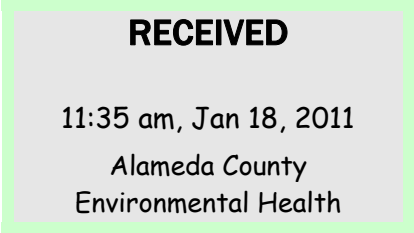


# Atlantic Richfield Company

**Chuck Carmel**  
Environmental Business Manager



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San Ramon, CA 94583  
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January 14, 2011

Re: On-Site Soil and Groundwater Investigation Report  
Atlantic Richfield Company Station #374  
6407 Telegraph Avenue, Oakland, California  
ACEH Case #RO0000078

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

Submitted by,

A handwritten signature in black ink, appearing to be "C. Carmel", enclosed within a large, hand-drawn oval.

Chuck Carmel  
Environmental Business Manager

Attachment:

**ON-SITE SOIL AND GROUNDWATER  
INVESTIGATION REPORT**  
Atlantic Richfield Company Service Station #374  
6407 Telegraph Avenue, Oakland, California  
ACEH Case #RO0000078

**Prepared for:**

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

**Prepared by:**



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January 14, 2011

Project No. 06-88-602

January 14, 2011

Project No. 06-88-602

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

Attn.: Mr. Chuck Carmel

Re: On-Site Soil and Groundwater Investigation Report, Atlantic Richfield Company Service Station #374, 6407 Telegraph Avenue, Oakland, California; ACEH Case #RO0000078

Dear Mr. Carmel:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *On-Site Soil and Groundwater Investigation Report* for Atlantic Richfield Company (a BP affiliated company) Service Station #374 located at 6407 Telegraph Avenue, Oakland, California (Site). This report presents a description of field activities conducted and results obtained from the advancement of four soil borings (converting three into monitor wells) and subsequent collection of soil samples and one grab-groundwater sample between November 22 and 24, 2010 and groundwater monitor well samples on December 16, 2010. This work was conducted in accordance with BAI's May 11, 2010 *Work Plan for Soil and Groundwater Investigation*, as approved with additional comments by the Alameda County Environmental Health's (ACEH's) August 12, 2010 response letter.

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

Sincerely,

BROADBENT & ASSOCIATES, INC.



Thomas A. Sparrowe, P.G.  
Senior Geologist



Enclosures

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

# ON-SITE SOIL AND GROUNDWATER INVESTIGATION REPORT

Atlantic Richfield Company Service Station #374  
6407 Telegraph Avenue, Oakland, California  
ACEH Case #RO0000078

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Drawing 2	Groundwater Elevation Contours and Analytical Summary Map
Drawing 3	Soil Analytical Results
Drawing 4	GRO Isoconcentration Contours
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Table 1	Laboratory Soil Analytic Results from On-Site Investigation
Table 2	Summary of Groundwater Monitoring Data
Table 3	Summary of Fuel Additives Analytical Data

## **APPENDICES**

- Appendix A Regulatory Correspondence
- Appendix B BAI Soil Boring Data Package (Includes Drilling Permit, Boring Logs, Well Development Data Sheets, Groundwater Sampling Data Sheets and Certified Laboratory Analytical Report with Chain-of-Custody Documentation)
- Appendix C GeoTracker Upload Confirmation Receipts

# ON-SITE SOIL AND GROUNDWATER INVESTIGATION REPORT

Atlantic Richfield Company Service Station #374  
6407 Telegraph Avenue, Oakland, California  
ACEH Case #RO0000078

## 1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company, Broadbent & Associates, Inc. (BAI) has prepared this *On-Site Soil and Groundwater Investigation Report* for additional soil and groundwater characterization at the Atlantic Richfield Company (a BP affiliated company) Service Station #374 (hereinafter referred to as Station #374), located at 6407 Telegraph Avenue, Oakland, California (Site). This on-site soil investigation was completed to characterize the vertical and lateral extent of recently discovered petroleum hydrocarbon contamination within soils beneath the south end of the eastern dispenser island. Investigation activities were conducted in accordance with BAI's May 11, 2010 *Work Plan for Soil and Groundwater Investigation*, as approved with additional comments by the Alameda County Environmental Health's (ACEH's) August 12, 2010 response letter. An extension for the submittal of the *On-Site Soil and Groundwater Investigation* report was granted in an electronic correspondence dated November 4, 2010. A copy of the ACEH letter and email are provided in Appendix A. This report includes discussions on the Site Background, Site Geology and Hydrogeology, Field Activities Performed, Results of the Investigation, Conclusions and Recommendations.

## 2.0 SITE BACKGROUND

The Site is an active ARCO-brand retail gasoline service station located on the northwestern corner of Telegraph Avenue and Alcatraz Avenue in Oakland, California (Drawing 1 and Drawing 2). The land use in the immediate vicinity of the Site is mixed commercial and residential. Development at the Site consists of a service station building with two 12,000-gallon gasoline underground storage tanks (USTs) with associated piping, and four pump dispensers on two dispenser islands. The Site is primarily covered with asphalt or concrete surfacing.

Numerous subsurface investigations and remedial activities have been conducted on-site since 1988. A comprehensive Site history can be found within BAI's May 11, 2009 *Work Plan for On-Site Soil Investigation*. Section 4.0 of this report details the most recent subsurface investigation field activities conducted as requested by ACEH.

## 3.0 SITE GEOLOGY AND HYDROGEOLOGY

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report* (California Regional Water Quality Control Board – San Francisco Bay Region/SFRWQCB, June 1999), the Site is located within the Oakland Sub-Area of the East Bay Plain of the San Francisco Basin. The Oakland Sub-Area contains a sequence of alluvial fans. The alluvial fill thickness ranges from 300 to 700 feet deep. There are no well-defined aquitards such as estuarine muds. The largest and deepest wells in this sub-area historically pumped one to two million gallons per day at depths greater than 200 feet. Overall, sustainable yields are low due in part to low recharge potential. The Merrit sand in West Oakland was an important part of the

early water supply for the City of Oakland. It is shallow (up to 60 feet), but before the turn of the last century, septic systems contaminated the water supply wells.

Throughout most of the Alameda County portion of the East Bay Plain, from Hayward north to Albany, water level contours show that the general direction of groundwater flow is from east to west or from the Hayward Fault to the San Francisco Bay. Groundwater flow direction generally correlates to topography. Flow direction and velocity are also influenced by buried stream channels that typically are oriented in an east to west direction. The nearest natural drainage is Claremont Creek, located approximately 1.2 miles west-northwest of the Site. Claremont Creek flows generally east to west near the Site vicinity.

The Site elevation is approximately 163 feet above sea level. The water table fluctuates seasonally and over time. Historically, depth-to-water measurements have ranged from approximately five to 11 feet below ground surface (fbg). During Third Quarter 2010, depths to groundwater in on-site wells MW-1, MW-2 and MW-4 were approximately 7.6 ft. Groundwater flow direction during the Third Quarter 2010 monitoring event on August 10, 2010 was to the southwest at a gradient of approximately 0.03 ft/ft, generally typical according to the monitoring record (BAI, 10/1/10).

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the majority of East Bay Plain Cities (except the City of Hayward) do not have “any plans to develop local groundwater resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity.” The SFRWQCB’s basin plan denotes existing beneficial uses of municipal and domestic supply (MUN), industrial process supply (PROC), industrial service supply (IND), and agricultural supply (AGR) for the East Bay Plain groundwater basin.

The Site is typically underlain by silty and sandy clays with intervals consisting of sands and gravels to a maximum explored depth of approximately 28 fbg. The boring log for MW-7 indicates that intermittent layers of silty clay and sandy clay are present throughout the entire boring with gravels appearing at approximately eight fbg and sand appearing at approximately 18 fbg. The boring log for MW-2 indicates that intermittent layers of silty clay and sandy clay are present throughout the entire boring with gravels appearing at approximately eight fbg. The boring log for MW-3 indicates that silty clay is present throughout the entire boring with minor gravel appearing at approximately 18.5 fbg and sand appearing at approximately 27 fbg. The boring log for MW-4 indicates that silty clay is present from approximately ground surface to 13 fbg. Sandy gravel with some silt appears at 13 fbg and transitions into silty clay with some sand and gravel at approximately 22 fbg.

#### **4.0 FIELD ACTIVITIES PERFORMED**

This on-site soil and groundwater investigation was completed to characterize the vertical and lateral extent of recently-discovered petroleum hydrocarbon contamination within soils and groundwater beneath the southern end of the eastern dispenser island in the eastern portion of the Site. Between November 22 and 24, 2010, BAI oversaw Gregg Drilling, Inc. of Martinez,

California advance four hollow-stem auger borings (identified as B-16 through B-19) on the Site. After completion, soil borings B-16, B-17 and B-18 were converted into monitor wells MW-7, MW-8 and MW-9, respectively. One grab-groundwater sample was collected from B-19 on November 23 and groundwater samples were collected from on-site monitor wells on December 16, 2010. The soil boring and monitor well locations from this investigation are shown in Drawing 2.

#### **4.1 Preliminary Field Activities**

Prior to initiating field activities, BAI obtained the necessary drilling permits from the Alameda County Public Works Agency (See Appendix B), prepared a site health and safety plan specific to the work scope; and cleared the boring locations from conflicts with subsurface utilities. The utility clearance included notifying Underground Service Alert of the work a minimum of 48 hours prior to initiating the field investigation, and additionally securing the services of Cruz Brothers, a private utility locating company to confirm the absence of underground utilities at the boring locations. Boreholes were physically cleared to 6.5 fbg using an air knife rig on November 22, 2010, consistent with the safety protocols contained within the BAI Ground Disturbance Defined Practice.

#### **4.2 Soil Boring Advancement and Sampling Activities**

On November 23 and 24, 2010, BAI field personnel observed Gregg advance four soil borings (B-16/MW-7, B-17/MW-8, B-18/MW-9 and B-19). Gregg utilized a hollow-stem auger drill rig to advance the soil borings to a maximum depth of 20 fbg. Physical soil samples were collected at specific depths for laboratory analysis based on field observations and recommendations from ACEH.

Soil boring B-16/MW-7, hereafter referred to as MW-7, was advanced to a total depth of 20.5 fbg. Soil samples were collected from boring MW-7 at 3.0, 5.0, 6.0, 8.0, 9.5, 11.0, 12.5, 14, 15.5, 17, 18.5 and 20.0 fbg. Reportedly, visual contamination (greenish-gray staining) was observed in the soil sample collected at 8.0 fbg. Screening with the photo-ionization detector (PID) found contamination by volatile organic compounds (VOCs) between approximately six and nine fbg, with up to 385 parts per million (ppm) at 8.0 fbg. Silty clay (CL in Unified Soil Classification System) with some sand and fine gravel was observed from the surface to approximately 9.0 fbg. Well-graded sand with silt and gravel (SM-SW) was observed from approximately 9.0 to 11.0 fbg. Silty sand with a trace of fine gravel (SM) was encountered from approximately 11.0 to 8.5 fbg. Silty clay with gravel (CL) was observed from approximately 12.5 to 18 fbg and gradually increased in sand and gravel content (SM-SP) by 20 fbg. Silty clay was encountered at the total depth explored of 20.5 fbg. First groundwater was encountered at approximately 18 fbg and stabilized at approximately 7.44 fbg. Soil samples collected from boring B-16/MW-7 at 14 fbg and above were submitted for laboratory analysis.

Soil boring B-17/MW-8, hereafter referred to as MW-8, was advanced to a total depth of 20.5 fbg. Soil samples were collected from boring MW-8 at 3.0, 5.0, 6.0, 8.0, 9.5, 11.0, 12.5, 14, 15.5, 17, 18.5 and 20.0 fbg. Reportedly, visual contamination (greenish-gray staining) was observed between 8 and 11 fbg. Screening with the PID detected contamination by VOCs



between approximately eight and 11 fbg that ranged from 334 to 710 ppm. Silty clay with sand (CL) was observed between the surface and approximately 5.5 fbg. Clayey silt (ML) with sand and occasional gravel was encountered from approximately 5.5 to 9 fbg. Silty sand with occasional gravel (ML) was observed between approximately 9 and 11 fbg. Silty sand with gravel (SM-SP) was encountered from approximately 11 to 18 fbg. Clayey silt with coarse grained sand was encountered between 18 and 21.5 fbg, the total depth explored. First groundwater was encountered at approximately 16.5 fbg and stabilized at approximately 7.73 fbg. Soil samples collected from boring B-17/MW-8 at 14.5 fbg and above were submitted for laboratory analysis.

Soil boring B-18/MW-9, hereafter referred to as MW-9, was advanced to a total depth of 20.5 fbg. Soil samples were collected from boring MW-9 at 3.0, 5.0, 6.0, 8.0, 9.5, 11.0, 12.5, 14.0, 15.5, 17.0, 18.5 and 20.0 fbg. Visual contamination (greenish-gray staining) was observed between 8 and 12.5 fbg. Screening with the PID detected contamination by VOCs between approximately six and 12.5 fbg, with up to 3,794 ppm at 12.5 fbg. Silty clay with sand (CL) was observed between the surface and approximately 5.5 fbg. Clayey silt with some sand and gravel (ML) was encountered from approximately 5.5 to 11.0 fbg. Silty sand with gravel (SM-SP) was encountered from approximately 9.5 to 17 fbg. Sandy gravel with silt (GW) was observed between approximately 17 and 18 fbg. Clayey silt with coarse grained sand was encountered between 18 and 21.5 fbg, the total depth explored. First groundwater was encountered at approximately 17 fbg and stabilized at approximately 7.31 fbg. Soil samples collected from boring B-18/MW-9 at 14 fbg and above were submitted for laboratory analysis.

Soil boring B-19 was advanced to a total depth of 20.5 fbg. Soil samples were collected from boring B-19 at 3.0, 5.0, 6.0, 8.0, 9.5, 11.0, 12.5, 14, 15.5, 17, 18.5 and 20.0 fbg. Visual contamination (greenish-gray staining) was observed between approximately 5.5 and 11.5 fbg. Screening with the PID detected contamination by VOCs between approximately eight and 12.5 fbg, with up to 5,896 ppm at 9.5 fbg. Silty clay with sand (CL) was observed between the surface and approximately 5.5 fbg. Clayey silt (ML) was encountered from approximately 5.5 to 9.5 fbg. Clayey sand with silt and gravel (SC) was encountered from approximately 9.5 to 15 fbg. Silty clay (CL) was observed between approximately 15 and 18 fbg, the total depth explored to. First groundwater was encountered at approximately 17.5 fbg and stabilized at approximately 8.5 fbg. A grab-groundwater sample was collected from temporary PVC well screen set from 10 and 20 fbg prior to abandoning the boring. Soil samples collected from boring B-19 at 15.5 fbg and above were submitted for laboratory analysis.

ACEH's August 12, 2010 Work Plan approval letter recommended "that the monitor wells be screened between 5 to 15 fbg so that the target water-bearing zone can be adequately evaluated". During drilling, each boring was initially advanced to 15 fbg and no groundwater entered the borehole. The borings were advanced to where first groundwater was encountered (between 16.5 and 18 fbg) and terminated at 20 fbg.

