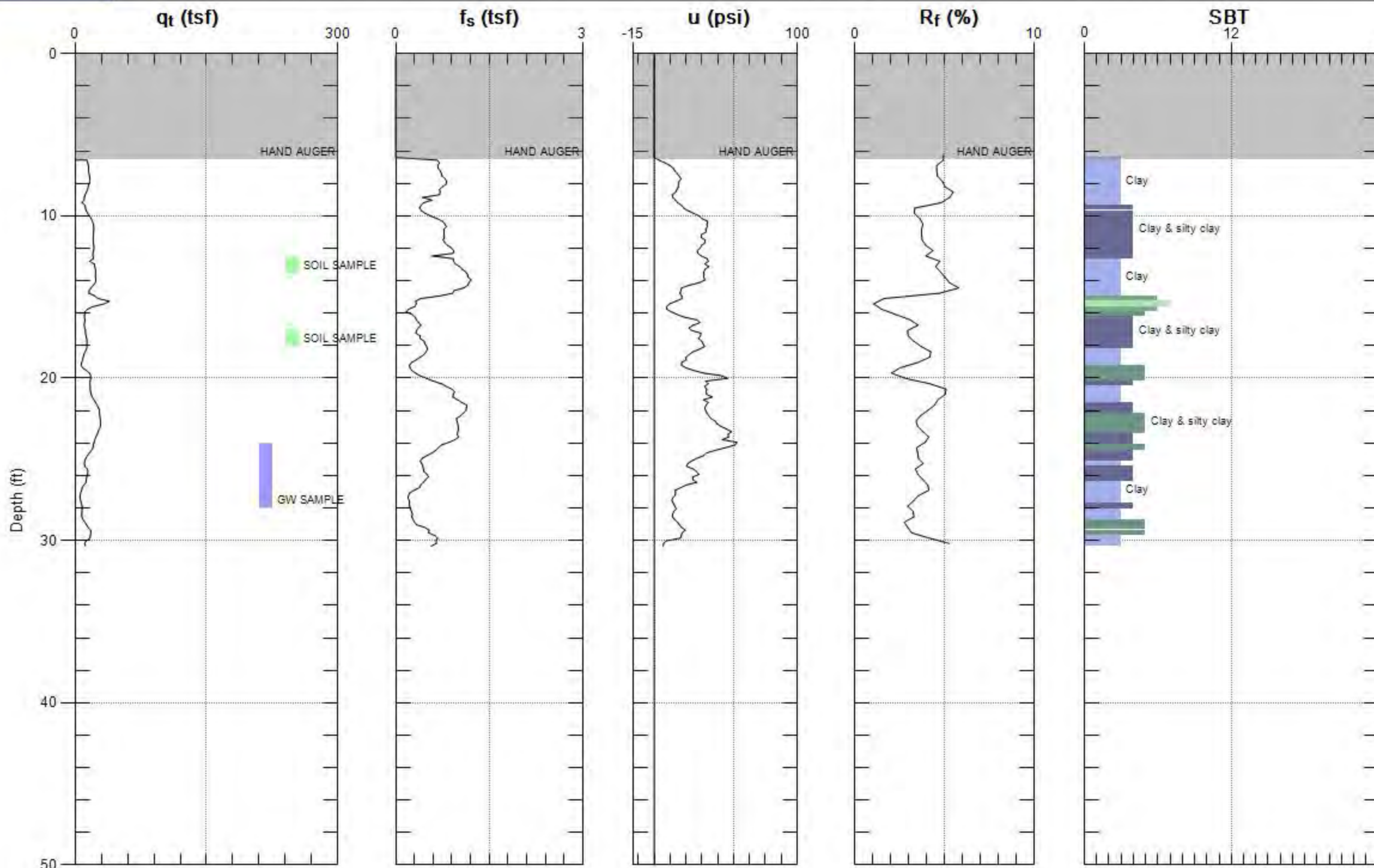
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Using the UVIF-CPT", 53rd Canadian Geotechnical Conference Montreal, QC October pp. 733-739, 2000.

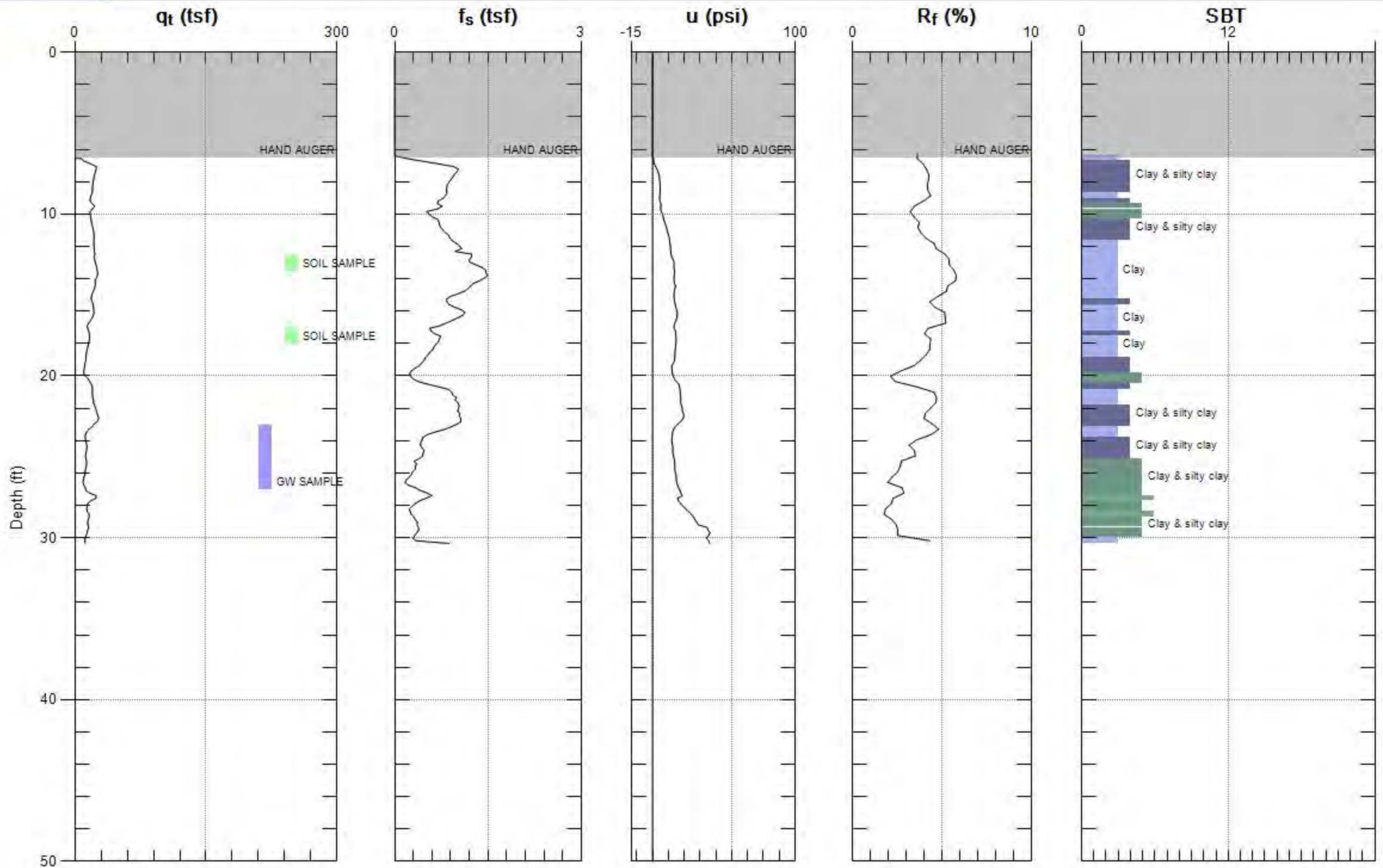
Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, "Field Comparison of Analytical Results from
Discrete-Depth Groundwater Samplers" BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action
Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org



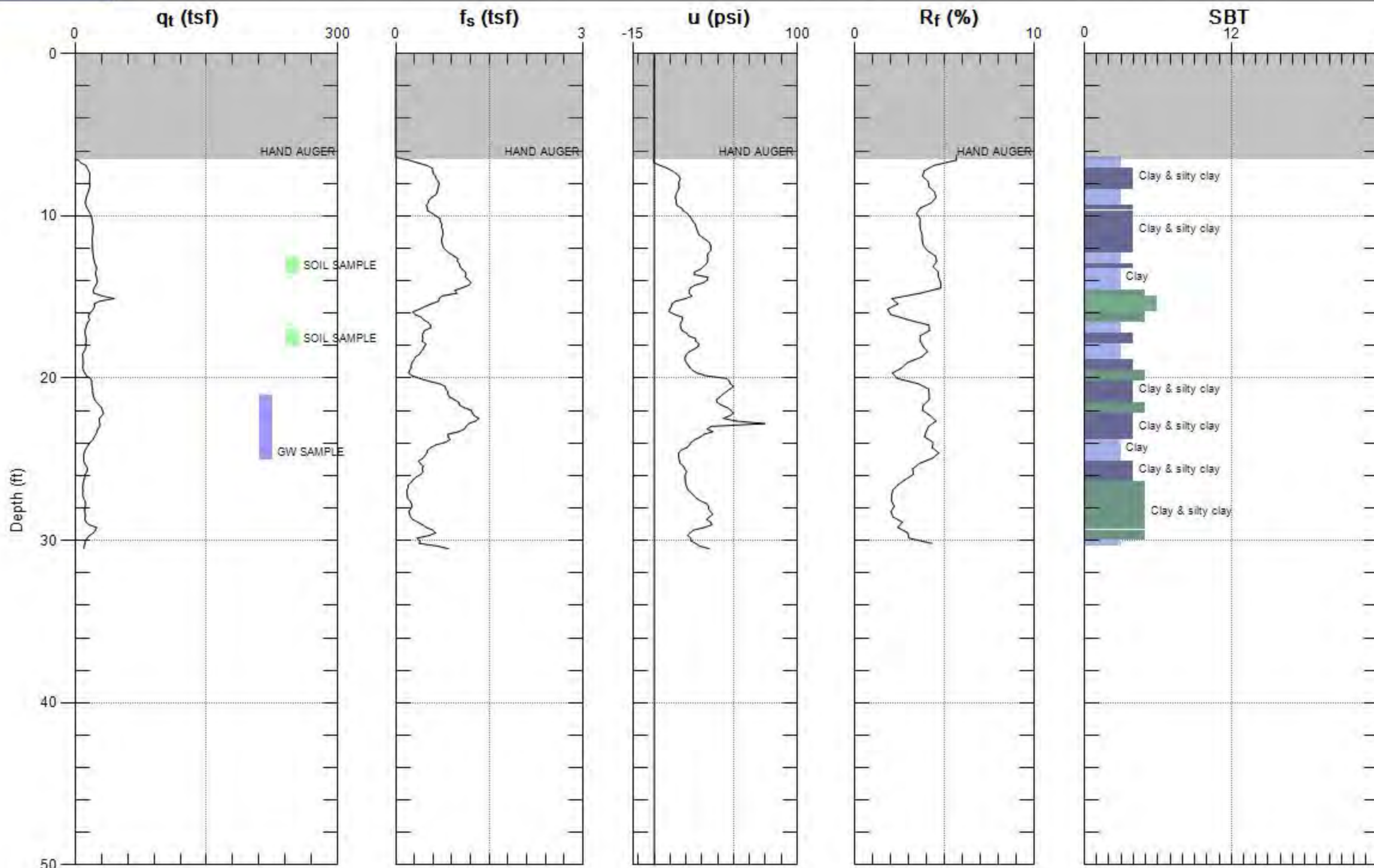
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Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



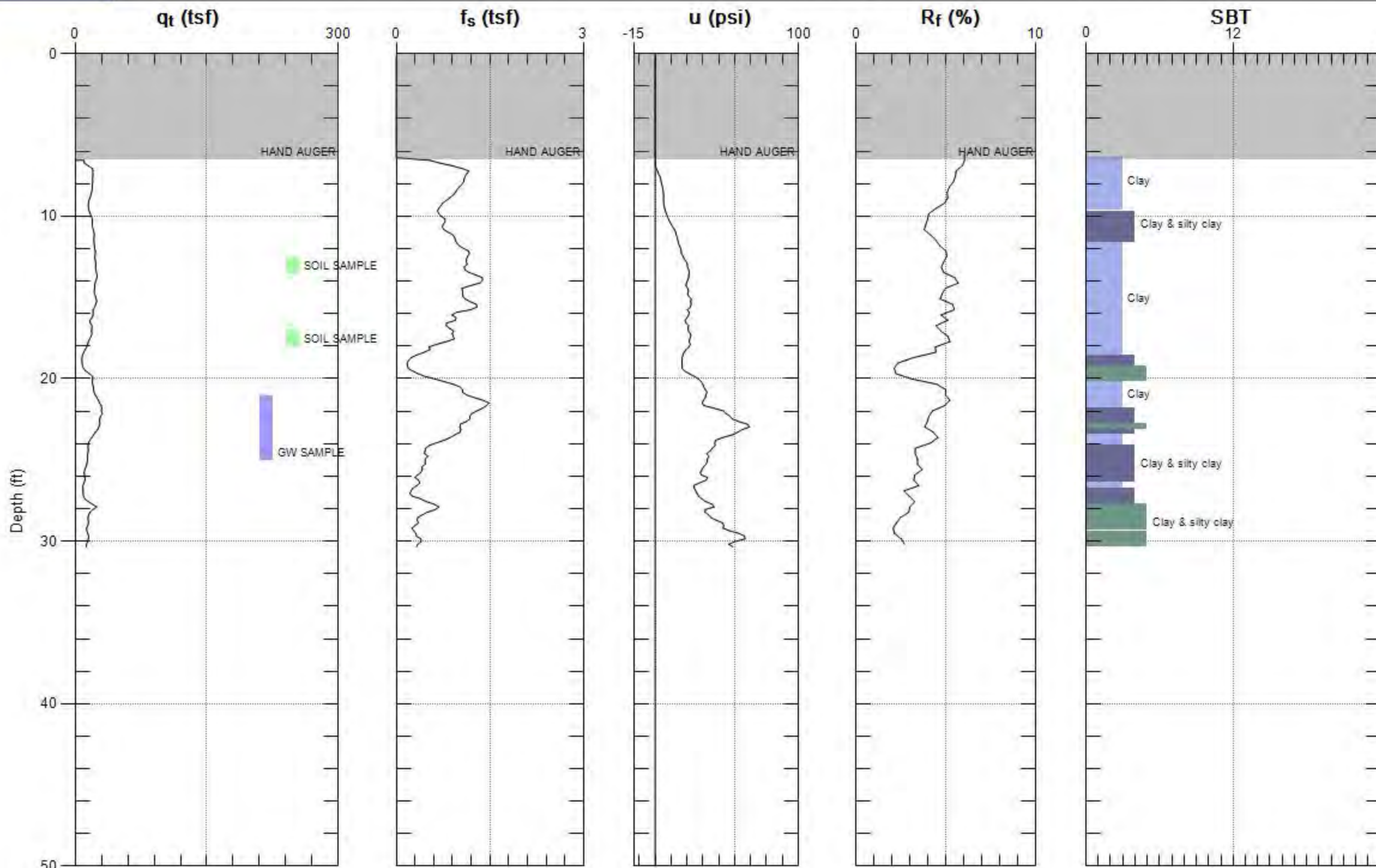
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Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



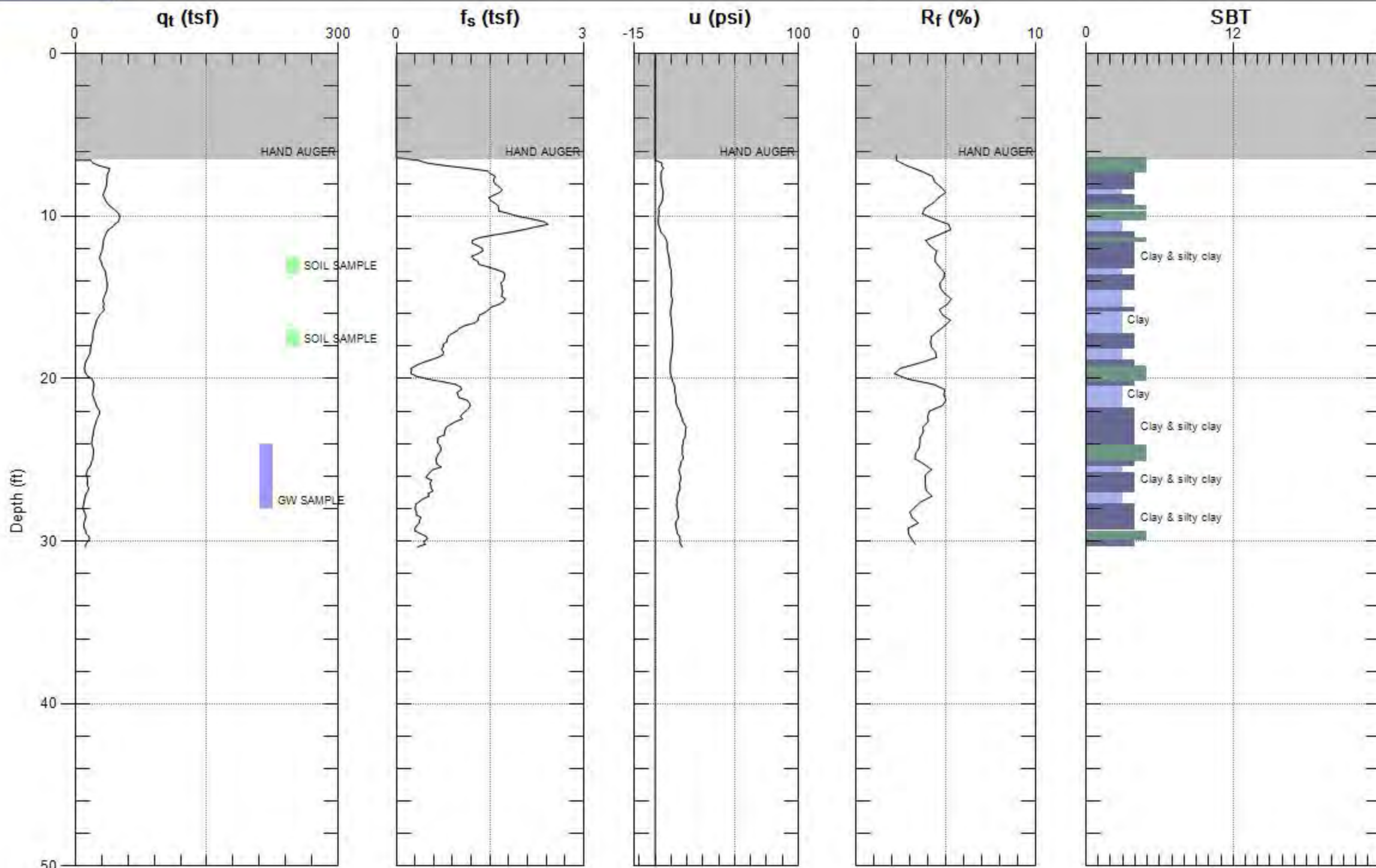
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SBT: Soil Behavior Type (Robertson 1990)



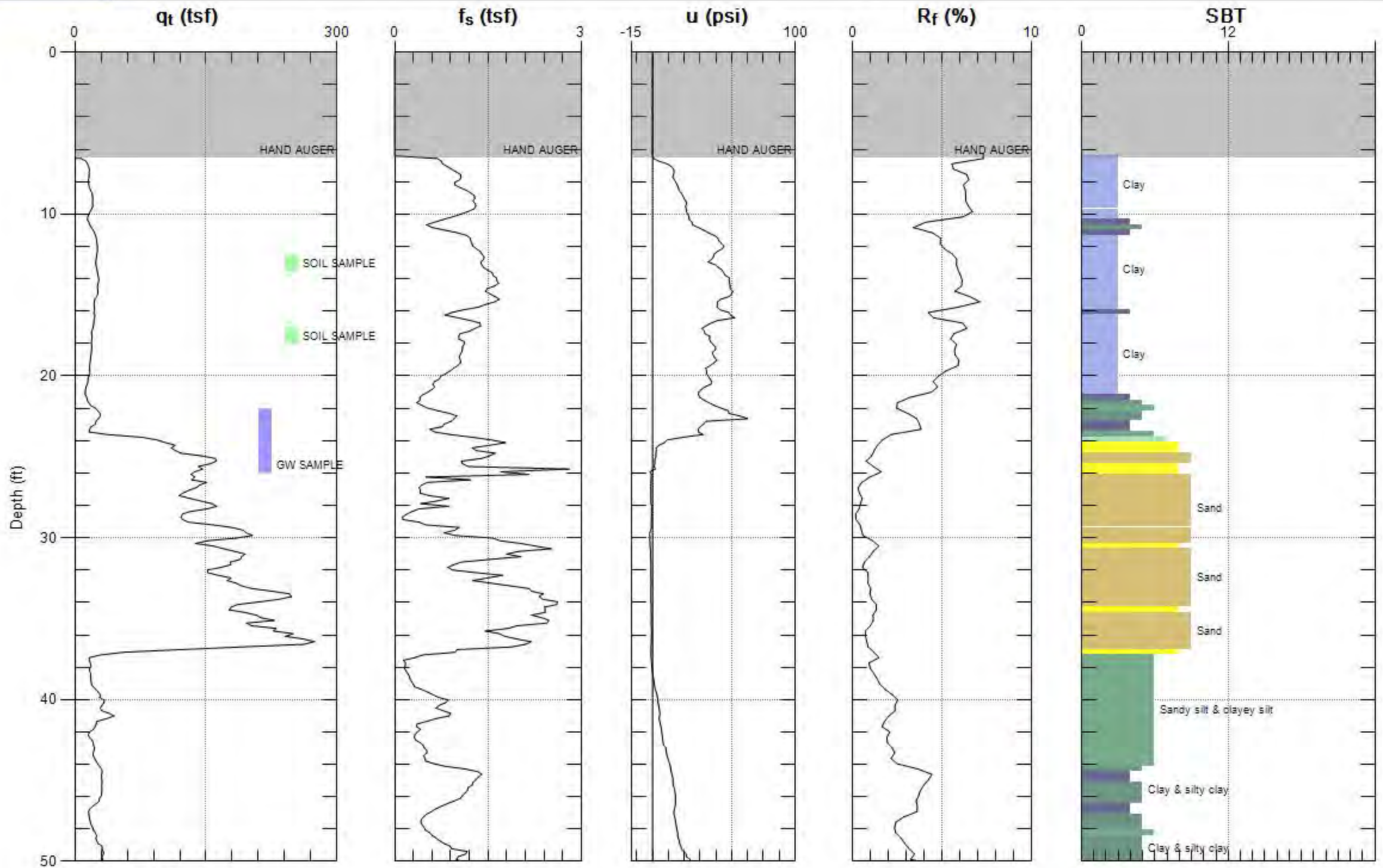
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Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



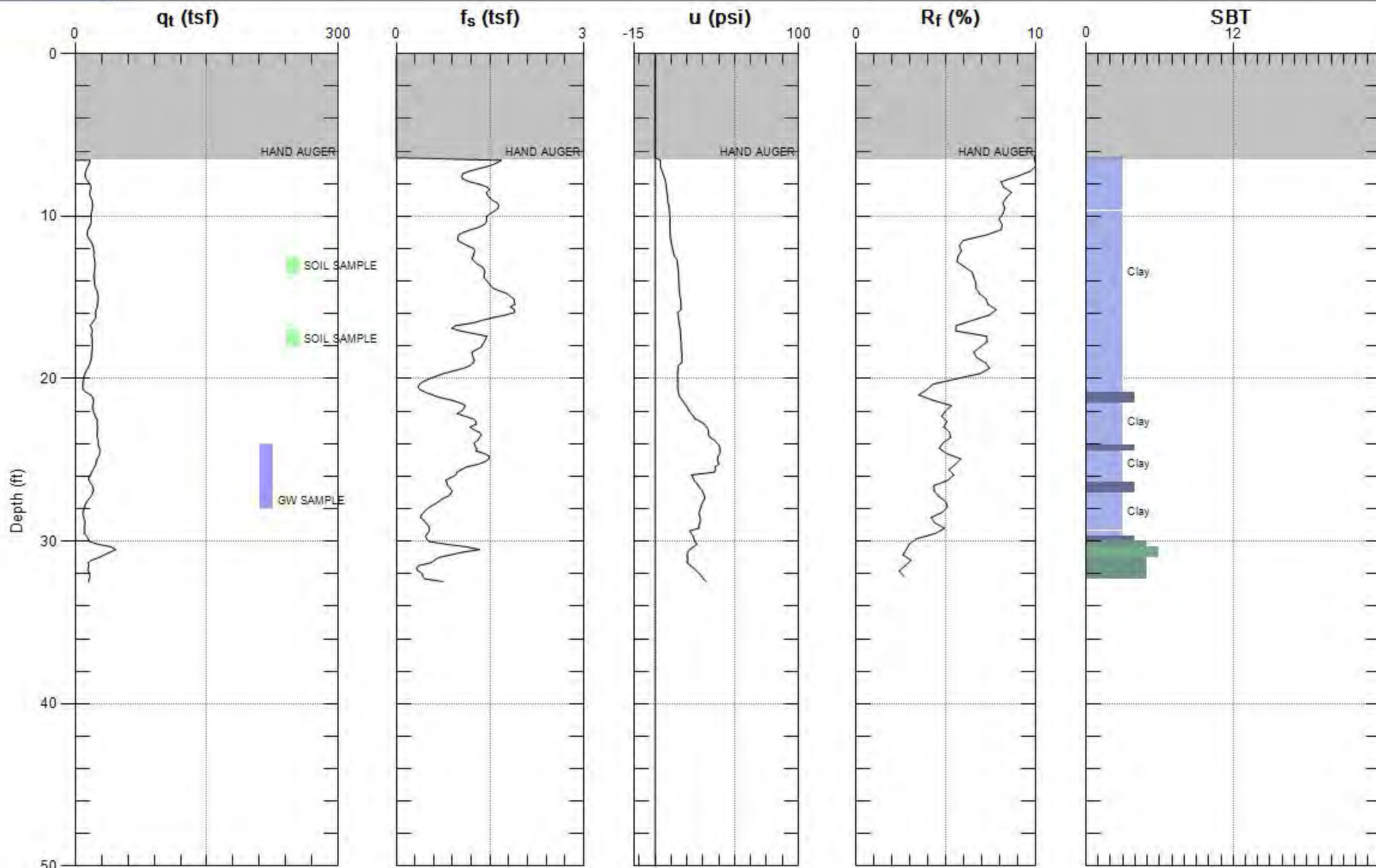
Max. Depth: 30.348 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 50.361 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Max. Depth: 32.480 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX G

Laboratory Analytical Reports

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: 440-63146-1
Client Project/Site: ARCO 2111, San Leandro

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

Attn: Kristene Tidwell



*Authorized for release by:
12/10/2013 3:47:31 PM*

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robbs@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Method Summary	19
Chronicle	20
QC Sample Results	23
QC Association	33
Definitions	35
Certification Summary	36
Chain of Custody	37
Receipt Checklists	39

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-63146-1	SB-9-3	Solid	11/18/13 09:30	11/22/13 08:26
440-63146-2	SB-9-7	Solid	11/18/13 09:50	11/22/13 08:26
440-63146-3	SB-9-12	Solid	11/20/13 13:35	11/22/13 08:26
440-63146-4	SB-9-12.5	Solid	11/20/13 13:35	11/22/13 08:26
440-63146-5	SB-9-16.5	Solid	11/20/13 13:40	11/22/13 08:26
440-63146-6	SB-9-17	Solid	11/20/13 13:40	11/22/13 08:26
440-63146-7	SB-10-12	Solid	11/20/13 09:45	11/22/13 08:26
440-63146-8	SB-10-12.5	Solid	11/20/13 09:45	11/22/13 08:26
440-63146-9	SB-10-16.5	Solid	11/20/13 09:50	11/22/13 08:26
440-63146-10	SB-10-17.5	Solid	11/20/13 09:50	11/22/13 08:26
440-63146-11	SB-4-12	Solid	11/21/13 09:45	11/22/13 08:26
440-63146-12	SB-4-12.5	Solid	11/21/13 09:45	11/22/13 08:26
440-63146-13	SB-4-16	Solid	11/21/13 09:55	11/22/13 08:26
440-63146-14	SB-4-16.5	Solid	11/21/13 09:55	11/22/13 08:26

Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Job ID: 440-63146-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-63146-1

Comments

No additional comments.

Receipt

The samples were received on 11/22/2013 7:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

Except:

The container label for the following sample(s) did not match the information listed on the Chain-of-Custody (COC): SB-10-17.5 (440-63146-10). The container labels lists "SB-10-17" as the sample ID. The COC lists "SB-10-17.5" as the sample ID. The sample ID was logged in according to the COC per client confirmation.

GC/MS VOA

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 147837 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8260B: Surrogate recovery for the following sample(s) was outside the upper control limit: SB-4-16 (440-63146-13), SB-4-16.5 (440-63146-14). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

GC VOA

Method(s) 8015B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 147884 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The precision (%RPD) for MS/MSD was within limits.

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: SB-9-17 (440-63146-6). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.



Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-3

Lab Sample ID: 440-63146-1

Date Collected: 11/18/13 09:30

Matrix: Solid

Date Received: 11/22/13 08:26

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 13:09	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 13:09	1
Ethanol	ND		0.20	mg/Kg			12/02/13 13:09	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 13:09	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 13:09	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 13:09	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 13:09	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 13:09	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 13:09	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 13:09	1
Toluene	ND		0.0010	mg/Kg			12/02/13 13:09	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 13:09	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 13:09	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 13:09	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/02/13 13:09	1
Dibromofluoromethane (Surr)	94		60 - 120		12/02/13 13:09	1
Toluene-d8 (Surr)	108		79 - 123		12/02/13 13:09	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			12/02/13 16:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		65 - 140		12/02/13 16:37	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-7

Lab Sample ID: 440-63146-2

Date Collected: 11/18/13 09:50

Matrix: Solid

Date Received: 11/22/13 08:26

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 13:40	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 13:40	1
Ethanol	ND		0.20	mg/Kg			12/02/13 13:40	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 13:40	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 13:40	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 13:40	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 13:40	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 13:40	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 13:40	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 13:40	1
Toluene	ND		0.0010	mg/Kg			12/02/13 13:40	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 13:40	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 13:40	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 13:40	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 13:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/02/13 13:40	1
Dibromofluoromethane (Surr)	99		60 - 120		12/02/13 13:40	1
Toluene-d8 (Surr)	108		79 - 123		12/02/13 13:40	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 23:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		65 - 140		11/29/13 23:12	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-12

Lab Sample ID: 440-63146-3

Date Collected: 11/20/13 13:35

Matrix: Solid

Date Received: 11/22/13 08:26

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 15:11	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 15:11	1
Ethanol	ND		0.20	mg/Kg			12/02/13 15:11	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 15:11	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 15:11	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 15:11	1
Methyl-t-Butyl Ether (MTBE)	0.0031		0.0020	mg/Kg			12/02/13 15:11	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 15:11	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 15:11	1
tert-Butyl alcohol (TBA)	0.066		0.050	mg/Kg			12/02/13 15:11	1
Toluene	ND		0.0010	mg/Kg			12/02/13 15:11	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 15:11	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 15:11	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 15:11	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 15:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		79 - 120				12/02/13 15:11	1
Dibromofluoromethane (Surr)	101		60 - 120				12/02/13 15:11	1
Toluene-d8 (Surr)	110		79 - 123				12/02/13 15:11	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 18:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		65 - 140				11/29/13 18:29	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-12.5

Lab Sample ID: 440-63146-4

Date Collected: 11/20/13 13:35

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/02/13 15:42	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 15:42	1
Ethanol	ND		0.20	mg/Kg			12/02/13 15:42	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 15:42	1
Ethylbenzene	ND		0.00099	mg/Kg			12/02/13 15:42	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 15:42	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 15:42	1
o-Xylene	ND		0.00099	mg/Kg			12/02/13 15:42	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 15:42	1
tert-Butyl alcohol (TBA)	0.17		0.050	mg/Kg			12/02/13 15:42	1
Toluene	ND		0.00099	mg/Kg			12/02/13 15:42	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 15:42	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 15:42	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/02/13 15:42	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/02/13 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		79 - 120		12/02/13 15:42	1
Dibromofluoromethane (Surr)	97		60 - 120		12/02/13 15:42	1
Toluene-d8 (Surr)	107		79 - 123		12/02/13 15:42	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 18:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		65 - 140		11/29/13 18:57	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-16.5

Lab Sample ID: 440-63146-5

Date Collected: 11/20/13 13:40

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/02/13 16:13	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 16:13	1
Ethanol	ND		0.20	mg/Kg			12/02/13 16:13	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 16:13	1
Ethylbenzene	0.0012		0.00099	mg/Kg			12/02/13 16:13	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 16:13	1
Methyl-t-Butyl Ether (MTBE)	0.020		0.0020	mg/Kg			12/02/13 16:13	1
o-Xylene	ND		0.00099	mg/Kg			12/02/13 16:13	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 16:13	1
tert-Butyl alcohol (TBA)	0.069		0.050	mg/Kg			12/02/13 16:13	1
Toluene	ND		0.00099	mg/Kg			12/02/13 16:13	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 16:13	1
Naphthalene	0.11		0.0020	mg/Kg			12/02/13 16:13	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/02/13 16:13	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/02/13 16:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		79 - 120				12/02/13 16:13	1
Dibromofluoromethane (Surr)	102		60 - 120				12/02/13 16:13	1
Toluene-d8 (Surr)	109		79 - 123				12/02/13 16:13	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	0.59		0.40	mg/Kg			11/29/13 19:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		65 - 140				11/29/13 19:25	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-17

Lab Sample ID: 440-63146-6

Date Collected: 11/20/13 13:40

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00097	mg/Kg			12/04/13 18:17	1
Isopropyl Ether (DIPE)	ND		0.0019	mg/Kg			12/04/13 18:17	1
Ethanol	ND		0.19	mg/Kg			12/04/13 18:17	1
Ethyl-t-butyl ether (ETBE)	ND		0.0019	mg/Kg			12/04/13 18:17	1
Ethylbenzene	0.065		0.00097	mg/Kg			12/04/13 18:17	1
m,p-Xylene	0.0044		0.0019	mg/Kg			12/04/13 18:17	1
Methyl-t-Butyl Ether (MTBE)	0.022		0.0019	mg/Kg			12/04/13 18:17	1
o-Xylene	ND		0.00097	mg/Kg			12/04/13 18:17	1
Tert-amyl-methyl ether (TAME)	ND		0.0019	mg/Kg			12/04/13 18:17	1
tert-Butyl alcohol (TBA)	ND	ID	0.049	mg/Kg			12/04/13 18:17	1
Toluene	ND		0.00097	mg/Kg			12/04/13 18:17	1
Xylenes, Total	0.0044		0.0019	mg/Kg			12/04/13 18:17	1
Naphthalene	0.26		0.0019	mg/Kg			12/04/13 18:17	1
1,2-Dibromoethane (EDB)	ND		0.00097	mg/Kg			12/04/13 18:17	1
1,2-Dichloroethane	ND		0.00097	mg/Kg			12/04/13 18:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		79 - 120				12/04/13 18:17	1
Dibromofluoromethane (Surr)	98		60 - 120				12/04/13 18:17	1
Toluene-d8 (Surr)	122		79 - 123				12/04/13 18:17	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	13		2.0	mg/Kg			12/04/13 18:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	192	LH	65 - 140				12/04/13 18:38	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-10-12

