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September 10, 2012

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1131 Harbor Bay Parkway  
Alameda, CA 94502

Re: Facility No. 21-1283  
3810 Broadway, Oakland, CA

**RECEIVED**

11:07 am, Sep 11, 2012

Alameda County  
Environmental Health

Dear Mr. Detterman:

Attached for your review is the *Site Assessment Report* for the above-referenced site. This report was prepared by ARCADIS, upon whose assistance and advice I have relied. I declare under penalty of perjury that the information and/or recommendations contained in the attached report are true and correct to the best of my knowledge. Should you have any further questions, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in blue ink that reads "Kelly C. Esters".

Kelly C. Esters  
Property Specialist

KCE:st  
Encl.

**Chevron Environmental Management Company**

## **Site Assessment Report**

**Former Texaco Service Station 21-1283**  
**3810 Broadway**  
**Oakland, California**  
Fuel Leak Case No. RO0000056  
GeoTracker Global ID T0600101108

September 10, 2012



**Prepared by:**

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**Site Assessment Report**

Former Texaco Service Station  
21-1283  
3810 Broadway  
Oakland, California  
Fuel Leak Case No. RO0000056  
GeoTracker Global ID  
T0600101108

Submitted to:  
Mr. Mark Detterman  
Alameda County Environmental  
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Prepared for:  
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Our Ref.:  
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Attachment A      Boring and Well Construction Logs

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## **1. Introduction**

On behalf of Chevron Environmental Management Company (CEMC, ARCADIS U.S., Inc. (ARCADIS) has prepared this Site Assessment Report to present the results of the site assessment activities associated with the Former Texaco Service Station 21-1283, located at 3810 Broadway, Oakland, California (site; Figure 1).

Soil vapor probe construction, cone penetrometer test (CPT) boring advancement, soil boring advancement, temporary well construction and sampling, and soil vapor sampling activities were conducted at the site between June 25 and July 2, 2012. The activities were conducted as outlined in the Work Plan for Soil Vapor, Soil, and Groundwater Investigation (ARCADIS 2012) and conditionally approved with modifications by Alameda County Environmental Health (ACEH) (ACEH 2012).

## **2. Background Information**

### **2.1 Site Description and Features**

The site is an active service station and automobile repair shop located in a mixed commercial and residential area of Oakland, California; at the intersection of Broadway and 38th Street. The site is bounded on the west by Broadway, to the south by 38th Street, to the east by residential apartments and to the north by commercial and residential buildings. Current site features include a station building, automobile repair building, fuel dispenser islands and an underground storage tank (UST) complex.

### **2.2 Site History**

The site operated as a Texaco Service Station from approximately 1963 to 1985. Site features included four 6,000 gallon USTs and one 550 gallon waste oil UST that were removed in February 1980 and May 1991, respectively. A total of 12 soil borings and 13 groundwater monitoring wells had been installed at the site prior to this investigation. Nine groundwater monitoring wells are currently a part of the monitoring and sampling program (Conestoga-Rovers & Associates [CRA] 2009a). A complete summary of environmental investigations can be found in the *Site Conceptual Model* (CRA 2009b).

### 2.3 Geology and Hydrogeology

The site is located in the Oakland Sub Basin of the East Bay Plain Groundwater Basin., which consists of unconsolidated sediments of Pleistocene and Holocene age overlying bedrock of Jurassic, Cretaceous and Tertiary age. The East Bay Plain overlies a flank of a broad Franciscan bedrock depression. Unconsolidated sediments in the basin vary in thickness up to 1,000 feet. These unconsolidated sediments are commonly referred to, from oldest to youngest, as Santa Clara Formation, Alameda Formation, Temescal and artificial fill. The site is underlain primarily by unconsolidated fill material overlying sandy silts and clays, interbedded with well sorted sands and silty sands.

The site is roughly 85 feet above mean sea level. The closest stream is Glen Echo Creek, located approximately 1,500 feet south of the site. The nearest surface water body is Lake Merritt, located approximately 1.3 miles to the south of the site. Onsite depth to water (DTW) has historically ranged from approximately 13 feet to 34 feet below ground surface (bgs). Groundwater elevation beneath the site was significantly influenced in 2007 and 2008 due to local dewatering associated with Kaiser Permanente construction across Broadway. Since December 2010, DTW measurements have ranged from 19.27 to 29.58 feet bgs, and have been at an average of 23.40 feet bgs. Groundwater levels observed during the site assessment match these recent findings. Groundwater flow direction varies considerably between the north, west and south. Groundwater mounding and groundwater depressions have also been observed (ARCADIS 2012).

### 3. Site Assessment Activities

Between June 25 and July 2, 2012, Cascade Drilling, LP, (CDLP), under the supervision of ARCADIS, installed three dual level permanent soil vapor probes, advanced 6 CPT borings, advanced 6 soil borings, and installed temporary wells in the soil borings. Drilling locations are shown on Figure 2. ARCADIS obtained drilling permits from the Alameda County Public Works Agency (ACPWA) prior to commencing intrusive field activities and coordinated field activities with an ACPWA inspector on June 25, 2012, to document compliance with the permit requirements. On July 2, 2012, ARCADIS collected soil vapor samples from the three soil vapor probe locations.

### 3.1 Underground Utility Locating and Geophysical Survey

On June 18, 2012, Cruz Brothers Locators, a private utility-locating company, was contracted to clear the boring locations for underground utilities under the supervision of ARCADIS personnel and the site boring locations were marked. Underground Service Alert of Northern California and Nevada was notified on June 19, 2012, over the minimum of 48 hours prior to commencing field activities, to identify any public utility alignments that conflicted with the proposed boring locations. Boring locations were adjusted to allow for sufficient clearance of mapped underground utilities, in accordance with ARCADIS and Chevron policies. Figure 2 presents the boring locations.

### 3.2 Soil Vapor Probe Installation

On June 25 and 26, 2012, ARCADIS and CDLP installed three permanent dual level soil vapor probes. Boring and well construction logs are included in Attachment A. Each soil vapor probe location was manually cleared with a hand auger to approximately 10.5 feet bgs. Each vapor probe contains two soil vapor screens centered at depths of 5 and 10 feet bgs. Figure 2 presents the soil vapor locations.

#### 3.2.1 Soil Screening and Sampling

At each soil vapor probe location, soil samples were collected during borehole clearance at approximately 1 foot intervals using a hand auger. The samples were screened in the field using a photoionization detector (PID) and were described in the field by the supervising geologist, using visual and manual methods of the Unified Soil Classification System (USCS).

Soil samples were collected using a hand-operated slide hammer and undisturbed core sampler with decontaminated stainless steel sleeves and analyzed for geotechnical parameters for the potential use in vapor transport modeling. Two samples were collected, from depths of approximately 5 and 10 feet bgs, at each soil vapor probe location. The sleeves were capped on each end with Teflon<sup>®</sup> squares and plastic caps. The geotechnical soil samples were submitted to TestAmerica Laboratories, Inc. (TestAmerica) of Irvine, CA and analyzed using California Environmental Protection Agency (CalEPA) recommended American Society for Testing and Materials (ASTM) analytical methods for:

- Dry bulk soil density (ASTM D2937)



- Grain density (ASTM D854)
- Soil moisture (ASTM D2216)
- Grain size distribution (Sieve method - ASTM D422)

Results from grain density and dry bulk soil density were used to calculate total soil porosity. The results of these analyses are presented in Table 1. Laboratory analytical results and chain-of-custody documentation are included in Attachment B.

### *3.2.2 Construction Details*

When each respective boring had been advanced to its final depth of approximately 10.5 feet bgs, a 6 inch long, 0.375 inch outer diameter (OD), stainless steel soil vapor screen was set in a one foot interval of #2 sand pack, allowing approximately 3 inches of sand above and below the screen. Teflon tubing was connected to the soil vapor screen and capped with a new, vapor-tight, brass 2-way valve at the surface, eliminating the potential for barometric pressure fluctuations to induce vapor transport between the subsurface and the atmosphere. The 2-way valve was installed in the closed position, allowing equilibration of soil vapor concentrations to commence immediately after installation. A one foot interval of dry granular bentonite was placed above the sand pack followed by hydrated granular bentonite to the depth of the next sample probe. This process was repeated for the 5 foot deep soil vapor screen. The surface of each multilevel probe cluster location was fitted with a flush mounted, traffic rated well box with sufficient room to store the tubing lines and valves, which was sealed from below the bottom of the well box skirt to the surface with concrete.

### **3.3 Cone Penetrometer Test Borings**

Five CPT borings were initially proposed by ARCADIS (2012), with a sixth boring requested by ACEH (2012). The purpose of these borings was to identify the depth and horizontal distribution of the clay layer identified in the MW-12 boring log, to allow for strategic placement of temporary well screens in the soil borings.

Prior to drilling, all boring locations were cleared to a minimum depth of 8 feet 1 inch bgs using a hand auger. The CPT-6 location was abandoned due to discovery of pea gravel during hand clearance and limited available space due to an electrical and water line in the area.

CPT borings were initially advanced using a truck-mounted Geoprobe 6600 direct push rig. CPT borings rely on pushing drill rods with only the weight of the drill rig and without hammering. On June 26, 2012, the initial CPT location, CPT-1, encountered refusal at 22.5 feet, significantly above the target depth of 35 feet, and the second CPT boring, CPT-2, encountered refusal at 9 ft bgs. On June 27, 2012, CDLP mobilized a heavier drill rig, a track-mounted Geoprobe 8040DT, to the site to complete the remaining CPT borings. CPT-3, CPT-4, and CPT-5 were all successfully completed, with refusal depths between 31 and 35 ft bgs. CDLP reattempted CPT-2 with the Geoprobe 8040DT rig, but refusal was again encountered at 9 ft bgs. Following completion, CDLP provided CPT boring logs with soil-type classifications (Robertson, Campanella et al. 1986), which are included in Attachment C.

### **3.4 Soil Borings and Temporary Wells**

Prior to drilling, all boring locations (DP-1 through DP-6) were cleared to a minimum depth of 8 feet 1 inch bgs using a hand auger. Soil borings were advanced using a truck-mounted Geoprobe 6600 direct push rig and dual-tube casing. Figure 2 presents the boring locations.

#### *3.4.1 Soil Sampling, Screening, and Analysis*

At each soil boring location, soil samples were collected during borehole clearance at approximately 1 foot intervals using a hand auger. Following manual clearance of the boreholes, continuous soil samples were collected using new 2-inch diameter acetate liners in 4-foot long sample runs. Sample run lengths were decreased towards the bottom of the borings due to expanded recovery of fine grained soils in the saturated zone.

Soil samples were screened in the field using a PID and were described in the field, using visual and manual methods of the Unified Soil Classification System (USCS). Soil descriptions and PID readings are presented in the boring logs included in Attachment A. Cross sections are presented in Figure 3 through Figure 6.

Two soil samples were collected from each soil boring for laboratory analysis. These samples were targeted to the zones of highest apparent impact, based on PID screening, staining, and odors. In the event of limited observable impacts, a sample was collected from the zone of highest apparent impact and the zone immediately above saturated soil. Soil samples were collected into laboratory provided glass jars and using Terra Core<sup>®</sup> samplers and pre-preserved 40-ml vials. Soil samples were placed in ice-filled coolers and shipped under appropriate chain-of-custody protocols to TestAmerica Laboratories, Inc. in Irvine, California for analysis of the following:

- Total petroleum hydrocarbons as diesel range organics (TPH-DRO) [C<sub>13</sub>-C<sub>23</sub>] by United States EPA (USEPA) Method 8015B
- Total petroleum hydrocarbons as gasoline range organics (TPH-GRO) [C<sub>4</sub>-C<sub>12</sub>] by USEPA Method 8015B
- Benzene, toluene, ethylbenzene and total xylenes (collectively, BTEX), methyl tertiary butyl ether (MTBE), tertiary butyl alcohol (TBA), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME) by USEPA Method 8260B

Due to the short hold time for the shallow and deep soil samples at DP-5, the Pleasanton TestAmerica facility had to analyze these soil samples. However, because of capability limitations at the Pleasanton facility, TPH-GRO was analyzed using USEPA Method 8260B.

Soil analytical results are included in Table 2 and Figure 7. Laboratory analytical results and chain-of-custody documentation are included in Attachment B.

### 3.4.2 Temporary Well Installation and Sampling

Temporary wells were installed in each soil boring to assess the potential for discreet water-bearing zones above and below the first low permeability soil layer found below the water table. Temporary well screen depths were determined in the field using information from CPT borings and visual and manual screening of soils in the soil borings. The first temporary well screen set in each boring attempted to target the top of the water table, which was typically encountered around 22 ft bgs, though water-bearing soils were not always encountered at this depth. Following sampling of the first temporary well in each boring location, the well was retrieved and discarded. Drilling resumed until the next water-bearing zone was encountered. A second temporary well was constructed and sampled in the lower water bearing zone, taking care not to expose the screen up into the above water bearing zone.

Each temporary well was constructed with new  $\frac{3}{4}$ " OD schedule 40 polyvinyl chloride (PVC), including a pre-packed, 5-foot long, 0.010-inch slotted well screen. Following installation of the temporary well, the drill rods were pulled up between 3 to 5 feet in order to expose an appropriate amount of screen, depending on the immediate lithology. After allowing several minutes for equilibration, groundwater levels in each well were measured using an electronic water level meter and then 3-well volumes were purged with a peristaltic pump. Following the purging of 3 well volumes, groundwater samples were collected directly into laboratory-provided sample bottles from the peristaltic pump.

Groundwater samples were placed in ice-filled coolers and shipped under appropriate chain-of-custody protocols to TestAmerica in Irvine, California for analysis of the following:

- TPH-DRO [C<sub>13</sub>-C<sub>23</sub>] by USEPA Method 8015B, with silica gel clean-up
- TPH-GRO [C<sub>4</sub>-C<sub>12</sub>] by USEPA Method 8015B
- BTEX, MTBE, DIPE, ETBE, TAME, TBA, and ethanol by USEPA Method 8260B

In borings DP-3 and DP-5, no recoverable water was encountered in the shallow temporary well interval (20 – 25 ft bgs and 20 – 24 ft bgs, respectively). In boring DP-2, no water was observed in the dense, fine-grained soils at the typical shallow well interval (from approximately 20-25 ft bgs), so only one temporary well was set in DP-2. Groundwater analytical results are included in Table 3 and Figure 8. Laboratory analytical results and chain-of-custody documentation are included in Attachment B.

Following sampling of the final temporary well interval in each borehole, the boreholes were tremie-grouted with a cement-bentonite grout to approximately 1 foot bgs. Concrete was used from 1 foot bgs to the surface and matched to surrounding conditions.

### **3.5 Soil Vapor Sampling**

On July 2, 2012, ARCADIS conducted soil vapor sampling at vapor probe locations SV-1, SV-2, and SV-3, each of which contains a shallow (S) probe at 5 ft bgs and a deep (D) probe at 10 ft bgs.

Each soil vapor probe was purged of approximately three volumes of stagnant soil vapor at a flow rate of approximately 150 milliliters per minute (mL/min). The purge volume was calculated based on the dimensions of the above ground gauges, tubing, sampling equipment, below ground tubing, and soil vapor probe screen. During purging, the wellhead and entire sampling train (valves, tubing, gauges, manifold and sample canister) were placed in a clear plastic enclosure. A tracer check compound, ultra-high-purity grade helium, was maintained in the enclosure at a concentration of approximately 10 percent (%) by volume, as measured with a portable helium detector. At the end of purging, the purged air was assessed for helium. No significant leakage (>5%) was detected during purging at any of the locations. Purge volume calculations, field conditions, flow rates, helium concentrations, and other applicable information were recorded by field personnel on soil vapor sampling logs (Attachment D).

The soil vapor samples were then collected using 1-Liter batch certified SUMMA™ canisters at a flow rate of  $\leq 200$  mL/min. A vacuum of <10 inches of mercury (inHg) was maintained throughout sampling. Soil vapor sampling was stopped when the canister vacuum dropped below 10 inHg but was no less than 5 inHg.

A total of 4 of the 6 vapor probes were sampled. Two locations, SV-1D and SV-2D, could not be sampled, due to water encountered in the sample tubing during purging or sample collection. A duplicate sample (BD-1) was collected in-parallel with its respective parent sample (SV-3S) and an equipment blank sample (EB-1) was collected using a laboratory supplied compressed nitrogen source were submitted to the laboratory for quality assurance purposes. The soil vapor samples were shipped under appropriate chain of custody protocols to Air Toxics Ltd. in Folsom, California for analysis of the following:

- TPH-GRO by Modified USEPA Method TO-15
- BTEX by Modified USEPA Method TO-15

- MTBE, TBA, DIPE, ETBE, TAME, 1,2-dichloroethane (1,2-DCA), ethylene dibromide (EDB) and naphthalene by Modified USEPA Method TO-15
- Fixed gases, including oxygen, carbon dioxide, methane and helium by Modified ASTM Method D-1946

Soil vapor analytical results are included in Table 4 and Figure 9. Laboratory analytical results and chain-of-custody documentation are included in Attachment B.

### **3.6 Waste Disposal**

Soil cuttings, decontamination water, and purge water generated during drilling operations were containerized in 55-gallon drums and temporarily stored on site pending characterization and disposal. A total of 5 drums, 4 drums of soil and 1 drum of water, were generated. Waste manifest documentation will be submitted under a separate cover.

## **4. Results**

### **4.1 Soil**

A total of twelve soil samples and one blind duplicate were collected for chemical analysis. Soil analytical results were compared to the Regional Water Quality Control Board (RWQCB) - San Francisco Bay Region (2008) Environmental Screening Levels (ESLs) for commercial and industrial land use where groundwater is a potential use drinking water resource. Results of this comparison are presented in Table 2 and summarized below:

- TPH-GRO was detected above laboratory reporting limits in 6 of 12 soil samples. Detected concentrations ranged from 83 milligrams per kilogram (mg/kg) at 10 ft bgs in DP-2 to 4,400 mg/kg at 17 ft bgs in DP-6. All 6 detected concentrations of TPH-GRO were at or above the ESL (83 mg/kg).
- TPH-DRO was detected above laboratory reporting limits in 5 of 12 soil samples. Detected concentrations ranged from 10 mg/kg at 4 ft bgs in DP-1 to 72 mg/kg at 17 ft bgs in DP-6. All 5 detected concentrations of TPH-DRO were below the ESL (83 mg/kg).

- Benzene was detected above laboratory reporting limits in 1 of 12 soil samples. Benzene was detected at 820 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) at 17 ft bgs in DP-6, above the ESL (44  $\mu\text{g}/\text{kg}$ ). Three of twelve soil samples had laboratory reporting limits that were elevated above the ESL.
- Toluene was detected above laboratory reporting limits in 3 of 12 soil samples. Detected concentrations ranged from 3,400  $\mu\text{g}/\text{kg}$  at 17 ft bgs in DP-5 to 28,000  $\mu\text{g}/\text{kg}$  at 17 ft bgs in DP-6. All three detected concentrations of toluene were above the ESL (2,900  $\mu\text{g}/\text{kg}$ ).
- Ethylbenzene was detected above laboratory reporting limits in 6 of 12 soil samples. Detected concentrations ranged from 13  $\mu\text{g}/\text{kg}$  at 11 ft bgs in DP-6 to 43,000  $\mu\text{g}/\text{kg}$  at 15 ft bgs in DP-3. Three of the six detected concentrations of ethylbenzene were above the ESL (3,300  $\mu\text{g}/\text{kg}$ ).
- Total xylenes were detected above laboratory reporting limits in 4 of 12 soil samples. Detected concentrations ranged from 2,600  $\mu\text{g}/\text{kg}$  at 7 ft bgs in DP-5 to 210,000  $\mu\text{g}/\text{kg}$  at 15 ft bgs in DP-3. Four of the six detected concentrations of total xylenes were above the ESL (2,300  $\mu\text{g}/\text{kg}$ ).
- MTBE, DIPE, ETBE, TAME, TBA, and ethanol were not detected above laboratory reporting limits in any of the 12 soil samples. Four of twelve soil samples had laboratory reporting limits that were elevated above the ESL for MTBE (23  $\mu\text{g}/\text{kg}$ ) and all 12 samples had laboratory reporting limits above the ESL for TBA (75  $\mu\text{g}/\text{kg}$ ).
- None of the soil samples from borings DP-1 and DP-4 had concentrations exceeding any of the ESLs. The deeper soil sampler (28 ft bgs) from DP-3 did not have any concentrations exceeding any of the ESLs.

As mentioned earlier, due to the short hold time for the shallow and deep soil samples at DP-5, the Pleasanton TestAmerica facility had to analyze these soil samples. However, because of capability limitations at the Pleasanton facility, TPH-GRO was analyzed using USEPA Method 8260B.

#### 4.2 Grab Groundwater

A total of nine grab groundwater samples and one blind duplicate were collected from temporary wells for chemical analysis. Grab groundwater analytical results were compared to the Regional Water Quality Control Board - San Francisco Bay Region (2008) ESLs for commercial and industrial land use where groundwater is a potential use drinking water resource and the California Maximum Contaminant Levels (MCLs) for drinking water. The more conservative of the two, ESLs and MCLs, were used to screen the results. Results of these comparisons are presented in Table 3 and summarized below:

- TPH-GRO was detected above laboratory reporting limits in 7 of 9 groundwater samples. Detected concentrations ranged from 60 micrograms per liter ( $\mu\text{g/L}$ ) at 29 - 34 ft bgs in DP-2 to 520  $\mu\text{g/L}$  at 28 - 32 ft bgs in DP-6. Four of the seven detected concentrations of TPH-GRO were above the ESL (100  $\mu\text{g/L}$ ). No MCL has been established for TPH-GRO.
- TPH-DRO was detected above laboratory reporting limits in six of nine groundwater samples. Detected concentrations ranged from 53  $\mu\text{g/L}$  at 29 - 34 ft bgs in DP-2 to 250  $\mu\text{g/L}$  at 20 - 25 ft bgs in DP-6. One of the seven detected concentrations of TPH-DRO was above the ESL (100  $\mu\text{g/L}$ ). No MCL has been established for TPH-DRO.
- Benzene was detected above laboratory reporting limits in five of nine groundwater samples. Detected concentrations ranged from 8.5  $\mu\text{g/L}$  at 28 - 32 ft bgs in DP-4 to 5,000  $\mu\text{g/L}$  at 20 - 25 ft bgs in DP-6. All 5 detected concentrations of benzene were above the ESL (1.0  $\mu\text{g/L}$ ) and MCL (1  $\mu\text{g/L}$ ).
- Toluene was detected above laboratory reporting limits in five of nine groundwater samples. Detected concentrations ranged from 0.51  $\mu\text{g/L}$  at 31 - 35 ft bgs in DP-5 to 700  $\mu\text{g/L}$  at 20 - 25 ft bgs in DP-6. Two of the five detected concentrations of toluene were above the ESL (40  $\mu\text{g/L}$ ) and 1 of 5 was detected above the MCL (150  $\mu\text{g/L}$ ).
- Ethylbenzene was detected above laboratory reporting limits in six of nine groundwater samples. Detected concentrations ranged from 2.1  $\mu\text{g/L}$  at 31 - 35 ft bgs in DP-5 to 1,100  $\mu\text{g/L}$  at 20 - 25 ft bgs in DP-6. One of the six detected concentrations of toluene was above the ESL (30  $\mu\text{g/L}$ ) and the MCL (300  $\mu\text{g/L}$ ).



- Total xylenes were detected above laboratory reporting limits in six of nine groundwater samples. Detected concentrations ranged from 2.5 µg/L at 31 - 35 ft bgs in DP-5 to 2,100 µg/L at 20 - 25 ft bgs in DP-6. Two of the six detected concentrations of total xylenes were above the ESL (20 µg/L) and one of six was detected above the MCL (1,750 µg/L).
- MTBE was detected above laboratory reporting limits in four of nine groundwater samples. Detected concentrations ranged from 0.66 µg/L at 28 - 32 ft bgs in DP-5 to 2.8 µg/L at 28 - 32 ft bgs in DP-4. None of the 4 detected concentrations of MTBE were above the ESL (5.0 µg/L) or the MCL (13 µg/L). One of nine groundwater samples had laboratory reporting limits that were elevated above the ESL for MTBE.
- TBA was detected above laboratory reporting limits in two of nine groundwater samples. Detected concentrations ranged from 11 µg/L at 29 - 34 ft bgs in DP-2 to 49 µg/L at 31 - 35 ft bgs in DP-5. One of the two detected concentrations of TBA was above the ESL (12 µg/L). No MCL has been established for TBA. One of nine groundwater samples had laboratory reporting limits that were elevated above the ESL for TBA.
- DIPE, ETBE, TAME, and ethanol were not detected above laboratory reporting limits in any of the 9 groundwater samples. No ESLs or MCLs have been established for any of these constituents.
- None of the groundwater samples from temporary wells in borings DP-1, DP-2, and DP-3 had concentrations exceeding any of the ESLs or MCLs.

### 4.3 Soil Vapor

#### 4.3.1 Soil Physical Properties

One undisturbed soil sample was collected from each of the 6 soil vapor probe locations and analyzed for physical properties and geotechnical parameters. Results are presented in Table 1 and summarized below.

- Total porosity ranged from 33.6 to 52.1%
- Soil moisture ranged from 15.5 to 26.7%

- Soil dry bulk density ranged from 1.25 to 1.78 grams per cubic centimeter (g/cc)
- Grain density ranged from 2.61 to 2.68 g/cc
- Mean grain size ranged from 0.006 to 1.825.
- Mean grain size was in the coarse sand range for both samples collected at SV-1 and in the silt range for the samples collected from SV-2 and SV-3.

#### 4.3.2 *Chemical Analysis*

Four soil vapor samples (and one blind duplicate and one equipment blank) were collected for laboratory analysis. Two of the deep soil vapor probes (SV-1D and SV-2D) could not be sampled due to the presence of liquid water in the vapor probe lines. Soil vapor analytical results were compared to the Regional Water Quality Control Board - San Francisco Bay Region (2008) ESLs for soil gas based on commercial and industrial land use sites and California Human Health Screening Levels (CHHSLs) for soil gas. Results of these comparisons are presented in Table 4 and summarized below:

- TPH-GRO, benzene, toluene, and m,p-xylene were detected at concentrations above laboratory reporting limits in all four soil vapor samples collected during this event. None of these constituents were detected above the applicable ESLs or CHHSLs.
- Ethylbenzene was detected at a concentration above the laboratory reporting limit in a single soil vapor sample (SV-3S) collected during this event. This detection was below the applicable ESLs and CHHSLs.
- o-Xylene was detected at concentrations exceeding the laboratory reporting limit in three of the four soil vapor samples collected during this event. None of these detections were above the applicable ESLs or CHHSLs.
- MTBE, TAME, TBA, ETBE, DIPE, EDB, EDC, and naphthalene were not detected at concentrations above the laboratory reporting in any of the four soil vapor samples collected during this event. No laboratory detection limits exceed ESLs or CHHSLs for the constituents that have established screening levels.

- Oxygen was detected at concentrations ranging from 12 to 17% and carbon dioxide was detected at concentrations ranging from 0.68 to 2.8% in the four soil vapor samples. Methane was detected at concentrations of 0.0021% (SV-3D) and 0.00045% (SV-2S) in two of four soil vapor samples.
- Helium was not detected in any of the samples, indicating that the sampling trains were sufficiently leak-tight and avoided short-circuiting during sample collection.
- The equipment blank sample contained concentrations of TPH-GRO and benzene above laboratory detection limits, but below ESLs and CHHSLs. This indicates that background concentrations of VOCs were likely present in the sampling equipment or laboratory-provided nitrogen. Since no constituents were detected in field samples at concentrations above the ESLs or CHHSLs, this is unlikely to impact the outcome of this soil vapor assessment.

## 5. Conclusions

The lithology in the vicinity of former monitoring well MW-3, where granular soils were logged in the past, seem to be consistent with the lithology seen at soil boring DP-6 and monitoring well MW-12. However, separate phase hydrocarbons were not encountered in boring DP-6. The distribution of petroleum hydrocarbons in soil and groundwater indicate residual petroleum hydrocarbons are located in the vicinity of MW-6 (former UST area) and MW-12 (south of the former dispenser island). Groundwater sample results from this investigation indicate that the dissolved hydrocarbon plume is not adequately defined.

Soil vapor concentrations are below their respective ESLs. Assessment of soil vapor samples collected from the site indicate no potential health risk to current or future commercial or industrial workers on and off site as a result of vapor migration. The current zoning map shows that the site is zoned as a commercial area. Since the results of the samples collected from the onsite vapor probes indicate no potential health risk, no additional vapor migration assessment activities are required.

ARCADIS will prepare a workplan to further delineate and assess the groundwater plume. This workplan will be prepared and sent under separate cover.

## 6. References

- Alameda County Environmental Health. 2012. Conditional Approval of Work Plan, Fuel Leak Case No. RO0000056 and GeoTracker Global ID T0600101108, Chevron #21-1283 / Express Auto Clinic, 3810 Broadway, Oakland, CA 94611. May 10, 2012, revised June 20, 2012.
- ARCADIS. 2012. Work Plan for Soil Vapor, Soil, and Groundwater Investigation, Former Texaco Service Station No. 21-1283, 3810 Broadway, Oakland, California, Fuel Leak Case No. RO0000056. March 16, 2012.
- California Environmental Protection Agency. 2005. Use of California Human Health Screening Levels in Evaluation of Contaminated Properties. January 2005.
- California Environmental Protection Agency. 2009. California Human Health Screening Levels for Ethylbenzene, Draft Report. November 2009.
- California Regional Water Quality Control Board: San Francisco Bay Region. 2008. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater: Interim Final. November 2007, revised May 2008.
- Conestoga-Rovers & Associates. 2009a. *Work Plan for Soil Vapor Survey*. Prepared for Chevron Environmental Management Company, Former Texaco Service Station 21-1283, California. June 26, 2009.
- Conestoga-Rovers & Associates. 2009b. *Site Conceptual Model*. Prepared for Chevron Environmental Management Company, Former Texaco Service Station 21-1283, California. June 29, 2009.
- Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J. 1986. Use of piezometer cone data. Proceedings of the ASCE Specialty Conference In Situ '86: Use of In Situ Tests in Geotechnical Engineering. ASCE. 1986.



**Tables**

**TABLE 1**  
**SITE ASSESSMENT REPORT**  
**Soil Physical Properties**  
Former Texaco Service Station 211283  
3810 Broadway  
Oakland, California

Sample Location	Sample Name	Sample Depth (feet bgs)	Sample Date	Moisture (%) by ASTM D2216	Mean Grain Size (mm) by ASTM D422	Porosity <sup>1</sup> (%)	Dry Bulk Density (g/cc) by API RP 40	Grain Density (g/cc) by API RP 40
SV-1	SV-1-S-5	5.0 - 5.5	6/25/2012	15.5	1.159	33.6	1.78	2.68
	SV-1-S-10	10.0 - 10.5	6/25/2012	20.1	1.825	37.1	1.66	2.64
SV-2	SV-2-S-5	5.0 - 5.5	6/25/2012	20.4	0.023	41.4	1.56	2.66
	SV-2-S-10	10.0 - 10.5	6/25/2012	26.7	0.006	52.1	1.25	2.61
SV-3	SV-3-S-5	5.0 - 5.5	6/26/2012	19.5	0.025	45.1	1.45	2.64
	SV-3-S-10	10.0 - 10.5	6/26/2012	20.4	0.020	47.1	1.39	2.63

**Notes:**

% = Percent

API RP = American Petroleum Institute Recommended Practices

ASTM = American Society for Testing and Materials

bgs = Below ground surface

g/cc = Grams per centimeter cubed

mm = millimeters

<sup>1</sup>Calculated as Total Porosity (%) =  $[1 - (\text{Bulk Density} / \text{Grain Density})] * 100$

**TABLE 2**  
**SITE ASSESSMENT REPORT**  
**Soil Analytical Results**  
Former Texaco Service Station 211283  
3810 Broadway  
Oakland, California

Location	Sampling Depth (feet bgs)	Sample Date	Analyzed by USEPA Method 8015B		Analyzed by USEPA Method 8260B											
			TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	m+p-Xylene (µg/kg)	o-Xylene (µg/kg)	MTBE (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)	Ethanol (mg/kg)
DP-1 (DUP)	3.5-4	06/29/2012	<0.39	<b>10</b>	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.099	<0.3
	20.5-21	06/29/2012	<0.39	<5.0	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.099	<0.3
DP-2	20.5-21	06/29/2012	<0.38	<5.0	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.099	<0.3
	10-10.5	06/29/2012	<b>83</b>	<15	<0.002	<0.002	<b>0.028</b>	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.1	<0.3
DP-3	30.5-31	06/29/2012	<0.37	<5.0	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.099	<0.3
	15-16	06/29/2012	<b>2,500</b>	<b>69</b>	<1	<b>15</b>	<b>43</b>	<b>210</b>	<b>150,000</b>	<b>61,000</b>	<2.5	<2.5	<2.5	<2.5	<50	<150
DP-4	28-28.5	06/29/2012	<0.40	<5.0	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.1	<0.3
	11.5-12.5	06/28/2012	<0.40	<5.0	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.0049	<0.0049	<0.0049	<0.0049	<0.099	<0.3
DP-5	18-19	06/28/2012	<0.39	<5.0	<0.002	<0.002	<0.002	<0.004	<2.0	<2.0	<0.005	<0.005	<0.005	<0.005	<0.1	<0.3
	6.5-7.5	07/02/2012	<b>91*</b>	<5.0	<.2	<.2	<b>0.57</b>	<b>2.6</b>	--	--	<0.2	<0.2	<0.2	<0.2	<0.4	<7.9
DP-6	17-18	07/02/2012	<b>310*</b>	<b>18</b>	<1.9	<b>3.4</b>	<b>6.4</b>	<b>34</b>	--	--	<1.9	<1.9	<1.9	<1.9	<3.9	<77
	10.5-11.5	06/28/2012	<b>220</b>	<b>29</b>	<0.0049	<0.0049	<b>0.013</b>	<0.0099	<4.9	<4.9	<0.0012	<0.0012	<0.0012	<0.0012	<0.25	<0.74
	17-17.5	06/28/2012	<b>4,400</b>	<b>72</b>	<b>0.82</b>	<b>28</b>	<b>25</b>	<b>130</b>	<b>86,000</b>	<b>40,000</b>	<1.2	<1.2	<1.2	<1.2	<25	<74
Commercial/Industrial ESLs for Shallow Soils (≤10 feet bgs): Groundwater is Current or Potential Source of Drinking Water			83	83	0.044	2.9	3.3	2.3	NE	NE	0.0023	NE	NE	NE	0.075	NE
Commercial/Industrial ESLs for Deep Soils (>10 feet bgs): Groundwater is Current or Potential Source of Drinking Water			83	83	0.044	2.9	3.3	2.3	NE	NE	0.0023	NE	NE	NE	0.075	NE

< = Not detected above laboratory reporting limit shown

-- = not analyzed or applicable

DIPE = di-isopropyl ether

DUP = blind duplicate sample

ESL = Environmental Screening Level

ETBE = ethyl tertiary butyl ether

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

MTBE = methyl tertiary butyl ether

NE = not established

TAME = tertiary amyl methyl ether

TBA = tertiary butyl alcohol

TPH-DRO = Total Petroleum Hydrocarbons as Diesel Range Organics with silica gel cleanup

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics

ug/kg = micrograms per kilogram

\* = Analyzed by USEPA Method 8260B

Notes:

1. Bold concentrations indicate detections above the laboratory reporting limit.

2. Highlighted concentrations meet or exceed their respective ESL.

3. Italicized results indicate reporting limits which exceed their respective ESL.

4. ESLs from Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, California RWQCB-San Francisco Bay Region, Interim Final - November 2007 (Revised May 2008).

**TABLE 3**  
**SITE ASSESSMENT REPORT**  
**Grab Groundwater Analytical Results**  
Former Texaco Service Station 211283  
3810 Broadway  
Oakland, California

Location	Sampling Depth (feet bgs)	Sample Date	Analyzed by USEPA Method 8015B		Analyzed by USEPA Method 8260B									
			TPH-GRO (µg/L)	TPH-DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	TBA (µg/L)	Ethanol (µg/L)
DP-1 (DUP)	21-26	06/29/2012	<50	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<10	<150
	29-34	06/29/2012	<50	<48	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<10	<150
	29-34	06/29/2012	<50	<b>51</b>	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<0.50	<10	<150
DP-2	29-34	06/29/2012	<b>60</b>	<b>53</b>	<0.50	<0.50	<0.50	<1.0	<b>0.78</b>	<0.50	<0.50	<0.50	<b>11</b>	<150
DP-3	25-30	06/29/2012	<b>85</b>	<49	<0.50	<b>4.8</b>	<b>3.1</b>	<b>18</b>	<0.50	<0.50	<0.50	<0.50	<10	<150
DP-4	20-25	06/28/2012	<b>250</b>	<b>77</b>	<b>61</b>	<0.50	<b>16</b>	<b>6.3</b>	<0.50	<0.50	<0.50	<0.50	<10	<150
	28-32	06/28/2012	<b>71</b>	<b>95</b>	<b>8.5</b>	<b>0.77</b>	<b>3.2</b>	<b>3.5</b>	<b>2.8</b>	<0.50	<0.50	<0.50	<10	<150
DP-5	31-35	07/02/2012	<b>180</b>	<b>79</b>	<b>17</b>	<b>0.51</b>	<b>2.1</b>	<b>2.5</b>	<b>1.9</b>	<0.50	<0.50	<0.50	<b>49</b>	<150
DP-6	20-25	06/28/2012	<b>210</b>	<b>250</b>	<b>5,000</b>	<b>700</b>	<b>1,100</b>	<b>2,100</b>	<50	<50	<50	<50	<1000	<15,000
	28-32	06/28/2012	<b>520</b>	<b>74</b>	<b>56</b>	<b>55</b>	<b>27</b>	<b>120</b>	<b>0.66</b>	<0.50	<0.50	<0.50	<10	<150
Commercial/Industrial ESLs for Groundwater as a Current or Potential Source of Drinking Water (ug/L)			100	100	1.0	40	30	20	5.0	NE	NE	NE	12	NE
Water Quality-Based Assessment Thresholds (based on CA Primary MCLs)			NE	NE	1.0	150	300	1,750	13	NE	NE	NE	NE	NE
Water Quality-Based Assessment Thresholds (Taste & odor threshold (USEPA Health Advisory))			NE	100	1.0	150	300	1,750	13	NE	NE	NE	NE	NE
Water Quality-Based Assessment Thresholds (California Public Health Goal for Drinking Water (for MTBE))			NE	NE	NE	NE	NE	NE	NE	NE	13	13	NE	NE
Water Quality-Based Assessment Thresholds (California DPH Notification Level for drinking water)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	12	NE

< = Not detected above laboratory reporting limit shown

-- = not analyzed or applicable

DIPE = di-isopropyl ether

DUP = blind duplicate sample

ESL = Environmental Screening Level

ETBE = ethyl tertiary butyl ether

MCL = Maximum Contaminant Level

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

MTBE = methyl tertiary butyl ether

TAME = tertiary amyl methyl ether

TBA = tertiary butyl alcohol

TPH-DRO = Total Petroleum Hydrocarbons as Diesel Range Organics with silica gel cleanup

TPH-GRO = Total Petroleum Hydrocarbons as Gasoline Range Organics

ug/L = micrograms per liter

**Notes:**

1. Bold concentrations indicate detections above the laboratory reporting limit.
2. Highlighted concentrations meet or exceed their respective ESL or Water Quality-Based Assessment Thresholds.
3. Italicized results indicate reporting limits which exceed their respective ESL or MCL.
4. ESLs from Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, California RWQCB-San Francisco Bay Region, Interim Final - November 2007 (Revised May 2008)



**TABLE 4**  
**SITE ASSESSMENT REPORT**  
**Soil Vapor Analytical Results**  
Former Texaco Service Station 211283  
3810 Broadway  
Oakland, California

Location ID	Sample ID	Vapor Probe Depth (feet bgs)	Date Sampled	Analysis by USEPA TO-15													Analysis by ASTM D-1946				
				TPH-GRO (µg/m <sup>3</sup> )	Benzene (µg/m <sup>3</sup> )	Toluene (µg/m <sup>3</sup> )	Ethylbenzene (µg/m <sup>3</sup> )	m,p-Xylene (µg/m <sup>3</sup> )	o-Xylene (µg/m <sup>3</sup> )	MTBE (µg/m <sup>3</sup> )	DIPE (µg/m <sup>3</sup> )	ETBE (µg/m <sup>3</sup> )	TAME (µg/m <sup>3</sup> )	TBA (µg/m <sup>3</sup> )	EDB (µg/m <sup>3</sup> )	EDC (µg/m <sup>3</sup> )	Naphthalene (µg/m <sup>3</sup> )	Oxygen (%)	Carbon Dioxide (%)	Methane (%)	Helium (%)
SV-1	SV-1S	4.75 - 5.25	7/2/2012	<b>1,300</b>	<b>8.2</b>	<b>6.2</b>	<3.6	<b>9.9</b>	<b>4.8</b>	<3.0	<14	<14	<14	<25	<6.4	<3.4	<18	<b>16</b>	<b>2.8</b>	<0.00017	<0.084
	SV-1D*	9.75 - 10.25	7/2/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SV-2	SV-2S	4.75 - 5.25	7/2/2012	<b>5,800</b>	<b>26</b>	<b>33</b>	<5.8	<b>13</b>	<5.8	<4.8	<22	<22	<22	<41	<10	<5.4	<28	<b>17</b>	<b>0.49</b>	<b>0.00045</b>	<0.086
	SV-2D*	9.75 - 10.25	7/2/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SV-3	SV-3S	4.75 - 5.25	7/2/2012	<b>3,100</b>	<b>44</b>	<b>16</b>	<b>5.6</b>	<b>19</b>	<b>6.8</b>	<3.2	<15	<15	<15	<27	<6.9	<3.6	<19	<b>17</b>	<b>0.68</b>	<0.00018	<0.090
	BD-1 (SV-3S)	4.75 - 5.25	7/2/2012	<b>2,300</b>	<b>65</b>	<b>15</b>	<b>5.6</b>	<b>18</b>	<b>7.0</b>	<3.1	<14	<14	<14	<26	<6.6	<3.5	<18	<b>18</b>	<b>0.69</b>	<0.00017	<0.086
	SV-3D	9.75 - 10.25	7/2/2012	<b>3,200</b>	<b>25</b>	<b>34</b>	<b>8.8</b>	<b>26</b>	<b>9.4</b>	<3.2	<15	<15	<15	<27	<6.9	<3.6	<19	<b>12</b>	<b>1.5</b>	<b>0.00021</b>	<0.090
EB-1	EB-1	--	7/2/2012	<b>730</b>	<b>42</b>	<3.2	<3.7	<3.7	<3.7	<3.0	<14	<14	<14	<26	<6.5	<3.4	<18	<b>0.65</b>	<0.017	<0.00017	<0.084
Commercial/Industrial ESLs for Soil Gas <sup>1</sup>				29,000	280	180,000	3,300	58,000	58,000	31,000	NE	NE	NE	NE	14	310	240	NE	NE	NE	NE
Commercial/Industrial CHHSLs for Soil Gas <sup>2</sup>				NE	122	378,000	3,556	887,000	879,000	13,400	NE	NE	NE	NE	NE	167	106	NE	NE	NE	NE

% = Percent

-- = Analysis not performed or not applicable.

ASTM = American Society for Testing and Materials.

bgs = below ground surface.

CHHSL = California Human Health Screening Level.<sup>1</sup>

DIPE = di-isopropyl ether

EDB = ethylene dibromide (1,2-dibromoethane)

EDC = ethylene dichloride (1,2-dichloroethane)

\* = Samples SV-1D and SV-2D were not collected due to liquid water observed in the vapor probe tubing.

ESL = Environment Screening Level.<sup>2</sup>

ETBE = ethyl tertiary butyl ether

MTBE = Methyl tertiary butyl ether.

NE = Not Established

TAME = tertiary amyl methyl ether

TBA = tertiary butyl alcohol

TPH-GRO = Total petroleum hydrocarbon as gasoline.

µg/m<sup>3</sup> = Micrograms per cubic meter.