### **4.3 Monitor Well Construction**

Following collection of a grab-groundwater sample, boring B-19 was grouted to the surface using neat cement, and the surface refinished to match the surrounding area. As stated above,

borings B-16, B-17 and B-18 were converted into groundwater monitoring wells MW-7, MW-8 and MW-9, respectively for groundwater sampling. The wells are constructed of 4-inch diameter, Schedule 40 PVC with 0.010-inch machine-cut slotted screens between 5.0 to 20.0 ft bgs. As stated above, no groundwater was encountered by 15 fbg; therefore, the borings were advanced to 20 fbg to encounter the water-bearing zone. This was a deviation from ACEH's recommendation for a 5 to 15 fbg screen interval so that the wells could be used for future groundwater monitoring. A filter pack consisting of No. 2/12 sorted sand was installed from the total depth to approximately one foot above the top of the well screen, which was overlain by two feet of bentonite, and five-percent bentonite-cement grout to the surface. A traffic-rated locking well vault was installed flush to the ground to protect each well head.

#### **4.4 Monitor Well Development**

Monitor wells MW-7 through MW-9 were developed on December 7, 2010 using a Smeal rig. Approximately four wetted casing volumes of groundwater were removed until the clarity of the water improved and water quality parameters stabilized. Periodic measurements of the water quality parameters pH, temperature, conductivity, and turbidity were recorded during the development to establish baseline values for groundwater. Well development field data sheets are presented as Appendix B.

#### **4.5 Monitor Well Surveying**

On December 7, 2010, Wood-Rogers, Inc. (W-R) of Sacramento, California surveyed the new wellheads for top of casing elevation with respect to the 1988 North American Vertical Datum (NAVD'88) and for lateral XY position in latitude and longitude and northings and eastings per the North American Datum for 1983 (NAD'83). W-R also verified the existing GeoTracker coordinates for monitor wells MW-1 through MW-6. Survey information was uploaded to GeoTracker (Appendix C).

#### **4.6 Groundwater Sampling**

As stated above, one grab-groundwater sample was collected from boring B-19 on November 23, 2010. On December 16, 2010, groundwater samples were collected from on-site monitor wells MW-1, MW-2, MW-4, MW-7, MW-8 and MW-9. Water levels were gauged in all nine wells at the Site. No irregularities were noted in the field during this quarter's water level gauging. Depth-to-water measurements ranged from 4.50 ft at MW-6 to 8.10 ft at MW-5. Resulting groundwater surface elevations ranged from 158.28 ft above datum in well MW-7 to 148.80 ft at well MW-5. Water level elevations are summarized in Table 2. Water level elevations yielded a potentiometric groundwater flow direction and gradient to the southwest at approximately 0.03 ft/ft. Groundwater monitoring field data sheets are provided within Appendix B. Measured depths to groundwater and respective groundwater elevations are summarized in Table 2. Potentiometric groundwater elevation contours are presented in Drawing 2.

#### **4.7 Laboratory Analysis**

Soil and groundwater samples were shipped to Calscience Environmental Laboratories, Inc. (Garden Grove), a California State-certified laboratory, under chain-of-custody protocol. Samples were analyzed for Gasoline Range Organics (GRO, hydrocarbon chain lengths between C6-C12) by EPA Method 8015M; and for Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), Methyl Tert-Butyl Ether (MTBE), Ethyl Tert-Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), Tert-Butyl Alcohol (TBA), 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromoethane (EDB), and Ethanol using EPA Method 8260B. Copies of the laboratory analytic reports with chain-of-custody documentation are provided in Appendix B. Laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation pages are provided in Appendix C.

#### **4.8 Investigation-Derived Residuals Management**

Residual solids and liquids generated during the Site investigation activities were stored temporarily onsite in Department of Transportation-approved 55-gallon drums pending analytical results and profiling. On January 5, 2011, Belshire Environmental Services transported the investigation-derived residuals to an Atlantic Richfield Company-approved facility for disposal. Waste disposal manifests were not received in time for this report.

### **5.0 RESULTS OF INVESTIGATION**

Drawing 3 summarizes soil laboratory analytical results are summarized in Table 1 following conclusion of the report text. Drawing 2 summarizes soil laboratory analytical results are summarized in Tables 2 and 3. Tabulated soil and groundwater sample laboratory analytical results are compared against the residential Environmental Screening Levels (ESLs) established by the San Francisco Regional Water Quality Control Board (SFRWQCB, 2008) for shallow soil (<3 meters) under drinking water resource and non-drinking water resource scenarios.

#### **5.1 Soil Analytic Results**

- Concentrations of GRO were detected above the laboratory reporting limits in 23 of the 33 soil samples collected, with concentrations ranging up to 1,400 milligrams per kilogram (mg/kg) in boring MW-8 at 11.0 fbg.
- Concentrations of Benzene were detected above the laboratory reporting limits in 17 of the 33 soil samples collected, with concentrations ranging up to 2.7 mg/kg in boring MW-8 at 8.0 fbg.
- Concentrations of Toluene were detected above the laboratory reporting limits in two of the 33 soil samples collected, with concentrations ranging up to 0.0065 mg/kg in boring B-19 at 8.0 fbg.

- Concentrations of Ethylbenzene were detected above the laboratory reporting limit in 19 of the 33 soil samples collected, with concentrations ranging up to 16 mg/kg in boring MW-9 at 8.0 fbg.
- Concentrations of Total Xylenes were detected above the laboratory reporting limit in 20 of the 33 soil samples collected, with concentrations ranging up to 28 mg/kg in boring MW-9 at 8.0 fbg.
- Concentrations of MTBE were detected above the laboratory reporting limit in 18 of the 33 soil samples collected, with concentrations ranging up to 0.13 mg/kg in boring MW-8 at 8.0 fbg.
- Concentrations of TBA were detected above the laboratory reporting limit in seven of the 33 soil samples collected, with concentrations ranging up to 0.037 mg/kg in boring MW-9 at 5.0 fbg.
- Concentrations of Ethanol were detected above the laboratory reporting limit in one of the 33 soil samples collected at a concentration of 0.12 mg/kg in boring MW-9 at 12.5 fbg.
- Concentrations of TAME were detected above the laboratory reporting limit in one of the 33 soil samples collected at a concentration of 0.0030 mg/kg in boring MW-9 at 3.0 fbg.

Concentrations of 1,2-DCA, EDB, DIPE and ETBE were not detected above their respective laboratory reporting limits for each sample.

## 5.2 Groundwater Analytic Results

- Concentrations of GRO were detected above the laboratory reporting limit in five of the seven groundwater samples collected, with concentrations ranging from 330 micrograms per liter ( $\mu\text{g/L}$ ) in MW-9 to 15,000  $\mu\text{g/L}$  in MW-4. An isoconcentration contour map of GRO is presented as Drawing 4.
- Concentrations of Benzene were detected above the laboratory reporting limit in four of the seven groundwater samples collected, with concentrations ranging from 18  $\mu\text{g/L}$  in MW-9 to 1,800  $\mu\text{g/L}$  in MW-4. An isoconcentration contour map of Benzene is presented as Drawing 5.
- Toluene were detected above the laboratory reporting limit in only one of the seven groundwater samples collected at a concentration of 82  $\mu\text{g/L}$  in MW-4.
- Concentrations of Ethylbenzene were detected above the laboratory reporting limit in five of the seven groundwater samples collected, with concentrations ranging from 4.1  $\mu\text{g/L}$  in MW-8 to 270  $\mu\text{g/L}$  in MW-4.

- Concentrations of Total Xylenes were detected above the laboratory reporting limit in five of the seven groundwater samples collected, with concentrations ranging from 1.9 µg/L in B-19 to 210 µg/L in MW-4.
- Concentrations of MTBE were detected above the laboratory reporting limit in six of the seven groundwater samples collected, with concentrations ranging from 17 µg/L in MW-1 to 390 µg/L in MW-9. An isoconcentration contour map of MTBE is presented as Drawing 6.
- TBA was detected above the laboratory reporting limit in two of the seven groundwater samples collected, with concentrations ranging from 30 µg/L in B-19 to 40 µg/L in MW-9.
- Concentrations of TAME were detected above the laboratory reporting limit in two of the seven groundwater samples collected at a concentrations ranging from 1.7 µg/L in MW-8 to 4.1 µg/L in MW-9.

Concentrations of 1,2-DCA, EDB, DIPE, ETBE and Ethanol were not detected above their respective laboratory reporting limits for each sample. Isoconcentration contour maps of GRO, benzene and MTBE concentrations in groundwater are presented as Drawings 4, 5, and 6, respectively.

## 6.0 CONCLUSIONS

On behalf of the Atlantic Richfield Company, BAI prepared this *On-Site Soil & Groundwater Investigation Report* for Station #374, located at 6407 Telegraph Avenue, Oakland, California. Investigation activities were conducted in accordance with the BAI *Work Plan for On-Site Soil Investigation* dated May 11, 2010, as approved with comments by the ACEH in their letter dated August 12, 2010. Based on the findings of this investigation, BAI concludes the following:

- Moderate concentrations of GRO, Benzene, Toluene, Ethylbenzene and Total Xylenes are concentrated within the soil at 8.0 to 9.5 fbg in the east pump island investigation area. Hydrocarbon concentrations diminish in concentration with depth and horizontal distance from the east pump island. One exception to this observation is the MW-8 soil sample at 11 fbg where the GRO concentration was 1,400 mg/kg. The soil analytical data demonstrates that the soil petroleum hydrocarbon impact around the east pump island is defined vertically at 12.5 fbg, to levels below residential ESLs for shallow soil scenarios where the groundwater is a potential drinking water resource. The soil analytical data also demonstrates that the petroleum hydrocarbon impact in soil around the east pump island is sufficiently defined laterally.
-

- The soil data from this investigation are consistent with the elevated GRO concentrations in soil samples collected during BAI's November 11, 2009 *Soil and Groundwater Investigation* where soil boring B-15 contained 1,400 mg/kg at 4.5 fbg and B-13 contained 1,800 mg/kg at 8.5 fbg. These observed concentrations are indicative of a point release from the former product piping that spreads outward when encountering a more permeable (sandy, gravelly) layer. The data also correlates well with the previous high concentration of 6,500 mg/kg GRO detected in product line sample PL-3 5' collected on December 4, 2008 during product line replacement and fuel dispenser upgrades (BAI, 2/19/2009).
- Low concentrations of MTBE were detected in shallow soil samples collected from MW-8 and MW-9. Six of the 18 soil samples detected MTBE concentrations and none of the 18 detected TBA concentrations exceeded the residential ESLs for shallow soil scenarios where the groundwater is a potential drinking water resource. Two of the six MTBE samples (MW-8-14.5 and MW-9-15.5) were collected within the capillary fringe and MTBE concentrations are likely from a groundwater source. Neither MTBE nor TBA concentrations in soil exceeded the residential ESLs for shallow soil where the ground water is not a potential drinking water resource.
- Moderate concentrations GRO and benzene were detected in groundwater samples collected from monitor wells MW-8, and MW-9 and soil boring B-19 (Drawings 4 and 5). Significant concentrations GRO and benzene were detected the groundwater sample collected from monitor well MW-4. MW-4, located downgradient of the former USTs, contained the significant hydrocarbon concentrations (GRO, 15,000 µg/L; Benzene, 1,800 µg/L; Toluene, 82 µg/L; Ethylbenzene, 270 µg/L; Total Xylenes, 210 µg/L). Each of these analytes exceeded the residential ESL where groundwater is a potential drinking water resource and exceeded the residential ESLs where groundwater is not a potential drinking water resource.
- Groundwater sampling data further indicates that there are two sources of contamination on the site: 1. South end of the east pump island, and; 2. The former UST farm located southwest of the station building.

## 7.0 RECOMMENDATIONS

Beginning the First Quarter 2011, new monitor wells MW-7, MW-8 and MW-9 will be incorporated into the existing groundwater sampling/monitoring network and sampled on a quarterly basis to monitor groundwater conditions and concentration trends in the east pump island area. All wells will be monitored on a Quarterly basis, wells MW-1, MW-2, and MW-4 will be sampled Semi-Annually (1Q & 3Q), and wells MW-3, MW-5, and MW-6 will be sampled Annually (3Q). After a one year period the new wells will be incorporate into the existing Semi-Annual groundwater monitoring/sampling program for on-site wells.

Based on the results obtained during this recent soil and groundwater investigation, BAI further recommends that a Feasibility Study/Corrective Action Plan (FS/CAP) be conducted to evaluate

remediation alternatives mitigating the actual or potential adverse effects of the hydrocarbon release(s).

At a minimum the FS/CAP report will include the following:

- Site Background
- Previous Investigation and Remedial Activities
- Site and Regional Geology and Hydrogeology
- Sensitive Receptors
- Distribution of Chemicals of Concern
- Contamination Cleanup Levels and Goals
- Evaluation of Remedial Alternatives

## 8.0 PROPOSED SCHEDULE

The schedule for the above-recommended work shall proceed as follows:

- Groundwater Sampling Program – Beginning the First Quarter 2011, sample the new monitor wells for one year period (four consecutive quarters).
- FS/CAP – Within 60 days following written approval of this recommendation.

## 9.0 CLOSURE

This document has been prepared for the exclusive use of Atlantic Richfield Company (a BP affiliated company). The findings presented in this report are based upon the observations of BAI field personnel, points of investigation and results of laboratory tests performed by Calscience Environmental Laboratories, Inc. (Garden Grove, California). Services were performed in accordance with the generally accepted standard of practice at the time this report was written. No warranty, expressed or implied, is intended. It is possible that variations in the soil or groundwater conditions could exist beyond the points explored in this investigation. Also, changes in site conditions could occur at some time in the future due to variations in rainfall, temperature, regional water usage or other factors.

## 10.0 REFERENCES

ACEH, 12 March 2010. *Soil and Groundwater Investigation Work Plan for Fuel Leak Case No. RO 0000078 and GeoTracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Charles Carmel (Atlantic Richfield Company) requesting a revised work plan with technical comments.

ACEH, 12 August 2010. *Soil and Groundwater Investigation Work Plan for Fuel Leak Case No. RO 0000078 and GeoTracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Ave., Oakland, CA 94609.* Letter from Mr. Paresh Khatri (ACEH) to Mr. Charles Carmel (Atlantic Richfield Company) approving work plan with technical comments.

ACEH, 4 November 2010. *ARCO Station #374, 6407 Telegraph Ave., Oakland, CA – ACEH RO #78*. Electronic correspondence from Mr. Paresh Khatri (ACEH) to Mr. Tom Sparrowe (BAI) Carmel approving and extension to submit the Soil and Groundwater Investigation Report from November 10, 2010 to January 14, 2011.

BAI, 19 February 2009. *Compliance Soil Sampling Report for Product Line/Fuel Dispenser Upgrades, Atlantic Richfield Company Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078*.