Lab Sample ID: 440-63146-7

Date Collected: 11/20/13 09:45

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/02/13 16:43	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 16:43	1
Ethanol	ND		0.20	mg/Kg			12/02/13 16:43	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 16:43	1
Ethylbenzene	ND		0.00099	mg/Kg			12/02/13 16:43	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 16:43	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 16:43	1
o-Xylene	ND		0.00099	mg/Kg			12/02/13 16:43	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 16:43	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 16:43	1
Toluene	ND		0.00099	mg/Kg			12/02/13 16:43	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 16:43	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 16:43	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/02/13 16:43	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/02/13 16:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120		12/02/13 16:43	1
Dibromofluoromethane (Surr)	96		60 - 120		12/02/13 16:43	1
Toluene-d8 (Surr)	109		79 - 123		12/02/13 16:43	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 20:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	81		65 - 140		11/29/13 20:20	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-10-12.5

Lab Sample ID: 440-63146-8

Date Collected: 11/20/13 09:45

Matrix: Solid

Date Received: 11/22/13 08:26

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 17:14	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 17:14	1
Ethanol	ND		0.20	mg/Kg			12/02/13 17:14	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 17:14	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 17:14	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 17:14	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 17:14	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 17:14	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 17:14	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 17:14	1
Toluene	ND		0.0010	mg/Kg			12/02/13 17:14	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 17:14	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 17:14	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 17:14	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 17:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		79 - 120		12/02/13 17:14	1
Dibromofluoromethane (Surr)	101		60 - 120		12/02/13 17:14	1
Toluene-d8 (Surr)	107		79 - 123		12/02/13 17:14	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 21:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		65 - 140		11/29/13 21:43	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-10-16.5

Lab Sample ID: 440-63146-9

Date Collected: 11/20/13 09:50

Matrix: Solid

Date Received: 11/22/13 08:26

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 17:45	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 17:45	1
Ethanol	ND		0.20	mg/Kg			12/02/13 17:45	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 17:45	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 17:45	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 17:45	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 17:45	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 17:45	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 17:45	1
tert-Butyl alcohol (TBA)	0.26		0.050	mg/Kg			12/02/13 17:45	1
Toluene	ND		0.0010	mg/Kg			12/02/13 17:45	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 17:45	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 17:45	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 17:45	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 17:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		79 - 120		12/02/13 17:45	1
Dibromofluoromethane (Surr)	96		60 - 120		12/02/13 17:45	1
Toluene-d8 (Surr)	107		79 - 123		12/02/13 17:45	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 22:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		65 - 140		11/29/13 22:11	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-10-17.5

Lab Sample ID: 440-63146-10

Date Collected: 11/20/13 09:50

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/02/13 11:37	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 11:37	1
Ethanol	ND		0.20	mg/Kg			12/02/13 11:37	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 11:37	1
Ethylbenzene	ND		0.00099	mg/Kg			12/02/13 11:37	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 11:37	1
Methyl-t-Butyl Ether (MTBE)	0.0056		0.0020	mg/Kg			12/02/13 11:37	1
o-Xylene	ND		0.00099	mg/Kg			12/02/13 11:37	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 11:37	1
tert-Butyl alcohol (TBA)	0.49		0.050	mg/Kg			12/02/13 11:37	1
Toluene	ND		0.00099	mg/Kg			12/02/13 11:37	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 11:37	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 11:37	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/02/13 11:37	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/02/13 11:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		79 - 120		12/02/13 11:37	1
Dibromofluoromethane (Surr)	94		60 - 120		12/02/13 11:37	1
Toluene-d8 (Surr)	108		79 - 123		12/02/13 11:37	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/29/13 22:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		65 - 140		11/29/13 22:39	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-4-12

Lab Sample ID: 440-63146-11

Date Collected: 11/21/13 09:45

Matrix: Solid

Date Received: 11/22/13 08:26

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 18:16	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 18:16	1
Ethanol	ND		0.20	mg/Kg			12/02/13 18:16	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 18:16	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 18:16	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 18:16	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 18:16	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 18:16	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 18:16	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 18:16	1
Toluene	ND		0.0010	mg/Kg			12/02/13 18:16	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 18:16	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 18:16	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 18:16	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 18:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/02/13 18:16	1
Dibromofluoromethane (Surr)	102		60 - 120		12/02/13 18:16	1
Toluene-d8 (Surr)	107		79 - 123		12/02/13 18:16	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/29/13 23:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		65 - 140		11/29/13 23:06	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-4-12.5

Lab Sample ID: 440-63146-12

Date Collected: 11/21/13 09:45

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/02/13 18:46	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 18:46	1
Ethanol	ND		0.20	mg/Kg			12/02/13 18:46	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 18:46	1
Ethylbenzene	ND		0.00099	mg/Kg			12/02/13 18:46	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 18:46	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 18:46	1
o-Xylene	ND		0.00099	mg/Kg			12/02/13 18:46	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 18:46	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 18:46	1
Toluene	ND		0.00099	mg/Kg			12/02/13 18:46	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 18:46	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 18:46	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/02/13 18:46	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/02/13 18:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/02/13 18:46	1
Dibromofluoromethane (Surr)	103		60 - 120		12/02/13 18:46	1
Toluene-d8 (Surr)	109		79 - 123		12/02/13 18:46	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/29/13 23:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		65 - 140		11/29/13 23:34	1

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-4-16

Lab Sample ID: 440-63146-13

Date Collected: 11/21/13 09:55

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/03/13 01:55	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/03/13 01:55	1
Ethanol	ND		0.20	mg/Kg			12/03/13 01:55	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/03/13 01:55	1
Ethylbenzene	ND		0.00099	mg/Kg			12/03/13 01:55	1
m,p-Xylene	ND		0.0020	mg/Kg			12/03/13 01:55	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/03/13 01:55	1
o-Xylene	ND		0.00099	mg/Kg			12/03/13 01:55	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/03/13 01:55	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/03/13 01:55	1
Toluene	ND		0.00099	mg/Kg			12/03/13 01:55	1
Xylenes, Total	ND		0.0020	mg/Kg			12/03/13 01:55	1
Naphthalene	ND		0.0020	mg/Kg			12/03/13 01:55	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/03/13 01:55	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/03/13 01:55	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		79 - 120				12/03/13 01:55	1
Dibromofluoromethane (Surr)	127	LH	60 - 120				12/03/13 01:55	1
Toluene-d8 (Surr)	117		79 - 123				12/03/13 01:55	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			11/30/13 00:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		65 - 140				11/30/13 00:02	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-4-16.5

Lab Sample ID: 440-63146-14

Date Collected: 11/21/13 09:55

Matrix: Solid

Date Received: 11/22/13 08:26

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/03/13 02:25	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/03/13 02:25	1
Ethanol	ND		0.20	mg/Kg			12/03/13 02:25	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/03/13 02:25	1
Ethylbenzene	ND		0.00099	mg/Kg			12/03/13 02:25	1
m,p-Xylene	ND		0.0020	mg/Kg			12/03/13 02:25	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/03/13 02:25	1
o-Xylene	ND		0.00099	mg/Kg			12/03/13 02:25	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/03/13 02:25	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/03/13 02:25	1
Toluene	ND		0.00099	mg/Kg			12/03/13 02:25	1
Xylenes, Total	ND		0.0020	mg/Kg			12/03/13 02:25	1
Naphthalene	ND		0.0020	mg/Kg			12/03/13 02:25	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/03/13 02:25	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/03/13 02:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		79 - 120		12/03/13 02:25	1
Dibromofluoromethane (Surr)	121	LH	60 - 120		12/03/13 02:25	1
Toluene-d8 (Surr)	116		79 - 123		12/03/13 02:25	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 00:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	75		65 - 140		11/30/13 00:29	1

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

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 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-3

Date Collected: 11/18/13 09:30

Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-1

Matrix: Solid

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	147837	12/02/13 13:09	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.03 g	10 mL	147884	12/02/13 16:37	TL	TAL IRV

Client Sample ID: SB-9-7

Date Collected: 11/18/13 09:50

Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-2

Matrix: Solid

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	147837	12/02/13 13:40	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.23 g	10 mL	147569	11/29/13 23:12	PH	TAL IRV

Client Sample ID: SB-9-12

Date Collected: 11/20/13 13:35

Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-3

Matrix: Solid

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	147837	12/02/13 15:11	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.17 g	10 mL	147564	11/29/13 18:29	TL	TAL IRV

Client Sample ID: SB-9-12.5

Date Collected: 11/20/13 13:35

Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-4

Matrix: Solid

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	147837	12/02/13 15:42	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.15 g	10 mL	147564	11/29/13 18:57	TL	TAL IRV

Client Sample ID: SB-9-16.5

Date Collected: 11/20/13 13:40

Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-5

Matrix: Solid

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	5.03 g	10 mL	147837	12/02/13 16:13	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.01 g	10 mL	147564	11/29/13 19:25	TL	TAL IRV

Client Sample ID: SB-9-17

Date Collected: 11/20/13 13:40

Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-6

Matrix: Solid

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	5.14 g	10 mL	148403	12/04/13 18:17	YK	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-9-17

Date Collected: 11/20/13 13:40
Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	1.01 g	10 mL	148431	12/04/13 18:38	IM	TAL IRV

Client Sample ID: SB-10-12

Date Collected: 11/20/13 09:45
Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-7

Matrix: Solid

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	5.03 g	10 mL	147837	12/02/13 16:43	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.19 g	10 mL	147564	11/29/13 20:20	TL	TAL IRV

Client Sample ID: SB-10-12.5

Date Collected: 11/20/13 09:45
Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-8

Matrix: Solid

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	147837	12/02/13 17:14	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.15 g	10 mL	147564	11/29/13 21:43	TL	TAL IRV

Client Sample ID: SB-10-16.5

Date Collected: 11/20/13 09:50
Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-9

Matrix: Solid

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	147837	12/02/13 17:45	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.17 g	10 mL	147564	11/29/13 22:11	TL	TAL IRV

Client Sample ID: SB-10-17.5

Date Collected: 11/20/13 09:50
Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-10

Matrix: Solid

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	5.03 g	10 mL	147837	12/02/13 11:37	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.01 g	10 mL	147564	11/29/13 22:39	TL	TAL IRV

Client Sample ID: SB-4-12

Date Collected: 11/21/13 09:45
Date Received: 11/22/13 08:26

Lab Sample ID: 440-63146-11

Matrix: Solid

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	147837	12/02/13 18:16	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.04 g	10 mL	147564	11/29/13 23:06	TL	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Client Sample ID: SB-4-12.5

Lab Sample ID: 440-63146-12

Date Collected: 11/21/13 09:45

Matrix: Solid

Date Received: 11/22/13 08:26

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	147837	12/02/13 18:46	AL	TAL IRV
Total/NA	Analysis	8015B		1	5.04 g	10 mL	147564	11/29/13 23:34	TL	TAL IRV

Client Sample ID: SB-4-16

Lab Sample ID: 440-63146-13

Date Collected: 11/21/13 09:55

Matrix: Solid

Date Received: 11/22/13 08:26

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	148013	12/03/13 01:55	WK	TAL IRV
Total/NA	Analysis	8015B		1	5.18 g	10 mL	147564	11/30/13 00:02	TL	TAL IRV

Client Sample ID: SB-4-16.5

Lab Sample ID: 440-63146-14

Date Collected: 11/21/13 09:55

Matrix: Solid

Date Received: 11/22/13 08:26

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	148013	12/03/13 02:25	WK	TAL IRV
Total/NA	Analysis	8015B		1	5.31 g	10 mL	147564	11/30/13 00:29	TL	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-147837/4

Matrix: Solid

Analysis Batch: 147837

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 09:26	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 09:26	1
Ethanol	ND		0.20	mg/Kg			12/02/13 09:26	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 09:26	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 09:26	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 09:26	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 09:26	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 09:26	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 09:26	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 09:26	1
Toluene	ND		0.0010	mg/Kg			12/02/13 09:26	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 09:26	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 09:26	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 09:26	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 09:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		79 - 120		12/02/13 09:26	1
Dibromofluoromethane (Surr)	102		60 - 120		12/02/13 09:26	1
Toluene-d8 (Surr)	109		79 - 123		12/02/13 09:26	1

Lab Sample ID: LCS 440-147837/5

Matrix: Solid

Analysis Batch: 147837

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	0.0549		mg/Kg		110	65 - 120
Isopropyl Ether (DIPE)	0.0500	0.0582		mg/Kg		116	60 - 140
Ethanol	0.500	0.418		mg/Kg		84	35 - 160
Ethyl-t-butyl ether (ETBE)	0.0500	0.0555		mg/Kg		111	60 - 140
Ethylbenzene	0.0500	0.0499		mg/Kg		100	70 - 125
m,p-Xylene	0.100	0.0942		mg/Kg		94	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0584		mg/Kg		117	60 - 140
o-Xylene	0.0500	0.0491		mg/Kg		98	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0598		mg/Kg		120	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.273		mg/Kg		109	70 - 135
Toluene	0.0500	0.0517		mg/Kg		103	70 - 125
Naphthalene	0.0500	0.0523		mg/Kg		105	55 - 135
1,2-Dibromoethane (EDB)	0.0500	0.0551		mg/Kg		110	70 - 130
1,2-Dichloroethane	0.0500	0.0578		mg/Kg		116	60 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		79 - 120
Dibromofluoromethane (Surr)	104		60 - 120
Toluene-d8 (Surr)	108		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63146-10 MS

Matrix: Solid

Analysis Batch: 147837

Client Sample ID: SB-10-17.5

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
Benzene	ND		0.0498	0.0579		mg/Kg		116	65 - 130
Isopropyl Ether (DIPE)	ND		0.0498	0.0558		mg/Kg		112	60 - 150
Ethanol	ND		0.498	0.481		mg/Kg		97	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		0.0498	0.0556		mg/Kg		112	60 - 145
Ethylbenzene	ND		0.0498	0.0596		mg/Kg		120	70 - 135
m,p-Xylene	ND		0.0996	0.112		mg/Kg		112	70 - 130
Methyl-t-Butyl Ether (MTBE)	0.0056		0.0498	0.0643		mg/Kg		118	55 - 155
o-Xylene	ND		0.0498	0.0586		mg/Kg		118	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0498	0.0603		mg/Kg		121	60 - 150
tert-Butyl alcohol (TBA)	0.49		0.249	0.885	LM	mg/Kg		160	65 - 145
Toluene	ND		0.0498	0.0542		mg/Kg		109	70 - 130
Naphthalene	ND		0.0498	0.0562		mg/Kg		110	40 - 150
1,2-Dibromoethane (EDB)	ND		0.0498	0.0634		mg/Kg		127	65 - 140
1,2-Dichloroethane	ND		0.0498	0.0569		mg/Kg		114	60 - 150

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	103		79 - 120
Dibromofluoromethane (Surr)	96		60 - 120
Toluene-d8 (Surr)	106		79 - 123

Lab Sample ID: 440-63146-10 MSD

Matrix: Solid

Analysis Batch: 147837

Client Sample ID: SB-10-17.5

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Benzene	ND		0.0496	0.0520		mg/Kg		105	65 - 130	11	20
Isopropyl Ether (DIPE)	ND		0.0496	0.0504		mg/Kg		102	60 - 150	10	25
Ethanol	ND		0.496	0.487		mg/Kg		98	30 - 165	1	40
Ethyl-t-butyl ether (ETBE)	ND		0.0496	0.0507		mg/Kg		102	60 - 145	9	30
Ethylbenzene	ND		0.0496	0.0540		mg/Kg		109	70 - 135	10	25
m,p-Xylene	ND		0.0992	0.103		mg/Kg		104	70 - 130	8	25
Methyl-t-Butyl Ether (MTBE)	0.0056		0.0496	0.0586		mg/Kg		107	55 - 155	9	35
o-Xylene	ND		0.0496	0.0536		mg/Kg		108	65 - 130	9	25
Tert-amyl-methyl ether (TAME)	ND		0.0496	0.0544		mg/Kg		110	60 - 150	10	25
tert-Butyl alcohol (TBA)	0.49		0.248	0.831		mg/Kg		139	65 - 145	6	30
Toluene	ND		0.0496	0.0497		mg/Kg		100	70 - 130	9	20
Naphthalene	ND		0.0496	0.0511		mg/Kg		100	40 - 150	10	40
1,2-Dibromoethane (EDB)	ND		0.0496	0.0571		mg/Kg		115	65 - 140	10	25
1,2-Dichloroethane	ND		0.0496	0.0521		mg/Kg		105	60 - 150	9	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		79 - 120
Dibromofluoromethane (Surr)	96		60 - 120
Toluene-d8 (Surr)	107		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-148013/3

Matrix: Solid

Analysis Batch: 148013

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 18:55	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/02/13 18:55	1
Ethanol	ND		0.20	mg/Kg			12/02/13 18:55	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/02/13 18:55	1
Ethylbenzene	ND		0.0010	mg/Kg			12/02/13 18:55	1
m,p-Xylene	ND		0.0020	mg/Kg			12/02/13 18:55	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/02/13 18:55	1
o-Xylene	ND		0.0010	mg/Kg			12/02/13 18:55	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/02/13 18:55	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/02/13 18:55	1
Toluene	ND		0.0010	mg/Kg			12/02/13 18:55	1
Xylenes, Total	ND		0.0020	mg/Kg			12/02/13 18:55	1
Naphthalene	ND		0.0020	mg/Kg			12/02/13 18:55	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/02/13 18:55	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/02/13 18:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		79 - 120		12/02/13 18:55	1
Dibromofluoromethane (Surr)	109		60 - 120		12/02/13 18:55	1
Toluene-d8 (Surr)	117		79 - 123		12/02/13 18:55	1

Lab Sample ID: LCS 440-148013/4

Matrix: Solid

Analysis Batch: 148013

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	0.0466		mg/Kg		93	65 - 120
Isopropyl Ether (DIPE)	0.0500	0.0475		mg/Kg		95	60 - 140
Ethanol	0.500	0.439		mg/Kg		88	35 - 160
Ethyl-t-butyl ether (ETBE)	0.0500	0.0501		mg/Kg		100	60 - 140
Ethylbenzene	0.0500	0.0518		mg/Kg		104	70 - 125
m,p-Xylene	0.100	0.0997		mg/Kg		100	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0528		mg/Kg		106	60 - 140
o-Xylene	0.0500	0.0503		mg/Kg		101	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0516		mg/Kg		103	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.252		mg/Kg		101	70 - 135
Toluene	0.0500	0.0496		mg/Kg		99	70 - 125
Naphthalene	0.0500	0.0586		mg/Kg		117	55 - 135
1,2-Dibromoethane (EDB)	0.0500	0.0525		mg/Kg		105	70 - 130
1,2-Dichloroethane	0.0500	0.0576		mg/Kg		115	60 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		79 - 120
Dibromofluoromethane (Surr)	113		60 - 120
Toluene-d8 (Surr)	116		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63630-A-7 MS

Matrix: Solid

Analysis Batch: 148013

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
Benzene	ND		0.0501	0.0467		mg/Kg		93	65 - 130
Isopropyl Ether (DIPE)	ND		0.0501	0.0485		mg/Kg		97	60 - 150
Ethanol	ND		0.501	0.497		mg/Kg		99	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		0.0501	0.0522		mg/Kg		104	60 - 145
Ethylbenzene	ND		0.0501	0.0520		mg/Kg		104	70 - 135
m,p-Xylene	ND		0.100	0.0997		mg/Kg		99	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0501	0.0566		mg/Kg		113	55 - 155
o-Xylene	ND		0.0501	0.0505		mg/Kg		101	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0501	0.0544		mg/Kg		109	60 - 150
tert-Butyl alcohol (TBA)	ND		0.251	0.251		mg/Kg		100	65 - 145
Toluene	ND		0.0501	0.0501		mg/Kg		100	70 - 130
Naphthalene	ND		0.0501	0.0599		mg/Kg		120	40 - 150
1,2-Dibromoethane (EDB)	ND		0.0501	0.0566		mg/Kg		113	65 - 140
1,2-Dichloroethane	ND		0.0501	0.0607		mg/Kg		121	60 - 150

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	110		79 - 120
Dibromofluoromethane (Surr)	114		60 - 120
Toluene-d8 (Surr)	116		79 - 123

Lab Sample ID: 440-63630-A-7 MSD

Matrix: Solid

Analysis Batch: 148013

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						
Benzene	ND		0.0496	0.0476		mg/Kg		96	65 - 130	2	20
Isopropyl Ether (DIPE)	ND		0.0496	0.0488		mg/Kg		98	60 - 150	0	25
Ethanol	ND		0.496	0.459		mg/Kg		93	30 - 165	8	40
Ethyl-t-butyl ether (ETBE)	ND		0.0496	0.0526		mg/Kg		106	60 - 145	1	30
Ethylbenzene	ND		0.0496	0.0513		mg/Kg		103	70 - 135	1	25
m,p-Xylene	ND		0.0992	0.100		mg/Kg		101	70 - 130	1	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0496	0.0564		mg/Kg		114	55 - 155	0	35
o-Xylene	ND		0.0496	0.0505		mg/Kg		102	65 - 130	0	25
Tert-amyl-methyl ether (TAME)	ND		0.0496	0.0543		mg/Kg		110	60 - 150	0	25
tert-Butyl alcohol (TBA)	ND		0.248	0.252		mg/Kg		102	65 - 145	1	30
Toluene	ND		0.0496	0.0508		mg/Kg		102	70 - 130	1	20
Naphthalene	ND		0.0496	0.0597		mg/Kg		120	40 - 150	0	40
1,2-Dibromoethane (EDB)	ND		0.0496	0.0550		mg/Kg		111	65 - 140	3	25
1,2-Dichloroethane	ND		0.0496	0.0601		mg/Kg		121	60 - 150	1	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	110		79 - 120
Dibromofluoromethane (Surr)	114		60 - 120
Toluene-d8 (Surr)	116		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-148403/12

Matrix: Solid

Analysis Batch: 148403

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			12/04/13 13:13	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/04/13 13:13	1
Ethanol	ND		0.20	mg/Kg			12/04/13 13:13	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/04/13 13:13	1
Ethylbenzene	ND		0.0010	mg/Kg			12/04/13 13:13	1
m,p-Xylene	ND		0.0020	mg/Kg			12/04/13 13:13	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/04/13 13:13	1
o-Xylene	ND		0.0010	mg/Kg			12/04/13 13:13	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/04/13 13:13	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/04/13 13:13	1
Toluene	ND		0.0010	mg/Kg			12/04/13 13:13	1
Xylenes, Total	ND		0.0020	mg/Kg			12/04/13 13:13	1
Naphthalene	ND		0.0020	mg/Kg			12/04/13 13:13	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/04/13 13:13	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/04/13 13:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/04/13 13:13	1
Dibromofluoromethane (Surr)	91		60 - 120		12/04/13 13:13	1
Toluene-d8 (Surr)	121		79 - 123		12/04/13 13:13	1

Lab Sample ID: LCS 440-148403/13

Matrix: Solid

Analysis Batch: 148403

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	0.0534		mg/Kg		107	65 - 120
Isopropyl Ether (DIPE)	0.0500	0.0543		mg/Kg		109	60 - 140
Ethanol	0.500	0.298		mg/Kg		60	35 - 160
Ethyl-t-butyl ether (ETBE)	0.0500	0.0525		mg/Kg		105	60 - 140
Ethylbenzene	0.0500	0.0553		mg/Kg		111	70 - 125
m,p-Xylene	0.100	0.108		mg/Kg		108	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0553		mg/Kg		111	60 - 140
o-Xylene	0.0500	0.0508		mg/Kg		102	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0509		mg/Kg		102	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.266		mg/Kg		107	70 - 135
Toluene	0.0500	0.0572		mg/Kg		114	70 - 125
Naphthalene	0.0500	0.0637		mg/Kg		127	55 - 135
1,2-Dibromoethane (EDB)	0.0500	0.0519		mg/Kg		104	70 - 130
1,2-Dichloroethane	0.0500	0.0432		mg/Kg		86	60 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		79 - 120
Dibromofluoromethane (Surr)	96		60 - 120
Toluene-d8 (Surr)	115		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63319-A-1 MS

Matrix: Solid

Analysis Batch: 148403

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
Benzene	ND		0.0492	0.0576		mg/Kg		117	65 - 130
Isopropyl Ether (DIPE)	ND		0.0492	0.0585		mg/Kg		119	60 - 150
Ethanol	ND		0.492	0.448		mg/Kg		91	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		0.0492	0.0566		mg/Kg		115	60 - 145
Ethylbenzene	ND		0.0492	0.0578		mg/Kg		118	70 - 135
m,p-Xylene	ND		0.0984	0.116		mg/Kg		118	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0492	0.0589		mg/Kg		120	55 - 155
o-Xylene	ND		0.0492	0.0523		mg/Kg		106	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0492	0.0555		mg/Kg		113	60 - 150
tert-Butyl alcohol (TBA)	ND		0.246	0.273		mg/Kg		111	65 - 145
Toluene	ND		0.0492	0.0601		mg/Kg		122	70 - 130
Naphthalene	ND		0.0492	0.0662		mg/Kg		135	40 - 150
1,2-Dibromoethane (EDB)	ND		0.0492	0.0553		mg/Kg		112	65 - 140
1,2-Dichloroethane	ND		0.0492	0.0470		mg/Kg		95	60 - 150

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		79 - 120
Dibromofluoromethane (Surr)	95		60 - 120
Toluene-d8 (Surr)	116		79 - 123

Lab Sample ID: 440-63319-A-1 MSD

Matrix: Solid

Analysis Batch: 148403

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Benzene	ND		0.0493	0.0566		mg/Kg		115	65 - 130	2	20
Isopropyl Ether (DIPE)	ND		0.0493	0.0575		mg/Kg		117	60 - 150	2	25
Ethanol	ND		0.493	0.414		mg/Kg		84	30 - 165	8	40
Ethyl-t-butyl ether (ETBE)	ND		0.0493	0.0569		mg/Kg		115	60 - 145	1	30
Ethylbenzene	ND		0.0493	0.0584		mg/Kg		118	70 - 135	1	25
m,p-Xylene	ND		0.0986	0.116		mg/Kg		118	70 - 130	0	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0493	0.0589		mg/Kg		120	55 - 155	0	35
o-Xylene	ND		0.0493	0.0535		mg/Kg		109	65 - 130	2	25
Tert-amyl-methyl ether (TAME)	ND		0.0493	0.0560		mg/Kg		114	60 - 150	1	25
tert-Butyl alcohol (TBA)	ND		0.247	0.251		mg/Kg		102	65 - 145	8	30
Toluene	ND		0.0493	0.0607		mg/Kg		123	70 - 130	1	20
Naphthalene	ND		0.0493	0.0659		mg/Kg		134	40 - 150	0	40
1,2-Dibromoethane (EDB)	ND		0.0493	0.0546		mg/Kg		111	65 - 140	1	25
1,2-Dichloroethane	ND		0.0493	0.0466		mg/Kg		94	60 - 150	1	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		79 - 120
Dibromofluoromethane (Surr)	96		60 - 120
Toluene-d8 (Surr)	115		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 440-147564/4

Matrix: Solid

Analysis Batch: 147564

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 11:07	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		65 - 140				11/29/13 11:07	1

Lab Sample ID: LCS 440-147564/2

Matrix: Solid

Analysis Batch: 147564

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	1.45		mg/Kg		91	70 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	114		65 - 140				

Lab Sample ID: LCSD 440-147564/3

Matrix: Solid

Analysis Batch: 147564

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	1.46		mg/Kg		91	70 - 135	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	117		65 - 140						

Lab Sample ID: 720-54036-B-6 MS

Matrix: Solid

Analysis Batch: 147564

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	1.47		mg/Kg		92	60 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	93		65 - 140						

Lab Sample ID: 720-54036-B-6 MSD

Matrix: Solid

Analysis Batch: 147564

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		1.59	1.44		mg/Kg		91	60 - 140	1	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	98		65 - 140								

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

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				

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								

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

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								

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 440-148431/4

Matrix: Solid

Analysis Batch: 148431

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			12/04/13 09:40	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		65 - 140				12/04/13 09:40	1

Lab Sample ID: LCS 440-148431/2

Matrix: Solid

Analysis Batch: 148431

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	1.45		mg/Kg		91	70 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		65 - 140				

Lab Sample ID: LCSD 440-148431/3

Matrix: Solid

Analysis Batch: 148431

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	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		65 - 140						

Lab Sample ID: 440-63502-A-10 MS

Matrix: Solid

Analysis Batch: 148431

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)	0.97		1.57	2.54		mg/Kg		100	60 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	114		65 - 140						

Lab Sample ID: 440-63502-A-10 MSD

Matrix: Solid

Analysis Batch: 148431

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)	0.97		1.58	3.11		mg/Kg		135	60 - 140	20	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	133		65 - 140								

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

GC/MS VOA

Analysis Batch: 147837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63146-1	SB-9-3	Total/NA	Solid	8260B	
440-63146-2	SB-9-7	Total/NA	Solid	8260B	
440-63146-3	SB-9-12	Total/NA	Solid	8260B	
440-63146-4	SB-9-12.5	Total/NA	Solid	8260B	
440-63146-5	SB-9-16.5	Total/NA	Solid	8260B	
440-63146-7	SB-10-12	Total/NA	Solid	8260B	
440-63146-8	SB-10-12.5	Total/NA	Solid	8260B	
440-63146-9	SB-10-16.5	Total/NA	Solid	8260B	
440-63146-10	SB-10-17.5	Total/NA	Solid	8260B	
440-63146-10 MS	SB-10-17.5	Total/NA	Solid	8260B	
440-63146-10 MSD	SB-10-17.5	Total/NA	Solid	8260B	
440-63146-11	SB-4-12	Total/NA	Solid	8260B	
440-63146-12	SB-4-12.5	Total/NA	Solid	8260B	
LCS 440-147837/5	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-147837/4	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 148013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63146-13	SB-4-16	Total/NA	Solid	8260B	
440-63146-14	SB-4-16.5	Total/NA	Solid	8260B	
440-63630-A-7 MS	Matrix Spike	Total/NA	Solid	8260B	
440-63630-A-7 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
LCS 440-148013/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-148013/3	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 148403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63146-6	SB-9-17	Total/NA	Solid	8260B	
440-63319-A-1 MS	Matrix Spike	Total/NA	Solid	8260B	
440-63319-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
LCS 440-148403/13	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-148403/12	Method Blank	Total/NA	Solid	8260B	

GC VOA

Analysis Batch: 147564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63146-3	SB-9-12	Total/NA	Solid	8015B	
440-63146-4	SB-9-12.5	Total/NA	Solid	8015B	
440-63146-5	SB-9-16.5	Total/NA	Solid	8015B	
440-63146-7	SB-10-12	Total/NA	Solid	8015B	
440-63146-8	SB-10-12.5	Total/NA	Solid	8015B	
440-63146-9	SB-10-16.5	Total/NA	Solid	8015B	
440-63146-10	SB-10-17.5	Total/NA	Solid	8015B	
440-63146-11	SB-4-12	Total/NA	Solid	8015B	
440-63146-12	SB-4-12.5	Total/NA	Solid	8015B	
440-63146-13	SB-4-16	Total/NA	Solid	8015B	
440-63146-14	SB-4-16.5	Total/NA	Solid	8015B	
720-54036-B-6 MS	Matrix Spike	Total/NA	Solid	8015B	
720-54036-B-6 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

GC VOA (Continued)

Analysis Batch: 147564 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-147564/2	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-147564/3	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-147564/4	Method Blank	Total/NA	Solid	8015B	

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	
440-63010-A-6 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
440-63146-2	SB-9-7	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: 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	
440-63146-1	SB-9-3	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: 148431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63146-6	SB-9-17	Total/NA	Solid	8015B	
440-63502-A-10 MS	Matrix Spike	Total/NA	Solid	8015B	
440-63502-A-10 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
LCS 440-148431/2	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-148431/3	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-148431/4	Method Blank	Total/NA	Solid	8015B	



Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63146-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
LM	MS and/or MSD above acceptance limits. See Blank Spike (LCS)
LH	Surrogate Recoveries were higher than QC limits
ID	Analyte identified by RT & presence of single mass ion

GC VOA

Qualifier	Qualifier Description
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LH	Surrogate Recoveries were higher than QC limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 2111, San Leandro

TestAmerica Job ID: 440-63146-1

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.

TestAmerica Irvine



Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: 06-88-615
 BP Facility No: 2111

Req Due Date (mm/dd/yy): _____
 Lab Work Order Number: _____

Rush TAT: Yes No

Lab Name: Test America	Facility Address: 1156 Davis Street	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Derian Avenue Suite #100, Irvine, CA 92614	City, State, ZIP Code: San Leandro, CA	Consultant/Contractor Project No: 06-88-615
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Goting Lane, Suite G, Vacaville, CA
Lab Phone: 949-261-1022	California Global ID No.: T0600101764	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct#: 1103-6633-7	Enfos Proposal No:	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: kidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP Project Manager (PM): Chuck Camel				Matrix		No. Containers / Preservative		Requested Analyses						Report Type & QC Level						
BP PM Phone: 925-275-3804														Standard <input checked="" type="checkbox"/>						
BP PM Email: chuck.camel@bp.com														Full Data Package <input type="checkbox"/>						
Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	GRO by 8015	BTEX + 5 Fuel Olys by 8260	EDB & 1,2-DCA by 8260	Ethanol by 8260	Naphthalene by 8260	Comments	
SB-9-3		11/18/2013	0930	x			n	1	x					x	x	x	x	x		
SB-9-7		11/18/2013	0950	x			n	1	x					x	x	x	x	x		
SB-9-12		11/20/2013	1335	x			n	1	x					x	x	x	x	x		
SB-9-12.5		11/20/2013	1335	x			n	1	x					x	x	x	x	x		
SB-9-16.5		11/20/2013	1340	x			n	1	x					x	x	x	x	x		
SB-9-17 <i>2 am</i>		11/20/2013	1340	x			n	1	x					x	x	x	x	x		
SB-10-12		11/20/2013	0945	x			n	1	x					x	x	x	x	x		
SB-10-12.5		11/20/2013	0945	x			n	1	x					x	x	x	x	x		
SB-10-16.5		11/20/2013	0950	x			n	1	x					x	x	x	x	x		
SB-10-17.5		11/20/2013	0950	x			n	1	x					x	x	x	x	x		
SB-4-12		11/21/2013	0945	x			n	1	x					x	x	x	x	x		
SB-4-12.5		11/21/2013	0945	x			n	1	x					x	x	x	x	x		
SB-4-16		11/21/2013	0955	x			n	1	x					x	x	x	x	x		
SB-4-16.5		11/21/2013	0955	x			n	1	x					x	x	x	x	x		



Sampler's Name: Alex Martinez	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent and Associates	<i>Alex Martinez</i> BAE	11/21/13	1700	<i>[Signature]</i>	11/22/13	0700
Shipment Method: Fed Ex Ship Date: 11/21/2013						
Shipment Tracking No: 8037 1495 6997						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals in Place: Yes/No Temp Blank Yes/No Cooler Temp on Receipt: 1.8 1.0 °F/C Trip Blank Yes/No MS/MSD Sample Submitted: Yes/No

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12/10/2013



Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-63146-1

Login Number: 63146

List Source: TestAmerica Irvine

List Number: 1

Creator: Gonzales, Steve

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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.	False	IDs on containers do not match the COC. Logged in per COC.
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 <math><6\text{mm}</math> (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: 440-63148-1
Client Project/Site: ARCO 2111, San Leandro

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

Attn: Kristene Tidwell



*Authorized for release by:
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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-63148-1	SB-9-22	Water	11/20/13 13:55	11/22/13 07:00
440-63148-2	SB-10-24	Water	11/20/13 14:20	11/22/13 07:00
440-63148-3	SB-4	Water	11/21/13 10:20	11/22/13 07:00

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Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Job ID: 440-63148-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative 440-63148-1

Comments

No additional comments.