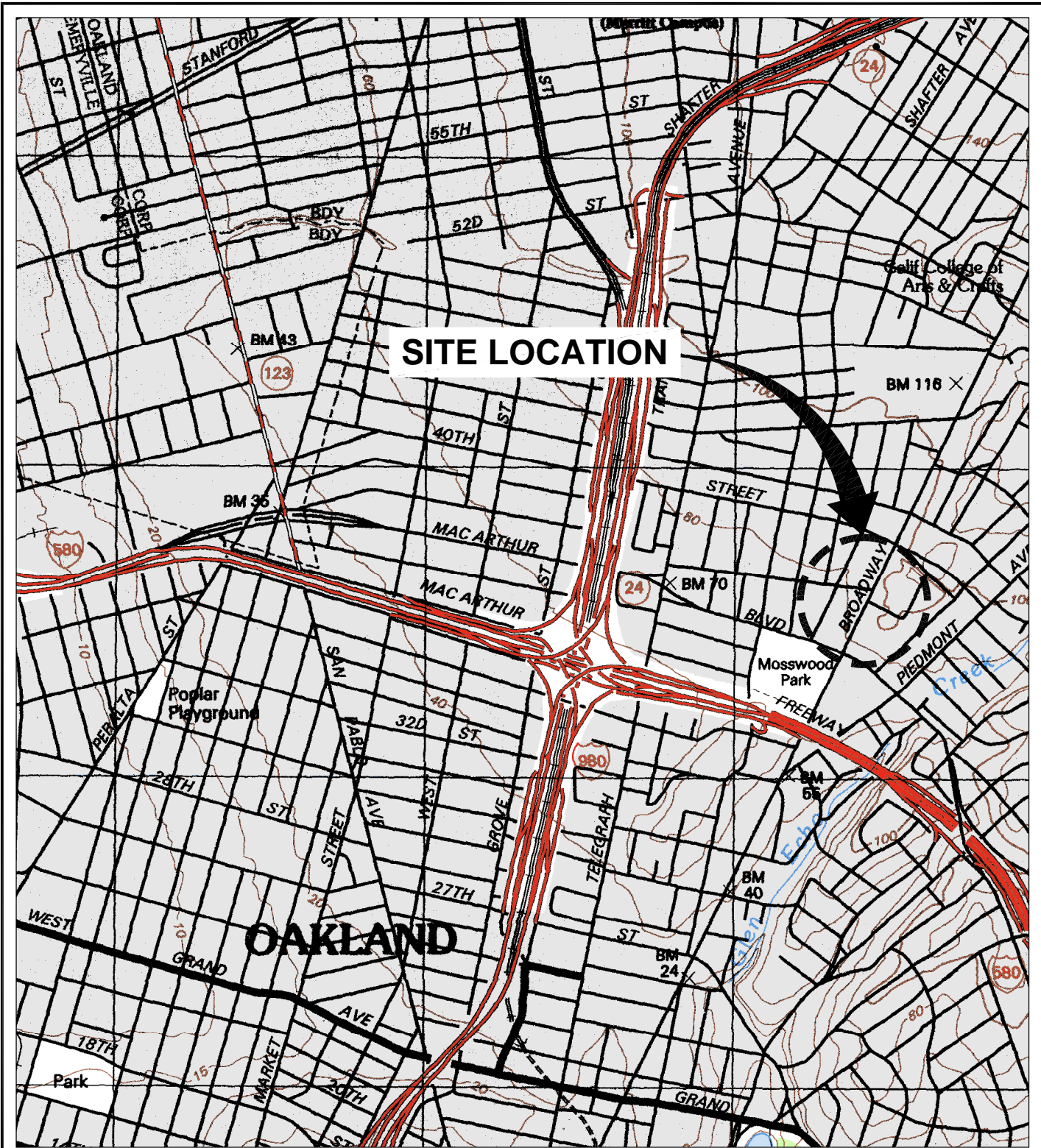
USEPA = United States Environmental Protection Agency

**Notes:**

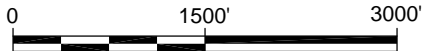
1. Bold concentrations indicate detections above the laboratory reporting limit.
2. No soil vapor concentrations met or exceeded their respective ESL or CHHSL.
3. No soil vapor reporting limits met or exceeded their respective ESL or CHHSL.
4. ESLs from California Regional Water Quality Control Board San Francisco Bay Region. 2008. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Table E- Environmental Screening Levels for Indoor Air and Soil Gas, Interim Final - November 2007 (Revised May 2008).
5. CHHSLs from California Environmental Protection Agency. 2005. Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties, Table 2 - California Human Health Screening Levels for Indoor Air and Soil Gas. California: January 2005. CHHSLs for ethylbenzene are based on the OEHHA November 2009 Draft Report for Ethylbenzene CHHSLs.

## Figures

CITY:(SYRACUSE) DIV:(GROUP:ENV/IN/DV) DB:(HOWES) LD:(OP) PIC:(NA) PM:(B/WALL) TM:(OP) LVR:(OPTION:OFF=REF) PAGESETUP:APDF PLOTSTYLETABLE:PLT\FULL.CTB PLOTTED:1/25/2012 3:43 PM BY:KOWALCZYK, STEVE  
 G:\ENV\CAD\STRACUSE\ACT\18060901\1283\00001\DWG\60901N01.dwg LAYOUT:1 SAVED:1/25/2012 3:43 PM ACADVER:18.05 (LMS TECH)



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., OAKLAND WEST, CA, 1993.



Approximate Scale: 1 in. = 1500 ft.



AREA LOCATION

CALIFORNIA

FORMER TEXACO SERVICE STATION NO. 21-1283  
 3810 BROADWAY, OAKLAND, CA

**SITE LOCATION MAP**



FIGURE

**1**

CITY: SYRACUSE, NY DIV/GROUP: ENV/CAD-141 DE: P. LISTER, R. ALLEN, PM/TM: R. ANDRESEN, TR: B.J. WALL LVR: ON-OFF-REF  
 G:\ENV\CAD\SYRACUSE\ENV\ACT\B0690901128300002\DWG\B06901C05.dwg LAYOUT: 2, SAVER: 7/13/2012 4:14 PM ACADVER: 18.1S (LMS TECH) PAGES: 18, BY: ALLEN, ROYCE  
 XREFS: 6690TX01 6690TXBL  
 IMAGES: PROJECTNAME: ---

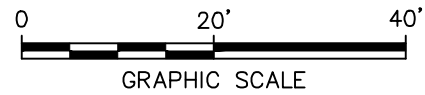


**LEGEND:**

- PROPERTY LINE
- SOIL VAPOR PROBE LOCATIONS
- MONITORING WELL LOCATION
- ⊕ FORMER WELL LOCATION
- ▲ CPT LOCATION
- ▲ SOIL BORING LOCATION
- UST FORMER UNDERGROUND STORAGE TANK
- UST EXISTING UNDERGROUND STORAGE TANK

**NOTE:**

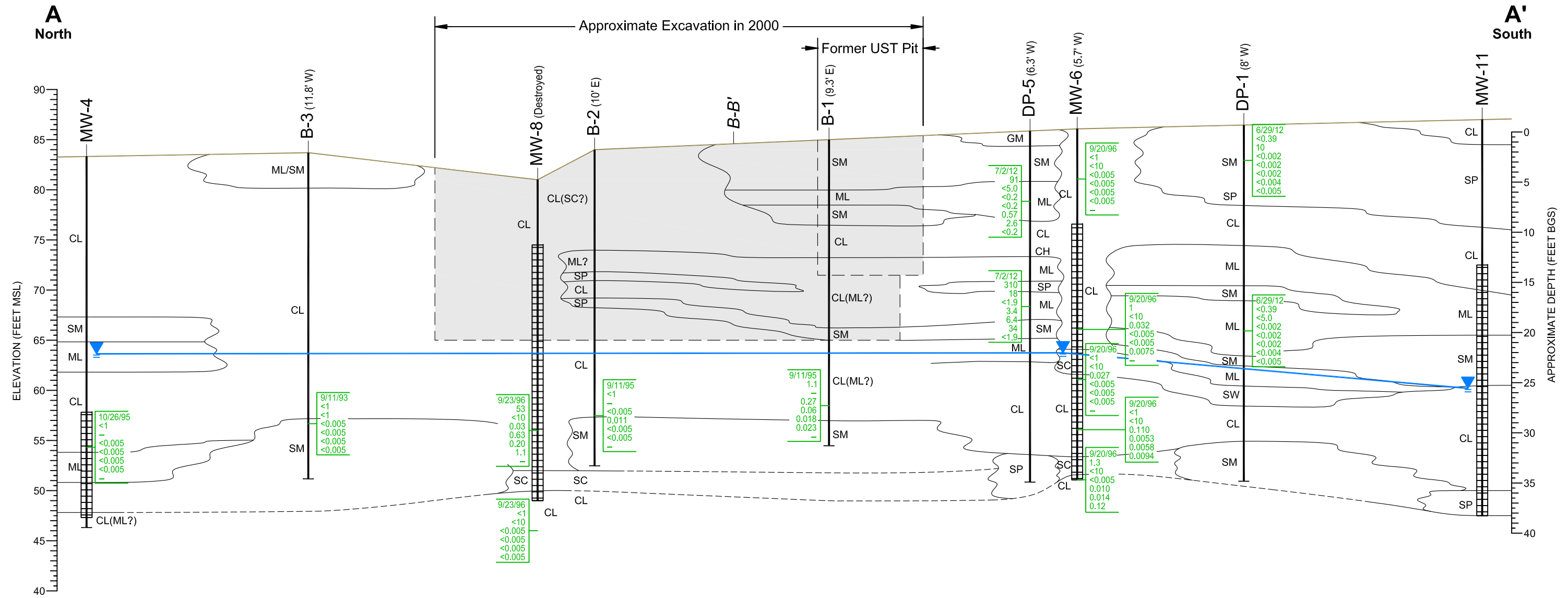
1. ALL LOCATIONS ARE APPROXIMATE.
2. SOIL VAPOR PROBES ARE CONSTRUCTED WITH A SHALLOW (5') AND DEEP (10') PROBE IN EACH LOCATION.
3. CPT = CONE PENETROMETER TEST.
4. CPT-2 LOCATION NOT COMPLETED DUE TO REFUSAL AT 9 FEET BELOW GROUND SURFACE. CPT-6 LOCATION NOT COMPLETED DUE TO PEA GRAVEL ENCOUNTERED DURING MANUAL BORING CLEARANCE AND LIMITED ALTERNATE LOCATIONS AVAILABLE DUE TO UTILITIES.



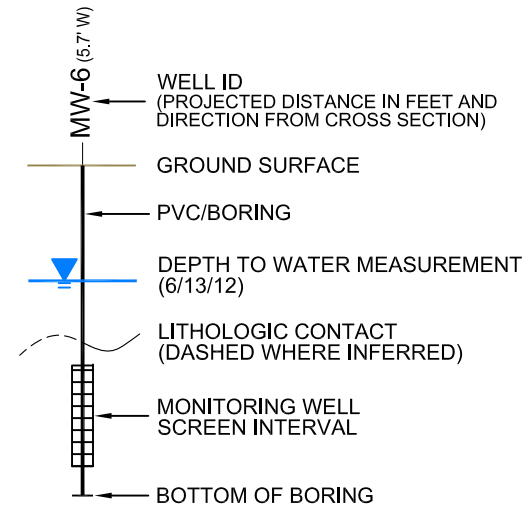
FORMER TEXACO SERVICE STATION 21-1283 3810 BROADWAY, OAKLAND, CA <b>SITE ASSESSMENT REPORT</b>	
<b>SITE FEATURES</b>	
	FIGURE <b>2</b>



CITY: PETALUMA, CA DIV/GROUP: ENV/CAD DB: J. HARRIS PM/TM: R. ANDRESEN TR: B.J. WALL L/R: ON/OFF-REF  
 C:\Users\jharris\Desktop\ENV\CAD\B060901128300002\DWG\609011\01.dwg LAYOUT: 4. SAVED: 8/24/2012 4:27 PM ACADVER: 18.1S (LMS TECH) PAGES/SETUP: SETUP1 PLOTSTYLE/TABLE: ARCADIS.CTB PLOTTED: 8/24/2012 4:34 PM BY: HARRIS, JESSICA  
 XREFS: IMAGES: PROJECTNAME: -



**LEGEND**

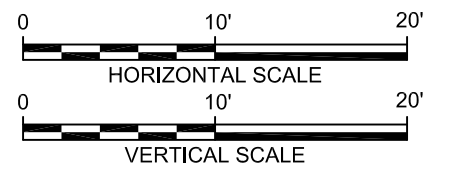


**SOIL CONCENTRATION DATA REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)**

6/29/12	DATE OF SOIL SAMPLE COLLECTION
<0.39	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
<5.0	TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS
<0.002	BENZENE
<0.002	TOLUENE
<0.002	ETHYLBENZENE
<0.004	TOTAL XYLENES
<0.005	METHYL TERTIARY BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT
-	NOT ANALYZED/AVAILABLE

**NOTES:**

1. BASED ON FIGURE 8 (CRA, 6/29/2009) GEOLOGICAL CROSS SECTION A-A'.
2. LOCATIONS OF WELLS AND ELEVATIONS ARE APPROXIMATE.
3. EXCAVATED AND FORMER UST AREAS ARE NOW FILLED WITH PEA GRAVEL.
4. SOIL CLASSIFICATIONS:
  - GM = GRAVEL; SILTY
  - SP, SW, SM, SC = SAND: POORLY SORTED, WELL SORTED, SILTY, CLAYEY
  - ML = SILT
  - CL = CLAY
  - (?) = OTHER POSSIBLE LITHOLOGY BASED OFF BORING LOG DESCRIPTIONS
5. THE BACKFILL USED FOR THE 2000 EXCAVATION CONSISTED OF PEA GRAVEL FROM 7 FT BGS, REUSED NATIVE SOIL FROM 5 TO 5.5 FT BGS AND CLEAN IMPORTED FILL FOR THE REMAINDER OF THE EXCAVATION. THE BACKFILL USED FOR THE THE USED OIL UST IS UNKNOWN.



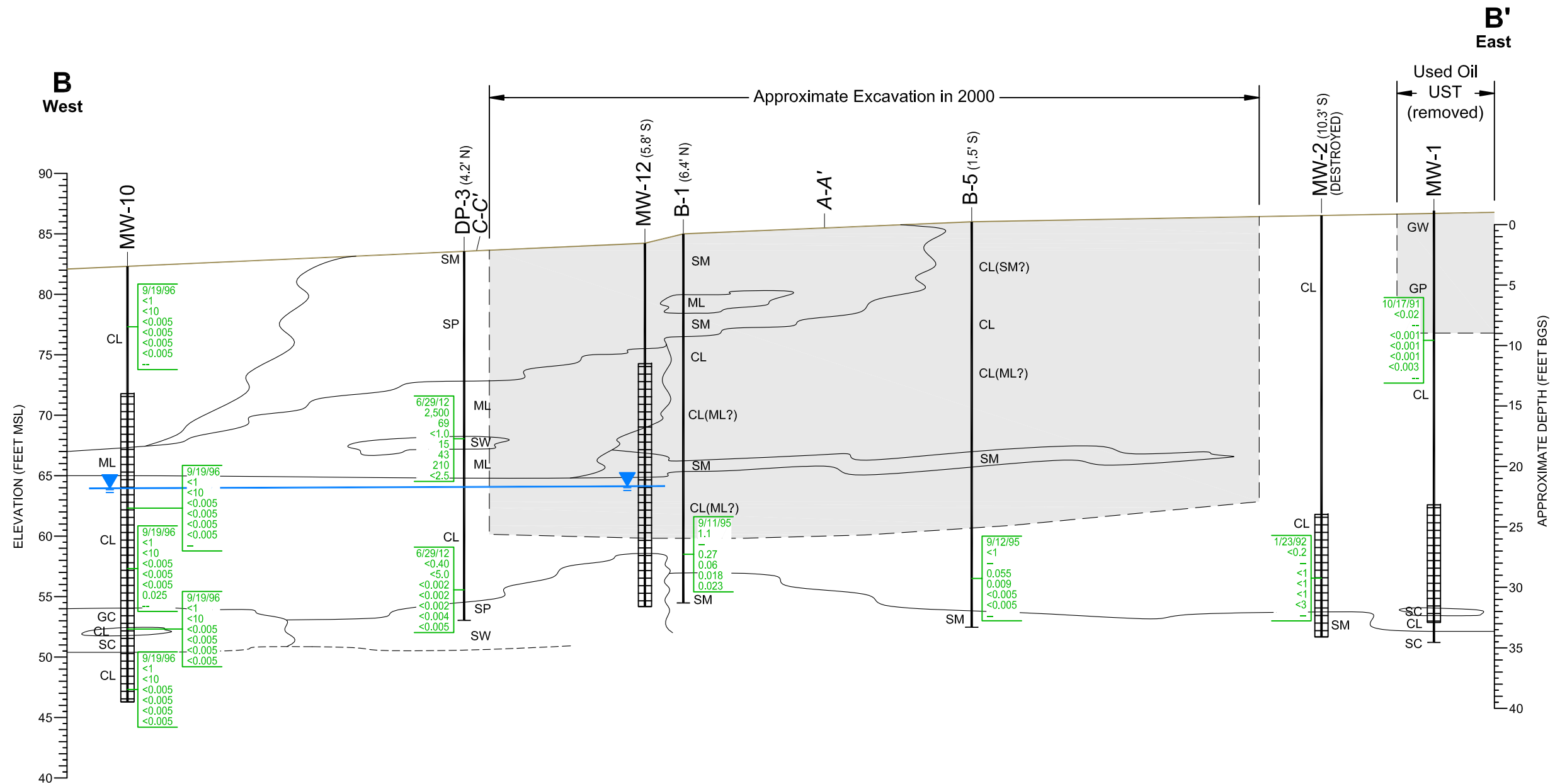
FORMER TEXACO SERVICE STATION 21-1283  
 3810 BROADWAY, OAKLAND, CA  
**SITE ASSESSMENT REPORT**

**CROSS SECTION A-A'**

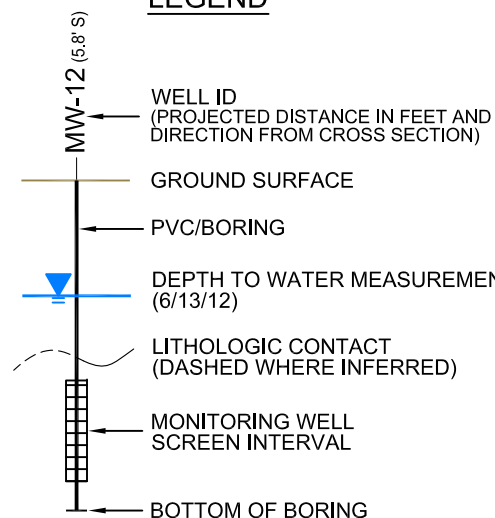
FIGURE **4**

CITY: PETALUMA, CA DIV/GROUP: ENV/CAD DB: J. HARRIS PM/TM: R. ANDRESEN TR: B.J. WALL L/R: ON/OFF-REF  
 C:\Users\jharris\Desktop\ENVCAD\B0609011128300002\DWG\609011V02.dwg LAYOUT: 5 SAVED: 8/24/2012 4:49 PM ACADVER: 18.1S (LMS TECH) PAGES/SETUP: SETUP1 PLOT/STYLE/TABLE: ARCADIS.CTB PLOTTED: 8/24/2012 5:02 PM BY: HARRIS, JESSICA

PROJECTNAME: 60901X01 60901X01



**LEGEND**

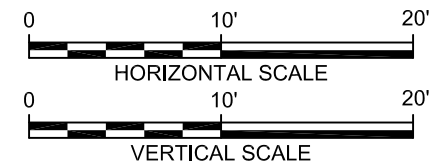


**SOIL CONCENTRATION DATA REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)**

9/12/95	DATE OF SOIL SAMPLE COLLECTION
<1	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
0.055	TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS
0.009	BENZENE
<0.005	TOLUENE
<0.005	ETHYLBENZENE
<0.005	TOTAL XYLENES
-	METHYL TERTIARY BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT
-	NOT ANALYZED/AVAILABLE

**NOTES:**

1. BASED ON FIGURE 9 (CRA, 6/29/2009) GEOLOGICAL CROSS SECTION B-B'.
2. LOCATIONS OF WELLS AND ELEVATIONS ARE APPROXIMATE.
3. EXCAVATED AND FORMER UST AREAS ARE NOW FILLED WITH PEA GRAVEL.
4. SOIL CLASSIFICATIONS:
  - GM = GRAVEL; SILTY
  - SP, SW, SM, SC = SAND: POORLY SORTED, WELL SORTED, SILTY, CLAYEY
  - ML = SILT
  - CL = CLAY
  - (?) = OTHER POSSIBLE LITHOLOGY BASED OFF BORING LOG DESCRIPTIONS
5. THE BACKFILL USED FOR THE 2000 EXCAVATION CONSISTED OF PEA GRAVEL FROM 7 FT BGS, REUSED NATIVE SOIL FROM 5 TO 5.5 FT BGS AND CLEAN IMPORTED FILL FOR THE REMAINDER OF THE EXCAVATION. THE BACKFILL USED FOR THE THE USED OIL UST IS UNKNOWN.

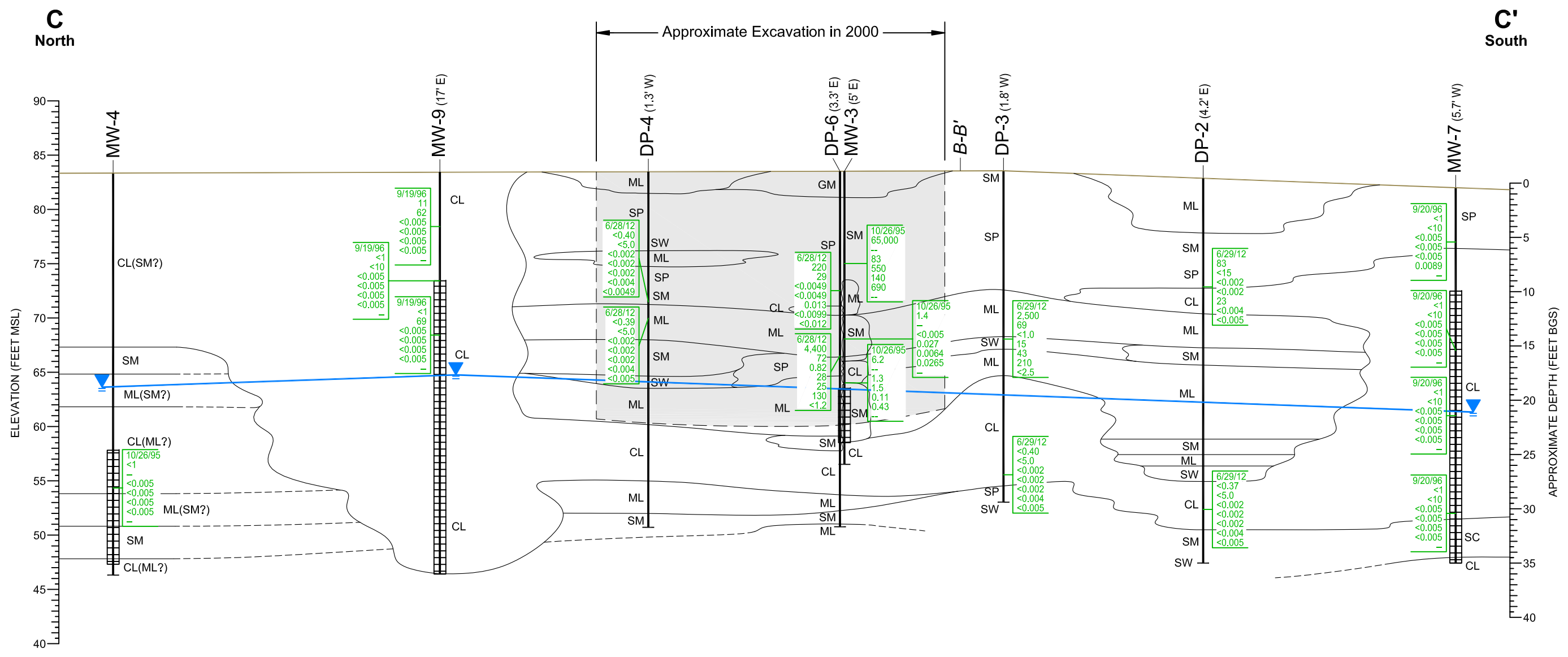


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**SITE ASSESSMENT REPORT**

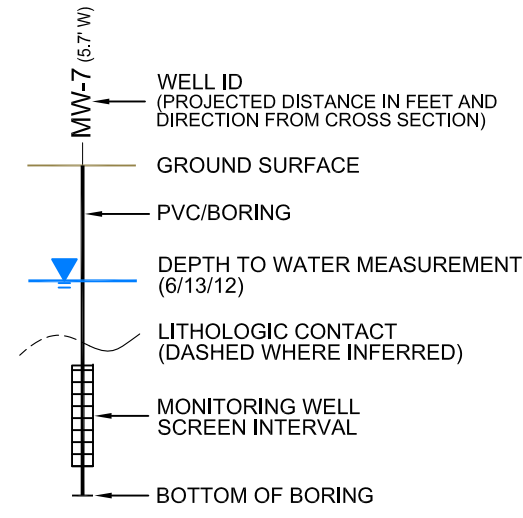
**CROSS SECTION B-B'**



CITY: PETALUMA, CA DIV/GROUP: ENV/CAD DB: J. HARRIS PM/TM: R. ANDRESEN TR: B.J. WALL L/R: ON/OFF=REF  
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 IMAGES: PROJECTNAME: -



**LEGEND**

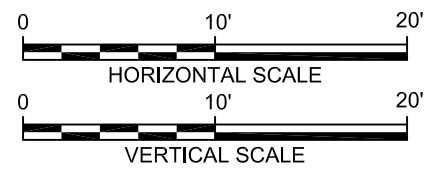


**SOIL CONCENTRATION DATA REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)**

6/29/12	DATE OF SOIL SAMPLE COLLECTION
2,500	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS
69	TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS
<1.0	BENZENE
15	TOLUENE
43	ETHYLBENZENE
210	TOTAL XYLENES
<2.5	METHYL TERTIARY BUTYL ETHER
<	BELOW LABORATORY REPORTING LIMIT
-	NOT ANALYZED/AVAILABLE

**NOTES:**

- LOCATIONS OF WELLS AND ELEVATIONS ARE APPROXIMATE.
- EXCAVATED AND FORMER UST AREAS ARE NOW FILLED WITH PEA GRAVEL.
- SOIL CLASSIFICATIONS:**
  - GM = GRAVEL; SILTY
  - SP, SW, SM, SC = POORLY SORTED, WELL SORTED, SILTY, CLAYEY
  - ML = SILT
  - CL = CLAY
  - (?) = OTHER POSSIBLE LITHOLOGY BASED OFF BORING LOG DESCRIPTIONS
- THE BACKFILL USED FOR THE 2000 EXCAVATION CONSISTED OF PEA GRAVEL FROM 7 FT BGS, REUSED NATIVE SOIL FROM 5 TO 5.5 FT BGS AND CLEAN IMPORTED FILL FOR THE REMAINDER OF THE EXCAVATION. THE BACKFILL USED FOR THE USED OIL UST IS UNKNOWN.



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**CROSS SECTION C-C'**

FIGURE **6**



CITY: SYRACUSE, N.Y. DIV: GROUP: ENV: CAD-141 DB: P. LISTER, R. ALLEN, W. JONES PN: TM: R. ANDRESEN TR: B. WALL LYR: ON: OFF: REF: G: ENV: CAD: SYR: ACUSE: ACT: B0609011283: 0002: DWG: 60901: C07: .DWG LAYOUT: 7 \_SAVED: 8/20/2012 10:42 AM ACADVER: 18.1S (LMS TECH) PAGES: 10 PAGES: 10 BY: JONES, WENDY

DP-4		
DEPTH	11.5'-12.5'	18'-19'
TPH-GRO	<0.40	<0.39
TPH-DRO	<5.0	<5.0
B	<0.002	<0.002
T	<0.002	<0.002
E	<0.002	<0.002
X	<0.004	<0.004
MTBE	<0.0049	<0.005
DIPE	<0.0049	<0.005
ETBE	<0.0049	<0.005
TAME	<0.0049	<0.005
TBA	<0.099	<0.1
Ethanol	<0.3	<0.3

DP-6		
DEPTH	10.5'-11.5'	17'-17.5'
TPH-GRO	<b>220</b>	<b>4,400</b>
TPH-DRO	29	72
B	<0.0049	<b>0.82</b>
T	<0.0049	<b>28</b>
E	0.013	<b>25</b>
X	<0.0099	<b>130</b>
MTBE	<0.012	<1.2
DIPE	<0.012	<1.2
ETBE	<0.012	<1.2
TAME	<0.012	<1.2
TBA	<0.25	<0.25
Ethanol	<0.74	<0.74

DP-3		
DEPTH	15'-16'	28'-28.5'
TPH-GRO	<b>2,500</b>	<0.40
TPH-DRO	69	<5.0
B	<1	<0.002
T	<b>15</b>	<0.002
E	<b>43</b>	<0.002
X	<b>210</b>	<0.004
MTBE	<2.5	<0.005
DIPE	<2.5	<0.005
ETBE	<2.5	<0.005
TAME	<2.5	<0.005
TBA	<50	<0.1
Ethanol	<150	<0.3

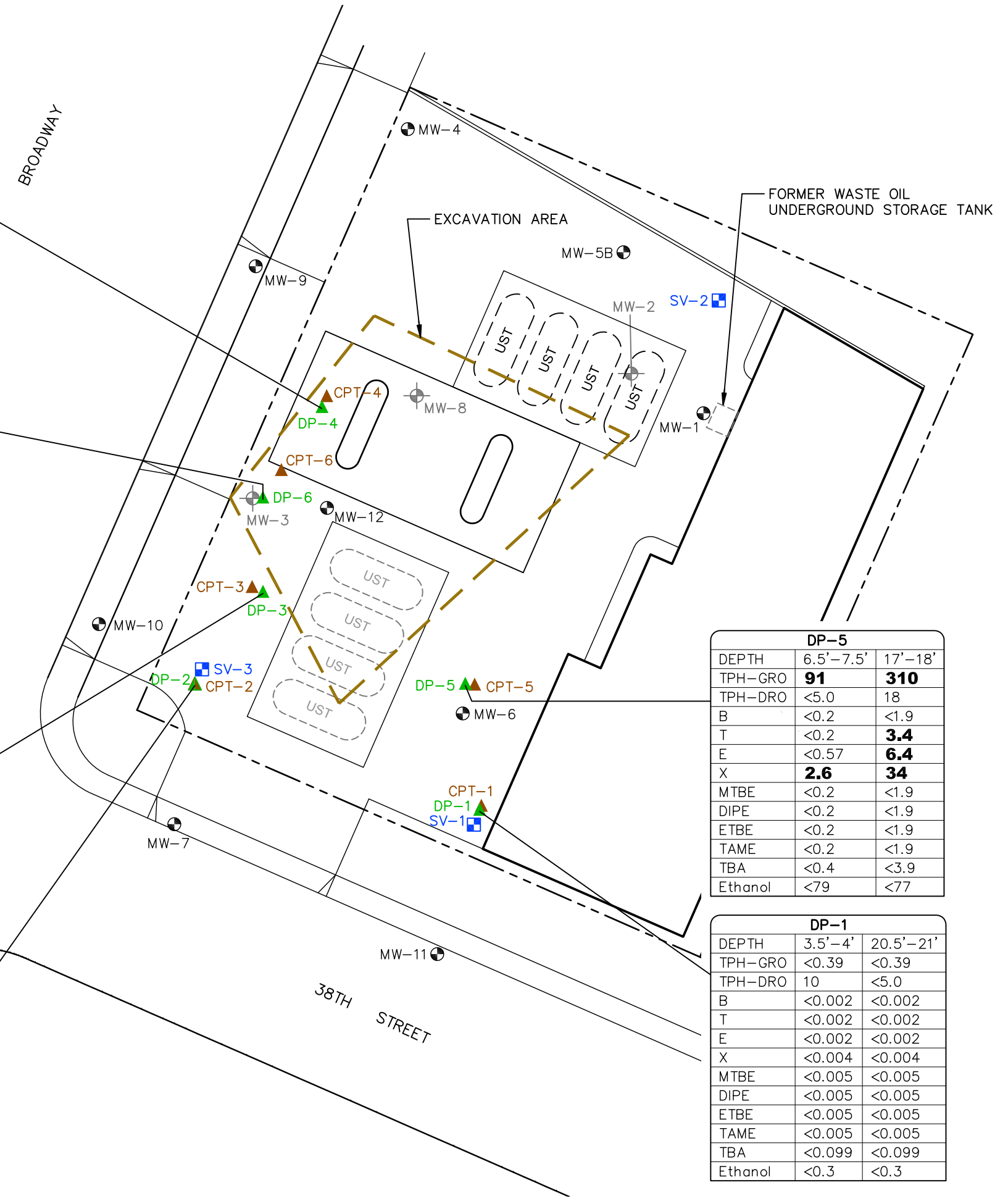
DP-2		
DEPTH	10'-10.5'	30.5'-31'
TPH-GRO	<b>83</b>	<0.37
TPH-DRO	<15	<5.0
B	<0.002	<0.002
T	<0.002	<0.002
E	0.028	<0.002
X	<0.004	<0.004
MTBE	<5.0	<0.005
DIPE	<5.0	<0.005
ETBE	<5.0	<0.005
TAME	<5.0	<0.005
TBA	<0.1	<0.099
Ethanol	<0.3	<0.3

DP-5		
DEPTH	6.5'-7.5'	17'-18'
TPH-GRO	<b>91</b>	<b>310</b>
TPH-DRO	<5.0	18
B	<0.2	<1.9
T	<0.2	<b>3.4</b>
E	<0.57	<b>6.4</b>
X	<b>2.6</b>	<b>34</b>
MTBE	<0.2	<1.9
DIPE	<0.2	<1.9
ETBE	<0.2	<1.9
TAME	<0.2	<1.9
TBA	<0.4	<3.9
Ethanol	<79	<77

DP-1		
DEPTH	3.5'-4'	20.5'-21'
TPH-GRO	<0.39	<0.39
TPH-DRO	10	<5.0
B	<0.002	<0.002
T	<0.002	<0.002
E	<0.002	<0.002
X	<0.004	<0.004
MTBE	<0.005	<0.005
DIPE	<0.005	<0.005
ETBE	<0.005	<0.005
TAME	<0.005	<0.005
TBA	<0.099	<0.099
Ethanol	<0.3	<0.3

BROADWAY

38TH STREET



- LEGEND:**
- PROPERTY LINE
  - SOIL VAPOR PROBE LOCATIONS
  - MONITORING WELL LOCATION
  - ⊕ FORMER WELL LOCATION
  - ▲ CPT LOCATION
  - ▲ SOIL BORING LOCATION
  - UST --- FORMER UNDERGROUND STORAGE TANK
  - UST --- EXISTING UNDERGROUND STORAGE TANK
  - DP DIRECT PUSH BORING
- TPH-GRO = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS  
 TPH-DRO = TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE ORGANICS WITH SILICA GEL CLEANUP  
 B = BENZENE  
 T = TOLUENE  
 E = ETHYLBENZENE  
 X = TOTAL XYLENES  
 MTBE = METHYL TERTIARY BUTYL ETHER  
 DIPE = DI-ISOPROPYL ETHER  
 ETBE = ETHYL TERTIARY BUTYL  
 TAME = TERTIARY AMLY METHYL ETHER  
 TBA = TERTIARY BUTYL ALCOHOL

- NOTES:**
- TPH-GRO, TPH-DRO, BTEX, MTBE, DIPE, ETBE, TAME, TBA AND ETHANOL CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM.
  - BOLDED CONCENTRATIONS EXCEED THEIR RESPECTIVE ENVIRONMENTAL SCREENING LEVEL (ESL).



FORMER TEXACO SERVICE STATION 21-1283  
 3810 BROADWAY, OAKLAND, CA  
**SITE ASSESSMENT REPORT**

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**SOIL CONCENTRATION DISTRIBUTION MAP**

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FIGURE  
**7**



CITY: SYRACUSE, N.Y. DIV/GROUP: ENV/CAD-141 DB: P. LISTER, R. ALLEN, W. JONES PM/TM: R. ANDRESEN TR: B.J. WALL LVR: ON\*OFF+REF  
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 XREFS: 60901X01 60901X01  
 IMAGES: PROJECTNAME: 1

SV-2		
DEPTH	S	D
TPH-DRO	5,800	NA
B	26	NA
T	33	NA
E	<5.8	NA
m,p-X	13	NA
o-X	<5.8	NA
MTBE	<4.8	NA
DIPE	<22	NA
ETBE	<22	NA
TAME	<22	NA
TBA	<41	NA
EDB	<10	NA
EDC	<5.4	NA
Napthalene	<28	NA

SV-3		
DEPTH	S	D
TPH-DRO	3,100	3,200
B	44	25
T	16	34
E	5.6	8.8
m,p-X	19	26
o-X	6.8	9.4
MTBE	<3.2	<3.2
DIPE	<15	<15
ETBE	<15	<15
TAME	<15	<15
TBA	<27	<27
EDB	<6.9	<6.9
EDC	<3.6	<3.6
Napthalene	<19	<19

SV-1		
DEPTH	S	D
TPH-DRO	1,300	NA
B	8.2	NA
T	6.2	NA
E	<3.6	NA
m,p-X	9.9	NA
o-X	4.8	NA
MTBE	<3.0	NA
DIPE	<14	NA
ETBE	<14	NA
TAME	<14	NA
TBA	<25	NA
EDB	<6.4	NA
EDC	<3.4	NA
Napthalene	<18	NA

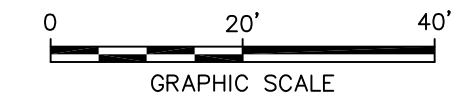


**LEGEND:**

- PROPERTY LINE
- SOIL VAPOR PROBE LOCATIONS
- MONITORING WELL LOCATION
- ⊕ FORMER WELL LOCATION
- ▲ CPT LOCATION
- ▲ SOIL BORING LOCATION
- UST FORMER UNDERGROUND STORAGE TANK
- UST EXISTING UNDERGROUND STORAGE TANK
- SV SOIL VAPOR WELL

TPH-GRO = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE RANGE ORGANICS  
 B = BENZENE  
 T = TOLUENE  
 E = ETHYLBENZENE  
 X = TOTAL XYLENES  
 MTBE = METHYL TERTIARY BUTYL ETHER  
 DIPE = DI-ISOPROPYL ETHER  
 ETBE = ETHYL TERTIARY BUTYL  
 TAME = TERTIARY AMLY METHYL ETHER  
 TBA = TERTIARY BUTYL ALCOHOL  
 EDB = ETHYLENE DIBROMIDE (1,2-DIBROMETHANE)  
 EDC = ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)  
 NA = NOT APPLICABLE/SAMPLED

- NOTES:**
- ALL CONCENTRATIONS ARE REPORTED IN MICROGRAMS PER CUBIC METER.
  - SV-1D AND SV-2D WERE NOT SAMPLED DUE TO WATER OBSERVED IN TUBING DURING THE SAMPLING EVENT.