BAI, 11 November 2009. *On-Site Soil & Ground-Water Investigation Report for Product Line/Fuel Dispenser Upgrades, Atlantic Richfield Company Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078*.

BAI, 11 May 2010. *Work Plan for Soil & Ground-Water Investigation, Atlantic Richfield Company Service Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078*.

BAI, 1 October 2010. *Third Quarter 2010 Groundwater Monitoring Report, Atlantic Richfield Company Service Station #374, 6407 Telegraph Ave., Oakland, CA, ACEH Case #RO0000078*.

SFRWQCB, Groundwater Committee, June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda County and Contra Costa Counties, CA*.

SFRWQCB, May 2008. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*. Interim final.



## **DRAWINGS**

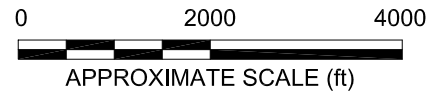
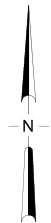
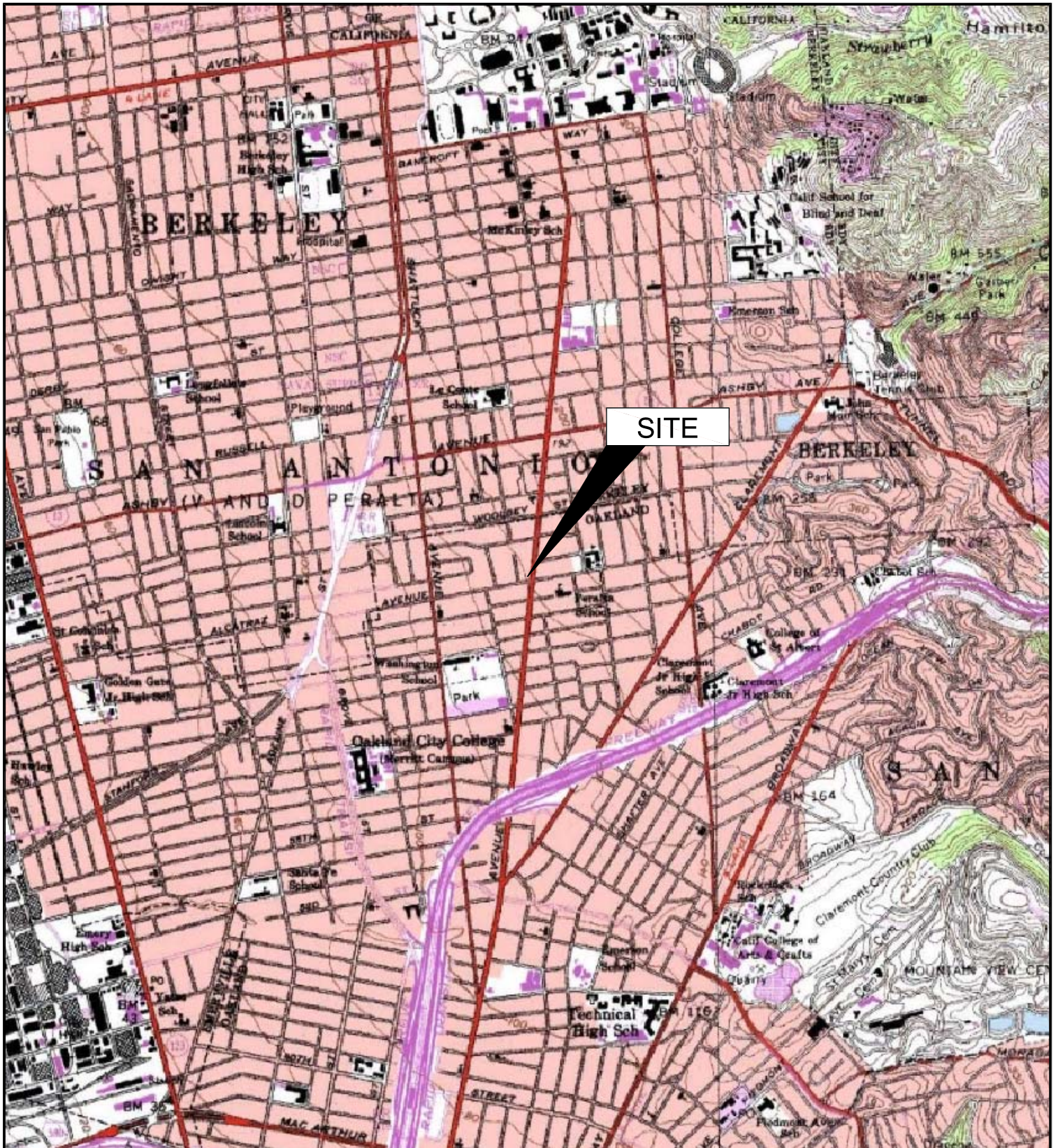
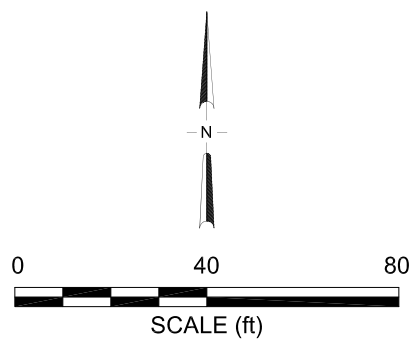
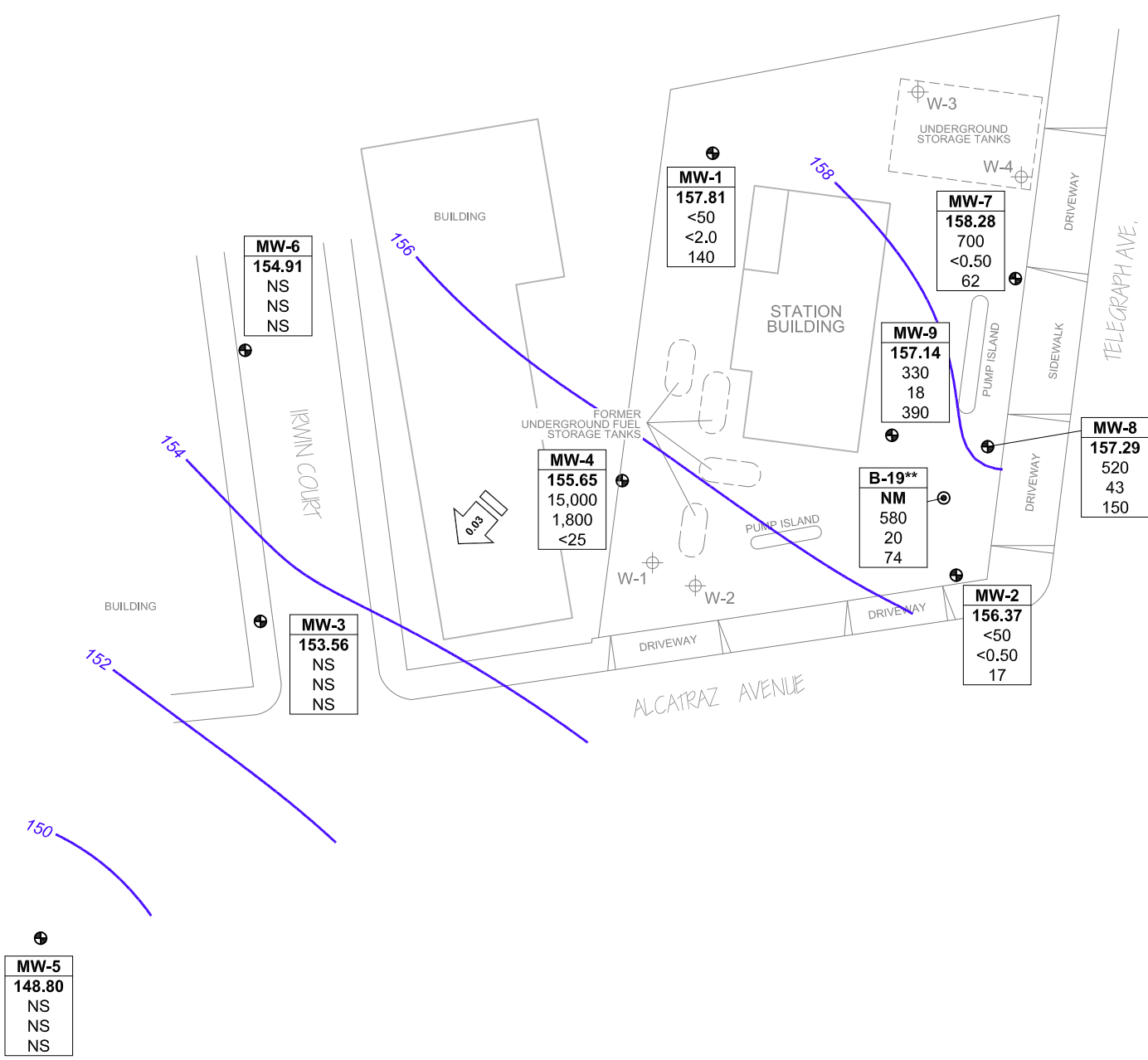


IMAGE SOURCE: USGS



**LEGEND**

⊕	Monitor Well Location	<b>WELL</b>	Well Designation
⊕	Tank Pit Monitor Well Location	<b>ELEV</b>	Groundwater Elevation (ft)
⊙	Soil Boring Location	<b>GRO</b>	GRO, Benzene and MTBE Concentrations (µg/L)
—	Ground-Water Elevation Contour (Feet Above Site Datum)	<b>BENZ</b>	Benzene Concentration (µg/L)
→ 0.03	Ground-Water Flow Direction and Gradient (ft/ft)	<b>MTBE</b>	MTBE Concentration (µg/L)
		NM	Not Monitored
		NS	Not Sampled
		**	Grab Groundwater Sample

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



Depth (ft)	MW-7		
	G	B	M
3'	<0.50	<0.0010	<0.0010
5'	<0.50	<0.0010	0.0017
6'	<0.50	0.0053	0.0023
8'	650	0.0047	<0.0010
9.5'	<0.50	<0.0010	<0.0010
11'	<0.50	<0.0010	<0.0010
12.5'	<0.50	<0.0010	0.0017
14'	1.2	<0.0010	0.0080

Depth (ft)	MW-9		
	G	B	M
3'	5.2	0.0069	0.046
5'	1.4	0.0024	0.031
6'	3.5	0.025	0.033
8'	710	1.2	<0.20
11'	54	<0.10	<0.10
12.5'	46	<0.0010	<0.0010
14'	9.3	0.0012	<0.0010
15.5'	<0.50	<0.0010	0.031

Depth (ft)	MW-8		
	G	B	M
3'	2.6	0.0099	0.011
5'	1.7	0.057	0.0075
6'	3.2	0.23	<0.10
8'	510	2.7	0.13
9.5'	900	1.2	<0.10
11'	1,400	<0.10	<0.10
12.5'	0.93	0.0041	0.0014
14.5'	0.57	0.022	0.036

Depth (ft)	B-19		
	G	B	M
3'	2.7	<0.0010	<0.0010
5'	2.6	<0.0010	<0.0010
6'	<0.50	0.0053	0.0032
8'	190	0.84	0.015
9.5'	250	0.19	0.011
11'	18	<0.10	<0.10
12.5'	47	0.018	0.0013
14'	<0.50	<0.0010	<0.0010
15.5'	<0.50	<0.0010	0.0034

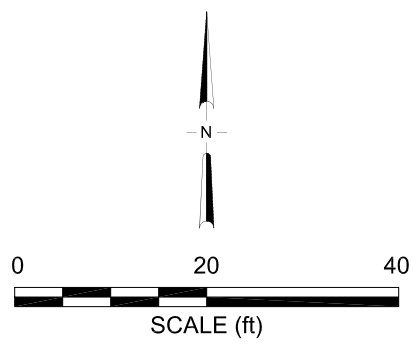
**LEGEND**

- ⊕ Monitor Well Location
- ⊕ Tank Pit Monitor Well Location
- ⊙ Soil Boring Location

Depth (feet)

D'	WELL		
	G	B	M
	<0.50	<0.0010	<0.0010

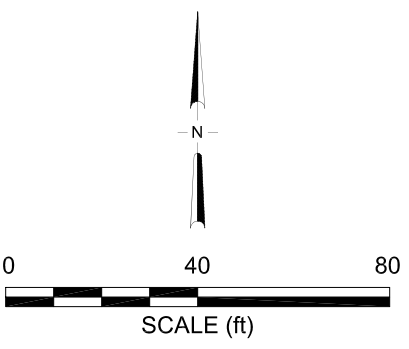
Well Designation, GRO, Benzene and MTBE Concentrations (mg/Kg)



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

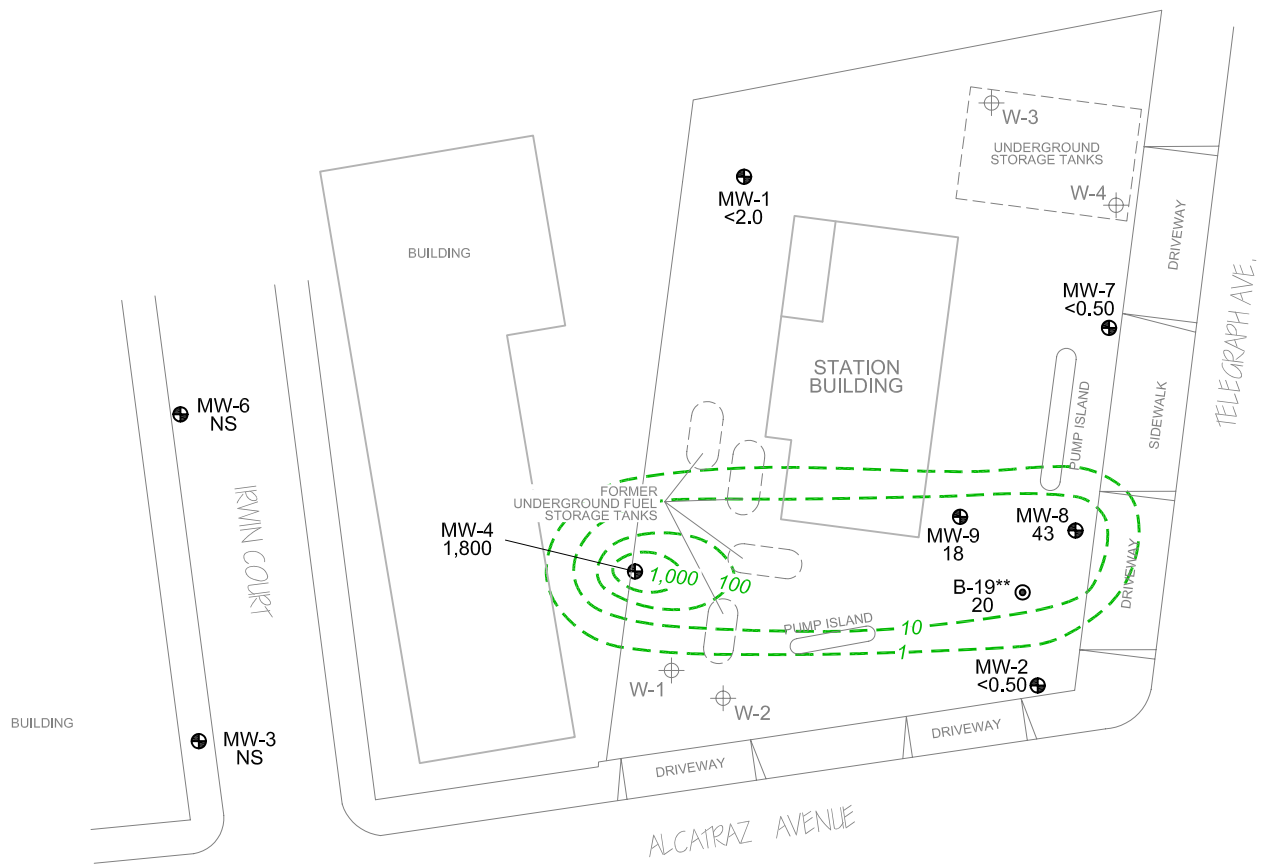


⊕  
MW-5  
NS

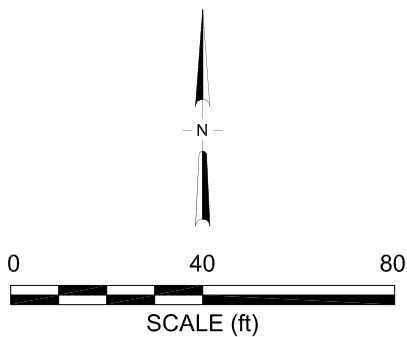


LEGEND	
⊕	Monitor Well Location
⊕	Tank Pit Monitor Well Location
⊙	Soil Boring Location
MW-9 330	Well ID with GRO Concentration (µg/L)
---	GRO Isoconcentration Contour (µg/L)
NS	Not Sampled
**	Grab Groundwater Sample