Receipt

The samples were received on 11/22/2013 7:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

Except:

The following sample(s) was listed on the Chain of Custody (COC); however, all of the containers were not received: TB-2111-11212013 (440-63148-4). The COC lists 6 containers, only 2 were received.

One or more containers for the following sample(s) was received broken or leaking: SB-10-24 (440-63148-2). 1 of the 6 VOA vials received was broken. There is sufficient sample volume remaining for all analysis requested.

GC/MS VOA

No analytical or quality issues were noted.

GC VOA

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: (440-63454-3 MS), (440-63454-3 MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8015B: Due to the high concentration of GRO, the matrix spike / matrix spike duplicate (MS/MSD) for batch 147750 could not be evaluated for accuracy. The associated laboratory control sample (LCS) met acceptance criteria. The MS/MSD precision (%RPD) was within limits.

No other analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Client Sample ID: SB-9-22

Lab Sample ID: 440-63148-1

Date Collected: 11/20/13 13:55

Matrix: Water

Date Received: 11/22/13 07:00

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			12/03/13 04:31	1
1,2-Dichloroethane	ND		0.50	ug/L			12/03/13 04:31	1
Benzene	ND		0.50	ug/L			12/03/13 04:31	1
Ethanol	ND		150	ug/L			12/03/13 04:31	1
Ethylbenzene	ND		0.50	ug/L			12/03/13 04:31	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/03/13 04:31	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/03/13 04:31	1
m,p-Xylene	ND		1.0	ug/L			12/03/13 04:31	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			12/03/13 04:31	1
o-Xylene	ND		0.50	ug/L			12/03/13 04:31	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/03/13 04:31	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/03/13 04:31	1
Toluene	ND		0.50	ug/L			12/03/13 04:31	1
Xylenes, Total	ND		1.0	ug/L			12/03/13 04:31	1
Naphthalene	ND		1.0	ug/L			12/03/13 04:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120		12/03/13 04:31	1
Dibromofluoromethane (Surr)	105		76 - 132		12/03/13 04:31	1
Toluene-d8 (Surr)	103		80 - 128		12/03/13 04:31	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			11/30/13 20:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		65 - 140		11/30/13 20:43	1

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Client Sample ID: SB-10-24

Lab Sample ID: 440-63148-2

Date Collected: 11/20/13 14:20

Matrix: Water

Date Received: 11/22/13 07:00

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			12/03/13 04:58	1
1,2-Dichloroethane	ND		0.50	ug/L			12/03/13 04:58	1
Benzene	1.3		0.50	ug/L			12/03/13 04:58	1
Ethanol	ND		150	ug/L			12/03/13 04:58	1
Ethylbenzene	ND		0.50	ug/L			12/03/13 04:58	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/03/13 04:58	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/03/13 04:58	1
m,p-Xylene	ND		1.0	ug/L			12/03/13 04:58	1
Methyl-t-Butyl Ether (MTBE)	10		0.50	ug/L			12/03/13 04:58	1
o-Xylene	ND		0.50	ug/L			12/03/13 04:58	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/03/13 04:58	1
tert-Butyl alcohol (TBA)	270		10	ug/L			12/03/13 04:58	1
Toluene	ND		0.50	ug/L			12/03/13 04:58	1
Xylenes, Total	ND		1.0	ug/L			12/03/13 04:58	1
Naphthalene	2.5		1.0	ug/L			12/03/13 04:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		12/03/13 04:58	1
Dibromofluoromethane (Surr)	101		76 - 132		12/03/13 04:58	1
Toluene-d8 (Surr)	105		80 - 128		12/03/13 04:58	1

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	120		50	ug/L			11/30/13 21:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	125		65 - 140		11/30/13 21:08	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Client Sample ID: SB-4

Lab Sample ID: 440-63148-3

Date Collected: 11/21/13 10:20

Matrix: Water

Date Received: 11/22/13 07:00

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			12/03/13 05:25	1
1,2-Dichloroethane	ND		0.50	ug/L			12/03/13 05:25	1
Benzene	ND		0.50	ug/L			12/03/13 05:25	1
Ethanol	ND		150	ug/L			12/03/13 05:25	1
Ethylbenzene	ND		0.50	ug/L			12/03/13 05:25	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/03/13 05:25	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/03/13 05:25	1
m,p-Xylene	ND		1.0	ug/L			12/03/13 05:25	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			12/03/13 05:25	1
o-Xylene	ND		0.50	ug/L			12/03/13 05:25	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/03/13 05:25	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/03/13 05:25	1
Toluene	ND		0.50	ug/L			12/03/13 05:25	1
Xylenes, Total	ND		1.0	ug/L			12/03/13 05:25	1
Naphthalene	ND		1.0	ug/L			12/03/13 05:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		12/03/13 05:25	1
Dibromofluoromethane (Surr)	101		76 - 132		12/03/13 05:25	1
Toluene-d8 (Surr)	102		80 - 128		12/03/13 05:25	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			11/30/13 19:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		65 - 140		11/30/13 19:03	1

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

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 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Client Sample ID: SB-9-22

Date Collected: 11/20/13 13:55

Date Received: 11/22/13 07:00

Lab Sample ID: 440-63148-1

Matrix: Water

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	148001	12/03/13 04:31	GK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	147750	11/30/13 20:43	TL	TAL IRV

Client Sample ID: SB-10-24

Date Collected: 11/20/13 14:20

Date Received: 11/22/13 07:00

Lab Sample ID: 440-63148-2

Matrix: Water

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	148001	12/03/13 04:58	GK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	147750	11/30/13 21:08	TL	TAL IRV

Client Sample ID: SB-4

Date Collected: 11/21/13 10:20

Date Received: 11/22/13 07:00

Lab Sample ID: 440-63148-3

Matrix: Water

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	148001	12/03/13 05:25	GK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	147755	11/30/13 19:03	TL	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-148001/3

Matrix: Water

Analysis Batch: 148001

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			12/02/13 19:52	1
1,2-Dichloroethane	ND		0.50	ug/L			12/02/13 19:52	1
Benzene	ND		0.50	ug/L			12/02/13 19:52	1
Ethanol	ND		150	ug/L			12/02/13 19:52	1
Ethylbenzene	ND		0.50	ug/L			12/02/13 19:52	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/02/13 19:52	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/02/13 19:52	1
m,p-Xylene	ND		1.0	ug/L			12/02/13 19:52	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			12/02/13 19:52	1
o-Xylene	ND		0.50	ug/L			12/02/13 19:52	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/02/13 19:52	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/02/13 19:52	1
Toluene	ND		0.50	ug/L			12/02/13 19:52	1
Xylenes, Total	ND		1.0	ug/L			12/02/13 19:52	1
Naphthalene	ND		1.0	ug/L			12/02/13 19:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		12/02/13 19:52	1
Dibromofluoromethane (Surr)	98		76 - 132		12/02/13 19:52	1
Toluene-d8 (Surr)	104		80 - 128		12/02/13 19:52	1

Lab Sample ID: LCS 440-148001/4

Matrix: Water

Analysis Batch: 148001

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	25.5		ug/L		102	70 - 130
1,2-Dichloroethane	25.0	24.6		ug/L		98	57 - 138
Benzene	25.0	25.1		ug/L		100	68 - 130
Ethanol	250	305		ug/L		122	50 - 149
Ethylbenzene	25.0	26.2		ug/L		105	70 - 130
Ethyl-t-butyl ether (ETBE)	25.0	26.7		ug/L		107	60 - 136
Isopropyl Ether (DIPE)	25.0	28.2		ug/L		113	58 - 139
m,p-Xylene	50.0	50.3		ug/L		101	70 - 130
Methyl-t-Butyl Ether (MTBE)	25.0	26.3		ug/L		105	63 - 131
o-Xylene	25.0	25.6		ug/L		102	70 - 130
Tert-amyl-methyl ether (TAME)	25.0	26.3		ug/L		105	57 - 139
tert-Butyl alcohol (TBA)	125	139		ug/L		111	70 - 130
Toluene	25.0	25.7		ug/L		103	70 - 130
Naphthalene	25.0	27.1		ug/L		108	60 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	101		76 - 132
Toluene-d8 (Surr)	103		80 - 128

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63597-D-1 MS

Matrix: Water

Analysis Batch: 148001

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		50.0	53.3		ug/L		107	70 - 131
1,2-Dichloroethane	2.3		50.0	55.0		ug/L		105	56 - 146
Benzene	ND		50.0	50.8		ug/L		102	66 - 130
Ethanol	ND		500	559		ug/L		112	54 - 150
Ethylbenzene	ND		50.0	51.3		ug/L		103	70 - 130
Ethyl-t-butyl ether (ETBE)	3.2		50.0	60.8		ug/L		115	70 - 130
Isopropyl Ether (DIPE)	ND		50.0	59.7		ug/L		118	64 - 138
m,p-Xylene	ND		100	100		ug/L		100	70 - 133
Methyl-t-Butyl Ether (MTBE)	54		50.0	113		ug/L		119	70 - 130
o-Xylene	ND		50.0	51.6		ug/L		103	70 - 133
Tert-amyl-methyl ether (TAME)	ND		50.0	58.7		ug/L		117	68 - 133
tert-Butyl alcohol (TBA)	2100		250	2450	BB	ug/L		121	70 - 130
Toluene	ND		50.0	52.6		ug/L		105	70 - 130
Naphthalene	ND		50.0	58.4		ug/L		117	60 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	106		76 - 132
Toluene-d8 (Surr)	105		80 - 128

Lab Sample ID: 440-63597-D-1 MSD

Matrix: Water

Analysis Batch: 148001

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		50.0	52.4		ug/L		105	70 - 131	2	25
1,2-Dichloroethane	2.3		50.0	53.9		ug/L		103	56 - 146	2	20
Benzene	ND		50.0	50.8		ug/L		102	66 - 130	0	20
Ethanol	ND		500	597		ug/L		119	54 - 150	7	30
Ethylbenzene	ND		50.0	51.0		ug/L		102	70 - 130	1	20
Ethyl-t-butyl ether (ETBE)	3.2		50.0	60.0		ug/L		114	70 - 130	1	25
Isopropyl Ether (DIPE)	ND		50.0	59.3		ug/L		117	64 - 138	1	25
m,p-Xylene	ND		100	99.3		ug/L		99	70 - 133	1	25
Methyl-t-Butyl Ether (MTBE)	54		50.0	111		ug/L		114	70 - 130	2	25
o-Xylene	ND		50.0	51.3		ug/L		103	70 - 133	0	20
Tert-amyl-methyl ether (TAME)	ND		50.0	57.3		ug/L		115	68 - 133	2	30
tert-Butyl alcohol (TBA)	2100		250	2510	BB	ug/L		145	70 - 130	2	25
Toluene	ND		50.0	52.3		ug/L		105	70 - 130	1	20
Naphthalene	ND		50.0	57.4		ug/L		115	60 - 140	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	105		76 - 132
Toluene-d8 (Surr)	105		80 - 128

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Method: 8015B/5030B - Gasoline Range Organics (GC)

Lab Sample ID: MB 440-147750/3

Matrix: Water

Analysis Batch: 147750

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			11/30/13 14:43	1
Surrogate	%Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac		
4-Bromofluorobenzene (Surr)	94		65 - 140		11/30/13 14:43	1		

Lab Sample ID: LCS 440-147750/2

Matrix: Water

Analysis Batch: 147750

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	671		ug/L		84	80 - 120
Surrogate	%Recovery	LCS Qualifier	Limits	Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	89		65 - 140				

Lab Sample ID: 440-63454-A-3 MS

Matrix: Water

Analysis Batch: 147750

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)	1500		800	2030	EY	ug/L		65	65 - 140
Surrogate	%Recovery	MS Qualifier	Limits	Prepared	Analyzed	Dil Fac			
4-Bromofluorobenzene (Surr)	225	LH	65 - 140						

Lab Sample ID: 440-63454-A-3 MSD

Matrix: Water

Analysis Batch: 147750

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)	1500		800	2010	EY LN	ug/L		63	65 - 140	1	20
Surrogate	%Recovery	MSD Qualifier	Limits	Prepared	Analyzed	Dil Fac					
4-Bromofluorobenzene (Surr)	220	LH	65 - 140								

Lab Sample ID: MB 440-147755/3

Matrix: Water

Analysis Batch: 147755

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			11/30/13 15:34	1
Surrogate	%Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac		
4-Bromofluorobenzene (Surr)	97		65 - 140		11/30/13 15:34	1		

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: LCS 440-147755/2

Matrix: Water

Analysis Batch: 147755

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	804		ug/L		100	80 - 120
Surrogate		LCS %Recovery	LCS Qualifier				Limits
4-Bromofluorobenzene (Surr)		101					65 - 140

Lab Sample ID: 440-63195-E-46 MS

Matrix: Water

Analysis Batch: 147755

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	769		ug/L		96	65 - 140
Surrogate		MS %Recovery		MS Qualifier					Limits
4-Bromofluorobenzene (Surr)		96							65 - 140

Lab Sample ID: 440-63195-E-46 MSD

Matrix: Water

Analysis Batch: 147755

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	752		ug/L		94	65 - 140	2	20
Surrogate		MSD %Recovery		MSD Qualifier					Limits		
4-Bromofluorobenzene (Surr)		96							65 - 140		

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

GC/MS VOA

Analysis Batch: 148001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63148-1	SB-9-22	Total/NA	Water	8260B/5030B	
440-63148-2	SB-10-24	Total/NA	Water	8260B/5030B	
440-63148-3	SB-4	Total/NA	Water	8260B/5030B	
440-63597-D-1 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-63597-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-148001/4	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-148001/3	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 147750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63148-1	SB-9-22	Total/NA	Water	8015B/5030B	
440-63148-2	SB-10-24	Total/NA	Water	8015B/5030B	
440-63454-A-3 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-63454-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
LCS 440-147750/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-147750/3	Method Blank	Total/NA	Water	8015B/5030B	

Analysis Batch: 147755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63148-3	SB-4	Total/NA	Water	8015B/5030B	
440-63195-E-46 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-63195-E-46 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
LCS 440-147755/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-147755/3	Method Blank	Total/NA	Water	8015B/5030B	

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63148-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
BB	Sample > 4X spike concentration

GC VOA

Qualifier	Qualifier Description
LH	Surrogate Recoveries were higher than QC limits
EY	Result exceeds normal dynamic range; reported as a min. est.
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.
α	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 2111, San Leandro

TestAmerica Job ID: 440-63148-1

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.

TestAmerica Irvine



Laboratory Management Program LaMP Chain of Custody Record

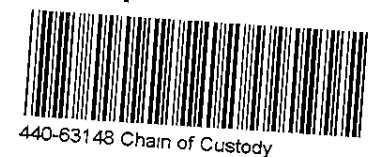
BP Site Node Path: 06-88-615
 BP Facility No: 2111

Req Due Date (mm/dd/yy):
 Lab Work Order Number:

Rush TAT: Yes ___ No X

Lab Name: Test America	Facility Address: 1156 Davis Street	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Derian Avenue Suite #100, Irvine, CA 92614	City, State, ZIP Code: San Leandro, CA	Consultant/Contractor Project No: 06-88-615
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacaville, CA
Lab Phone: 949-261-1022	California Global ID No.: T0600101764	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 1103-6633-7	Enfos Proposal No:	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision <u>X</u> OOC-BU ___ OOC-RM ___	Email EDD To: kidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP <u>x</u> Contractor ___

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative				Requested Analyses						Report Type & QC Level		Comments <small>Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.</small>	
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	GRO by 8015	BTEX + 5 Fuel Oxys by 8260	EDB & 1,2-DCA by 8260	Ethanol by 8260	Naphthalene by 8260	Standard <u>x</u>		Full Data Package ___
SB-9-22		11/20/2013	1355	x		n	6							x	x	x	x	x			
SB-10-24		11/20/2013	1420	x		n	6							x	x	x	x	x			
SB-4		11/21/2013	1020	x		n	6							x	x	x	x	x			
TB-2111-11212013		-	-	x		n	6														On Hold



Sampler's Name: Alex Martinez	Relinquished By / Affiliation: <i>Alex Martinez</i> BAI	Date: 11/21/13	Time: 1700	Accepted By / Affiliation: <i>[Signature]</i>	Time: 11/22/13 0700
Sampler's Company: Broadbent and Associates					
Shipment Method: Fed Ex Ship Date: 11/21/2013					
Shipment Tracking No: 8037 1495 6997					

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes/No Temp Blank Yes/No) Cooler Temp on Receipt: 15/10 °F/C Trip Blank Yes/No MS/MSD Sample Submitted: Yes/No

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12/10/2013



Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-63148-1

Login Number: 63148

List Source: TestAmerica Irvine

List Number: 1

Creator: Gonzales, Steve

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.	False	Refer to Job Narrative for details.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Containers recd broken. Sufficient sample in remaining containers for analysis.
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: 440-63502-1
Client Project/Site: ARCO 2111, San Leandro

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

Attn: Kristene Tidwell



*Authorized for release by:
12/11/2013 10:24:59 PM*

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robbs@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-63502-1	SB-3-23	Water	11/23/13 15:00	11/26/13 07:30
440-63502-2	SB-6	Water	11/23/13 14:50	11/26/13 07:30
440-63502-3	SB-8-23	Water	11/23/13 16:40	11/26/13 07:30
440-63502-4	SB-3-11.5	Solid	11/23/13 14:15	11/26/13 07:30
440-63502-5	SB-3-12	Solid	11/23/13 14:15	11/26/13 07:30
440-63502-6	SB-3-16	Solid	11/23/13 16:20	11/26/13 07:30
440-63502-7	SB-3-16.5	Solid	11/23/13 16:20	11/26/13 07:30
440-63502-8	SB-6-11.5	Solid	11/23/13 11:30	11/26/13 07:30
440-63502-9	SB-6-12	Solid	11/23/13 11:30	11/26/13 07:30
440-63502-10	SB-6-16	Solid	11/23/13 11:35	11/26/13 07:30
440-63502-11	SB-6-16.5	Solid	11/23/13 11:35	11/26/13 07:30
440-63502-12	SB-7-11.5	Solid	11/23/13 10:05	11/26/13 07:30
440-63502-13	SB-7-12	Solid	11/23/13 10:05	11/26/13 07:30
440-63502-14	SB-7-16	Solid	11/23/13 10:10	11/26/13 07:30
440-63502-15	SB-7-16.5	Solid	11/23/13 10:10	11/26/13 07:30
440-63502-16	SB-8-11.5	Solid	11/23/13 16:10	11/26/13 07:30
440-63502-17	SB-8-12	Solid	11/23/13 16:10	11/26/13 07:30
440-63502-18	SB-8-16(a)	Solid	11/23/13 16:15	11/26/13 07:30
440-63502-19	SB-8-16(b)	Solid	11/23/13 16:15	11/26/13 07:30

Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Job ID: 440-63502-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative 440-63502-1

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 for batch _____ were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. The precision (%RPD) for MS/MSD was within limits.

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: SB-6-16.5 (440-63502-11). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8015B: The matrix spike duplicate (MSD) recoveries associated with batch 149031 were outside control limits: (440-63965-4 MSD). Matrix interference is suspected. The associated laboratory control sample (LCS) and laboratory control duplicate (LCD) recovery met acceptance criteria.

No other analytical or quality issues were noted.

VOA Prep

No analytical or quality issues were noted.

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-23

Lab Sample ID: 440-63502-1

Date Collected: 11/23/13 15:00

Matrix: Water

Date Received: 11/26/13 07:30

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			12/04/13 22:05	1
1,2-Dichloroethane	ND		0.50	ug/L			12/04/13 22:05	1
Benzene	ND		0.50	ug/L			12/04/13 22:05	1
Ethanol	ND		150	ug/L			12/04/13 22:05	1
Ethylbenzene	ND		0.50	ug/L			12/04/13 22:05	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/04/13 22:05	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/04/13 22:05	1
m,p-Xylene	ND		1.0	ug/L			12/04/13 22:05	1
Methyl-t-Butyl Ether (MTBE)	1.4		0.50	ug/L			12/04/13 22:05	1
o-Xylene	ND		0.50	ug/L			12/04/13 22:05	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/04/13 22:05	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/04/13 22:05	1
Toluene	ND		0.50	ug/L			12/04/13 22:05	1
Xylenes, Total	ND		1.0	ug/L			12/04/13 22:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120		12/04/13 22:05	1
Dibromofluoromethane (Surr)	93		76 - 132		12/04/13 22:05	1
Toluene-d8 (Surr)	104		80 - 128		12/04/13 22:05	1

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	55		50	ug/L			12/03/13 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		65 - 140		12/03/13 19:48	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-6

Lab Sample ID: 440-63502-2

Date Collected: 11/23/13 14:50

Matrix: Water

Date Received: 11/26/13 07:30

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			12/04/13 23:26	1
1,2-Dichloroethane	ND		0.50	ug/L			12/04/13 23:26	1
Benzene	ND		0.50	ug/L			12/04/13 23:26	1
Ethanol	ND		150	ug/L			12/04/13 23:26	1
Ethylbenzene	ND		0.50	ug/L			12/04/13 23:26	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/04/13 23:26	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/04/13 23:26	1
m,p-Xylene	ND		1.0	ug/L			12/04/13 23:26	1
Methyl-t-Butyl Ether (MTBE)	2.1		0.50	ug/L			12/04/13 23:26	1
o-Xylene	ND		0.50	ug/L			12/04/13 23:26	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/04/13 23:26	1
tert-Butyl alcohol (TBA)	10		10	ug/L			12/04/13 23:26	1
Toluene	ND		0.50	ug/L			12/04/13 23:26	1
Xylenes, Total	ND		1.0	ug/L			12/04/13 23:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120		12/04/13 23:26	1
Dibromofluoromethane (Surr)	96		76 - 132		12/04/13 23:26	1
Toluene-d8 (Surr)	104		80 - 128		12/04/13 23:26	1

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	270		50	ug/L			12/03/13 20:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		65 - 140		12/03/13 20:16	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-8-23

Lab Sample ID: 440-63502-3

Date Collected: 11/23/13 16:40

Matrix: Water

Date Received: 11/26/13 07:30

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			12/04/13 23:53	1
1,2-Dichloroethane	ND		0.50	ug/L			12/04/13 23:53	1
Benzene	ND		0.50	ug/L			12/04/13 23:53	1
Ethanol	ND		150	ug/L			12/04/13 23:53	1
Ethylbenzene	ND		0.50	ug/L			12/04/13 23:53	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			12/04/13 23:53	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			12/04/13 23:53	1
m,p-Xylene	ND		1.0	ug/L			12/04/13 23:53	1
Methyl-t-Butyl Ether (MTBE)	1.2		0.50	ug/L			12/04/13 23:53	1
o-Xylene	ND		0.50	ug/L			12/04/13 23:53	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			12/04/13 23:53	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			12/04/13 23:53	1
Toluene	ND		0.50	ug/L			12/04/13 23:53	1
Xylenes, Total	ND		1.0	ug/L			12/04/13 23:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		12/04/13 23:53	1
Dibromofluoromethane (Surr)	97		76 - 132		12/04/13 23:53	1
Toluene-d8 (Surr)	104		80 - 128		12/04/13 23:53	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			12/03/13 20:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		65 - 140		12/03/13 20:43	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-11.5

Lab Sample ID: 440-63502-4

Date Collected: 11/23/13 14:15

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00098	mg/Kg			12/05/13 11:10	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 11:10	1
Ethanol	ND		0.20	mg/Kg			12/05/13 11:10	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 11:10	1
Ethylbenzene	ND		0.00098	mg/Kg			12/05/13 11:10	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 11:10	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 11:10	1
o-Xylene	ND		0.00098	mg/Kg			12/05/13 11:10	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 11:10	1
tert-Butyl alcohol (TBA)	ND		0.049	mg/Kg			12/05/13 11:10	1
Toluene	ND		0.00098	mg/Kg			12/05/13 11:10	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 11:10	1
1,2-Dichloroethane	ND		0.00098	mg/Kg			12/05/13 11:10	1
1,2-Dibromoethane (EDB)	ND		0.00098	mg/Kg			12/05/13 11:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		79 - 120		12/05/13 11:10	1
Dibromofluoromethane (Surr)	97		60 - 120		12/05/13 11:10	1
Toluene-d8 (Surr)	104		79 - 123		12/05/13 11:10	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			12/02/13 22:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		65 - 140		12/02/13 22:49	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-12

Lab Sample ID: 440-63502-5

Date Collected: 11/23/13 14:15

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00098	mg/Kg			12/05/13 13:01	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 13:01	1
Ethanol	ND		0.20	mg/Kg			12/05/13 13:01	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 13:01	1
Ethylbenzene	ND		0.00098	mg/Kg			12/05/13 13:01	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 13:01	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 13:01	1
o-Xylene	ND		0.00098	mg/Kg			12/05/13 13:01	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 13:01	1
tert-Butyl alcohol (TBA)	ND		0.049	mg/Kg			12/05/13 13:01	1
Toluene	ND		0.00098	mg/Kg			12/05/13 13:01	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 13:01	1
1,2-Dichloroethane	ND		0.00098	mg/Kg			12/05/13 13:01	1
1,2-Dibromoethane (EDB)	ND		0.00098	mg/Kg			12/05/13 13:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120				12/05/13 13:01	1
Dibromofluoromethane (Surr)	96		60 - 120				12/05/13 13:01	1
Toluene-d8 (Surr)	102		79 - 123				12/05/13 13:01	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			11/30/13 05:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		65 - 140				11/30/13 05:03	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-16

Lab Sample ID: 440-63502-6

Date Collected: 11/23/13 16:20

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00098	mg/Kg			12/05/13 13:29	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 13:29	1
Ethanol	ND		0.20	mg/Kg			12/05/13 13:29	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 13:29	1
Ethylbenzene	ND		0.00098	mg/Kg			12/05/13 13:29	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 13:29	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 13:29	1
o-Xylene	ND		0.00098	mg/Kg			12/05/13 13:29	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 13:29	1
tert-Butyl alcohol (TBA)	ND		0.049	mg/Kg			12/05/13 13:29	1
Toluene	ND		0.00098	mg/Kg			12/05/13 13:29	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 13:29	1
1,2-Dichloroethane	ND		0.00098	mg/Kg			12/05/13 13:29	1
1,2-Dibromoethane (EDB)	ND		0.00098	mg/Kg			12/05/13 13:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		79 - 120				12/05/13 13:29	1
Dibromofluoromethane (Surr)	100		60 - 120				12/05/13 13:29	1
Toluene-d8 (Surr)	100		79 - 123				12/05/13 13:29	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	1.6		0.96	mg/Kg			12/02/13 23:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		65 - 140				12/02/13 23:16	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-16.5

Lab Sample ID: 440-63502-7

Date Collected: 11/23/13 16:20

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00098	mg/Kg			12/05/13 13:56	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 13:56	1
Ethanol	ND		0.20	mg/Kg			12/05/13 13:56	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 13:56	1
Ethylbenzene	ND		0.00098	mg/Kg			12/05/13 13:56	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 13:56	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 13:56	1
o-Xylene	ND		0.00098	mg/Kg			12/05/13 13:56	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 13:56	1
tert-Butyl alcohol (TBA)	ND		0.049	mg/Kg			12/05/13 13:56	1
Toluene	ND		0.00098	mg/Kg			12/05/13 13:56	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 13:56	1
1,2-Dichloroethane	ND		0.00098	mg/Kg			12/05/13 13:56	1
1,2-Dibromoethane (EDB)	ND		0.00098	mg/Kg			12/05/13 13:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120				12/05/13 13:56	1
Dibromofluoromethane (Surr)	100		60 - 120				12/05/13 13:56	1
Toluene-d8 (Surr)	99		79 - 123				12/05/13 13:56	1

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			12/02/13 23:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		65 - 140				12/02/13 23:43	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-6-11.5

Lab Sample ID: 440-63502-8

Date Collected: 11/23/13 11:30

Matrix: Solid

Date Received: 11/26/13 07:30

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 14:23	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 14:23	1
Ethanol	ND		0.20	mg/Kg			12/05/13 14:23	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 14:23	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 14:23	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 14:23	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 14:23	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 14:23	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 14:23	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/05/13 14:23	1
Toluene	ND		0.0010	mg/Kg			12/05/13 14:23	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 14:23	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 14:23	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 14:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120		12/05/13 14:23	1
Dibromofluoromethane (Surr)	98		60 - 120		12/05/13 14:23	1
Toluene-d8 (Surr)	104		79 - 123		12/05/13 14:23	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 07:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		65 - 140		11/30/13 07:32	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-6-12

Lab Sample ID: 440-63502-9

Date Collected: 11/23/13 11:30

Matrix: Solid

Date Received: 11/26/13 07:30

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 14:50	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 14:50	1
Ethanol	ND		0.20	mg/Kg			12/05/13 14:50	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 14:50	1
Ethylbenzene	ND		0.00099	mg/Kg			12/05/13 14:50	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 14:50	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 14:50	1
o-Xylene	ND		0.00099	mg/Kg			12/05/13 14:50	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 14:50	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/05/13 14:50	1
Toluene	ND		0.00099	mg/Kg			12/05/13 14:50	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 14:50	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/05/13 14:50	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/05/13 14:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		79 - 120				12/05/13 14:50	1
Dibromofluoromethane (Surr)	101		60 - 120				12/05/13 14:50	1
Toluene-d8 (Surr)	104		79 - 123				12/05/13 14:50	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/30/13 08:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		65 - 140				11/30/13 08:02	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-6-16

Lab Sample ID: 440-63502-10

Date Collected: 11/23/13 11:35

Matrix: Solid

Date Received: 11/26/13 07:30

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 15:18	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 15:18	1
Ethanol	ND		0.20	mg/Kg			12/05/13 15:18	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 15:18	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 15:18	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 15:18	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 15:18	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 15:18	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 15:18	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/05/13 15:18	1
Toluene	ND		0.0010	mg/Kg			12/05/13 15:18	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 15:18	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 15:18	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120		12/05/13 15:18	1
Dibromofluoromethane (Surr)	102		60 - 120		12/05/13 15:18	1
Toluene-d8 (Surr)	99		79 - 123		12/05/13 15:18	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	0.96		0.39	mg/Kg			12/04/13 11:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		65 - 140		12/04/13 11:05	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-6-16.5

Lab Sample ID: 440-63502-11

Date Collected: 11/23/13 11:35

Matrix: Solid

Date Received: 11/26/13 07:30

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 15:44	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 15:44	1
Ethanol	ND		0.20	mg/Kg			12/05/13 15:44	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 15:44	1
Ethylbenzene	ND		0.00099	mg/Kg			12/05/13 15:44	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 15:44	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 15:44	1
o-Xylene	ND		0.00099	mg/Kg			12/05/13 15:44	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 15:44	1
tert-Butyl alcohol (TBA)	ND	ID	0.050	mg/Kg			12/05/13 15:44	1
Toluene	ND		0.00099	mg/Kg			12/05/13 15:44	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 15:44	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/05/13 15:44	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/05/13 15:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		79 - 120				12/05/13 15:44	1
Dibromofluoromethane (Surr)	101		60 - 120				12/05/13 15:44	1
Toluene-d8 (Surr)	99		79 - 123				12/05/13 15:44	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	1.6		0.39	mg/Kg			12/06/13 15:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	143	LH	65 - 140				12/06/13 15:23	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-7-11.5

Lab Sample ID: 440-63502-12

Date Collected: 11/23/13 10:05

Matrix: Solid

Date Received: 11/26/13 07:30

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 16:12	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 16:12	1
Ethanol	ND		0.20	mg/Kg			12/05/13 16:12	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 16:12	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 16:12	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 16:12	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 16:12	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 16:12	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 16:12	1
tert-Butyl alcohol (TBA)	ND		0.051	mg/Kg			12/05/13 16:12	1
Toluene	ND		0.0010	mg/Kg			12/05/13 16:12	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 16:12	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 16:12	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 16:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		79 - 120		12/05/13 16:12	1
Dibromofluoromethane (Surr)	99		60 - 120		12/05/13 16:12	1
Toluene-d8 (Surr)	106		79 - 123		12/05/13 16:12	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			11/30/13 09:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		65 - 140		11/30/13 09:31	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-7-12

Lab Sample ID: 440-63502-13

Date Collected: 11/23/13 10:05

Matrix: Solid

Date Received: 11/26/13 07:30

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 16:39	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 16:39	1
Ethanol	ND		0.20	mg/Kg			12/05/13 16:39	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 16:39	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 16:39	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 16:39	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 16:39	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 16:39	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 16:39	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/05/13 16:39	1
Toluene	ND		0.0010	mg/Kg			12/05/13 16:39	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 16:39	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 16:39	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/05/13 16:39	1
Dibromofluoromethane (Surr)	101		60 - 120		12/05/13 16:39	1
Toluene-d8 (Surr)	105		79 - 123		12/05/13 16:39	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/30/13 10:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		65 - 140		11/30/13 10:01	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-7-16

Lab Sample ID: 440-63502-14

Date Collected: 11/23/13 10:10

Matrix: Solid

Date Received: 11/26/13 07:30

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 17:06	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 17:06	1
Ethanol	ND		0.20	mg/Kg			12/05/13 17:06	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 17:06	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 17:06	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 17:06	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 17:06	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 17:06	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 17:06	1
tert-Butyl alcohol (TBA)	ND		0.051	mg/Kg			12/05/13 17:06	1
Toluene	ND		0.0010	mg/Kg			12/05/13 17:06	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 17:06	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 17:06	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 17:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/05/13 17:06	1
Dibromofluoromethane (Surr)	104		60 - 120		12/05/13 17:06	1
Toluene-d8 (Surr)	103		79 - 123		12/05/13 17:06	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			11/30/13 10:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	78		65 - 140		11/30/13 10:30	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-7-16.5