FORMER TEXACO SERVICE STATION 21-1283  
 3810 BROADWAY, OAKLAND, CA  
**SITE ASSESSMENT REPORT**

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**SOIL VAPOR CONCENTRATION  
 DISTRIBUTION MAP**

---

FIGURE  
**9**



**Attachments**

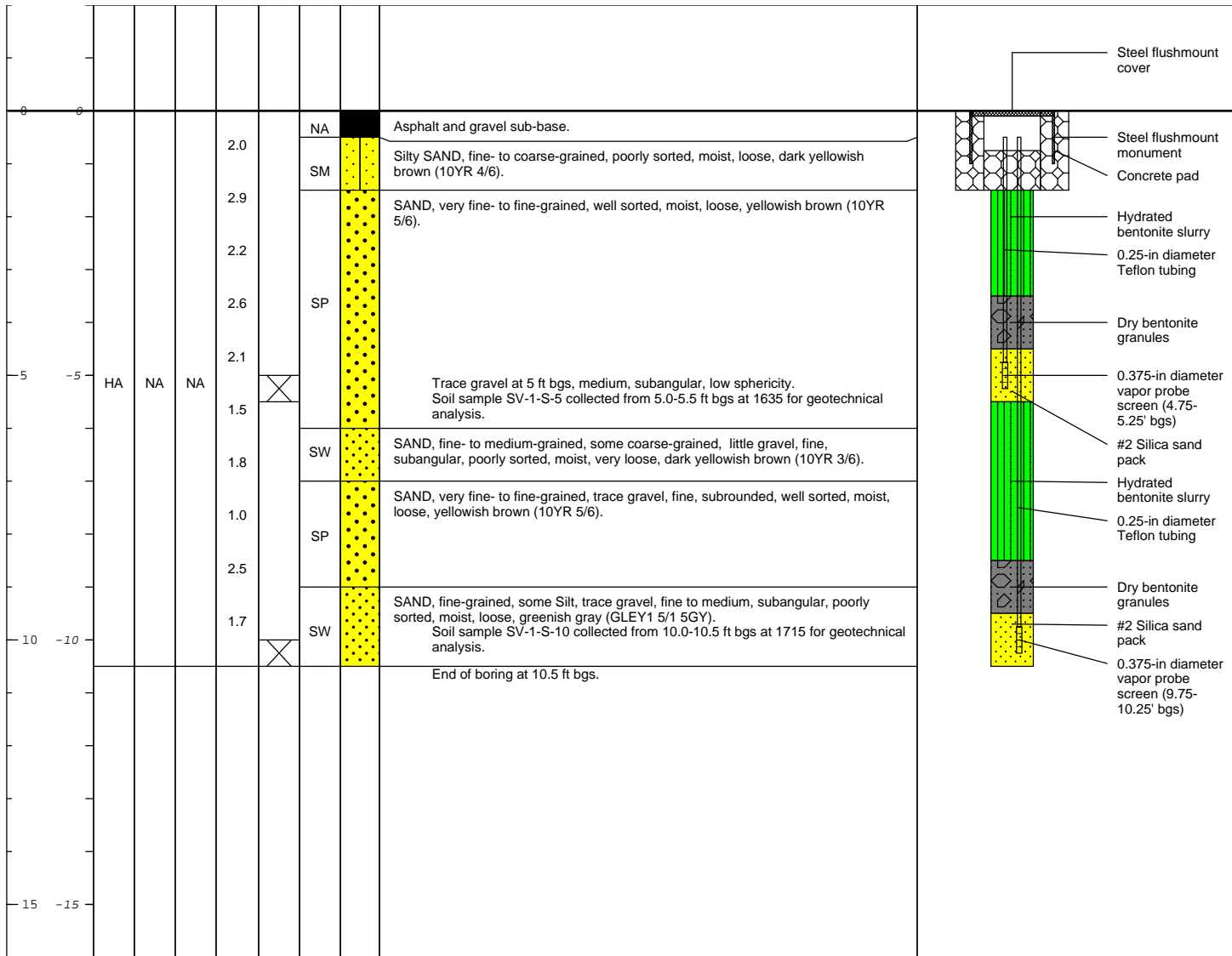


**Attachment A**

Boring Logs

<b>Date Start/Finish:</b> 6/25/12 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand auger <b>Sampling Method:</b> Hand auger/Slide hammer <b>Rig Type:</b> NA	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 10.5' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> SV-1  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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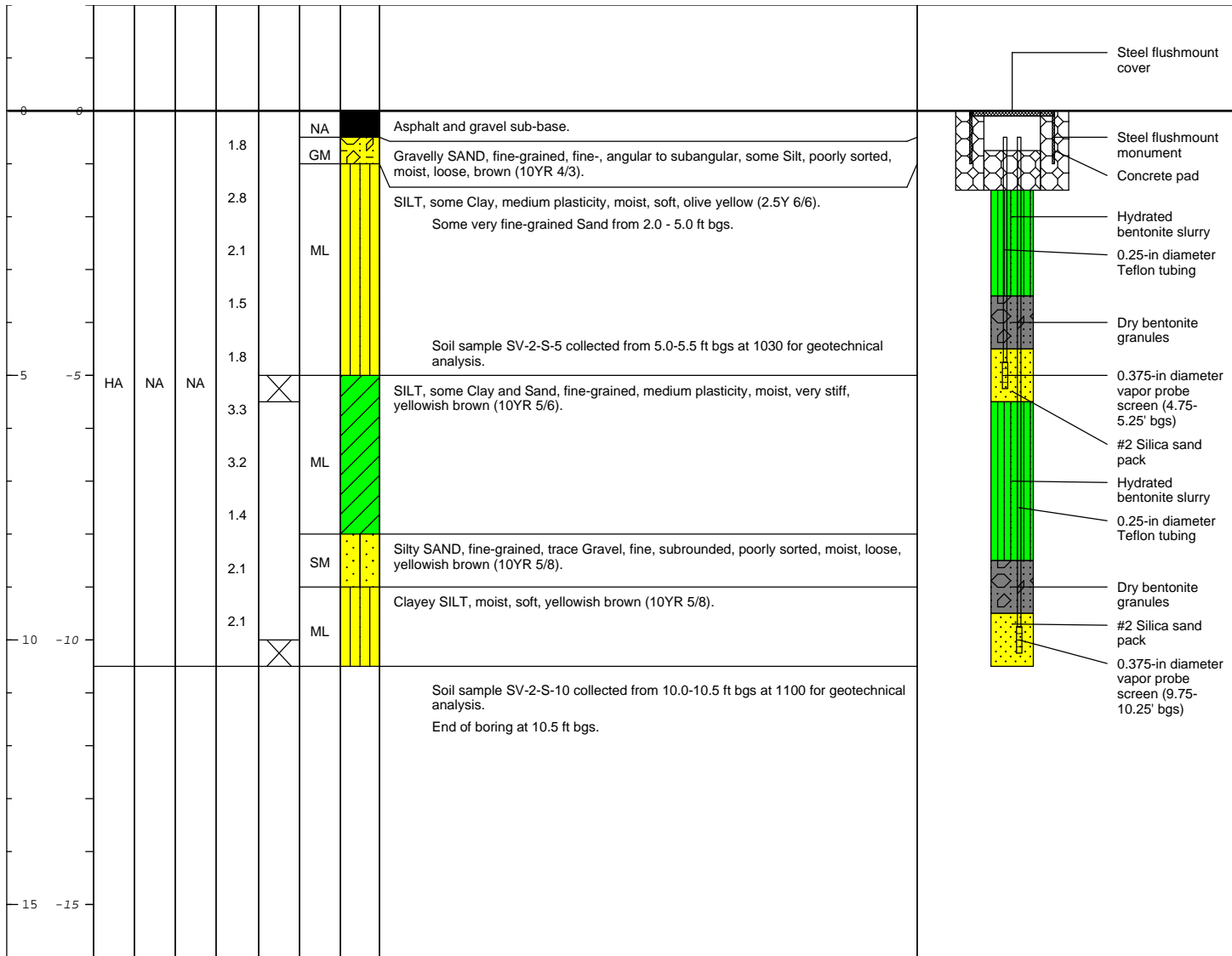
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand auger NA = Not applicable/available Samples collected with a manual slide hammer core sampler and stainless steel sleeves and capped with Teflon squares and plastic caps. Vapor probe lines capped with new 2-way valves and marked with strips of electrical tape (1 for 5' deep SV-1S, 2 for 10' deep SV-1D).
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<b>Date Start/Finish:</b> 6/25/12 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand auger <b>Sampling Method:</b> Hand auger/Slide hammer <b>Rig Type:</b> NA	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 10.5' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> SV-2  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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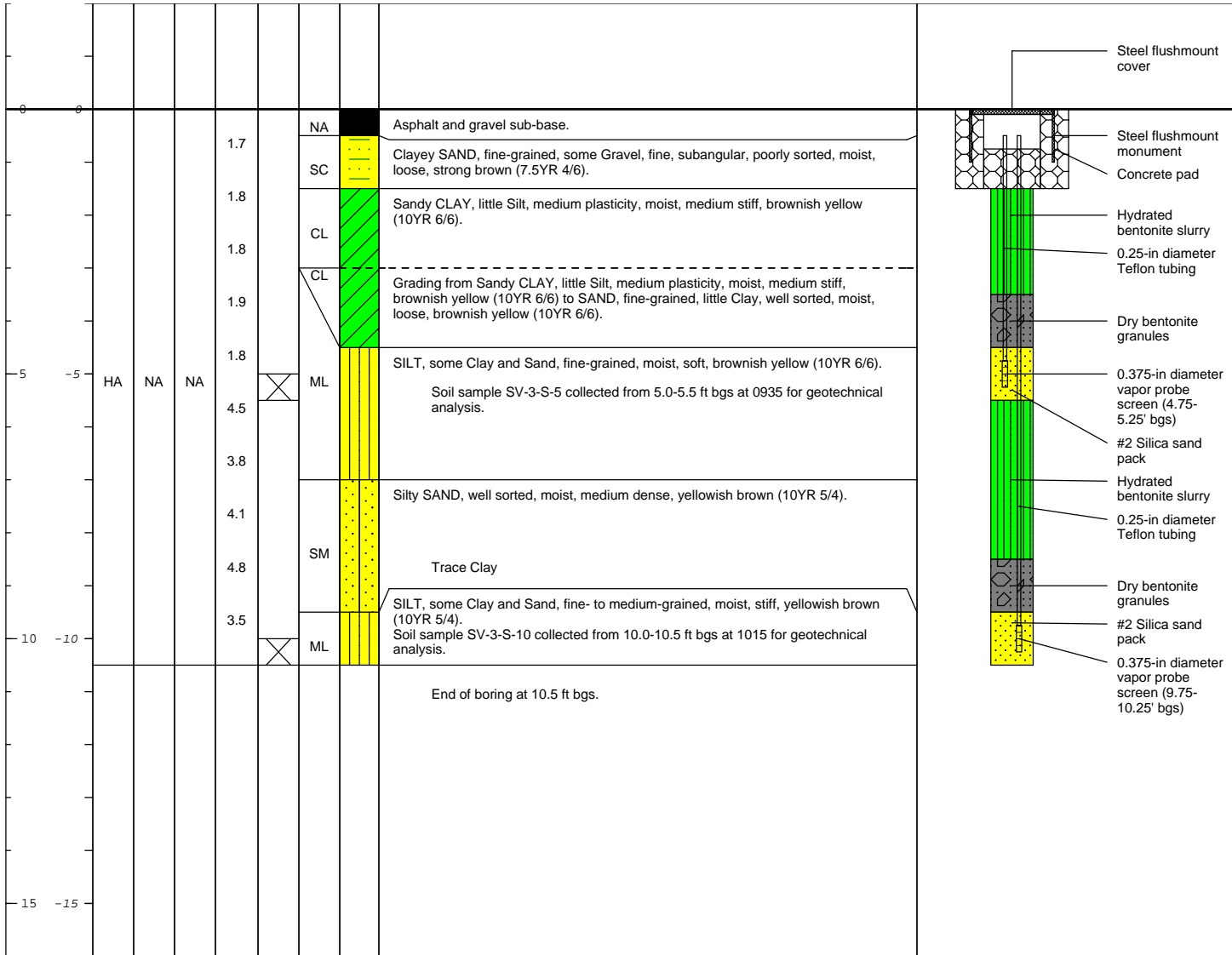
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand auger NA = Not applicable/available Samples collected with a manual slide hammer core sampler and stainless steel sleeves and capped with Teflon squares and plastic caps. Vapor probe lines capped with new 2-way valves and marked with strips of electrical tape (1 for the 5' deep probe, 2 for the 10' deep probe).
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<b>Date Start/Finish:</b> 6/26/12 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand auger <b>Sampling Method:</b> Hand auger/Slide hammer <b>Rig Type:</b> NA	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 10.5' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> SV-3  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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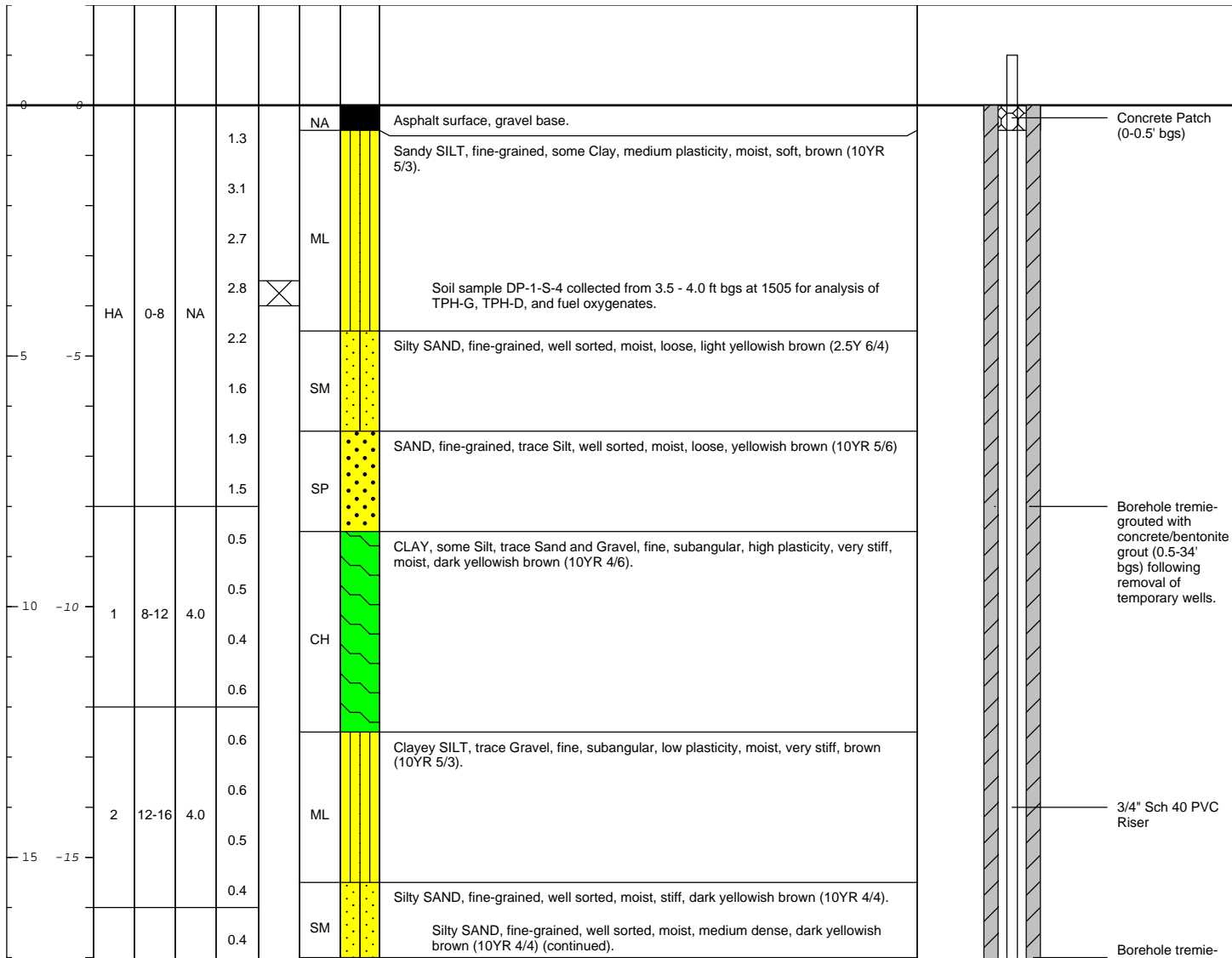


	<b>Remarks:</b> bgs = below ground surface HA = Hand auger NA = Not applicable/available Samples collected with a manual slide hammer core sampler and stainless steel sleeves and capped with Teflon squares and plastic caps. Vapor probe lines capped with new 2-way valves and marked with strips of electrical tape (1 for 5' deep SV-3S, 2 for 10' deep SV-3D).
--	---



<b>Date Start/Finish:</b> 6/29/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 34' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-1  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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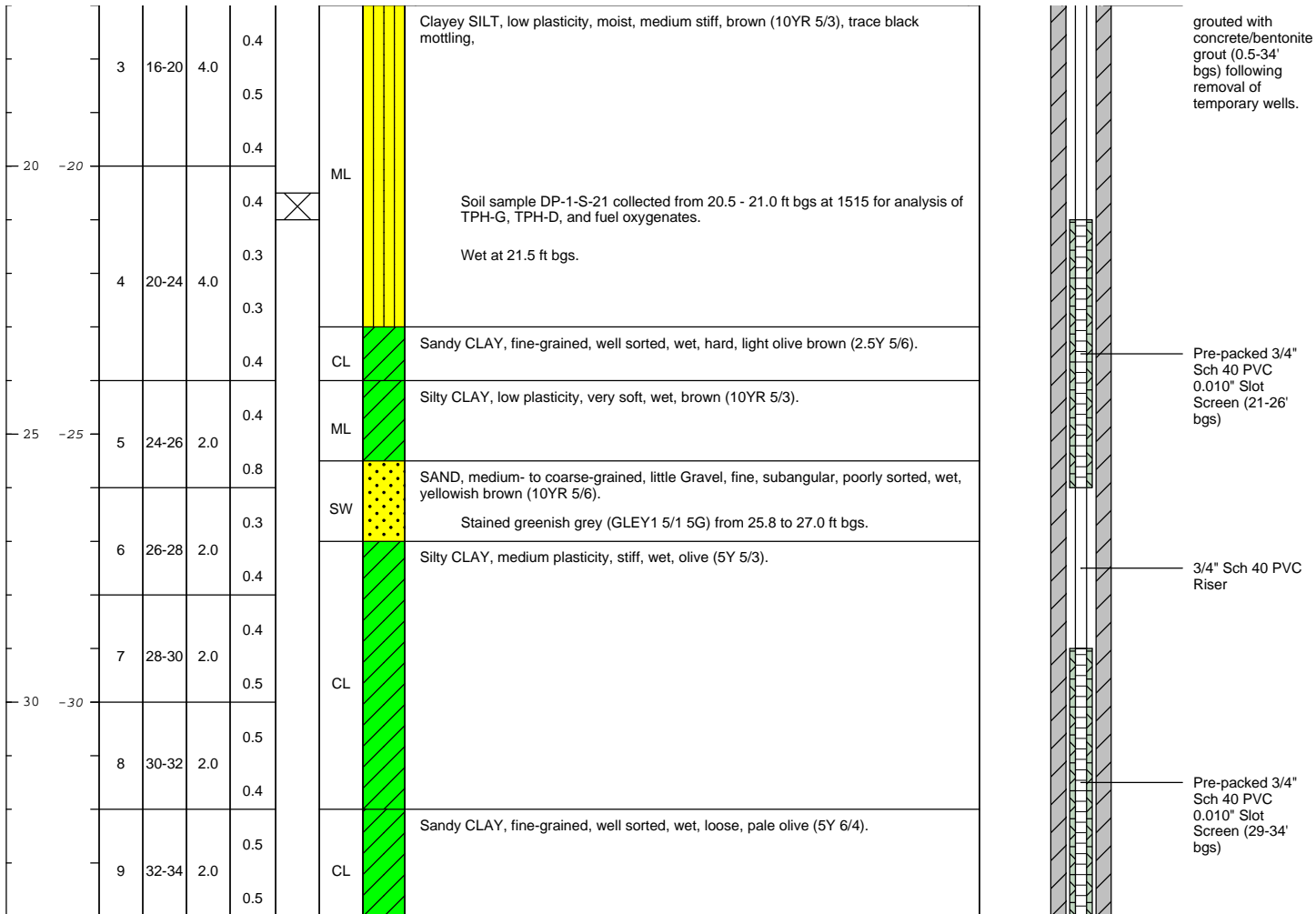
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
--	--

<b>Date Start/Finish:</b> 6/29/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 34' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-1  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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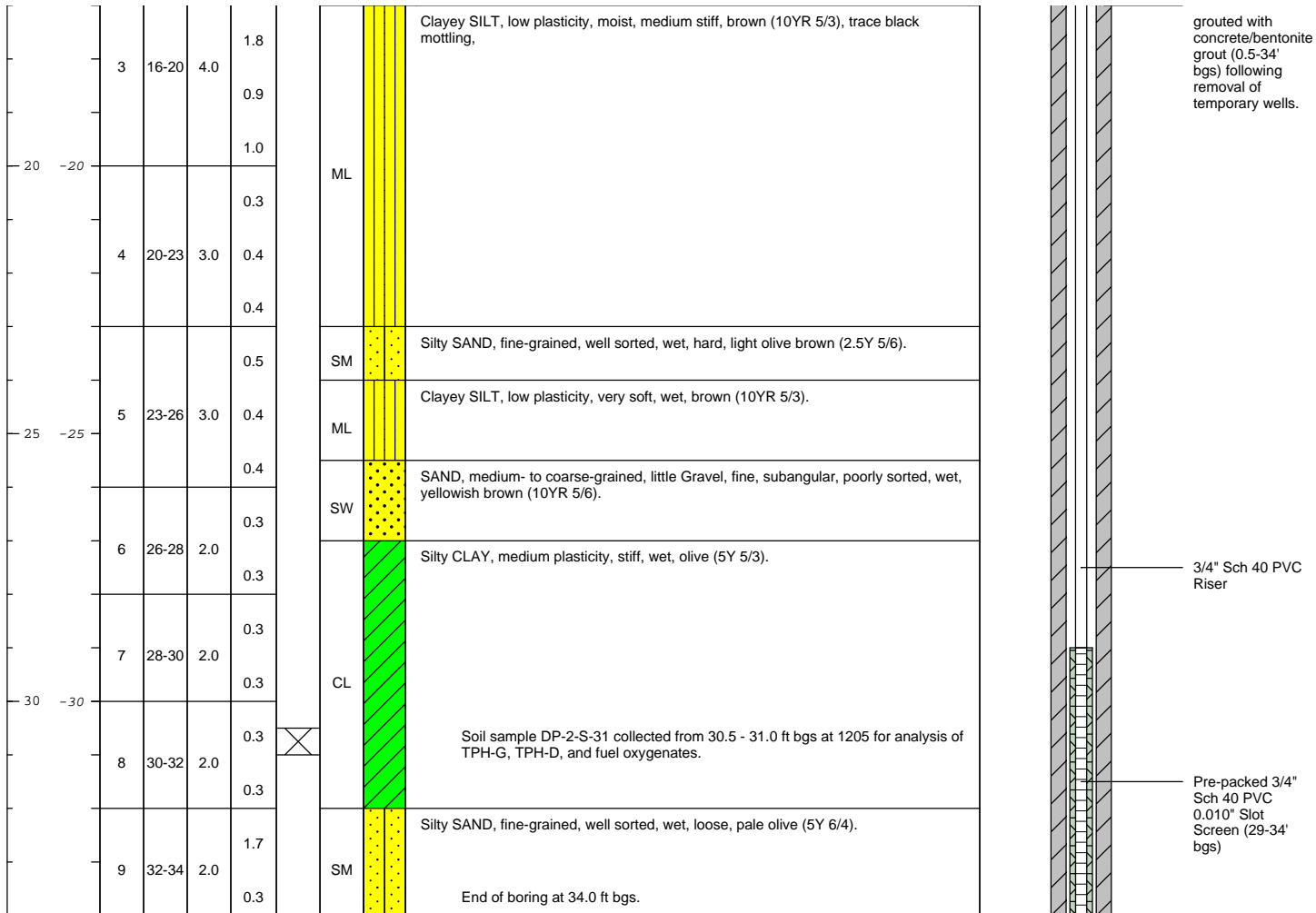


	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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<b>Date Start/Finish:</b> 6/27/2012, 6/29/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 34' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-2  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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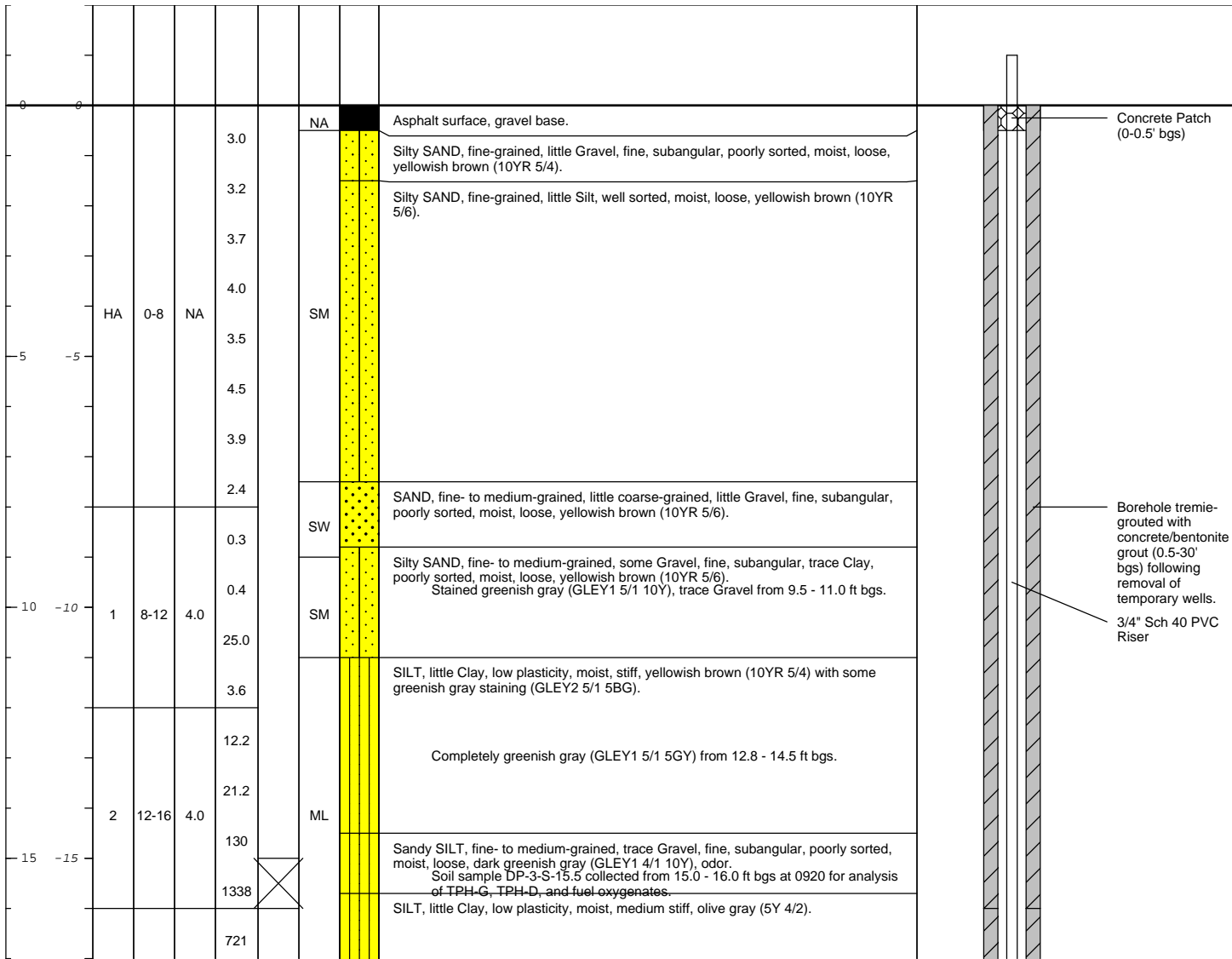
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. No shallow well screen interval was set due to barely moist clayey soils from 10.5 - 31.5 ft bgs.
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<b>Date Start/Finish:</b> 6/28/2012 - 6/29/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 30' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-3  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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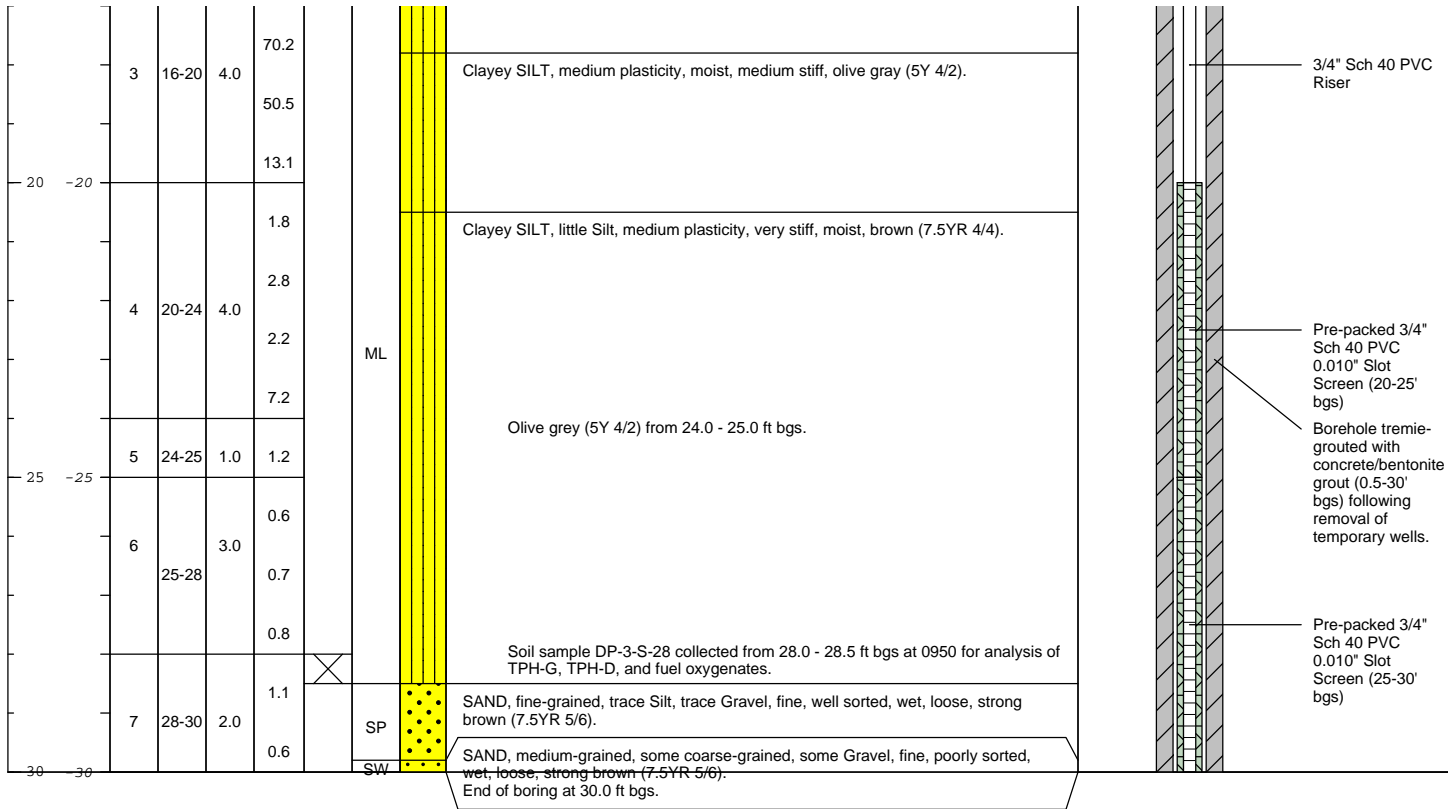
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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<b>Date Start/Finish:</b> 6/28/2012 - 6/29/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 30' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-3  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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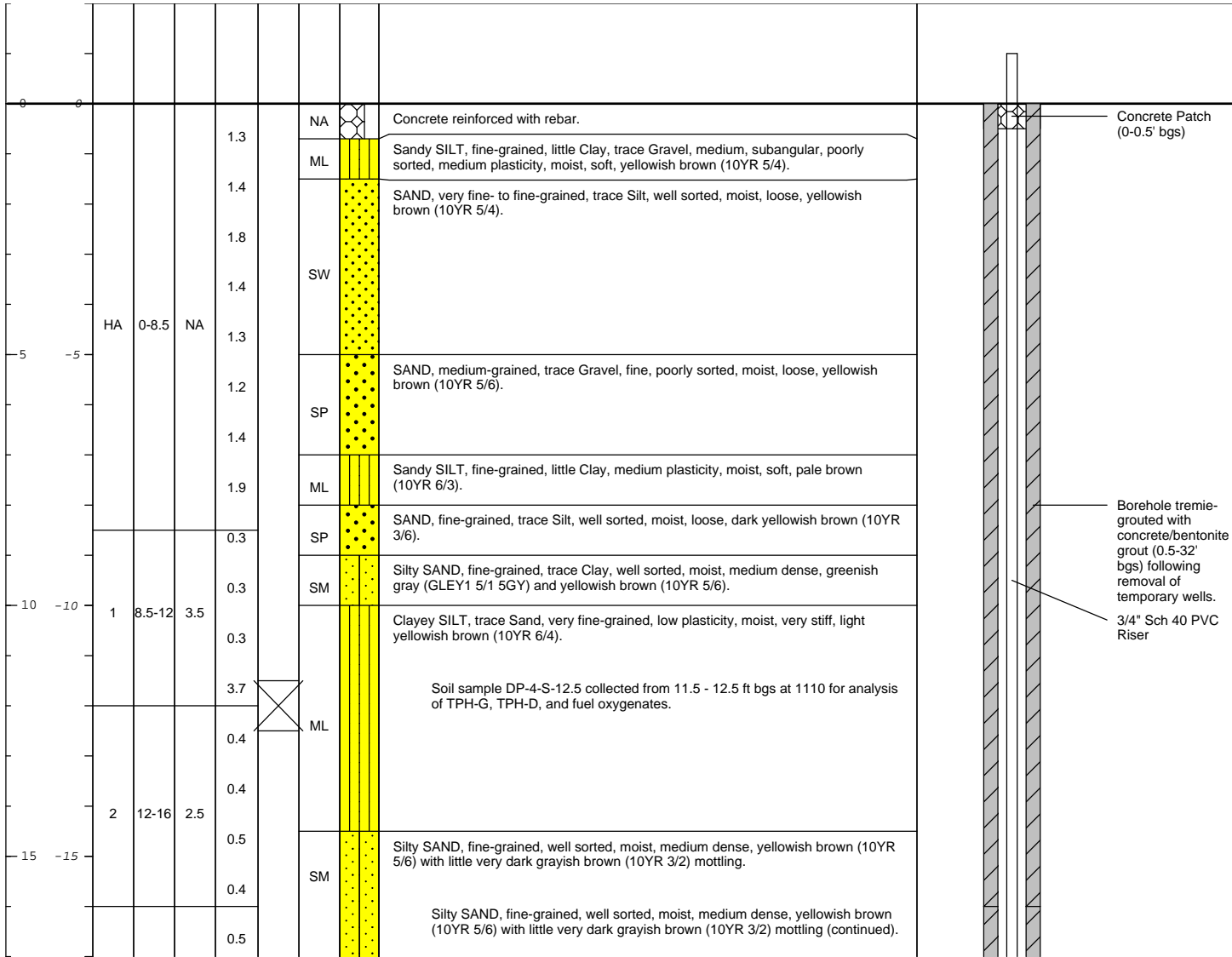
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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<b>Date Start/Finish:</b> 6/28/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 32' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-4  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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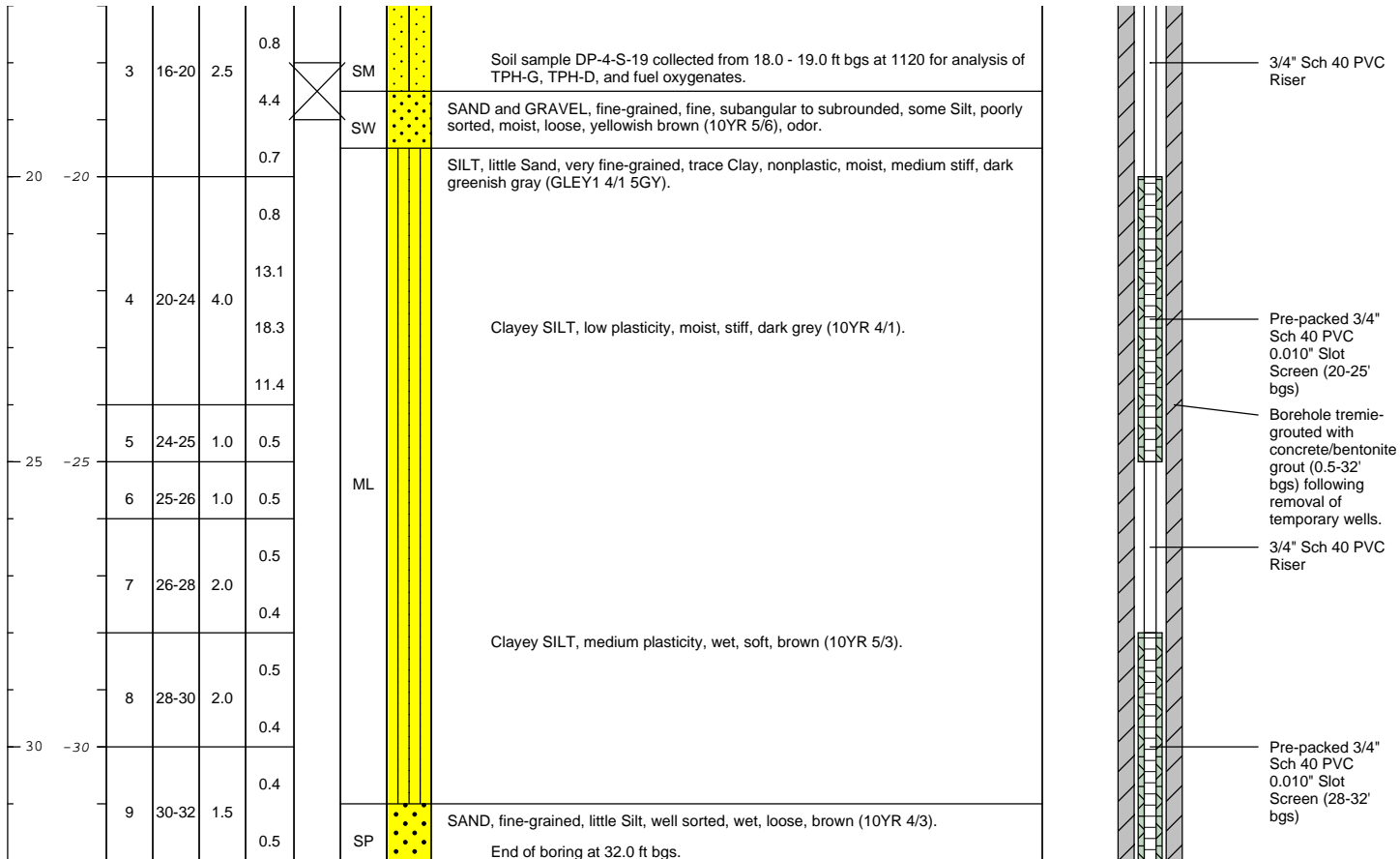
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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<b>Date Start/Finish:</b> 6/28/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 32' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-4  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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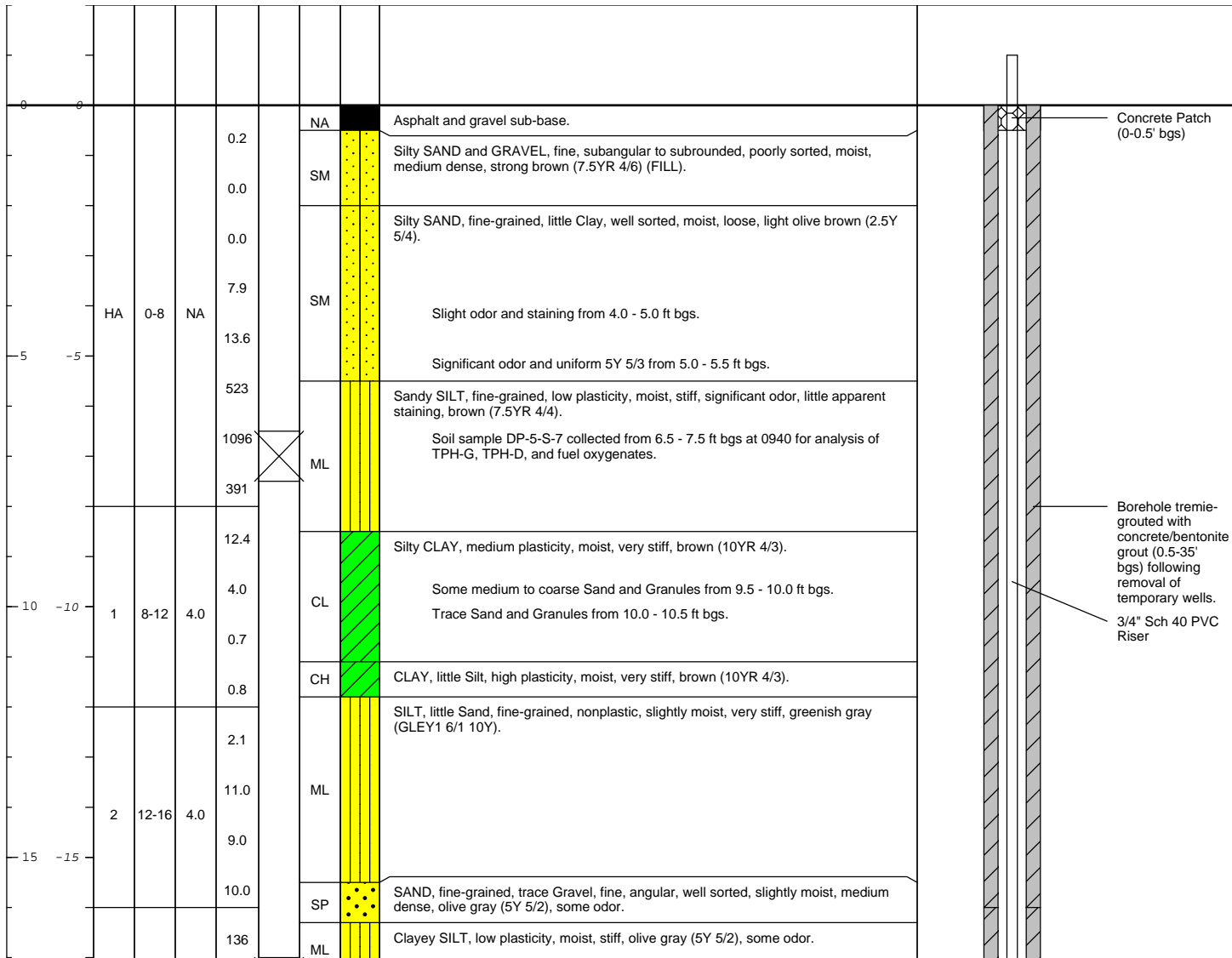


	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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<b>Date Start/Finish:</b> 7/2/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Eastings:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 35' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-5 <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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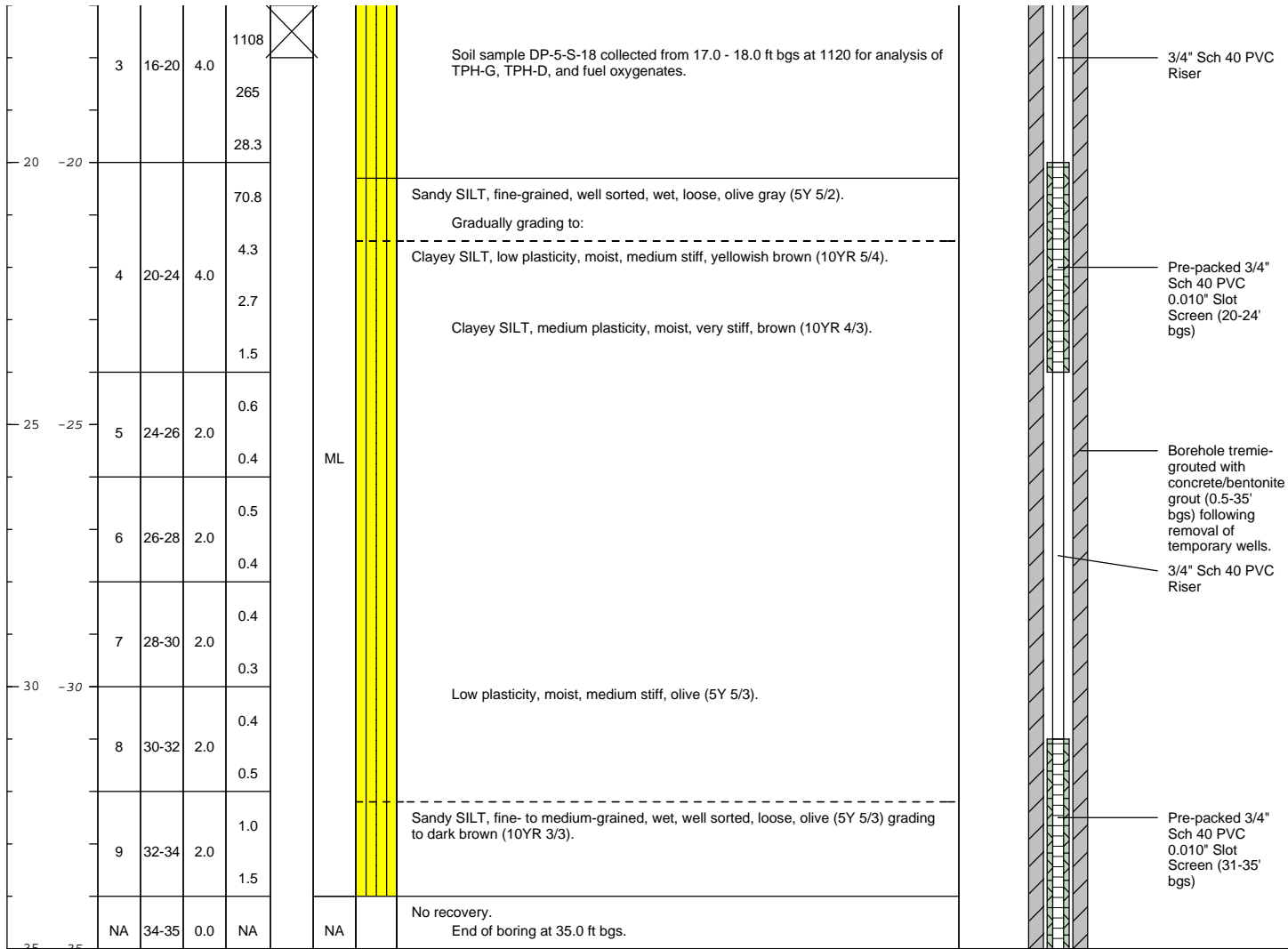
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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<b>Date Start/Finish:</b> 7/2/2012 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 35' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-5  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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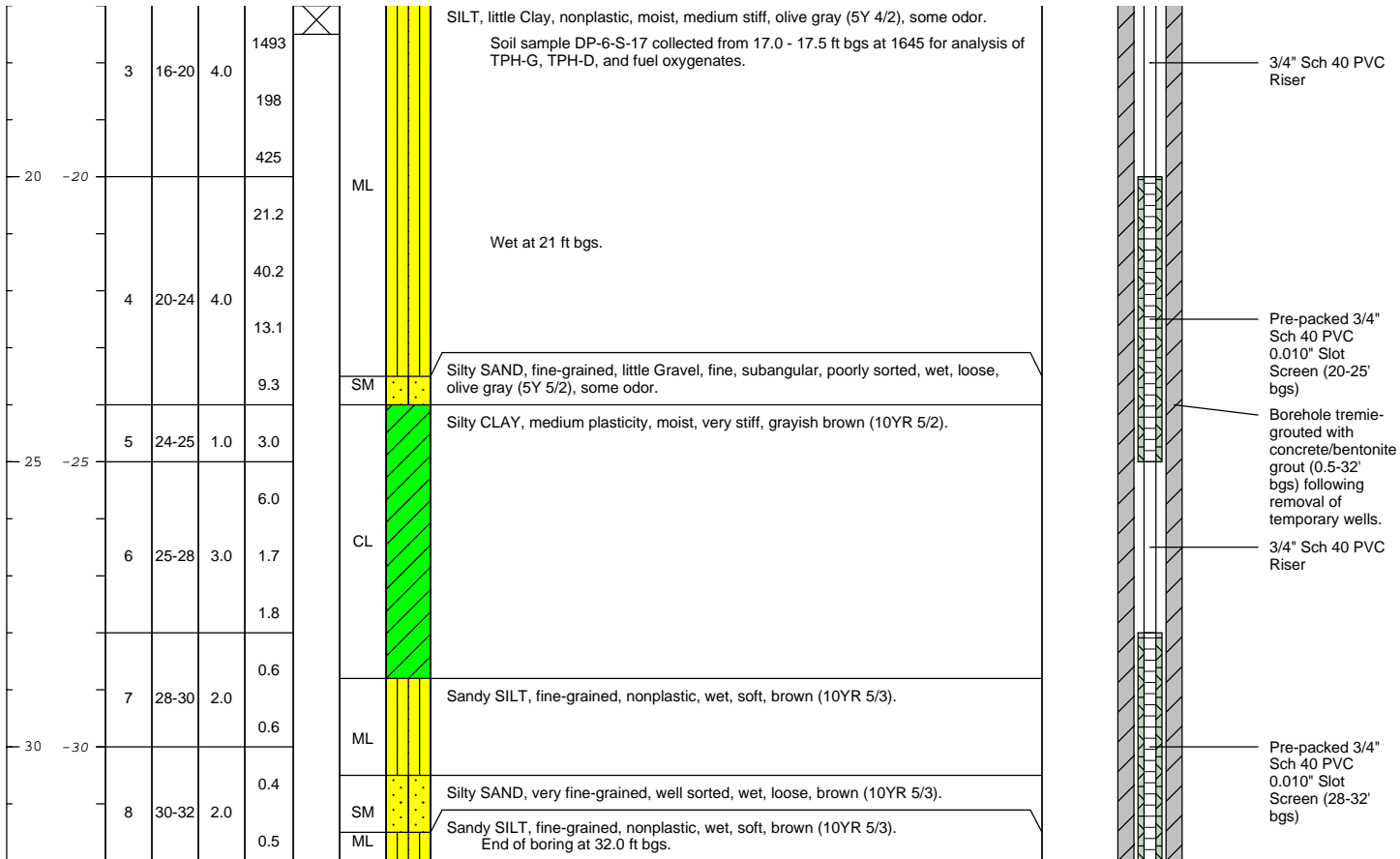


	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
--	--



<b>Date Start/Finish:</b> 6/28/12 <b>Drilling Company:</b> Cascade Drilling, L.P. <b>Driller's Name:</b> Mauricio Alba <b>Drilling Method:</b> Hand-Auger/Direct Push <b>Sampling Method:</b> Hand Auger/4' Acetate Liner <b>Rig Type:</b> Truck-Mounted Geoprobe 6600 Rig	<b>Northing:</b> NA <b>Easting:</b> NA <b>Casing Elevation:</b> NA  <b>Borehole Depth:</b> 32' bgs <b>Surface Elevation:</b> NA  <b>Descriptions By:</b> Tim Bellis	<b>Well/Boring ID:</b> DP-6  <b>Client:</b> Chevron EMC  <b>Location:</b> 3810 Broadway, Oakland, CA
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
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	<b>Remarks:</b> bgs = below ground surface HA = Hand Auger NA = Not applicable/available Temporary well screens were set inside the rods and then exposed by retracting outer rods. After sampling of the shallow well screen interval, boring was advanced to the next water bearing zone.
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**Attachment B**

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: 440-15930-1

Client Project/Site: Chevron - 21-1283

For:

ARCADIS U.S., Inc.

3240 El Camino Real

Suite 200

Irvine, California 92602

Attn: Toni DeMayo



Authorized for release by:

7/17/2012 7:24:52 PM

Sushmitha Reddy

Project Manager I

[sushmitha.reddy@testamericainc.com](mailto:sushmitha.reddy@testamericainc.com)

### LINKS

Review your project  
results through

**TotalAccess**

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-15930-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-15930-1	SV-2-S-5'	Solid	06/25/12 10:30	06/28/12 09:35
440-15930-2	SV-2-S-10'	Solid	06/25/12 11:00	06/28/12 09:35
440-15930-3	SV-1-S-5'	Solid	06/25/12 16:35	06/28/12 09:35
440-15930-4	SV-1-S-10'	Solid	06/25/12 17:15	06/28/12 09:35
440-15930-5	SV-3-S-5'	Solid	06/26/12 09:35	06/28/12 09:35
440-15930-6	SV-3-S-10'	Solid	06/26/12 10:10	06/28/12 09:35





# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-15930-1

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**Job ID: 440-15930-1**

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**Laboratory: TestAmerica Irvine**

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**Narrative**

**Job Narrative**  
**440-15930-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 6/28/2012 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5° C.

**Subcontract Work**

Methods D854 - Grain Density, Dry Bulk Density, Grain Size Distribution, Soil Moisture: These methods were subcontracted to PTS Laboratories, Inc. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.



## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-15930-1

### 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
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-15930-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Irvine	Arizona	State Program	9	AZ0671
TestAmerica Irvine	California	LA Cty Sanitation Districts	9	10256
TestAmerica Irvine	California	NELAC	9	1108CA
TestAmerica Irvine	California	State Program	9	2706
TestAmerica Irvine	Guam	State Program	9	Cert. No. 12.002r
TestAmerica Irvine	Hawaii	State Program	9	N/A
TestAmerica Irvine	Nevada	State Program	9	CA015312007A
TestAmerica Irvine	New Mexico	State Program	6	N/A
TestAmerica Irvine	Northern Mariana Islands	State Program	9	MP0002
TestAmerica Irvine	Oregon	NELAC	10	4005
TestAmerica Irvine	USDA	Federal		P330-09-00080

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.



8100 Secura Way • Santa Fe Springs, CA 90670  
Telephone (562) 347-2500 • Fax (562) 907-3610

July 17, 2012

Sushmitha Reddy  
TestAmerica  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Re: PTS File No: 42493  
Physical Properties Data  
Chevron-21-1283; 440-15930-1

Dear Ms. Reddy:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your Chevron-21-1283; 440-15930-1 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Rachel Spitz at (562) 347-2504.

Sincerely,  
PTS Laboratories

Michael Mark Brady, P.G.  
District Manager

Encl.