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

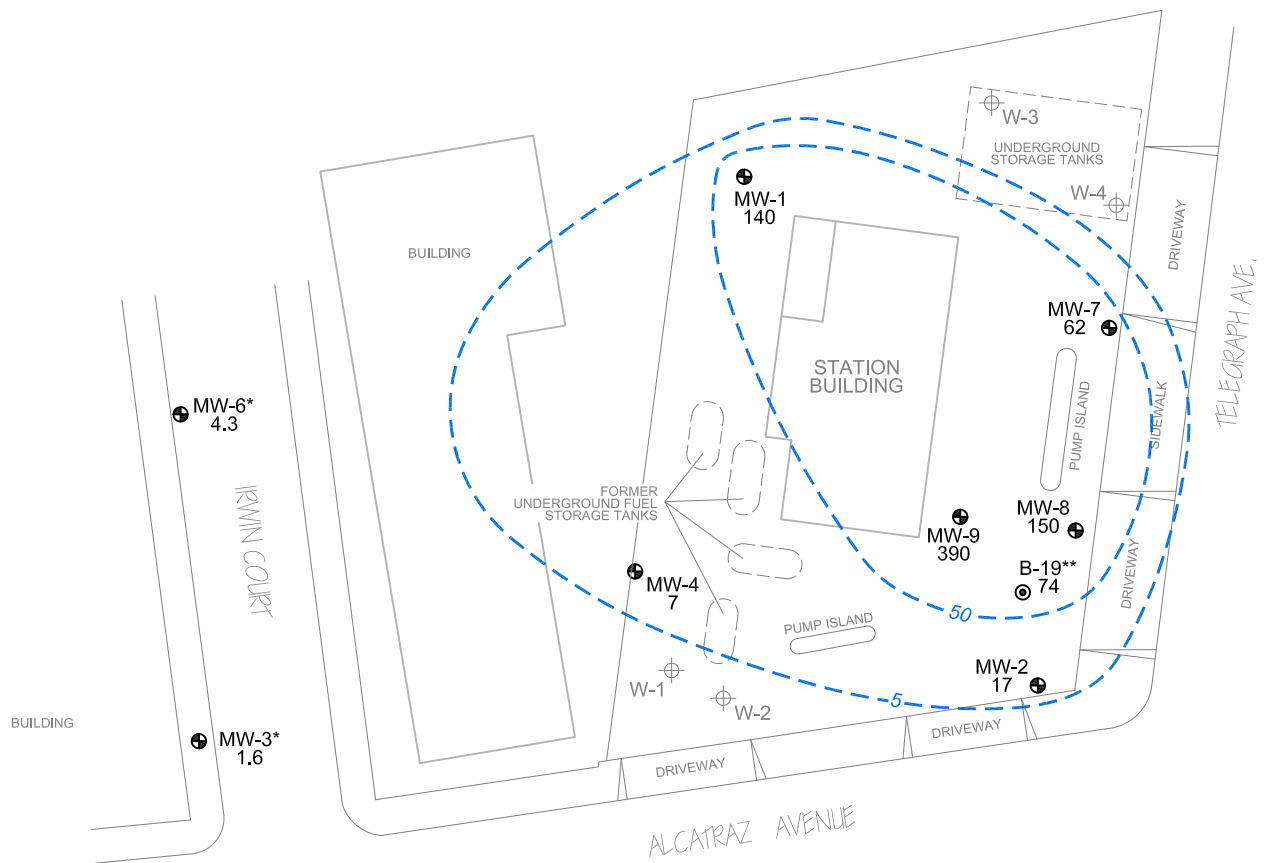


⊕  
MW-5  
NS

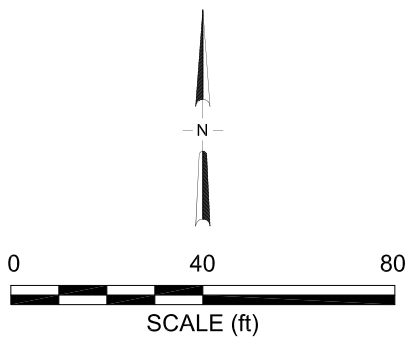






LEGEND	
⊕	Monitor Well Location
⊕	Tank Pit Monitor Well Location
⊙	Soil Boring Location
MW-9 18	Well ID with Benzene Concentration (µg/L)
---	Benzene Isoconcentration Contour (µg/L)
NS	Not Sampled
**	Grab Groundwater Sample

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



 MW-5\*  
 <0.50



LEGEND	
	Monitor Well Location
	Tank Pit Monitor Well Location
	Soil Boring Location
MW-9 390	Well ID with MTBE Concentration ( $\mu\text{g/L}$ )
	MTBE Isoconcentration Contour ( $\mu\text{g/L}$ )
NS	Not Sampled
*	Well Sampled 8/10/2010
**	Grab Groundwater Sample

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

## **TABLES**



**Table 1. Laboratory Soil Analytic Results from On-Site Investigation, November 22 to 24, 2010**

**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Boring and Sample Date	Sample ID	Sample Depth (feet)	Concentrations in (mg/Kg)													Comments
			GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE	Ethanol	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW			83	0.044	2.9	2.3	2.3	0.023	NE	0.075	NE	NE	NE	0.0045	0.0033	
ESL - NDW			100	0.12	9.3	2.3	11	8.4	NE	100	NE	NE	NE	0.22	0.019	
<b>B-19</b>																
11/23/2010	B-19-3	3	2.7	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-5	5	2.6	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-6	6	<0.50	0.0053	<0.0010	<0.0010	<0.0010	0.0032	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-8	8	<b>190</b>	<b>0.84</b>	0.0065	<b>5.5</b>	0.044	0.015	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-9.5	9.5	<b>250</b>	<b>0.19</b>	0.0016	1.4	0.0094	0.011	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-11	11	18	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	DF
11/23/2010	B-19-12.5	12.5	47	0.018	<0.0010	0.026	0.0025	0.0013	<0.10	0.013	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-14	14	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	B-19-15.5	15.5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0034	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
<b>MW-7</b>																
11/22/2010	MW-7-3	3	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-7-5	5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0017	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-7-6	6	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.0023	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-8	8	<b>650</b>	0.0047	<0.0010	<b>9.2</b>	9.3	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-9.5	9.5	<0.50	<0.0010	<0.0010	0.0014	0.0014	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-11	11	<0.50	<0.0010	<0.0010	0.0015	0.0017	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-12.5	12.5	<0.50	<0.0010	<0.0010	0.0018	0.0021	0.0017	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/24/2010	MW-7-14	14	1.2	<0.0010	<0.0010	0.0020	0.0024	0.0080	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
<b>MW-8</b>																
11/22/2010	MW-8-3	3	2.6	0.0099	<0.0010	<0.0010	0.0023	0.011	<0.10	0.013	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-8-5	5	1.7	0.057	<0.0010	0.028	0.0033	0.0075	<0.10	0.013	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-8-6	6	3.2	<b>0.23</b>	<0.10	0.75	<0.10	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-8	8	<b>510</b>	<b>2.7</b>	<0.10	<b>8.8</b>	5.0	0.13	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-9.5	9.5	<b>900</b>	<b>1.2</b>	<0.10	<b>12</b>	6.7	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-11	11	<b>1,400</b>	<0.10	<0.10	<0.10	0.11	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	
11/23/2010	MW-8-12.5	12.5	0.93	0.0041	<0.0010	0.0036	0.0018	0.0014	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-8-14.5	14.5	0.57	0.022	<0.0010	0.011	0.0056	0.036	<0.10	0.011	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	

**Table 1. Laboratory Soil Analytic Results from On-Site Investigation, November 22 to 24, 2010**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Boring and Sample Date	Sample ID	Sample Depth (feet)	Concentrations in (mg/Kg)													Comments
			GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE	Ethanol	TBA	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW			83	0.044	2.9	2.3	2.3	0.023	NE	0.075	NE	NE	NE	0.0045	0.0033	
ESL - NDW			100	0.12	9.3	2.3	11	8.4	NE	100	NE	NE	NE	0.22	0.019	
<b>MW-9</b>																
11/22/2010	MW-9-3	3	5.2	0.0069	<0.0010	0.0012	0.0028	0.046	<0.10	0.026	<0.0020	<0.0020	0.0030	<0.0010	<0.0010	
11/22/2010	MW-9-5	5	1.4	0.0024	<0.0010	0.0052	<0.0010	0.031	<0.10	0.037	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/22/2010	MW-9-6	6	3.5	0.025	<0.0010	0.060	0.0036	0.033	<0.10	0.036	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-9-8	8	<b>710</b>	<b>1.2</b>	<0.20	<b>16</b>	<b>28</b>	<0.20	<20	<2.0	<0.40	<0.40	<0.40	<0.20	<0.20	
11/23/2010	MW-9-11	11	54	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<1.0	<0.20	<0.20	<0.20	<0.10	<0.10	DF
11/23/2010	MW-9-12.5	12.5	46	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	0.12	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-9-14	14	9.3	0.0012	<0.0010	0.0013	0.0017	<0.0010	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	
11/23/2010	MW-9-15.5	15.5	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	0.031	<0.10	<0.010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	

SYMBOLS AND ABBREVIATIONS:

< = Not detected at or above specified laboratory reporting limit

GRO = Gasoline range organics

MTBE = Methyl tert-butyl ether

TBA = tert-Butyl alcohol

MTBE = Methyl tert-butyl ether

DIPE = Di-isopropyl ether

ETBE = Ethyl tert-butyl ether

TAME = tert-Amyl methyl ether

1,2-DCA = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

mg/kg = Milligrams per Kilogram

DF = Reporting limits elevated due to matrix interference

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

NOTES:

GRO (C6-C12) analyzed using EPA method 8015B.

Concentrations in *Italics* exceeds ESL-DW

Concentrations in ***Bold Italics*** exceeds ESL-NDW

Benzene, toluene, ethylbenzene, total xylenes, MTBE, ethanol and TBA analyzed using EPA method 8260B.

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>B-19</b>															
11/23/2010	--	k	--	--	--	--	--	<b>580</b>	20	<1.0	16	1.9	74	--	--
<b>MW-1</b>															
6/20/2000	--		158.91	7.00	27.0	6.86	152.05	--	--	--	--	--	--	--	--
9/28/2000	--		158.91	7.00	27.0	7.50	151.41	--	--	--	--	--	--	--	--
12/17/2000	--		158.91	7.00	27.0	7.49	151.42	--	--	--	--	--	--	--	--
3/23/2001	--		158.91	7.00	27.0	5.90	153.01	<50	<0.5	<0.5	<0.5	<0.5	<b>2,710</b>	--	--
6/21/2001	--		158.91	7.00	27.0	7.45	151.46	--	--	--	--	--	--	--	--
9/23/2001	--		158.91	7.00	27.0	8.46	150.45	--	--	--	--	--	--	--	--
12/31/2001	--		158.91	7.00	27.0	5.50	153.41	--	--	--	--	--	--	--	--
3/21/2002	--		158.91	7.00	27.0	4.71	154.20	< <b>5,000</b>	< <b>50</b>	< <b>50</b>	< <b>50</b>	< <b>50</b>	<b>2,000</b>	--	--
4/17/2002	--		158.91	7.00	27.0	5.54	153.37	--	--	--	--	--	--	--	--
8/12/2002	--		158.91	7.00	27.0	7.77	151.14	--	--	--	--	--	--	--	--
12/6/2002	--		158.91	7.00	27.0	7.65	151.26	--	--	--	--	--	--	--	--
1/29/2003	--	b	158.91	7.00	27.0	5.88	153.03	--	--	--	--	--	--	--	--
5/23/2003	--		158.91	7.00	27.0	5.62	153.29	< <b>10,000</b>	< <b>100</b>	< <b>100</b>	< <b>100</b>	< <b>100</b>	<b>1,600</b>	1.3	7.1
9/4/2003	--		158.91	7.00	27.0	7.85	151.06	--	--	--	--	--	--	--	--
11/20/2003	P		158.91	7.00	27.0	8.17	150.74	<b>1,600</b>	<10	<10	<10	<10	<b>1,500</b>	1.7	6.7
02/02/2004	P	f	164.57	7.00	27.0	6.71	157.86	--	--	--	--	--	--	1.0	--
05/14/2004	P		164.57	7.00	27.0	7.08	157.49	< <b>2,500</b>	<25	<25	<25	<25	<b>1,200</b>	1.4	6.6
09/02/2004	P		164.57	7.00	27.0	8.12	156.45	<b>580</b>	<5.0	<5.0	<5.0	<5.0	<b>660</b>	3.8	6.7
11/04/2004	P		164.57	7.00	27.0	7.38	157.19	<b>1,700</b>	<10	<10	<10	<10	<b>580</b>	6.0	6.5
02/08/2005	P		164.57	7.00	27.0	6.60	157.97	< <b>1,000</b>	<10	<10	<10	<10	<b>610</b>	0.71	6.5
05/09/2005	P	e	164.57	7.00	27.0	6.84	157.73	<b>540</b>	<5.0	<5.0	<5.0	5.5	<b>620</b>	3.12	6.6
08/11/2005	P		164.57	7.00	27.0	7.36	157.21	<b>540</b>	<2.5	<2.5	<2.5	4.0	<b>390</b>	0.8	6.6
11/18/2005	P	e	164.57	7.00	27.0	8.02	156.55	<b>350</b>	<2.5	<2.5	<2.5	<2.5	<b>340</b>	2.6	6.7
02/16/2006	P	e	164.57	7.00	27.0	6.44	158.13	<b>350</b>	<2.5	<2.5	<2.5	<2.5	<b>340</b>	1.6	6.7
5/30/2006	P		164.57	7.00	27.0	6.87	157.70	<b>270</b>	<2.5	<2.5	<2.5	<2.5	<b>420</b>	4.73	6.4