Lab Sample ID: 440-63502-15

Date Collected: 11/23/13 10:10

Matrix: Solid

Date Received: 11/26/13 07:30

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 17:33	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 17:33	1
Ethanol	ND		0.20	mg/Kg			12/05/13 17:33	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 17:33	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 17:33	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 17:33	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 17:33	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 17:33	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 17:33	1
tert-Butyl alcohol (TBA)	ND		0.051	mg/Kg			12/05/13 17:33	1
Toluene	ND		0.0010	mg/Kg			12/05/13 17:33	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 17:33	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 17:33	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 17:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		79 - 120				12/05/13 17:33	1
Dibromofluoromethane (Surr)	103		60 - 120				12/05/13 17:33	1
Toluene-d8 (Surr)	104		79 - 123				12/05/13 17:33	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/30/13 11:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		65 - 140				11/30/13 11:00	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-8-11.5

Lab Sample ID: 440-63502-16

Date Collected: 11/23/13 16:10

Matrix: Solid

Date Received: 11/26/13 07:30

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 18:01	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 18:01	1
Ethanol	ND		0.20	mg/Kg			12/05/13 18:01	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 18:01	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 18:01	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 18:01	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 18:01	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 18:01	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 18:01	1
tert-Butyl alcohol (TBA)	ND		0.051	mg/Kg			12/05/13 18:01	1
Toluene	ND		0.0010	mg/Kg			12/05/13 18:01	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 18:01	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 18:01	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 18:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		79 - 120		12/05/13 18:01	1
Dibromofluoromethane (Surr)	112		60 - 120		12/05/13 18:01	1
Toluene-d8 (Surr)	105		79 - 123		12/05/13 18:01	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			11/30/13 12:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		65 - 140		11/30/13 12:29	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-8-12

Lab Sample ID: 440-63502-17

Date Collected: 11/23/13 16:10

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00098	mg/Kg			12/05/13 18:29	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 18:29	1
Ethanol	ND		0.20	mg/Kg			12/05/13 18:29	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 18:29	1
Ethylbenzene	ND		0.00098	mg/Kg			12/05/13 18:29	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 18:29	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 18:29	1
o-Xylene	ND		0.00098	mg/Kg			12/05/13 18:29	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 18:29	1
tert-Butyl alcohol (TBA)	ND		0.049	mg/Kg			12/05/13 18:29	1
Toluene	ND		0.00098	mg/Kg			12/05/13 18:29	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 18:29	1
1,2-Dichloroethane	ND		0.00098	mg/Kg			12/05/13 18:29	1
1,2-Dibromoethane (EDB)	ND		0.00098	mg/Kg			12/05/13 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120		12/05/13 18:29	1
Dibromofluoromethane (Surr)	101		60 - 120		12/05/13 18:29	1
Toluene-d8 (Surr)	106		79 - 123		12/05/13 18:29	1

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		0.40	mg/Kg			11/30/13 12:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		65 - 140		11/30/13 12:59	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-8-16(a)

Lab Sample ID: 440-63502-18

Date Collected: 11/23/13 16:15

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00099	mg/Kg			12/06/13 11:22	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/06/13 11:22	1
Ethanol	ND		0.20	mg/Kg			12/06/13 11:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/06/13 11:22	1
Ethylbenzene	ND		0.00099	mg/Kg			12/06/13 11:22	1
m,p-Xylene	ND		0.0020	mg/Kg			12/06/13 11:22	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/06/13 11:22	1
o-Xylene	ND		0.00099	mg/Kg			12/06/13 11:22	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/06/13 11:22	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/06/13 11:22	1
Toluene	ND		0.00099	mg/Kg			12/06/13 11:22	1
Xylenes, Total	ND		0.0020	mg/Kg			12/06/13 11:22	1
1,2-Dichloroethane	ND		0.00099	mg/Kg			12/06/13 11:22	1
1,2-Dibromoethane (EDB)	ND		0.00099	mg/Kg			12/06/13 11:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		79 - 120		12/06/13 11:22	1
Dibromofluoromethane (Surr)	82		60 - 120		12/06/13 11:22	1
Toluene-d8 (Surr)	106		79 - 123		12/06/13 11:22	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			12/03/13 00:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		65 - 140		12/03/13 00:38	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-8-16(b)

Lab Sample ID: 440-63502-19

Date Collected: 11/23/13 16:15

Matrix: Solid

Date Received: 11/26/13 07:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	mg/Kg			12/06/13 13:18	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/06/13 13:18	1
Ethanol	ND		0.20	mg/Kg			12/06/13 13:18	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/06/13 13:18	1
Ethylbenzene	ND		0.0010	mg/Kg			12/06/13 13:18	1
m,p-Xylene	ND		0.0020	mg/Kg			12/06/13 13:18	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/06/13 13:18	1
o-Xylene	ND		0.0010	mg/Kg			12/06/13 13:18	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/06/13 13:18	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/06/13 13:18	1
Toluene	ND		0.0010	mg/Kg			12/06/13 13:18	1
Xylenes, Total	ND		0.0020	mg/Kg			12/06/13 13:18	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/06/13 13:18	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/06/13 13:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		79 - 120		12/06/13 13:18	1
Dibromofluoromethane (Surr)	90		60 - 120		12/06/13 13:18	1
Toluene-d8 (Surr)	110		79 - 123		12/06/13 13:18	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			12/03/13 01:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		65 - 140		12/03/13 01:05	1

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

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

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 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-23

Date Collected: 11/23/13 15:00

Date Received: 11/26/13 07:30

Lab Sample ID: 440-63502-1

Matrix: Water

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	12/04/13 22:05	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	148184	12/03/13 19:48	IM	TAL IRV

Client Sample ID: SB-6

Date Collected: 11/23/13 14:50

Date Received: 11/26/13 07:30

Lab Sample ID: 440-63502-2

Matrix: Water

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	12/04/13 23:26	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	148184	12/03/13 20:16	IM	TAL IRV

Client Sample ID: SB-8-23

Date Collected: 11/23/13 16:40

Date Received: 11/26/13 07:30

Lab Sample ID: 440-63502-3

Matrix: Water

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	12/04/13 23:53	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	148184	12/03/13 20:43	IM	TAL IRV

Client Sample ID: SB-3-11.5

Date Collected: 11/23/13 14:15

Date Received: 11/26/13 07:30

Lab Sample ID: 440-63502-4

Matrix: Solid

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	5.1 g	10 mL	148698	12/05/13 11:10	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.01 g	10 mL	147884	12/02/13 22:49	TL	TAL IRV

Client Sample ID: SB-3-12

Date Collected: 11/23/13 14:15

Date Received: 11/26/13 07:30

Lab Sample ID: 440-63502-5

Matrix: Solid

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	5.08 g	10 mL	148698	12/05/13 13:01	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.18 g	10 mL	147719	11/30/13 05:03	TL	TAL IRV

Client Sample ID: SB-3-16

Date Collected: 11/23/13 16:20

Date Received: 11/26/13 07:30

Lab Sample ID: 440-63502-6

Matrix: Solid

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	5.1 g	10 mL	148698	12/05/13 13:29	AA	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-3-16

Lab Sample ID: 440-63502-6

Date Collected: 11/23/13 16:20
Date Received: 11/26/13 07:30

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	2.09 g	10 mL	147884	12/02/13 23:16	TL	TAL IRV

Client Sample ID: SB-3-16.5

Lab Sample ID: 440-63502-7

Date Collected: 11/23/13 16:20
Date Received: 11/26/13 07:30

Matrix: Solid

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	5.1 g	10 mL	148698	12/05/13 13:56	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.07 g	10 mL	147884	12/02/13 23:43	TL	TAL IRV

Client Sample ID: SB-6-11.5

Lab Sample ID: 440-63502-8

Date Collected: 11/23/13 11:30
Date Received: 11/26/13 07:30

Matrix: Solid

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	148698	12/05/13 14:23	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.25 g	10 mL	147719	11/30/13 07:32	TL	TAL IRV

Client Sample ID: SB-6-12

Lab Sample ID: 440-63502-9

Date Collected: 11/23/13 11:30
Date Received: 11/26/13 07:30

Matrix: Solid

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	148698	12/05/13 14:50	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.06 g	10 mL	147719	11/30/13 08:02	TL	TAL IRV

Client Sample ID: SB-6-16

Lab Sample ID: 440-63502-10

Date Collected: 11/23/13 11:35
Date Received: 11/26/13 07:30

Matrix: Solid

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	148698	12/05/13 15:18	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.12 g	10 mL	148431	12/04/13 11:05	IM	TAL IRV

Client Sample ID: SB-6-16.5

Lab Sample ID: 440-63502-11

Date Collected: 11/23/13 11:35
Date Received: 11/26/13 07:30

Matrix: Solid

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	5.03 g	10 mL	148698	12/05/13 15:44	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.07 g	10 mL	149031	12/06/13 15:23	IM	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-7-11.5

Lab Sample ID: 440-63502-12

Date Collected: 11/23/13 10:05

Matrix: Solid

Date Received: 11/26/13 07:30

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	4.94 g	10 mL	148698	12/05/13 16:12	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.15 g	10 mL	147719	11/30/13 09:31	TL	TAL IRV

Client Sample ID: SB-7-12

Lab Sample ID: 440-63502-13

Date Collected: 11/23/13 10:05

Matrix: Solid

Date Received: 11/26/13 07:30

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	4.99 g	10 mL	148698	12/05/13 16:39	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.01 g	10 mL	147719	11/30/13 10:01	TL	TAL IRV

Client Sample ID: SB-7-16

Lab Sample ID: 440-63502-14

Date Collected: 11/23/13 10:10

Matrix: Solid

Date Received: 11/26/13 07:30

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	4.93 g	10 mL	148698	12/05/13 17:06	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.16 g	10 mL	147719	11/30/13 10:30	TL	TAL IRV

Client Sample ID: SB-7-16.5

Lab Sample ID: 440-63502-15

Date Collected: 11/23/13 10:10

Matrix: Solid

Date Received: 11/26/13 07:30

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	4.94 g	10 mL	148698	12/05/13 17:33	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.03 g	10 mL	147719	11/30/13 11:00	TL	TAL IRV

Client Sample ID: SB-8-11.5

Lab Sample ID: 440-63502-16

Date Collected: 11/23/13 16:10

Matrix: Solid

Date Received: 11/26/13 07:30

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	4.93 g	10 mL	148698	12/05/13 18:01	AA	TAL IRV
Total/NA	Analysis	8015B		1	5.07 g	10 mL	147719	11/30/13 12:29	TL	TAL IRV

Client Sample ID: SB-8-12

Lab Sample ID: 440-63502-17

Date Collected: 11/23/13 16:10

Matrix: Solid

Date Received: 11/26/13 07:30

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	5.11 g	10 mL	148698	12/05/13 18:29	AA	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Client Sample ID: SB-8-12

Lab Sample ID: 440-63502-17

Date Collected: 11/23/13 16:10

Matrix: Solid

Date Received: 11/26/13 07:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5.05 g	10 mL	147719	11/30/13 12:59	TL	TAL IRV

Client Sample ID: SB-8-16(a)

Lab Sample ID: 440-63502-18

Date Collected: 11/23/13 16:15

Matrix: Solid

Date Received: 11/26/13 07:30

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	5.03 g	10 mL	148982	12/06/13 11:22	AT	TAL IRV
Total/NA	Analysis	8015B		1	5.14 g	10 mL	147884	12/03/13 00:38	TL	TAL IRV

Client Sample ID: SB-8-16(b)

Lab Sample ID: 440-63502-19

Date Collected: 11/23/13 16:15

Matrix: Solid

Date Received: 11/26/13 07:30

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	148982	12/06/13 13:18	AT	TAL IRV
Total/NA	Analysis	8015B		1	5.07 g	10 mL	147884	12/03/13 01:05	TL	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-148698/6

Matrix: Solid

Analysis Batch: 148698

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 10:02	1
Ethanol	ND		0.20	mg/Kg			12/05/13 10:02	1
Ethylbenzene	ND		0.0010	mg/Kg			12/05/13 10:02	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/05/13 10:02	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/05/13 10:02	1
m,p-Xylene	ND		0.0020	mg/Kg			12/05/13 10:02	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/05/13 10:02	1
o-Xylene	ND		0.0010	mg/Kg			12/05/13 10:02	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/05/13 10:02	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/05/13 10:02	1
Toluene	ND		0.0010	mg/Kg			12/05/13 10:02	1
Xylenes, Total	ND		0.0020	mg/Kg			12/05/13 10:02	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/05/13 10:02	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/05/13 10:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		79 - 120		12/05/13 10:02	1
Dibromofluoromethane (Surr)	96		60 - 120		12/05/13 10:02	1
Toluene-d8 (Surr)	103		79 - 123		12/05/13 10:02	1

Lab Sample ID: LCS 440-148698/7

Matrix: Solid

Analysis Batch: 148698

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	0.0530		mg/Kg		106	65 - 120
Ethanol	0.500	0.539		mg/Kg		108	35 - 160
Ethylbenzene	0.0500	0.0536		mg/Kg		107	70 - 125
Ethyl-t-butyl ether (ETBE)	0.0500	0.0539		mg/Kg		108	60 - 140
Isopropyl Ether (DIPE)	0.0500	0.0576		mg/Kg		115	60 - 140
m,p-Xylene	0.100	0.106		mg/Kg		106	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0543		mg/Kg		109	60 - 140
o-Xylene	0.0500	0.0536		mg/Kg		107	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0527		mg/Kg		105	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.260		mg/Kg		104	70 - 135
Toluene	0.0500	0.0534		mg/Kg		107	70 - 125
1,2-Dichloroethane	0.0500	0.0496		mg/Kg		99	60 - 140
1,2-Dibromoethane (EDB)	0.0500	0.0560		mg/Kg		112	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		79 - 120
Dibromofluoromethane (Surr)	101		60 - 120
Toluene-d8 (Surr)	104		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63502-4 MS

Matrix: Solid

Analysis Batch: 148698

Client Sample ID: SB-3-11.5

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Benzene	ND		0.0503	0.0484		mg/Kg		96	65 - 130
Ethanol	ND		0.503	0.532		mg/Kg		106	30 - 165
Ethylbenzene	ND		0.0503	0.0494		mg/Kg		98	70 - 135
Ethyl-t-butyl ether (ETBE)	ND		0.0503	0.0510		mg/Kg		101	60 - 145
Isopropyl Ether (DIPE)	ND		0.0503	0.0550		mg/Kg		109	60 - 150
m,p-Xylene	ND		0.101	0.0968		mg/Kg		96	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0503	0.0505		mg/Kg		100	55 - 155
o-Xylene	ND		0.0503	0.0493		mg/Kg		98	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0503	0.0506		mg/Kg		100	60 - 150
tert-Butyl alcohol (TBA)	ND		0.252	0.243		mg/Kg		97	65 - 145
Toluene	ND		0.0503	0.0491		mg/Kg		98	70 - 130
1,2-Dichloroethane	ND		0.0503	0.0456		mg/Kg		91	60 - 150
1,2-Dibromoethane (EDB)	ND		0.0503	0.0506		mg/Kg		101	65 - 140

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	95		79 - 120
Dibromofluoromethane (Surr)	102		60 - 120
Toluene-d8 (Surr)	106		79 - 123

Lab Sample ID: 440-63502-4 MSD

Matrix: Solid

Analysis Batch: 148698

Client Sample ID: SB-3-11.5

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
Benzene	ND		0.0493	0.0445		mg/Kg		90	65 - 130	9	20
Ethanol	ND		0.493	0.495		mg/Kg		100	30 - 165	7	40
Ethylbenzene	ND		0.0493	0.0459		mg/Kg		93	70 - 135	7	25
Ethyl-t-butyl ether (ETBE)	ND		0.0493	0.0476		mg/Kg		96	60 - 145	7	30
Isopropyl Ether (DIPE)	ND		0.0493	0.0506		mg/Kg		103	60 - 150	8	25
m,p-Xylene	ND		0.0986	0.0894		mg/Kg		91	70 - 130	8	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0493	0.0467		mg/Kg		95	55 - 155	8	35
o-Xylene	ND		0.0493	0.0460		mg/Kg		93	65 - 130	7	25
Tert-amyl-methyl ether (TAME)	ND		0.0493	0.0469		mg/Kg		95	60 - 150	7	25
tert-Butyl alcohol (TBA)	ND		0.247	0.229		mg/Kg		93	65 - 145	6	30
Toluene	ND		0.0493	0.0450		mg/Kg		91	70 - 130	9	20
1,2-Dichloroethane	ND		0.0493	0.0419		mg/Kg		85	60 - 150	8	25
1,2-Dibromoethane (EDB)	ND		0.0493	0.0474		mg/Kg		96	65 - 140	6	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	96		79 - 120
Dibromofluoromethane (Surr)	99		60 - 120
Toluene-d8 (Surr)	104		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-148982/5

Matrix: Solid

Analysis Batch: 148982

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			12/06/13 09:18	1
Ethanol	ND		0.20	mg/Kg			12/06/13 09:18	1
Ethylbenzene	ND		0.0010	mg/Kg			12/06/13 09:18	1
Ethyl-t-butyl ether (ETBE)	ND		0.0020	mg/Kg			12/06/13 09:18	1
Isopropyl Ether (DIPE)	ND		0.0020	mg/Kg			12/06/13 09:18	1
m,p-Xylene	ND		0.0020	mg/Kg			12/06/13 09:18	1
Methyl-t-Butyl Ether (MTBE)	ND		0.0020	mg/Kg			12/06/13 09:18	1
o-Xylene	ND		0.0010	mg/Kg			12/06/13 09:18	1
Tert-amyl-methyl ether (TAME)	ND		0.0020	mg/Kg			12/06/13 09:18	1
tert-Butyl alcohol (TBA)	ND		0.050	mg/Kg			12/06/13 09:18	1
Toluene	ND		0.0010	mg/Kg			12/06/13 09:18	1
Xylenes, Total	ND		0.0020	mg/Kg			12/06/13 09:18	1
1,2-Dichloroethane	ND		0.0010	mg/Kg			12/06/13 09:18	1
1,2-Dibromoethane (EDB)	ND		0.0010	mg/Kg			12/06/13 09:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		79 - 120		12/06/13 09:18	1
Dibromofluoromethane (Surr)	105		60 - 120		12/06/13 09:18	1
Toluene-d8 (Surr)	112		79 - 123		12/06/13 09:18	1

Lab Sample ID: LCS 440-148982/6

Matrix: Solid

Analysis Batch: 148982

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	0.0458		mg/Kg		92	65 - 120
Ethanol	0.500	0.481		mg/Kg		96	35 - 160
Ethylbenzene	0.0500	0.0506		mg/Kg		101	70 - 125
Ethyl-t-butyl ether (ETBE)	0.0500	0.0482		mg/Kg		96	60 - 140
Isopropyl Ether (DIPE)	0.0500	0.0473		mg/Kg		95	60 - 140
m,p-Xylene	0.100	0.0992		mg/Kg		99	70 - 125
Methyl-t-Butyl Ether (MTBE)	0.0500	0.0523		mg/Kg		105	60 - 140
o-Xylene	0.0500	0.0494		mg/Kg		99	70 - 125
Tert-amyl-methyl ether (TAME)	0.0500	0.0502		mg/Kg		100	60 - 145
tert-Butyl alcohol (TBA)	0.250	0.255		mg/Kg		102	70 - 135
Toluene	0.0500	0.0476		mg/Kg		95	70 - 125
1,2-Dichloroethane	0.0500	0.0517		mg/Kg		103	60 - 140
1,2-Dibromoethane (EDB)	0.0500	0.0513		mg/Kg		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		79 - 120
Dibromofluoromethane (Surr)	102		60 - 120
Toluene-d8 (Surr)	110		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63502-18 MS

Matrix: Solid

Analysis Batch: 148982

Client Sample ID: SB-8-16(a)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Benzene	ND		0.0497	0.0479		mg/Kg		96	65 - 130
Ethanol	ND		0.497	0.564		mg/Kg		113	30 - 165
Ethylbenzene	ND		0.0497	0.0551		mg/Kg		111	70 - 135
Ethyl-t-butyl ether (ETBE)	ND		0.0497	0.0452		mg/Kg		91	60 - 145
Isopropyl Ether (DIPE)	ND		0.0497	0.0438		mg/Kg		88	60 - 150
m,p-Xylene	ND		0.0994	0.107		mg/Kg		107	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		0.0497	0.0474		mg/Kg		95	55 - 155
o-Xylene	ND		0.0497	0.0534		mg/Kg		107	65 - 130
Tert-amyl-methyl ether (TAME)	ND		0.0497	0.0471		mg/Kg		95	60 - 150
tert-Butyl alcohol (TBA)	ND		0.249	0.301		mg/Kg		121	65 - 145
Toluene	ND		0.0497	0.0495		mg/Kg		100	70 - 130
1,2-Dichloroethane	ND		0.0497	0.0502		mg/Kg		101	60 - 150
1,2-Dibromoethane (EDB)	ND		0.0497	0.0518		mg/Kg		104	65 - 140

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		79 - 120
Dibromofluoromethane (Surr)	89		60 - 120
Toluene-d8 (Surr)	109		79 - 123

Lab Sample ID: 440-63502-18 MSD

Matrix: Solid

Analysis Batch: 148982

Client Sample ID: SB-8-16(a)

Prep Type: Total/NA

Analyte	Sample	Sample	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result	Qualifier		Result	Qualifier						
Benzene	ND		0.0495	0.0500		mg/Kg		101	65 - 130	4	20
Ethanol	ND		0.495	0.477		mg/Kg		96	30 - 165	17	40
Ethylbenzene	ND		0.0495	0.0555		mg/Kg		112	70 - 135	1	25
Ethyl-t-butyl ether (ETBE)	ND		0.0495	0.0497		mg/Kg		100	60 - 145	10	30
Isopropyl Ether (DIPE)	ND		0.0495	0.0474		mg/Kg		96	60 - 150	8	25
m,p-Xylene	ND		0.0990	0.107		mg/Kg		108	70 - 130	0	25
Methyl-t-Butyl Ether (MTBE)	ND		0.0495	0.0540		mg/Kg		109	55 - 155	13	35
o-Xylene	ND		0.0495	0.0521		mg/Kg		105	65 - 130	2	25
Tert-amyl-methyl ether (TAME)	ND		0.0495	0.0531		mg/Kg		107	60 - 150	12	25
tert-Butyl alcohol (TBA)	ND		0.248	0.270		mg/Kg		109	65 - 145	11	30
Toluene	ND		0.0495	0.0520		mg/Kg		105	70 - 130	5	20
1,2-Dichloroethane	ND		0.0495	0.0525		mg/Kg		106	60 - 150	4	25
1,2-Dibromoethane (EDB)	ND		0.0495	0.0553		mg/Kg		112	65 - 140	7	25

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	101		79 - 120
Dibromofluoromethane (Surr)	95		60 - 120
Toluene-d8 (Surr)	108		79 - 123

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

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-Dichloroethane	ND		0.50	ug/L			12/04/13 20:53	1
1,2-Dibromoethane (EDB)	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-Dichloroethane	25.0	21.9		ug/L		88	57 - 138
1,2-Dibromoethane (EDB)	25.0	24.1		ug/L		96	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	100		76 - 132
Toluene-d8 (Surr)	105		80 - 128

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-63502-1 MS

Matrix: Water

Analysis Batch: 148621

Client Sample ID: SB-3-23

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
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-Dichloroethane	ND		25.0	21.8		ug/L		87	56 - 146
1,2-Dibromoethane (EDB)	ND		25.0	24.6		ug/L		98	70 - 131

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	96		76 - 132
Toluene-d8 (Surr)	105		80 - 128

Lab Sample ID: 440-63502-1 MSD

Matrix: Water

Analysis Batch: 148621

Client Sample ID: SB-3-23

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	RPD
	Result	Qualifier		Result	Qualifier						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-Dichloroethane	ND		25.0	22.0		ug/L		88	56 - 146	1	20	
1,2-Dibromoethane (EDB)	ND		25.0	24.9		ug/L		99	70 - 131	1	25	

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	99		76 - 132
Toluene-d8 (Surr)	105		80 - 128

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

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								

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

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								

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 440-148431/4
Matrix: Solid
Analysis Batch: 148431

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			12/04/13 09:40	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		65 - 140				12/04/13 09:40	1

Lab Sample ID: LCS 440-148431/2
Matrix: Solid
Analysis Batch: 148431

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	1.45		mg/Kg		91	70 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		65 - 140				

Lab Sample ID: LCSD 440-148431/3
Matrix: Solid
Analysis Batch: 148431

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	1	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		65 - 140						

Lab Sample ID: 440-63502-10 MS
Matrix: Solid
Analysis Batch: 148431

Client Sample ID: SB-6-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	0.97		1.57	2.54		mg/Kg		100	60 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	114		65 - 140						

Lab Sample ID: 440-63502-10 MSD
Matrix: Solid
Analysis Batch: 148431

Client Sample ID: SB-6-16
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)	0.97		1.58	3.11		mg/Kg		135	60 - 140	20	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	133		65 - 140								

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 440-149031/4

Matrix: Solid

Analysis Batch: 149031

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			12/06/13 11:28	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		65 - 140				12/06/13 11:28	1

Lab Sample ID: LCS 440-149031/2

Matrix: Solid

Analysis Batch: 149031

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	1.65		mg/Kg		103	70 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	102		65 - 140				

Lab Sample ID: LCSD 440-149031/3

Matrix: Solid

Analysis Batch: 149031

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	1.66		mg/Kg		104	70 - 135	0	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		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				

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

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
<i>MS MS</i>									
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>						
<i>4-Bromofluorobenzene (Surr)</i>	<i>90</i>		<i>65 - 140</i>						

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
<i>MSD MSD</i>											
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>								
<i>4-Bromofluorobenzene (Surr)</i>	<i>87</i>		<i>65 - 140</i>								

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

GC/MS VOA

Analysis Batch: 148621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63502-1	SB-3-23	Total/NA	Water	8260B/5030B	
440-63502-1 MS	SB-3-23	Total/NA	Water	8260B/5030B	
440-63502-1 MSD	SB-3-23	Total/NA	Water	8260B/5030B	
440-63502-2	SB-6	Total/NA	Water	8260B/5030B	
440-63502-3	SB-8-23	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: 148698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63502-4	SB-3-11.5	Total/NA	Solid	8260B	
440-63502-4 MS	SB-3-11.5	Total/NA	Solid	8260B	
440-63502-4 MSD	SB-3-11.5	Total/NA	Solid	8260B	
440-63502-5	SB-3-12	Total/NA	Solid	8260B	
440-63502-6	SB-3-16	Total/NA	Solid	8260B	
440-63502-7	SB-3-16.5	Total/NA	Solid	8260B	
440-63502-8	SB-6-11.5	Total/NA	Solid	8260B	
440-63502-9	SB-6-12	Total/NA	Solid	8260B	
440-63502-10	SB-6-16	Total/NA	Solid	8260B	
440-63502-11	SB-6-16.5	Total/NA	Solid	8260B	
440-63502-12	SB-7-11.5	Total/NA	Solid	8260B	
440-63502-13	SB-7-12	Total/NA	Solid	8260B	
440-63502-14	SB-7-16	Total/NA	Solid	8260B	
440-63502-15	SB-7-16.5	Total/NA	Solid	8260B	
440-63502-16	SB-8-11.5	Total/NA	Solid	8260B	
440-63502-17	SB-8-12	Total/NA	Solid	8260B	
LCS 440-148698/7	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-148698/6	Method Blank	Total/NA	Solid	8260B	

Analysis Batch: 148982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63502-18	SB-8-16(a)	Total/NA	Solid	8260B	
440-63502-18 MS	SB-8-16(a)	Total/NA	Solid	8260B	
440-63502-18 MSD	SB-8-16(a)	Total/NA	Solid	8260B	
440-63502-19	SB-8-16(b)	Total/NA	Solid	8260B	
LCS 440-148982/6	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-148982/5	Method Blank	Total/NA	Solid	8260B	

GC VOA

Analysis Batch: 147719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63498-A-2 MS	Matrix Spike	Total/NA	Solid	8015B	
440-63498-A-2 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
440-63502-5	SB-3-12	Total/NA	Solid	8015B	
440-63502-8	SB-6-11.5	Total/NA	Solid	8015B	
440-63502-9	SB-6-12	Total/NA	Solid	8015B	
440-63502-12	SB-7-11.5	Total/NA	Solid	8015B	
440-63502-13	SB-7-12	Total/NA	Solid	8015B	
440-63502-14	SB-7-16	Total/NA	Solid	8015B	

TestAmerica Irvine

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

GC VOA (Continued)

Analysis Batch: 147719 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63502-15	SB-7-16.5	Total/NA	Solid	8015B	
440-63502-16	SB-8-11.5	Total/NA	Solid	8015B	
440-63502-17	SB-8-12	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	
440-63502-4	SB-3-11.5	Total/NA	Solid	8015B	
440-63502-6	SB-3-16	Total/NA	Solid	8015B	
440-63502-7	SB-3-16.5	Total/NA	Solid	8015B	
440-63502-18	SB-8-16(a)	Total/NA	Solid	8015B	
440-63502-19	SB-8-16(b)	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	
440-63502-1	SB-3-23	Total/NA	Water	8015B/5030B	
440-63502-2	SB-6	Total/NA	Water	8015B/5030B	
440-63502-3	SB-8-23	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	

Analysis Batch: 148431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63502-10	SB-6-16	Total/NA	Solid	8015B	
440-63502-10 MS	SB-6-16	Total/NA	Solid	8015B	
440-63502-10 MSD	SB-6-16	Total/NA	Solid	8015B	
LCS 440-148431/2	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-148431/3	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-148431/4	Method Blank	Total/NA	Solid	8015B	

Analysis Batch: 149031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-63502-11	SB-6-16.5	Total/NA	Solid	8015B	
LCS 440-149031/2	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-149031/3	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-149031/4	Method Blank	Total/NA	Solid	8015B	

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-63502-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
ID	Analyte identified by RT & presence of single mass ion

GC VOA

Qualifier	Qualifier Description
LN	MS and/or MSD below acceptance limits. See Blank Spike (LCS)
LH	Surrogate Recoveries were higher than QC limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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 2111, San Leandro

TestAmerica Job ID: 440-63502-1

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.

TestAmerica Irvine



Laboratory Management Program LaMP Chain of Custody Record

11-26-13

BP Site Node Path: 06-88-615

Req Due Date (mm/dd/yy):

Rush TAT: Yes ___ No X

BP Facility No: 2111

Lab Work Order Number:

Lab Name: Test America	Facility Address: 1156 Davis Street	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Darian Avenue Suite #100, Irvine, CA 92614	City, State, ZIP Code: San Leandro, CA	Consultant/Contractor Project No: 06-88-615
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacaville, CA
Lab Phone: 949-261-1022	California Global ID No.: T0600101764	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acont: 1103-6633-7	Enfos Proposal No: 005XM-0001	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision <u>x</u> OOC-BU ___ OOC-RM ___	Email EDD To: kidwell@broadbentinc.com and to lab_enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP <u>x</u> Contractor ___

Lab No.	Sample Description	Date	Time	Matrix										No. Containers / Preservative										Requested Analyses										Report Type & QC Level		Comments <small>Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.</small>
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	GRO by 8015M	BTEX, MTBE & TAME by 8260B	TBA, ETBE & DIPE by 8260B	EDB & 1,2-DCA by 8260B	Ethanol by 8260B	Standard <u>x</u>	Full Data Package ___																
SB-3-23		11/23/2013	1500	x		n	6														x	x	x	x	x											
SB-8		11/23/2013	1450	x		n	6														x	x	x	x	x											
SB-9-23		11/23/2013	1640	x		n	6														x	x	x	x	x											
SB-3-11.5		11/23/2013	1415	x		n	1	x													x	x	x	x	x											
SB-3-12		11/23/2013	1415	x		n	1	x													x	x	x	x	x											
SB-9-16		11/23/2013	1620	x		n	1	x													x	x	x	x	x											
SB-3-16.5		11/23/2013	1620	x		n	1	x													x	x	x	x	x											
SB-6-11.5		11/23/2013	1130	x		n	1	x													x	x	x	x	x											
SB-6-12		11/23/2013	1130	x		n	1	x													x	x	x	x	x											
SB-6-16		11/23/2013	1135	x		n	1	x													x	x	x	x	x											
SB-6-16.5		11/23/2013	1135	x		n	1	x													x	x	x	x	x											
SB-7-11.5		11/23/2013	1005	x		n	1	x													x	x	x	x	x											
SB-7-12		11/23/2013	1005	x		n	1	x													x	x	x	x	x											
SB-7-16		11/23/2013	1010	x		n	1	x													x	x	x	x	x											
SB-7-16.5		11/23/2013	1010	x		n	1	x													x	x	x	x	x											
SB-8-11.5		11/23/2013	1610	x		n	1	x													x	x	x	x	x											
SB-8-12		11/23/2013	1610	x		n	1	x													x	x	x	x	x											
SB-8-16		11/23/2013	1615	x		n	1	x													x	x	x	x	x											
SB-8-16.5		11/23/2013	1615	x		n	1	x													x	x	x	x	x											
TB-2111-11252013		-	-	x		n	2																			On Hold										

Sampler's Name: Alejandra Hernandez	Relinquished By / Affiliation: <i>Alejandra Hernandez</i>	Date: 11/23/13	Time: 1700	Accepted By / Affiliation: <i>[Signature]</i>	Date: 11/24/13	Time: 0724
Shipment Method: Fed Ex	Shipment Tracking No: 8025 2344 1993	Ship Date: 11/25/2013				

Special Instructions: THIS LINE - LAB USE ONLY: Custody Seals in Place Yes/No ___ Temp Blank Yes No Cooler Temp on Receipt 25/1.4 °F Trip Blank Yes/No ___ MS/MSD Sample Submitted: Yes No



440-63502 Chain of Custody

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Laboratory Management Program LaMP Chain of Custody Record

Page ___ of ___

11-26-13

BP Site Node Path: 06-88-615

Req Due Date (mm/dd/yy):

Rush TAT: Yes ___ No X

BP Facility No: 2111

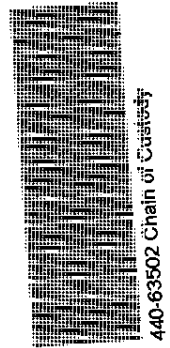
Lab Work Order Number:

Lab Name: Test America	Facility Address: 1156 Davis Street	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Darlan Avenue Suite #100, Irvine, CA 92614	City, State, ZIP Code: San Leandro, CA	Consultant/Contractor Project No: 06-88-615
Lab PM: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 875 Cotting Lane, Suite G, Vacaville, CA
Lab Phone: 949-281-1022	California Global ID No.: T0600101764	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 110316633-7	Enfos Proposal No: 005XM-0001	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision <u>X</u> OOC-BU ___ OOC-RM ___	Email EDD To: kidwell@broadbentinc.com and to lab_enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Project Spend (80)	Invoice To: BP <u>X</u> Contractor ___

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative				Requested Analyses								Report Type & QC Level		
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	GRO by 801SM	BTEX, MTBE & TAME by 8260B	TBA, ETBE & DIPE by 8260B	EDB & 1,2-DCA by 8260B	Ethanol by 8260B	Standard <u>X</u>	Full Data Package ___		
SB-3-23		11/23/2013	1500	x		n	6					x	x	x	x	x						
SB-8		11/23/2013	1450	x		n	6					x	x	x	x	x						
SB-8-23		11/23/2013	1640	x		n	6					x	x	x	x	x						
SB-3-11.5		11/23/2013	1415	x		n	1	x				x	x	x	x	x						
SB-3-12		11/23/2013	1415	x		n	1	x				x	x	x	x	x						
SB-3-16		11/23/2013	1620	x		n	1	x				x	x	x	x	x						
SB-3-16.5		11/23/2013	1620	x		n	1	x				x	x	x	x	x						
SB-6-11.5		11/23/2013	1130	x		n	1	x				x	x	x	x	x						
SB-6-12		11/23/2013	1130	x		n	1	x				x	x	x	x	x						
SB-6-16		11/23/2013	1135	x		n	1	x				x	x	x	x	x						
SB-6-16.5		11/23/2013	1135	x		n	1	x				x	x	x	x	x						
SB-7-11.5		11/23/2013	1005	x		n	1	x				x	x	x	x	x						
SB-7-12		11/23/2013	1005	x		n	1	x				x	x	x	x	x						
SB-7-16		11/23/2013	1010	x		n	1	x				x	x	x	x	x						
SB-7-16.5		11/23/2013	1010	x		n	1	x				x	x	x	x	x						
SB-8-11.5		11/23/2013	1610	x		n	1	x				x	x	x	x	x						
SB-8-12		11/23/2013	1610	x		n	1	x				x	x	x	x	x						
SB-8-16		11/23/2013	1615	x		n	1	x				x	x	x	x	x						
SB-8-16.5		11/23/2013	1615	x		n	1	x				x	x	x	x	x						
TB-2111-11252013		-	-	x		n	2															On Hold

Sampler's Name: Alejandra Hernandez	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: Broadbent and Associates	<i>Alejandra Hernandez</i> for Alejandra Hernandez		11/23/13	1700	<i>[Signature]</i>		11/26/13	0730
Shipment Method: Fed Ex	Ship Date: 11/23/2013							
Shipment Tracking No: 8025 234 1993								
Special Instructions:								
THIS LINE - LAB USE ONLY: Custody Seals In Place <u>(Yes)</u> / No Temp Blank Yes <u>(No)</u> Cooler Temp on Receipt: <u>25/1.4</u> °F Trip Blank <u>(Yes)</u> / No MS/MSD Sample Submitted: Yes <u>(No)</u>								

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440-63502 Chain of Custody

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Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-63502-1

Login Number: 63502

List Number: 1

Creator: King, Ronald

List Source: TestAmerica Irvine

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: 440-67089-1
Client Project/Site: ARCO 2111, San Leandro

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

Attn: Kristene Tidwell



*Authorized for release by:
1/17/2014 2:25:11 PM*

Lena Davidkova, Project Manager II
lena.davidkova@testamericainc.com

Designee for

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-67089-1	MW-1	Water	01/09/14 10:25	01/10/14 07:40
440-67089-2	MW-2	Water	01/09/14 11:25	01/10/14 07:40
440-67089-3	MW-3	Water	01/09/14 09:45	01/10/14 07:40
440-67089-4	MW-4	Water	01/09/14 09:15	01/10/14 07:40
440-67089-5	MW-5	Water	01/09/14 08:25	01/10/14 07:40
440-67089-6	MW-7	Water	01/09/14 12:00	01/10/14 07:40
440-67089-7	MW-8	Water	01/09/14 10:55	01/10/14 07:40



Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Job ID: 440-67089-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-67089-1

Comments

Due to insufficient sample volume requested to the COC test 8270-PAH for sample MW-3 was not performed

Receipt

The samples were received on 1/10/2014 7:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

Except:

One or more containers for the following sample(s) was received broken or leaking: .