Project Name: Chevron-21-1283  
 Project Number: 440-15930-1

PTS File No: 42493  
 Client: TestAmerica

TEST PROGRAM - 20120629

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis ASTM D4464M	Moisture Content ASTM D2216	Grain Density API RP40	Dry Bulk Density API RP40		Notes
		Plugs:	Grab	Grab	Vert. 1"	Vert. 1"		
Date Received: 20120629								
SV-2-S-5' (440-15930-1)	N/A	0.50	X	X	X	X		
SV-2-S-10' (440-15930-2)	N/A	0.50	X	X	X	X		
SV-1-S-5' (440-15930-3)	N/A	0.50	X	X	X	X		
SV-1-S-10' (440-15930-4)	N/A	0.50	X	X	X	X		
SV-3-S-5' (440-15930-5)	N/A	0.50	X	X	X	X		
SV-3-S-10' (440-15930-6)	N/A	0.50	X	X	X	X		
<b>TOTALS:</b>	<b>6 cores</b>	<b>3.00</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>		

Laboratory Test Program Notes

Contaminant identification: \_\_\_\_\_  
 Standard TAT for basic analysis is 10 business days.



PTS File No: 42493  
 Client: TestAmerica

**PHYSICAL PROPERTIES DATA**

PROJECT NAME: Chevron-21-1283  
 PROJECT NO: 440-15930-1

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	METHODS:	DENSITY	
				API RP 40 / ASTM D2216	API RP 40	
				MOISTURE CONTENT, % weight	DRY BULK, g/cc	GRAIN, g/cc
SV-2-S-5' (440-15930-1)	N/A	V	20120714	20.4	1.56	2.66
SV-2-S-10' (440-15930-2)	N/A	V	20120714	26.7	1.25	2.61
SV-1-S-5' (440-15930-3)	N/A	V	20120714	15.5	1.78	2.68
SV-1-S-10' (440-15930-4)	N/A	V	20120714	20.1	1.66	2.64
SV-3-S-5' (440-15930-5)	N/A	V	20120714	19.5	1.45	2.64
SV-3-S-10' (440-15930-6)	N/A	V	20120714	20.4	1.39	2.63

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

**PARTICLE SIZE SUMMARY**  
(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Chevron-21-1283  
PROJECT NO: 440-15930-1

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
SV-2-S-5' (440-15930-1)	N/A	Silt	0.023	0.00	0.00	0.01	29.70	41.87	28.42	70.29
SV-2-S-10' (440-15930-2)	N/A	Silt	0.006	0.00	0.00	0.00	0.00	57.20	42.80	100.00
SV-1-S-5' (440-15930-3)	N/A	Coarse sand	1.159	26.77	12.86	30.66	23.88	(2)	(2)	5.83
SV-1-S-10' (440-15930-4)	N/A	Coarse sand	1.825	22.46	25.21	28.81	19.12	(2)	(2)	4.39
SV-3-S-5' (440-15930-5)	N/A	Silt	0.025	0.00	0.00	0.00	14.13	67.92	17.95	85.87
SV-3-S-10' (440-15930-6)	N/A	Silt	0.020	0.00	0.00	6.12	21.66	49.36	22.86	72.22

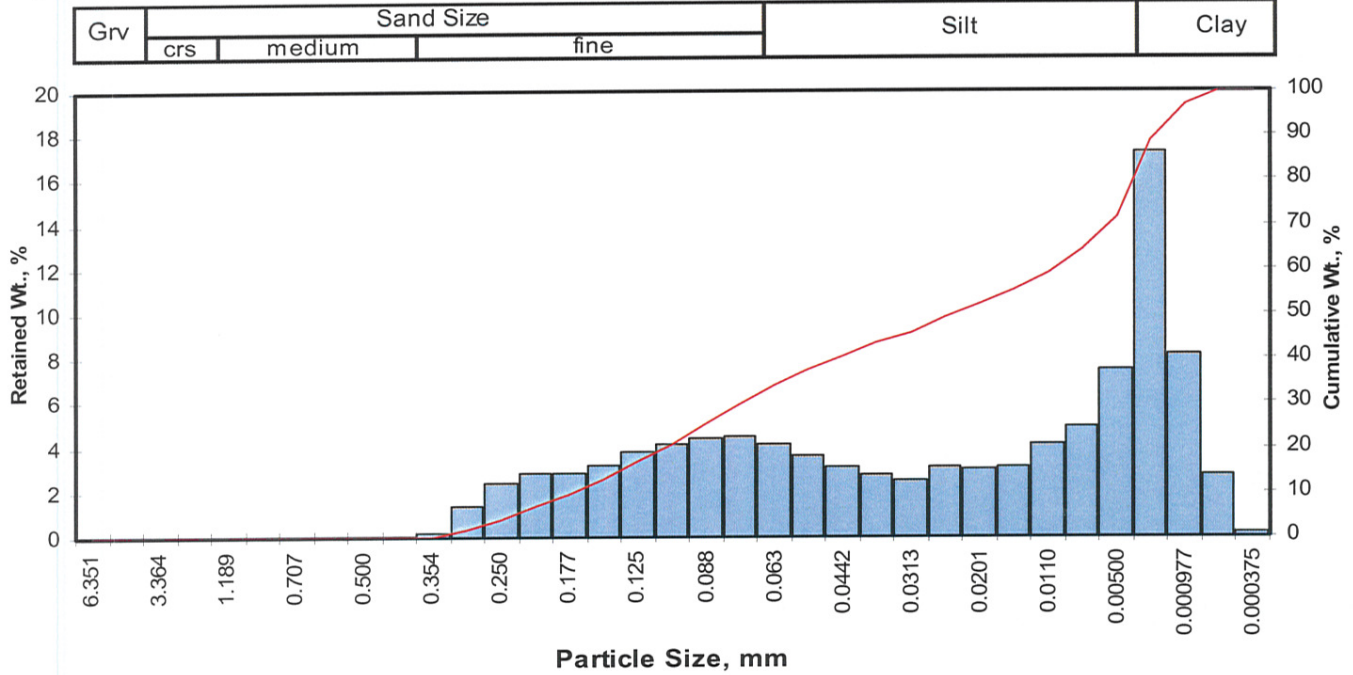
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(1) Based on Mean from Trask  
(2) Mechanical sieve does not differentiate silt/clay fractions



Client: TestAmerica  
 Project: Chevron-21-1283  
 Project No: 440-15930-1

PTS File No: 42493  
 Sample ID: SV-2-S-5' (440-15930-1)  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.01	0.01	0.01
0.0139	0.354	1.50	45	0.19	0.19	0.20
0.0117	0.297	1.75	50	1.40	1.40	1.60
0.0098	0.250	2.00	60	2.39	2.39	3.99
0.0083	0.210	2.25	70	2.82	2.82	6.81
0.0070	0.177	2.50	80	2.88	2.88	9.69
0.0059	0.149	2.75	100	3.23	3.23	12.92
0.0049	0.125	3.00	120	3.75	3.75	16.68
0.0041	0.105	3.25	140	4.17	4.17	20.85
0.0035	0.088	3.50	170	4.42	4.42	25.27
0.0029	0.074	3.75	200	4.44	4.44	29.71
0.0025	0.063	4.00	230	4.15	4.15	33.86
0.0021	0.053	4.25	270	3.63	3.63	37.49
0.00174	0.0442	4.50	325	3.12	3.12	40.61
0.00146	0.0372	4.75	400	2.74	2.74	43.35
0.00123	0.0313	5.00	450	2.51	2.51	45.86
0.000986	0.0250	5.32	500	3.08	3.08	48.95
0.000790	0.0201	5.64	635	3.03	3.03	51.98
0.000615	0.0156	6.00		3.09	3.09	55.07
0.000435	0.0110	6.50		4.10	4.10	59.17
0.000308	0.00781	7.00		4.92	4.92	64.09
0.000197	0.00500	7.65		7.49	7.49	71.58
0.000077	0.00195	9.00		17.20	17.20	88.79
0.000038	0.000977	10.00		8.21	8.21	97.00
0.000019	0.000488	11.00		2.79	2.79	99.79
0.000015	0.000375	11.38		0.21	0.21	100.00
<b>TOTALS</b>				<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.09	0.0093	0.235
10	2.52	0.0068	0.174
16	2.95	0.0051	0.129
25	3.48	0.0035	0.089
40	4.45	0.0018	0.046
50	5.43	0.0009	0.023
60	6.58	0.0004	0.010
75	7.91	0.0002	0.004
84	8.62	0.0001	0.003
90	9.15	0.0001	0.002
95	9.76	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.43	5.43	5.43
Median, in.	0.0009	0.0009	0.0009
Median, mm	0.023	0.023	0.023
Mean, phi	4.42	5.79	5.67
Mean, in.	0.0018	0.0007	0.0008
Mean, mm	0.047	0.018	0.020
Sorting	4.642	2.834	2.579
Skewness	0.830	0.126	0.127
Kurtosis	0.247	0.353	0.709

**Grain Size Description** Silt  
 (ASTM-USCS Scale) (based on Mean from Trask)

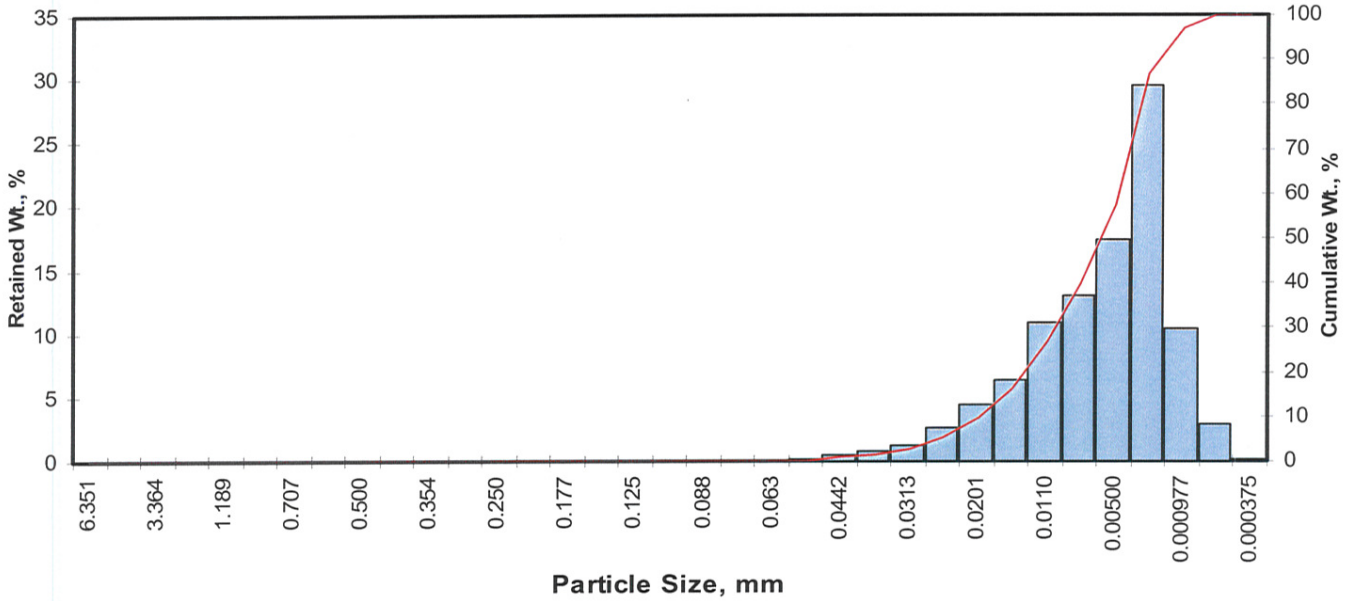
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.01
Fine Sand	200	29.70
Silt	>0.005 mm	41.87
Clay	<0.005 mm	28.42
<b>Total</b>		<b>100</b>



Client: TestAmerica  
 Project: Chevron-21-1283  
 Project No: 440-15930-1

PTS File No: 42493  
 Sample ID: SV-2-S-10' (440-15930-2)  
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.02	0.02	0.02
0.0021	0.053	4.25	270	0.17	0.17	0.19
0.00174	0.0442	4.50	325	0.49	0.49	0.68
0.00146	0.0372	4.75	400	0.75	0.75	1.43
0.00123	0.0313	5.00	450	1.16	1.16	2.58
0.000986	0.0250	5.32	500	2.61	2.61	5.19
0.000790	0.0201	5.64	635	4.42	4.42	9.61
0.000615	0.0156	6.00		6.34	6.33	15.94
0.000435	0.0110	6.50		10.90	10.89	26.83
0.000308	0.00781	7.00		13.00	12.99	39.82
0.000197	0.00500	7.65		17.40	17.38	57.20
0.000077	0.00195	9.00		29.40	29.37	86.57
0.000038	0.000977	10.00		10.40	10.39	96.96
0.000019	0.000488	11.00		2.85	2.85	99.81
0.000015	0.000375	11.38		0.19	0.19	100.00
<b>TOTALS</b>				<b>100.10</b>	<b>100.00</b>	<b>100.00</b>

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	5.30	0.0010	0.025
10	5.66	0.0008	0.020
16	6.00	0.0006	0.016
25	6.42	0.0005	0.012
40	7.01	0.0003	0.008
50	7.38	0.0002	0.006
60	7.77	0.0002	0.005
75	8.47	0.0001	0.003
84	8.88	0.0001	0.002
90	9.33	0.0001	0.002
95	9.81	0.0000	0.001

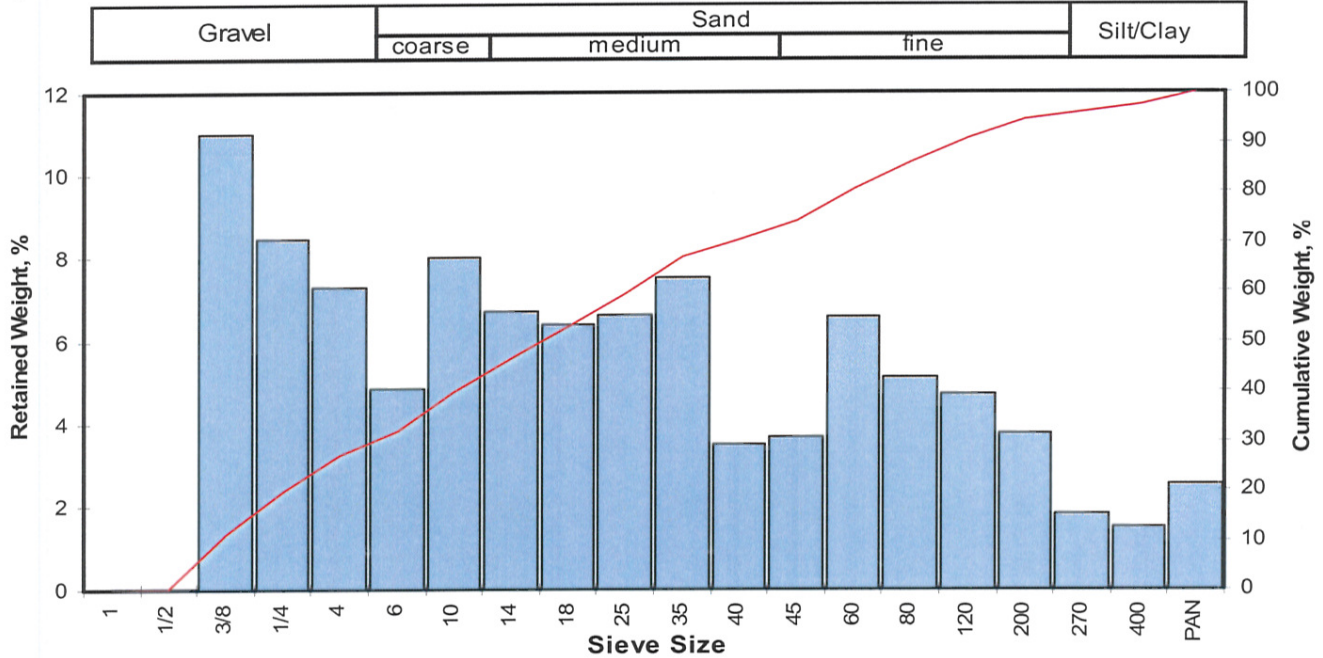
Measure	Trask	Inman	Folk-Ward
Median, phi	7.38	7.38	7.38
Median, in.	0.0002	0.0002	0.0002
Median, mm	0.006	0.006	0.006
Mean, phi	7.10	7.44	7.42
Mean, in.	0.0003	0.0002	0.0002
Mean, mm	0.007	0.006	0.006
Sorting	2.035	1.439	1.404
Skewness	0.957	0.045	0.061
Kurtosis	0.244	0.568	0.902

**Grain Size Description** Silt  
 (ASTM-USCS Scale) (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	57.20
Clay	<0.005 mm	42.80
<b>Total</b>		<b>100</b>

Client: TestAmerica  
 Project: Chevron-21-1283  
 Project No: 440-15930-1

PTS File No: 42493  
 Sample ID: SV-1-S-5' (440-15930-3)  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	8.33	11.02	11.02
0.2500	6.351	-2.67	1/4	6.40	8.47	19.48
0.1873	4.757	-2.25	4	5.51	7.29	26.77
0.1324	3.364	-1.75	6	3.65	4.83	31.60
0.0787	2.000	-1.00	10	6.07	8.03	39.63
0.0557	1.414	-0.50	14	5.07	6.71	46.34
0.0394	1.000	0.00	18	4.82	6.38	52.71
0.0278	0.707	0.50	25	5.00	6.61	59.33
0.0197	0.500	1.00	35	5.67	7.50	66.83
0.0166	0.420	1.25	40	2.62	3.47	70.29
0.0139	0.354	1.50	45	2.79	3.69	73.98
0.0098	0.250	2.00	60	4.97	6.57	80.56
0.0070	0.177	2.50	80	3.88	5.13	85.69
0.0049	0.125	3.00	120	3.57	4.72	90.41
0.0029	0.074	3.75	200	2.84	3.76	94.17
0.0021	0.053	4.25	270	1.36	1.80	95.97
0.0015	0.037	4.75	400	1.12	1.48	97.45
			PAN	1.93	2.55	100.00
<b>TOTALS</b>				75.60	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.46	0.4345	11.037
10	-3.28	0.3836	9.745
16	-2.91	0.2951	7.496
25	-2.35	0.2009	5.103
40	-0.97	0.0772	1.962
50	-0.21	0.0456	1.159
60	0.54	0.0270	0.685
75	1.58	0.0132	0.335
84	2.34	0.0078	0.198
90	2.96	0.0051	0.129
95	3.98	0.0025	0.063

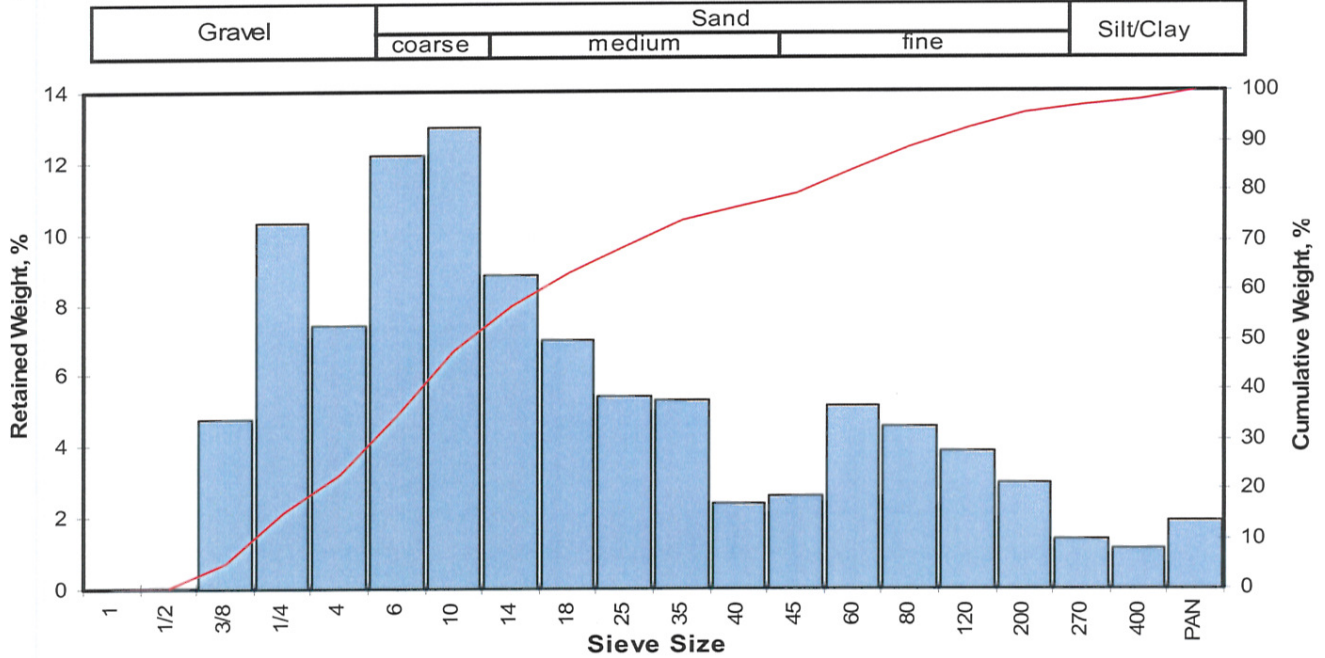
Measure	Trask	Inman	Folk-Ward
Median, phi	-0.21	-0.21	-0.21
Median, in.	0.0456	0.0456	0.0456
Median, mm	1.159	1.159	1.159
Mean, phi	-1.44	-0.29	-0.26
Mean, in.	0.1071	0.0480	0.0472
Mean, mm	2.719	1.219	1.198
Sorting	3.903	2.621	2.439
Skewness	1.128	-0.028	0.049
Kurtosis	0.248	0.421	0.777

Grain Size Description (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	26.77
Coarse Sand	10	12.86
Medium Sand	40	30.66
Fine Sand	200	23.88
Silt/Clay	<200	5.83
<b>Total</b>		<b>100</b>

Client: TestAmerica  
 Project: Chevron-21-1283  
 Project No: 440-15930-1

PTS File No: 42493  
 Sample ID: SV-1-S-10' (440-15930-4)  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	3.09	4.78	4.78
0.2500	6.351	-2.67	1/4	6.67	10.31	15.09
0.1873	4.757	-2.25	4	4.77	7.37	22.46
0.1324	3.364	-1.75	6	7.90	12.21	34.67
0.0787	2.000	-1.00	10	8.41	13.00	47.67
0.0557	1.414	-0.50	14	5.71	8.83	56.50
0.0394	1.000	0.00	18	4.50	6.96	63.46
0.0278	0.707	0.50	25	3.48	5.38	68.84
0.0197	0.500	1.00	35	3.41	5.27	74.11
0.0166	0.420	1.25	40	1.54	2.38	76.49
0.0139	0.354	1.50	45	1.68	2.60	79.08
0.0098	0.250	2.00	60	3.32	5.13	84.22
0.0070	0.177	2.50	80	2.94	4.54	88.76
0.0049	0.125	3.00	120	2.50	3.86	92.63
0.0029	0.074	3.75	200	1.93	2.98	95.61
0.0021	0.053	4.25	270	0.90	1.39	97.00
0.0015	0.037	4.75	400	0.71	1.10	98.10
			PAN	1.23	1.90	100.00
<b>TOTALS</b>				64.69	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-3.24	0.3708	9.418
10	-2.95	0.3050	7.747
16	-2.62	0.2413	6.128
25	-2.15	0.1743	4.426
40	-1.44	0.1070	2.718
50	-0.87	0.0719	1.825
60	-0.25	0.0468	1.188
75	1.09	0.0184	0.469
84	1.98	0.0100	0.254
90	2.66	0.0062	0.158
95	3.60	0.0033	0.083

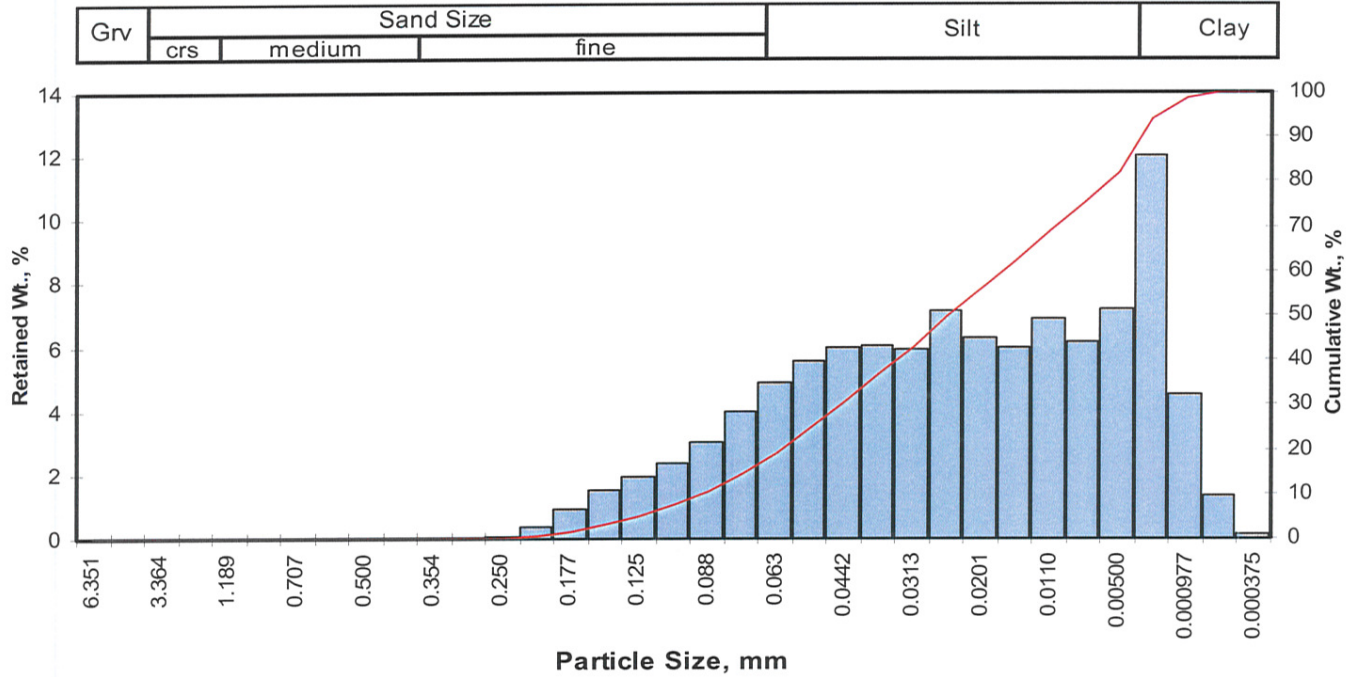
Measure	Trask	Inman	Folk-Ward
Median, phi	-0.87	-0.87	-0.87
Median, in.	0.0719	0.0719	0.0719
Median, mm	1.825	1.825	1.825
Mean, phi	-1.29	-0.32	-0.50
Mean, in.	0.0964	0.0491	0.0557
Mean, mm	2.447	1.247	1.416
Sorting	3.074	2.297	2.184
Skewness	0.789	0.239	0.273
Kurtosis	0.261	0.487	0.864

Grain Size Description (ASTM-USCS Scale) Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	22.46
Coarse Sand	10	25.21
Medium Sand	40	28.81
Fine Sand	200	19.12
Silt/Clay	<200	4.39
<b>TOTALS</b>	<b>Total</b>	<b>100</b>

Client: TestAmerica  
 Project: Chevron-21-1283  
 Project No: 440-15930-1

PTS File No: 42493  
 Sample ID: SV-3-S-5' (440-15930-5)  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.07	0.07	0.07
0.0083	0.210	2.25	70	0.35	0.35	0.42
0.0070	0.177	2.50	80	0.88	0.88	1.30
0.0059	0.149	2.75	100	1.51	1.51	2.81
0.0049	0.125	3.00	120	1.96	1.96	4.77
0.0041	0.105	3.25	140	2.37	2.37	7.14
0.0035	0.088	3.50	170	3.03	3.03	10.17
0.0029	0.074	3.75	200	3.96	3.96	14.13
0.0025	0.063	4.00	230	4.89	4.89	19.01
0.0021	0.053	4.25	270	5.54	5.54	24.55
0.00174	0.0442	4.50	325	5.95	5.95	30.50
0.00146	0.0372	4.75	400	6.06	6.06	36.56
0.00123	0.0313	5.00	450	5.94	5.94	42.49
0.000986	0.0250	5.32	500	7.11	7.11	49.60
0.000790	0.0201	5.64	635	6.30	6.30	55.90
0.000615	0.0156	6.00		5.96	5.96	61.86
0.000435	0.0110	6.50		6.90	6.90	68.75
0.000308	0.00781	7.00		6.13	6.13	74.88
0.000197	0.00500	7.65		7.17	7.17	82.05
0.000077	0.00195	9.00		12.00	11.99	94.04
0.000038	0.000977	10.00		4.54	4.54	98.58
0.000019	0.000488	11.00		1.33	1.33	99.91
0.000015	0.000375	11.38		0.09	0.09	100.00
<b>TOTALS</b>				<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	3.02	0.0048	0.123
10	3.49	0.0035	0.089
16	3.85	0.0027	0.070
25	4.27	0.0020	0.052
40	4.90	0.0013	0.034
50	5.34	0.0010	0.025
60	5.89	0.0007	0.017
75	7.01	0.0003	0.008
84	7.87	0.0002	0.004
90	8.54	0.0001	0.003
95	9.21	0.0001	0.002

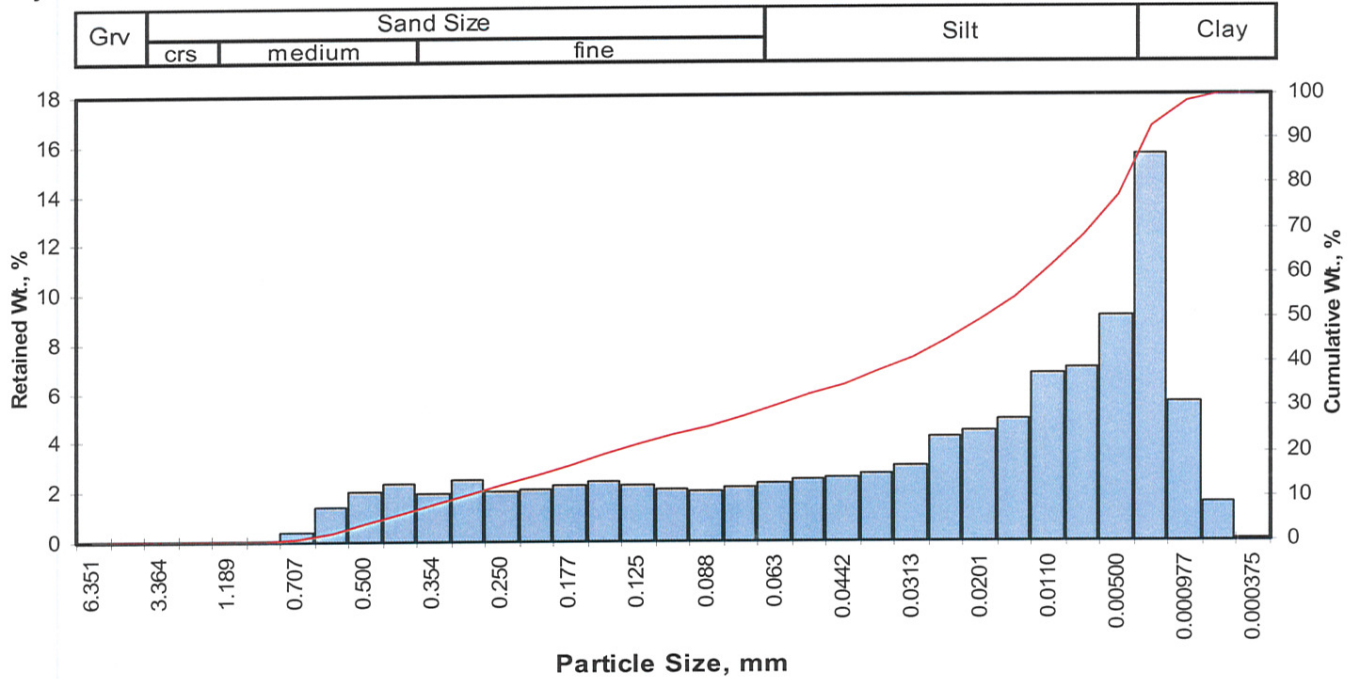
Measure	Trask	Inman	Folk-Ward
Median, phi	5.34	5.34	5.34
Median, in.	0.0010	0.0010	0.0010
Median, mm	0.025	0.025	0.025
Mean, phi	5.07	5.86	5.68
Mean, in.	0.0012	0.0007	0.0008
Mean, mm	0.030	0.017	0.019
Sorting	2.586	2.010	1.942
Skewness	0.813	0.256	0.254
Kurtosis	0.255	0.539	0.925

**Grain Size Description** Silt  
 (ASTM-USCS Scale) (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	14.13
Silt	>0.005 mm	67.92
Clay	<0.005 mm	17.95
<b>Total</b>		<b>100</b>

Client: TestAmerica  
 Project: Chevron-21-1283  
 Project No: 440-15930-1

PTS File No: 42493  
 Sample ID: SV-3-S-10' (440-15930-6)  
 Depth, ft: N/A



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.02	0.02	0.02
0.0278	0.707	0.50	25	0.40	0.40	0.42
0.0234	0.595	0.75	30	1.36	1.36	1.78
0.0197	0.500	1.00	35	2.04	2.04	3.82
0.0166	0.420	1.25	40	2.30	2.30	6.12
0.0139	0.354	1.50	45	1.91	1.91	8.03
0.0117	0.297	1.75	50	2.46	2.46	10.49
0.0098	0.250	2.00	60	2.01	2.01	12.50
0.0083	0.210	2.25	70	2.08	2.08	14.58
0.0070	0.177	2.50	80	2.25	2.25	16.83
0.0059	0.149	2.75	100	2.37	2.37	19.20
0.0049	0.125	3.00	120	2.27	2.27	21.47
0.0041	0.105	3.25	140	2.10	2.10	23.57
0.0035	0.088	3.50	170	2.05	2.05	25.62
0.0029	0.074	3.75	200	2.16	2.16	27.78
0.0025	0.063	4.00	230	2.32	2.32	30.10
0.0021	0.053	4.25	270	2.45	2.45	32.55
0.00174	0.0442	4.50	325	2.58	2.58	35.13
0.00146	0.0372	4.75	400	2.75	2.75	37.88
0.00123	0.0313	5.00	450	2.99	2.99	40.87
0.000986	0.0250	5.32	500	4.17	4.17	45.04
0.000790	0.0201	5.64	635	4.44	4.44	49.48
0.000615	0.0156	6.00		4.87	4.87	54.35
0.000435	0.0110	6.50		6.72	6.72	61.07
0.000308	0.00781	7.00		7.02	7.02	68.08
0.000197	0.00500	7.65		9.06	9.06	77.14
0.000077	0.00195	9.00		15.60	15.60	92.74
0.000038	0.000977	10.00		5.58	5.58	98.32
0.000019	0.000488	11.00		1.57	1.57	99.89
0.000015	0.000375	11.38		0.11	0.11	100.00
<b>TOTALS</b>				<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	1.13	0.0180	0.458
10	1.70	0.0121	0.308
16	2.41	0.0074	0.188
25	3.42	0.0037	0.093
40	4.93	0.0013	0.033
50	5.68	0.0008	0.020
60	6.42	0.0005	0.012
75	7.49	0.0002	0.006
84	8.24	0.0001	0.003
90	8.76	0.0001	0.002
95	9.40	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.68	5.68	5.68
Median, in.	0.0008	0.0008	0.0008
Median, mm	0.020	0.020	0.020
Mean, phi	4.34	5.32	5.44
Mean, in.	0.0019	0.0010	0.0009
Mean, mm	0.049	0.025	0.023
Sorting	4.095	2.917	2.712
Skewness	1.165	-0.122	-0.111
Kurtosis	0.143	0.419	0.834

**Grain Size Description** (ASTM-USCS Scale) Silt (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	6.12
Fine Sand	200	21.66
Silt	>0.005 mm	49.36
Clay	<0.005 mm	22.86
<b>Total</b>		<b>100</b>





## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-15930-1

**Login Number: 15930**

**List Number: 1**

**Creator: Kim, Will**

**List Source: TestAmerica Irvine**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
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	LK
There are no discrepancies between the sample IDs on the containers 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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
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: 440-16029-1

Client Project/Site: Chevron - 21-1283

For:

ARCADIS U.S., Inc.

3240 El Camino Real

Suite 200

Irvine, California 92602

Attn: Toni DeMayo



Authorized for release by:

7/14/2012 4:11:58 PM

Sushmitha Reddy

Project Manager I

[sushmitha.reddy@testamericainc.com](mailto:sushmitha.reddy@testamericainc.com)

### LINKS

Review your project  
results through

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Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

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*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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-16029-1	DP-4-W-20'-25'	Water	06/28/12 10:40	06/29/12 09:50
440-16029-2	DP-4-S-12.5'	Solid	06/28/12 11:10	06/29/12 09:50
440-16029-3	DP-4-S-19	Solid	06/28/12 11:20	06/29/12 09:50
440-16029-4	DP-4-W-28'-32'	Water	06/28/12 12:20	06/29/12 09:50

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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

**Job ID: 440-16029-1**

**Laboratory: TestAmerica Irvine**

## Narrative

### Job Narrative 440-16029-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/29/2012 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4° C.

Except:

The following sample(s) was listed on the Chain of Custody (COC); however, the sample(s) was not received: TB-20120628 (440-16029-5).

#### GC/MS VOA

Method(s) 8260B: Surrogate recovery for the following sample(s) was outside the upper control limit: DP-4-S-19 (440-16029-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8260B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 37485 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

#### GC VOA

No analytical or quality issues were noted.

#### GC Semi VOA

Method(s) 8015B: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 36253. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

#### Organic Prep

No analytical or quality issues were noted.

#### VOA Prep

No analytical or quality issues were noted.

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

**Client Sample ID: DP-4-W-20'-25'**

**Lab Sample ID: 440-16029-1**

Date Collected: 06/28/12 10:40

Matrix: Water

Date Received: 06/29/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>61</b>		0.50		ug/L			07/09/12 16:23	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/09/12 16:23	1
Ethanol	ND		150		ug/L			07/09/12 16:23	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/09/12 16:23	1
<b>Ethylbenzene</b>	<b>16</b>		0.50		ug/L			07/09/12 16:23	1
<b>m,p-Xylene</b>	<b>6.3</b>		1.0		ug/L			07/09/12 16:23	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/09/12 16:23	1
o-Xylene	ND		0.50		ug/L			07/09/12 16:23	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/09/12 16:23	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/09/12 16:23	1
Toluene	ND		0.50		ug/L			07/09/12 16:23	1
<b>Xylenes, Total</b>	<b>6.3</b>		1.0		ug/L			07/09/12 16:23	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	110		80 - 120					07/09/12 16:23	1
Dibromofluoromethane (Surr)	89		80 - 120					07/09/12 16:23	1
Toluene-d8 (Surr)	108		80 - 120					07/09/12 16:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>250</b>		50		ug/L			07/03/12 20:35	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	130		65 - 140					07/03/12 20:35	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>DRO (C13-C28)</b>	<b>0.077</b>		0.048		mg/L		06/30/12 14:35	07/01/12 02:37	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Octacosane	82		45 - 120				06/30/12 14:35	07/01/12 02:37	1

**Client Sample ID: DP-4-S-12.5'**

**Lab Sample ID: 440-16029-2**

Date Collected: 06/28/12 11:10

Matrix: Solid

Date Received: 06/29/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/07/12 18:49	1
Isopropyl Ether (DIPE)	ND		4.9		ug/Kg			07/07/12 18:49	1
Ethanol	ND		300		ug/Kg			07/07/12 18:49	1
Ethyl-t-butyl ether (ETBE)	ND		4.9		ug/Kg			07/07/12 18:49	1
Ethylbenzene	ND		2.0		ug/Kg			07/07/12 18:49	1
m,p-Xylene	ND		2.0		ug/Kg			07/07/12 18:49	1
Methyl-t-Butyl Ether (MTBE)	ND		4.9		ug/Kg			07/07/12 18:49	1
o-Xylene	ND		2.0		ug/Kg			07/07/12 18:49	1
Tert-amyl-methyl ether (TAME)	ND		4.9		ug/Kg			07/07/12 18:49	1
tert-Butyl alcohol (TBA)	ND		99		ug/Kg			07/07/12 18:49	1
Toluene	ND		2.0		ug/Kg			07/07/12 18:49	1
<b>Xylenes, Total</b>	<b>ND</b>		4.0		ug/Kg			07/07/12 18:49	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

**Client Sample ID: DP-4-S-12.5'**

**Lab Sample ID: 440-16029-2**

Date Collected: 06/28/12 11:10

Matrix: Solid

Date Received: 06/29/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	113		80 - 120		07/07/12 18:49	1
4-Bromofluorobenzene (Surr)	118		80 - 120		07/07/12 18:49	1
Dibromofluoromethane (Surr)	113		80 - 125		07/07/12 18:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		400		ug/Kg			07/03/12 07:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	70		65 - 140		07/03/12 07:25	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
n-Octacosane	67		40 - 140		07/12/12 11:15	07/13/12 01:04	1

**Client Sample ID: DP-4-S-19**

**Lab Sample ID: 440-16029-3**

Date Collected: 06/28/12 11:20

Matrix: Solid

Date Received: 06/29/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 18:29	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 18:29	1
Ethanol	ND		300		ug/Kg			07/08/12 18:29	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 18:29	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 18:29	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 18:29	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 18:29	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 18:29	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 18:29	1
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/08/12 18:29	1
Toluene	ND		2.0		ug/Kg			07/08/12 18:29	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		80 - 120		07/08/12 18:29	1
4-Bromofluorobenzene (Surr)	120		80 - 120		07/08/12 18:29	1
Dibromofluoromethane (Surr)	109		80 - 125		07/08/12 18:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		390		ug/Kg			07/03/12 07:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		65 - 140		07/03/12 07:53	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 01:36	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

## Client Sample ID: DP-4-S-19

Lab Sample ID: 440-16029-3

Date Collected: 06/28/12 11:20

Matrix: Solid

Date Received: 06/29/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	70		40 - 140	07/12/12 11:15	07/13/12 01:36	1

## Client Sample ID: DP-4-W-28'-32

Lab Sample ID: 440-16029-4

Date Collected: 06/28/12 12:20

Matrix: Water

Date Received: 06/29/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>8.5</b>		0.50		ug/L			07/09/12 17:49	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/09/12 17:49	1
Ethanol	ND		150		ug/L			07/09/12 17:49	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/09/12 17:49	1
<b>Ethylbenzene</b>	<b>3.2</b>		0.50		ug/L			07/09/12 17:49	1
<b>m,p-Xylene</b>	<b>2.8</b>		1.0		ug/L			07/09/12 17:49	1
<b>Methyl-t-Butyl Ether (MTBE)</b>	<b>2.8</b>		0.50		ug/L			07/09/12 17:49	1
<b>o-Xylene</b>	<b>0.65</b>		0.50		ug/L			07/09/12 17:49	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/09/12 17:49	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/09/12 17:49	1
<b>Toluene</b>	<b>0.77</b>		0.50		ug/L			07/09/12 17:49	1
<b>Xylenes, Total</b>	<b>3.5</b>		1.0		ug/L			07/09/12 17:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		80 - 120		07/09/12 17:49	1
Dibromofluoromethane (Surr)	93		80 - 120		07/09/12 17:49	1
Toluene-d8 (Surr)	107		80 - 120		07/09/12 17:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>71</b>		50		ug/L			07/03/12 21:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		65 - 140		07/03/12 21:01	1

### Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>DRO (C13-C28)</b>	<b>0.095</b>		0.048		mg/L		06/30/12 14:35	07/01/12 03:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	76		45 - 120	06/30/12 14:35	07/01/12 03:01	1

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

**Client Sample ID: DP-4-W-20'-25'**

**Date Collected: 06/28/12 10:40**

**Date Received: 06/29/12 09:50**

**Lab Sample ID: 440-16029-1**

**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		1	10 mL	10 mL	37485	07/09/12 16:23	SS	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	36664	07/03/12 20:35	TL	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1045 mL	1 mL	36253	06/30/12 14:35	EC	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36251	07/01/12 02:37	ES	TAL IRV

**Client Sample ID: DP-4-S-12.5'**

**Date Collected: 06/28/12 11:10**

**Date Received: 06/29/12 09:50**

**Lab Sample ID: 440-16029-2**

**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	5.06 g	10 mL	37385	07/07/12 18:49	WC	TAL IRV
Total/NA	Analysis	8015B		1	5.03 g	10 mL	36345	07/03/12 07:25	PH	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.04 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38492	07/13/12 01:04	ES	TAL IRV

**Client Sample ID: DP-4-S-19**

**Date Collected: 06/28/12 11:20**

**Date Received: 06/29/12 09:50**

**Lab Sample ID: 440-16029-3**

**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	4.99 g	10 mL	37434	07/08/12 18:29	RM	TAL IRV
Total/NA	Analysis	8015B		1	5.18 g	10 mL	36345	07/03/12 07:53	PH	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.07 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38492	07/13/12 01:36	ES	TAL IRV

**Client Sample ID: DP-4-W-28'-32**

**Date Collected: 06/28/12 12:20**

**Date Received: 06/29/12 09:50**

**Lab Sample ID: 440-16029-4**

**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		1	10 mL	10 mL	37485	07/09/12 17:49	SS	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	36664	07/03/12 21:01	TL	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1040 mL	1 mL	36253	06/30/12 14:35	EC	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36251	07/01/12 03:01	ES	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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

**Lab Sample ID: MB 440-37385/3**

**Matrix: Solid**

**Analysis Batch: 37385**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/07/12 11:08	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/07/12 11:08	1
Ethanol	ND		300		ug/Kg			07/07/12 11:08	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/07/12 11:08	1
Ethylbenzene	ND		2.0		ug/Kg			07/07/12 11:08	1
m,p-Xylene	ND		2.0		ug/Kg			07/07/12 11:08	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/07/12 11:08	1
o-Xylene	ND		2.0		ug/Kg			07/07/12 11:08	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/07/12 11:08	1
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/07/12 11:08	1
Toluene	ND		2.0		ug/Kg			07/07/12 11:08	1
Xylenes, Total	ND		4.0		ug/Kg			07/07/12 11:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		80 - 120		07/07/12 11:08	1
4-Bromofluorobenzene (Surr)	116		80 - 120		07/07/12 11:08	1
Dibromofluoromethane (Surr)	105		80 - 125		07/07/12 11:08	1