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-1 Cont.</b>															
8/24/2006	P		164.57	7.00	27.0	7.75	156.82	95	<5.0	<5.0	<5.0	<5.0	180	0.65	6.9
11/1/2006	P		164.57	7.00	27.0	8.28	156.29	120	<5.0	<5.0	<5.0	<5.0	220	1.65	7.07
2/7/2007	NP	e	164.57	7.00	27.0	7.40	157.17	120	<5.0	<5.0	<5.0	<5.0	190	1.88	7.45
5/8/2007	P		164.57	7.00	27.0	6.50	158.07	<500	<5.0	<5.0	<5.0	<5.0	420	1.21	6.94
8/8/2007	NP	e	164.57	7.00	27.0	8.17	156.40	82	<0.50	<0.50	<0.50	<0.50	110	1.16	7.00
11/14/2007	NP		164.57	7.00	27.0	8.01	156.56	170	<2.5	<2.5	<2.5	<2.5	210	1.92	6.49
2/22/2008	P		164.57	7.00	27.0	6.00	158.57	<50	<0.50	<0.50	<0.50	<0.50	250	2.57	6.65
5/24/2008	NP		164.57	7.00	27.0	7.58	156.99	<50	<5.0	<5.0	<5.0	<5.0	380	2.28	6.81
8/21/2008	NP		164.57	7.00	27.0	8.60	155.97	<50	<2.5	<2.5	<2.5	<2.5	170	2.16	6.98
11/19/2008	NP		164.57	7.00	27.0	8.88	155.69	<50	<0.50	<0.50	<0.50	<0.50	30	2.12	7.27
2/23/2009	P		164.57	7.00	27.0	6.40	158.17	78	<2.5	<2.5	<2.5	<2.5	240	2.19	6.03
5/14/2009	P		164.57	7.00	27.0	6.67	157.90	53	<0.50	<0.50	<0.50	<0.50	200	1.75	6.69
8/20/2009	NP	i (GRO)	164.57	7.00	27.0	8.25	156.32	150	<2.0	<2.0	<2.0	<2.0	170	2.14	6.25
2/19/2010	P		164.57	7.00	27.0	6.07	158.50	<50	<0.50	<0.50	<0.50	<0.50	170	0.92	6.66
8/10/2010	NP		164.57	7.00	27.0	7.58	156.99	<50	<2.5	<2.5	<2.5	<2.5	230	3.86	7.1
12/16/2010	P	j	164.45	7.00	27.0	6.64	157.81	<50	<2.0	<2.0	<2.0	<2.0	140	1.20	6.86
<b>MW-2</b>															
6/20/2000	--		157.92	7.00	27.0	7.67	150.25	--	--	--	--	--	--	--	--
9/28/2000	--		157.92	7.00	27.0	8.51	149.41	--	--	--	--	--	--	--	--
12/17/2000	--		157.92	7.00	27.0	8.14	149.78	--	--	--	--	--	--	--	--
3/23/2001	--		157.92	7.00	27.0	7.21	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/21/2001	--		157.92	7.00	27.0	7.99	149.93	--	--	--	--	--	--	--	--
9/23/2001	--		157.92	7.00	27.0	8.52	149.40	--	--	--	--	--	--	--	--
12/31/2001	--		157.92	7.00	27.0	6.01	151.91	--	--	--	--	--	--	--	--
3/21/2002	--		157.92	7.00	27.0	5.95	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	--	--
4/17/2002	--		157.92	7.00	27.0	6.45	151.47	--	--	--	--	--	--	--	--
8/12/2002	--		157.92	7.00	27.0	8.08	149.84	--	--	--	--	--	--	--	--

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-2 Cont.</b>															
12/6/2002	--		157.92	7.00	27.0	8.29	149.63	--	--	--	--	--	--	--	--
1/29/2003	--	b	157.92	7.00	27.0	7.22	150.70	--	--	--	--	--	--	--	--
5/23/2003	--		157.92	7.00	27.0	6.85	151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2
9/4/2003	--		157.92	7.00	27.0	7.94	149.98	--	--	--	--	--	--	--	--
11/20/2003	--		157.92	7.00	27.0	8.05	149.87	--	--	--	--	--	--	--	--
02/02/2004	P	f	163.46	7.00	27.0	7.00	156.46	74	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9
05/14/2004	--		163.46	7.00	27.0	7.97	155.49	--	--	--	--	--	--	--	--
09/02/2004	P		163.46	7.00	27.0	8.19	155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9
11/04/2004	--		163.46	7.00	27.0	7.54	155.92	--	--	--	--	--	--	--	--
02/08/2005	P		163.46	7.00	27.0	6.72	156.74	<50	<0.50	<0.50	<0.50	<0.50	30	0.86	6.7
05/09/2005	--		163.46	7.00	27.0	7.16	156.30	--	--	--	--	--	--	--	--
08/11/2005	P		163.46	7.00	27.0	7.85	155.61	<50	<0.50	<0.50	<0.50	<0.50	35	1.0	6.6
11/18/2005	--		163.46	7.00	27.0	8.23	155.23	--	--	--	--	--	--	--	--
02/16/2006	P		163.46	7.00	27.0	6.82	156.64	<50	<0.50	<0.50	<0.50	<0.50	39	1.3	7.0
5/30/2006	--		163.46	7.00	27.0	7.23	156.23	--	--	--	--	--	--	--	--
8/24/2006	P		163.46	7.00	27.0	8.00	155.46	60	<0.50	<0.50	<0.50	<0.50	25	0.90	6.8
11/1/2006	--		163.46	7.00	27.0	8.38	155.08	--	--	--	--	--	--	--	--
2/7/2007	NP		163.46	7.00	27.0	7.88	155.58	<50	0.50	<0.50	<0.50	<0.50	7.2	0.94	7.39
5/8/2007	--		163.46	7.00	27.0	7.28	156.18	--	--	--	--	--	--	--	--
8/8/2007	NP		163.46	7.00	27.0	8.38	155.08	88	3.2	<0.50	<0.50	<0.50	7.2	0.94	7.75
11/14/2007	--		163.46	7.00	27.0	8.10	155.36	--	--	--	--	--	--	--	--
2/22/2008	P		163.46	7.00	27.0	6.75	156.71	<50	<0.50	<0.50	<0.50	<0.50	24	2.18	7.02
5/24/2008	--		163.46	7.00	27.0	7.98	155.48	--	--	--	--	--	--	--	--
8/21/2008	NP		163.46	7.00	27.0	8.58	154.88	<50	2.6	<0.50	<0.50	<0.50	4.9	2.20	7.11
11/19/2008	--		163.46	7.00	27.0	8.66	154.80	--	--	--	--	--	--	--	--
2/23/2009	P		163.46	7.00	27.0	6.67	156.79	74	1.0	<0.50	<0.50	<0.50	24	2.25	6.16
5/14/2009	--		163.46	7.00	27.0	7.02	156.44	--	--	--	--	--	--	--	--

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-2 Cont.</b>															
8/20/2009	NP		163.46	7.00	27.0	8.41	155.05	82	2.4	<0.50	<0.50	<0.50	8.4	2.19	6.37
2/19/2010	NP		163.46	7.00	27.0	7.36	156.10	<50	<0.50	<0.50	<0.50	<0.50	22	0.81	6.90
8/10/2010	NP		163.46	7.00	27.0	7.69	155.77	<50	<0.50	<0.50	<0.50	<0.50	23	2.40	7.67
12/16/2010	P	j	163.49	7.00	27.0	7.12	156.37	<50	<0.50	<0.50	<0.50	<0.50	17	0.69	7.06
<b>MW-3</b>															
6/20/2000	--		153.64	7.00	27.0	6.42	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--
9/28/2000	--		153.64	7.00	27.0	7.31	146.33	--	--	--	--	--	--	--	--
12/17/2000	--		153.64	7.00	27.0	6.45	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		153.64	7.00	27.0	6.01	147.63	--	--	--	--	--	--	--	--
6/21/2001	--		153.64	7.00	27.0	6.80	146.84	110	5.5	<0.5	5.4	4.1	2.5	--	--
9/23/2001	--		153.64	7.00	27.0	7.32	146.32	--	--	--	--	--	--	--	--
12/31/2001	--		153.64	7.00	27.0	4.48	149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	--	--
3/21/2002	--		153.64	7.00	27.0	4.36	149.28	--	--	--	--	--	--	--	--
4/17/2002	--		153.64	7.00	27.0	5.31	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	--	--
8/12/2002	--		153.64	7.00	27.0	7.00	146.64	--	--	--	--	--	--	--	--
12/6/2002	--		153.64	7.00	27.0	7.32	146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7
1/29/2003	--	b	153.64	7.00	27.0	6.07	147.57	--	--	--	--	--	--	--	--
5/23/2003	--		153.64	7.00	27.0	6.45	147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7
9/4/2003	--	c	153.64	7.00	27.0	6.93	146.71	--	--	--	--	--	--	--	--
11/20/2003	--	c	153.64	7.00	27.0	7.04	146.60	--	--	--	--	--	--	--	--
02/02/2004	--	f	159.21	7.00	27.0	5.92	153.29	--	--	--	--	--	--	--	--
05/14/2004	--		159.21	7.00	27.0	7.52	151.69	--	--	--	--	--	--	--	--
09/02/2004	P		159.21	7.00	27.0	7.19	152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9
11/04/2004	--		159.21	7.00	27.0	6.40	152.81	--	--	--	--	--	--	--	--
02/08/2005	--		159.21	7.00	27.0	6.01	153.20	--	--	--	--	--	--	--	--
05/09/2005	--		159.21	7.00	27.0	6.74	152.47	--	--	--	--	--	--	--	--
08/11/2005	P		159.21	7.00	27.0	6.77	152.44	<50	<0.50	<0.50	<0.50	<0.50	11	1.9	6.5

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-3 Cont.</b>															
11/18/2005	--		159.21	7.00	27.0	7.83	151.38	--	--	--	--	--	--	--	--
02/16/2006	--		159.21	7.00	27.0	7.26	151.95	--	--	--	--	--	--	--	--
5/30/2006	--		159.21	7.00	27.0	5.82	153.39	--	--	--	--	--	--	--	--
8/24/2006	P		159.21	7.00	27.0	7.00	152.21	<50	<0.50	<0.50	<0.50	<0.50	7.6	1.15	6.4
11/1/2006	--		159.21	7.00	27.0	7.50	151.71	--	--	--	--	--	--	--	--
2/7/2007	--		159.21	7.00	27.0	6.90	152.31	--	--	--	--	--	--	--	--
5/8/2007	--		159.21	7.00	27.0	5.95	153.26	--	--	--	--	--	--	--	--
8/8/2007	NP		159.21	7.00	27.0	7.47	151.74	<50	<0.50	<0.50	<0.50	<0.50	1.2	1.21	6.93
11/14/2007	--		159.21	7.00	27.0	7.05	152.16	--	--	--	--	--	--	--	--
2/22/2008	--		159.21	7.00	27.0	5.50	153.71	--	--	--	--	--	--	--	--
5/24/2008	--		159.21	7.00	27.0	7.03	152.18	--	--	--	--	--	--	--	--
8/21/2008	NP		159.21	7.00	27.0	7.80	151.41	<50	<0.50	<0.50	<0.50	<0.50	3.1	2.11	6.84
11/19/2008	--		159.21	7.00	27.0	7.69	151.52	--	--	--	--	--	--	--	--
2/23/2009	--		159.21	7.00	27.0	7.28	151.93	--	--	--	--	--	--	--	--
5/14/2009	--		159.21	7.00	27.0	6.17	153.04	--	--	--	--	--	--	--	--
8/20/2009	NP		159.21	7.00	27.0	7.38	151.83	<50	<0.50	<0.50	<0.50	<0.50	2.2	2.05	7.01
2/19/2010	--		159.21	7.00	27.0	5.31	153.90	--	--	--	--	--	--	--	--
8/10/2010	NP		159.21	7.00	27.0	7.12	152.09	<50	<0.50	<0.50	<0.50	<0.50	1.6	1.27	7.33
12/16/2010	--	j	159.21	7.00	27.0	5.65	153.56	--	--	--	--	--	--	--	--
<b>MW-4</b>															
6/20/2000	--	c	156.53	7.00	27.0	7.50	149.03	<b>20,000</b>	<b>5,100</b>	<b>440</b>	<b>1,000</b>	<b>1,700</b>	<250	--	--
9/28/2000	--		156.53	7.00	27.0	8.20	148.33	--	--	--	--	--	--	--	--
12/17/2000	--		156.53	7.00	27.0	8.11	148.42	<b>4,320</b>	<b>1,240</b>	<20	27.2	<b>249</b>	<100	--	--
3/23/2001	--		156.53	7.00	27.0	6.69	149.84	--	--	--	--	--	--	--	--
6/21/2001	--		156.53	7.00	27.0	8.01	148.52	<b>2,800</b>	<b>470</b>	16	19	<b>160</b>	<b>130</b>	--	--
9/23/2001	--		156.53	7.00	27.0	8.91	147.62	--	--	--	--	--	--	--	--
12/31/2001	--		156.53	7.00	27.0	4.42	152.11	<b>4,600</b>	<b>1,500</b>	100	<b>160</b>	<b>210</b>	<b>160</b>	--	--