440-67089-G-3

440-67089-H-3

440-67089-F-6

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 Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-1
Date Collected: 01/09/14 10:25
Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-1
Matrix: Water

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			01/15/14 23:06	1
1,2-Dichloroethane	ND		0.50	ug/L			01/15/14 23:06	1
Benzene	ND		0.50	ug/L			01/15/14 23:06	1
Ethanol	ND		150	ug/L			01/15/14 23:06	1
Ethylbenzene	ND		0.50	ug/L			01/15/14 23:06	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/15/14 23:06	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/15/14 23:06	1
m,p-Xylene	ND		1.0	ug/L			01/15/14 23:06	1
Methyl-t-Butyl Ether (MTBE)	0.59		0.50	ug/L			01/15/14 23:06	1
o-Xylene	ND		0.50	ug/L			01/15/14 23:06	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/15/14 23:06	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/15/14 23:06	1
Toluene	ND		0.50	ug/L			01/15/14 23:06	1
Xylenes, Total	ND		1.0	ug/L			01/15/14 23:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120		01/15/14 23:06	1
Dibromofluoromethane (Surr)	94		76 - 132		01/15/14 23:06	1
Toluene-d8 (Surr)	108		80 - 128		01/15/14 23:06	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			01/16/14 16:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		65 - 140		01/16/14 16:35	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-2
Date Collected: 01/09/14 11:25
Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-2
Matrix: Water

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			01/15/14 23:34	1
1,2-Dichloroethane	ND		0.50	ug/L			01/15/14 23:34	1
Benzene	0.58		0.50	ug/L			01/15/14 23:34	1
Ethanol	ND		150	ug/L			01/15/14 23:34	1
Ethylbenzene	ND		0.50	ug/L			01/15/14 23:34	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/15/14 23:34	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/15/14 23:34	1
m,p-Xylene	ND		1.0	ug/L			01/15/14 23:34	1
Methyl-t-Butyl Ether (MTBE)	1.1		0.50	ug/L			01/15/14 23:34	1
o-Xylene	ND		0.50	ug/L			01/15/14 23:34	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/15/14 23:34	1
tert-Butyl alcohol (TBA)	230		10	ug/L			01/15/14 23:34	1
Toluene	ND		0.50	ug/L			01/15/14 23:34	1
Xylenes, Total	ND		1.0	ug/L			01/15/14 23:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120		01/15/14 23:34	1
Dibromofluoromethane (Surr)	91		76 - 132		01/15/14 23:34	1
Toluene-d8 (Surr)	111		80 - 128		01/15/14 23:34	1

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	73		50	ug/L			01/16/14 17:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		65 - 140		01/16/14 17:01	1

Client Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-3

Lab Sample ID: 440-67089-3

Date Collected: 01/09/14 09:45

Matrix: Water

Date Received: 01/10/14 07:40

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	ug/L			01/16/14 00:03	1
1,1,1-Trichloroethane	ND		0.50	ug/L			01/16/14 00:03	1
1,1,1,2,2-Tetrachloroethane	ND		0.50	ug/L			01/16/14 00:03	1
1,1,2-Trichloroethane	ND		0.50	ug/L			01/16/14 00:03	1
1,1-Dichloroethane	ND		0.50	ug/L			01/16/14 00:03	1
1,1-Dichloroethene	ND		0.50	ug/L			01/16/14 00:03	1
1,1-Dichloropropene	ND		0.50	ug/L			01/16/14 00:03	1
1,2,3-Trichlorobenzene	ND		1.0	ug/L			01/16/14 00:03	1
1,2,3-Trichloropropane	ND		0.50	ug/L			01/16/14 00:03	1
1,2,4-Trichlorobenzene	ND		1.0	ug/L			01/16/14 00:03	1
1,2,4-Trimethylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
1,2-Dibromo-3-Chloropropane	ND		1.0	ug/L			01/16/14 00:03	1
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			01/16/14 00:03	1
1,2-Dichlorobenzene	ND		0.50	ug/L			01/16/14 00:03	1
1,2-Dichloroethane	ND		0.50	ug/L			01/16/14 00:03	1
1,2-Dichloropropane	ND		0.50	ug/L			01/16/14 00:03	1
1,3,5-Trimethylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
1,3-Dichlorobenzene	ND		0.50	ug/L			01/16/14 00:03	1
1,3-Dichloropropane	ND		0.50	ug/L			01/16/14 00:03	1
1,4-Dichlorobenzene	ND		0.50	ug/L			01/16/14 00:03	1
2,2-Dichloropropane	ND		1.0	ug/L			01/16/14 00:03	1
2-Chlorotoluene	ND		0.50	ug/L			01/16/14 00:03	1
4-Chlorotoluene	ND		0.50	ug/L			01/16/14 00:03	1
Benzene	ND		0.50	ug/L			01/16/14 00:03	1
Bromobenzene	ND		0.50	ug/L			01/16/14 00:03	1
Bromochloromethane	ND		0.50	ug/L			01/16/14 00:03	1
Bromodichloromethane	ND		0.50	ug/L			01/16/14 00:03	1
Bromoform	ND		1.0	ug/L			01/16/14 00:03	1
Bromomethane	ND		0.50	ug/L			01/16/14 00:03	1
Carbon tetrachloride	ND		0.50	ug/L			01/16/14 00:03	1
Chlorobenzene	ND		0.50	ug/L			01/16/14 00:03	1
Chloroethane	ND		0.50	ug/L			01/16/14 00:03	1
Chloroform	8.5		0.50	ug/L			01/16/14 00:03	1
Chloromethane	ND		0.50	ug/L			01/16/14 00:03	1
cis-1,2-Dichloroethene	ND		0.50	ug/L			01/16/14 00:03	1
cis-1,3-Dichloropropene	ND		0.50	ug/L			01/16/14 00:03	1
Dibromochloromethane	ND		0.50	ug/L			01/16/14 00:03	1
Dibromomethane	ND		0.50	ug/L			01/16/14 00:03	1
Dichlorodifluoromethane	ND		0.50	ug/L			01/16/14 00:03	1
Ethanol	ND		150	ug/L			01/16/14 00:03	1
Ethylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/16/14 00:03	1
Hexachlorobutadiene	ND		0.50	ug/L			01/16/14 00:03	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/16/14 00:03	1
Isopropylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
m,p-Xylene	ND		1.0	ug/L			01/16/14 00:03	1
Methylene Chloride	ND		2.0	ug/L			01/16/14 00:03	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/16/14 00:03	1
Naphthalene	ND		1.0	ug/L			01/16/14 00:03	1

TestAmerica Irvine

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-3

Lab Sample ID: 440-67089-3

Date Collected: 01/09/14 09:45

Matrix: Water

Date Received: 01/10/14 07:40

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	ND		1.0	ug/L			01/16/14 00:03	1
N-Propylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
o-Xylene	ND		0.50	ug/L			01/16/14 00:03	1
p-Isopropyltoluene	ND		0.50	ug/L			01/16/14 00:03	1
sec-Butylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
Styrene	ND		0.50	ug/L			01/16/14 00:03	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/16/14 00:03	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/16/14 00:03	1
tert-Butylbenzene	ND		0.50	ug/L			01/16/14 00:03	1
Tetrachloroethene	25		0.50	ug/L			01/16/14 00:03	1
Toluene	ND		0.50	ug/L			01/16/14 00:03	1
trans-1,2-Dichloroethene	ND		0.50	ug/L			01/16/14 00:03	1
trans-1,3-Dichloropropene	ND		0.50	ug/L			01/16/14 00:03	1
Trichloroethene	ND		0.50	ug/L			01/16/14 00:03	1
Trichlorofluoromethane	ND		0.50	ug/L			01/16/14 00:03	1
Vinyl chloride	ND		0.50	ug/L			01/16/14 00:03	1
Xylenes, Total	ND		1.0	ug/L			01/16/14 00:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120		01/16/14 00:03	1
Dibromofluoromethane (Surr)	103		76 - 132		01/16/14 00:03	1
Toluene-d8 (Surr)	108		80 - 128		01/16/14 00:03	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			01/16/14 17:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		65 - 140		01/16/14 17:27	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-4
Date Collected: 01/09/14 09:15
Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-4
Matrix: Water

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			01/16/14 00:31	1
1,2-Dichloroethane	ND		0.50	ug/L			01/16/14 00:31	1
Benzene	ND		0.50	ug/L			01/16/14 00:31	1
Ethanol	ND		150	ug/L			01/16/14 00:31	1
Ethylbenzene	ND		0.50	ug/L			01/16/14 00:31	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/16/14 00:31	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/16/14 00:31	1
m,p-Xylene	ND		1.0	ug/L			01/16/14 00:31	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/16/14 00:31	1
o-Xylene	ND		0.50	ug/L			01/16/14 00:31	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/16/14 00:31	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/16/14 00:31	1
Toluene	ND		0.50	ug/L			01/16/14 00:31	1
Xylenes, Total	ND		1.0	ug/L			01/16/14 00:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		80 - 120		01/16/14 00:31	1
Dibromofluoromethane (Surr)	96		76 - 132		01/16/14 00:31	1
Toluene-d8 (Surr)	111		80 - 128		01/16/14 00:31	1

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	52		50	ug/L			01/16/14 17:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		65 - 140		01/16/14 17:52	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-5
Date Collected: 01/09/14 08:25
Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-5
Matrix: Water

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			01/16/14 01:00	1
1,2-Dichloroethane	ND		0.50	ug/L			01/16/14 01:00	1
Benzene	ND		0.50	ug/L			01/16/14 01:00	1
Ethanol	ND		150	ug/L			01/16/14 01:00	1
Ethylbenzene	ND		0.50	ug/L			01/16/14 01:00	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/16/14 01:00	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/16/14 01:00	1
m,p-Xylene	ND		1.0	ug/L			01/16/14 01:00	1
Methyl-t-Butyl Ether (MTBE)	0.66		0.50	ug/L			01/16/14 01:00	1
o-Xylene	ND		0.50	ug/L			01/16/14 01:00	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/16/14 01:00	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/16/14 01:00	1
Toluene	ND		0.50	ug/L			01/16/14 01:00	1
Xylenes, Total	ND		1.0	ug/L			01/16/14 01:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120		01/16/14 01:00	1
Dibromofluoromethane (Surr)	96		76 - 132		01/16/14 01:00	1
Toluene-d8 (Surr)	109		80 - 128		01/16/14 01:00	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			01/16/14 19:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		65 - 140		01/16/14 19:09	1

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-7
Date Collected: 01/09/14 12:00
Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-6
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		20	ug/L			01/16/14 01:28	40
1,2-Dichloroethane	ND		20	ug/L			01/16/14 01:28	40
Benzene	ND		20	ug/L			01/16/14 01:28	40
Ethanol	ND		6000	ug/L			01/16/14 01:28	40
Ethylbenzene	ND		20	ug/L			01/16/14 01:28	40
Ethyl-t-butyl ether (ETBE)	ND		20	ug/L			01/16/14 01:28	40
Isopropyl Ether (DIPE)	ND		20	ug/L			01/16/14 01:28	40
m,p-Xylene	ND		40	ug/L			01/16/14 01:28	40
Methyl-t-Butyl Ether (MTBE)	100		20	ug/L			01/16/14 01:28	40
o-Xylene	ND		20	ug/L			01/16/14 01:28	40
Tert-amyl-methyl ether (TAME)	ND		20	ug/L			01/16/14 01:28	40
tert-Butyl alcohol (TBA)	27000		400	ug/L			01/16/14 01:28	40
Toluene	ND		20	ug/L			01/16/14 01:28	40
Xylenes, Total	ND		40	ug/L			01/16/14 01:28	40
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120				01/16/14 01:28	40
Dibromofluoromethane (Surr)	102		76 - 132				01/16/14 01:28	40
Toluene-d8 (Surr)	110		80 - 128				01/16/14 01:28	40

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	500		500	ug/L			01/17/14 08:32	10
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		65 - 140				01/17/14 08:32	10

Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-8
Date Collected: 01/09/14 10:55
Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-7
Matrix: Water

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			01/16/14 01:57	1
1,2-Dichloroethane	ND		0.50	ug/L			01/16/14 01:57	1
Benzene	ND		0.50	ug/L			01/16/14 01:57	1
Ethanol	ND		150	ug/L			01/16/14 01:57	1
Ethylbenzene	ND		0.50	ug/L			01/16/14 01:57	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/16/14 01:57	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/16/14 01:57	1
m,p-Xylene	ND		1.0	ug/L			01/16/14 01:57	1
Methyl-t-Butyl Ether (MTBE)	0.50		0.50	ug/L			01/16/14 01:57	1
o-Xylene	ND		0.50	ug/L			01/16/14 01:57	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/16/14 01:57	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/16/14 01:57	1
Toluene	ND		0.50	ug/L			01/16/14 01:57	1
Xylenes, Total	ND		1.0	ug/L			01/16/14 01:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		80 - 120		01/16/14 01:57	1
Dibromofluoromethane (Surr)	102		76 - 132		01/16/14 01:57	1
Toluene-d8 (Surr)	109		80 - 128		01/16/14 01:57	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			01/16/14 20:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		65 - 140		01/16/14 20:01	1

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

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/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 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-1

Date Collected: 01/09/14 10:25

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-1

Matrix: Water

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	156272	01/15/14 23:06	AA	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	156179	01/16/14 16:35	TL	TAL IRV

Client Sample ID: MW-2

Date Collected: 01/09/14 11:25

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-2

Matrix: Water

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	156272	01/15/14 23:34	AA	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	156179	01/16/14 17:01	TL	TAL IRV

Client Sample ID: MW-3

Date Collected: 01/09/14 09:45

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-3

Matrix: Water

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	10 mL	10 mL	156272	01/16/14 00:03	AA	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	156179	01/16/14 17:27	TL	TAL IRV

Client Sample ID: MW-4

Date Collected: 01/09/14 09:15

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-4

Matrix: Water

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	156272	01/16/14 00:31	AA	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	156179	01/16/14 17:52	TL	TAL IRV

Client Sample ID: MW-5

Date Collected: 01/09/14 08:25

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-5

Matrix: Water

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	156272	01/16/14 01:00	AA	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	156179	01/16/14 19:09	TL	TAL IRV

Client Sample ID: MW-7

Date Collected: 01/09/14 12:00

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-6

Matrix: Water

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		40	10 mL	10 mL	156272	01/16/14 01:28	AA	TAL IRV

TestAmerica Irvine

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Client Sample ID: MW-7

Date Collected: 01/09/14 12:00

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B/5030B		10	10 mL	10 mL	156179	01/17/14 08:32	TL	TAL IRV

Client Sample ID: MW-8

Date Collected: 01/09/14 10:55

Date Received: 01/10/14 07:40

Lab Sample ID: 440-67089-7

Matrix: Water

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	156272	01/16/14 01:57	AA	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	156179	01/16/14 20:01	TL	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-156272/5

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	ug/L			01/15/14 20:14	1
1,1,1-Trichloroethane	ND		0.50	ug/L			01/15/14 20:14	1
1,1,2,2-Tetrachloroethane	ND		0.50	ug/L			01/15/14 20:14	1
1,1,2-Trichloroethane	ND		0.50	ug/L			01/15/14 20:14	1
1,1-Dichloroethane	ND		0.50	ug/L			01/15/14 20:14	1
1,1-Dichloroethene	ND		0.50	ug/L			01/15/14 20:14	1
1,1-Dichloropropene	ND		0.50	ug/L			01/15/14 20:14	1
1,2,3-Trichlorobenzene	ND		1.0	ug/L			01/15/14 20:14	1
1,2,3-Trichloropropane	ND		0.50	ug/L			01/15/14 20:14	1
1,2,4-Trichlorobenzene	ND		1.0	ug/L			01/15/14 20:14	1
1,2,4-Trimethylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
1,2-Dibromo-3-Chloropropane	ND		1.0	ug/L			01/15/14 20:14	1
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			01/15/14 20:14	1
1,2-Dichlorobenzene	ND		0.50	ug/L			01/15/14 20:14	1
1,2-Dichloroethane	ND		0.50	ug/L			01/15/14 20:14	1
1,2-Dichloropropane	ND		0.50	ug/L			01/15/14 20:14	1
1,3,5-Trimethylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
1,3-Dichlorobenzene	ND		0.50	ug/L			01/15/14 20:14	1
1,3-Dichloropropane	ND		0.50	ug/L			01/15/14 20:14	1
1,4-Dichlorobenzene	ND		0.50	ug/L			01/15/14 20:14	1
2,2-Dichloropropane	ND		1.0	ug/L			01/15/14 20:14	1
2-Chlorotoluene	ND		0.50	ug/L			01/15/14 20:14	1
4-Chlorotoluene	ND		0.50	ug/L			01/15/14 20:14	1
Benzene	ND		0.50	ug/L			01/15/14 20:14	1
Bromobenzene	ND		0.50	ug/L			01/15/14 20:14	1
Bromochloromethane	ND		0.50	ug/L			01/15/14 20:14	1
Bromodichloromethane	ND		0.50	ug/L			01/15/14 20:14	1
Bromoform	ND		1.0	ug/L			01/15/14 20:14	1
Bromomethane	ND		0.50	ug/L			01/15/14 20:14	1
Carbon tetrachloride	ND		0.50	ug/L			01/15/14 20:14	1
Chlorobenzene	ND		0.50	ug/L			01/15/14 20:14	1
Chloroethane	ND		0.50	ug/L			01/15/14 20:14	1
Chloroform	ND		0.50	ug/L			01/15/14 20:14	1
Chloromethane	ND		0.50	ug/L			01/15/14 20:14	1
cis-1,2-Dichloroethene	ND		0.50	ug/L			01/15/14 20:14	1
cis-1,3-Dichloropropene	ND		0.50	ug/L			01/15/14 20:14	1
Dibromochloromethane	ND		0.50	ug/L			01/15/14 20:14	1
Dibromomethane	ND		0.50	ug/L			01/15/14 20:14	1
Dichlorodifluoromethane	ND		0.50	ug/L			01/15/14 20:14	1
Ethanol	ND		150	ug/L			01/15/14 20:14	1
Ethylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			01/15/14 20:14	1
Hexachlorobutadiene	ND		0.50	ug/L			01/15/14 20:14	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			01/15/14 20:14	1
Isopropylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
m,p-Xylene	ND		1.0	ug/L			01/15/14 20:14	1
Methylene Chloride	ND		2.0	ug/L			01/15/14 20:14	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50	ug/L			01/15/14 20:14	1

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 440-156272/5

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Naphthalene	ND		1.0	ug/L			01/15/14 20:14	1
n-Butylbenzene	ND		1.0	ug/L			01/15/14 20:14	1
N-Propylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
o-Xylene	ND		0.50	ug/L			01/15/14 20:14	1
p-Isopropyltoluene	ND		0.50	ug/L			01/15/14 20:14	1
sec-Butylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
Styrene	ND		0.50	ug/L			01/15/14 20:14	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			01/15/14 20:14	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			01/15/14 20:14	1
tert-Butylbenzene	ND		0.50	ug/L			01/15/14 20:14	1
Tetrachloroethene	ND		0.50	ug/L			01/15/14 20:14	1
Toluene	ND		0.50	ug/L			01/15/14 20:14	1
trans-1,2-Dichloroethene	ND		0.50	ug/L			01/15/14 20:14	1
trans-1,3-Dichloropropene	ND		0.50	ug/L			01/15/14 20:14	1
Trichloroethene	ND		0.50	ug/L			01/15/14 20:14	1
Trichlorofluoromethane	ND		0.50	ug/L			01/15/14 20:14	1
Vinyl chloride	ND		0.50	ug/L			01/15/14 20:14	1
Xylenes, Total	ND		1.0	ug/L			01/15/14 20:14	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	98		80 - 120		01/15/14 20:14	1
Dibromofluoromethane (Surr)	98		76 - 132		01/15/14 20:14	1
Toluene-d8 (Surr)	109		80 - 128		01/15/14 20:14	1

Lab Sample ID: LCS 440-156272/6

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
1,1,1,2-Tetrachloroethane	25.0	27.5		ug/L		110	60 - 141
1,1,1-Trichloroethane	25.0	26.8		ug/L		107	70 - 130
1,1,2,2-Tetrachloroethane	25.0	27.1		ug/L		109	63 - 130
1,1,2-Trichloroethane	25.0	27.1		ug/L		108	70 - 130
1,1-Dichloroethane	25.0	25.4		ug/L		102	64 - 130
1,1-Dichloroethene	25.0	30.7		ug/L		123	70 - 130
1,1-Dichloropropene	25.0	27.8		ug/L		111	70 - 130
1,2,3-Trichlorobenzene	25.0	28.7		ug/L		115	60 - 140
1,2,3-Trichloropropane	25.0	27.6		ug/L		110	63 - 130
1,2,4-Trichlorobenzene	25.0	30.2		ug/L		121	60 - 140
1,2,4-Trimethylbenzene	25.0	30.8		ug/L		123	70 - 135
1,2-Dibromo-3-Chloropropane	25.0	26.7		ug/L		107	52 - 140
1,2-Dibromoethane (EDB)	25.0	28.0		ug/L		112	70 - 130
1,2-Dichlorobenzene	25.0	27.7		ug/L		111	70 - 130
1,2-Dichloroethane	25.0	25.6		ug/L		102	57 - 138
1,2-Dichloropropane	25.0	27.5		ug/L		110	67 - 130
1,3,5-Trimethylbenzene	25.0	29.9		ug/L		120	70 - 136
1,3-Dichlorobenzene	25.0	27.2		ug/L		109	70 - 130
1,3-Dichloropropane	25.0	27.9		ug/L		111	70 - 130

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-156272/6

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	25.0	26.8		ug/L		107	70 - 130
2,2-Dichloropropane	25.0	26.0		ug/L		104	68 - 141
2-Chlorotoluene	25.0	26.9		ug/L		107	70 - 130
4-Chlorotoluene	25.0	28.9		ug/L		116	70 - 130
Benzene	25.0	25.9		ug/L		104	68 - 130
Bromobenzene	25.0	27.9		ug/L		112	70 - 130
Bromochloromethane	25.0	27.6		ug/L		110	70 - 130
Bromodichloromethane	25.0	26.8		ug/L		107	70 - 132
Bromoform	25.0	24.8		ug/L		99	60 - 148
Bromomethane	25.0	30.3		ug/L		121	64 - 139
Carbon tetrachloride	25.0	26.5		ug/L		106	60 - 150
Chlorobenzene	25.0	26.6		ug/L		106	70 - 130
Chloroethane	25.0	28.3		ug/L		113	64 - 135
Chloroform	25.0	26.5		ug/L		106	70 - 130
Chloromethane	25.0	29.4		ug/L		118	47 - 140
cis-1,2-Dichloroethene	25.0	29.4		ug/L		118	70 - 133
cis-1,3-Dichloropropene	25.0	28.3		ug/L		113	70 - 133
Dibromochloromethane	25.0	26.5		ug/L		106	69 - 145
Dibromomethane	25.0	26.6		ug/L		106	70 - 130
Dichlorodifluoromethane	25.0	32.4		ug/L		130	29 - 150
Ethanol	250	254		ug/L		102	50 - 149
Ethylbenzene	25.0	30.0		ug/L		120	70 - 130
Ethyl-t-butyl ether (ETBE)	25.0	27.4		ug/L		109	60 - 136
Hexachlorobutadiene	25.0	27.7		ug/L		111	10 - 150
Isopropyl Ether (DIPE)	25.0	28.3		ug/L		113	58 - 139
Isopropylbenzene	25.0	29.5		ug/L		118	70 - 136
m,p-Xylene	50.0	59.9		ug/L		120	70 - 130
Methylene Chloride	25.0	27.4		ug/L		109	52 - 130
Methyl-t-Butyl Ether (MTBE)	25.0	27.1		ug/L		109	63 - 131
Naphthalene	25.0	32.9		ug/L		131	60 - 140
n-Butylbenzene	25.0	30.7		ug/L		123	65 - 150
N-Propylbenzene	25.0	30.2		ug/L		121	67 - 139
o-Xylene	25.0	30.1		ug/L		120	70 - 130
p-Isopropyltoluene	25.0	29.9		ug/L		120	70 - 132
sec-Butylbenzene	25.0	30.6		ug/L		123	70 - 138
Styrene	25.0	28.1		ug/L		112	70 - 134
Tert-amyl-methyl ether (TAME)	25.0	28.5		ug/L		114	57 - 139
tert-Butyl alcohol (TBA)	125	133		ug/L		106	70 - 130
tert-Butylbenzene	25.0	29.3		ug/L		117	70 - 130
Tetrachloroethene	25.0	27.4		ug/L		110	70 - 130
Toluene	25.0	27.1		ug/L		109	70 - 130
trans-1,2-Dichloroethene	25.0	27.7		ug/L		111	70 - 130
trans-1,3-Dichloropropene	25.0	30.2		ug/L		121	70 - 132
Trichloroethene	25.0	28.3		ug/L		113	70 - 130
Trichlorofluoromethane	25.0	31.0		ug/L		124	60 - 150
Vinyl chloride	25.0	28.8		ug/L		115	59 - 133

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 440-156272/6

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Surrogate	LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	101		76 - 132
Toluene-d8 (Surr)	107		80 - 128

Lab Sample ID: 440-67002-A-1 MS

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
1,1,1,2-Tetrachloroethane	ND		25.0	27.3		ug/L		109	60 - 149
1,1,1-Trichloroethane	ND		25.0	26.0		ug/L		104	70 - 130
1,1,2,2-Tetrachloroethane	ND		25.0	27.6		ug/L		110	63 - 130
1,1,2-Trichloroethane	ND		25.0	27.4		ug/L		109	70 - 130
1,1-Dichloroethane	ND		25.0	24.3		ug/L		97	65 - 130
1,1-Dichloroethene	ND		25.0	29.7		ug/L		119	70 - 130
1,1-Dichloropropene	ND		25.0	28.4		ug/L		113	64 - 130
1,2,3-Trichlorobenzene	ND		25.0	28.7		ug/L		115	60 - 140
1,2,3-Trichloropropane	ND		25.0	27.1		ug/L		108	60 - 130
1,2,4-Trichlorobenzene	ND		25.0	30.4		ug/L		122	60 - 140
1,2,4-Trimethylbenzene	ND		25.0	29.7		ug/L		119	70 - 130
1,2-Dibromo-3-Chloropropane	ND		25.0	25.3		ug/L		101	48 - 140
1,2-Dibromoethane (EDB)	ND		25.0	27.8		ug/L		111	70 - 131
1,2-Dichlorobenzene	ND		25.0	27.0		ug/L		108	70 - 130
1,2-Dichloroethane	ND		25.0	25.6		ug/L		103	56 - 146
1,2-Dichloropropane	ND		25.0	27.4		ug/L		110	69 - 130
1,3,5-Trimethylbenzene	ND		25.0	28.7		ug/L		115	70 - 130
1,3-Dichlorobenzene	ND		25.0	26.2		ug/L		105	70 - 130
1,3-Dichloropropane	ND		25.0	27.6		ug/L		110	70 - 130
1,4-Dichlorobenzene	ND		25.0	25.9		ug/L		104	70 - 130
2,2-Dichloropropane	ND		25.0	26.2		ug/L		105	69 - 138
2-Chlorotoluene	ND		25.0	26.2		ug/L		105	70 - 130
4-Chlorotoluene	ND		25.0	27.7		ug/L		111	70 - 130
Benzene	ND		25.0	25.5		ug/L		102	66 - 130
Bromobenzene	ND		25.0	26.7		ug/L		107	70 - 130
Bromochloromethane	ND		25.0	26.1		ug/L		104	70 - 130
Bromodichloromethane	ND		25.0	26.3		ug/L		105	70 - 138
Bromoform	ND		25.0	24.7		ug/L		99	59 - 150
Bromomethane	ND		25.0	28.7		ug/L		115	62 - 131
Carbon tetrachloride	ND		25.0	26.7		ug/L		107	60 - 150
Chlorobenzene	ND		25.0	26.2		ug/L		105	70 - 130
Chloroethane	ND		25.0	26.3		ug/L		105	68 - 130
Chloroform	ND		25.0	25.6		ug/L		102	70 - 130
Chloromethane	ND		25.0	29.8		ug/L		119	39 - 144
cis-1,2-Dichloroethene	ND		25.0	27.2		ug/L		109	70 - 130
cis-1,3-Dichloropropene	ND		25.0	28.3		ug/L		113	70 - 133
Dibromochloromethane	ND		25.0	25.9		ug/L		104	70 - 148
Dibromomethane	ND		25.0	26.9		ug/L		108	70 - 130
Dichlorodifluoromethane	ND		25.0	30.6		ug/L		122	25 - 142

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-67002-A-1 MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 156272

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Ethanol	ND		250	247		ug/L		99	54 - 150
Ethylbenzene	ND		25.0	29.7		ug/L		119	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.9		ug/L		103	70 - 130
Hexachlorobutadiene	ND		25.0	27.2		ug/L		109	10 - 150
Isopropyl Ether (DIPE)	ND		25.0	27.0		ug/L		108	64 - 138
Isopropylbenzene	ND		25.0	28.8		ug/L		115	70 - 132
m,p-Xylene	ND		50.0	59.5		ug/L		119	70 - 133
Methylene Chloride	ND		25.0	25.8		ug/L		103	52 - 130
Methyl-t-Butyl Ether (MTBE)	3.3		25.0	29.6		ug/L		105	70 - 130
Naphthalene	ND		25.0	32.8		ug/L		131	60 - 140
n-Butylbenzene	ND		25.0	30.3		ug/L		121	61 - 149
N-Propylbenzene	ND		25.0	29.5		ug/L		118	66 - 135
o-Xylene	ND		25.0	29.7		ug/L		119	70 - 133
p-Isopropyltoluene	ND		25.0	29.0		ug/L		116	70 - 130
sec-Butylbenzene	ND		25.0	29.4		ug/L		117	67 - 134
Styrene	ND		25.0	27.7		ug/L		111	29 - 150
Tert-amyl-methyl ether (TAME)	ND		25.0	27.6		ug/L		110	68 - 133
tert-Butyl alcohol (TBA)	ND		125	129		ug/L		97	70 - 130
tert-Butylbenzene	ND		25.0	28.1		ug/L		112	70 - 130
Tetrachloroethene	ND		25.0	27.5		ug/L		110	70 - 137
Toluene	ND		25.0	27.1		ug/L		109	70 - 130
trans-1,2-Dichloroethene	ND		25.0	27.3		ug/L		109	70 - 130
trans-1,3-Dichloropropene	ND		25.0	30.9		ug/L		123	70 - 138
Trichloroethene	ND		25.0	28.0		ug/L		112	70 - 130
Trichlorofluoromethane	ND		25.0	30.8		ug/L		123	60 - 150
Vinyl chloride	ND		25.0	28.5		ug/L		114	50 - 137

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		80 - 120
Dibromofluoromethane (Surr)	98		76 - 132
Toluene-d8 (Surr)	108		80 - 128

Lab Sample ID: 440-67002-A-1 MSD

Client Sample ID: Matrix Spike Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 156272