**Lab Sample ID: LCS 440-37385/4**

**Matrix: Solid**

**Analysis Batch: 37385**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	55.2		ug/Kg		110	65 - 120
Isopropyl Ether (DIPE)	50.0	57.6		ug/Kg		115	60 - 140
Ethanol	500	480		ug/Kg		96	35 - 160
Ethyl-t-butyl ether (ETBE)	50.0	57.0		ug/Kg		114	60 - 140
Ethylbenzene	50.0	53.2		ug/Kg		106	70 - 125
m,p-Xylene	100	102		ug/Kg		102	70 - 125
Methyl-t-Butyl Ether (MTBE)	50.0	60.2		ug/Kg		120	60 - 140
o-Xylene	50.0	53.4		ug/Kg		107	70 - 125
Tert-amyl-methyl ether (TAME)	50.0	62.6		ug/Kg		125	60 - 145
tert-Butyl alcohol (TBA)	250	272		ug/Kg		109	70 - 135
Toluene	50.0	51.0		ug/Kg		102	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	107		80 - 120
4-Bromofluorobenzene (Surr)	114		80 - 120
Dibromofluoromethane (Surr)	108		80 - 125

**Lab Sample ID: 440-16023-A-1 MS**

**Matrix: Solid**

**Analysis Batch: 37385**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		49.6	54.8		ug/Kg		110	65 - 130
Isopropyl Ether (DIPE)	ND		49.6	57.8		ug/Kg		117	60 - 150
Ethanol	ND		496	445		ug/Kg		90	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		49.6	56.4		ug/Kg		114	60 - 145

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

**Lab Sample ID: 440-16023-A-1 MS**

**Client Sample ID: Matrix Spike**

**Matrix: Solid**

**Prep Type: Total/NA**

**Analysis Batch: 37385**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Ethylbenzene	ND		49.6	50.7		ug/Kg		102	70 - 135
m,p-Xylene	ND		99.2	84.3		ug/Kg		85	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		49.6	58.7		ug/Kg		118	55 - 155
o-Xylene	2.6		49.6	54.1		ug/Kg		104	65 - 130
Tert-amyl-methyl ether (TAME)	ND		49.6	62.9		ug/Kg		127	60 - 150
tert-Butyl alcohol (TBA)	ND		248	255		ug/Kg		103	65 - 145
Toluene	ND		49.6	48.6		ug/Kg		98	70 - 130
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
Toluene-d8 (Surr)	108		80 - 120						
4-Bromofluorobenzene (Surr)	111		80 - 120						
Dibromofluoromethane (Surr)	109		80 - 125						

**Lab Sample ID: 440-16023-A-1 MSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Solid**

**Prep Type: Total/NA**

**Analysis Batch: 37385**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Benzene	ND		49.8	55.4		ug/Kg		111	65 - 130	1	20
Isopropyl Ether (DIPE)	ND		49.8	57.3		ug/Kg		115	60 - 150	1	25
Ethanol	ND		498	461		ug/Kg		93	30 - 165	3	40
Ethyl-t-butyl ether (ETBE)	ND		49.8	57.4		ug/Kg		115	60 - 145	2	30
Ethylbenzene	ND		49.8	53.4		ug/Kg		107	70 - 135	5	25
m,p-Xylene	ND		99.6	85.8		ug/Kg		86	70 - 130	2	25
Methyl-t-Butyl Ether (MTBE)	ND		49.8	59.5		ug/Kg		119	55 - 155	1	35
o-Xylene	2.6		49.8	57.3		ug/Kg		110	65 - 130	6	25
Tert-amyl-methyl ether (TAME)	ND		49.8	63.0		ug/Kg		126	60 - 150	0	25
tert-Butyl alcohol (TBA)	ND		249	263		ug/Kg		106	65 - 145	3	30
Toluene	ND		49.8	49.6		ug/Kg		100	70 - 130	2	20
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
Toluene-d8 (Surr)	109		80 - 120								
4-Bromofluorobenzene (Surr)	113		80 - 120								
Dibromofluoromethane (Surr)	107		80 - 125								

**Lab Sample ID: MB 440-37434/3**

**Client Sample ID: Method Blank**

**Matrix: Solid**

**Prep Type: Total/NA**

**Analysis Batch: 37434**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		2.0		ug/Kg			07/08/12 12:40	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 12:40	1
Ethanol	ND		300		ug/Kg			07/08/12 12:40	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 12:40	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 12:40	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 12:40	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 12:40	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 12:40	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 12:40	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

**Lab Sample ID: MB 440-37434/3**

**Matrix: Solid**

**Analysis Batch: 37434**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/08/12 12:40	1
Toluene	ND		2.0		ug/Kg			07/08/12 12:40	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 12:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		80 - 120		07/08/12 12:40	1
4-Bromofluorobenzene (Surr)	118		80 - 120		07/08/12 12:40	1
Dibromofluoromethane (Surr)	106		80 - 125		07/08/12 12:40	1

**Lab Sample ID: LCS 440-37434/4**

**Matrix: Solid**

**Analysis Batch: 37434**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	56.1		ug/Kg		112	65 - 120
Isopropyl Ether (DIPE)	50.0	60.2		ug/Kg		120	60 - 140
Ethanol	500	505		ug/Kg		101	35 - 160
Ethyl-t-butyl ether (ETBE)	50.0	58.8		ug/Kg		118	60 - 140
Ethylbenzene	50.0	53.2		ug/Kg		106	70 - 125
m,p-Xylene	100	102		ug/Kg		102	70 - 125
Methyl-t-Butyl Ether (MTBE)	50.0	62.6		ug/Kg		125	60 - 140
o-Xylene	50.0	52.6		ug/Kg		105	70 - 125
Tert-amyl-methyl ether (TAME)	50.0	65.6		ug/Kg		131	60 - 145
tert-Butyl alcohol (TBA)	250	269		ug/Kg		108	70 - 135
Toluene	50.0	50.9		ug/Kg		102	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	110		80 - 120
4-Bromofluorobenzene (Surr)	113		80 - 120
Dibromofluoromethane (Surr)	111		80 - 125

**Lab Sample ID: 440-16285-B-2 MS**

**Matrix: Solid**

**Analysis Batch: 37434**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		50.2	57.4		ug/Kg		114	65 - 130
Isopropyl Ether (DIPE)	ND		50.2	58.2		ug/Kg		116	60 - 150
Ethanol	ND		502	490		ug/Kg		98	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		50.2	56.0		ug/Kg		112	60 - 145
Ethylbenzene	ND		50.2	53.8		ug/Kg		107	70 - 135
m,p-Xylene	ND		100	103		ug/Kg		102	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		50.2	59.5		ug/Kg		118	55 - 155
o-Xylene	ND		50.2	52.9		ug/Kg		105	65 - 130
Tert-amyl-methyl ether (TAME)	ND		50.2	62.5		ug/Kg		124	60 - 150
tert-Butyl alcohol (TBA)	ND		251	271		ug/Kg		108	65 - 145
Toluene	ND		50.2	53.4		ug/Kg		106	70 - 130

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

Lab Sample ID: 440-16285-B-2 MS

Matrix: Solid

Analysis Batch: 37434

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	112		80 - 120
4-Bromofluorobenzene (Surr)	113		80 - 120
Dibromofluoromethane (Surr)	108		80 - 125

Lab Sample ID: 440-16285-B-2 MSD

Matrix: Solid

Analysis Batch: 37434

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		50.2	56.0		ug/Kg		112	65 - 130	2	20
Isopropyl Ether (DIPE)	ND		50.2	59.6		ug/Kg		119	60 - 150	2	25
Ethanol	ND		50.2	485		ug/Kg		97	30 - 165	1	40
Ethyl-t-butyl ether (ETBE)	ND		50.2	59.9		ug/Kg		119	60 - 145	7	30
Ethylbenzene	ND		50.2	52.7		ug/Kg		105	70 - 135	2	25
m,p-Xylene	ND		100	101		ug/Kg		100	70 - 130	2	25
Methyl-t-Butyl Ether (MTBE)	ND		50.2	60.8		ug/Kg		121	55 - 155	2	35
o-Xylene	ND		50.2	52.5		ug/Kg		105	65 - 130	1	25
Tert-amyl-methyl ether (TAME)	ND		50.2	63.1		ug/Kg		126	60 - 150	1	25
tert-Butyl alcohol (TBA)	ND		251	267		ug/Kg		106	65 - 145	1	30
Toluene	ND		50.2	52.0		ug/Kg		104	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	112		80 - 120
4-Bromofluorobenzene (Surr)	112		80 - 120
Dibromofluoromethane (Surr)	109		80 - 125

Lab Sample ID: MB 440-37485/4

Matrix: Water

Analysis Batch: 37485

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/09/12 09:24	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/09/12 09:24	1
Ethanol	ND		150		ug/L			07/09/12 09:24	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/09/12 09:24	1
Ethylbenzene	ND		0.50		ug/L			07/09/12 09:24	1
m,p-Xylene	ND		1.0		ug/L			07/09/12 09:24	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/09/12 09:24	1
o-Xylene	ND		0.50		ug/L			07/09/12 09:24	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/09/12 09:24	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/09/12 09:24	1
Toluene	ND		0.50		ug/L			07/09/12 09:24	1
Xylenes, Total	ND		1.0		ug/L			07/09/12 09:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120		07/09/12 09:24	1
Dibromofluoromethane (Surr)	92		80 - 120		07/09/12 09:24	1
Toluene-d8 (Surr)	107		80 - 120		07/09/12 09:24	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

**Lab Sample ID: LCS 440-37485/5**

**Matrix: Water**

**Analysis Batch: 37485**

**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	26.6		ug/L		106	70 - 120
Isopropyl Ether (DIPE)	25.0	27.5		ug/L		110	60 - 135
Ethanol	250	254		ug/L		102	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	25.8		ug/L		103	65 - 135
Ethylbenzene	25.0	29.2		ug/L		117	75 - 125
m,p-Xylene	50.0	57.9		ug/L		116	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	26.8		ug/L		107	60 - 135
o-Xylene	25.0	28.7		ug/L		115	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	27.1		ug/L		108	60 - 135
tert-Butyl alcohol (TBA)	125	130		ug/L		104	70 - 135
Toluene	25.0	27.8		ug/L		111	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	94		80 - 120
Toluene-d8 (Surr)	108		80 - 120

**Lab Sample ID: 440-16029-1 MS**

**Matrix: Water**

**Analysis Batch: 37485**

**Client Sample ID: DP-4-W-20'-25'**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	61		25.0	93.6	F	ug/L		130	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	32.5		ug/L		130	60 - 140
Ethanol	ND		250	252		ug/L		101	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	31.1		ug/L		124	60 - 135
Ethylbenzene	16		25.0	47.7		ug/L		128	65 - 130
m,p-Xylene	6.3		50.0	69.2		ug/L		126	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	32.6		ug/L		131	55 - 145
o-Xylene	ND		25.0	31.6	F	ug/L		127	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	33.5		ug/L		134	60 - 140
tert-Butyl alcohol (TBA)	ND		125	144		ug/L		115	65 - 140
Toluene	ND		25.0	31.3		ug/L		125	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	95		80 - 120
Toluene-d8 (Surr)	108		80 - 120

**Lab Sample ID: 440-16029-1 MSD**

**Matrix: Water**

**Analysis Batch: 37485**

**Client Sample ID: DP-4-W-20'-25'**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	61		25.0	92.2		ug/L		125	65 - 125	1	20
Isopropyl Ether (DIPE)	ND		25.0	34.4		ug/L		138	60 - 140	6	25
Ethanol	ND		250	244		ug/L		98	40 - 155	3	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	32.7		ug/L		131	60 - 135	5	25
Ethylbenzene	16		25.0	47.4		ug/L		127	65 - 130	1	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

Lab Sample ID: 440-16029-1 MSD

Matrix: Water

Analysis Batch: 37485

Client Sample ID: DP-4-W-20'-25'

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
m,p-Xylene	6.3		50.0	68.6		ug/L		125	65 - 130	1	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	34.6		ug/L		138	55 - 145	6	25
o-Xylene	ND		25.0	31.5	F	ug/L		126	65 - 125	0	20
Tert-amyl-methyl ether (TAME)	ND		25.0	35.3	F	ug/L		141	60 - 140	5	30
tert-Butyl alcohol (TBA)	ND		125	154		ug/L		123	65 - 140	7	25
Toluene	ND		25.0	31.8	F	ug/L		127	70 - 125	1	20
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
4-Bromofluorobenzene (Surr)	109		80 - 120								
Dibromofluoromethane (Surr)	102		80 - 120								
Toluene-d8 (Surr)	109		80 - 120								

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

Lab Sample ID: MB 440-36345/41

Matrix: Solid

Analysis Batch: 36345

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		400		ug/Kg			07/03/12 05:33	1
<b>MB MB</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	101		65 - 140					07/03/12 05:33	1

Lab Sample ID: LCS 440-36345/40

Matrix: Solid

Analysis Batch: 36345

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)	1600	1440		ug/Kg		90	70 - 135
<b>LCS LCS</b>							
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	119		65 - 140				

Lab Sample ID: 440-16097-H-6 MS

Matrix: Solid

Analysis Batch: 36345

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		1570	1350		ug/Kg		86	60 - 140
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	79		65 - 140						

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

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

**Lab Sample ID: 440-16097-H-6 MSD**

**Matrix: Solid**

**Analysis Batch: 36345**

**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		1520	1330		ug/Kg		87	60 - 140	2	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
4-Bromofluorobenzene (Surr)	78		65 - 140								

**Lab Sample ID: MB 440-36664/3**

**Matrix: Water**

**Analysis Batch: 36664**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/03/12 15:13	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	106		65 - 140					07/03/12 15:13	1

**Lab Sample ID: LCS 440-36664/2**

**Matrix: Water**

**Analysis Batch: 36664**

**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	735		ug/L		92	80 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
4-Bromofluorobenzene (Surr)	111		65 - 140				

**Lab Sample ID: 440-16005-D-1 MS**

**Matrix: Water**

**Analysis Batch: 36664**

**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)	3200		8000	10000		ug/L		85	65 - 140
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
4-Bromofluorobenzene (Surr)	77		65 - 140						

**Lab Sample ID: 440-16005-D-1 MSD**

**Matrix: Water**

**Analysis Batch: 36664**

**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)	3200		8000	9840		ug/L		83	65 - 140	2	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
4-Bromofluorobenzene (Surr)	77		65 - 140								

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

## Method: 8015B - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 440-38308/1-A**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Method Blank**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 08:02	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	79		40 - 140				07/12/12 11:15	07/13/12 08:02	1

**Lab Sample ID: LCS 440-38308/2-A**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Lab Control Sample**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	33.3	20.2		mg/Kg		61	45 - 115
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
n-Octacosane	66		40 - 140				

**Lab Sample ID: 440-16029-3 MS**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: DP-4-S-19**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	ND		33.3	23.6		mg/Kg		58	40 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
n-Octacosane	67		40 - 140						

**Lab Sample ID: 440-16029-3 MSD**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: DP-4-S-19**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
EFH (C10-C28)	ND		33.3	25.0		mg/Kg		62	40 - 120	6	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
n-Octacosane	78		40 - 140								

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level

**Lab Sample ID: MB 440-36253/1-A**

**Matrix: Water**

**Analysis Batch: 36251**

**Client Sample ID: Method Blank**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 36253**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		0.050		mg/L		06/30/12 14:35	07/01/12 01:26	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	65		45 - 120				06/30/12 14:35	07/01/12 01:26	1



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level (Continued)

**Lab Sample ID: LCS 440-36253/2-A**

**Matrix: Water**

**Analysis Batch: 36251**

**Client Sample ID: Lab Control Sample**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 36253**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	1.00	0.666		mg/L		67	40 - 115
<b>Surrogate</b>		<b>LCS %Recovery</b>	<b>LCS Qualifier</b>				<b>Limits</b>
<i>n-Octacosane</i>		73					45 - 120

**Lab Sample ID: LCSD 440-36253/3-A**

**Matrix: Water**

**Analysis Batch: 36251**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 36253**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
EFH (C10-C28)	1.00	0.660		mg/L		66	40 - 115	1	25
<b>Surrogate</b>		<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>				<b>Limits</b>		
<i>n-Octacosane</i>		71					45 - 120		

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

## GC/MS VOA

### Analysis Batch: 37385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16023-A-1 MS	Matrix Spike	Total/NA	Solid	8260B	
440-16023-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
440-16029-2	DP-4-S-12.5'	Total/NA	Solid	8260B	
LCS 440-37385/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-37385/3	Method Blank	Total/NA	Solid	8260B	

### Analysis Batch: 37434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-3	DP-4-S-19	Total/NA	Solid	8260B	
440-16285-B-2 MS	Matrix Spike	Total/NA	Solid	8260B	
440-16285-B-2 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
LCS 440-37434/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-37434/3	Method Blank	Total/NA	Solid	8260B	

### Analysis Batch: 37485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-1	DP-4-W-20'-25'	Total/NA	Water	8260B	
440-16029-1 MS	DP-4-W-20'-25'	Total/NA	Water	8260B	
440-16029-1 MSD	DP-4-W-20'-25'	Total/NA	Water	8260B	
440-16029-4	DP-4-W-28'-32'	Total/NA	Water	8260B	
LCS 440-37485/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-37485/4	Method Blank	Total/NA	Water	8260B	

## GC VOA

### Analysis Batch: 36345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-2	DP-4-S-12.5'	Total/NA	Solid	8015B	
440-16029-3	DP-4-S-19	Total/NA	Solid	8015B	
440-16097-H-6 MS	Matrix Spike	Total/NA	Solid	8015B	
440-16097-H-6 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
LCS 440-36345/40	Lab Control Sample	Total/NA	Solid	8015B	
MB 440-36345/41	Method Blank	Total/NA	Solid	8015B	

### Analysis Batch: 36664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16005-D-1 MS	Matrix Spike	Total/NA	Water	8015B	
440-16005-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
440-16029-1	DP-4-W-20'-25'	Total/NA	Water	8015B	
440-16029-4	DP-4-W-28'-32'	Total/NA	Water	8015B	
LCS 440-36664/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-36664/3	Method Blank	Total/NA	Water	8015B	

## GC Semi VOA

### Analysis Batch: 36251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-1	DP-4-W-20'-25'	Silica Gel Cleanup	Water	8015B	36253
440-16029-4	DP-4-W-28'-32'	Silica Gel Cleanup	Water	8015B	36253
LCS 440-36253/2-A	Lab Control Sample	Silica Gel Cleanup	Water	8015B	36253
LCSD 440-36253/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Water	8015B	36253
MB 440-36253/1-A	Method Blank	Silica Gel Cleanup	Water	8015B	36253

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

## GC Semi VOA (Continued)

### Prep Batch: 36253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-1	DP-4-W-20'-25'	Silica Gel Cleanup	Water	3510C SGC	
440-16029-4	DP-4-W-28'-32'	Silica Gel Cleanup	Water	3510C SGC	
LCS 440-36253/2-A	Lab Control Sample	Silica Gel Cleanup	Water	3510C SGC	
LCSD 440-36253/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Water	3510C SGC	
MB 440-36253/1-A	Method Blank	Silica Gel Cleanup	Water	3510C SGC	

### Prep Batch: 38308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-2	DP-4-S-12.5'	Silica Gel Cleanup	Solid	CA LUFT	
440-16029-3	DP-4-S-19	Silica Gel Cleanup	Solid	CA LUFT	
440-16029-3 MS	DP-4-S-19	Silica Gel Cleanup	Solid	CA LUFT	
440-16029-3 MSD	DP-4-S-19	Silica Gel Cleanup	Solid	CA LUFT	
LCS 440-38308/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	CA LUFT	
MB 440-38308/1-A	Method Blank	Silica Gel Cleanup	Solid	CA LUFT	

### Analysis Batch: 38492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-2	DP-4-S-12.5'	Silica Gel Cleanup	Solid	8015B	38308
440-16029-3	DP-4-S-19	Silica Gel Cleanup	Solid	8015B	38308
440-16029-3 MS	DP-4-S-19	Silica Gel Cleanup	Solid	8015B	38308
440-16029-3 MSD	DP-4-S-19	Silica Gel Cleanup	Solid	8015B	38308
LCS 440-38308/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	8015B	38308
MB 440-38308/1-A	Method Blank	Silica Gel Cleanup	Solid	8015B	38308

## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits

### 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
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

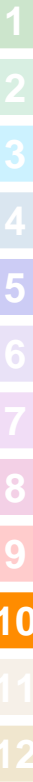
# Certification Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16029-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Irvine	Arizona	State Program	9	AZ0671
TestAmerica Irvine	California	LA Cty Sanitation Districts	9	10256
TestAmerica Irvine	California	NELAC	9	1108CA
TestAmerica Irvine	California	State Program	9	2706
TestAmerica Irvine	Guam	State Program	9	Cert. No. 12.002r
TestAmerica Irvine	Hawaii	State Program	9	N/A
TestAmerica Irvine	Nevada	State Program	9	CA015312007A
TestAmerica Irvine	New Mexico	State Program	6	N/A
TestAmerica Irvine	Northern Mariana Islands	State Program	9	MP0002
TestAmerica Irvine	Oregon	NELAC	10	4005
TestAmerica Irvine	USDA	Federal		P330-09-00080

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.





## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-16029-1

**Login Number: 16029**

**List Number: 1**

**Creator: Perez, Angel**

**List Source: TestAmerica Irvine**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
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 sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
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: 440-16097-1

Client Project/Site: Chevron - 21-1283

For:

ARCADIS U.S., Inc.

3240 El Camino Real

Suite 200

Irvine, California 92602

Attn: Toni DeMayo



Authorized for release by:

7/17/2012 5:31:39 PM

Sushmitha Reddy

Project Manager I

[sushmitha.reddy@testamericainc.com](mailto:sushmitha.reddy@testamericainc.com)

### LINKS

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*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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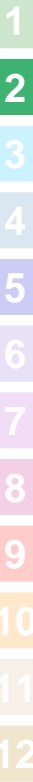
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# Sample Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-16097-1	DP-6-S-11	Solid	06/28/12 15:40	06/30/12 09:50
440-16097-2	DP-6-S-20'-25'	Water	06/28/12 15:55	06/30/12 09:50
440-16097-3	DP-6-S-17'	Solid	06/28/12 16:45	06/30/12 09:50
440-16097-4	DP-6-W-28'-32'	Water	06/28/12 17:15	06/30/12 09:50
440-16097-5	DP-3-S-15.5'	Solid	06/29/12 09:20	06/30/12 09:50
440-16097-6	DP-3-S-28	Solid	06/29/12 09:50	06/30/12 09:50
440-16097-7	DP-3-W-25'-30'	Water	06/29/12 10:00	06/30/12 09:50
440-16097-8	DP-2-S-10.5'	Solid	06/29/12 11:45	06/30/12 09:50
440-16097-9	DP-2-S-31	Solid	06/29/12 12:05	06/30/12 09:50
440-16097-10	DP-2-W-29'-34'	Water	06/29/12 12:15	06/30/12 09:50
440-16097-11	DP-1-W-21'-26'	Water	06/29/12 14:45	06/30/12 09:50
440-16097-12	DP-1-S-4'	Solid	06/29/12 15:05	06/30/12 09:50
440-16097-13	DP-1-S-21'	Solid	06/29/12 15:15	06/30/12 09:50
440-16097-14	BD-1-S	Solid	06/29/12 00:01	06/30/12 09:50
440-16097-15	DP-1-W-29-34'	Water	06/29/12 16:25	06/30/12 09:50
440-16097-16	BD-1-W	Water	06/29/12 00:01	06/30/12 09:50
440-16097-17	TB-20120629	Water	06/29/12 00:01	06/30/12 09:50

# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Job ID: 440-16097-1

### Laboratory: TestAmerica Irvine

#### Narrative

#### Job Narrative 440-16097-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/30/2012 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4° C.

#### GC/MS VOA

Method(s) 8260B: Surrogate recovery for the following sample(s) was outside control limits: 440-16097-8 DP-2-S-10.5' (440-16097-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8260B: Surrogate recovery for the following sample(s) was outside control limits: DP-6-S-11 (440-16097-1). Evidence of matrix interference is present; 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 #36977 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: (440-16165-1 MS), (440-16165-1 MSD), LNSB-15B-41.0' (440-16165-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method(s) 8015B: Surrogate recovery for the following sample(s) was outside control limits: DP-2-S-10.5' (440-16097-8), DP-3-S-15.5' (440-16097-5), DP-6-S-11 (440-16097-1), DP-6-S-17' (440-16097-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted.

#### GC Semi VOA

Method(s) 8015B: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 37068. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

No other analytical or quality issues were noted.

#### Organic Prep

Method(s) CA LUFT: The following sample(s) was diluted due to the nature of the sample matrix: DP-3-S-15.5' (440-16097-5), DP-6-S-11 (440-16097-1), DP-6-S-17' (440-16097-3). Elevated reporting limits (RLs) are provided.

Method(s) CA LUFT: The following sample(s) was diluted due to the nature of the sample matrix: DP-6-S-11 (440-16097-1), DP-6-S-17' (440-16097-3). Elevated reporting limits (RLs) are provided.

Method(s) CA LUFT: The following sample(s) was diluted due to the nature of the sample matrix: DP-2-S-10.5' (440-16097-8), DP-6-S-11 (440-16097-1). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

#### VOA Prep

No analytical or quality issues were noted.

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-6-S-11**

**Lab Sample ID: 440-16097-1**

**Date Collected: 06/28/12 15:40**

**Matrix: Solid**

**Date Received: 06/30/12 09:50**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		4.9		ug/Kg			07/09/12 16:12	1
Isopropyl Ether (DIPE)	ND		12		ug/Kg			07/09/12 16:12	1
Ethanol	ND		740		ug/Kg			07/09/12 16:12	1
Ethyl-t-butyl ether (ETBE)	ND		12		ug/Kg			07/09/12 16:12	1
<b>Ethylbenzene</b>	<b>13</b>		4.9		ug/Kg			07/09/12 16:12	1
m,p-Xylene	ND		4.9		ug/Kg			07/09/12 16:12	1
Methyl-t-Butyl Ether (MTBE)	ND		12		ug/Kg			07/09/12 16:12	1
o-Xylene	ND		4.9		ug/Kg			07/09/12 16:12	1
Tert-amyl-methyl ether (TAME)	ND		12		ug/Kg			07/09/12 16:12	1
tert-Butyl alcohol (TBA)	ND		250		ug/Kg			07/09/12 16:12	1
Toluene	ND		4.9		ug/Kg			07/09/12 16:12	1
Xylenes, Total	ND		9.9		ug/Kg			07/09/12 16:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	112		80 - 120		07/09/12 16:12	1
4-Bromofluorobenzene (Surr)	133	X	80 - 120		07/09/12 16:12	1
Dibromofluoromethane (Surr)	112		80 - 125		07/09/12 16:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>220000</b>		140000		ug/Kg		07/03/12 22:37	07/07/12 16:38	400

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	461	X	65 - 140	07/03/12 22:37	07/07/12 16:38	400

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>DRO (C13-C28)</b>	<b>29</b>		15		mg/Kg		07/12/12 11:15	07/13/12 02:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	72		40 - 140	07/12/12 11:15	07/13/12 02:07	1

**Client Sample ID: DP-6-S-20'-25'**

**Lab Sample ID: 440-16097-2**

**Date Collected: 06/28/12 15:55**

**Matrix: Water**

**Date Received: 06/30/12 09:50**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>5000</b>		50		ug/L			07/11/12 03:53	100
Isopropyl Ether (DIPE)	ND		50		ug/L			07/11/12 03:53	100
Ethanol	ND		15000		ug/L			07/11/12 03:53	100
Ethyl-t-butyl ether (ETBE)	ND		50		ug/L			07/11/12 03:53	100
<b>Ethylbenzene</b>	<b>1100</b>		50		ug/L			07/11/12 03:53	100
<b>m,p-Xylene</b>	<b>1600</b>		100		ug/L			07/11/12 03:53	100
Methyl-t-Butyl Ether (MTBE)	ND		50		ug/L			07/11/12 03:53	100
<b>o-Xylene</b>	<b>450</b>		50		ug/L			07/11/12 03:53	100
Tert-amyl-methyl ether (TAME)	ND		50		ug/L			07/11/12 03:53	100
tert-Butyl alcohol (TBA)	ND		1000		ug/L			07/11/12 03:53	100
<b>Toluene</b>	<b>700</b>		50		ug/L			07/11/12 03:53	100
<b>Xylenes, Total</b>	<b>2100</b>		100		ug/L			07/11/12 03:53	100

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-6-S-20'-25'**

**Lab Sample ID: 440-16097-2**

Date Collected: 06/28/12 15:55

Matrix: Water

Date Received: 06/30/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		80 - 120		07/11/12 03:53	100
Dibromofluoromethane (Surr)	99		80 - 120		07/11/12 03:53	100
Toluene-d8 (Surr)	109		80 - 120		07/11/12 03:53	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	210		50		ug/L			07/06/12 20:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		65 - 140		07/06/12 20:48	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	0.25		0.048		mg/L		07/05/12 18:12	07/05/12 23:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
n-Octacosane	83		45 - 120		07/05/12 18:12	07/05/12 23:02	1

**Client Sample ID: DP-6-S-17'**

**Lab Sample ID: 440-16097-3**

Date Collected: 06/28/12 16:45

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	820		490		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Isopropyl Ether (DIPE)	ND		1200		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Ethanol	ND		74000		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Ethyl-t-butyl ether (ETBE)	ND		1200		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Ethylbenzene	25000		490		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
m,p-Xylene	86000		490		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Methyl-t-Butyl Ether (MTBE)	ND		1200		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
o-Xylene	40000		490		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Tert-amyl-methyl ether (TAME)	ND		1200		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
tert-Butyl alcohol (TBA)	ND		25000		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Toluene	28000		490		ug/Kg		07/09/12 16:12	07/10/12 16:09	500
Xylenes, Total	130000		980		ug/Kg		07/09/12 16:12	07/10/12 16:09	500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
Toluene-d8 (Surr)	101		60 - 140		07/09/12 16:12	07/10/12 16:09	500
4-Bromofluorobenzene (Surr)	111		65 - 140		07/09/12 16:12	07/10/12 16:09	500
Dibromofluoromethane (Surr)	92		55 - 140		07/09/12 16:12	07/10/12 16:09	500

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	4400000		1800000		ug/Kg		07/03/12 22:37	07/07/12 17:06	5000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	218	X	65 - 140		07/03/12 22:37	07/07/12 17:06	5000

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	72		10		mg/Kg		07/12/12 11:15	07/13/12 11:21	2

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-6-S-17'**

**Lab Sample ID: 440-16097-3**

Date Collected: 06/28/12 16:45

Matrix: Solid

Date Received: 06/30/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	66		40 - 140	07/12/12 11:15	07/13/12 11:21	2

**Client Sample ID: DP-6-W-28'-32'**

**Lab Sample ID: 440-16097-4**

Date Collected: 06/28/12 17:15

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>56</b>		0.50		ug/L			07/11/12 04:22	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 04:22	1
Ethanol	ND		150		ug/L			07/11/12 04:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 04:22	1
<b>Ethylbenzene</b>	<b>27</b>		0.50		ug/L			07/11/12 04:22	1
<b>m,p-Xylene</b>	<b>83</b>		1.0		ug/L			07/11/12 04:22	1
<b>Methyl-t-Butyl Ether (MTBE)</b>	<b>0.66</b>		0.50		ug/L			07/11/12 04:22	1
<b>o-Xylene</b>	<b>39</b>		0.50		ug/L			07/11/12 04:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 04:22	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 04:22	1
<b>Toluene</b>	<b>55</b>		0.50		ug/L			07/11/12 04:22	1
<b>Xylenes, Total</b>	<b>120</b>		1.0		ug/L			07/11/12 04:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>4</i> -Bromofluorobenzene (Surr)	109		80 - 120		07/11/12 04:22	1
<i>Dibromofluoromethane</i> (Surr)	93		80 - 120		07/11/12 04:22	1
<i>Toluene-d8</i> (Surr)	106		80 - 120		07/11/12 04:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>520</b>		50		ug/L			07/06/12 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>4</i> -Bromofluorobenzene (Surr)	133		65 - 140		07/06/12 21:15	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>DRO (C13-C28)</b>	<b>0.074</b>		0.049		mg/L		07/05/12 18:12	07/05/12 23:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	74		45 - 120	07/05/12 18:12	07/05/12 23:22	1

**Client Sample ID: DP-3-S-15.5'**

**Lab Sample ID: 440-16097-5**

Date Collected: 06/29/12 09:20

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
Isopropyl Ether (DIPE)	ND		2500		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
Ethanol	ND		150000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
Ethyl-t-butyl ether (ETBE)	ND		2500		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
<b>Ethylbenzene</b>	<b>43000</b>		1000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
<b>m,p-Xylene</b>	<b>150000</b>		1000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
Methyl-t-Butyl Ether (MTBE)	ND		2500		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-3-S-15.5'**

**Lab Sample ID: 440-16097-5**

Date Collected: 06/29/12 09:20

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>o-Xylene</b>	<b>61000</b>		1000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
Tert-amyl-methyl ether (TAME)	ND		2500		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
tert-Butyl alcohol (TBA)	ND		50000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
<b>Toluene</b>	<b>15000</b>		1000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
<b>Xylenes, Total</b>	<b>210000</b>		2000		ug/Kg		07/09/12 16:12	07/10/12 17:35	1000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	101		60 - 140				07/09/12 16:12	07/10/12 17:35	1000
4-Bromofluorobenzene (Surr)	114		65 - 140				07/09/12 16:12	07/10/12 17:35	1000
Dibromofluoromethane (Surr)	95		55 - 140				07/09/12 16:12	07/10/12 17:35	1000

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>2500000</b>		800000		ug/Kg		07/03/12 22:37	07/07/12 13:09	2000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	362	X	65 - 140				07/03/12 22:37	07/07/12 13:09	2000

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>DRO (C13-C28)</b>	<b>69</b>		10		mg/Kg		07/12/12 11:15	07/13/12 10:49	2
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Octacosane	62		40 - 140				07/12/12 11:15	07/13/12 10:49	2

**Client Sample ID: DP-3-S-28**

**Lab Sample ID: 440-16097-6**

Date Collected: 06/29/12 09:50

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/09/12 16:39	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/09/12 16:39	1
Ethanol	ND		300		ug/Kg			07/09/12 16:39	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/09/12 16:39	1
Ethylbenzene	ND		2.0		ug/Kg			07/09/12 16:39	1
m,p-Xylene	ND		2.0		ug/Kg			07/09/12 16:39	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/09/12 16:39	1
o-Xylene	ND		2.0		ug/Kg			07/09/12 16:39	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/09/12 16:39	1
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/09/12 16:39	1
Toluene	ND		2.0		ug/Kg			07/09/12 16:39	1
Xylenes, Total	ND		4.0		ug/Kg			07/09/12 16:39	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Toluene-d8 (Surr)	109		80 - 120					07/09/12 16:39	1
4-Bromofluorobenzene (Surr)	118		80 - 120					07/09/12 16:39	1
Dibromofluoromethane (Surr)	106		80 - 125					07/09/12 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		400		ug/Kg			07/03/12 06:01	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Client Sample ID: DP-3-S-28

Lab Sample ID: 440-16097-6

Date Collected: 06/29/12 09:50

Matrix: Solid

Date Received: 06/30/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	72		65 - 140		07/03/12 06:01	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 08:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	64		40 - 140	07/12/12 11:15	07/13/12 08:33	1

## Client Sample ID: DP-3-W-25'-30'

Lab Sample ID: 440-16097-7

Date Collected: 06/29/12 10:00

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/11/12 04:50	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 04:50	1
Ethanol	ND		150		ug/L			07/11/12 04:50	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 04:50	1
Ethylbenzene	3.1		0.50		ug/L			07/11/12 04:50	1
m,p-Xylene	13		1.0		ug/L			07/11/12 04:50	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/11/12 04:50	1
o-Xylene	5.4		0.50		ug/L			07/11/12 04:50	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 04:50	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 04:50	1
Toluene	4.8		0.50		ug/L			07/11/12 04:50	1
Xylenes, Total	18		1.0		ug/L			07/11/12 04:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		80 - 120		07/11/12 04:50	1
Dibromofluoromethane (Surr)	98		80 - 120		07/11/12 04:50	1
Toluene-d8 (Surr)	107		80 - 120		07/11/12 04:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	85		50		ug/L			07/06/12 21:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		65 - 140		07/06/12 21:43	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		0.049		mg/L		07/05/12 18:12	07/05/12 23:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	78		45 - 120	07/05/12 18:12	07/05/12 23:43	1

## Client Sample ID: DP-2-S-10.5'

Lab Sample ID: 440-16097-8

Date Collected: 06/29/12 11:45

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 20:17	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-2-S-10.5'**

**Lab Sample ID: 440-16097-8**

Date Collected: 06/29/12 11:45

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 20:17	1
Ethanol	ND		300		ug/Kg			07/08/12 20:17	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 20:17	1
<b>Ethylbenzene</b>	<b>28</b>		2.0		ug/Kg			07/08/12 20:17	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 20:17	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 20:17	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 20:17	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 20:17	1
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/08/12 20:17	1
Toluene	ND		2.0		ug/Kg			07/08/12 20:17	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	112		80 - 120		07/08/12 20:17	1
4-Bromofluorobenzene (Surr)	127	X	80 - 120		07/08/12 20:17	1
Dibromofluoromethane (Surr)	100		80 - 125		07/08/12 20:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>83000</b>		40000		ug/Kg		07/03/12 22:37	07/07/12 13:37	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	372	X	65 - 140	07/03/12 22:37	07/07/12 13:37	100

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		15		mg/Kg		07/12/12 11:15	07/13/12 09:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	66		40 - 140	07/12/12 11:15	07/13/12 09:03	1

**Client Sample ID: DP-2-S-31**

**Lab Sample ID: 440-16097-9**

Date Collected: 06/29/12 12:05

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 20:44	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 20:44	1
Ethanol	ND		300		ug/Kg			07/08/12 20:44	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 20:44	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 20:44	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 20:44	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 20:44	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 20:44	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 20:44	1
tert-Butyl alcohol (TBA)	ND		99		ug/Kg			07/08/12 20:44	1
Toluene	ND		2.0		ug/Kg			07/08/12 20:44	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 20:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		80 - 120		07/08/12 20:44	1
4-Bromofluorobenzene (Surr)	115		80 - 120		07/08/12 20:44	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-2-S-31**

**Lab Sample ID: 440-16097-9**

Date Collected: 06/29/12 12:05

Matrix: Solid

Date Received: 06/30/12 09:50

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	104		80 - 125		07/08/12 20:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		370		ug/Kg			07/06/12 13:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		65 - 140		07/06/12 13:07	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 00:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	41		40 - 140	07/12/12 11:15	07/13/12 00:34	1

**Client Sample ID: DP-2-W-29'-34'**

**Lab Sample ID: 440-16097-10**

Date Collected: 06/29/12 12:15

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/11/12 05:19	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 05:19	1
Ethanol	ND		150		ug/L			07/11/12 05:19	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 05:19	1
Ethylbenzene	ND		0.50		ug/L			07/11/12 05:19	1
m,p-Xylene	ND		1.0		ug/L			07/11/12 05:19	1
<b>Methyl-t-Butyl Ether (MTBE)</b>	<b>0.78</b>		0.50		ug/L			07/11/12 05:19	1
o-Xylene	ND		0.50		ug/L			07/11/12 05:19	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 05:19	1
<b>tert-Butyl alcohol (TBA)</b>	<b>11</b>		10		ug/L			07/11/12 05:19	1
Toluene	ND		0.50		ug/L			07/11/12 05:19	1
Xylenes, Total	ND		1.0		ug/L			07/11/12 05:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		80 - 120		07/11/12 05:19	1
Dibromofluoromethane (Surr)	95		80 - 120		07/11/12 05:19	1
Toluene-d8 (Surr)	109		80 - 120		07/11/12 05:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	60		50		ug/L			07/06/12 22:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		65 - 140		07/06/12 22:11	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	0.053		0.048		mg/L		07/05/12 18:12	07/06/12 00:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	80		45 - 120	07/05/12 18:12	07/06/12 00:03	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-1-W-21'-26'**

**Lab Sample ID: 440-16097-11**

Date Collected: 06/29/12 14:45

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/11/12 05:48	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 05:48	1
Ethanol	ND		150		ug/L			07/11/12 05:48	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 05:48	1
Ethylbenzene	ND		0.50		ug/L			07/11/12 05:48	1
m,p-Xylene	ND		1.0		ug/L			07/11/12 05:48	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/11/12 05:48	1
o-Xylene	ND		0.50		ug/L			07/11/12 05:48	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 05:48	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 05:48	1
Toluene	ND		0.50		ug/L			07/11/12 05:48	1
Xylenes, Total	ND		1.0		ug/L			07/11/12 05:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		80 - 120					07/11/12 05:48	1
Dibromofluoromethane (Surr)	98		80 - 120					07/11/12 05:48	1
Toluene-d8 (Surr)	106		80 - 120					07/11/12 05:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/03/12 23:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		65 - 140					07/03/12 23:15	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		0.050		mg/L		07/05/12 18:12	07/06/12 00:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	80		45 - 120				07/05/12 18:12	07/06/12 00:23	1

**Client Sample ID: DP-1-S-4'**

**Lab Sample ID: 440-16097-12**

Date Collected: 06/29/12 15:05

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 21:11	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 21:11	1
Ethanol	ND		300		ug/Kg			07/08/12 21:11	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 21:11	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 21:11	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 21:11	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 21:11	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 21:11	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 21:11	1
tert-Butyl alcohol (TBA)	ND		99		ug/Kg			07/08/12 21:11	1
Toluene	ND		2.0		ug/Kg			07/08/12 21:11	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 21:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	109		80 - 120					07/08/12 21:11	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-1-S-4'**

**Lab Sample ID: 440-16097-12**

Date Collected: 06/29/12 15:05

Matrix: Solid

Date Received: 06/30/12 09:50

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		80 - 120		07/08/12 21:11	1
Dibromofluoromethane (Surr)	105		80 - 125		07/08/12 21:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		390		ug/Kg			07/06/12 13:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		65 - 140		07/06/12 13:33	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	10		5.0		mg/Kg		07/12/12 11:15	07/13/12 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	
n-Octacosane	63		40 - 140		07/12/12 11:15	07/13/12 01:04	1

**Client Sample ID: DP-1-S-21'**

**Lab Sample ID: 440-16097-13**

Date Collected: 06/29/12 15:15

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 21:37	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 21:37	1
Ethanol	ND		300		ug/Kg			07/08/12 21:37	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 21:37	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 21:37	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 21:37	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 21:37	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 21:37	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 21:37	1
tert-Butyl alcohol (TBA)	ND		99		ug/Kg			07/08/12 21:37	1
Toluene	ND		2.0		ug/Kg			07/08/12 21:37	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 21:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	113		80 - 120		07/08/12 21:37	1
4-Bromofluorobenzene (Surr)	120		80 - 120		07/08/12 21:37	1
Dibromofluoromethane (Surr)	106		80 - 125		07/08/12 21:37	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		390		ug/Kg			07/06/12 14:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		65 - 140		07/06/12 14:00	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 01:36	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-1-S-21'**

**Lab Sample ID: 440-16097-13**

Date Collected: 06/29/12 15:15

Matrix: Solid

Date Received: 06/30/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	47		40 - 140	07/12/12 11:15	07/13/12 01:36	1

**Client Sample ID: BD-1-S**

**Lab Sample ID: 440-16097-14**

Date Collected: 06/29/12 00:01

Matrix: Solid

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 22:04	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 22:04	1
Ethanol	ND		300		ug/Kg			07/08/12 22:04	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 22:04	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 22:04	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 22:04	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 22:04	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 22:04	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 22:04	1
tert-Butyl alcohol (TBA)	ND		99		ug/Kg			07/08/12 22:04	1
Toluene	ND		2.0		ug/Kg			07/08/12 22:04	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 22:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	110		80 - 120		07/08/12 22:04	1
<i>4-Bromofluorobenzene (Surr)</i>	115		80 - 120		07/08/12 22:04	1
<i>Dibromofluoromethane (Surr)</i>	108		80 - 125		07/08/12 22:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		380		ug/Kg			07/06/12 14:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>4-Bromofluorobenzene (Surr)</i>	103		65 - 140		07/06/12 14:27	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 02:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	41		40 - 140	07/12/12 11:15	07/13/12 02:07	1

**Client Sample ID: DP-1-W-29-34'**

**Lab Sample ID: 440-16097-15**

Date Collected: 06/29/12 16:25

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/11/12 06:16	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 06:16	1
Ethanol	ND		150		ug/L			07/11/12 06:16	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 06:16	1
Ethylbenzene	ND		0.50		ug/L			07/11/12 06:16	1
m,p-Xylene	ND		1.0		ug/L			07/11/12 06:16	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/11/12 06:16	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-1-W-29-34'**

**Lab Sample ID: 440-16097-15**

Date Collected: 06/29/12 16:25

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		0.50		ug/L			07/11/12 06:16	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 06:16	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 06:16	1
Toluene	ND		0.50		ug/L			07/11/12 06:16	1
Xylenes, Total	ND		1.0		ug/L			07/11/12 06:16	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	107		80 - 120					07/11/12 06:16	1
Dibromofluoromethane (Surr)	101		80 - 120					07/11/12 06:16	1
Toluene-d8 (Surr)	108		80 - 120					07/11/12 06:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/03/12 23:41	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	109		65 - 140					07/03/12 23:41	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		0.048		mg/L		07/05/12 18:12	07/06/12 00:44	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Octacosane	80		45 - 120				07/05/12 18:12	07/06/12 00:44	1