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**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-4 Cont.</b>															
3/21/2002	--		156.53	7.00	27.0	4.98	151.55	--	--	--	--	--	--	--	--
4/17/2002	--		156.53	7.00	27.0	6.23	150.30	<b>7,100</b>	<b>2,200</b>	<i>110</i>	<b>290</b>	<b>450</b>	<250	--	--
8/12/2002	--		156.53	7.00	27.0	8.24	148.29	--	--	--	--	--	--	--	--
12/6/2002	--	a	156.53	7.00	27.0	8.42	148.11	<b>1,500</b>	<b>410</b>	6.8	20	29	43	1.1	6.7
1/29/2003	--	b	156.53	7.00	27.0	7.20	149.33	--	--	--	--	--	--	--	--
5/23/2003	--		156.53	7.00	27.0	7.18	149.35	< <b>5,000</b>	<b>1,300</b>	89	<b>210</b>	<b>260</b>	<50	1.4	6.9
9/4/2003	--	c	156.53	7.00	27.0	8.15	148.38	--	--	--	--	--	--	--	--
11/20/2003	--	c	156.53	7.00	27.0	8.73	147.80	--	--	--	--	--	--	--	--
02/02/2004	P	c, f, g	163.25	7.00	27.0	6.25	157.00	<b>980</b>	<b>280</b>	21	29	38	29	1.4	10.6
05/14/2004	--	g	163.25	7.00	27.0	8.38	154.87	--	--	--	--	--	--	--	--
09/02/2004	P	g	163.25	7.00	27.0	8.36	154.89	<b>260</b>	<i>11</i>	<1.0	5.5	14	28	2.4	7.4
11/04/2004	--	c, g	163.25	7.00	27.0	7.71	155.54	--	--	--	--	--	--	--	--
02/08/2005	P	g	163.25	7.00	27.0	6.27	156.98	<b>7,500</b>	<b>1,700</b>	<b>320</b>	<b>480</b>	<b>920</b>	<b>45</b>	0.65	6.5
05/09/2005	--	g	163.25	7.00	27.0	5.90	157.35	--	--	--	--	--	--	--	--
08/11/2005	P	g	163.25	7.00	27.0	7.96	155.29	<b>3,100</b>	<b>1,100</b>	<i>41</i>	<b>160</b>	<b>110</b>	<b>32</b>	0.6	6.5
11/18/2005	--	g	163.25	7.00	27.0	8.57	154.68	--	--	--	--	--	--	--	--
02/16/2006	P	g	163.25	7.00	27.0	6.28	156.97	<b>9,400</b>	<b>1,800</b>	<i>130</i>	<b>600</b>	<b>420</b>	<b>35</b>	0.5	6.8
5/30/2006	--	g	162.47	7.00	27.0	7.02	155.45	--	--	--	--	--	--	--	--
8/24/2006	P		162.47	7.00	27.0	8.26	154.21	<b>3,600</b>	<b>1,400</b>	21	<b>110</b>	<b>70</b>	<b>39</b>	1.00	6.8
11/1/2006	--		162.47	7.00	27.0	8.67	153.80	--	--	--	--	--	--	--	--
2/7/2007	NP		162.47	7.00	27.0	8.02	154.45	<b>3,100</b>	<b>570</b>	17	<b>170</b>	<b>110</b>	<b>67</b>	0.95	7.07
5/8/2007	--		162.47	7.00	27.0	7.03	155.44	--	--	--	--	--	--	--	--
8/8/2007	NP		162.47	7.00	27.0	8.60	153.87	<b>2,900</b>	<b>630</b>	22	<b>67</b>	<b>57</b>	<b>72</b>	0.93	6.79
11/14/2007	--		162.47	7.00	27.0	8.53	153.94	--	--	--	--	--	--	--	--
2/22/2008	P		162.47	7.00	27.0	6.25	156.22	<b>3,900</b>	<b>880</b>	39	<b>180</b>	<b>92</b>	<b>70</b>	2.31	6.87
5/24/2008	--	d	162.47	7.00	27.0	--	--	--	--	--	--	--	--	--	--
8/21/2008	NP		162.47	7.00	27.0	8.96	153.51	<b>3,700</b>	<b>1,100</b>	26	<b>85</b>	<b>130</b>	<b>53</b>	2.26	6.80

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-4 Cont.</b>															
11/19/2008	--		162.47	7.00	27.0	9.20	153.27	--	--	--	--	--	--	--	--
2/23/2009	P		162.47	7.00	27.0	6.35	156.12	<b>3,000</b>	<b>220</b>	9.1	23	19	39	2.21	6.51
5/14/2009	--		162.47	7.00	27.0	7.00	155.47	--	--	--	--	--	--	--	--
8/20/2009	NP		162.47	7.00	27.0	8.05	154.42	<b>5,700</b>	<b>1,100</b>	35	<b>110</b>	<b>100</b>	<b>23</b>	2.17	6.81
2/19/2010	P	i	162.47	7.00	27.0	5.71	156.76	<b>12,000</b>	<b>1,200</b>	<b>120</b>	<b>230</b>	<b>390</b>	<5.0	0.81	6.70
8/10/2010	NP		162.47	7.00	27.0	7.59	154.88	<b>9,700</b>	<b>1,500</b>	<b>120</b>	<b>400</b>	<b>400</b>	<20	3.81	6.8
12/16/2010	P	j	162.48	7.00	27.0	6.83	155.65	<b>15,000</b>	<b>1,800</b>	82	<b>270</b>	<b>210</b>	<25	0.49	6.81
<b>MW-5</b>															
6/20/2000	--		151.33	10.00	23.0	7.84	143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--
9/28/2000	--		151.33	10.00	23.0	8.37	142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/17/2000	--		151.33	10.00	23.0	8.36	142.97	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/23/2001	--		151.33	10.00	23.0	7.55	143.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
6/21/2001	--		151.33	10.00	23.0	8.20	143.13	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
9/23/2001	--		151.33	10.00	23.0	8.68	142.65	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
12/31/2001	--		151.33	10.00	23.0	7.57	143.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
3/21/2002	--		151.33	10.00	23.0	6.12	145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--
4/17/2002	--		151.33	10.00	23.0	6.61	144.72	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--
8/12/2002	--		151.33	10.00	23.0	8.14	143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6
12/6/2002	--		151.33	10.00	23.0	8.65	142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8
1/29/2003	--	b	151.33	10.00	23.0	7.22	144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1	6.6
5/23/2003	--		151.33	10.00	23.0	7.31	144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6
9/4/2003	--		151.33	10.00	23.0	9.50	141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7
11/20/2003	--		151.33	10.00	23.0	8.31	143.02	--	--	--	--	--	--	--	--
02/02/2004	--	c, f, h	151.33	10.00	23.0	6.92	144.41	--	--	--	--	--	--	--	--
05/14/2004	--	h	151.33	10.00	23.0	8.56	142.77	--	--	--	--	--	--	--	--
09/02/2004	P	h	151.33	10.00	23.0	8.79	142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8
11/04/2004	--	c, h	151.33	10.00	23.0	8.33	143.00	--	--	--	--	--	--	--	--

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-5 Cont.</b>															
02/08/2005	--	h	151.33	10.00	23.0	7.28	144.05	--	--	--	--	--	--	--	--
05/09/2005	--	h	151.33	10.00	23.0	8.19	143.14	--	--	--	--	--	--	--	--
08/11/2005	P	h	151.33	10.00	23.0	8.39	142.94	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.6
11/18/2005	--	h	151.33	10.00	23.0	11.25	140.08	--	--	--	--	--	--	--	--
02/16/2006	--	h	151.33	10.00	23.0	9.22	142.11	--	--	--	--	--	--	--	--
5/30/2006	--	h	--	10.00	23.0	7.52	--	--	--	--	--	--	--	--	--
8/24/2006	P		--	10.00	23.0	7.95	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.60	6.6
11/1/2006	--		--	10.00	23.0	8.32	--	--	--	--	--	--	--	--	--
2/7/2007	--		--	10.00	23.0	8.25	--	--	--	--	--	--	--	--	--
5/8/2007	--		--	10.00	23.0	7.60	--	--	--	--	--	--	--	--	--
8/8/2007	P		--	10.00	23.0	8.12	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.26	7.31
11/14/2007	--		--	10.00	23.0	9.10	--	--	--	--	--	--	--	--	--
2/22/2008	--		--	10.00	23.0	7.48	--	--	--	--	--	--	--	--	--
5/24/2008	--		--	10.00	23.0	8.12	--	--	--	--	--	--	--	--	--
8/21/2008	P		--	10.00	23.0	8.65	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.14	6.54
11/19/2008	--		--	10.00	23.0	11.86	--	--	--	--	--	--	--	--	--
2/23/2009	--		--	10.00	23.0	10.20	--	--	--	--	--	--	--	--	--
5/14/2009	--		--	10.00	23.0	9.63	--	--	--	--	--	--	--	--	--
8/20/2009	P		--	10.00	23.0	8.52	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.01	6.47
2/19/2010	--	d	--	10.00	23.0	--	--	--	--	--	--	--	--	--	--
8/10/2010	P		--	10.00	23.0	8.05	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.15	7.1
12/16/2010	--	j	156.90	10.00	23.0	8.10	148.80	--	--	--	--	--	--	--	--
<b>MW-6</b>															
6/20/2000	--		153.84	5.00	15.0	4.79	149.05	--	--	--	--	--	--	--	--
9/28/2000	--		153.84	5.00	15.0	5.39	148.45	--	--	--	--	--	--	--	--
12/17/2000	--		153.84	5.00	15.0	4.71	149.13	--	--	--	--	--	--	--	--
3/23/2001	--		153.84	5.00	15.0	4.69	149.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-6 Cont.</b>															
6/21/2001	--		153.84	5.00	15.0	5.22	148.62	--	--	--	--	--	--	--	--
9/23/2001	--		153.84	5.00	15.0	5.40	148.44	--	--	--	--	--	--	--	--
12/31/2001	--		153.84	5.00	15.0	3.95	149.89	--	--	--	--	--	--	--	--
3/21/2002	--		153.84	5.00	15.0	2.94	150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	--	--
4/17/2002	--		153.84	5.00	15.0	5.11	148.73	--	--	--	--	--	--	--	--
8/12/2002	--		153.84	5.00	15.0	5.23	148.61	--	--	--	--	--	--	--	--
12/6/2002	--		153.84	5.00	15.0	5.29	148.55	--	--	--	--	--	--	--	--
1/29/2003	--	b	153.84	5.00	15.0	4.79	149.05	--	--	--	--	--	--	--	--
5/23/2003	--		153.84	5.00	15.0	4.31	149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7
09/04/03	--	d	153.84	5.00	15.0	--	--	--	--	--	--	--	--	--	--
11/20/2003	--		153.84	5.00	15.0	6.31	147.53	--	--	--	--	--	--	--	--
02/02/2004	--	f	159.41	5.00	15.0	4.78	154.63	--	--	--	--	--	--	--	--
05/14/2004	--		159.41	5.00	15.0	6.29	153.12	--	--	--	--	--	--	--	--
09/02/2004	--	d	159.41	5.00	15.0	5.79	153.62	--	--	--	--	--	--	--	--
11/04/2004	--	d	159.41	5.00	15.0	--	--	--	--	--	--	--	--	--	--
02/08/2005	--		159.41	5.00	15.0	5.13	154.28	--	--	--	--	--	--	--	--
05/09/2005	--		159.41	5.00	15.0	4.52	154.89	--	--	--	--	--	--	--	--
08/11/2005	P		159.41	5.00	15.0	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	7.9	2.1	6.6
11/18/2005	--		159.41	5.00	15.0	6.31	153.10	--	--	--	--	--	--	--	--
02/16/2006	--		159.41	5.00	15.0	4.24	155.17	--	--	--	--	--	--	--	--
5/30/2006	--		159.41	5.00	15.0	4.45	154.96	--	--	--	--	--	--	--	--
8/24/2006	P		159.41	5.00	15.0	5.18	154.23	<50	<0.50	<0.50	<0.50	<0.50	12	3.4	6.8
11/1/2006	--		159.41	5.00	15.0	6.05	153.36	--	--	--	--	--	--	--	--
2/7/2007	--		159.41	5.00	15.0	5.00	154.41	--	--	--	--	--	--	--	--
5/8/2007	--		159.41	5.00	15.0	4.30	155.11	--	--	--	--	--	--	--	--
8/8/2007	NP		159.41	5.00	15.0	5.51	153.90	<50	<0.50	<0.50	<0.50	<0.50	0.57	2.94	6.87
11/14/2007	--		159.41	5.00	15.0	5.38	154.03	--	--	--	--	--	--	--	--

**Table 2. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	P/NP	Comments	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in (µg/L)						DO (mg/L)	pH
								GRO/TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE		
ESL - DW								100	1.0	40	30	20	5.0		
ESL - NDW								210	46	130	43	100	1,800		
<b>MW-6 Cont.</b>															
2/22/2008	--		159.41	5.00	15.0	4.70	154.71	--	--	--	--	--	--	--	--
5/24/2008	--		159.41	5.00	15.0	5.25	154.16	--	--	--	--	--	--	--	--
8/21/2008	NP		159.41	5.00	15.0	6.14	153.27	<50	<0.50	<0.50	<0.50	<0.50	1.9	1.99	7.13
11/19/2008	--		159.41	5.00	15.0	5.94	153.47	--	--	--	--	--	--	--	--
2/23/2009	--		159.41	5.00	15.0	5.00	154.41	--	--	--	--	--	--	--	--
5/14/2009	--		159.41	5.00	15.0	4.60	154.81	--	--	--	--	--	--	--	--
8/20/2009	NP		159.41	5.00	15.0	5.65	153.76	<50	<0.50	<0.50	<0.50	<0.50	2.0	1.98	6.81
2/19/2010	--		159.41	5.00	15.0	7.28	152.13	--	--	--	--	--	--	--	--
8/10/2010	NP		159.41	5.00	15.0	5.02	154.39	<50	<0.50	<0.50	<0.50	<0.50	4.3	1.99	6.93
12/16/2010	--	j	159.41	5.00	15.0	4.50	154.91	--	--	--	--	--	--	--	--
<b>MW-7</b>															
12/16/2010	P	j	164.80	--	--	6.52	158.28	<b>700</b>	<0.50	<0.50	15	32	62	--	7.08
<b>MW-8</b>															
12/16/2010	P	j	164.14	--	--	6.85	157.29	<b>520</b>	43	<0.50	4.1	21	150	0.46	7.12
<b>MW-9</b>															
12/16/2010	P	j	163.77	--	--	6.63	157.14	<b>330</b>	18	<0.50	11	38	390	0.57	6.97

SYMBOLS AND ABBREVIATIONS:

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

FOOTNOTES:

a = Chromatogram pattern: Gasoline C6-C10 for GRO/TPH-g.  
b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates.  
c = Wells gauged with ORC sock in well.  
d = Well inaccessible  
e = The hydrocarbon result for GRO was partly due to individual peaks in the quantitative range.  
f = Well resurveyed on 1/27/2004 to NAVD88  
g = Upon review of survey data (1/27/2004), TOC elevation for MW-4 is actually 162.47 ft.  
h = Upon review of survey data (1/27/2004), MW-5 was not surveyed from the TOC. MW-5 was surveyed from the pavement due to inaccessibility to the TOC. Therefore, survey data for MW-5 from the TOC is unavailable. Historic data prior to 5/30/2006 (change in consultant) not modified.  
i = Quantitation of unknown hydrocarbon(s) in sample based on gasoline.  
j = Surveyed 12/9/2010.  
k = Grab groundwater sample.

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

NOTES:

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

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

Concentrations in *Italics* exceeds ESL-DW

Concentrations in ***Italics*** exceeds ESL-NDW

Values for DO and pH were obtained through field measurements.