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
	Result	Qualifier	Added	Result	Qualifier						
1,1,1,2-Tetrachloroethane	ND		25.0	26.5		ug/L		106	60 - 149	3	20
1,1,1-Trichloroethane	ND		25.0	25.3		ug/L		101	70 - 130	3	20
1,1,1,2,2-Tetrachloroethane	ND		25.0	29.1		ug/L		116	63 - 130	5	30
1,1,2-Trichloroethane	ND		25.0	27.7		ug/L		111	70 - 130	1	25
1,1-Dichloroethane	ND		25.0	23.5		ug/L		94	65 - 130	3	20
1,1-Dichloroethene	ND		25.0	29.1		ug/L		117	70 - 130	2	20
1,1-Dichloropropene	ND		25.0	28.2		ug/L		113	64 - 130	1	20
1,2,3-Trichlorobenzene	ND		25.0	28.9		ug/L		116	60 - 140	1	20
1,2,3-Trichloropropane	ND		25.0	28.6		ug/L		114	60 - 130	5	30
1,2,4-Trichlorobenzene	ND		25.0	30.0		ug/L		120	60 - 140	1	20
1,2,4-Trimethylbenzene	ND		25.0	28.9		ug/L		115	70 - 130	3	25

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-67002-A-1 MSD

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,2-Dibromo-3-Chloropropane	ND		25.0	28.3		ug/L		113	48 - 140	11	30
1,2-Dibromoethane (EDB)	ND		25.0	28.3		ug/L		113	70 - 131	2	25
1,2-Dichlorobenzene	ND		25.0	26.6		ug/L		106	70 - 130	1	20
1,2-Dichloroethane	ND		25.0	24.9		ug/L		100	56 - 146	3	20
1,2-Dichloropropane	ND		25.0	26.9		ug/L		107	69 - 130	2	20
1,3,5-Trimethylbenzene	ND		25.0	28.0		ug/L		112	70 - 130	3	20
1,3-Dichlorobenzene	ND		25.0	25.9		ug/L		103	70 - 130	1	20
1,3-Dichloropropane	ND		25.0	28.4		ug/L		113	70 - 130	3	25
1,4-Dichlorobenzene	ND		25.0	25.2		ug/L		101	70 - 130	3	20
2,2-Dichloropropane	ND		25.0	25.0		ug/L		100	69 - 138	5	25
2-Chlorotoluene	ND		25.0	25.6		ug/L		102	70 - 130	2	20
4-Chlorotoluene	ND		25.0	27.3		ug/L		109	70 - 130	1	20
Benzene	ND		25.0	25.2		ug/L		101	66 - 130	1	20
Bromobenzene	ND		25.0	26.2		ug/L		105	70 - 130	2	20
Bromochloromethane	ND		25.0	26.1		ug/L		104	70 - 130	0	25
Bromodichloromethane	ND		25.0	26.2		ug/L		105	70 - 138	1	20
Bromoform	ND		25.0	26.1		ug/L		104	59 - 150	5	25
Bromomethane	ND		25.0	28.5		ug/L		114	62 - 131	0	25
Carbon tetrachloride	ND		25.0	25.9		ug/L		103	60 - 150	3	25
Chlorobenzene	ND		25.0	25.6		ug/L		102	70 - 130	2	20
Chloroethane	ND		25.0	26.6		ug/L		106	68 - 130	1	25
Chloroform	ND		25.0	24.6		ug/L		98	70 - 130	4	20
Chloromethane	ND		25.0	29.2		ug/L		117	39 - 144	2	25
cis-1,2-Dichloroethene	ND		25.0	26.9		ug/L		108	70 - 130	1	20
cis-1,3-Dichloropropene	ND		25.0	28.3		ug/L		113	70 - 133	0	20
Dibromochloromethane	ND		25.0	26.5		ug/L		106	70 - 148	2	25
Dibromomethane	ND		25.0	26.5		ug/L		106	70 - 130	2	25
Dichlorodifluoromethane	ND		25.0	29.8		ug/L		119	25 - 142	3	30
Ethanol	ND		250	217		ug/L		87	54 - 150	13	30
Ethylbenzene	ND		25.0	28.9		ug/L		115	70 - 130	3	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	26.0		ug/L		104	70 - 130	1	25
Hexachlorobutadiene	ND		25.0	26.3		ug/L		105	10 - 150	3	20
Isopropyl Ether (DIPE)	ND		25.0	27.0		ug/L		108	64 - 138	0	25
Isopropylbenzene	ND		25.0	27.9		ug/L		111	70 - 132	3	20
m,p-Xylene	ND		50.0	57.9		ug/L		116	70 - 133	3	25
Methylene Chloride	ND		25.0	25.7		ug/L		103	52 - 130	1	20
Methyl-t-Butyl Ether (MTBE)	3.3		25.0	30.1		ug/L		107	70 - 130	2	25
Naphthalene	ND		25.0	34.9		ug/L		140	60 - 140	6	30
n-Butylbenzene	ND		25.0	29.5		ug/L		118	61 - 149	3	20
N-Propylbenzene	ND		25.0	28.6		ug/L		115	66 - 135	3	20
o-Xylene	ND		25.0	28.5		ug/L		114	70 - 133	4	20
p-Isopropyltoluene	ND		25.0	28.2		ug/L		113	70 - 130	3	20
sec-Butylbenzene	ND		25.0	29.1		ug/L		116	67 - 134	1	20
Styrene	ND		25.0	27.5		ug/L		110	29 - 150	1	35
Tert-amyl-methyl ether (TAME)	ND		25.0	27.7		ug/L		111	68 - 133	0	30
tert-Butyl alcohol (TBA)	ND		125	125		ug/L		94	70 - 130	3	25
tert-Butylbenzene	ND		25.0	27.7		ug/L		111	70 - 130	1	20
Tetrachloroethene	ND		25.0	27.2		ug/L		109	70 - 137	1	20

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-67002-A-1 MSD

Matrix: Water

Analysis Batch: 156272

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Toluene	ND		25.0	27.0		ug/L		108	70 - 130	1	20
trans-1,2-Dichloroethene	ND		25.0	26.7		ug/L		107	70 - 130	2	20
trans-1,3-Dichloropropene	ND		25.0	31.3		ug/L		125	70 - 138	2	25
Trichloroethene	ND		25.0	27.7		ug/L		111	70 - 130	1	20
Trichlorofluoromethane	ND		25.0	29.7		ug/L		119	60 - 150	4	25
Vinyl chloride	ND		25.0	27.8		ug/L		111	50 - 137	2	30
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	106		80 - 120								
Dibromofluoromethane (Surr)	98		76 - 132								
Toluene-d8 (Surr)	109		80 - 128								

Method: 8015B/5030B - Gasoline Range Organics (GC)

Lab Sample ID: MB 440-156179/3

Matrix: Water

Analysis Batch: 156179

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac			
	Result	Qualifier									
GRO (C6-C12)	ND		50	ug/L			01/16/14 11:01	1			
MB MB											
Surrogate	%Recovery	Qualifier	Limits						Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		65 - 140						01/16/14 11:01	1	

Lab Sample ID: LCS 440-156179/2

Matrix: Water

Analysis Batch: 156179

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
GRO (C4-C12)	800	835		ug/L		104	80 - 120
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	105		65 - 140				

Lab Sample ID: 440-67089-1 MS

Matrix: Water

Analysis Batch: 156179

Client Sample ID: MW-1

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				Limits
GRO (C4-C12)	ND		800	812		ug/L		102	65 - 140
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	97		65 - 140						

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: 440-67089-1 MSD

Matrix: Water

Analysis Batch: 156179

Client Sample ID: MW-1

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	801		ug/L		100	65 - 140	1	20
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	97		65 - 140								

- 1
- 2
- 3
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- 12
- 13

QC Association Summary

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

GC/MS VOA

Analysis Batch: 156272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-67002-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
440-67002-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
440-67089-1	MW-1	Total/NA	Water	8260B/5030B	
440-67089-2	MW-2	Total/NA	Water	8260B/5030B	
440-67089-3	MW-3	Total/NA	Water	8260B	
440-67089-4	MW-4	Total/NA	Water	8260B/5030B	
440-67089-5	MW-5	Total/NA	Water	8260B/5030B	
440-67089-6	MW-7	Total/NA	Water	8260B/5030B	
440-67089-7	MW-8	Total/NA	Water	8260B/5030B	
LCS 440-156272/6	Lab Control Sample	Total/NA	Water	8260B	
MB 440-156272/5	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 156179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-67089-1	MW-1	Total/NA	Water	8015B/5030B	
440-67089-1 MS	MW-1	Total/NA	Water	8015B/5030B	
440-67089-1 MSD	MW-1	Total/NA	Water	8015B/5030B	
440-67089-2	MW-2	Total/NA	Water	8015B/5030B	
440-67089-3	MW-3	Total/NA	Water	8015B/5030B	
440-67089-4	MW-4	Total/NA	Water	8015B/5030B	
440-67089-5	MW-5	Total/NA	Water	8015B/5030B	
440-67089-6	MW-7	Total/NA	Water	8015B/5030B	
440-67089-7	MW-8	Total/NA	Water	8015B/5030B	
LCS 440-156179/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-156179/3	Method Blank	Total/NA	Water	8015B/5030B	

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67089-1

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 2111, San Leandro

TestAmerica Job ID: 440-67089-1

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	01-31-15
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.

TestAmerica Irvine



Laboratory Management Program LaMP Chain of Custody Record

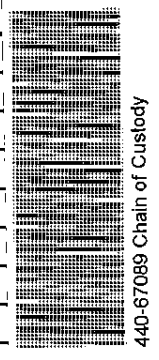
BP Site Node Path: 06-88-615
 BP Facility No: 2111

Req Due Date (mm/dd/yy):
 Lab Work Order Number: 440-67089

Rush TAT: Yes No

Lab Name: Test America	Facility Address: 1156 Davis Street	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Derian Avenue Suite #100, Irvine, CA 92614	City, State, ZIP Code: San Leandro, CA	Consultant/Contractor Project No: 06-88-615
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.: T0600101764	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 1103-6633-7	Enfos Proposal No: 005XM-0009	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: ktidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: GWM	Invoice To: BP <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

Lab No.	Sample Description	Date	Time	Matrix				No. Containers / Preservative							Requested Analyses						Report Type & QC Level			
				Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	GRO by 8015M	BTEX/5 FO & EDB by 8260	1,2-DCA & Ethanol by 8260	GRO and Full List VOCs by 8260	PAH's by 8270	Standard <input checked="" type="checkbox"/>	Full Data Package <input type="checkbox"/>				
MW-1		1/9/2014	1025	x		y	6								x	x	x							
MW-2		1/9/2014	1125	x		y	6								x	x	x							
MW-3		1/9/2014	0945	x		y	8											x	x					
MW-4		1/9/2014	0915	x		y	6								x	x	x							
MW-5		1/9/2014	0825	x		y	6								x	x	x							
MW-7		1/9/2014	1200	x		y	6								x	x	x							
MW-8		1/9/2014	1055	x		y	6								x	x	x							
TB-2111-01092014		-	-	x		n	2																	On Hold



Sampler's Name: Alex Martinez	Relinquished By / Affiliation: <i>Alex Martinez</i> BAI	Date: 1/9/14	Time: 1700	Accepted By / Affiliation: <i>[Signature]</i>	Date: 1/10/14	Time: 0740
Shipment Method: Fed Ex Ship Date: 1/9/2014	Shipment Tracking No: 8025 2344 1916					

Special Instructions: Please provide a 5 Day turn around time.

THIS LINE - LAB USE ONLY: Custody Seals in Place No Temp Blank No Cooler Temp on Receipt: 22/1.0 °F/C Trip Blank No MS/MSD Sample Submitted: Yes No

Page 27 of 28

1/17/2014



Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-67089-1

Login Number: 67089

List Number: 1

Creator: Chy, Jonathan

List Source: TestAmerica Irvine

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: 440-67732-1
Client Project/Site: ARCO 2111, San Leandro

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

Attn: Kristene Tidwell



*Authorized for release by:
1/24/2014 4:40:34 PM*

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robbs@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-67732-1	MW-3	Water	01/16/14 14:25	01/17/14 07:10

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Case Narrative

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Job ID: 440-67732-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-67732-1

Comments

No additional comments.

Receipt

The samples were received on 1/17/2014 7:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

GC/MS Semi VOA

Method(s) 8270C SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 157840.

No other analytical or quality issues were noted.

Organic Prep

No analytical or quality issues were noted.

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Client Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Client Sample ID: MW-3

Lab Sample ID: 440-67732-1

Date Collected: 01/16/14 14:25

Matrix: Water

Date Received: 01/17/14 07:10

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Acenaphthylene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Anthracene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Benzo[a]anthracene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Benzo[a]pyrene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Benzo[b]fluoranthene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Benzo[g,h,i]perylene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Benzo[k]fluoranthene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Chrysene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Dibenz(a,h)anthracene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Fluoranthene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Fluorene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Indeno[1,2,3-cd]pyrene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Naphthalene	0.24		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Phenanthrene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Pyrene	ND		0.21	ug/L		01/23/14 10:24	01/24/14 11:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	75		50 - 120			01/23/14 10:24	01/24/14 11:25	1
Nitrobenzene-d5	86		45 - 120			01/23/14 10:24	01/24/14 11:25	1
Terphenyl-d14	55		17 - 100			01/23/14 10:24	01/24/14 11:25	1

Method Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	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 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Client Sample ID: MW-3

Lab Sample ID: 440-67732-1

Date Collected: 01/16/14 14:25

Matrix: Water

Date Received: 01/17/14 07:10

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			970 mL	1 mL	157840	01/23/14 10:24	BB	TAL IRV
Total/NA	Analysis	8270C SIM		1	970 mL	1 mL	158085	01/24/14 11:25	AI	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022



QC Sample Results

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 440-157840/1-A

Matrix: Water

Analysis Batch: 158085

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 157840

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Acenaphthylene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Anthracene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Benzo[a]anthracene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Benzo[a]pyrene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Benzo[b]fluoranthene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Benzo[g,h,i]perylene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Benzo[k]fluoranthene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Chrysene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Dibenz(a,h)anthracene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Fluoranthene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Fluorene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Indeno[1,2,3-cd]pyrene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Naphthalene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Phenanthrene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1
Pyrene	ND		0.20	ug/L		01/23/14 10:24	01/24/14 10:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		50 - 120	01/23/14 10:24	01/24/14 10:24	1
Nitrobenzene-d5	77		45 - 120	01/23/14 10:24	01/24/14 10:24	1
Terphenyl-d14	56		17 - 100	01/23/14 10:24	01/24/14 10:24	1

Lab Sample ID: LCS 440-157840/2-A

Matrix: Water

Analysis Batch: 158085

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 157840

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	1.00	0.844		ug/L		84	60 - 120
Acenaphthylene	1.00	0.861		ug/L		86	60 - 120
Anthracene	1.00	0.918		ug/L		92	65 - 120
Benzo[a]anthracene	1.00	0.977		ug/L		98	65 - 120
Benzo[a]pyrene	1.00	0.938		ug/L		94	55 - 130
Benzo[b]fluoranthene	1.00	0.976		ug/L		98	55 - 125
Benzo[g,h,i]perylene	1.00	1.10		ug/L		110	45 - 135
Benzo[k]fluoranthene	1.00	0.966		ug/L		97	50 - 125
Chrysene	1.00	0.988		ug/L		99	65 - 120
Dibenz(a,h)anthracene	1.00	1.01		ug/L		101	50 - 135
Fluoranthene	1.00	0.946		ug/L		95	60 - 120
Fluorene	1.00	0.915		ug/L		91	65 - 120
Indeno[1,2,3-cd]pyrene	1.00	1.03		ug/L		103	45 - 135
Naphthalene	1.00	0.797		ug/L		80	55 - 120
Phenanthrene	1.00	0.918		ug/L		92	65 - 120
Pyrene	1.00	0.836		ug/L		84	55 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	80		50 - 120
Nitrobenzene-d5	93		45 - 120

TestAmerica Irvine

QC Sample Results

Client: Broadbent & Associates, Inc.
 Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 440-157840/2-A

Matrix: Water

Analysis Batch: 158085

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 157840

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14	62		17 - 100

Lab Sample ID: LCSD 440-157840/3-A

Matrix: Water

Analysis Batch: 158085

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 157840

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Acenaphthene	1.00	0.857		ug/L		86	60 - 120	1	20	
Acenaphthylene	1.00	0.862		ug/L		86	60 - 120	0	20	
Anthracene	1.00	0.908		ug/L		91	65 - 120	1	20	
Benzo[a]anthracene	1.00	0.957		ug/L		96	65 - 120	2	20	
Benzo[a]pyrene	1.00	0.900		ug/L		90	55 - 130	4	25	
Benzo[b]fluoranthene	1.00	0.953		ug/L		95	55 - 125	2	25	
Benzo[g,h,i]perylene	1.00	1.08		ug/L		108	45 - 135	2	25	
Benzo[k]fluoranthene	1.00	0.939		ug/L		94	50 - 125	3	20	
Chrysene	1.00	0.965		ug/L		96	65 - 120	2	20	
Dibenz(a,h)anthracene	1.00	1.00		ug/L		100	50 - 135	0	25	
Fluoranthene	1.00	0.951		ug/L		95	60 - 120	0	20	
Fluorene	1.00	0.898		ug/L		90	65 - 120	2	20	
Indeno[1,2,3-cd]pyrene	1.00	1.00		ug/L		100	45 - 135	3	25	
Naphthalene	1.00	0.799		ug/L		80	55 - 120	0	20	
Phenanthrene	1.00	0.917		ug/L		92	65 - 120	0	20	
Pyrene	1.00	0.798		ug/L		80	55 - 125	5	25	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	81		50 - 120
Nitrobenzene-d5	93		45 - 120
Terphenyl-d14	59		17 - 100

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

GC/MS Semi VOA

Prep Batch: 157840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-67732-1	MW-3	Total/NA	Water	3520C	
LCS 440-157840/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 440-157840/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 440-157840/1-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 158085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-67732-1	MW-3	Total/NA	Water	8270C SIM	157840
LCS 440-157840/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	157840
LCSD 440-157840/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	157840
MB 440-157840/1-A	Method Blank	Total/NA	Water	8270C SIM	157840

Definitions/Glossary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2111, San Leandro

TestAmerica Job ID: 440-67732-1

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 2111, San Leandro

TestAmerica Job ID: 440-67732-1

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	01-31-15
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.

TestAmerica Irvine



Laboratory Management Program LaMP Chain of Custody Record

BP Site Node Path: 06-88-615

Req Due Date (mm/dd/yy):

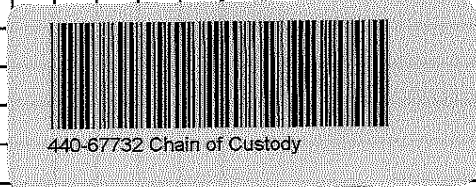
Rush TAT: Yes No

BP Facility No: 2111

Lab Work Order Number:

Lab Name: Test America	Facility Address: 1156 Davis Street	Consultant/Contractor: Broadbent and Associates, Inc.
Lab Address: 17461 Derian Avenue Suite #100, Irvine, CA 92614	City, State, ZIP Code: San Leandro, CA	Consultant/Contractor Project No: 06-88-615
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.: T0600101764	Consultant/Contractor PM: Kristene Tidwell
Lab Shipping Acct: 1103-6633-7	Enfos Proposal No: 005XM-0009	Phone: 707-455-7290 Fax: 707-455-7295
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: ktidwell@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Exectute (40) Activity: GWM	Invoice To: BP <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP Project Manager (PM): Chuck Carmel				Matrix		No. Containers / Preservative										Requested Analyses										Report Type & QC Level	
BP PM Phone: 925-275-3804																										Standard <input type="checkbox"/>	
BP PM Email: chuck.carmel@bp.com																										Full Data Package <input type="checkbox"/>	
Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol	PAHs by 8270											Comments		
MW-3		1/16/2014	1425	x		y		2	x					x											Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.		
																									12:00		
																									P-2 1-17-14		



Sampler's Name: Alex Martinez	Relinquished By / Affiliation				Date	Time	Accepted By / Affiliation				Date	Time
Sampler's Company: Broadbent and Associates	<i>Alex Martinez</i> BAI				1/16/14	1700	<i>[Signature]</i>				1/17/14	0710
Shipment Method: Fed Ex Ship Date: 1/16/2014												
Shipment Tracking No: 8025 2344 1880												

Special Instructions: Please provide a 48 hour TAT. Please also see the email provided and the given instructions with this Chain-of-Custody.

THIS LINE - LAB USE ONLY: Custody Seals in Place? Yes / No Temp Blank? Yes / No Cooler Temp on Receipt: 38/19 °F/C Trip Blank: Yes / No MS/MSD Sample Submitted: Yes / No

Page 13 of 14

1/24/2014



Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-67732-1

Login Number: 67732

List Number: 1

Creator: Gonzales, Steve

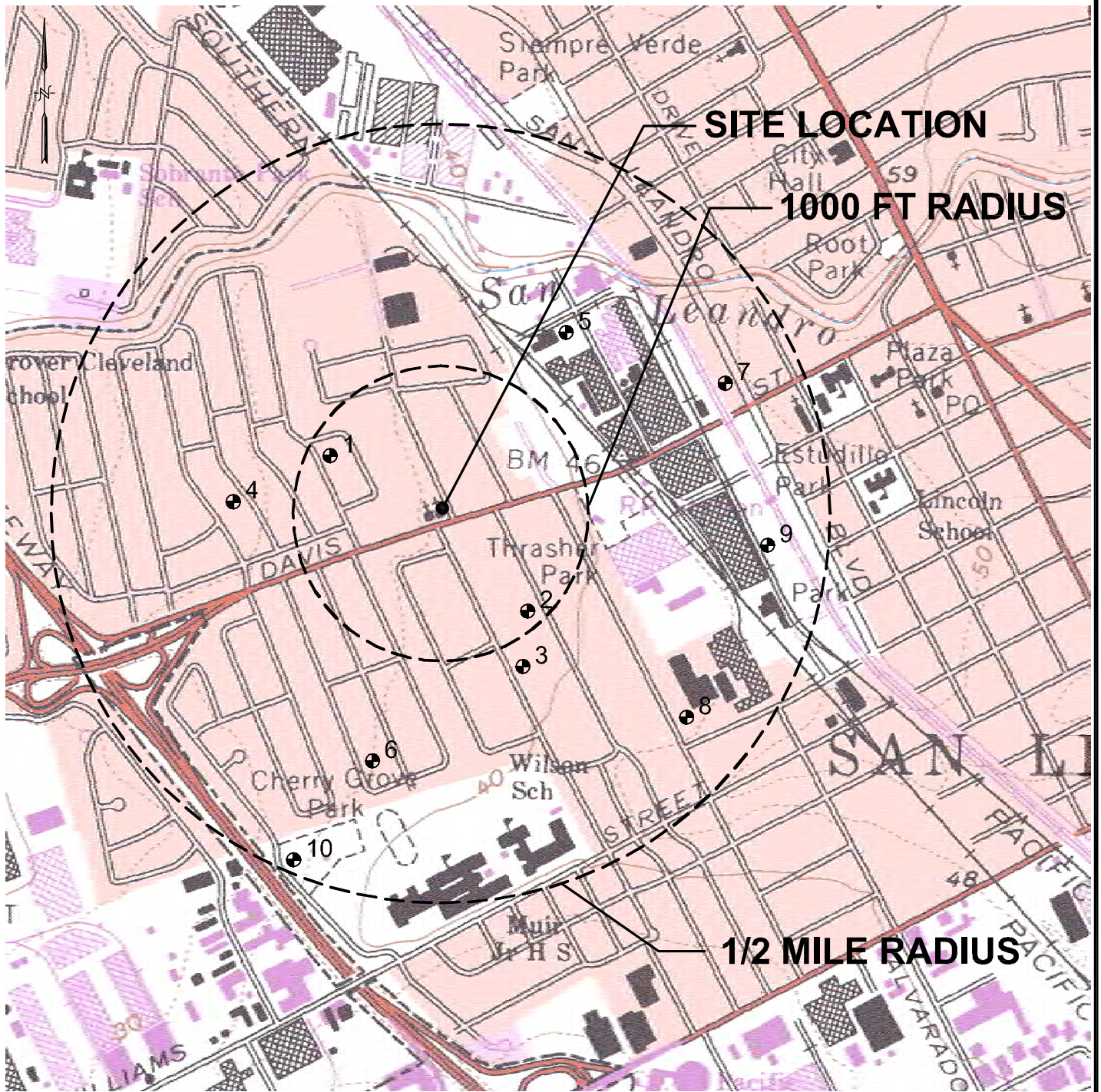
List Source: TestAmerica Irvine

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	



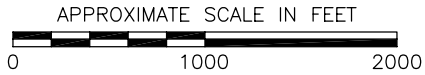
APPENDIX H

Well Survey Results



SITE LOCATION
1000 FT RADIUS

1/2 MILE RADIUS



LEGEND:
 ● WATER SUPPLY WELL LOCATION

FIGURE 1
WELL SURVEY MAP

ARCO STATION #2111
 1156 DAVIS STREET
 SAN LEANDRO, CALIFORNIA



4600 Northgate Boulevard • Suite 230
 Sacramento • California • 95834
 Phone: (800) 988-7880

20121029.1142232 D:\Client Drawings\Closure\ARCO\2111\ARCO_2111_WELL_SURVEY.dwg

REFERENCE:
 USGS 7.5 MIN QUAD MAP TITLED: SAN LEANDRO, CALIFORNIA DATED: 1959 REVISED 1980

Table 1 - Wells Located Within a 1/2-Mile Radius of the Site

ARCO Station No. 2111

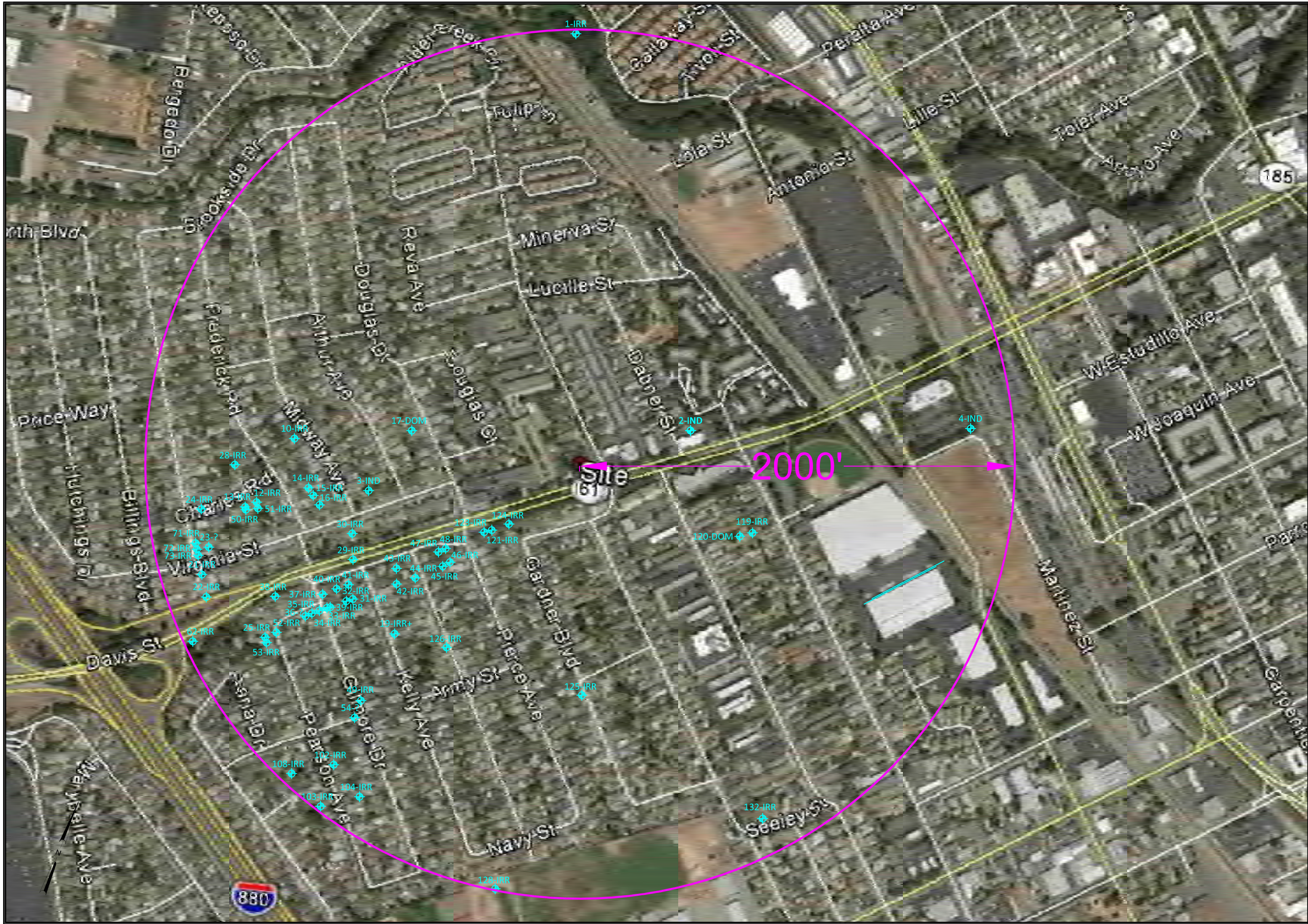
1156 Davis Street


Alameda, California

Map ID No.	DWR Log No.	Approximate Distance from Site	Well Type	Installation Date	Screen Interval	Total Depth
1	32661	850 ft WNW	dom	May-77	20-30 ft bgs	30 ft bgs
2	01-1339	950 ft SE	unk	Aug-39	unk	68 ft bgs
3	120465	1,200 ft SE	dom	Aug-75	17-31 ft bgs	32 ft bgs
4	33129	1,450 ft W	ind	Apr-77	32-64 ft bgs	68 ft bgs
5	01-1436	1,450 ft NE	dom	Aug-49	117-126 ft bgs	132 ft bgs
6	106385	1,800 ft SSW	irr	unk	8-21 ft bgs	21 ft bgs
7	106480	2,100 ft NE	irr	Jun-77	18-40.5 ft bgs	41 ft bgs
8	32910	2,150 ft SE	dom	unk	20-40 ft bgs	40 ft bgs
9	24537	2,250 ft ESE	ind	Jun-55	intervals from 50-694 ft bgs	704 ft bgs
10	01-1334	2,550 ft SSW	mun	1954	intervals from 25-143 ft bgs	224 ft bgs

Abbreviations:

ft = feet
 N = North
 S = South
 E = East
 W = West
 dom = domestic well
 irr = irrigation well
 mun = municipal well
 pub = public well
 unk = unknown
 bgs = below ground surface



Drawing	H-1
ACPWA Well Survey Results	
Station No. 2111 1156 Davis Street San Leandro, California	
 BROADBENT 1370 Ridgewood Dr., Suite 5 Chico, California 95973 Project No.: 06-88-615 Date: 01/30/2014	
 SCALE (ft)	

APPENDIX I

Groundwater Monitoring and Sampling Field Methods

QUALITY ASSURANCE/QUALITY CONTROL FIELD METHODS

Field methods discussed herein were implemented to provide for accuracy and reliability of field activities, data collection, sample collection, and handling. Discussion of these methods is provided below.

1.0 Equipment Calibration

Equipment calibration was performed per equipment manufacturer specifications before use.

2.0 Depth to Groundwater and Light Non-Aqueous Phase Liquid Measurement

Depth to groundwater was measured in wells identified for gauging in the scope of work using a decontaminated water level indicator. The depth to water measurement was taken from a cut notch or permanent mark at the top of the well casing to which the well head elevation was originally surveyed.

Once depth to water was measured, an oil/water interface meter or a new disposable bailer was utilized to evaluate the presence and, if present, to measure the “apparent” thickness of light non-aqueous phase liquid (LNAPL) in the well. If LNAPL was present in the well, groundwater purging and sampling were not performed, unless sampling procedures in the scope of work specified collection of samples in the presence of LNAPL. Otherwise, time allowing, LNAPL was bailed from the well using either a new disposable bailer, or the disposal bailer previously used for initial LNAPL assessment. Bailing of LNAPL continued until the thickness of LNAPL (or volume) stabilized in each bailer pulled from the well, or LNAPL was no longer present. After LNAPL thickness either stabilized or was eliminated, periodic depth to water and depth to LNAPL measurements were collected as product came back into the well to evaluate product recovery rate and to aid in further assessment of LNAPL in the subsurface. LNAPL thickness measurements were recorded as “apparent.” If a bailer was used for LNAPL thickness measurement, the field sampler noted the bailer entry diameter and chamber diameter to enable correction of thickness measurements. Recovered LNAPL was stored on-site in a labeled steel drum(s) or other appropriate container(s) prior to disposal.

3.0 Well Purging and Groundwater Sample Collection

Well purging and groundwater sampling were performed in wells specified in the scope of work after measuring depth to groundwater and evaluating the presence of LNAPL. Purging and sampling were performed using one of the methods detailed below. The method used was noted in the field records. Purge water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal or on-site treatment (in cases where treatment using an on-site system is authorized).

3.1 Purging a Predetermined Well Volume

Purging a predetermined well volume is performed per ASTM International (ASTM) D4448-01. This purging method has the objective of removing a predetermined volume of stagnant water from the well prior to sampling. The volume of stagnant water is defined as either the volume of water contained within the well casing, or the volume within the well casing and sand/gravel in the annulus if natural flow through these is deemed insufficient to keep them flushed out.

This purging method involves removal of a minimum of three stagnant water volumes from the well using a decontaminated pump with new disposable plastic discharge or suction tubing, dedicated well tubing, or using a new disposable or decontaminated reusable bailer. If a new disposable bailer was used for assessment of LNAPL, that bailer may be used for purging. The withdrawal rate used is one that minimizes drawdown while satisfying time constraints.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity¹. Parameters are considered stable when two (2) consecutive readings recorded three (3) minutes apart fall within ranges provided below in Table 1. In the event that the parameters have not stabilized and five (5) well casing volumes have been removed, purging activities will cease and be considered complete. Once the well is purged, a groundwater sample(s) is collected from the well using a new disposable bailer. If a new disposable bailer was used for purging, that bailer may be used to collect the sample(s). A sample is not collected if the well is inadvertently purged dry.

Table 1. Criteria for Defining Stabilization of Water-Quality Indicator Parameters

Parameter	Stabilization Criterion
Temperature	± 0.2°C (± 0.36°F)
pH	± 0.1 standard units
Conductivity	± 3%
Dissolved oxygen	± 10%
Oxidation reduction potential	± 10 mV
Turbidity ¹	± 10% or 1.0 NTU (whichever is greater)

3.2 Low-Flow Purging and Sampling

“Low-Flow”, “Minimal Drawdown”, or “Low-Stress” purging is performed per ASTM D6771-02. It is a method of groundwater removal from within a well’s screened interval that is intended to minimize drawdown and mixing of the water column in the well casing. This is accomplished by pumping the well using a decontaminated pump with new disposable plastic discharge or

¹ As stated in ASTM D6771-02, turbidity is not a chemical parameter and not indicative of when formation-quality water is being purged; however, turbidity may be helpful in evaluating stress on the formation during purging. Turbidity measurements are taken at the same time that stabilization parameter measurements are made, or, at a minimum, once when purging is initiated and again just prior to sample collection, after stabilization parameters have stabilized. To avoid artifacts in sample analysis, turbidity should be as low as possible when samples are collected. If turbidity values are persistently high, the withdrawal rate is lowered until turbidity decreases. If high turbidity persists even after lowering the withdrawal rate, the purging is stopped for a period of time until turbidity settles, and the purging process is then restarted. If this fails to solve the problem, the purging/sampling process for the well is ceased, and well maintenance or redevelopment is considered.

suction tubing or dedicated well tubing at a low flow rate while evaluating the groundwater elevation during pumping.