**Client Sample ID: BD-1-W**

**Lab Sample ID: 440-16097-16**

Date Collected: 06/29/12 00:01

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/11/12 06:45	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 06:45	1
Ethanol	ND		150		ug/L			07/11/12 06:45	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 06:45	1
Ethylbenzene	ND		0.50		ug/L			07/11/12 06:45	1
m,p-Xylene	ND		1.0		ug/L			07/11/12 06:45	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/11/12 06:45	1
o-Xylene	ND		0.50		ug/L			07/11/12 06:45	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 06:45	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 06:45	1
Toluene	ND		0.50		ug/L			07/11/12 06:45	1
Xylenes, Total	ND		1.0		ug/L			07/11/12 06:45	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	107		80 - 120					07/11/12 06:45	1
Dibromofluoromethane (Surr)	102		80 - 120					07/11/12 06:45	1
Toluene-d8 (Surr)	108		80 - 120					07/11/12 06:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/04/12 00:08	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Client Sample ID: BD-1-W

## Lab Sample ID: 440-16097-16

Date Collected: 06/29/12 00:01

Matrix: Water

Date Received: 06/30/12 09:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		65 - 140		07/04/12 00:08	1

### Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	0.051		0.048		mg/L		07/05/12 18:12	07/06/12 06:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	73		45 - 120	07/05/12 18:12	07/06/12 06:36	1

## Client Sample ID: TB-20120629

## Lab Sample ID: 440-16097-17

Date Collected: 06/29/12 00:01

Matrix: Water

Date Received: 06/30/12 09:50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/12/12 00:50	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/12/12 00:50	1
Ethanol	ND		150		ug/L			07/12/12 00:50	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/12/12 00:50	1
Ethylbenzene	ND		0.50		ug/L			07/12/12 00:50	1
m,p-Xylene	ND		1.0		ug/L			07/12/12 00:50	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/12/12 00:50	1
o-Xylene	ND		0.50		ug/L			07/12/12 00:50	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/12/12 00:50	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/12/12 00:50	1
Toluene	ND		0.50		ug/L			07/12/12 00:50	1
Xylenes, Total	ND		1.0		ug/L			07/12/12 00:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		80 - 120		07/12/12 00:50	1
Dibromofluoromethane (Surr)	99		80 - 120		07/12/12 00:50	1
Toluene-d8 (Surr)	107		80 - 120		07/12/12 00:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/03/12 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		65 - 140		07/03/12 16:34	1

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

**Client Sample ID: DP-6-S-11**  
**Date Collected: 06/28/12 15:40**  
**Date Received: 06/30/12 09:50**

**Lab Sample ID: 440-16097-1**  
**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	2.03 g	10 mL	37474	07/09/12 16:12	SS	TAL IRV
Total/NA	Prep	5030B			5.55 g	5 mL	36806	07/03/12 22:37	PH	TAL IRV
Total/NA	Analysis	8015B		400			37387	07/07/12 16:38	RG	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			10.06 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38492	07/13/12 02:07	ES	TAL IRV

**Client Sample ID: DP-6-S-20'-25'**  
**Date Collected: 06/28/12 15:55**  
**Date Received: 06/30/12 09:50**

**Lab Sample ID: 440-16097-2**  
**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		100	10 mL	10 mL	37843	07/11/12 03:53	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	37291	07/06/12 20:48	RG	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1050 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/05/12 23:02		TAL IRV

**Client Sample ID: DP-6-S-17'**  
**Date Collected: 06/28/12 16:45**  
**Date Received: 06/30/12 09:50**

**Lab Sample ID: 440-16097-3**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			10.20 g	10 mL	37621	07/09/12 16:12	MP	TAL IRV
Total/NA	Analysis	8260B		500			37695	07/10/12 16:09	SS	TAL IRV
Total/NA	Prep	5030B			5.48 g	5 mL	36806	07/03/12 22:37	PH	TAL IRV
Total/NA	Analysis	8015B		5000			37387	07/07/12 17:06	RG	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.00 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		2			38492	07/13/12 11:21	ES	TAL IRV

**Client Sample ID: DP-6-W-28'-32'**  
**Date Collected: 06/28/12 17:15**  
**Date Received: 06/30/12 09:50**

**Lab Sample ID: 440-16097-4**  
**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		1	10 mL	10 mL	37843	07/11/12 04:22	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	37291	07/06/12 21:15	RG	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1030 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/05/12 23:22		TAL IRV



# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Client Sample ID: DP-3-S-15.5'

## Lab Sample ID: 440-16097-5

Date Collected: 06/29/12 09:20

Matrix: Solid

Date Received: 06/30/12 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			9.93 g	10 mL	37621	07/09/12 16:12	MP	TAL IRV
Total/NA	Analysis	8260B		1000			37695	07/10/12 17:35	SS	TAL IRV
Total/NA	Prep	5030B			4.97 g	5 mL	36806	07/03/12 22:37	PH	TAL IRV
Total/NA	Analysis	8015B		2000			37387	07/07/12 13:09	RG	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.02 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		2			38492	07/13/12 10:49	ES	TAL IRV

## Client Sample ID: DP-3-S-28

## Lab Sample ID: 440-16097-6

Date Collected: 06/29/12 09:50

Matrix: Solid

Date Received: 06/30/12 09:50

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	37474	07/09/12 16:39	SS	TAL IRV
Total/NA	Analysis	8015B		1	5.02 g	10 mL	36345	07/03/12 06:01	PH	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.07 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38492	07/13/12 08:33	ES	TAL IRV

## Client Sample ID: DP-3-W-25'-30'

## Lab Sample ID: 440-16097-7

Date Collected: 06/29/12 10:00

Matrix: Water

Date Received: 06/30/12 09:50

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	37843	07/11/12 04:50	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	37291	07/06/12 21:43	RG	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1030 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/05/12 23:43		TAL IRV

## Client Sample ID: DP-2-S-10.5'

## Lab Sample ID: 440-16097-8

Date Collected: 06/29/12 11:45

Matrix: Solid

Date Received: 06/30/12 09:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	4.97 g	10 mL	37434	07/08/12 20:17	RM	TAL IRV
Total/NA	Prep	5030B			4.99 g	5 mL	36806	07/03/12 22:37	PH	TAL IRV
Total/NA	Analysis	8015B		100			37387	07/07/12 13:37	RG	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			10.03 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38492	07/13/12 09:03	ES	TAL IRV

## Client Sample ID: DP-2-S-31

## Lab Sample ID: 440-16097-9

Date Collected: 06/29/12 12:05

Matrix: Solid

Date Received: 06/30/12 09:50

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	37434	07/08/12 20:44	RM	TAL IRV

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Client Sample ID: DP-2-S-31

Lab Sample ID: 440-16097-9

Date Collected: 06/29/12 12:05

Matrix: Solid

Date Received: 06/30/12 09:50

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	5.36 g	10 mL	36977	07/06/12 13:07	TL	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.04 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38490	07/13/12 00:34	ES	TAL IRV

## Client Sample ID: DP-2-W-29'-34'

Lab Sample ID: 440-16097-10

Date Collected: 06/29/12 12:15

Matrix: Water

Date Received: 06/30/12 09:50

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	37843	07/11/12 05:19	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	37291	07/06/12 22:11	RG	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1050 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/06/12 00:03		TAL IRV

## Client Sample ID: DP-1-W-21'-26'

Lab Sample ID: 440-16097-11

Date Collected: 06/29/12 14:45

Matrix: Water

Date Received: 06/30/12 09:50

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	37843	07/11/12 05:48	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	36664	07/03/12 23:15	TL	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1000 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/06/12 00:23		TAL IRV

## Client Sample ID: DP-1-S-4'

Lab Sample ID: 440-16097-12

Date Collected: 06/29/12 15:05

Matrix: Solid

Date Received: 06/30/12 09:50

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	37434	07/08/12 21:11	RM	TAL IRV
Total/NA	Analysis	8015B		1	5.11 g	10 mL	36977	07/06/12 13:33	TL	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.00 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38490	07/13/12 01:04	ES	TAL IRV

## Client Sample ID: DP-1-S-21'

Lab Sample ID: 440-16097-13

Date Collected: 06/29/12 15:15

Matrix: Solid

Date Received: 06/30/12 09:50

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	37434	07/08/12 21:37	RM	TAL IRV
Total/NA	Analysis	8015B		1	5.07 g	10 mL	36977	07/06/12 14:00	TL	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.06 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38490	07/13/12 01:36	ES	TAL IRV

# Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Client Sample ID: BD-1-S

## Lab Sample ID: 440-16097-14

Date Collected: 06/29/12 00:01

Matrix: Solid

Date Received: 06/30/12 09:50

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	37434	07/08/12 22:04	RM	TAL IRV
Total/NA	Analysis	8015B		1	5.31 g	10 mL	36977	07/06/12 14:27	TL	TAL IRV
Silica Gel Cleanup	Prep	CA LUFT			30.02 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38490	07/13/12 02:07	ES	TAL IRV

## Client Sample ID: DP-1-W-29-34'

## Lab Sample ID: 440-16097-15

Date Collected: 06/29/12 16:25

Matrix: Water

Date Received: 06/30/12 09:50

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	37843	07/11/12 06:16	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	36664	07/03/12 23:41	TL	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1050 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/06/12 00:44		TAL IRV

## Client Sample ID: BD-1-W

## Lab Sample ID: 440-16097-16

Date Collected: 06/29/12 00:01

Matrix: Water

Date Received: 06/30/12 09:50

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	37843	07/11/12 06:45	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	36664	07/04/12 00:08	TL	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1040 mL	1 mL	37068	07/05/12 18:12	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			36877	07/06/12 06:36		TAL IRV

## Client Sample ID: TB-20120629

## Lab Sample ID: 440-16097-17

Date Collected: 06/29/12 00:01

Matrix: Water

Date Received: 06/30/12 09:50

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	38121	07/12/12 00:50	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	36664	07/03/12 16:34	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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: MB 440-37434/3**

**Matrix: Solid**

**Analysis Batch: 37434**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		2.0		ug/Kg			07/08/12 12:40	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/08/12 12:40	1
Ethanol	ND		300		ug/Kg			07/08/12 12:40	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/08/12 12:40	1
Ethylbenzene	ND		2.0		ug/Kg			07/08/12 12:40	1
m,p-Xylene	ND		2.0		ug/Kg			07/08/12 12:40	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/08/12 12:40	1
o-Xylene	ND		2.0		ug/Kg			07/08/12 12:40	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/08/12 12:40	1
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/08/12 12:40	1
Toluene	ND		2.0		ug/Kg			07/08/12 12:40	1
Xylenes, Total	ND		4.0		ug/Kg			07/08/12 12:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		80 - 120		07/08/12 12:40	1
4-Bromofluorobenzene (Surr)	118		80 - 120		07/08/12 12:40	1
Dibromofluoromethane (Surr)	106		80 - 125		07/08/12 12:40	1

**Lab Sample ID: LCS 440-37434/4**

**Matrix: Solid**

**Analysis Batch: 37434**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	56.1		ug/Kg		112	65 - 120
Isopropyl Ether (DIPE)	50.0	60.2		ug/Kg		120	60 - 140
Ethanol	500	505		ug/Kg		101	35 - 160
Ethyl-t-butyl ether (ETBE)	50.0	58.8		ug/Kg		118	60 - 140
Ethylbenzene	50.0	53.2		ug/Kg		106	70 - 125
m,p-Xylene	100	102		ug/Kg		102	70 - 125
Methyl-t-Butyl Ether (MTBE)	50.0	62.6		ug/Kg		125	60 - 140
o-Xylene	50.0	52.6		ug/Kg		105	70 - 125
Tert-amyl-methyl ether (TAME)	50.0	65.6		ug/Kg		131	60 - 145
tert-Butyl alcohol (TBA)	250	269		ug/Kg		108	70 - 135
Toluene	50.0	50.9		ug/Kg		102	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	110		80 - 120
4-Bromofluorobenzene (Surr)	113		80 - 120
Dibromofluoromethane (Surr)	111		80 - 125

**Lab Sample ID: 440-16285-B-2 MS**

**Matrix: Solid**

**Analysis Batch: 37434**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		50.2	57.4		ug/Kg		114	65 - 130
Isopropyl Ether (DIPE)	ND		50.2	58.2		ug/Kg		116	60 - 150
Ethanol	ND		502	490		ug/Kg		98	30 - 165
Ethyl-t-butyl ether (ETBE)	ND		50.2	56.0		ug/Kg		112	60 - 145

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: 440-16285-B-2 MS**

**Client Sample ID: Matrix Spike**

**Matrix: Solid**

**Prep Type: Total/NA**

**Analysis Batch: 37434**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Ethylbenzene	ND		50.2	53.8		ug/Kg		107	70 - 135
m,p-Xylene	ND		100	103		ug/Kg		102	70 - 130
Methyl-t-Butyl Ether (MTBE)	ND		50.2	59.5		ug/Kg		118	55 - 155
o-Xylene	ND		50.2	52.9		ug/Kg		105	65 - 130
Tert-amyl-methyl ether (TAME)	ND		50.2	62.5		ug/Kg		124	60 - 150
tert-Butyl alcohol (TBA)	ND		251	271		ug/Kg		108	65 - 145
Toluene	ND		50.2	53.4		ug/Kg		106	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	112		80 - 120
4-Bromofluorobenzene (Surr)	113		80 - 120
Dibromofluoromethane (Surr)	108		80 - 125

**Lab Sample ID: 440-16285-B-2 MSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Solid**

**Prep Type: Total/NA**

**Analysis Batch: 37434**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec. Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Benzene	ND		50.2	56.0		ug/Kg		112	65 - 130	2	20
Isopropyl Ether (DIPE)	ND		50.2	59.6		ug/Kg		119	60 - 150	2	25
Ethanol	ND		502	485		ug/Kg		97	30 - 165	1	40
Ethyl-t-butyl ether (ETBE)	ND		50.2	59.9		ug/Kg		119	60 - 145	7	30
Ethylbenzene	ND		50.2	52.7		ug/Kg		105	70 - 135	2	25
m,p-Xylene	ND		100	101		ug/Kg		100	70 - 130	2	25
Methyl-t-Butyl Ether (MTBE)	ND		50.2	60.8		ug/Kg		121	55 - 155	2	35
o-Xylene	ND		50.2	52.5		ug/Kg		105	65 - 130	1	25
Tert-amyl-methyl ether (TAME)	ND		50.2	63.1		ug/Kg		126	60 - 150	1	25
tert-Butyl alcohol (TBA)	ND		251	267		ug/Kg		106	65 - 145	1	30
Toluene	ND		50.2	52.0		ug/Kg		104	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	112		80 - 120
4-Bromofluorobenzene (Surr)	112		80 - 120
Dibromofluoromethane (Surr)	109		80 - 125

**Lab Sample ID: MB 440-37474/3**

**Client Sample ID: Method Blank**

**Matrix: Solid**

**Prep Type: Total/NA**

**Analysis Batch: 37474**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		2.0		ug/Kg			07/09/12 08:45	1
Isopropyl Ether (DIPE)	ND		5.0		ug/Kg			07/09/12 08:45	1
Ethanol	ND		300		ug/Kg			07/09/12 08:45	1
Ethyl-t-butyl ether (ETBE)	ND		5.0		ug/Kg			07/09/12 08:45	1
Ethylbenzene	ND		2.0		ug/Kg			07/09/12 08:45	1
m,p-Xylene	ND		2.0		ug/Kg			07/09/12 08:45	1
Methyl-t-Butyl Ether (MTBE)	ND		5.0		ug/Kg			07/09/12 08:45	1
o-Xylene	ND		2.0		ug/Kg			07/09/12 08:45	1
Tert-amyl-methyl ether (TAME)	ND		5.0		ug/Kg			07/09/12 08:45	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: MB 440-37474/3**

**Matrix: Solid**

**Analysis Batch: 37474**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butyl alcohol (TBA)	ND		100		ug/Kg			07/09/12 08:45	1
Toluene	ND		2.0		ug/Kg			07/09/12 08:45	1
Xylenes, Total	ND		4.0		ug/Kg			07/09/12 08:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		80 - 120		07/09/12 08:45	1
4-Bromofluorobenzene (Surr)	115		80 - 120		07/09/12 08:45	1
Dibromofluoromethane (Surr)	107		80 - 125		07/09/12 08:45	1

**Lab Sample ID: LCS 440-37474/4**

**Matrix: Solid**

**Analysis Batch: 37474**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	53.9		ug/Kg		108	65 - 120
Isopropyl Ether (DIPE)	50.0	61.1		ug/Kg		122	60 - 140
Ethanol	500	445		ug/Kg		89	35 - 160
Ethyl-t-butyl ether (ETBE)	50.0	60.6		ug/Kg		121	60 - 140
Ethylbenzene	50.0	49.5		ug/Kg		99	70 - 125
m,p-Xylene	100	96.0		ug/Kg		96	70 - 125
Methyl-t-Butyl Ether (MTBE)	50.0	62.1		ug/Kg		124	60 - 140
o-Xylene	50.0	49.4		ug/Kg		99	70 - 125
Tert-amyl-methyl ether (TAME)	50.0	66.8		ug/Kg		134	60 - 145
tert-Butyl alcohol (TBA)	250	257		ug/Kg		103	70 - 135
Toluene	50.0	50.5		ug/Kg		101	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	110		80 - 120
4-Bromofluorobenzene (Surr)	113		80 - 120
Dibromofluoromethane (Surr)	112		80 - 125

**Lab Sample ID: LCSD 440-37474/5**

**Matrix: Solid**

**Analysis Batch: 37474**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	56.5		ug/Kg		113	65 - 120	5	20
Isopropyl Ether (DIPE)	50.0	63.0		ug/Kg		126	60 - 140	3	20
Ethanol	500	496		ug/Kg		99	35 - 160	11	30
Ethyl-t-butyl ether (ETBE)	50.0	62.0		ug/Kg		124	60 - 140	2	20
Ethylbenzene	50.0	54.8		ug/Kg		110	70 - 125	10	20
m,p-Xylene	100	106		ug/Kg		106	70 - 125	10	20
Methyl-t-Butyl Ether (MTBE)	50.0	62.6		ug/Kg		125	60 - 140	1	25
o-Xylene	50.0	55.3		ug/Kg		111	70 - 125	11	20
Tert-amyl-methyl ether (TAME)	50.0	69.4		ug/Kg		139	60 - 145	4	20
tert-Butyl alcohol (TBA)	250	284		ug/Kg		114	70 - 135	10	20
Toluene	50.0	53.7		ug/Kg		107	70 - 125	6	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: LCSD 440-37474/5**

**Matrix: Solid**

**Analysis Batch: 37474**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	108		80 - 120
4-Bromofluorobenzene (Surr)	112		80 - 120
Dibromofluoromethane (Surr)	106		80 - 125

**Lab Sample ID: 440-16280-A-9 MS**

**Matrix: Solid**

**Analysis Batch: 37474**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS		Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Benzene	ND		50.0	55.0		ug/Kg		110	65 - 130	
Isopropyl Ether (DIPE)	ND		50.0	61.6		ug/Kg		123	60 - 150	
Ethanol	ND		500	517		ug/Kg		103	30 - 165	
Ethyl-t-butyl ether (ETBE)	ND		50.0	61.0		ug/Kg		122	60 - 145	
Ethylbenzene	ND		50.0	52.6		ug/Kg		105	70 - 135	
m,p-Xylene	ND		100	103		ug/Kg		103	70 - 130	
Methyl-t-Butyl Ether (MTBE)	ND		50.0	62.3		ug/Kg		125	55 - 155	
o-Xylene	ND		50.0	53.2		ug/Kg		106	65 - 130	
Tert-amyl-methyl ether (TAME)	ND		50.0	67.6		ug/Kg		135	60 - 150	
tert-Butyl alcohol (TBA)	ND		250	286		ug/Kg		114	65 - 145	
Toluene	ND		50.0	52.0		ug/Kg		104	70 - 130	

Surrogate	MS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	108		80 - 120
4-Bromofluorobenzene (Surr)	112		80 - 120
Dibromofluoromethane (Surr)	106		80 - 125

**Lab Sample ID: 440-16280-A-9 MSD**

**Matrix: Solid**

**Analysis Batch: 37474**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD		Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Benzene	ND		49.6	53.5		ug/Kg		108	65 - 130	3	20	
Isopropyl Ether (DIPE)	ND		49.6	58.2		ug/Kg		117	60 - 150	6	25	
Ethanol	ND		496	491		ug/Kg		99	30 - 165	5	40	
Ethyl-t-butyl ether (ETBE)	ND		49.6	58.2		ug/Kg		117	60 - 145	5	30	
Ethylbenzene	ND		49.6	51.9		ug/Kg		105	70 - 135	1	25	
m,p-Xylene	ND		99.2	101		ug/Kg		102	70 - 130	2	25	
Methyl-t-Butyl Ether (MTBE)	ND		49.6	59.5		ug/Kg		120	55 - 155	5	35	
o-Xylene	ND		49.6	51.9		ug/Kg		105	65 - 130	3	25	
Tert-amyl-methyl ether (TAME)	ND		49.6	64.7		ug/Kg		130	60 - 150	4	25	
tert-Butyl alcohol (TBA)	ND		248	275		ug/Kg		111	65 - 145	4	30	
Toluene	ND		49.6	50.8		ug/Kg		102	70 - 130	2	20	

Surrogate	MSD		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	108		80 - 120
4-Bromofluorobenzene (Surr)	110		80 - 120
Dibromofluoromethane (Surr)	103		80 - 125

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: MB 440-37695/7**

**Matrix: Solid**

**Analysis Batch: 37695**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		100		ug/Kg			07/10/12 10:33	100
Isopropyl Ether (DIPE)	ND		250		ug/Kg			07/10/12 10:33	100
Ethanol	ND		15000		ug/Kg			07/10/12 10:33	100
Ethyl-t-butyl ether (ETBE)	ND		250		ug/Kg			07/10/12 10:33	100
Ethylbenzene	ND		100		ug/Kg			07/10/12 10:33	100
m,p-Xylene	ND		100		ug/Kg			07/10/12 10:33	100
Methyl-t-Butyl Ether (MTBE)	ND		250		ug/Kg			07/10/12 10:33	100
o-Xylene	ND		100		ug/Kg			07/10/12 10:33	100
Tert-amyl-methyl ether (TAME)	ND		250		ug/Kg			07/10/12 10:33	100
tert-Butyl alcohol (TBA)	ND		5000		ug/Kg			07/10/12 10:33	100
Toluene	ND		100		ug/Kg			07/10/12 10:33	100
Xylenes, Total	ND		200		ug/Kg			07/10/12 10:33	100

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		60 - 140		07/10/12 10:33	100
4-Bromofluorobenzene (Surr)	107		65 - 140		07/10/12 10:33	100
Dibromofluoromethane (Surr)	97		55 - 140		07/10/12 10:33	100

**Lab Sample ID: LCS 440-37695/8**

**Matrix: Solid**

**Analysis Batch: 37695**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	2500	2430		ug/Kg		97	65 - 120
Isopropyl Ether (DIPE)	2500	2700		ug/Kg		108	60 - 140
Ethanol	25000	25400		ug/Kg		102	35 - 160
Ethyl-t-butyl ether (ETBE)	2500	2790		ug/Kg		111	60 - 140
Ethylbenzene	2500	2610		ug/Kg		104	80 - 120
m,p-Xylene	5000	5080		ug/Kg		102	70 - 125
Methyl-t-Butyl Ether (MTBE)	2500	2820		ug/Kg		113	55 - 145
o-Xylene	2500	2650		ug/Kg		106	70 - 125
Tert-amyl-methyl ether (TAME)	2500	2900		ug/Kg		116	60 - 145
tert-Butyl alcohol (TBA)	12500	12500		ug/Kg		100	65 - 140
Toluene	2500	2520		ug/Kg		101	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	107		60 - 140
4-Bromofluorobenzene (Surr)	111		65 - 140
Dibromofluoromethane (Surr)	104		55 - 140

**Lab Sample ID: LCSD 440-37695/9**

**Matrix: Solid**

**Analysis Batch: 37695**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	2500	2280		ug/Kg		91	65 - 120	7	20
Isopropyl Ether (DIPE)	2500	2470		ug/Kg		99	60 - 140	9	20
Ethanol	25000	21600		ug/Kg		86	35 - 160	16	30
Ethyl-t-butyl ether (ETBE)	2500	2580		ug/Kg		103	60 - 140	8	20



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: LCSD 440-37695/9**

**Matrix: Solid**

**Analysis Batch: 37695**

**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
Ethylbenzene	2500	2450		ug/Kg		98	80 - 120	6	20
m,p-Xylene	5000	4750		ug/Kg		95	70 - 125	7	20
Methyl-t-Butyl Ether (MTBE)	2500	2600		ug/Kg		104	55 - 145	8	25
o-Xylene	2500	2450		ug/Kg		98	70 - 125	8	20
Tert-amyl-methyl ether (TAME)	2500	2710		ug/Kg		108	60 - 145	7	25
tert-Butyl alcohol (TBA)	12500	11400		ug/Kg		91	65 - 140	10	20
Toluene	2500	2370		ug/Kg		95	80 - 120	6	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
Toluene-d8 (Surr)	101		60 - 140
4-Bromofluorobenzene (Surr)	102		65 - 140
Dibromofluoromethane (Surr)	97		55 - 140

**Lab Sample ID: MB 440-37843/4**

**Matrix: Water**

**Analysis Batch: 37843**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/10/12 20:45	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/10/12 20:45	1
Ethanol	ND		150		ug/L			07/10/12 20:45	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/10/12 20:45	1
Ethylbenzene	ND		0.50		ug/L			07/10/12 20:45	1
m,p-Xylene	ND		1.0		ug/L			07/10/12 20:45	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/10/12 20:45	1
o-Xylene	ND		0.50		ug/L			07/10/12 20:45	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/10/12 20:45	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/10/12 20:45	1
Toluene	ND		0.50		ug/L			07/10/12 20:45	1
Xylenes, Total	ND		1.0		ug/L			07/10/12 20:45	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120		07/10/12 20:45	1
Dibromofluoromethane (Surr)	90		80 - 120		07/10/12 20:45	1
Toluene-d8 (Surr)	107		80 - 120		07/10/12 20:45	1

**Lab Sample ID: LCS 440-37843/5**

**Matrix: Water**

**Analysis Batch: 37843**

**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	27.1		ug/L		108	70 - 120
Isopropyl Ether (DIPE)	25.0	28.1		ug/L		113	60 - 135
Ethanol	250	253		ug/L		101	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	26.1		ug/L		104	65 - 135
Ethylbenzene	25.0	29.5		ug/L		118	75 - 125
m,p-Xylene	50.0	58.6		ug/L		117	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	27.4		ug/L		110	60 - 135
o-Xylene	25.0	29.2		ug/L		117	75 - 125

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: LCS 440-37843/5**

**Matrix: Water**

**Analysis Batch: 37843**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Tert-amyl-methyl ether (TAME)	25.0	27.7		ug/L		111	60 - 135
tert-Butyl alcohol (TBA)	125	132		ug/L		105	70 - 135
Toluene	25.0	28.4		ug/L		114	70 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		80 - 120
Dibromofluoromethane (Surr)	96		80 - 120
Toluene-d8 (Surr)	107		80 - 120

**Lab Sample ID: 440-16638-D-1 MS**

**Matrix: Water**

**Analysis Batch: 37843**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	27.2		ug/L		109	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	30.9		ug/L		124	60 - 140
Ethanol	ND		250	256		ug/L		102	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	30.6		ug/L		123	60 - 135
Ethylbenzene	ND		25.0	29.0		ug/L		116	65 - 130
m,p-Xylene	ND		50.0	57.8		ug/L		116	65 - 130
Methyl-t-Butyl Ether (MTBE)	83		25.0	115		ug/L		130	55 - 145
o-Xylene	ND		25.0	29.0		ug/L		116	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	32.5		ug/L		130	60 - 140
tert-Butyl alcohol (TBA)	ND		125	136		ug/L		108	65 - 140
Toluene	ND		25.0	28.5		ug/L		114	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		80 - 120
Dibromofluoromethane (Surr)	100		80 - 120
Toluene-d8 (Surr)	108		80 - 120

**Lab Sample ID: 440-16638-D-1 MSD**

**Matrix: Water**

**Analysis Batch: 37843**

**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	Limit
Benzene	ND		25.0	27.1		ug/L		109	65 - 125	0	20
Isopropyl Ether (DIPE)	ND		25.0	30.5		ug/L		122	60 - 140	1	25
Ethanol	ND		250	244		ug/L		97	40 - 155	5	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	29.6		ug/L		119	60 - 135	3	25
Ethylbenzene	ND		25.0	29.3		ug/L		117	65 - 130	1	20
m,p-Xylene	ND		50.0	58.2		ug/L		116	65 - 130	1	25
Methyl-t-Butyl Ether (MTBE)	83		25.0	112		ug/L		118	55 - 145	3	25
o-Xylene	ND		25.0	29.2		ug/L		117	65 - 125	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	31.8		ug/L		127	60 - 140	2	30
tert-Butyl alcohol (TBA)	ND		125	131		ug/L		105	65 - 140	3	25
Toluene	ND		25.0	28.4		ug/L		114	70 - 125	0	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: 440-16638-D-1 MSD**

**Matrix: Water**

**Analysis Batch: 37843**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	108		80 - 120
Dibromofluoromethane (Surr)	100		80 - 120
Toluene-d8 (Surr)	107		80 - 120

**Lab Sample ID: MB 440-38121/4**

**Matrix: Water**

**Analysis Batch: 38121**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		0.50		ug/L			07/11/12 20:01	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 20:01	1
Ethanol	ND		150		ug/L			07/11/12 20:01	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 20:01	1
Ethylbenzene	ND		0.50		ug/L			07/11/12 20:01	1
m,p-Xylene	ND		1.0		ug/L			07/11/12 20:01	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/11/12 20:01	1
o-Xylene	ND		0.50		ug/L			07/11/12 20:01	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 20:01	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 20:01	1
Toluene	ND		0.50		ug/L			07/11/12 20:01	1
Xylenes, Total	ND		1.0		ug/L			07/11/12 20:01	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	108		80 - 120		07/11/12 20:01	1
Dibromofluoromethane (Surr)	94		80 - 120		07/11/12 20:01	1
Toluene-d8 (Surr)	106		80 - 120		07/11/12 20:01	1

**Lab Sample ID: LCS 440-38121/5**

**Matrix: Water**

**Analysis Batch: 38121**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Isopropyl Ether (DIPE)	25.0	32.0		ug/L		128	60 - 135
Ethanol	250	257		ug/L		103	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	30.9		ug/L		124	65 - 135
Ethylbenzene	25.0	29.7		ug/L		119	75 - 125
m,p-Xylene	50.0	58.8		ug/L		118	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	31.9		ug/L		128	60 - 135
o-Xylene	25.0	29.7		ug/L		119	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	32.8		ug/L		131	60 - 135
tert-Butyl alcohol (TBA)	125	136		ug/L		108	70 - 135
Toluene	25.0	29.4		ug/L		118	70 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
Toluene-d8 (Surr)	107		80 - 120

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: 440-16810-D-3 MS**

**Matrix: Water**

**Analysis Batch: 38121**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		25.0	27.8		ug/L		111	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	30.5		ug/L		122	60 - 140
Ethanol	ND		250	271		ug/L		108	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	28.9		ug/L		116	60 - 135
Ethylbenzene	ND		25.0	30.2		ug/L		121	65 - 130
m,p-Xylene	ND		50.0	60.1		ug/L		120	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	29.9		ug/L		120	55 - 145
o-Xylene	ND		25.0	29.8		ug/L		119	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	31.1		ug/L		124	60 - 140
tert-Butyl alcohol (TBA)	ND		125	138		ug/L		110	65 - 140
Toluene	ND		25.0	29.1		ug/L		116	70 - 125

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		80 - 120
Dibromofluoromethane (Surr)	95		80 - 120
Toluene-d8 (Surr)	107		80 - 120

**Lab Sample ID: 440-16810-D-3 MSD**

**Matrix: Water**

**Analysis Batch: 38121**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		25.0	26.7		ug/L		107	65 - 125	4	20
Isopropyl Ether (DIPE)	ND		25.0	28.6		ug/L		115	60 - 140	6	25
Ethanol	ND		250	247		ug/L		99	40 - 155	9	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	27.0		ug/L		108	60 - 135	7	25
Ethylbenzene	ND		25.0	29.1		ug/L		117	65 - 130	4	20
m,p-Xylene	ND		50.0	58.2		ug/L		116	65 - 130	3	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	28.0		ug/L		112	55 - 145	7	25
o-Xylene	ND		25.0	28.5		ug/L		114	65 - 125	4	20
Tert-amyl-methyl ether (TAME)	ND		25.0	28.6		ug/L		114	60 - 140	8	30
tert-Butyl alcohol (TBA)	ND		125	129		ug/L		103	65 - 140	7	25
Toluene	ND		25.0	28.2		ug/L		113	70 - 125	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		80 - 120
Dibromofluoromethane (Surr)	95		80 - 120
Toluene-d8 (Surr)	107		80 - 120

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

**Lab Sample ID: MB 440-36345/41**

**Matrix: Solid**

**Analysis Batch: 36345**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		400		ug/Kg			07/03/12 05:33	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: MB 440-36345/41**  
**Matrix: Solid**  
**Analysis Batch: 36345**

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	101		65 - 140		07/03/12 05:33	1

**Lab Sample ID: LCS 440-36345/40**  
**Matrix: Solid**  
**Analysis Batch: 36345**

**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)	1600	1440		ug/Kg		90	70 - 135

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	119		65 - 140

**Lab Sample ID: 440-16097-6 MS**  
**Matrix: Solid**  
**Analysis Batch: 36345**

**Client Sample ID: DP-3-S-28**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	ND		1570	1350		ug/Kg		86	60 - 140

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	79		65 - 140

**Lab Sample ID: 440-16097-6 MSD**  
**Matrix: Solid**  
**Analysis Batch: 36345**

**Client Sample ID: DP-3-S-28**  
**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		1520	1330		ug/Kg		87	60 - 140	2	30

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	78		65 - 140

**Lab Sample ID: MB 440-36664/3**  
**Matrix: Water**  
**Analysis Batch: 36664**

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
GRO (C4-C12)	ND		50		ug/L			07/03/12 15:13	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	106		65 - 140		07/03/12 15:13	1

**Lab Sample ID: LCS 440-36664/2**  
**Matrix: Water**  
**Analysis Batch: 36664**

**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	735		ug/L		92	80 - 120

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: LCS 440-36664/2**  
**Matrix: Water**  
**Analysis Batch: 36664**

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

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		65 - 140

**Lab Sample ID: 440-16005-D-1 MS**  
**Matrix: Water**  
**Analysis Batch: 36664**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec. Limits
				Result	Qualifier				
GRO (C4-C12)	3200		8000	10000		ug/L		85	65 - 140
Surrogate	%Recovery	Qualifier	MS						
4-Bromofluorobenzene (Surr)	77				65 - 140				

**Lab Sample ID: 440-16005-D-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 36664**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
				Result	Qualifier						
GRO (C4-C12)	3200		8000	9840		ug/L		83	65 - 140	2	20
Surrogate	%Recovery	Qualifier	MSD								
4-Bromofluorobenzene (Surr)	77				65 - 140						

**Lab Sample ID: MB 440-36977/31**  
**Matrix: Solid**  
**Analysis Batch: 36977**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		400		ug/Kg			07/06/12 04:03	1
Surrogate	%Recovery	Qualifier	MB			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	83				65 - 140		07/06/12 04:03	1	

**Lab Sample ID: LCS 440-36977/29**  
**Matrix: Solid**  
**Analysis Batch: 36977**

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

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
GRO (C4-C12)	1600	1340		ug/Kg		84	70 - 135
Surrogate	%Recovery	Qualifier	LCS				
4-Bromofluorobenzene (Surr)	96				65 - 140		

**Lab Sample ID: LCSD 440-36977/30**  
**Matrix: Solid**  
**Analysis Batch: 36977**

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

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
GRO (C4-C12)	1600	1320		ug/Kg		82	70 - 135	2	20

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: LCSD 440-36977/30**

**Matrix: Solid**

**Analysis Batch: 36977**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

	LCSD %Recovery	LCSD Qualifier	Limits
<i>Surrogate</i> 4-Bromofluorobenzene (Surr)	101		65 - 140

**Lab Sample ID: 440-16165-A-1 MS**

**Matrix: Solid**

**Analysis Batch: 36977**

**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		1490	875	F	ug/Kg		59	60 - 140
<i>Surrogate</i> 4-Bromofluorobenzene (Surr)	51	X							65 - 140

**Lab Sample ID: 440-16165-A-1 MSD**

**Matrix: Solid**

**Analysis Batch: 36977**

**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	Limit
GRO (C4-C12)	ND		1550	900	F	ug/Kg		58	60 - 140	3	30
<i>Surrogate</i> 4-Bromofluorobenzene (Surr)	47	X							65 - 140		

**Lab Sample ID: MB 440-37291/22**

**Matrix: Water**

**Analysis Batch: 37291**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/06/12 18:23	1
<i>Surrogate</i> 4-Bromofluorobenzene (Surr)	88							07/06/12 18:23	1

**Lab Sample ID: LCS 440-37291/2**

**Matrix: Water**

**Analysis Batch: 37291**

**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	788		ug/L		99	80 - 120
<i>Surrogate</i> 4-Bromofluorobenzene (Surr)		78					65 - 140

**Lab Sample ID: 440-16031-A-5 MS**

**Matrix: Water**

**Analysis Batch: 37291**

**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	781		ug/L		98	65 - 140

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

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

**Lab Sample ID: 440-16031-A-5 MS**

**Matrix: Water**

**Analysis Batch: 37291**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		65 - 140

**Lab Sample ID: 440-16031-A-5 MSD**

**Matrix: Water**

**Analysis Batch: 37291**

**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	740		ug/L		92	65 - 140	5	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		65 - 140

**Lab Sample ID: MB 440-37387/4**

**Matrix: Solid**

**Analysis Batch: 37387**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		40000		ug/Kg			07/07/12 11:43	100

	MB	MB		Prepared	Analyzed	Dil Fac
Surrogate	%Recovery	Qualifier	Limits			
4-Bromofluorobenzene (Surr)	66		65 - 140		07/07/12 11:43	100

**Lab Sample ID: LCS 440-37387/2**

**Matrix: Solid**

**Analysis Batch: 37387**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
GRO (C4-C12)	160000	145000		ug/Kg		90	70 - 135

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		65 - 140

**Lab Sample ID: LCSD 440-37387/5**

**Matrix: Solid**

**Analysis Batch: 37387**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	160000	132000		ug/Kg		82	70 - 135	9	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	133		65 - 140



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Method: 8015B - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 440-38308/1-A**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Method Blank**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 08:02	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	79		40 - 140				07/12/12 11:15	07/13/12 08:02	1

**Lab Sample ID: LCS 440-38308/2-A**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Lab Control Sample**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	33.3	20.2		mg/Kg		61	45 - 115
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
n-Octacosane	66		40 - 140				

**Lab Sample ID: 440-16029-H-3-C MS**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Matrix Spike**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	ND		33.3	23.6		mg/Kg		58	40 - 120
Surrogate	MS %Recovery	MS Qualifier	Limits						
n-Octacosane	67		40 - 140						

**Lab Sample ID: 440-16029-H-3-D MSD**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
EFH (C10-C28)	ND		33.3	25.0		mg/Kg		62	40 - 120	6	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
n-Octacosane	78		40 - 140								

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level

**Lab Sample ID: MB 440-37068/1-A**

**Matrix: Water**

**Analysis Batch: 36877**

**Client Sample ID: Method Blank**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 37068**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		0.050		mg/L		07/05/12 18:12	07/05/12 22:01	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	83		45 - 120				07/05/12 18:12	07/05/12 22:01	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level (Continued)

**Lab Sample ID: LCS 440-37068/2-A**

**Matrix: Water**

**Analysis Batch: 36877**

**Client Sample ID: Lab Control Sample**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 37068**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	1.00	0.805		mg/L		80	40 - 115
<b>Surrogate</b>		<b>LCS %Recovery</b>	<b>LCS Qualifier</b>				<b>Limits</b>
<i>n</i> -Octacosane		83					45 - 120

**Lab Sample ID: LCSD 440-37068/3-A**

**Matrix: Water**

**Analysis Batch: 36877**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 37068**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
EFH (C10-C28)	1.00	0.822		mg/L		82	40 - 115	2	25
<b>Surrogate</b>		<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>				<b>Limits</b>		
<i>n</i> -Octacosane		84					45 - 120		

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## GC/MS VOA

### Analysis Batch: 37434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-8	DP-2-S-10.5'	Total/NA	Solid	8260B	
440-16097-9	DP-2-S-31	Total/NA	Solid	8260B	
440-16097-12	DP-1-S-4'	Total/NA	Solid	8260B	
440-16097-13	DP-1-S-21'	Total/NA	Solid	8260B	
440-16097-14	BD-1-S	Total/NA	Solid	8260B	
440-16285-B-2 MS	Matrix Spike	Total/NA	Solid	8260B	
440-16285-B-2 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
LCS 440-37434/4	Lab Control Sample	Total/NA	Solid	8260B	
MB 440-37434/3	Method Blank	Total/NA	Solid	8260B	

### Analysis Batch: 37474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-1	DP-6-S-11	Total/NA	Solid	8260B	
440-16097-6	DP-3-S-28	Total/NA	Solid	8260B	
440-16280-A-9 MS	Matrix Spike	Total/NA	Solid	8260B	
440-16280-A-9 MSD	Matrix Spike Duplicate	Total/NA	Solid	8260B	
LCS 440-37474/4	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 440-37474/5	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 440-37474/3	Method Blank	Total/NA	Solid	8260B	

### Prep Batch: 37621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-3	DP-6-S-17'	Total/NA	Solid	5030B	
440-16097-5	DP-3-S-15.5'	Total/NA	Solid	5030B	

### Analysis Batch: 37695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-3	DP-6-S-17'	Total/NA	Solid	8260B	37621
440-16097-5	DP-3-S-15.5'	Total/NA	Solid	8260B	37621
LCS 440-37695/8	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 440-37695/9	Lab Control Sample Dup	Total/NA	Solid	8260B	
MB 440-37695/7	Method Blank	Total/NA	Solid	8260B	

### Analysis Batch: 37843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-2	DP-6-S-20'-25'	Total/NA	Water	8260B	
440-16097-4	DP-6-W-28'-32'	Total/NA	Water	8260B	
440-16097-7	DP-3-W-25'-30'	Total/NA	Water	8260B	
440-16097-10	DP-2-W-29'-34'	Total/NA	Water	8260B	
440-16097-11	DP-1-W-21'-26'	Total/NA	Water	8260B	
440-16097-15	DP-1-W-29-34'	Total/NA	Water	8260B	
440-16097-16	BD-1-W	Total/NA	Water	8260B	
440-16638-D-1 MS	Matrix Spike	Total/NA	Water	8260B	
440-16638-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-37843/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-37843/4	Method Blank	Total/NA	Water	8260B	

### Analysis Batch: 38121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-17	TB-20120629	Total/NA	Water	8260B	
440-16810-D-3 MS	Matrix Spike	Total/NA	Water	8260B	
440-16810-D-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## GC/MS VOA (Continued)

### Analysis Batch: 38121 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-38121/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-38121/4	Method Blank	Total/NA	Water	8260B	

## GC VOA

### Analysis Batch: 36345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-6	DP-3-S-28	Total/NA	Solid	8015B	
440-16097-6 MS	DP-3-S-28	Total/NA	Solid	8015B	
440-16097-6 MSD	DP-3-S-28	Total/NA	Solid	8015B	
LCS 440-36345/40	Lab Control Sample	Total/NA	Solid	8015B	
MB 440-36345/41	Method Blank	Total/NA	Solid	8015B	

### Analysis Batch: 36664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16005-D-1 MS	Matrix Spike	Total/NA	Water	8015B	
440-16005-D-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
440-16097-11	DP-1-W-21'-26'	Total/NA	Water	8015B	
440-16097-15	DP-1-W-29-34'	Total/NA	Water	8015B	
440-16097-16	BD-1-W	Total/NA	Water	8015B	
440-16097-17	TB-20120629	Total/NA	Water	8015B	
LCS 440-36664/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-36664/3	Method Blank	Total/NA	Water	8015B	

### Prep Batch: 36806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-1	DP-6-S-11	Total/NA	Solid	5030B	
440-16097-3	DP-6-S-17'	Total/NA	Solid	5030B	
440-16097-5	DP-3-S-15.5'	Total/NA	Solid	5030B	
440-16097-8	DP-2-S-10.5'	Total/NA	Solid	5030B	

### Analysis Batch: 36977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-9	DP-2-S-31	Total/NA	Solid	8015B	
440-16097-12	DP-1-S-4'	Total/NA	Solid	8015B	
440-16097-13	DP-1-S-21'	Total/NA	Solid	8015B	
440-16097-14	BD-1-S	Total/NA	Solid	8015B	
440-16165-A-1 MS	Matrix Spike	Total/NA	Solid	8015B	
440-16165-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B	
LCS 440-36977/29	Lab Control Sample	Total/NA	Solid	8015B	
LCSD 440-36977/30	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-36977/31	Method Blank	Total/NA	Solid	8015B	

### Analysis Batch: 37291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16031-A-5 MS	Matrix Spike	Total/NA	Water	8015B	
440-16031-A-5 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
440-16097-2	DP-6-S-20'-25'	Total/NA	Water	8015B	
440-16097-4	DP-6-W-28'-32'	Total/NA	Water	8015B	
440-16097-7	DP-3-W-25'-30'	Total/NA	Water	8015B	
440-16097-10	DP-2-W-29'-34'	Total/NA	Water	8015B	
LCS 440-37291/2	Lab Control Sample	Total/NA	Water	8015B	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## GC VOA (Continued)

### Analysis Batch: 37291 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 440-37291/22	Method Blank	Total/NA	Water	8015B	

### Analysis Batch: 37387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-1	DP-6-S-11	Total/NA	Solid	8015B	36806
440-16097-3	DP-6-S-17'	Total/NA	Solid	8015B	36806
440-16097-5	DP-3-S-15.5'	Total/NA	Solid	8015B	36806
440-16097-8	DP-2-S-10.5'	Total/NA	Solid	8015B	36806
LCS 440-37387/2	Lab Control Sample	Total/NA	Solid	8015B	
LCS 440-37387/5	Lab Control Sample Dup	Total/NA	Solid	8015B	
MB 440-37387/4	Method Blank	Total/NA	Solid	8015B	

## GC Semi VOA

### Analysis Batch: 36877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-2	DP-6-S-20'-25'	Silica Gel Cleanup	Water	8015B	37068
440-16097-4	DP-6-W-28'-32'	Silica Gel Cleanup	Water	8015B	37068
440-16097-7	DP-3-W-25'-30'	Silica Gel Cleanup	Water	8015B	37068
440-16097-10	DP-2-W-29'-34'	Silica Gel Cleanup	Water	8015B	37068
440-16097-11	DP-1-W-21'-26'	Silica Gel Cleanup	Water	8015B	37068
440-16097-15	DP-1-W-29-34'	Silica Gel Cleanup	Water	8015B	37068
440-16097-16	BD-1-W	Silica Gel Cleanup	Water	8015B	37068
LCS 440-37068/2-A	Lab Control Sample	Silica Gel Cleanup	Water	8015B	37068
LCS 440-37068/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Water	8015B	37068
MB 440-37068/1-A	Method Blank	Silica Gel Cleanup	Water	8015B	37068

### Prep Batch: 37068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-2	DP-6-S-20'-25'	Silica Gel Cleanup	Water	3510C SGC	
440-16097-4	DP-6-W-28'-32'	Silica Gel Cleanup	Water	3510C SGC	
440-16097-7	DP-3-W-25'-30'	Silica Gel Cleanup	Water	3510C SGC	
440-16097-10	DP-2-W-29'-34'	Silica Gel Cleanup	Water	3510C SGC	
440-16097-11	DP-1-W-21'-26'	Silica Gel Cleanup	Water	3510C SGC	
440-16097-15	DP-1-W-29-34'	Silica Gel Cleanup	Water	3510C SGC	
440-16097-16	BD-1-W	Silica Gel Cleanup	Water	3510C SGC	
LCS 440-37068/2-A	Lab Control Sample	Silica Gel Cleanup	Water	3510C SGC	
LCS 440-37068/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Water	3510C SGC	
MB 440-37068/1-A	Method Blank	Silica Gel Cleanup	Water	3510C SGC	

### Prep Batch: 38308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-H-3-C MS	Matrix Spike	Silica Gel Cleanup	Solid	CA LUFT	
440-16029-H-3-D MSD	Matrix Spike Duplicate	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-1	DP-6-S-11	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-3	DP-6-S-17'	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-5	DP-3-S-15.5'	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-6	DP-3-S-28	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-8	DP-2-S-10.5'	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-9	DP-2-S-31	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-12	DP-1-S-4'	Silica Gel Cleanup	Solid	CA LUFT	
440-16097-13	DP-1-S-21'	Silica Gel Cleanup	Solid	CA LUFT	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## GC Semi VOA (Continued)

### Prep Batch: 38308 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-14	BD-1-S	Silica Gel Cleanup	Solid	CA LUFT	
LCS 440-38308/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	CA LUFT	
MB 440-38308/1-A	Method Blank	Silica Gel Cleanup	Solid	CA LUFT	

### Analysis Batch: 38490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16097-9	DP-2-S-31	Silica Gel Cleanup	Solid	8015B	38308
440-16097-12	DP-1-S-4'	Silica Gel Cleanup	Solid	8015B	38308
440-16097-13	DP-1-S-21'	Silica Gel Cleanup	Solid	8015B	38308
440-16097-14	BD-1-S	Silica Gel Cleanup	Solid	8015B	38308

### Analysis Batch: 38492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-H-3-C MS	Matrix Spike	Silica Gel Cleanup	Solid	8015B	38308
440-16029-H-3-D MSD	Matrix Spike Duplicate	Silica Gel Cleanup	Solid	8015B	38308
440-16097-1	DP-6-S-11	Silica Gel Cleanup	Solid	8015B	38308
440-16097-3	DP-6-S-17'	Silica Gel Cleanup	Solid	8015B	38308
440-16097-5	DP-3-S-15.5'	Silica Gel Cleanup	Solid	8015B	38308
440-16097-6	DP-3-S-28	Silica Gel Cleanup	Solid	8015B	38308
440-16097-8	DP-2-S-10.5'	Silica Gel Cleanup	Solid	8015B	38308
LCS 440-38308/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	8015B	38308
MB 440-38308/1-A	Method Blank	Silica Gel Cleanup	Solid	8015B	38308

# Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
F	MS or MSD exceeds the control limits

## 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
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16097-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Irvine	Arizona	State Program	9	AZ0671
TestAmerica Irvine	California	LA Cty Sanitation Districts	9	10256
TestAmerica Irvine	California	NELAC	9	1108CA
TestAmerica Irvine	California	State Program	9	2706
TestAmerica Irvine	Guam	State Program	9	Cert. No. 12.002r
TestAmerica Irvine	Hawaii	State Program	9	N/A
TestAmerica Irvine	Nevada	State Program	9	CA015312007A
TestAmerica Irvine	New Mexico	State Program	6	N/A
TestAmerica Irvine	Northern Mariana Islands	State Program	9	MP0002
TestAmerica Irvine	Oregon	NELAC	10	4005
TestAmerica Irvine	USDA	Federal		P330-09-00080

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.