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

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

**Table 3. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
<b>B-19</b>									
11/23/2010	<600	30	74	<1.0	<1.0	<1.0	<1.0	<1.0	
<b>MW-1</b>									
5/23/2003	<20,000	<4,000	1,600	<100	<100	<100	--	--	
11/20/2003	<2,000	<400	1,500	<10	<10	<10	--	--	a
05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
11/04/2004	<2,000	<400	580	<10	<10	<10	<10	<10	
02/08/2005	<2,000	<400	610	<10	<10	<10	<10	<10	
05/09/2005	<1,000	<200	620	<5.0	<5.0	<5.0	<5.0	<5.0	a
08/11/2005	<500	250	390	<2.5	<2.5	2.6	<2.5	<2.5	a
11/18/2005	<500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	a
02/16/2006	<1,500	<100	340	<2.5	<2.5	<2.5	<2.5	<2.5	
5/30/2006	<1,500	<100	420	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/24/2006	<3,000	<200	180	<5.0	<5.0	<5.0	<5.0	<5.0	
11/1/2006	<3,000	<200	220	<5.0	<5.0	<5.0	<5.0	<5.0	a
2/7/2007	<3,000	<200	190	<5.0	<5.0	<5.0	<5.0	<5.0	
5/8/2007	<3,000	<200	420	<5.0	<5.0	<5.0	<5.0	<5.0	
8/8/2007	<300	<20	110	<0.50	<0.50	<0.50	<0.50	<0.50	
11/14/2007	<1,500	<100	210	<2.5	<2.5	<2.5	<2.5	<2.5	
2/22/2008	<300	<10	250	<0.50	<0.50	1.5	<0.50	<0.50	
5/24/2008	<3,000	<100	380	<5.0	<5.0	<5.0	<5.0	<5.0	
8/21/2008	<1,500	<50	170	<2.5	<2.5	<2.5	<2.5	<2.5	
10/19/2008	<300	<10	30	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<1,500	<50	240	<2.5	<2.5	<2.5	<2.5	<2.5	
5/14/2009	<300	<10	200	<0.50	<0.50	1.3	<0.50	<0.50	
8/20/2009	<1,200	<40	170	<2.0	<2.0	<2.0	<2.0	<2.0	
2/19/2010	<300	<10	170	<0.50	<0.50	1.2	<0.50	<0.50	
8/10/2010	<1,500	<50	230	<2.5	<2.5	<2.5	<2.5	<2.5	
12/16/2010	<1,200	<40	140	<2.0	<2.0	<2.0	<2.0	<2.0	



**Table 3. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
<b>MW-2</b>									
5/23/2003	<100	<20	55	<0.50	<0.50	0.53	--	--	
02/02/2004	<100	<20	37	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
02/08/2005	<100	<20	30	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/16/2006	<300	<20	39	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	25	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2008	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2009	<300	<10	24	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/19/2010	<300	<10	22	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	23	<0.50	<0.50	<0.50	<0.50	<0.50	
12/16/2010	<300	<10	17	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-3</b>									
5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	11	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/24/2006	<300	<20	7.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	3.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-4</b>									
5/23/2003	<10,000	<2,000	<50	<50	<50	<50	--	--	
02/02/2004	<500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	

**Table 3. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
<b>MW-4 Cont.</b>									
09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
02/08/2005	<5,000	<1,000	45	<25	<25	<25	<25	<25	
08/11/2005	<2,000	<400	32	<10	<10	<10	<10	<10	
02/16/2006	<6,000	<400	35	<10	<10	<10	<10	<10	
8/24/2006	<1,500	<100	39	<2.5	<2.5	<2.5	<2.5	<2.5	
2/7/2007	<6,000	<400	67	<10	<10	<10	<10	<10	
8/8/2007	<6,000	<400	72	<10	<10	<10	<10	<10	
2/22/2008	<6,000	<200	70	<10	<10	<10	<10	<10	
8/21/2008	<12,000	<400	53	<20	<20	<20	<20	<20	
2/23/2009	<3,000	<100	39	<5.0	<5.0	<5.0	<5.0	<5.0	
8/20/2009	<12,000	<400	23	<20	<20	<20	<20	<20	
2/19/2010	<3,000	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
8/10/2010	<12,000	<400	<20	<20	<20	<20	<20	<20	
12/16/2010	<15,000	<500	<25	<25	<25	<25	<25	<25	
<b>MW-5</b>									
1/29/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
5/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	--	--	
9/4/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/24/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-6</b>									
5/23/2003	<100	<20	9.4	<0.50	<0.50	<0.50	--	--	
08/11/2005	<100	<20	7.9	<0.50	<0.50	<0.50	<0.50	<0.50	a

**Table 3. Summary of Fuel Additives Analytical Data**  
**ARCO Service Station #0374, 6407 Telegraph Ave., Oakland, CA**

Well and Sample Date	Concentrations in (µg/L)								Comments
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ESL - DW	NE	12	5.0	NE	NE	NE	0.5	0.05	
ESL - NDW	NE	18,000	1,800	NE	NE	NE	200	150	
<b>MW-6 Cont.</b>									
8/24/2006	<300	<20	12	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2007	<300	<20	0.57	<0.50	<0.50	<0.50	<0.50	<0.50	
8/21/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/20/2009	<300	<10	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	
8/10/2010	<300	<10	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-7</b>									
12/16/2010	<300	<10	62	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-8</b>									
12/16/2010	<300	<10	150	<0.50	<0.50	1.7	<0.50	<0.50	
<b>MW-9</b>									
12/16/2010	<300	40	390	<0.50	<0.50	4.1	<0.50	<0.50	

SYMBOLS AND ABBREVIATIONS:

-- = Not analyzed/applicable/measured/available  
< = Not detected at or above the laboratory reporting limit  
1,2-DCA = 1,2-Dichloroethane  
DIPE = Di-isopropyl ether  
EDB = 1,2-Dibromoethane  
ETBE = Ethyl tert-butyl ether  
MTBE = Methyl tert-butyl ether  
TAME = tert-Amyl methyl ether  
TBA = tert-Butyl alcohol  
µg/L = Micrograms per Liter

FOOTNOTES:

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

ESL - DW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

ESL - NDW = Environmental Screening Levels (ESLs), shallow soils (<3 meters bgs), groundwater is NOT a current or potential source of drinking water, for residential land use. Ref. California Regional Water Quality Control Board, San Francisco Bay Region (CRWQCB-SFBR), Screening for Environmental Concerns at Sites with Contaminated Soil Groundwater, Interim Final-November 2007 (Revised May 2008).

NE = ESL not established

NOTES:

All volatile organic compounds analyzed using EPA Method 8260B.  
Concentrations in *Italics* exceeds ESL-DW  
Concentrations in ***Italics*** exceeds ESL-NDW

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

**APPENDIX A**

**REGULATORY CORRESPONDENCE**



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

August 12, 2010

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

Subject: Soil and Groundwater Investigation Work Plan for Fuel Leak Case No. RO0000078 and GeoTracker Global ID T0600100106, ARCO #0374, 6407 Telegraph Avenue, Oakland, CA 94609

Dear Mr. Carmel:

Thank you for the recently submitted document entitled, "Work Plan for Soil & Ground-Water Investigation," dated May 11, 2010, which was prepared by Broadbent & Associates, Inc. (BAI) for the subject site. Alameda County Environmental Health (ACEH) staff has reviewed the case file including the above-mentioned report/work plan for the above-referenced site. To address concerns identified in ACEH's March 12, 2010 correspondence that one boring may not adequately characterize the site, BAI has proposed to install four borings of which three would be converted to groundwater monitoring wells.

ACEH generally concurs with the proposed scope of work and the proposed scope of work may be implemented provided that the modifications requested in the technical comments below are addressed and incorporated during the field implementation. Submittal of a revised Work Plan is not required unless an alternate scope of work outside that described in the Work Plan and technical comments below is proposed.

#### **TECHNICAL COMMENTS**

1. **Monitoring Well Construction** – Depth to water at the site is relatively shallow ranging from approximately 5 to 8 feet bgs. BAI states that "[t]he proposed monitoring wells MW-7, MW-8, and MW-9 will have screen intervals of 5.0 to 20.0 ft bgs, the total depth of each well." Based on historical depth to groundwater data, the screened intervals of the proposed monitoring wells appear excessive. ACEH recommends that the monitoring wells are screened from 5 to 15 ft bgs so that target water-bearing zone can be adequately evaluated.

### **NOTIFICATION OF FIELDWORK ACTIVITIES**

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

### **TECHNICAL REPORT REQUEST**

Please submit technical reports to ACEH (Attention: Paresh Khatri), according to the following schedule:

- **November 10, 2010** – Soil and Water Investigation Report
- **Due within 30 Days of Sampling** – Quarterly Monitoring Report (3<sup>rd</sup> Quarter 2010)
- **January 12, 2011** – Feasibility Study/Corrective Action Plan
- **Due within 30 Days of Sampling** – Quarterly Monitoring Report (4<sup>th</sup> Quarter 2010)
- **Due within 30 Days of Sampling** – Quarterly Monitoring Report (1<sup>st</sup> Quarter 2011)
- **Due within 30 Days of Sampling** – Quarterly Monitoring Report (2<sup>nd</sup> Quarter 2011)

Thank you for your cooperation. Should you have any questions or concerns regarding this correspondence or your case, please call me at (510) 777-2478 or send me an electronic mail message at [paresh.khatri@acgov.org](mailto:paresh.khatri@acgov.org).

Sincerely,

Paresh C. Khatri  
Hazardous Materials Specialist

Enclosure: Responsible Party(ies) Legal Requirements/Obligations  
ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent and Associates, Inc., 1324 Mangrove Ave., Suite 212, Chico, CA 94926 (Sent via E-mail to: [tvenus@broadbentinc.com](mailto:tvenus@broadbentinc.com))  
Tom Sparrowe, Broadbent and Associates, Inc, 875 Cotting Lane, Suite G, Vacaville, CA 95688 (Sent via E-mail to: [tsparrowe@broadbentinc.com](mailto:tsparrowe@broadbentinc.com))  
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032 (Sent via E-mail to: [lgriffin@oaklandnet.com](mailto:lgriffin@oaklandnet.com))  
Donna Drogos, ACEH (Sent via E-mail to: [donna.drogos@acgov.org](mailto:donna.drogos@acgov.org))  
Paresh Khatri, ACEH (Sent via E-mail to: [paresh.khatri@acgov.org](mailto:paresh.khatri@acgov.org))  
GeoTracker  
File

**From:** [Khatri, Paresh, Env. Health](#)  
**To:** "Matt Herrick"; "Tom Sparrowe"  
**Cc:** "Carmel, Charles "  
**Subject:** RE: ARCO Station #374, 6407 Telegraph Ave., Oakland, CA - ACEH RO #78  
**Date:** Thursday, November 04, 2010 8:29:43 AM

---

Hello,

Your request for an extension to submit the Soil and Groundwater Investigation Report is acceptable.

Sincerely,

Paresh C. Khatri  
Hazardous Materials Specialist  
Alameda County Environmental Health  
Local Oversight Program  
1131 Harbor Bay Parkway  
Alameda, CA 94502-6577

Phone: (510) 777-2478  
Fax: (510) 337-9335

E-mail: Paresh.Khatri@acgov.org

<http://www.acgov.org/aceh/lop/lop.htm>

**Confidentiality Notice:** This e-mail message, including any attachments, is for the sole use of intended recipient(s) and may contain confidential and protected information. Any unauthorized review, use, disclosure, or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

---

**From:** Matt Herrick [mailto:mherrick@broadbentinc.com]  
**Sent:** Monday, November 01, 2010 11:14 AM  
**To:** 'Tom Sparrowe'; Khatri, Paresh, Env. Health  
**Cc:** 'Carmel, Charles '  
**Subject:** RE: ARCO Station #374, 6407 Telegraph Ave., Oakland, CA - ACEH RO #78

And this one too?

Matt

---

**From:** Tom Sparrowe [mailto:tsparrowe@broadbentinc.com]  
**Sent:** Thursday, October 21, 2010 3:07 PM  
**To:** Paresh C. Khatri  
**Cc:** 'Carmel, Charles '; 'Matt Herrick'  
**Subject:** ARCO Station #374, 6407 Telegraph Ave., Oakland, CA - ACEH RO #78

Dear Mr. Khatri:

On August 12, 2010 Atlantic Richfield Corporation (ARC) and Broadbent & Associates, Inc. (BAI) received a *Work Plan for Soil and Groundwater Investigation* approval letter for the above



referenced Site. This letter requested that a *Soil and Groundwater Investigation Report* be submitted to Alameda County Environmental Health Department (ACEHD) by November 10, 2010. BAI has been working with ARC and BAI subcontractors to complete the monitor well installations at the Site in a timely manner. However, due to ARC's new safety program and work approval process the initiation of field work has been delayed. We have been issued a drilling permit and are scheduled to drill, install, develop and sample the proposed monitoring wells between November 22 and December 3, 2010.

Therefore, BAI requests that the requested *Soil and Groundwater Investigation Report* submittal date of November 10, 2010 be extended to January 14, 2011. A written response to our request is appreciated.

Best regards,

**Tom Sparrowe, PG**

Senior Geologist

Broadbent & Associates, Inc.



875 Cotting Lane, Suite G • Vacaville, California 95688  
office 707.455.7290 • mobile 707.494.4883 • fax 707.455.7295  
[tsparrowe@broadbentinc.com](mailto:tsparrowe@broadbentinc.com)

## **APPENDIX B**

### **BAI SOIL BORING DATA PACKAGE**

**(Includes Drilling Permit, Boring Logs, Well Development Data Sheets, Groundwater Sampling Data Sheets and Certified Laboratory Analytical Report with Chain-of-Custody Documentation)**

# Alameda County Public Works Agency - Water Resources Well Permit



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

**Application Approved on: 09/02/2010 By vickyh1**

**Permit Numbers: W2010-0654 to W2010-0657**  
**Permits Valid from 11/22/2010 to 11/23/2010**

<b>Application Id:</b>	1283377869569	<b>City of Project Site:</b>	Oakland
<b>Site Location:</b>	6407 Telegraph Ave./ ARCO Service Station #374	<b>Completion Date:</b>	10/29/2010
<b>Project Start Date:</b>	10/01/2010	<b>Assigned Inspector:</b>	Contact Vicky Hamlin at (510) 670-5443 or vickyh@acpwa.org
<b>Assigned Inspector:</b>	Contact Vicky Hamlin at (510) 670-5443 or vickyh@acpwa.org	<b>Extension Start Date:</b>	11/22/2010
<b>Extension Start Date:</b>	11/22/2010	<b>Extension End Date:</b>	11/23/2010
<b>Extension Count:</b>	1	<b>Extended By:</b>	vickyh1
<b>Applicant:</b>	Broadbent & Associates, Inc. - Thomas Sparrowe	<b>Phone:</b>	707-455-7290 x203
<b>Property Owner:</b>	875 Cotting Ln., Suite G, Vacaville, CA 95688 LLC BP West Coast Products, PO Box 1257, San Ramon, CA 94583	<b>Phone:</b>	--
<b>Client:</b>	** same as Property Owner **	<b>Phone:</b>	--
<b>Contact:</b>	Thomas Sparrowe	<b>Cell:</b>	707-494-4883

<b>Receipt Number: WR2010-0299</b>	<b>Total Due:</b>	\$1456.00
<b>Payer Name : Tom Sparrowe</b>	<b>Total Amount Paid:</b>	\$1456.00
	Paid By: VISA	<b>PAID IN FULL</b>

**Works Requesting Permits:**

Well Construction-Monitoring-Monitoring - 3 Wells  
Driller: Gregg Drilling - Lic #: 485165 - Method: hstem

**Work Total: \$1191.00**

**Specifications**

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2010-0654	09/02/2010	12/30/2010	MW-16	12.00 in.	4.00 in.	5.00 ft	20.00 ft
W2010-0655	09/02/2010	12/30/2010	MW-17	12.00 in.	4.00 in.	5.00 ft	20.00 ft
W2010-0656	09/02/2010	12/30/2010	MW-18	12.00 in.	4.00 in.	5.00 ft	20.00 ft

**Specific Work Permit Conditions**

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
  
2. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.
  