The low flow pumping rate is well specific and is generally established at a volume that is less than or equal to the natural recovery rate of the well. A pump with adjustable flow rate control is positioned with the intake at or near the mid-point of the submerged well screen. The pumping rate used during low-flow purging is low enough to minimize mobilization of particulate matter and drawdown (stress) of the water column. Low-flow purging rates will vary based on the individual well characteristics; however, the purge rate should not exceed 1.0 Liter per minute (L/min) or 0.25 gallon per minute (gal/min). Low-flow purging should begin at a rate of approximately 0.1 L/min (0.03 gal/min)², or the lowest rate possible, and be adjusted based on an evaluation of drawdown. Water level measurements should be recorded at approximate one (1) to two (2) minute intervals until the low-flow rate has been established, and drawdown is minimized. As a general rule, drawdown should not exceed 25% of the distance between the top of the water column and the pump in-take.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity¹. The frequency between measurements will be at an interval of one (1) to three (3) minutes; however, if a flow cell is used, the frequency will be determined based on the time required to evacuate one cell volume. Stabilization is defined as three (3) consecutive readings recorded several minutes apart falling within ranges provided in Table 1. Samples will be collected by filling appropriate containers from the pump discharge tubing at a rate not to exceed the established pumping rate.

3.3 Minimal Purge, Discrete Depth, and Passive Sampling

Per ASTM D4448-01, sampling techniques that do not rely on purging, or require only minimal purging, may be used if a particular zone within a screened interval is to be sampled or if a well is not capable of yielding sufficient groundwater for purging. To properly use these sampling techniques, a water sample is collected within the screened interval with little or no mixing of the water column within the casing. These techniques include minimal purge sampling which uses a dedicated sampling pump capable of pumping rates of less than 0.1 L/min (0.03 gal/min)², discrete depth sampling using a bailer that allows groundwater entry at a controlled depth (e.g. differential pressure bailer), or passive (diffusion) sampling. These techniques are based on certain studies referenced in ASTM D4448-01 that indicate that under certain conditions, natural groundwater flow is laminar and horizontal with little or no mixing within the well screen.

² According to ASTM D4448-01, studies have indicated that at flow rates of 0.1 L/min, low-density polyethylene (LDPE) and plasticized polypropylene tubing materials are prone to sorption. Therefore, TFE-fluorocarbon or other appropriate tubing material is used, particularly when tubing lengths of 50 feet or longer are used.

4.0 Decontamination

Reusable groundwater sampling equipment were cleaned using a solution of Alconox or other acceptable detergent, rinsed with tap water, and finally rinsed with distilled water prior to use in each well. Decontamination water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal.

5.0 Sample Containers, Labeling, and Storage

Samples were collected in laboratory prepared containers with appropriate preservative (if preservative was required). Samples were properly labeled (site name, sample I.D., sampler initials, date, and time of collection) and stored chilled (refrigerator or ice chest with ice) until delivery to a certified laboratory, under chain of custody procedures.

6.0 Chain of Custody Record and Procedure

The field sampler was personally responsible for care and custody of the samples collected until they were properly transferred to another party. To document custody and transfer of samples, a Chain of Custody Record was prepared. The Chain of Custody Record provided identification of the samples corresponding to sample labels and specified analyses to be performed by the laboratory. The original Chain of Custody Record accompanied the shipment, and a copy of the record was stored in the project file. When the samples were transferred, the individuals relinquishing and receiving them signed, dated, and noted the time of transfer on the record.

7.0 Field Records

Daily Report and data forms were completed by staff personnel to provide daily record of significant events, observations, and measurements. Field records were signed, dated, and stored in the project file.

APPENDIX J

Well Sampling Field Data Sheets



GROUNDWATER SAMPLING DATA SHEET

Page 3 of 8

Project: BP 2111 Project No.: 06-88-015 Date: 1/9/14
 Field Representative: AM/SJ
 Well ID: MW-2 Start Time: 1110 End Time: 1130 Total Time (minutes): 20

PURGE EQUIPMENT _____ Disp. Bailer _____ 120V Pump _____ Flow Cell
 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				LOW-FLOW	
Casing Diameter Unit Volume (gal/ft) (circle one)				Previous Low-Flow Purge Rate: _____ (lpm)	
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Other: _____	Total Well Depth (a): <u>34.65</u> (ft)
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	____" (____)	Initial Depth to Water (b): <u>17.18</u> (ft)
Total Well Depth (a): _____ (ft)				Pump In-take Depth = b + (a-b)/2: <u>25.19</u> (ft)	
Initial Depth to Water (b): _____ (ft)				Maximum Allowable Drawdown = (a-b)/8: <u>2.18</u> (ft)	
Water Column Height (WCH) = (a - b): _____ (ft)				Low-Flow Purge Rate: <u>0.25</u> (Lpm)*	
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)				Comments: _____	
Three Casing Volumes = WCV x 3: _____ (gal)					
Five Casing Volumes = WCV x 5: _____ (gal)					
Pump Depth (if pump used): _____ (ft)					

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity μS/cm @ 25°C	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
<u>1110</u>	<u>0.0</u>	<u>20.35</u>	<u>5.40</u>	<u>628</u>	<u>3.81</u>	<u>222</u>	<u>0.0</u>	
<u>1112</u>	<u>0.5</u>	<u>20.54</u>	<u>5.29</u>	<u>628</u>	<u>2.68</u>	<u>176</u>	<u>0.0</u>	
<u>1114</u>	<u>1.0</u>	<u>20.64</u>	<u>5.20</u>	<u>628</u>	<u>2.38</u>	<u>157</u>	<u>0.0</u>	
<u>1116</u>	<u>1.5</u>	<u>20.69</u>	<u>5.18</u>	<u>627</u>	<u>2.51</u>	<u>141</u>	<u>0.0</u>	
<u>1118</u>	<u>2.0</u>	<u>20.72</u>	<u>5.20</u>	<u>622</u>	<u>2.41</u>	<u>128</u>	<u>0.0</u>	
<u>1120</u>	<u>2.5</u>	<u>20.73</u>	<u>5.30</u>	<u>621</u>	<u>2.26</u>	<u>113</u>	<u>0.0</u>	

Previous Stabilized Parameters _____

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS	
Depth to Water at Sampling: <u>17.18</u> (ft)	Parameter	Time	Measurement
Sample Collected Via: _____ Disp. Bailer _____ Dedicated Pump Tubing	DO (mg/L)		
<input checked="" type="checkbox"/> Disp. Pump Tubing _____ Other:	Ferrous Iron (mg/L)		
Sample ID: <u>MW-2</u> Sample Collection Time: <u>1125</u> (24:00)	Redox Potential (mV)		
Containers (#): <u>6</u> VOA (<input checked="" type="checkbox"/> preserved or _____ unpreserved) _____ Liter Amber	Alkalinity (mg/L)		
_____ Other: _____	Other:		
_____ Other: _____	Other:		

Signature: Alex [Signature]



GROUNDWATER SAMPLING DATA SHEET

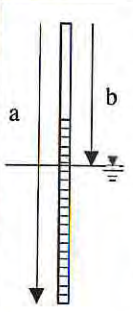
Project: BP 2111 Project No.: 06-88-615 Date: 1/9/14
 Field Representative: AM/SJ
 Well ID: MW-7 Start Time: 1147 End Time: 1205 Total Time (minutes): 18

PURGE EQUIPMENT Disp. Bailer 120V Pump Flow Cell
 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				LOW-FLOW	
Casing Diameter	Unit Volume (gal/ft)	(circle one)		Previous Low-Flow Purge Rate:	(lpm)
1" (0.04)	1.25" (0.08)	2" (0.17)	3" (0.38)	Total Well Depth (a):	<u>26.53</u> (ft)
4" (0.66)	6" (1.50)	8" (2.60)	12" (5.81)	Initial Depth to Water (b):	<u>17.03</u> 26.53 (ft)
Total Well Depth (a): _____ (ft)				Pump In-take Depth = b + (a-b)/2:	<u>21.78</u> (ft)
Initial Depth to Water (b): _____ (ft)				Maximum Allowable Drawdown = (a-b)/8:	<u>1.18</u> (ft)
Water Column Height (WCH) = (a - b): _____ (ft)				Low-Flow Purge Rate:	<u>0.23</u> (Lpm)*
Water Column Volume (WCV) = WCH x Unit Volume: _____ (gal)				Comments:	
Three Casing Volumes = WCV x 3: _____ (gal)				*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.	
Five Casing Volumes = WCV x 5: _____ (gal)					
Pump Depth (if pump used): _____ (ft)					



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
1147	0.0	20.58	5.72	863	3.48	-23	0.0	Moderate Hydrocarbon ODOR
1149	0.5	20.72	5.99	864	2.03	-48	0.0	
1150	1.0	20.88	6.41	865	1.56	-63	0.0	
1153	1.5	20.99	6.45	865	1.49	-72	0.0	
1155	2.0	21.01	6.61	864	1.39	-76	0.0	

Previous Stabilized Parameters

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

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS	
Parameter	Time	Measurement	
Depth to Water at Sampling: <u>17.66</u> (ft)			
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Pump Tubing <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing			
Sample ID: <u>MW-7</u> Sample Collection Time: <u>1200</u> (24:00)			
Containers (#): <u>6</u> VOA (<input checked="" type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber			
Other:			
Other:			
Other:			

Signature: Alex [Signature]

APPENDIX K

Surrounding Site Data



Table 4. Summary of Groundwater Analytical Results - Detected Halogenated VOCs
Former Caterpillar Facility - San Leandro, California

Well No.	Sample Date	TCE (µg/L)	PCE (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	cis-1,2-DCE (µg/L)	1,1,1-TCA (µg/L)	Freon 113 (µg/L)	Freon 123a ¹ (µg/L)	Freon 12 (µg/L)	Freon 22 (µg/L)	Chloroform (µg/L)	Carbon Tet (µg/L)	Vinyl Chloride (µg/L)
State MCL ^a		5	5	5	0.5	6	6 ^c	200	1200	150	NA	NA	NA	0.5	0.5
Federal MCL ^b		5	5	NA	5	7	70 ^c	200	NA	NA	NA	NA	100 ^d	NA	2
MW-121	10/26/1989	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/9/1990	7	ND	ND	ND	ND	ND	1.6	ND	ND	ND(1)	ND	ND	ND	ND(1)
	2/26/1992	15	ND	ND	ND	ND	ND	0.8	ND	ND	ND(1)	ND	ND	ND	ND(1)
	5/19/1992	17	ND	ND	ND	1.7	ND	0.9	ND	ND	ND(1)	ND	ND	ND	ND(1)
	9/1/1992	20	ND	ND	ND	ND	ND	0.7	ND	ND	ND(1)	ND	ND	ND	ND(1)
	12/8/1992	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/28/1993	25	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/29/1994	20	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/21/1994	20	0.7	ND	ND	0.6	ND	0.6	ND	ND	ND	ND	ND	ND	ND
	9/29/1994	26	ND	ND	ND	0.58	ND	0.5	ND	ND	ND	ND	ND	ND	ND
	12/9/1994	23	ND	ND	ND	0.53	ND	0.63	ND	ND	ND	ND	ND	ND	ND
	3/28/1995	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/20/1995	24	ND	ND	ND	ND	ND	0.57	ND	ND	ND	ND	ND	ND	ND
	9/26/1995	29	ND	ND	ND	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND
	12/21/1995	21	ND	ND	ND	0.53	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/15/1996	18	0.89	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/20/1996	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/12/1996	28	ND	ND	ND	0.59	ND	0.5	ND	ND	ND	ND	ND	ND	ND
	11/25/1996	24	0.62	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/12/1997	27	0.52	ND	ND	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND
	5/27/1997	40	0.60	ND	ND	0.83	ND	0.61	ND	ND	ND	ND	ND	ND	ND
	9/24/1997	46	0.76	ND	ND	0.77	ND	0.67	ND	ND	ND	ND	ND	ND	ND
	11/11/1997	47	1.3	ND	ND	ND	ND	0.90	ND	ND	ND	ND	ND	ND	ND
	3/24/1998	43	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/1998	69	0.8	ND	ND	ND	ND	0.850	ND	ND	ND	ND	ND	ND	ND
	3/24/1999	64	1.3	ND	ND	ND	ND	0.66	ND	ND	4.5	ND	ND	ND	ND
	11/4/1999	55	1.2	ND	ND	ND	ND	ND	ND	ND	9.2	ND	ND	ND	ND
	3/28/2000	30	0.59	ND	ND	ND	ND	ND	ND	ND	6.2	ND	ND	ND	ND
	11/21/2000	28	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/22/2001	22	1.5	ND	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND
	3/19/2002	14	ND	ND	ND	ND	ND	ND	ND	ND	0.89	ND	ND	ND	ND
	12/12/2002	5.4	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/26/2003	8.2	0.66	ND	ND	ND	ND	ND	ND	ND	1.2	<50	ND	ND	ND
	12/17/2003	2.6	ND	ND	ND	ND	ND	ND	ND	ND	1.2	<50	ND	ND	ND
	3/10/2004	9	1.2	ND	ND	ND	ND	ND	ND	ND	ND	<50	ND	ND	ND
	11/23/2004	13	0.99	ND	ND	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND
	3/28/2005	14	1.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/2/2005	7.9	0.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/7/2006	30	3.5	ND	ND	ND	ND	ND	ND	ND	3.6	ND	ND	ND	ND
	12/13/2006	19	2.5	ND	ND	ND	ND	ND	ND	ND	3.2	ND	ND	ND	ND
	3/13/2007	23	4.7	ND	ND	ND	ND	ND	ND	ND	7.2	ND	ND	ND	ND
	12/19/2007	16	4.9	ND	ND	ND	ND	ND	ND	ND	3.7	ND	ND	ND	ND
	3/27/2008	12	6.9	ND	ND	ND	ND	ND	ND	ND	7	ND	ND	ND	ND
	12/4/2008	11	6.0	ND	ND	ND	ND	ND	ND	ND	6.1	ND	ND	ND	ND
	3/19/2009	9.0	4.4	ND	ND	ND	ND	ND	ND	ND	5.9	ND	ND	ND	ND
	12/3/2009	11	5.2	ND	ND	ND	ND	ND	ND	ND	4.7	ND	ND	ND	ND
	3/3/2010	9.2	5.2	ND	ND	ND	ND	ND	ND	ND	4.4	ND	ND	ND	ND
	11/30/2010	6.7	2.8	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
	3/15/2011	7.7	3.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-122	11/27/1989	13	56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2/26/1992	12	ND	ND	ND	ND	ND	ND	ND	ND	ND(1)	ND	ND	ND	ND(1)
	5/19/1992	19	50	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(10)	ND	ND(5)	ND	ND(10)
	9/1/1992	14	33	ND	ND	ND	ND	ND	ND	ND	ND(1)	ND	ND	ND	ND(1)
	12/8/1992	9	5.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/30/1993	14	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/24/1993	31	62	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)	ND	ND(10)	ND	ND(10)
	9/30/1993	29	53	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND
	12/28/1993	29	44	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND
	3/29/1994	27	48	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND
	6/21/1994	26	50	ND	ND	ND	ND	0.5	ND	ND	ND	ND	ND	ND	ND
	9/29/1994	31	48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/8/1994	32	49	ND	ND	ND	ND	ND	ND	ND	0.54	ND	ND	ND	ND
	3/28/1995	35	51	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND
	6/20/1995	33	54	ND	ND	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND
	9/26/1995	28	45	ND	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND
	6/20/1996	31	48	ND	ND	ND	ND	ND	ND	ND	6	ND	ND	ND	ND
	11/25/1996	26	41	ND	ND	ND	ND	ND	ND	ND	3.8	ND	ND	ND	ND
	5/27/1997	28	40	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
	11/10/1997	30	50	ND	ND	ND	ND	ND	ND	ND	25	ND	ND	ND	ND
	3/24/1998	35	45	ND	ND	ND	ND	ND	ND	ND	41	ND	ND	ND	ND
	10/21/1998	27	35	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND
	3/24/1999	21	32	ND	ND	ND	ND	ND	ND	ND	91	ND	ND	ND	ND
	11/4/1999	21	33	ND	ND	ND	ND	ND	ND	ND	56	ND	ND	ND	ND
	3/28/2000	25	32	ND	ND	ND	ND	ND	ND	ND	26	ND	ND	ND	ND
	11/21/2000	24	31	ND	ND	ND	ND	ND	ND	ND	48	ND	ND	ND	ND
	3/22/2001	19	31	ND	ND	ND	ND	ND	ND	ND	18	ND	ND	ND	ND
	3/19/2002	21	29	ND	ND	ND	ND	ND	ND	ND	9.3	ND	ND	ND	ND
	12/12/2002	10	10	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND
	3/26/2003	2.4	4.2	ND	ND	ND	ND	ND	ND	ND	ND	<50	ND	ND	ND
	12/17/2003	2.8	4.3	ND	ND	ND	ND	ND	ND	ND	1.7	<50	0.56	ND	ND
	3/10/2004	5.6	9.7	ND	ND	ND	ND	ND	ND	ND	1.8	ND	0.95	ND	ND
	11/23/2004	8.5	15	ND	ND	ND	ND	ND	ND	ND	1.8	ND	1.1	ND	ND
	3/28/2005	9.4	15	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND
	11/2/2005	9.3	14	ND	ND	ND	ND	ND	ND	ND	3.2	ND	0.93	ND	ND
	4/7/2006	12	23	ND	ND	ND	ND	ND	ND	ND	2.9	ND	ND	ND	ND
	12/13/2006	9.5	18	ND	ND	ND	ND	ND	ND	ND	3.5	ND	ND	ND	ND
	3/13/2007	10	17	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND
	12/19/2007	10	15	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
	3/27/2008	6.9	15	ND	ND	ND	ND	ND	ND	ND	2.2	ND	ND	ND	ND
	12/4/2008	8.4	16	ND	ND	ND	ND	ND	ND	ND	1.0</				



Table 4. Summary of Groundwater Analytical Results - Detected Halogenated VOCs
Former Caterpillar Facility - San Leandro, California

Well No.	Sample Date	TCE (µg/L)	PCE (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	cis-1,2-DCE (µg/L)	1,1,1-TCA (µg/L)	Freon 113 (µg/L)	Freon 123a ¹ (µg/L)	Freon 12 (µg/L)	Freon 22 (µg/L)	Chloroform (µg/L)	Carbon Tet (µg/L)	Vinyl Chloride (µg/L)	
State MCL ^a		5	5	5	0.5	6	6 ^c	200	1200	150	NA	NA	NA	0.5	0.5	
Federal MCL ^b		5	5	NA	5	7	70 ^c	200	NA	NA	NA	NA	100 ^d	NA	2	
MW-131	12/28/1993	46	28.0	ND	ND	ND	ND	0.7	ND	ND	ND	--	ND	ND	ND	
	3/28/1994	52	33.0	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	
	6/20/1994	40	27.0	ND	ND	ND	ND	0.7	ND	ND	ND	--	ND	ND	ND	
	9/29/1994	51	29.0	ND	ND	ND	ND	0.62	ND	ND	ND	--	ND	ND	ND	
	12/7/1994	51	31.0	ND	ND	ND	ND	0.68	ND	ND	ND	--	ND	ND	ND	
	3/28/1995	51	32.0	ND	ND	ND	ND	0.78	ND	ND	1	--	ND	ND	ND	
	6/20/1995	53	34	ND	ND	ND	ND	ND	ND	ND	1.6	--	ND	ND	ND	
	9/26/1995	52	29	ND	ND	ND	ND	ND	ND	ND	3.8	--	ND	ND	ND	
	6/20/1996	42	33	ND	ND	ND	ND	ND	ND	ND	16	--	ND	ND	ND	
	9/12/1996	39	35	ND	ND	ND	ND	ND	ND	ND	18	--	ND	ND	ND	
	11/25/1996	5.7	4.9	ND	ND	ND	ND	ND	ND	ND	1.9	--	ND	ND	ND	
	2/12/1997	5.8	5.3	ND	ND	ND	ND	ND	ND	ND	3.1	--	ND	ND	ND	
	5/27/1997	1.8	2.0	ND	ND	ND	ND	ND	ND	ND	0.82	--	ND	ND	ND	
	11/10/1997	31	33	ND	ND	ND	ND	ND	ND	ND	18	--	ND	ND	ND	
	3/23/1998	29	12	ND	ND	ND	ND	ND	ND	ND	12	--	ND	ND	ND	
	10/21/1998	28	30	ND	ND	ND	ND	ND	ND	ND	19	--	ND	ND	ND	
	3/24/1999	23	27	ND	ND	ND	ND	ND	ND	ND	28	--	ND	ND	ND	
	11/4/1999	19	25	ND	ND	ND	ND	ND	ND	ND	64	--	ND	ND	ND	
	3/29/2000	25	22	ND	ND	ND	ND	ND	ND	ND	55	--	ND	ND	ND	
	11/21/2000	26	27	ND	ND	ND	ND	ND	ND	ND	39	--	ND	ND	ND	
	3/20/2002	11	7.4	ND	ND	ND	ND	ND	ND	ND	--	7.3	--	ND	ND	ND
	3/26/2003	11	8.4	ND	ND	ND	ND	ND	ND	ND	--	3.1	<50	ND	ND	ND
	12/16/2003	7.7	5.1	ND	ND	ND	ND	ND	ND	ND	--	ND	<50	ND	ND	ND
	3/10/2004	8.5	6.7	ND	ND	ND	ND	ND	ND	ND	--	1.3	<50	ND	ND	ND
	11/23/2004	8.8	6.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/28/2005	14	11	ND	ND	ND	ND	ND	ND	ND	1.5	ND	0.56	ND	ND	ND
	11/2/2005	19	13	ND	ND	ND	ND	ND	ND	ND	5.2	ND	ND	ND	ND	ND
	4/5/2006	21	19	ND	ND	ND	ND	ND	ND	ND	2.2	ND	0.61	ND	ND	ND
	12/12/2006	16	12	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	ND
	3/13/2007	18	13	ND	ND	ND	ND	ND	ND	ND	2.1	ND	ND	ND	ND	ND
	12/19/2007	14	11	ND	ND	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND	ND
3/27/2008	14	13	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	
12/4/2008	15	12	ND	ND	ND	ND	ND	ND	ND	--	2.3	--	ND	ND	ND	
3/18/2009	13	7.5	ND	ND	ND	ND	ND	ND	ND	--	1.1	--	0.58	ND	ND	
12/3/2009	14	8.3	ND	ND	ND	ND	ND	ND	ND	--	0.89	--	ND	ND	ND	
3/3/2010	14	8.4	ND	ND	ND	ND	ND	ND	ND	0.69	ND	ND	ND	ND	ND	
11/30/2010	9.1	5.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
3/16/2011	2.5	1.4	ND	ND	ND	ND	13.0	ND	ND	ND	ND	ND	ND	ND	ND	
MW-150	11/15/2005	11	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	
	4/5/2006	16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/12/2006	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	3/14/2007	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/19/2007	16	ND	ND	ND	ND	0.64	ND	ND	ND	ND	ND	ND	ND	ND	
	3/27/2008	17	ND	ND	ND	ND	0.57	ND	ND	ND	ND	ND	ND	ND	ND	
	12/4/2008	18	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND	
	3/18/2009	20	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND	
	12/3/2009	21	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND	
	3/3/2010	28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	11/30/2010	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
3/16/2011	23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
P-4	12/21/1995	23	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	3/15/1996	26	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	6/21/1996	28	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	9/13/1996	29	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	11/25/1996	27	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	2/12/1997	29	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	5/28/1997	26	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	11/11/1997	33	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	3/23/1998	34	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	10/21/1998	28	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	3/24/1999	22	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	11/2/1999	24	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	
	3/29/2000	25	ND	ND	ND	ND	ND	ND	ND	ND	3.3	--	ND	ND	ND	
	11/20/2000	20	ND	ND	ND	ND	ND	ND	ND	ND	2.2	--	ND	ND	ND	
	3/31/2004	7.8	ND	ND	ND	ND	ND	ND	ND	--	ND	<50	ND	ND	ND	
	11/23/2004	3.9	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	
	3/28/2005	2.2	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	
	11/2/2005	12	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	
	4/4/2006	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	12/12/2006	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
3/13/2007	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
12/19/2007	4.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
3/28/2008	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
12/4/2008	16	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND		
3/18/2009	17	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND		
12/3/2009	2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
3/3/2010	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
11/30/2010	3.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
3/15/2011	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		



Table 4. Summary of Groundwater Analytical Results - Detected Halogenated VOCs
Former Caterpillar Facility - San Leandro, California

Well No.	Sample Date	TCE (µg/L)	PCE (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	1,1-DCE (µg/L)	cis-1,2-DCE (µg/L)	1,1,1-TCA (µg/L)	Freon 113 (µg/L)	Freon 123a ¹ (µg/L)	Freon 12 (µg/L)	Freon 22 (µg/L)	Chloroform (µg/L)	Carbon Tet (µg/L)	Vinyl Chloride (µg/L)
State MCL ^a		5	5	5	0.5	6	6 ^c	200	1200	150	NA	NA	NA	0.5	0.5
Federal MCL ^b		5	5	NA	5	7	70 ^c	200	NA	NA	NA	NA	100 ^d	NA	2
EX-2B	2/12/1997	150	ND	ND	ND	0.55	ND	0.51	ND	ND(1.0)	ND(2.0)	ND(1.0)	ND	ND	ND
	5/27/1997	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
	3/18/1998	70	0.71	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
	6/10/1998	67	3.6	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
	10/20/1998	55	5.8	ND	ND	ND	ND	ND	ND	ND	3.4	--	ND	ND	ND
	3/23/1999	41	6.1	ND	ND	ND	ND	ND	ND	ND	7.4	--	ND	ND	ND
	11/2/1999	49	6.0	ND	ND	ND	ND	ND	ND	ND	15	--	ND	ND	ND
	3/27/2000	44	5.1	ND	ND	ND	ND	ND	ND	ND	17	--	ND	ND	ND
	11/20/2000	47	4.7	ND	ND	ND	ND	ND	ND	ND	19	--	ND	ND	ND
	11/13/2001	41	3.9	ND	ND	ND	ND	ND	ND	ND	22	--	ND	ND	ND
	3/28/2003	34	3.4	ND	ND	ND	ND	ND	ND	--	9.6	<50	ND	ND	ND
	12/16/2003	29	2.9	ND	ND	ND	ND	ND	ND	--	ND	<50	ND	ND	ND
	4/15/2004	29	2.9	ND	ND	ND	ND	ND	ND	11	<0.5	ND	ND	ND	ND
	5/18/2004	30	7.7	ND	ND	ND	ND	ND	ND	17	<0.5	ND	ND	ND	ND
	6/15/2004	37	10	ND	ND	ND	ND	ND	ND	7.1	<0.5	ND	ND	ND	ND
	7/15/2004	28	9.2	ND	ND	ND	ND	ND	ND	3.7	<0.5	1.52	ND	ND	ND
	8/13/2004	31	9	ND	ND	ND	ND	ND	ND	5.9	<0.5	ND	ND	ND	ND
	9/15/2004	33	8	ND	ND	ND	ND	ND	ND	4.4	<0.5	ND	ND	ND	ND
	3/29/2005	27	3.2	ND	ND	ND	ND	ND	ND	5.4	ND	ND	ND	ND	ND
	11/1/2005	27	3.2	ND	ND	ND	ND	ND	ND	--	7.7	ND	ND	ND	ND
	4/5/2006	38	10	ND	ND	ND	ND	ND	ND	3.4	ND	ND	ND	ND	ND
	12/12/2006	31	6.5	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	ND	ND
	3/12/2007	35	6.6	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND
	12/20/2007	33	4.7	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND
	3/27/2008	22	2.9	ND	ND	ND	ND	ND	ND	0.96	ND	ND	ND	ND	ND
	12/4/2008	4.2	0.75	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
	3/18/2009	3.7	0.51	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND
	12/3/2009	4.1	0.51	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND
	3/3/2010	5.4	0.56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/30/2010	6.9	0.63	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/15/2011	8.5	0.97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EX-2C	2/12/1997	260	ND	ND	ND	2.2	1.1	2.1	ND	ND(1.0)	ND(1.0)	ND(1.0)	ND	ND	ND
	5/27/1997	290	ND	ND	ND	1.8	0.93	2.2	ND	ND	ND	--	ND	ND	ND
	3/18/1998	240	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	--	ND(2.5)	ND	ND(2.5)
	6/10/1998	250	ND	ND	ND	1.6	ND	1.4	ND	ND	ND	--	ND	ND	ND
	10/20/1998	150	ND	ND	ND	0.52	ND	0.74	ND	ND	ND	--	ND	ND	ND
	3/22/1999	130	0.79	ND	ND	0.57	ND	0.79	ND	ND	1.9	--	ND	ND	ND
	11/2/1999	120	ND	ND	ND	ND	ND	ND	ND	ND	1.8	--	ND	ND	ND
	3/27/2000	110	ND	ND	ND	ND	ND	ND	ND	ND	1.8	--	ND	ND	ND
	11/20/2000	100	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND
	11/13/2001	91	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND
	3/28/2003	85	ND	ND	ND	ND	ND	ND	ND	--	--	<50	ND	ND	ND
	12/16/2003	69	ND	ND	ND	ND	ND	ND	ND	--	ND	<50	ND	ND	ND
	4/15/2004	91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/18/2004	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	6/15/2004	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/15/2004	95	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
	8/13/2004	94	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	9/15/2004	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/29/2005	83	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/1/2005	83	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND
	4/5/2006	98	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/13/2006	87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/12/2007	71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/21/2007	85	ND	ND	ND	ND	0.97	ND	ND	ND	ND	ND	ND	ND	ND
	3/27/2008	77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/5/2008	4.1	ND	ND	ND	ND	ND	ND	ND	--	ND	--	1.5	ND	ND
	3/18/2009	2.2	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	ND	ND
	12/3/2009	0.63	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/3/2010	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	11/30/2010	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	3/15/2011	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

- TCE = Trichloroethene
- PCE = Tetrachloroethene
- 1,1-DCA = 1,1-Dichloroethane
- 1,2-DCA = 1,2-Dichloroethane
- 1,1-DCE = 1,1-Dichloroethene
- 1,2-DCE = 1,2-Dichloroethene, total
- Carbon Tet = Carbon Tetrachloride
- 1,1,1-TCA = 1,1,1-Trichloroethane
- 1,1,2-TCA = 1,1,2-Trichloroethane
- Freon 113 = 1,1,2-Trichloro-1,2,2-trifluoroethane
- Freon 11 = Trichlorofluoromethane
- Freon 12 = Dichlorodifluoromethane
- Freon 22 = Chlorodifluoromethane
- Freon 123a = 1,2-Dichlorotrifluoroethane
- (a) = State of California MCL for drinking water
- (b) = Federal MCL
- (c) = Value is for cis-1,2-dichloroethene isomer, the more toxic of the cis- and trans-isomers
- (d) = State MCL for trans-isomer is 10, Federal MCL is 100
- ++ = Value is for total trihalomethanes
- = Freon values confirmed by EPA Test Method 624
- NA = Not analyzed
- = Not available

µg/L = Micrograms per liter

(1) = Freon 123a, based on historical results, all Freon 11 detections are assumed to be Freon 123a when analyzed by EPA Test Method 601

(2) 1,1,2,2-Tetrachloroethane was detected in this sample at 17 µg/l on 12/8/1992
MCL for 1,1,2,2-Tetrachloroethane is 1 µg/l

(3) Chlorobenzene was detected in this sample at 0.55 µg/l on 09/30/94
MCL for Chlorobenzene is 70 µg/l

(4) Chlorobenzene was detected in this sample at 0.53 µg/l on 12/09/94

(5) Chlorobenzene was detected in these samples at 0.85 µg/l and 1,2-dichlorobenzene at 0.85 µg/l on 12/20/95

(6) 1,2-dichlorobenzene was detected in this sample at 0.73 µg/l on 09/27/95
MCL for 1,2-dichlorobenzene is 600 µg/l

(7) Methylene chloride was detected in this sample at 0.52 µg/l on 3/24/98
MCL for methylene chloride is 5 µg/l

(8) Methylene chloride was detected in this sample at 1.1 µg/l on 3/24/98

(9) Reported 33 µg/l Freon 12 but based on historical 624 results interpreted as Freon 22

ND = Not detected above the reporting limit of 0.5 µg/L, unless otherwise indicated in () parenthesis

* = Highest concentration found within Project Site

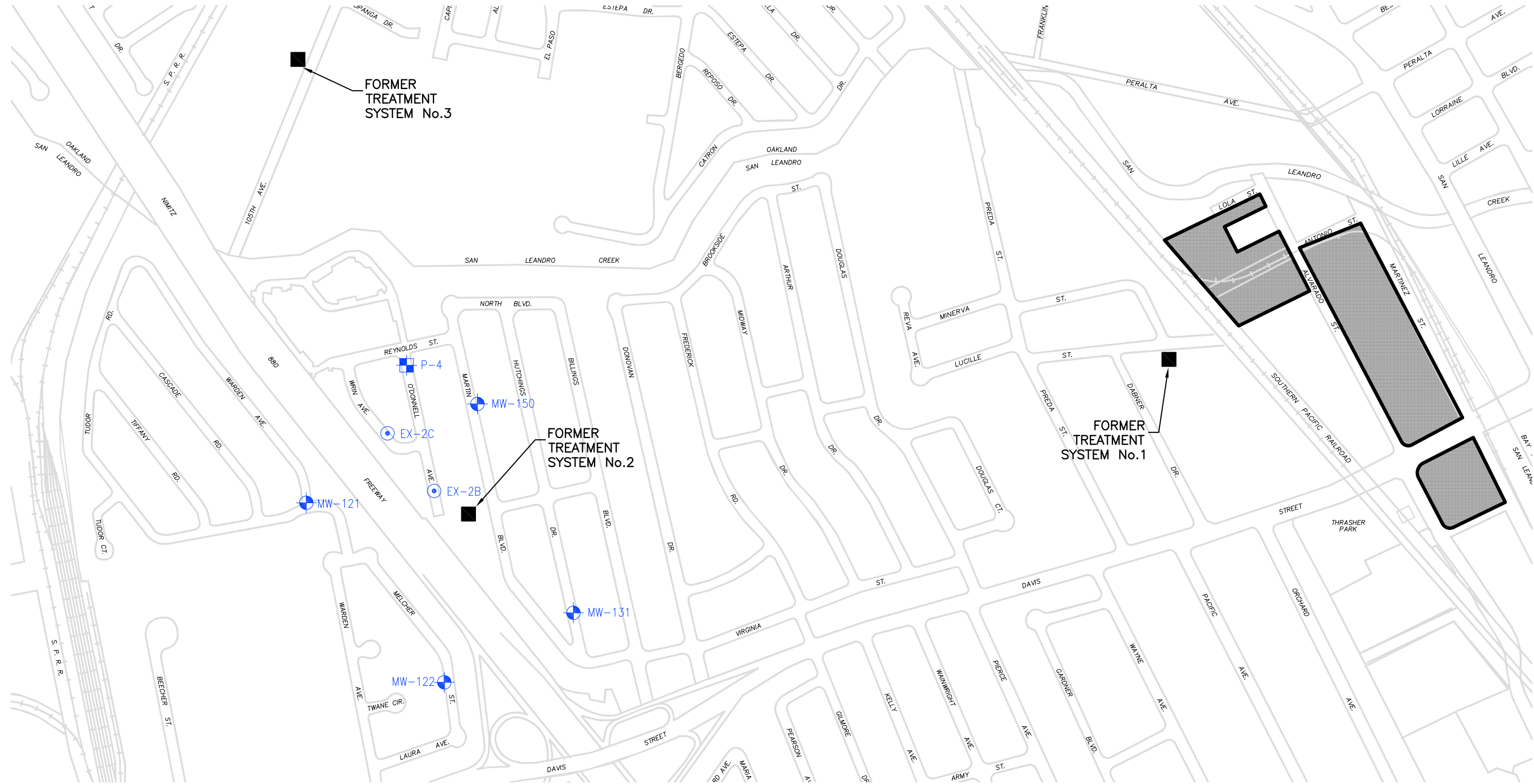
** = Tested by EPA Method 624

*** = Freon 11 detected at 1.1 µg/L on 3/20/02

**** = Bromodichloromethane detected at 1.4 µg/L

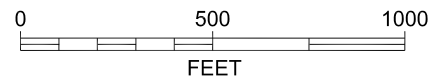
***** = Bromodichloromethane detected at 1.2 µg/L and Dibromochloromethane at 0.57 µg/L