Laboratory Task Order No./P.O. No. \_\_\_\_\_

**CHAIN-OF-CUSTODY RECORD**140-16097  
Page 1 of 2Project Number/Name ARCADIS # 211283 / B0060901.1283Project Location 3810 Broadway, Oakland, CALaboratory TestAmericaProject Manager Toni Delgado / ARCADISSampler(s)/Affiliation LK/TB / ARCADIS

## ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	TPH-DRO (5015B) w/ silica gel cleanup	TPH-GRO (5015B)	BTEX, MTBE, DIBP, ETBE, THA, Toluene (5260B)	Remarks	Total
DP-6-S-11	S	6/28/12/1510		X	X	X		8
DP-6-S-20'-25'	W	6/28/12/1555		X	X	X		8
DP-6-S-17'	S	6/28/12/1045		X	X	X		8
DP-6-W-28'-32'	W	6/28/12/1715		X	X	X		8
DP-3-S-15.5'	S	6/29/12/0920		X	X	X		8
DP-3-S-28'	S	6/29/12/0650		X	X	X		8
DP-3-W-25'-30'	W	6/29/12/1000		X	X	X		8
DP-2-S-10.5'	S	6/29/12/1145		X	X	X		8
DP-2-S-31	S	6/29/12/1205		X	X	X		8
DP-2-W-29'-34'	W	6/29/12/1215		X	X	X		8
DP-1-W-21'-26'	W	6/29/12/1445		X	X	X		8
DP-1-S-4'	S	6/29/12/1505		X	X	X		8
DP-1-S-21'	S	6/29/12/1515		X	X	X		8
BD-1-S	S	6/29/12/—		X	X	X		8
DP-1-W-29'-34'	W	6/29/12/1625		X	X	X		8

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers ↓

Relinquished by: <u>[Signature]</u>	Organization: <u>ARCADIS</u>	Date: <u>6/29/12</u>	Time: <u>1648</u>	Seal Intact?
Received by: <u>[Signature]</u>	Organization: <u>T.A.</u>	Date: <u>6/29/12</u>	Time: <u>1648</u>	Yes No N/A
Relinquished by: <u>[Signature]</u>	Organization: <u>T.A.</u>	Date: <u>6/29/12</u>	Time: <u>1800</u>	Seal Intact?
Received by: <u>[Signature]</u>	Organization: <u>TA</u>	Date: <u>06/30/12</u>	Time: <u>9:50</u>	Yes No N/A

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier  Lab Courier  Other

SPECIFY

4.4°C

SPECIFY

AG 05-12/01



## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-16097-1

**Login Number: 16097**

**List Number: 1**

**Creator: Perez, Angel**

**List Source: TestAmerica Irvine**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is 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 sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
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: 440-16298-1

Client Project/Site: Chevron - 21-1283

For:

ARCADIS U.S., Inc.

3240 El Camino Real

Suite 200

Irvine, California 92602

Attn: Toni DeMayo



Authorized for release by:

7/26/2012 4:20:28 PM

Sushmitha Reddy

Project Manager I

[sushmitha.reddy@testamericainc.com](mailto:sushmitha.reddy@testamericainc.com)

### LINKS

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*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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-16298-1	DP-5-S-7'	Solid	07/02/12 09:40	07/03/12 11:00
440-16298-2	DP-5-S-18'	Solid	07/02/12 11:20	07/03/12 11:00
440-16298-3	DP-5-W-31'-35'	Water	07/02/12 11:55	07/03/12 11:00
440-16298-4	TB-20120702	Water	07/02/12 00:01	07/03/12 11:00

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# Case Narrative

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

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**Job ID: 440-16298-1**

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**Laboratory: TestAmerica Irvine**

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**Narrative**

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**Job Narrative  
440-16298-1**

**Comments**

In order to meet the short hold time on the 5035 Prep, the soil analyses for VOCs and TPH - Gas was performed at the Pleasanton location. Due to capability limitation, TPH Gas is reported as C5-C12.

No additional comments.

**Receipt**

The samples were received on 7/3/2012 11:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

**GC/MS VOA**

No analytical or quality issues were noted.

**GC VOA**

No other analytical or quality issues were noted.

**GC Semi VOA**

Method(s) 8015B: Insufficient sample volume was available to perform batch matrix spike/matrix spike duplicate (MS/MSD) associated with batch 37246. The laboratory control sample (LCS) was performed in duplicate to provide precision data for this batch.

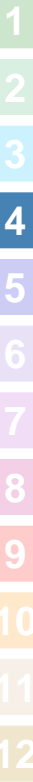
No other analytical or quality issues were noted.

**Organic Prep**

No analytical or quality issues were noted.

**VOA Prep**

No analytical or quality issues were noted.



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

**Client Sample ID: DP-5-S-7'**

**Lab Sample ID: 440-16298-1**

Date Collected: 07/02/12 09:40

Matrix: Solid

Date Received: 07/03/12 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
DIPE	ND		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
Ethanol	ND		7900		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
<b>Ethylbenzene</b>	<b>570</b>		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
Ethyl tert-butyl ether	ND		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
MTBE	ND		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
TAME	ND		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
TBA	ND		400		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
Toluene	ND		200		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
<b>Xylenes, Total</b>	<b>2600</b>		400		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
<b>C5-C12</b>	<b>91000</b>		9900		ug/Kg		07/06/12 19:55	07/09/12 11:50	100
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	111		66 - 148				07/06/12 19:55	07/09/12 11:50	100
1,2-Dichloroethane-d4 (Surr)	94		62 - 137				07/06/12 19:55	07/09/12 11:50	100
Toluene-d8 (Surr)	100		65 - 141				07/06/12 19:55	07/09/12 11:50	100

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 02:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
n-Octacosane	54		40 - 140				07/12/12 11:15	07/13/12 02:38	1

**Client Sample ID: DP-5-S-18'**

**Lab Sample ID: 440-16298-2**

Date Collected: 07/02/12 11:20

Matrix: Solid

Date Received: 07/03/12 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
DIPE	ND		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
Ethanol	ND		77000		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
<b>Ethylbenzene</b>	<b>6400</b>		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
Ethyl tert-butyl ether	ND		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
MTBE	ND		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
TAME	ND		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
TBA	ND		3900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
<b>Toluene</b>	<b>3400</b>		1900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
<b>Xylenes, Total</b>	<b>34000</b>		3900		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
<b>C5-C12</b>	<b>310000</b>		96000		ug/Kg		07/06/12 19:55	07/07/12 05:00	1000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	101		66 - 148				07/06/12 19:55	07/07/12 05:00	1000
1,2-Dichloroethane-d4 (Surr)	90		62 - 137				07/06/12 19:55	07/07/12 05:00	1000
Toluene-d8 (Surr)	97		65 - 141				07/06/12 19:55	07/07/12 05:00	1000

**Method: 8015B - Diesel Range Organics (DRO) (GC) - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	18		5.0		mg/Kg		07/12/12 11:15	07/13/12 03:09	1



# Client Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

**Client Sample ID: DP-5-S-18'**

**Lab Sample ID: 440-16298-2**

Date Collected: 07/02/12 11:20

Matrix: Solid

Date Received: 07/03/12 11:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	54		40 - 140	07/12/12 11:15	07/13/12 03:09	1

**Client Sample ID: DP-5-W-31'-35'**

**Lab Sample ID: 440-16298-3**

Date Collected: 07/02/12 11:55

Matrix: Water

Date Received: 07/03/12 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>17</b>		0.50		ug/L			07/11/12 03:54	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 03:54	1
Ethanol	ND		150		ug/L			07/11/12 03:54	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 03:54	1
<b>Ethylbenzene</b>	<b>2.1</b>		0.50		ug/L			07/11/12 03:54	1
<b>m,p-Xylene</b>	<b>1.3</b>		1.0		ug/L			07/11/12 03:54	1
<b>Methyl-t-Butyl Ether (MTBE)</b>	<b>1.9</b>		0.50		ug/L			07/11/12 03:54	1
<b>o-Xylene</b>	<b>1.2</b>		0.50		ug/L			07/11/12 03:54	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 03:54	1
<b>tert-Butyl alcohol (TBA)</b>	<b>49</b>		10		ug/L			07/11/12 03:54	1
<b>Toluene</b>	<b>0.51</b>		0.50		ug/L			07/11/12 03:54	1
<b>Xylenes, Total</b>	<b>2.5</b>		1.0		ug/L			07/11/12 03:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>4</i> -Bromofluorobenzene (Surr)	107		80 - 120		07/11/12 03:54	1
<i>Dibromofluoromethane</i> (Surr)	93		80 - 120		07/11/12 03:54	1
<i>Toluene-d8</i> (Surr)	104		80 - 120		07/11/12 03:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>GRO (C4-C12)</b>	<b>180</b>		50		ug/L			07/06/12 23:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>4</i> -Bromofluorobenzene (Surr)	101		65 - 140		07/06/12 23:22	1

**Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level - Silica Gel Cleanup**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>DRO (C13-C28)</b>	<b>0.079</b>		0.048		mg/L		07/06/12 11:16	07/09/12 11:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>n</i> -Octacosane	85		45 - 120	07/06/12 11:16	07/09/12 11:24	1

**Client Sample ID: TB-20120702**

**Lab Sample ID: 440-16298-4**

Date Collected: 07/02/12 00:01

Matrix: Water

Date Received: 07/03/12 11:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/11/12 04:22	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/11/12 04:22	1
Ethanol	ND		150		ug/L			07/11/12 04:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/11/12 04:22	1
Ethylbenzene	ND		0.50		ug/L			07/11/12 04:22	1
m,p-Xylene	ND		1.0		ug/L			07/11/12 04:22	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/11/12 04:22	1

# Client Sample Results

Client: ARCADIS U.S., Inc.  
 Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

**Client Sample ID: TB-20120702**

**Lab Sample ID: 440-16298-4**

**Date Collected: 07/02/12 00:01**

**Matrix: Water**

**Date Received: 07/03/12 11:00**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		0.50		ug/L			07/11/12 04:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/11/12 04:22	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/11/12 04:22	1
Toluene	ND		0.50		ug/L			07/11/12 04:22	1
Xylenes, Total	ND		1.0		ug/L			07/11/12 04:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		07/11/12 04:22	1
Dibromofluoromethane (Surr)	96		80 - 120		07/11/12 04:22	1
Toluene-d8 (Surr)	104		80 - 120		07/11/12 04:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/06/12 23:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		65 - 140		07/06/12 23:49	1

## Lab Chronicle

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

### Client Sample ID: DP-5-S-7'

Date Collected: 07/02/12 09:40

Date Received: 07/03/12 11:00

### Lab Sample ID: 440-16298-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.31 g	5 mL	116736	07/06/12 19:55	LL	TAL SF
Total/NA	Analysis	8260B		100			116794	07/09/12 11:50	AC	TAL SF
Silica Gel Cleanup	Prep	CA LUFT			30.06 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38490	07/13/12 02:38	ES	TAL IRV

### Client Sample ID: DP-5-S-18'

Date Collected: 07/02/12 11:20

Date Received: 07/03/12 11:00

### Lab Sample ID: 440-16298-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			6.48 g	5 mL	116736	07/06/12 19:55	LL	TAL SF
Total/NA	Analysis	8260B		1000			116731	07/07/12 05:00	AC	TAL SF
Silica Gel Cleanup	Prep	CA LUFT			30.05 g	1 mL	38308	07/12/12 11:15	TM	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			38490	07/13/12 03:09	ES	TAL IRV

### Client Sample ID: DP-5-W-31'-35'

Date Collected: 07/02/12 11:55

Date Received: 07/03/12 11:00

### Lab Sample ID: 440-16298-3

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	37839	07/11/12 03:54	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	37285	07/06/12 23:22	IM	TAL IRV
Silica Gel Cleanup	Prep	3510C SGC			1050 mL	1 mL	37246	07/06/12 11:16	KW	TAL IRV
Silica Gel Cleanup	Analysis	8015B		1			37507	07/09/12 11:24	ES	TAL IRV

### Client Sample ID: TB-20120702

Date Collected: 07/02/12 00:01

Date Received: 07/03/12 11:00

### Lab Sample ID: 440-16298-4

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		1	10 mL	10 mL	37839	07/11/12 04:22	RM	TAL IRV
Total/NA	Analysis	8015B		1	10 mL	10 mL	37285	07/06/12 23:49	IM	TAL IRV

#### Laboratory References:

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

TAL SF = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

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

**Lab Sample ID: MB 720-116736/1-A**

**Matrix: Solid**

**Analysis Batch: 116731**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 116736**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
DIPE	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
Ethanol	ND		10000		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
Ethylbenzene	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
Ethyl tert-butyl ether	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
MTBE	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
TAME	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
TBA	ND		500		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
Toluene	ND		250		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
Xylenes, Total	ND		500		ug/Kg		07/06/12 19:55	07/07/12 02:05	100
C5-C12	ND		13000		ug/Kg		07/06/12 19:55	07/07/12 02:05	100

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	96		66 - 148	07/06/12 19:55	07/07/12 02:05	100
1,2-Dichloroethane-d4 (Surr)	99		62 - 137	07/06/12 19:55	07/07/12 02:05	100
Toluene-d8 (Surr)	95		65 - 141	07/06/12 19:55	07/07/12 02:05	100

**Lab Sample ID: LCS 720-116736/2-A**

**Matrix: Solid**

**Analysis Batch: 116731**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 116736**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	2500	2310		ug/Kg		92	76 - 122
DIPE	2500	2420		ug/Kg		97	70 - 130
Ethanol	50000	48900		ug/Kg		98	70 - 130
Ethylbenzene	2500	2350		ug/Kg		94	76 - 137
Ethyl tert-butyl ether	2500	2620		ug/Kg		105	70 - 130
MTBE	2500	2700		ug/Kg		108	71 - 146
TAME	2500	2940		ug/Kg		118	70 - 130
TBA	50000	51700		ug/Kg		103	70 - 130
Toluene	2500	2320		ug/Kg		93	77 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	100		66 - 148
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
Toluene-d8 (Surr)	98		65 - 141

**Lab Sample ID: LCS 720-116736/4-A**

**Matrix: Solid**

**Analysis Batch: 116731**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 116736**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C5-C12	50000	45100		ug/Kg		90	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	97		66 - 148
1,2-Dichloroethane-d4 (Surr)	95		62 - 137
Toluene-d8 (Surr)	99		65 - 141

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

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

**Lab Sample ID: LCSD 720-116736/3-A**

**Matrix: Solid**

**Analysis Batch: 116731**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 116736**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	2500	2340		ug/Kg		94	76 - 122	1	20
DIPE	2500	2470		ug/Kg		99	70 - 130	2	20
Ethanol	50000	48700		ug/Kg		97	70 - 130	0	20
Ethylbenzene	2500	2310		ug/Kg		92	76 - 137	2	20
Ethyl tert-butyl ether	2500	2690		ug/Kg		108	70 - 130	3	20
MTBE	2500	2820		ug/Kg		113	71 - 146	4	20
TAME	2500	3000		ug/Kg		120	70 - 130	2	20
TBA	50000	43800		ug/Kg		88	70 - 130	16	20
Toluene	2500	2290		ug/Kg		92	77 - 120	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	99		66 - 148
1,2-Dichloroethane-d4 (Surr)	93		62 - 137
Toluene-d8 (Surr)	99		65 - 141

**Lab Sample ID: LCSD 720-116736/5-A**

**Matrix: Solid**

**Analysis Batch: 116731**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 116736**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C5-C12	50000	45300		ug/Kg		91	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	99		66 - 148
1,2-Dichloroethane-d4 (Surr)	95		62 - 137
Toluene-d8 (Surr)	98		65 - 141

**Lab Sample ID: MB 440-37839/4**

**Matrix: Water**

**Analysis Batch: 37839**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			07/10/12 19:24	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			07/10/12 19:24	1
Ethanol	ND		150		ug/L			07/10/12 19:24	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			07/10/12 19:24	1
Ethylbenzene	ND		0.50		ug/L			07/10/12 19:24	1
m,p-Xylene	ND		1.0		ug/L			07/10/12 19:24	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			07/10/12 19:24	1
o-Xylene	ND		0.50		ug/L			07/10/12 19:24	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			07/10/12 19:24	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			07/10/12 19:24	1
Toluene	ND		0.50		ug/L			07/10/12 19:24	1
Xylenes, Total	ND		1.0		ug/L			07/10/12 19:24	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120		07/10/12 19:24	1
Dibromofluoromethane (Surr)	93		80 - 120		07/10/12 19:24	1

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

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

Lab Sample ID: MB 440-37839/4

Matrix: Water

Analysis Batch: 37839

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	104		80 - 120		07/10/12 19:24	1

Lab Sample ID: LCS 440-37839/5

Matrix: Water

Analysis Batch: 37839

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	25.4		ug/L		101	70 - 120
Isopropyl Ether (DIPE)	25.0	24.2		ug/L		97	60 - 135
Ethanol	250	264		ug/L		106	40 - 155
Ethyl-t-butyl ether (ETBE)	25.0	22.5		ug/L		90	65 - 135
Ethylbenzene	25.0	28.7		ug/L		115	75 - 125
m,p-Xylene	50.0	58.1		ug/L		116	75 - 125
Methyl-t-Butyl Ether (MTBE)	25.0	21.9		ug/L		87	60 - 135
o-Xylene	25.0	28.6		ug/L		114	75 - 125
Tert-amyl-methyl ether (TAME)	25.0	22.2		ug/L		89	60 - 135
tert-Butyl alcohol (TBA)	125	153		ug/L		122	70 - 135
Toluene	25.0	27.3		ug/L		109	70 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	91		80 - 120
Toluene-d8 (Surr)	104		80 - 120

Lab Sample ID: 440-16622-A-1 MS

Matrix: Water

Analysis Batch: 37839

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec.
									Limits
Benzene	ND		25.0	25.7		ug/L		103	65 - 125
Isopropyl Ether (DIPE)	ND		25.0	24.3		ug/L		97	60 - 140
Ethanol	ND		250	267		ug/L		107	40 - 155
Ethyl-t-butyl ether (ETBE)	ND		25.0	22.8		ug/L		91	60 - 135
Ethylbenzene	ND		25.0	28.9		ug/L		116	65 - 130
m,p-Xylene	ND		50.0	59.2		ug/L		118	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	22.6		ug/L		90	55 - 145
o-Xylene	ND		25.0	28.7		ug/L		115	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	22.5		ug/L		90	60 - 140
tert-Butyl alcohol (TBA)	ND		125	156		ug/L		125	65 - 140
Toluene	ND		25.0	27.8		ug/L		111	70 - 125

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	90		80 - 120
Toluene-d8 (Surr)	105		80 - 120

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

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

Lab Sample ID: 440-16622-A-1 MSD

Matrix: Water

Analysis Batch: 37839

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	Limit
Benzene	ND		25.0	25.2		ug/L		101	65 - 125	2	20
Isopropyl Ether (DIPE)	ND		25.0	24.9		ug/L		99	60 - 140	2	25
Ethanol	ND		250	262		ug/L		105	40 - 155	2	30
Ethyl-t-butyl ether (ETBE)	ND		25.0	23.3		ug/L		93	60 - 135	2	25
Ethylbenzene	ND		25.0	28.8		ug/L		115	65 - 130	0	20
m,p-Xylene	ND		50.0	58.2		ug/L		116	65 - 130	2	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	23.3		ug/L		93	55 - 145	3	25
o-Xylene	ND		25.0	28.5		ug/L		114	65 - 125	0	20
Tert-amyl-methyl ether (TAME)	ND		25.0	23.1		ug/L		92	60 - 140	3	30
tert-Butyl alcohol (TBA)	ND		125	155		ug/L		124	65 - 140	1	25
Toluene	ND		25.0	27.0		ug/L		108	70 - 125	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	91		80 - 120
Toluene-d8 (Surr)	104		80 - 120

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

Lab Sample ID: MB 440-37285/3

Matrix: Water

Analysis Batch: 37285

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C4-C12)	ND		50		ug/L			07/06/12 19:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		65 - 140		07/06/12 19:15	1

Lab Sample ID: LCS 440-37285/2

Matrix: Water

Analysis Batch: 37285

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	763		ug/L		95	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	74		65 - 140

Lab Sample ID: 440-16435-A-1 MS

Matrix: Water

Analysis Batch: 37285

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	722		ug/L		90	65 - 140

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	114		65 - 140

# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

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

**Lab Sample ID: 440-16435-A-1 MSD**

**Matrix: Water**

**Analysis Batch: 37285**

**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	723		ug/L		90	65 - 140	0	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
4-Bromofluorobenzene (Surr)	115		65 - 140								

## Method: 8015B - Diesel Range Organics (DRO) (GC)

**Lab Sample ID: MB 440-38308/1-A**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Method Blank**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		5.0		mg/Kg		07/12/12 11:15	07/13/12 08:02	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>						
n-Octacosane	79		40 - 140						
							07/12/12 11:15	07/13/12 08:02	1

**Lab Sample ID: LCS 440-38308/2-A**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Lab Control Sample**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	33.3	20.2		mg/Kg		61	45 - 115
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
n-Octacosane	66		40 - 140				

**Lab Sample ID: 440-16029-H-3-C MS**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Matrix Spike**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	ND		33.3	23.6		mg/Kg		58	40 - 120
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
n-Octacosane	67		40 - 140						

**Lab Sample ID: 440-16029-H-3-D MSD**

**Matrix: Solid**

**Analysis Batch: 38492**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 38308**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
EFH (C10-C28)	ND		33.3	25.0		mg/Kg		62	40 - 120	6	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
n-Octacosane	78		40 - 140								



# QC Sample Results

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level

**Lab Sample ID: MB 440-37246/1-A**

**Matrix: Water**

**Analysis Batch: 37415**

**Client Sample ID: Method Blank**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 37246**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C13-C28)	ND		0.050		mg/L		07/06/12 11:16	07/07/12 15:42	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	75		45 - 120				07/06/12 11:16	07/07/12 15:42	1

**Lab Sample ID: LCS 440-37246/2-A**

**Matrix: Water**

**Analysis Batch: 37415**

**Client Sample ID: Lab Control Sample**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 37246**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
EFH (C10-C28)	1.00	0.721		mg/L		72	40 - 115
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
n-Octacosane	77		45 - 120				

**Lab Sample ID: LCSD 440-37246/3-A**

**Matrix: Water**

**Analysis Batch: 37415**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Silica Gel Cleanup**

**Prep Batch: 37246**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
EFH (C10-C28)	1.00	0.809		mg/L		81	40 - 115	11	25
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
n-Octacosane	80		45 - 120						

# QC Association Summary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

## GC/MS VOA

### Analysis Batch: 37839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-3	DP-5-W-31'-35'	Total/NA	Water	8260B	
440-16298-4	TB-20120702	Total/NA	Water	8260B	
440-16622-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
440-16622-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 440-37839/5	Lab Control Sample	Total/NA	Water	8260B	
MB 440-37839/4	Method Blank	Total/NA	Water	8260B	

### Analysis Batch: 116731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-2	DP-5-S-18'	Total/NA	Solid	8260B	116736
LCS 720-116736/2-A	Lab Control Sample	Total/NA	Solid	8260B	116736
LCS 720-116736/4-A	Lab Control Sample	Total/NA	Solid	8260B	116736
LCSD 720-116736/3-A	Lab Control Sample Dup	Total/NA	Solid	8260B	116736
LCSD 720-116736/5-A	Lab Control Sample Dup	Total/NA	Solid	8260B	116736
MB 720-116736/1-A	Method Blank	Total/NA	Solid	8260B	116736

### Prep Batch: 116736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-1	DP-5-S-7'	Total/NA	Solid	5035	
440-16298-2	DP-5-S-18'	Total/NA	Solid	5035	
LCS 720-116736/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCS 720-116736/4-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 720-116736/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
LCSD 720-116736/5-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 720-116736/1-A	Method Blank	Total/NA	Solid	5035	

### Analysis Batch: 116794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-1	DP-5-S-7'	Total/NA	Solid	8260B	116736

## GC VOA

### Analysis Batch: 37285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-3	DP-5-W-31'-35'	Total/NA	Water	8015B	
440-16298-4	TB-20120702	Total/NA	Water	8015B	
440-16435-A-1 MS	Matrix Spike	Total/NA	Water	8015B	
440-16435-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	
LCS 440-37285/2	Lab Control Sample	Total/NA	Water	8015B	
MB 440-37285/3	Method Blank	Total/NA	Water	8015B	

## GC Semi VOA

### Prep Batch: 37246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-3	DP-5-W-31'-35'	Silica Gel Cleanup	Water	3510C SGC	
LCS 440-37246/2-A	Lab Control Sample	Silica Gel Cleanup	Water	3510C SGC	
LCSD 440-37246/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Water	3510C SGC	
MB 440-37246/1-A	Method Blank	Silica Gel Cleanup	Water	3510C SGC	

# QC Association Summary

Client: ARCADIS U.S., Inc.  
 Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

## GC Semi VOA (Continued)

### Analysis Batch: 37415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-37246/2-A	Lab Control Sample	Silica Gel Cleanup	Water	8015B	37246
LCSD 440-37246/3-A	Lab Control Sample Dup	Silica Gel Cleanup	Water	8015B	37246
MB 440-37246/1-A	Method Blank	Silica Gel Cleanup	Water	8015B	37246

### Analysis Batch: 37507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-3	DP-5-W-31'-35'	Silica Gel Cleanup	Water	8015B	37246

### Prep Batch: 38308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-H-3-C MS	Matrix Spike	Silica Gel Cleanup	Solid	CA LUFT	
440-16029-H-3-D MSD	Matrix Spike Duplicate	Silica Gel Cleanup	Solid	CA LUFT	
440-16298-1	DP-5-S-7'	Silica Gel Cleanup	Solid	CA LUFT	
440-16298-2	DP-5-S-18'	Silica Gel Cleanup	Solid	CA LUFT	
LCS 440-38308/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	CA LUFT	
MB 440-38308/1-A	Method Blank	Silica Gel Cleanup	Solid	CA LUFT	

### Analysis Batch: 38490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16298-1	DP-5-S-7'	Silica Gel Cleanup	Solid	8015B	38308
440-16298-2	DP-5-S-18'	Silica Gel Cleanup	Solid	8015B	38308

### Analysis Batch: 38492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-16029-H-3-C MS	Matrix Spike	Silica Gel Cleanup	Solid	8015B	38308
440-16029-H-3-D MSD	Matrix Spike Duplicate	Silica Gel Cleanup	Solid	8015B	38308
LCS 440-38308/2-A	Lab Control Sample	Silica Gel Cleanup	Solid	8015B	38308
MB 440-38308/1-A	Method Blank	Silica Gel Cleanup	Solid	8015B	38308



## Definitions/Glossary

Client: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

### 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
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
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: ARCADIS U.S., Inc.  
Project/Site: Chevron - 21-1283

TestAmerica Job ID: 440-16298-1

### 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
Arizona	State Program	9	AZ0671	10-13-12
California	LA Cty Sanitation Districts	9	10256	01-31-13
California	NELAC	9	1108CA	01-31-13
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-13
Hawaii	State Program	9	N/A	01-31-13
Nevada	State Program	9	CA015312007A	07-31-12
New Mexico	State Program	6	N/A	01-31-12
Northern Mariana Islands	State Program	9	MP0002	01-31-13
Oregon	NELAC	10	4005	09-12-12
USDA	Federal		P330-09-00080	06-06-14

### Laboratory: TestAmerica Pleasanton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-14



## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-16298-1

**Login Number: 16298**

**List Number: 1**

**Creator: Robb, Kathleen**

**List Source: TestAmerica Irvine**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	N/A	
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	LK/TB
There are no discrepancies between the sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-16298-1

**Login Number: 16298**

**List Number: 1**

**Creator: Mullen, Joan**

**List Source: TestAmerica Pleasanton**

**List Creation: 07/05/12 01:41 PM**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
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 sample IDs on the containers 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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	





## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 440-16298-1

**Login Number: 16298**

**List Number: 2**

**Creator: Mullen, Joan**

**List Source: TestAmerica Pleasanton**

**List Creation: 07/10/12 01:29 PM**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
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 sample IDs on the containers 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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	



7/26/2012

Mr. Timothy Bellis  
Arcadis U.S., Inc.  
111 SW Columbia Street  
Suite 670  
Portland OR 97201

Project Name: CVX MT 211283  
Project #: B0060901.1283.00002  
Workorder #: 1207234A

Dear Mr. Timothy Bellis

The following report includes the data for the above referenced project for sample(s) received on 7/13/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner  
Project Manager

**WORK ORDER #: 1207234A**

Work Order Summary

<b>CLIENT:</b>	Mr. Timothy Bellis Arcadis U.S., Inc. 111 SW Columbia Street Suite 670 Portland, OR 97201	<b>BILL TO:</b>	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
<b>PHONE:</b>	503 220 8201 x 1104	<b>P.O. #</b>	B0060901.1283.00002
<b>FAX:</b>		<b>PROJECT #</b>	B0060901.1283.00002 CVX MT 211283
<b>DATE RECEIVED:</b>	07/13/2012	<b>CONTACT:</b>	Kelly Buettner
<b>DATE COMPLETED:</b>	07/25/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-3S	Modified TO-15	7.5 "Hg	5 psi
02A	SV-3D	Modified TO-15	7.5 "Hg	5 psi
03A	SV-1S	Modified TO-15	6.0 "Hg	5 psi
04A	SV-2S	Modified TO-15	6.6 "Hg	5 psi
05A	BD-1	Modified TO-15	6.8 "Hg	5 psi
06A	EB-1	Modified TO-15	6.2 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:   
 Technical Director

DATE: 07/25/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,  
 NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
 Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards  
 This report shall not be reproduced, except in full, without the written approval of Eurofins | Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**Arcadis U.S., Inc.**  
**Workorder# 1207234A**

Six 1 Liter Summa Canister samples were received on July 13, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Dilution was performed on sample SV-2S due to the presence of high level non-target species.

The equipment blank sample EB-1 has reportable levels of target compounds present.

**Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

## Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: SV-3S**

**Lab ID#: 1207234A-01A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.90	14	2.8	44
Toluene	0.90	4.4	3.4	16
Ethyl Benzene	0.90	1.3	3.9	5.6
m,p-Xylene	0.90	4.4	3.9	19
o-Xylene	0.90	1.6	3.9	6.8
TPH ref. to Gasoline (MW=100)	45	760	180	3100

**Client Sample ID: SV-3D**

**Lab ID#: 1207234A-02A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.90	7.7	2.8	25
Toluene	0.90	9.2	3.4	34
Ethyl Benzene	0.90	2.0	3.9	8.8
m,p-Xylene	0.90	6.0	3.9	26
o-Xylene	0.90	2.2	3.9	9.4
TPH ref. to Gasoline (MW=100)	45	780	180	3200

**Client Sample ID: SV-1S**

**Lab ID#: 1207234A-03A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.84	2.6	2.7	8.2
Toluene	0.84	1.6	3.2	6.2
m,p-Xylene	0.84	2.3	3.6	9.9
o-Xylene	0.84	1.1	3.6	4.8
TPH ref. to Gasoline (MW=100)	42	310	170	1300

**Client Sample ID: SV-2S**

**Lab ID#: 1207234A-04A**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
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## Summary of Detected Compounds EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: SV-2S**

**Lab ID#: 1207234A-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	1.3	8.2	4.3	26
Toluene	1.3	8.8	5.0	33
m,p-Xylene	1.3	3.1	5.8	13
TPH ref. to Gasoline (MW=100)	67	1400	270	5800

**Client Sample ID: BD-1**

**Lab ID#: 1207234A-05A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.86	20	2.8	65
Toluene	0.86	3.9	3.2	15
Ethyl Benzene	0.86	1.3	3.8	5.6
m,p-Xylene	0.86	4.2	3.8	18
o-Xylene	0.86	1.6	3.8	7.0
TPH ref. to Gasoline (MW=100)	43	560	180	2300

**Client Sample ID: EB-1**

**Lab ID#: 1207234A-06A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.84	13	2.7	42
TPH ref. to Gasoline (MW=100)	42	180	170	730



Air Toxics

Client Sample ID: SV-3S

Lab ID#: 1207234A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071620	Date of Collection:	7/2/12 5:57:00 PM
Dil. Factor:	1.79	Date of Analysis:	7/17/12 02:11 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.90	Not Detected	3.2	Not Detected
tert-Amyl methyl ether	3.6	Not Detected	15	Not Detected
tert-Butyl alcohol	9.0	Not Detected	27	Not Detected
Isopropyl ether	3.6	Not Detected	15	Not Detected
Ethyl-tert-butyl ether	3.6	Not Detected	15	Not Detected
Benzene	0.90	14	2.8	44
Toluene	0.90	4.4	3.4	16
Ethyl Benzene	0.90	1.3	3.9	5.6
m,p-Xylene	0.90	4.4	3.9	19
o-Xylene	0.90	1.6	3.9	6.8
1,2-Dichloroethane	0.90	Not Detected	3.6	Not Detected
Naphthalene	3.6	Not Detected	19	Not Detected
TPH ref. to Gasoline (MW=100)	45	760	180	3100
1,2-Dibromoethane (EDB)	0.90	Not Detected	6.9	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	89	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: SV-3D

Lab ID#: 1207234A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071621	Date of Collection:	7/2/12 6:19:00 PM
Dil. Factor:	1.79	Date of Analysis:	7/17/12 02:49 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.90	Not Detected	3.2	Not Detected
tert-Amyl methyl ether	3.6	Not Detected	15	Not Detected
tert-Butyl alcohol	9.0	Not Detected	27	Not Detected
Isopropyl ether	3.6	Not Detected	15	Not Detected
Ethyl-tert-butyl ether	3.6	Not Detected	15	Not Detected
Benzene	0.90	7.7	2.8	25
Toluene	0.90	9.2	3.4	34
Ethyl Benzene	0.90	2.0	3.9	8.8
m,p-Xylene	0.90	6.0	3.9	26
o-Xylene	0.90	2.2	3.9	9.4
1,2-Dichloroethane	0.90	Not Detected	3.6	Not Detected
Naphthalene	3.6	Not Detected	19	Not Detected
TPH ref. to Gasoline (MW=100)	45	780	180	3200
1,2-Dibromoethane (EDB)	0.90	Not Detected	6.9	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	88	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	104	70-130





Air Toxics

Client Sample ID: SV-1S

Lab ID#: 1207234A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071622	Date of Collection:	7/2/12 7:02:00 PM
Dil. Factor:	1.68	Date of Analysis:	7/17/12 03:25 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.84	Not Detected	3.0	Not Detected
tert-Amyl methyl ether	3.4	Not Detected	14	Not Detected
tert-Butyl alcohol	8.4	Not Detected	25	Not Detected
Isopropyl ether	3.4	Not Detected	14	Not Detected
Ethyl-tert-butyl ether	3.4	Not Detected	14	Not Detected
Benzene	0.84	2.6	2.7	8.2
Toluene	0.84	1.6	3.2	6.2
Ethyl Benzene	0.84	Not Detected	3.6	Not Detected
m,p-Xylene	0.84	2.3	3.6	9.9
o-Xylene	0.84	1.1	3.6	4.8
1,2-Dichloroethane	0.84	Not Detected	3.4	Not Detected
Naphthalene	3.4	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	42	310	170	1300
1,2-Dibromoethane (EDB)	0.84	Not Detected	6.4	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	87	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: SV-2S

Lab ID#: 1207234A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071623	Date of Collection:	7/2/12 8:12:00 PM
Dil. Factor:	2.68	Date of Analysis:	7/17/12 04:02 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.3	Not Detected	4.8	Not Detected
tert-Amyl methyl ether	5.4	Not Detected	22	Not Detected
tert-Butyl alcohol	13	Not Detected	41	Not Detected
Isopropyl ether	5.4	Not Detected	22	Not Detected
Ethyl-tert-butyl ether	5.4	Not Detected	22	Not Detected
Benzene	1.3	8.2	4.3	26
Toluene	1.3	8.8	5.0	33
Ethyl Benzene	1.3	Not Detected	5.8	Not Detected
m,p-Xylene	1.3	3.1	5.8	13
o-Xylene	1.3	Not Detected	5.8	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.4	Not Detected
Naphthalene	5.4	Not Detected	28	Not Detected
TPH ref. to Gasoline (MW=100)	67	1400	270	5800
1,2-Dibromoethane (EDB)	1.3	Not Detected	10	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	85	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	102	70-130



Client Sample ID: BD-1

Lab ID#: 1207234A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071624	Date of Collection:	7/2/12
Dil. Factor:	1.73	Date of Analysis:	7/17/12 04:39 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.86	Not Detected	3.1	Not Detected
tert-Amyl methyl ether	3.5	Not Detected	14	Not Detected
tert-Butyl alcohol	8.6	Not Detected	26	Not Detected
Isopropyl ether	3.5	Not Detected	14	Not Detected
Ethyl-tert-butyl ether	3.5	Not Detected	14	Not Detected
Benzene	0.86	20	2.8	65
Toluene	0.86	3.9	3.2	15
Ethyl Benzene	0.86	1.3	3.8	5.6
m,p-Xylene	0.86	4.2	3.8	18
o-Xylene	0.86	1.6	3.8	7.0
1,2-Dichloroethane	0.86	Not Detected	3.5	Not Detected
Naphthalene	3.5	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	43	560	180	2300
1,2-Dibromoethane (EDB)	0.86	Not Detected	6.6	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	86	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	110	70-130



Client Sample ID: EB-1

Lab ID#: 1207234A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071625	Date of Collection:	7/2/12 6:14:00 PM
Dil. Factor:	1.69	Date of Analysis:	7/17/12 05:16 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.84	Not Detected	3.0	Not Detected
tert-Amyl methyl ether	3.4	Not Detected	14	Not Detected
tert-Butyl alcohol	8.4	Not Detected	26	Not Detected
Isopropyl ether	3.4	Not Detected	14	Not Detected
Ethyl-tert-butyl ether	3.4	Not Detected	14	Not Detected
Benzene	0.84	13	2.7	42
Toluene	0.84	Not Detected	3.2	Not Detected
Ethyl Benzene	0.84	Not Detected	3.7	Not Detected
m,p-Xylene	0.84	Not Detected	3.7	Not Detected
o-Xylene	0.84	Not Detected	3.7	Not Detected
1,2-Dichloroethane	0.84	Not Detected	3.4	Not Detected
Naphthalene	3.4	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	42	180	170	730
1,2-Dibromoethane (EDB)	0.84	Not Detected	6.5	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	88	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: Lab Blank

Lab ID#: 1207234A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071607	Date of Collection: NA
Dil. Factor:	2.00	Date of Analysis: 7/16/12 01:58 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	1.0	Not Detected	3.6	Not Detected
tert-Amyl methyl ether	4.0	Not Detected	17	Not Detected
tert-Butyl alcohol	10	Not Detected	30	Not Detected
Isopropyl ether	4.0	Not Detected	17	Not Detected
Ethyl-tert-butyl ether	4.0	Not Detected	17	Not Detected
Benzene	1.0	Not Detected	3.2	Not Detected
Toluene	1.0	Not Detected	3.8	Not Detected
Ethyl Benzene	1.0	Not Detected	4.3	Not Detected
m,p-Xylene	1.0	Not Detected	4.3	Not Detected
o-Xylene	1.0	Not Detected	4.3	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.0	Not Detected
Naphthalene	4.0	Not Detected	21	Not Detected
TPH ref. to Gasoline (MW=100)	50	Not Detected	200	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.7	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	88	70-130
1,2-Dichloroethane-d4	83	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1207234A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 7/16/12 10:54 AM

Compound	%Recovery
Methyl tert-butyl ether	109
tert-Amyl methyl ether	103
tert-Butyl alcohol	126
Isopropyl ether	103
Ethyl-tert-butyl ether	105
Benzene	101
Toluene	104
Ethyl Benzene	118
m,p-Xylene	119
o-Xylene	122
1,2-Dichloroethane	95
Naphthalene	97
TPH ref. to Gasoline (MW=100)	100
1,2-Dibromoethane (EDB)	120

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	86	70-130
1,2-Dichloroethane-d4	80	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1207234A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071603	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 7/16/12 11:31 AM

Compound	%Recovery
Methyl tert-butyl ether	103
tert-Amyl methyl ether	Not Spiked
tert-Butyl alcohol	Not Spiked
Isopropyl ether	Not Spiked
Ethyl-tert-butyl ether	Not Spiked
Benzene	95
Toluene	97
Ethyl Benzene	110
m,p-Xylene	110
o-Xylene	110
1,2-Dichloroethane	87
Naphthalene	80
TPH ref. to Gasoline (MW=100)	Not Spiked
1,2-Dibromoethane (EDB)	111

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	87	70-130
1,2-Dichloroethane-d4	77	70-130
4-Bromofluorobenzene	96	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1207234A-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	o071604	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 7/16/12 12:07 PM

Compound	%Recovery
Methyl tert-butyl ether	103
tert-Amyl methyl ether	Not Spiked
tert-Butyl alcohol	Not Spiked
Isopropyl ether	Not Spiked
Ethyl-tert-butyl ether	Not Spiked
Benzene	97
Toluene	101
Ethyl Benzene	111
m,p-Xylene	112
o-Xylene	112
1,2-Dichloroethane	89
Naphthalene	71
TPH ref. to Gasoline (MW=100)	Not Spiked
1,2-Dibromoethane (EDB)	115

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	92	70-130
1,2-Dichloroethane-d4	84	70-130
4-Bromofluorobenzene	95	70-130



7/26/2012

Mr. Timothy Bellis  
Arcadis U.S., Inc.  
111 SW Columbia Street  
Suite 670  
Portland OR 97201

Project Name: CVX MT 211283  
Project #: B0060901.1283.00002  
Workorder #: 1207234B

Dear Mr. Timothy Bellis

The following report includes the data for the above referenced project for sample(s) received on 7/13/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner  
Project Manager

**WORK ORDER #: 1207234B**

Work Order Summary

<b>CLIENT:</b>	Mr. Timothy Bellis Arcadis U.S., Inc. 111 SW Columbia Street Suite 670 Portland, OR 97201	<b>BILL TO:</b>	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
<b>PHONE:</b>	503 220 8201 x 1104	<b>P.O. #</b>	B0060901.1283.00002
<b>FAX:</b>		<b>PROJECT #</b>	B0060901.1283.00002 CVX MT 211283
<b>DATE RECEIVED:</b>	07/13/2012	<b>CONTACT:</b>	Kelly Buettner
<b>DATE COMPLETED:</b>	07/26/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SV-3S	Modified ASTM D-1946	7.5 "Hg	5 psi
02A	SV-3D	Modified ASTM D-1946	7.5 "Hg	5 psi
03A	SV-1S	Modified ASTM D-1946	6.0 "Hg	5 psi
04A	SV-2S	Modified ASTM D-1946	6.6 "Hg	5 psi
05A	BD-1	Modified ASTM D-1946	6.8 "Hg	5 psi
06A	EB-1	Modified ASTM D-1946	6.2 "Hg	5 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
07B	Lab Blank	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 Technical Director

DATE: 07/26/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,  
 NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
 Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards  
 This report shall not be reproduced, except in full, without the written approval of Eurofins | Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**Arcadis U.S., Inc.**  
**Workorder# 1207234B**

Six 1 Liter Summa Canister samples were received on July 13, 2012. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections $> 5 X$ 's the RL.