***** = Concentration exceeds either California or Federal Maximum Contaminant Level (MCL)



LEGEND

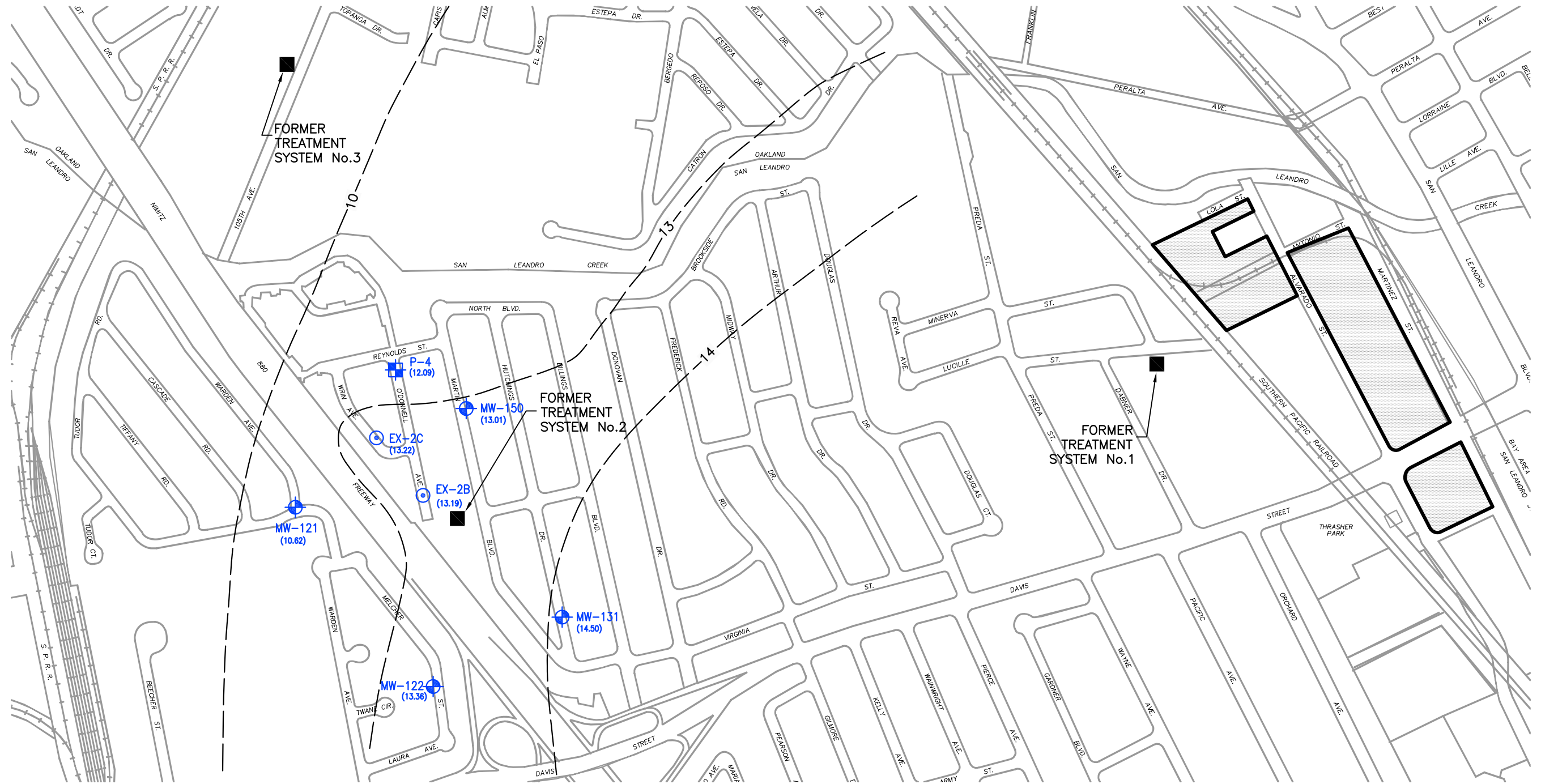
- MW-131 MONITORING WELL
- EX-2B MONITORING WELL
- P-4 PIEZOMETER
- FORMER CATERPILLAR FACILITY



SITE PLAN WITH MONITORING WELL LOCATIONS
 Former Caterpillar Facility
 San Leandro, California

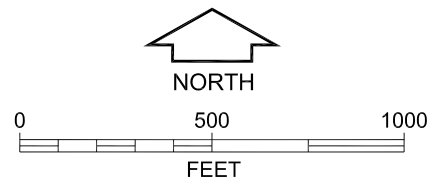
Reference: THIS SITE PLAN IS ADAPTED FROM A DRAWING TITLED "SITE PLAN WITH MONITORING WELL LOCATIONS," BY HARDING ESE, DRAWING NO.52283009.DWG, DATED 5/01.

M:\Drafting\JOBFILES\2011\04.74100004\Drawings\B04.74100004-02 Site.dwg 04-07-2011 - 10:10am



LEGEND

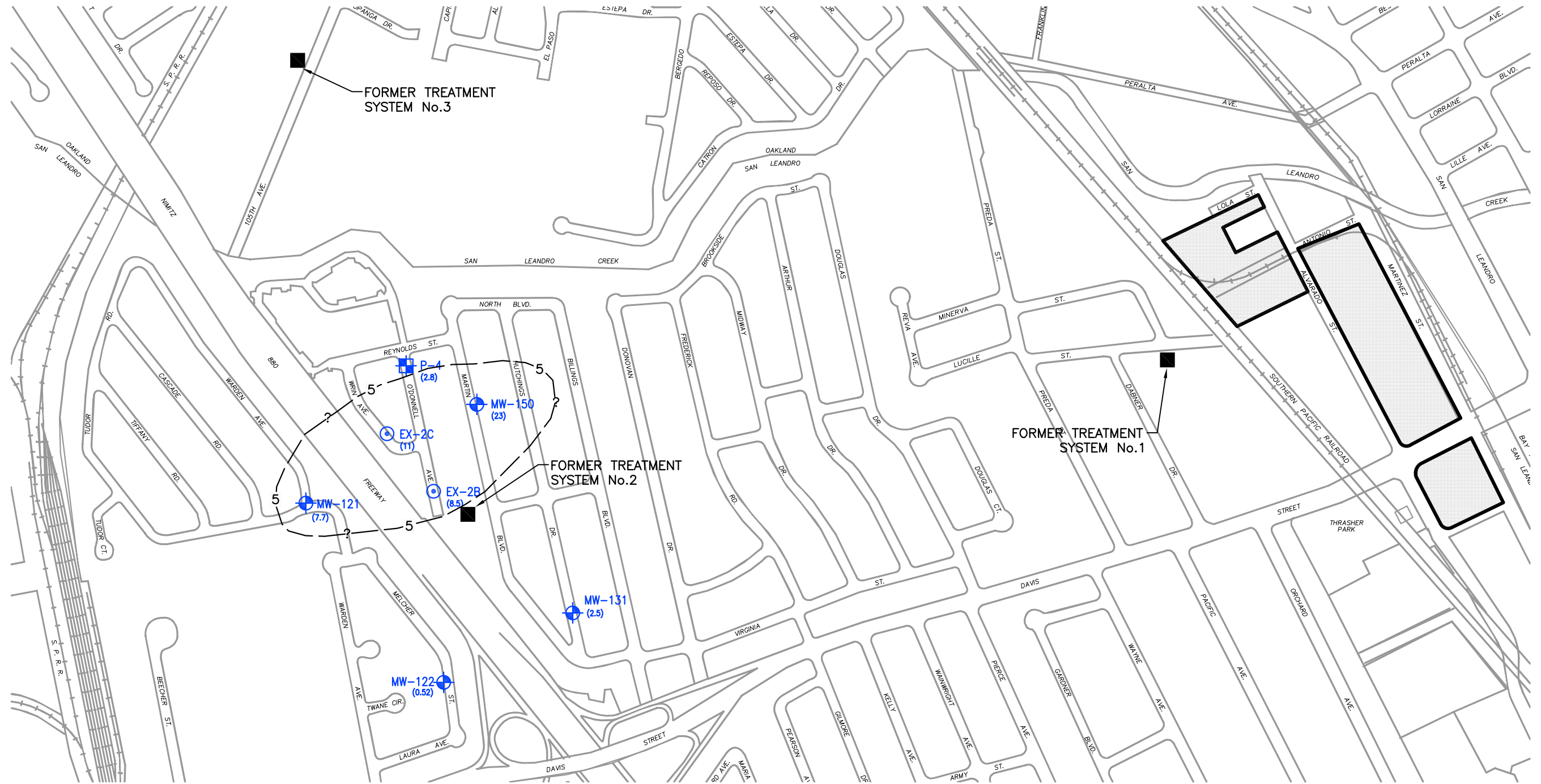
- MW-131 MONITORING WELL
- EX-2B MONITORING WELL
- P-4 PIEZOMETER
- FORMER CATERPILLAR FACILITY
- 12 GROUNDWATER ELEVATION CONTOUR OF 12 FEET M.S.L.



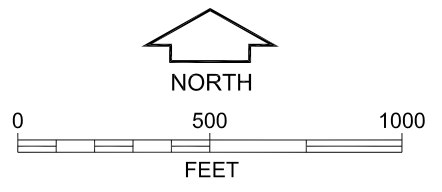
**GROUNDWATER SURFACE MAP
 SHALLOW AQUIFER ZONE
 Former Caterpillar Facility
 San Leandro, California**

M:\Drafting\JOBFILES\2011\04.74100004\Drawings\B04.74100004-03 GW map.dwg 04-07-2011 - 1:19pm

Reference: THIS SITE PLAN IS ADAPTED FROM A DRAWING TITLED "SITE PLAN WITH MONITORING WELL LOCATIONS," BY HARDING ESE, DRAWING NO.52283009.DWG, DATED 5/01.



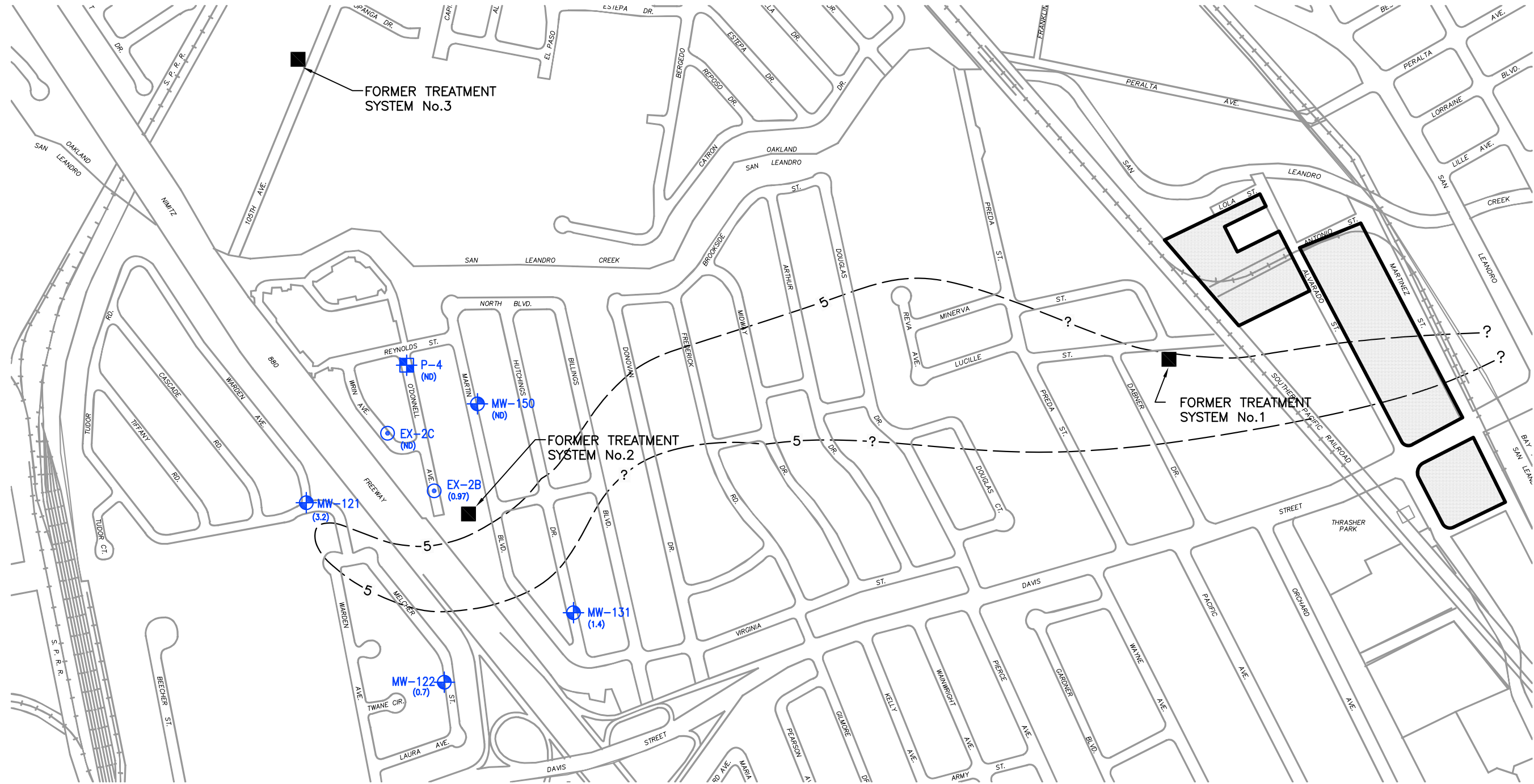
- LEGEND**
- MW-131 (14) MONITORING WELL
 - EX-2B MONITORING WELL
 - P-4 PIEZOMETER
 - FORMER CATERPILLAR FACILITY
 - 5-- CONTOUR of 5 µg/L of TCE



**DISTRIBUTION OF TCE
 IN SHALLOW AQUIFER ZONE
 Former Caterpillar Facility
 San Leandro, California**



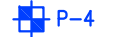

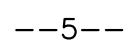
M:\Drafting\JOBFILES\2011\04.74100004\Drawings\B04.74100004-04 TCE Distrib.dwg 04-27-2011 - 4:45pm

Reference: THIS SITE PLAN IS ADAPTED FROM A DRAWING TITLED "SITE PLAN WITH MONITORING WELL LOCATIONS," BY HARDING ESE, DRAWING NO.52283009.DWG, DATED 5/01.



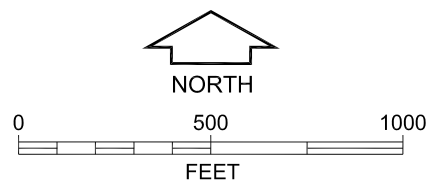
M:\Drafting\JOBFILES\2011\04.74100004\Drawings\B04.74100004-05 PCE Distrib.dwg 04-27-2011 - 4:50pm

LEGEND

-  MW-131 (8.3) MONITORING WELL
-  EX-2B MONITORING WELL
-  P-4 PIEZOMETER
-  FORMER CATERPILLAR FACILITY
-  --5-- CONTOUR of 5 µg/L of PCE

Note:

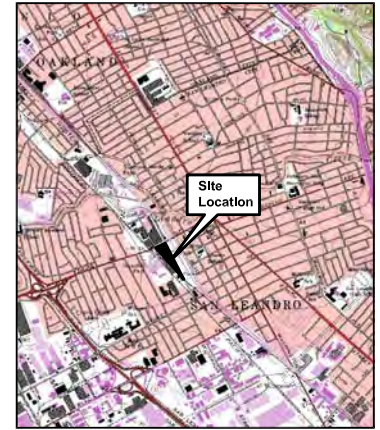
Previous detections of PCE at concentrations greater than 5 µg/L have influenced the construction of this contour.



**DISTRIBUTION OF PCE
 IN SHALLOW AQUIFER ZONE
 Former Caterpillar Facility
 San Leandro, California**

Reference: THIS SITE PLAN IS ADAPTED FROM A DRAWING TITLED "SITE PLAN WITH MONITORING WELL LOCATIONS," BY HARDING ESE, DRAWING NO.52283009.DWG, DATED 5/01.

SITE VICINITY MAP



EXPLANATION

- ⊙ February 2009 step-out sample locations
- December 2008 sample locations
- ▲ October 2009 sample location
- A — A' Cross Section Line



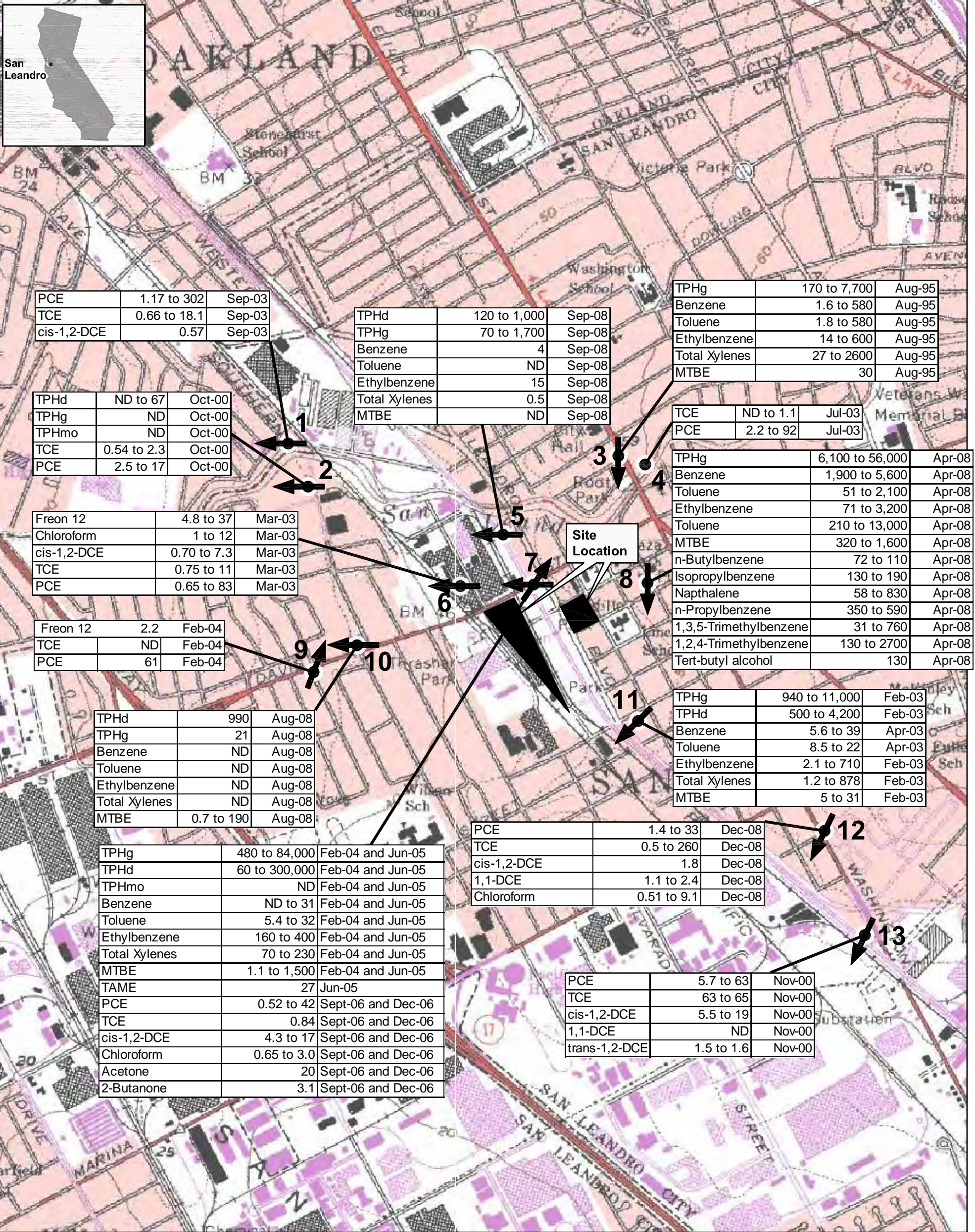
Map Source: Development plans are based on the Master Plan provided by Keystone Development Group, LLC

I:\CAD\08\08-616-B\Focus area.dwg

IRIS ENVIRONMENTAL
 1438 Webster Street, Suite 302
 Oakland, California 94612
 Ph. (510) 834-4747 Fax: (510) 834-4199

Site Vicinity and Focus Area
 San Leandro Crossing
 San Leandro, California

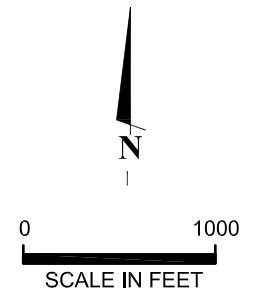
Figure
1



EXPLANATION:

- Approximate groundwater monitoring location
- ← Approximate groundwater flow direction

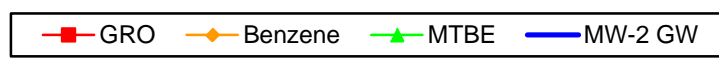
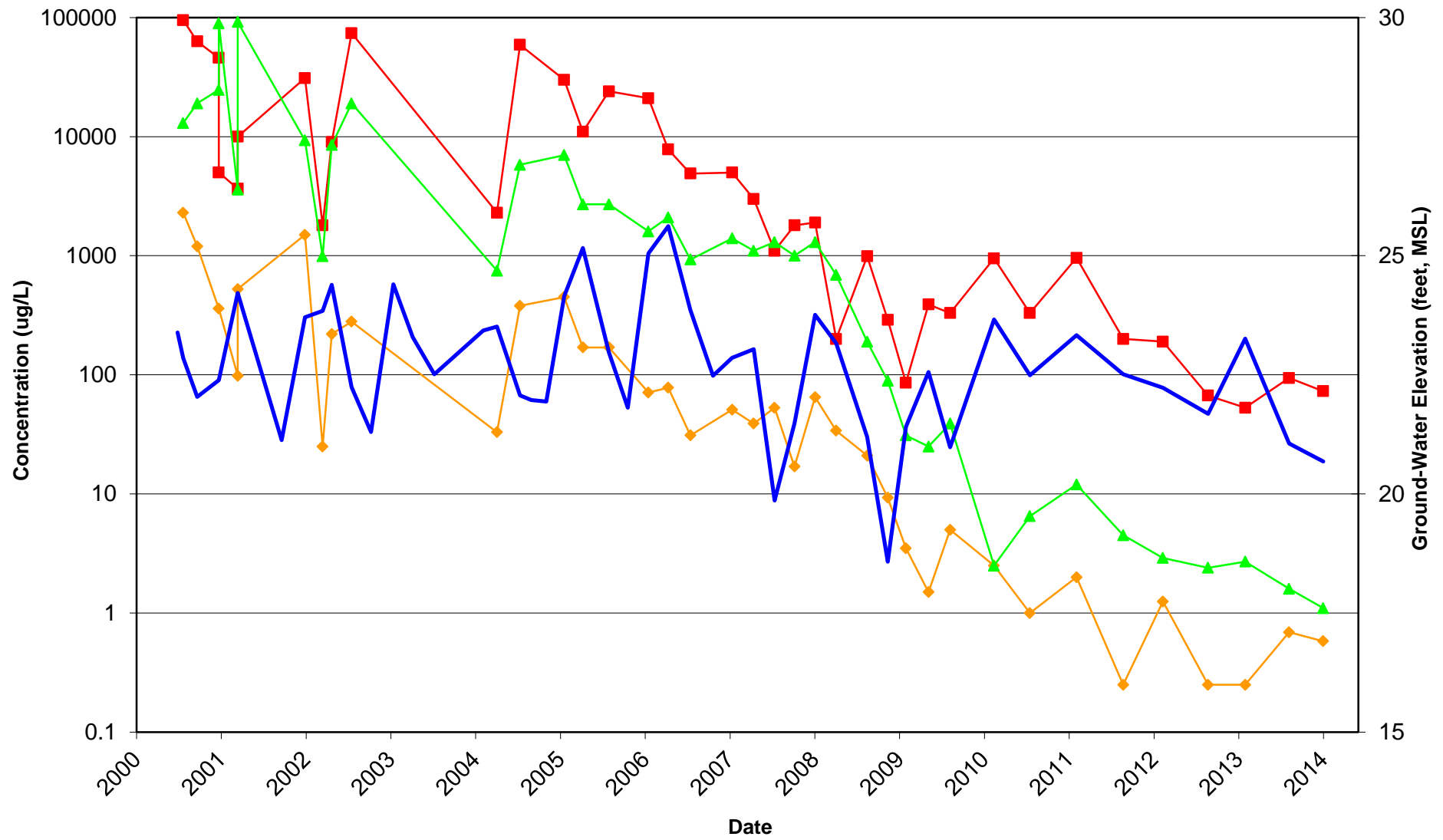
Chemical detected	Range of concentrations detected in micrograms per liter (µg/L)	Date of groundwater sampling
TPHg	6,100 to 56,000	Apr-08
Benzene	1,900 to 5,600	Apr-08



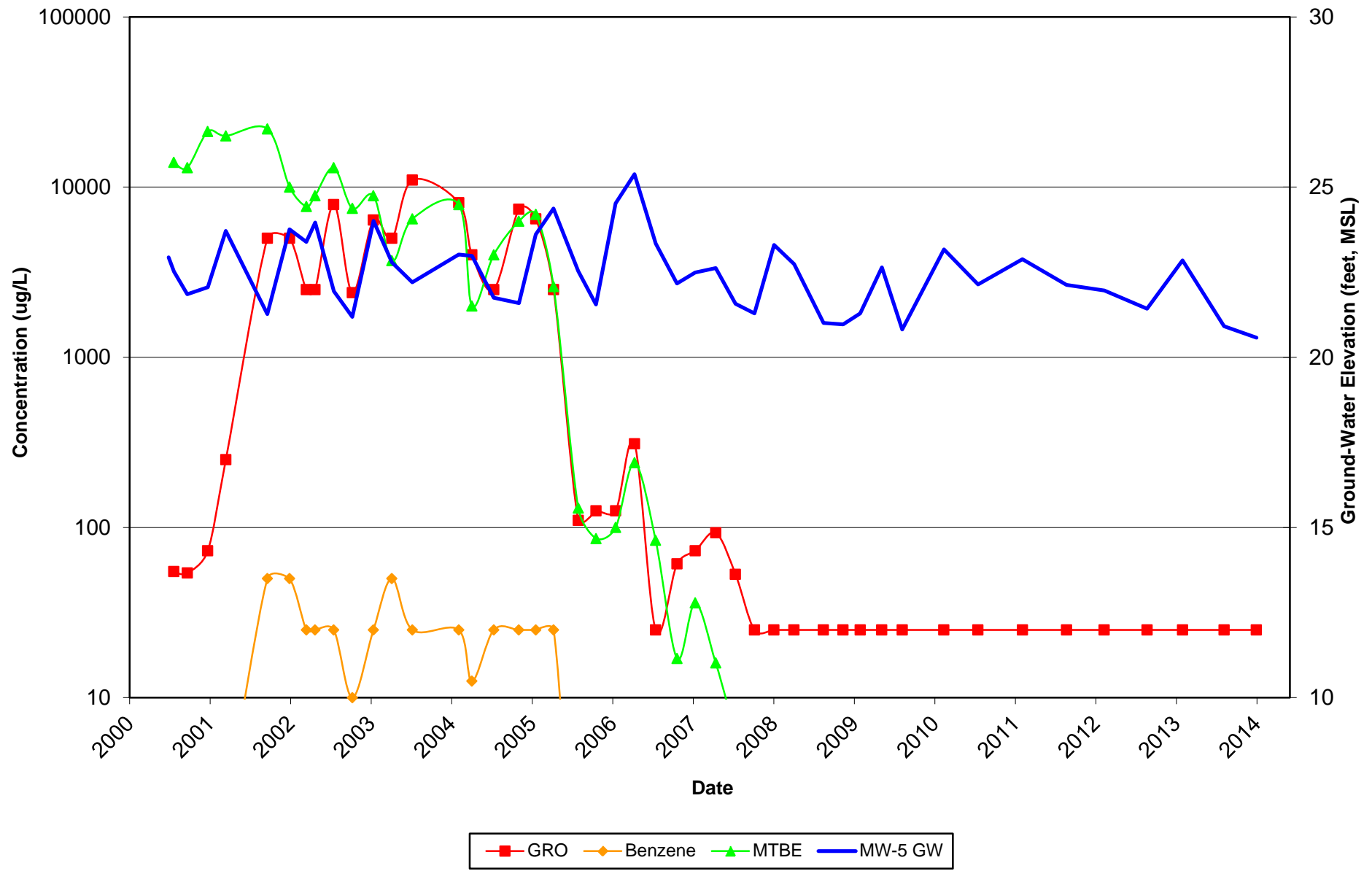
Appendix L

Analytical Concentration Trend Graphs

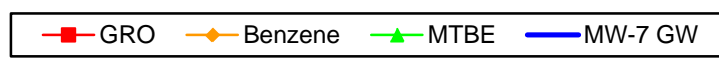
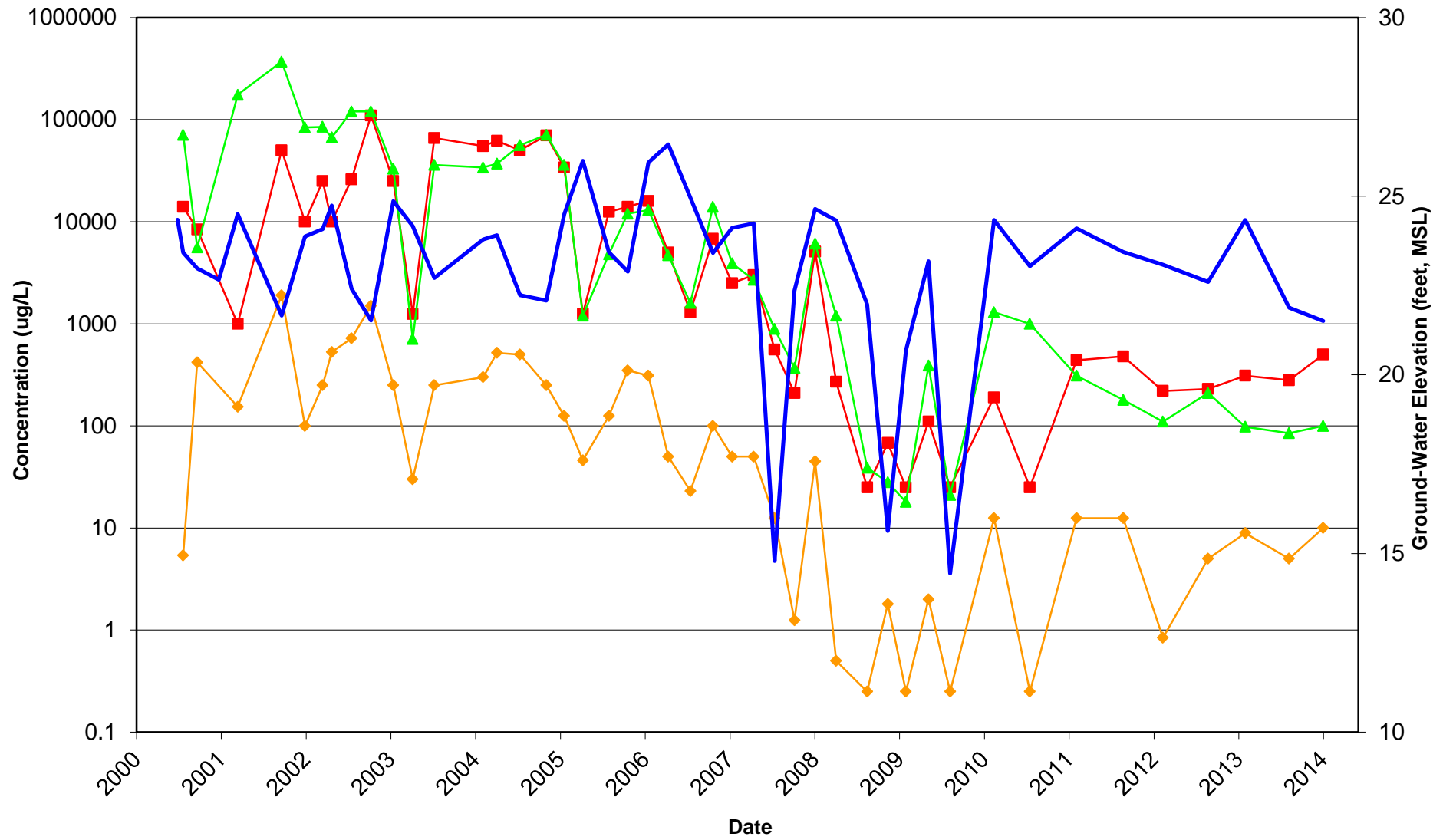
MW-2 Concentrations vs. Time
ARCO Station #2111
1156 Davis Street, San Leandro, California



MW-5 Concentrations vs. Time
ARCO Station #2111
1156 Davis Street, San Leandro, California



MW-7 Concentrations vs. Time
ARCO Station #2111
1156 Davis Street, San Leandro, California



MW-8 Concentrations vs. Time
ARCO Station #2111
1156 Davis Street, San Leandro, California