**Receiving Notes**

There were no receiving discrepancies.

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### **Analytical Notes**

There were no analytical discrepancies.

### **Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds**  
**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: SV-3S**

**Lab ID#: 1207234B-01A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.18	17
Carbon Dioxide	0.018	0.68

**Client Sample ID: SV-3D**

**Lab ID#: 1207234B-02A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.18	12
Methane	0.00018	0.00021
Carbon Dioxide	0.018	1.5

**Client Sample ID: SV-1S**

**Lab ID#: 1207234B-03A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.17	16
Carbon Dioxide	0.017	2.8

**Client Sample ID: SV-2S**

**Lab ID#: 1207234B-04A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.17	17
Methane	0.00017	0.00045
Carbon Dioxide	0.017	0.49

**Client Sample ID: BD-1**

**Lab ID#: 1207234B-05A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.17	18
Carbon Dioxide	0.017	0.69

**Summary of Detected Compounds**  
**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

**Client Sample ID: EB-1**

**Lab ID#: 1207234B-06A**

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.17	0.65



Air Toxics

Client Sample ID: SV-3S

Lab ID#: 1207234B-01A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071606	Date of Collection:	7/2/12 5:57:00 PM
Dil. Factor:	1.79	Date of Analysis:	7/16/12 10:20 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.18	17
Methane	0.00018	Not Detected
Carbon Dioxide	0.018	0.68
Helium	0.090	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: SV-3D

Lab ID#: 1207234B-02A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071607	Date of Collection:	7/2/12 6:19:00 PM
Dil. Factor:	1.79	Date of Analysis:	7/16/12 10:46 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.18	12
Methane	0.00018	0.00021
Carbon Dioxide	0.018	1.5
Helium	0.090	Not Detected

Container Type: 1 Liter Summa Canister





Air Toxics

Client Sample ID: SV-1S

Lab ID#: 1207234B-03A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071608	Date of Collection:	7/2/12 7:02:00 PM
Dil. Factor:	1.68	Date of Analysis:	7/16/12 11:14 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.17	16
Methane	0.00017	Not Detected
Carbon Dioxide	0.017	2.8
Helium	0.084	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: SV-2S

Lab ID#: 1207234B-04A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071609	Date of Collection:	7/2/12 8:12:00 PM
Dil. Factor:	1.72	Date of Analysis:	7/16/12 11:38 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Oxygen	0.17	17
Methane	0.00017	0.00045
Carbon Dioxide	0.017	0.49
Helium	0.086	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: BD-1

Lab ID#: 1207234B-05A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071610	Date of Collection:	7/2/12
Dil. Factor:	1.73	Date of Analysis:	7/16/12 12:05 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	18
Methane	0.00017	Not Detected
Carbon Dioxide	0.017	0.69
Helium	0.086	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: EB-1

Lab ID#: 1207234B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9071611	Date of Collection:	7/2/12 6:14:00 PM
Dil. Factor:	1.69	Date of Analysis:	7/16/12 12:28 PM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.17	0.65
Methane	0.00017	Not Detected
Carbon Dioxide	0.017	Not Detected
Helium	0.084	Not Detected

Container Type: 1 Liter Summa Canister



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1207234B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	9071605	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	7/16/12 09:54 AM

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1207234B-07B

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071604b	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	7/16/12 09:32 AM

<b>Compound</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Helium	0.050	Not Detected

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCS

Lab ID#: 1207234B-08A

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 7/16/12 08:43 AM

<b>Compound</b>	<b>%Recovery</b>
Oxygen	100
Methane	98
Carbon Dioxide	102
Helium	100

Container Type: NA - Not Applicable



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1207234B-08AA

**NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946**

File Name:	9071628	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 7/16/12 09:35 PM

<b>Compound</b>	<b>%Recovery</b>
Oxygen	99
Methane	99
Carbon Dioxide	102
Helium	99

**Container Type: NA - Not Applicable**





**CHAIN-OF-CUSTODY RECORD**

**Sample Transportation Notice**

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

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FOLSOM, CA 95630-4719  
(916) 985-1000 FAX (916) 985-1020

Page 1 of 1

Project Manager Toni Demayo  
 Collected by: (Print and Sign) T. Bellis / L. Kwang  
 Company ARCADIS U.S., Inc. Email Toni.Demayo@arcadis-us.com  
 Address 320 Commerce St 200 City Irvine State CA Zip 92602  
 Phone 714.508.2657 Fax 714.730.9345

<b>Project Info:</b> P.O. # _____ Project # <u>B0060901.1283.00002</u> Project Name <u>AVX UT 211283</u>	<b>Turn Around Time:</b> <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush <small>specify</small>	<small>Lab Use Only</small> Pressurized by: _____ Date: _____ Pressurization Gas: N <sub>2</sub> He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested*	Canister Pressure/Vacuum			
						Initial	Final	Receipt	Final (psi)
01A	SV-3S	35601	7/2/12	1757	TO-15 and ASTMD-1946	-28.5	-6.5		
02A	SV-3D	31793	7/2/12	1819	TO-15 and ASTMD-1946	-28.0	-6.5		
03A	SV-1S	12389	7/2/12	1902	TO-15 and ASTM D-1946	-28.5	-5.5		
04A	SV-2S	31774	7/2/12	2010	TO-15 and ASTMD-1946	-29.0	-6.5		
05A	BP-1	30536	7/2/12	—	TO-15 and ASTMD-1946	-28.5	-6.5		
06A	EB-1	37428	7/2/12	1814	TO-15 and ASTMD-1946	-29.5	-6.5		

Relinquished by: (signature) <u>[Signature]</u> Date/Time <u>7/12/12 1530</u>	Received by: (signature) <u>[Signature]</u> Date/Time <u>7.13.12 1900</u>	<b>Notes:</b> TO-15: TPA, BRO, BTEX, MTBE, TBA, DPE, ETBE, TAME, 1,2-DCA, EDB and naphthalene ASTMD-1946: Fitted gases including oxygen, carbon dioxide, methane and helium
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	
Relinquished by: (signature) _____ Date/Time _____	Received by: (signature) _____ Date/Time _____	

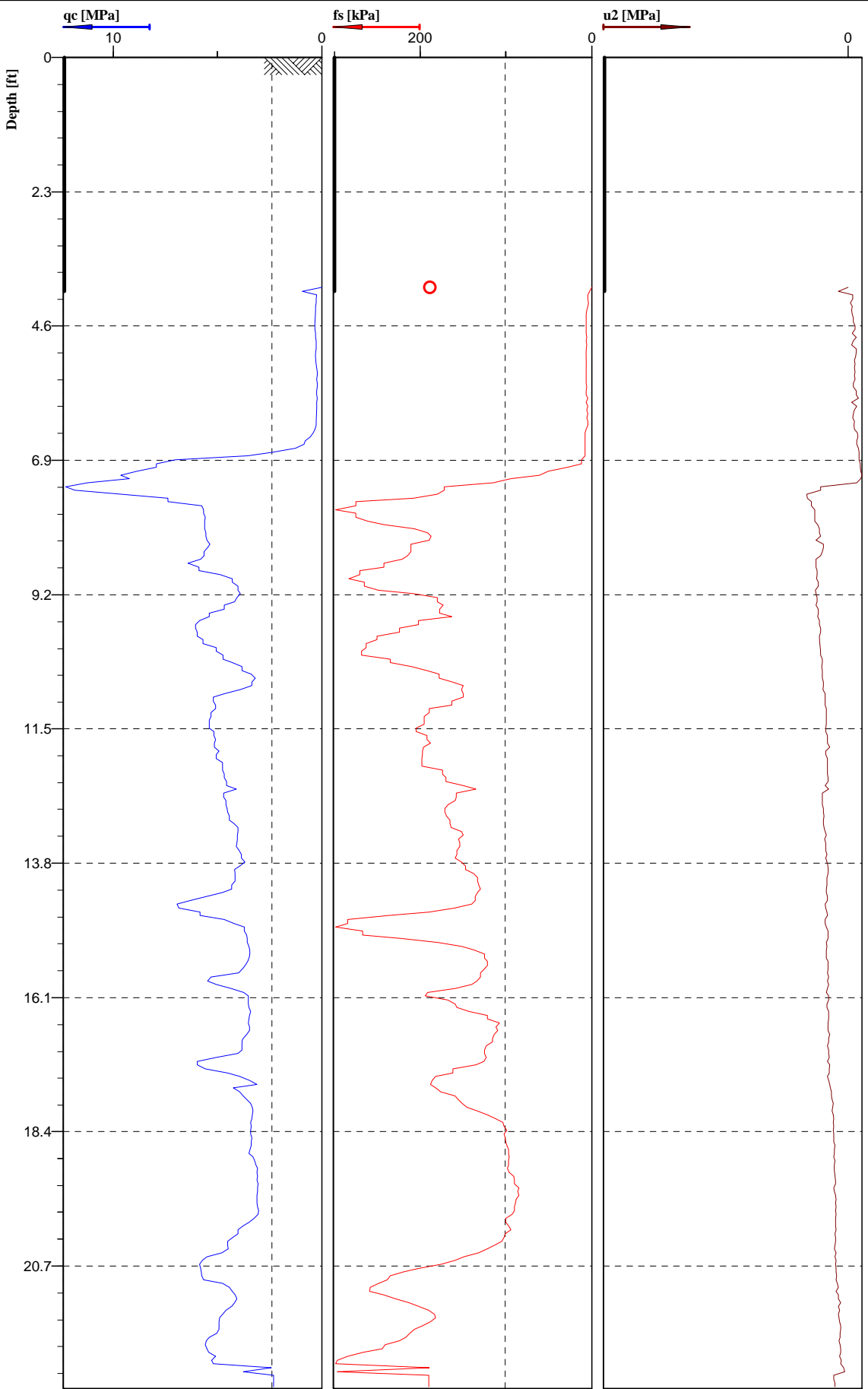
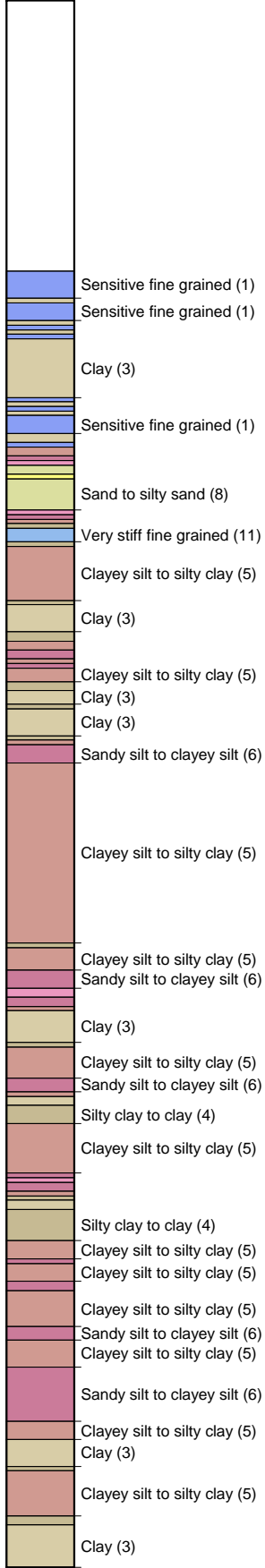
Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	<u>Tuiter</u>		<u>NA</u>	<u>Good</u>	Yes No <u>None</u>	<u>1207234</u>



**Attachment C**

Cone Penetrometer Test Logs

**Classification by  
Robertson 1986**

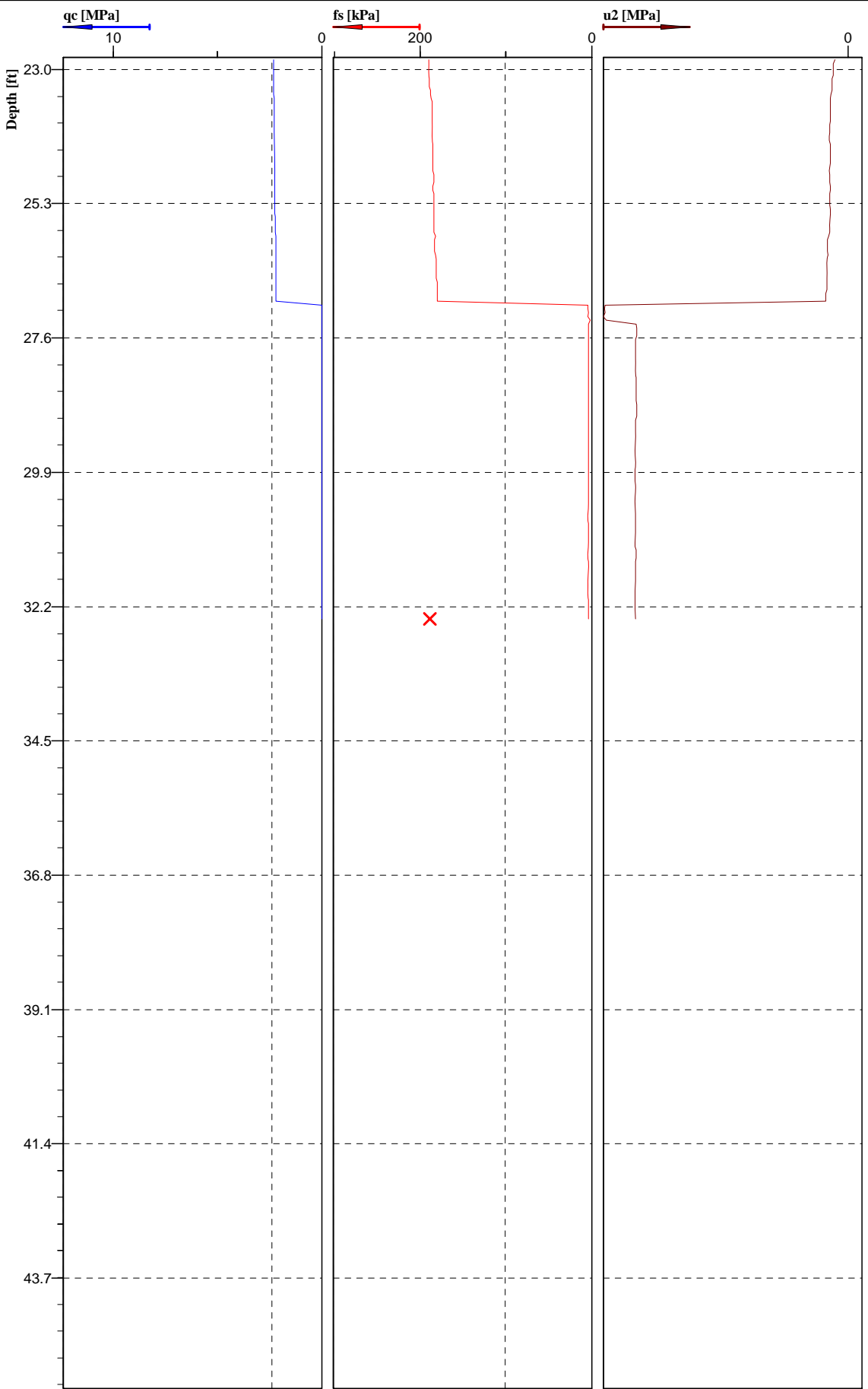
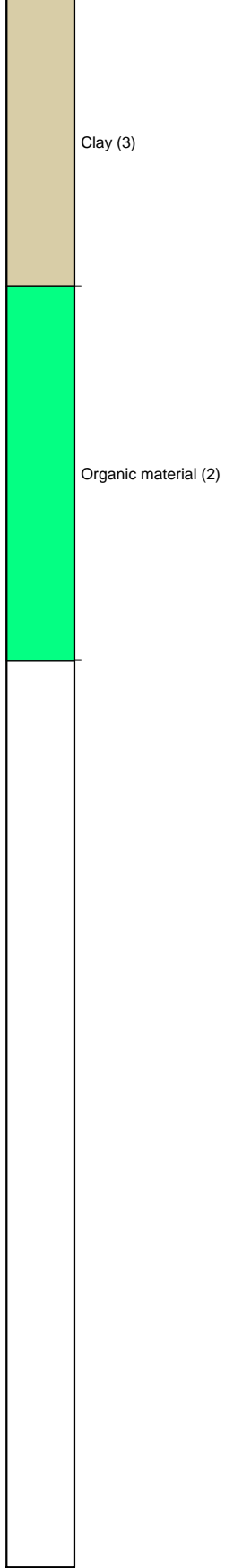


Cone No: 4312  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

Location: <b>CPT-1</b>	Position: ,	Ground level: <b>0.00</b>	Test no: <b>CPT-1</b>
Project ID: <b>CVX 21-1283</b>	Client: <b>ARCADIS</b>	Date: <b>6/26/2012</b>	Scale: <b>1 : 30</b>
Project: <b>Former Texaco Service Station 21-1283</b>		Page: <b>1/2</b>	Fig: 
<b>3810 Broadway, Oakland, CA</b>		File: <b>CPT-1.cpd</b>	



Classification by  
Robertson 1986



X

X

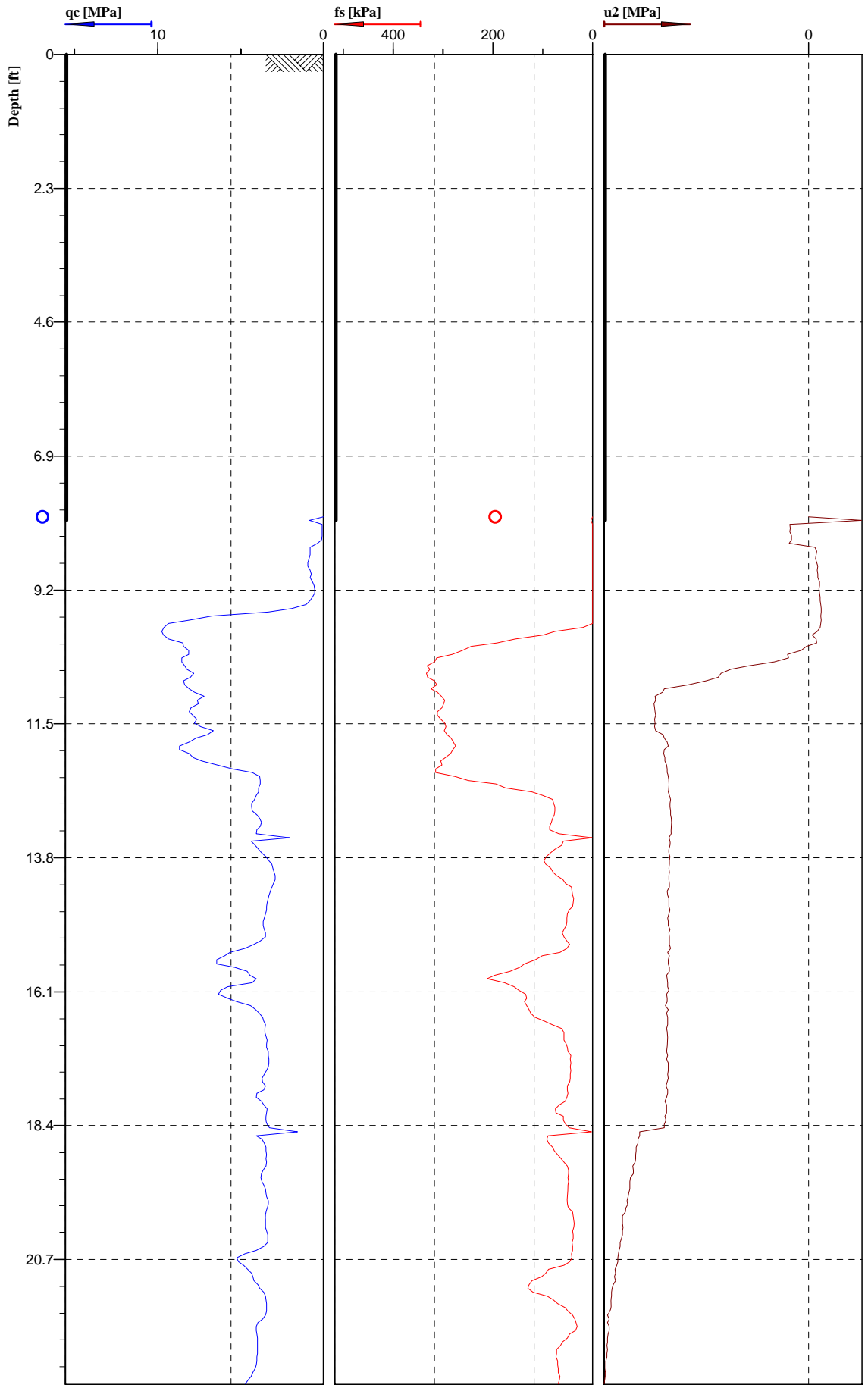
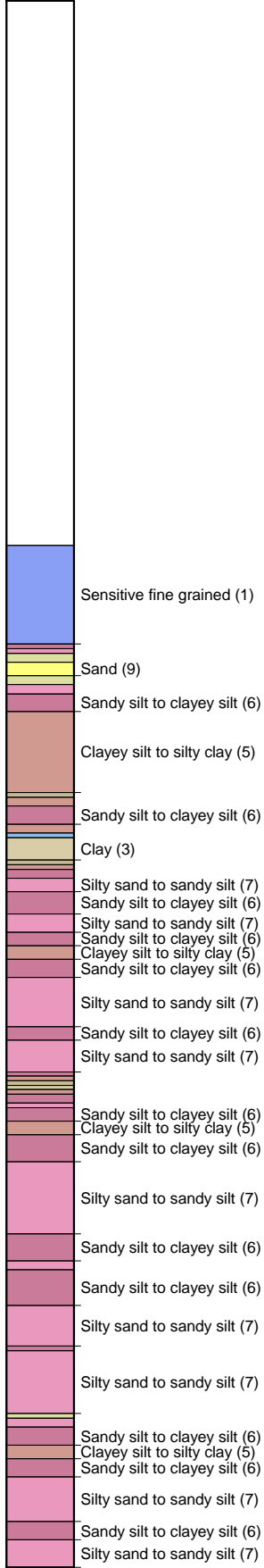


Cone No: 4312  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150



Location:	CPT-1	Position:	,	Ground level:	0.00	Test no:	CPT-1
Project ID:	CVX 21-1283	Client:	ARCADIS	Date:	6/26/2012	Scale:	1 : 30
Project:	Former Texaco Service Station 21-1283			Page:	2/2	Fig:	
	3810 Broadway, Oakland, CA			File:	CPT-1.cpd		

Classification by  
Robertson 1986

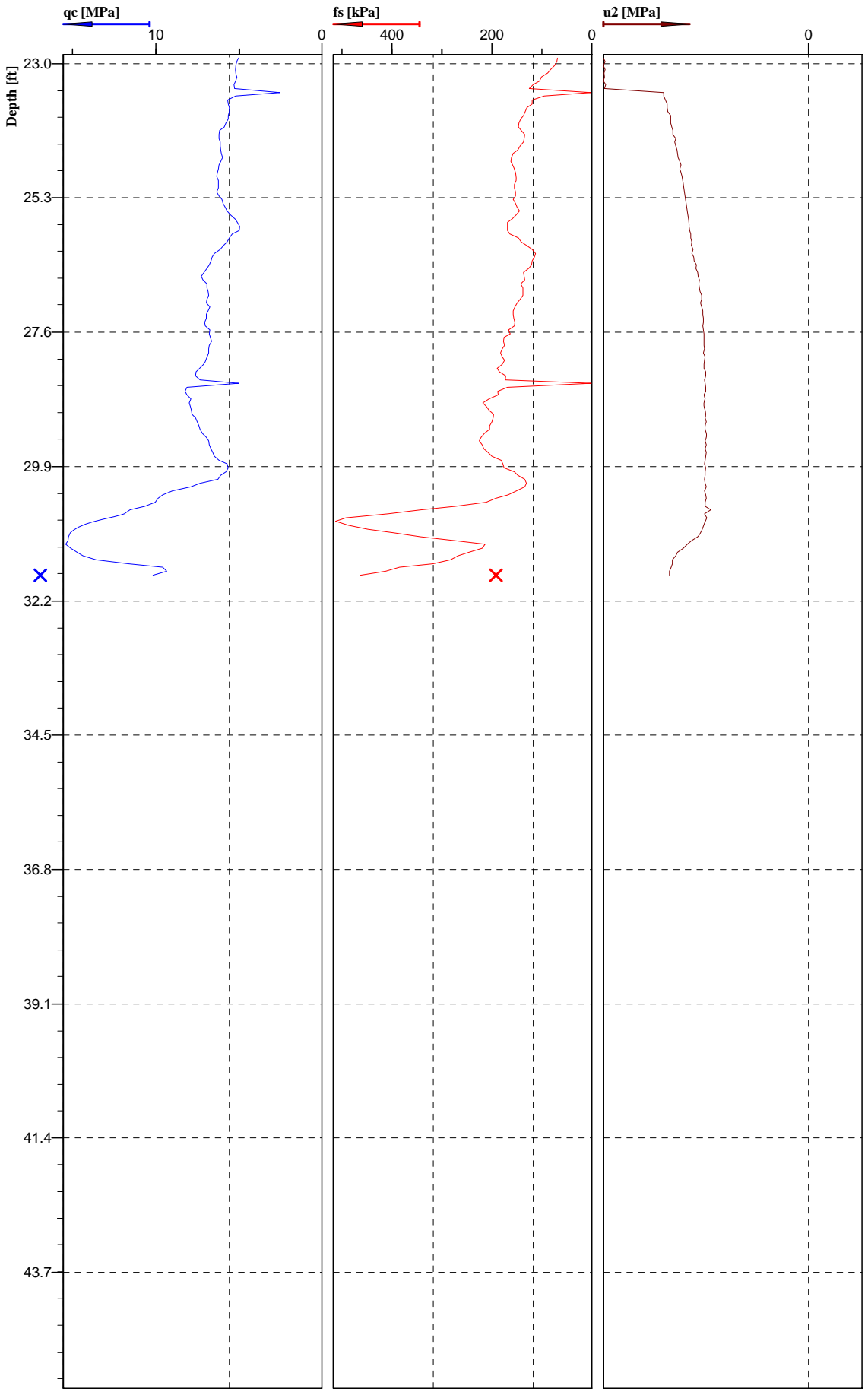
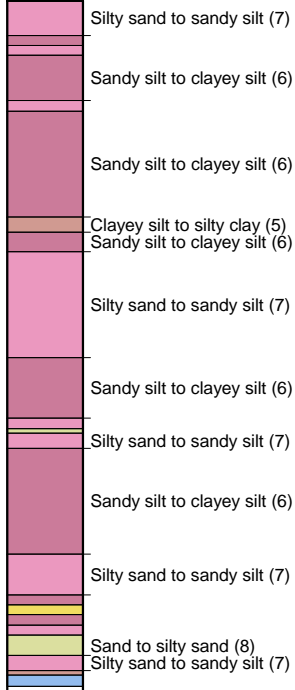


Cone No: 4312  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150



Location:	CPT-3	Position:	,	Ground level:	0.00	Test no:	CPT-3
Project ID:	CVX 21-1283	Client:	ARCADIS	Date:	6/27/2012	Scale:	1 : 30
Project:	Former Texaco Service Station 21-1283			Page:	1/2	Fig:	
	3810 Broadway, Oakland, CA			File:	CPT-3.cpd		

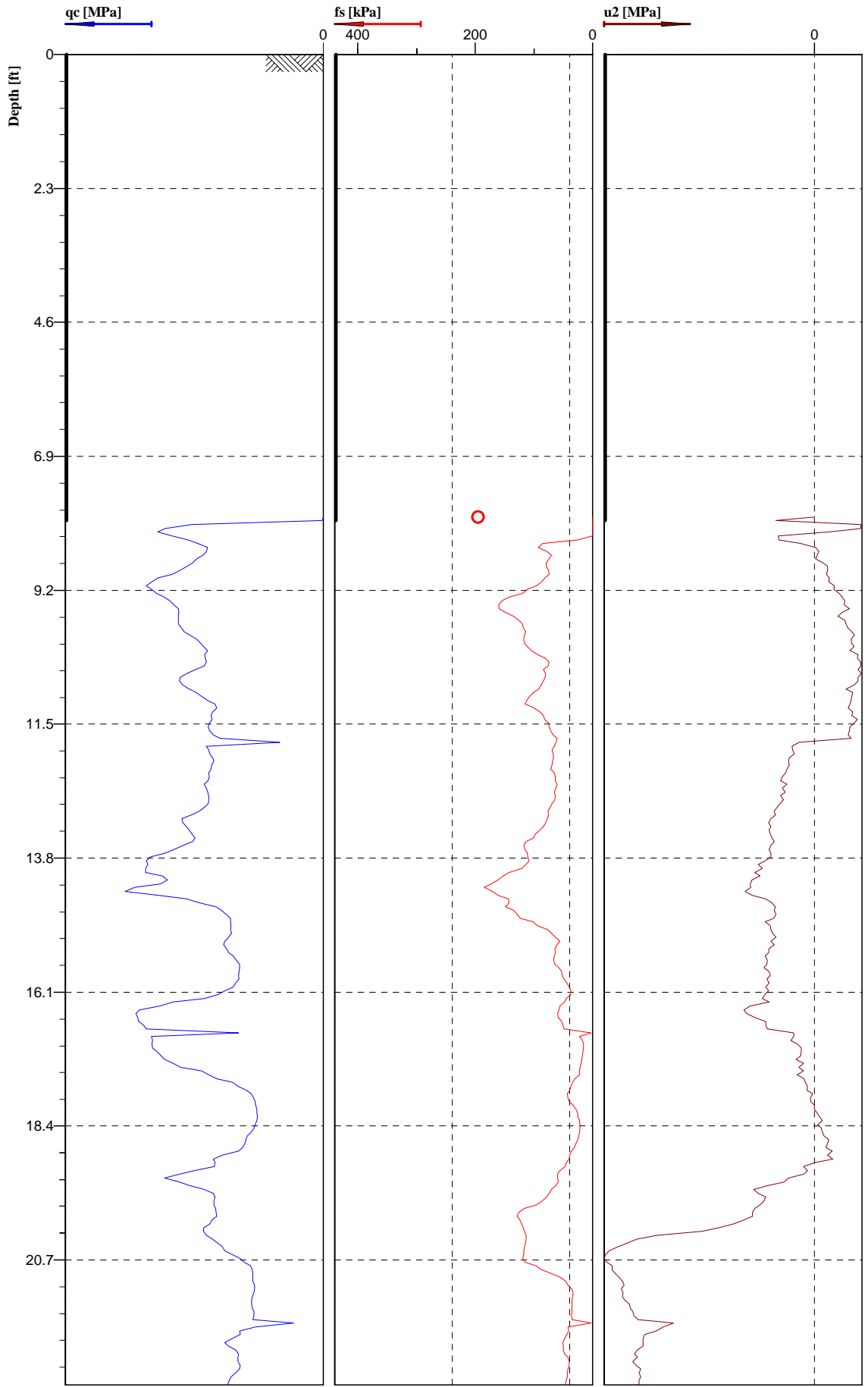
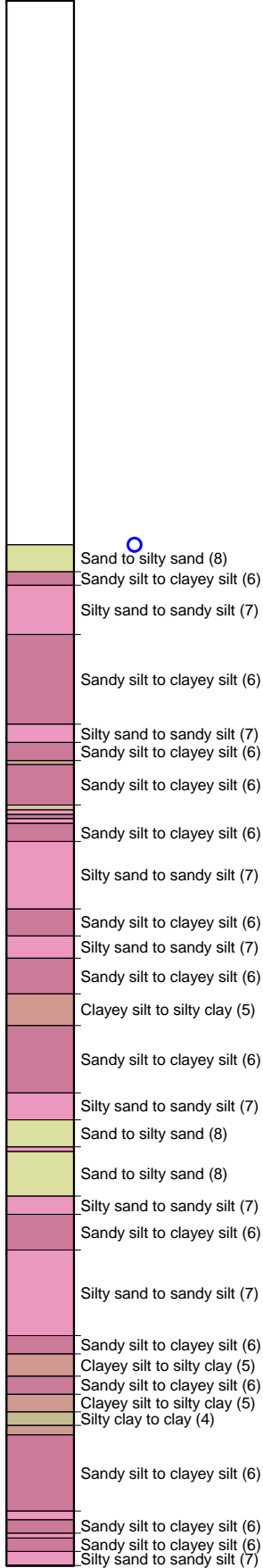
**Classification by Robertson 1986**



Cone No: 4312  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location:	CPT-3	Position:	,	Ground level:	0.00	Test no:	CPT-3
Project ID:	CVX 21-1283	Client:	ARCADIS	Date:	6/27/2012	Scale:	1 : 30
Project:	Former Texaco Service Station 21-1283		Page:	2/2	Fig:		
3810 Broadway, Oakland, CA				File:	CPT-3.cpd		

Classification by  
Robertson 1986

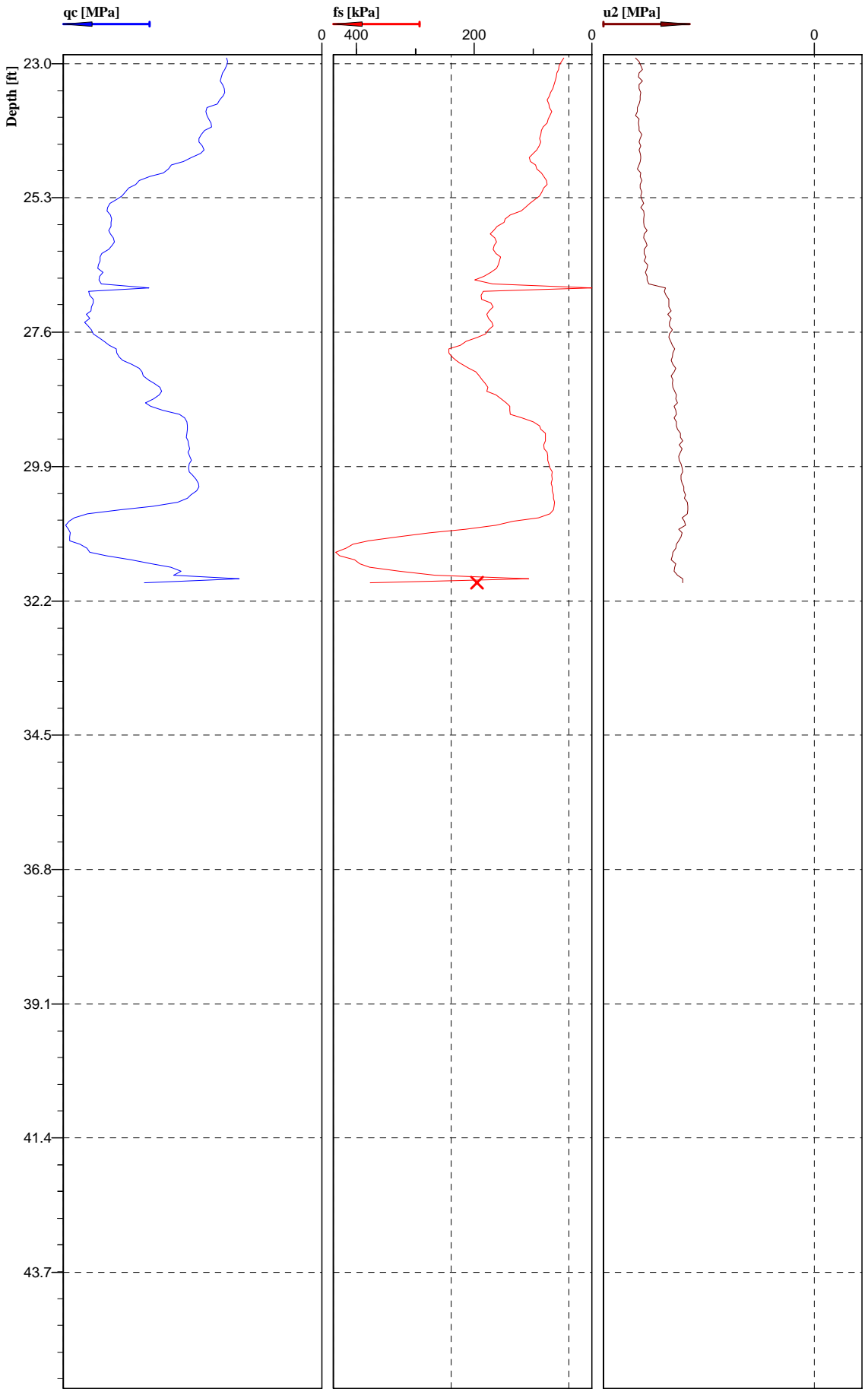
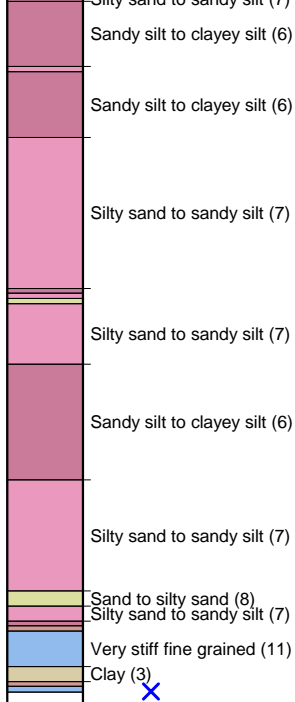


Cone No: 4312  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

Location: <b>CPT-4</b>	Position: ,	Ground level: <b>0.00</b>	Test no: <b>CPT-4</b>
Project ID: <b>CVX 21-1283</b>	Client: <b>ARCADIS</b>	Date: <b>6/27/2012</b>	Scale: <b>1 : 30</b>
Project: <b>Former Texaco Service Station 21-1283</b>		Page: <b>1/2</b>	Fig: 
<b>3810 Broadway, Oakland, CA</b>		File: <b>CPT-4.cpd</b>	

**Classification by**

**Robertson 1986**

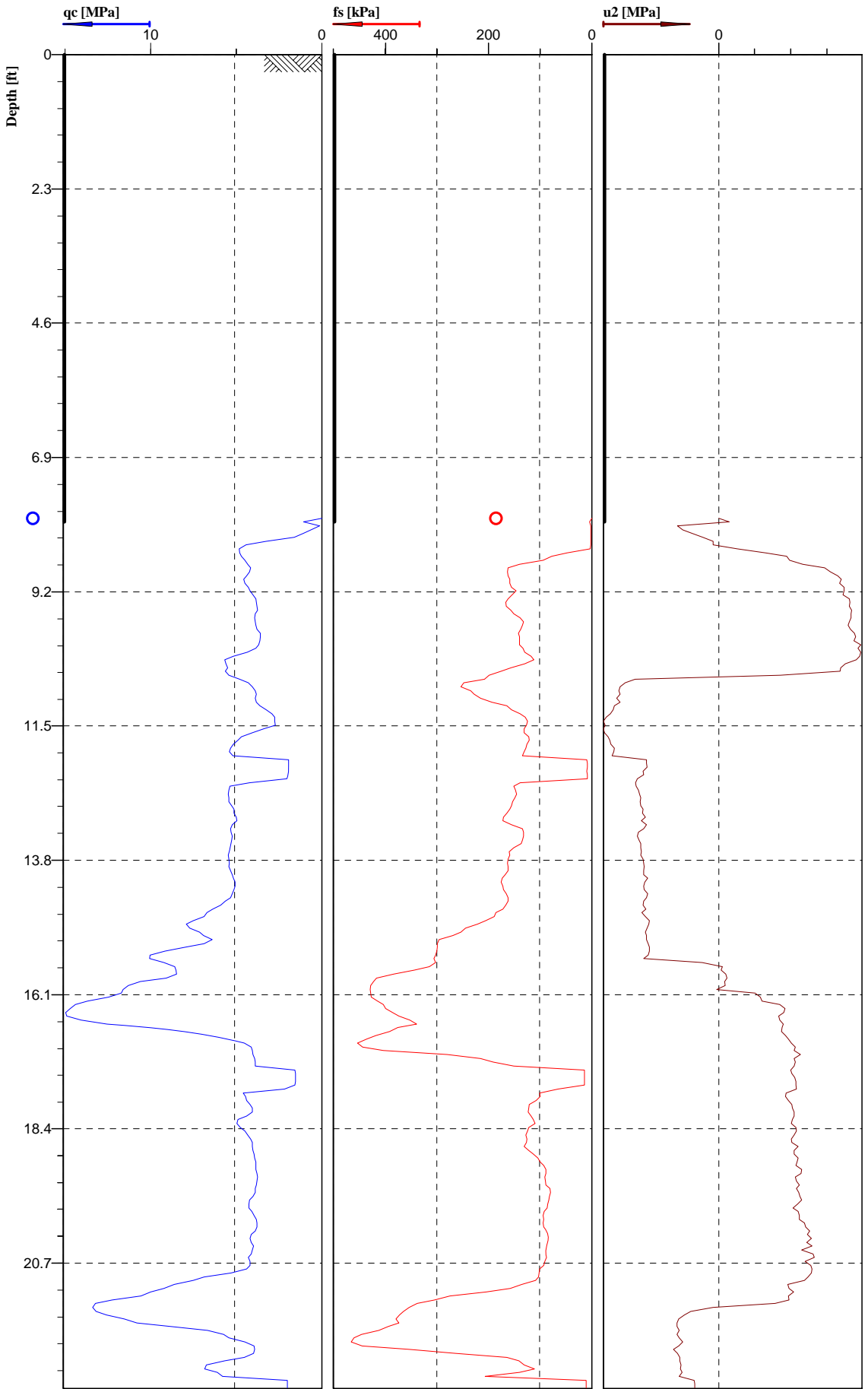
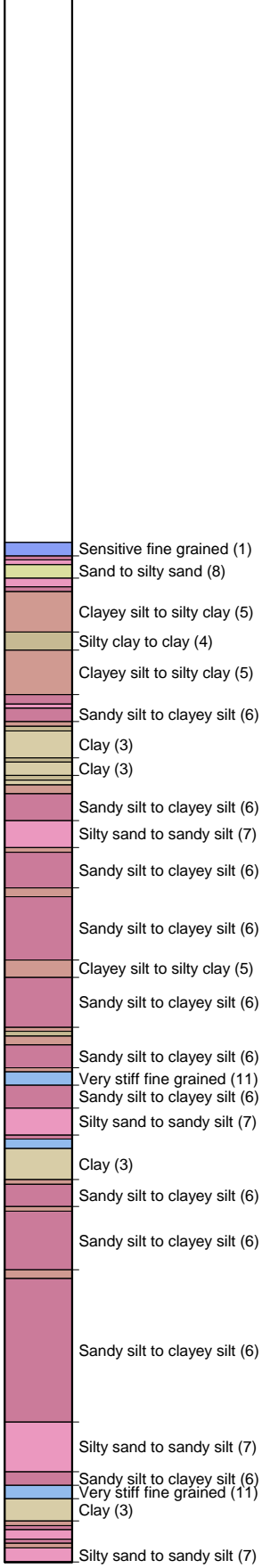


Cone No: 4312  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150



Location:	CPT-4	Position:	,	Ground level:	0.00	Test no:	CPT-4
Project ID:	CVX 21-1283	Client:	ARCADIS	Date:	6/27/2012	Scale:	1 : 30
Project:	Former Texaco Service Station 21-1283			Page:	2/2	Fig:	
	3810 Broadway, Oakland, CA			File:	CPT-4.cpd		





Cone No: 4312  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

Location: <b>CPT-5</b>	Position: ,	Ground level: <b>0.00</b>	Test no: <b>CPT-5</b>
Project ID: <b>CVX 21-1283</b>	Client: <b>ARCADIS</b>	Date: <b>6/27/2012</b>	Scale: <b>1 : 30</b>
Project: <b>Former Texaco Service Station 21-1283</b>		Page: <b>1/2</b>	Fig: 
<b>3810 Broadway, Oakland, CA</b>		File: <b>CPT-5.cpd</b>	



# Legend

Classification by Robertson 1986

Cod	Description	Image	Color
1	Sensitive fine grained		Blue
2	Organic material		Green
3	Clay		Light brown
4	Silty clay to clay		Dark brown
5	Clayey silt to silty clay		Reddish brown
6	Sandy silt to clayey silt		Purple
7	Silty sand to sandy silt		Pink
8	Sand to silty sand		Olive green
9	Sand		Yellow
10	Gravelly sand to sand		Light green
11	Very stiff fine grained		Light blue
12	Sand to clayey sand		Yellow-orange