3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities

# Alameda County Public Works Agency - Water Resources Well Permit

or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

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

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

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

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

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

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

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Borehole(s) for Investigation-Contamination Study - 1 Boreholes

Driller: Gregg Drilling - Lic #: 485165 - Method: hstem

**Work Total: \$265.00**

## Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2010-0657	09/02/2010	12/30/2010	1	10.00 in.	20.00 ft

## Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

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

4. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground

## **Alameda County Public Works Agency - Water Resources Well Permit**

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

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

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

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

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PROJECT NAME: BP/ARCO 374 SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602 LEGAL DESC: \_\_\_\_\_ APN: \_\_\_\_\_

LOGGED BY: Aaron Sonerholm FACILITY ID OR WAIVER: \_\_\_\_\_ NOI NUMBER: \_\_\_\_\_

DATE: 11/24/2010 START: 0745 DRILLING COMPANY: Gregg DRILLER: Jason

WELL ID: B-16/MW-7 STOP: 1015 DRILLING METHOD: Hollow Stem Auger SAMPLE METHOD: Split Spoon

DEPTH (FEET)	MONITOR WELL CONSTRUCTION DIAMETER: 4"	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2	BENTONITE										
3		MW-7-3	0.0 ppm	Moist		Gray to Dk. Gray		Silty clay - clayey silt with sand		CL	
4											
5		MW-7-5	0.0 ppm								
6		MW-7-6	8.7 ppm					Clayey silt with some sand and gravel		ML	
7											
8	#2/12 SAND	MW-7-8	385 ppm	Moist		Gray - Dk. gray	Stiff	Clayey silt with sand grading to silty sand and gravel			
9											
10		MW-7-9.5	0.0 ppm	Moist		Brown - Reddish brown	Med. Dense	Sand, fine grained poorly graded with trace silt		SP	
11		MW-7-11	9.4 ppm			Brown Dark brown		Silty sand with gravel		SM	
12											
13		MW-7-12.5	0.0 ppm	Very moist			Very stiff	Clayey silt and sand and gravel		CL	
14		MW-7-14	0.0 ppm								
15											
16		MW-7-15.5	0.0 ppm					Silty sands with gravels, fine to coarse grained		SM	
17		MW-7-17	0.0 ppm								
18	SCREEN INTERVAL 0.01"	MW-7-18.5	0.0 ppm	Very moist to wet			Stiff	Wet at 18 feet Silty clay with gravel		CL	
19											
20		MW-7-20	0.0 ppm								

TOTAL BORING DEPTH: 20.0' PAGE NO: 1 OF 1 ESTIMATED GROUNDWATER DEPTH: 7.44'

**BROADBENT & ASSOCIATES, INC.** LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

PROJECT NAME: BP/ARCO 374 SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602 LEGAL DESC: \_\_\_\_\_ APN: \_\_\_\_\_

LOGGED BY: Aaron Sonerholm FACILITY ID OR WAIVER: \_\_\_\_\_ NOI NUMBER: \_\_\_\_\_

DATE: 11/23/2010 START: 1300 DRILLING COMPANY: Gregg DRILLER: Jason

WELL ID: B-17/MW-8 STOP: 1700 DRILLING METHOD: Hollow Stem Auger SAMPLE METHOD: Split Spoon

DEPTH (FEET)	MONITOR WELL CONSTRUCTION DIAMETER: 4"	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2											
3	BENTONITE	MW-8-3	14.8 ppm					Silty clay with sand	CL		
4											
5	#2/12 SAND	MW-8-5	26.3 ppm								
6		MW-8-6	79.0 ppm					Clayey silt with fine to coarse sand and gravel	ML		
7											
8		MW-8-8	563 ppm	▼ Moist	Greenish gray to dk. gray	Stiff					
9											
10		MW-8-9.5	334 ppm		Brown - Reddish brown	Med. dense		Sand, poorly graded, fine grained with trace silt	SP		
11		MW-8-11	710 ppm					Silty sand with occasional gravel	SM		
12		MW-8-12.5	8.1 ppm	Moist	Brown with greenish gray	Very stiff		Clayey silt	ML		
13											
14		MW-8-14	0.0 ppm		Brown - reddish brown						
15	MW-8-15.5	0.0 ppm	Very moist to wet	Greenish gray	Med. dense		Silty sand with gravel	SM			
16			▽				Wet at 16.5 feet				
17	MW-8-17	0.0 ppm									
18	SCREEN INTERVAL 0.01"	MW-8-18.5	0.0 ppm	Moist		Stiff		Silty Clay with fine to coarse grained sand	CI		
19											
20		MW-8-20	0.0 ppm		Brown						

TOTAL BORING DEPTH: 20.0' PAGE NO: 1 OF 1 ESTIMATED GROUNDWATER DEPTH: 7.73'

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



# BROADBENT & ASSOCIATES, INC.

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

# LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

PROJECT NAME: BP/ARCO 374

SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602

LEGAL DESC: \_\_\_\_\_

APN: \_\_\_\_\_

LOGGED BY: Aaron Sonerholm

FACILITY ID OR WAIVER: \_\_\_\_\_

NOI NUMBER: \_\_\_\_\_

DATE: 11/23/2010

START: 0910

DRILLING COMPANY: Gregg

DRILLER: Jason

WELL ID: B-18/MW-9

STOP: 1200

DRILLING METHOD: Hollow Stem Auger

SAMPLE METHOD: Split Spoon

DEPTH (FEET)	MONITOR WELL CONSTRUCTION DIAMETER: 4"	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2											
3	BENTONITE	MW-9-3	24.9 ppm								
4											
5	#2/12 SAND	MW-9-5	13.5 ppm								
6		MW-9-6	75.0 ppm								
7											
8		MW-9-8	1386 ppm	Moist							
9											
10											
11		MW-9-11	2475 ppm								
12		MW-9-12.5	3794 ppm								
13											
14		MW-9-14	14.5 ppm	Moist							
15	MW-9-15.5	1.6 ppm	Very moist								
16											
17	MW-9-17	0.0 ppm	Wet								
18											
19	MW-9-18.5	0.0 ppm									
20	MW-9-20	0.0 ppm									

TOTAL BORING DEPTH: 20.0'

PAGE NO: 1 OF 1



ESTIMATED GROUNDWATER DEPTH: 7.31'

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



**BROADBENT & ASSOCIATES, INC.** LITHOLOGIC AND MONITOR WELL CONSTRUCTION LOG

ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

PROJECT NAME: BP/ARCO 374 SITE ADDRESS: 6407 Telegraph Ave., Oakland, CA

PROJECT NUMBER: 06-88-602 LEGAL DESC: \_\_\_\_\_ APN: \_\_\_\_\_

LOGGED BY: Aaron Sonerholm FACILITY ID OR WAIVER: \_\_\_\_\_ NOI NUMBER: \_\_\_\_\_

DATE: 11/23/2010 START: 0745 DRILLING COMPANY: Gregg DRILLER: Jason

WELL ID: B-19 STOP: 0843 DRILLING METHOD: Hollow Stem Auger SAMPLE METHOD: Split Spoon

DEPTH (FEET)	SOIL BORING	SAMPLE ID	PID	MOISTURE			COLOR	CONSISTENCY	GRAIN SIZE	CLASSIFICATION	REMARKS & ODORS
1	GROUT										
2											
3		B-19-3	12.8 ppm		Moist	Gray to Dk. Gray	Stiff	Silty clay with sand		CL	
4											
5		B-19-5	7.0 ppm					Silty clay or clayey silt with some sand and gravel			
6		B-19-6	17.5 ppm				Stiff	Clayey silt with coarse sand			
7										ML	
8		B-19-8	4602 ppm			Gray to Dk. gray					
9											
10		B-19-9.5	5896 ppm			Brown - Reddish brown					
11		B-19-11	4558 ppm		Moist to very moist		Stiff	Silty clay - clayey silt with thin sand and fine gravel lenses		CL	
12		B-19-12.5	514 ppm								
13											
14		B-19-14	7.7 ppm			Brown - reddish brown		Silty clay - clayey silt with occasional coarse sand			
15		B-19-15.5	4.5 ppm				Very stiff	Silty sands, coarse sand and gravel		SM	
16											
17		B-19-17	0.0 ppm		Very moist to Wet	Lt. Brown		Wet at 17.5 feet			
18		B-19-18.5	0.0 ppm								
19							Stiff	Sandy silt to clayey silt		ML	
20		B-19-20	0.0 ppm					Silt - clayey silt			

TOTAL BORING DEPTH: 20.0' PAGE NO: 1 OF 1 ESTIMATED GROUNDWATER DEPTH: 8.50'

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



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

Sample ID \_\_\_\_\_

Well Number 1111-8  
 Date 12-7-16  
 Time Start: 9:50 End: 1:00  
 Client BROADBENT - VEGAS, INC  
 Project 6407 TELEPHONE AREA WORKS  
 Job Number D2100446  
 Installation Date \_\_\_\_\_  
 Well Diameter 24

Borehole Diameter 10  
 Screen Length 15  
 Measured Depth (pre-development) 19.5  
 Measured Depth (post-development) 19.5  
 Static Water Level (ft.) 7.6  
 Standing Water Column (ft.) 11.9  
 One Well Volume (gal.) 7.8  
 One Annulus Vol. (gal.) \_\_\_\_\_

Qty. of Drilling Fluid Lost \_\_\_\_\_  
 Minimum Gal. to be Purged 79.77  
 Development Method Peril Swing - Peril pump  
 Purging Equipment Peril 4 pump  
 Water Level Equipment Slit  
 pH/EC Meter HANNA 250  
 Turbidity Meter HANNA 250  
 Other \_\_\_\_\_

**Field Parameters Measured**

Time	Amount Purged (gal.)	Field Parameters Measured							GPM	W.L.	Comments	Field Tech.
		pH	EC	Turbidity	D.O.	D.O. Temp.	SAL.	W.L.				
10:25	22	7.11	866	1519	-	17.37	0.4	1	12.6	Peril 11 6.6		
10:37	24	7.08	869	231	-	19.39	0.4	1	12.9	Swing 15 min		
10:39	26	7.07	868	151	-	19.37	0.4	1	13.13	Peril 6 6.6		
10:41	28	7.08	865	143	-	19.34	0.4	1	13.95			
10:43	30	7.06	869	141	-	19.36	0.4	1	14.11			
<b>FINAL FIELD PARAMETER MEASUREMENTS</b>												



DATE: 12/16/10  
 PERSONNEL: E. Furr  
 WEATHER: Clear 60°

PROJECT NO.: 06-88-602 BP374  
 COMMENTS:

Equip:	Geosquirt	Tubing	Bailers	DO	wli	Ec/pH
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Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	pH	Cond. (X100)	Temp. (C/F)	DO (mg/l)	Redox (mV)	Iron (mg/l)	Alk. (mg/l)	WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC	
- MW-1	0938	TOC	6.64	—									
- MW-2	1138	↓	7.12	—									
- MW-3	1331		5.65										
- MW-4	1215		6.83										
- MW-5	1335		6.10										
- MW-6	1329		4.50										
- MW-7	1019		6.52	—									
- MW-8	1053		6.85	—									
- MW-9	1258		6.63										

**Groundwater Sampling Data Sheet**

Well I.D.: MW-1  
 Project Name/Location: BP374 Project #: 0088602  
 Sampler's Name: E. Farrow Date: 12/16/10  
 Purging Equipment: Bailer  
 Sampling Equipment: Bailer

Casing Type: PVC

Casing Diameter: 4 inch  
 Total Well Depth: 28.5 feet  
 Depth to Water: -6.64 feet  
 Water Column Thickness: = 21.86 feet  
 Unit Casing Volume\*: x 0.65 gallon / foot  
 Casing Water Volume: = 14.20 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 42.62 gallons

**\*UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.  
 3" = 0.37 gal/lin ft.  
 4" = 0.65 gal/lin ft.  
 6" = 1.47 gal/lin ft.

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	0943	1.20	184		784.7	59.0	7.42	
5	0950	X	X	X	827.8	59.7	7.11	
10	0957	X	X	X	852.9	61.5	6.98	
15	1004	X	X	X	813.5	61.6	6.86	6.86
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 15 gallons  
 Depth to Water at Sample Collection: - feet  
 Sample Collection Time: 1010 Purged Dry? (Y/N) (N)

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Groundwater Sampling Data Sheet**

Well I.D.: MW-2  
 Project Name/Location: BP 374 Project #: 06.88.702  
 Sampler's Name: E. Ferrer Date: 12/16/10  
 Purging Equipment: Boiler  
 Sampling Equipment: Boiler

Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 27 feet  
 Depth to Water: 7.17 feet  
 Water Column Thickness: = 19.83 feet  
 Unit Casing Volume\*: x 0.65 gallon / foot  
 Casing Water Volume: = 12.92 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 38.76 gallons

**\*UNIT CASING VOLUMES**  
 2" = 0.16 gal/lin ft.  
 3" = 0.37 gal/lin ft.  
 4" = 0.65 gal/lin ft.  
 6" = 1.47 gal/lin ft.

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1143	0.69	227		572.2	68.7	7.25	
5	1147	X	X	X	560.0	69.2	7.09	
10	1153	X	X	X	568.6	68.9	7.06	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons  
 Depth to Water at Sample Collection: - feet  
 Sample Collection Time: 1200  
 Purged Dry? (Y N)

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Groundwater Sampling Data Sheet**

Well I.D.: MW-4  
 Project Name/Location: BP 374 Project #: 06-88-702  
 Sampler's Name: E. Ferrer Date: 12/16/10  
 Purging Equipment: Barler  
 Sampling Equipment: Bu. Lr

Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 27 feet  
 Depth to Water: 6.83 feet  
 Water Column Thickness: = 20.17 feet  
 Unit Casing Volume\*: x 0.65 gallon / foot  
 Casing Water Volume: = 13.11 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 39.33 gallons

**\*UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.  
 3" = 0.37 gal/lin ft.  
 4" = 0.65 gal/lin ft.  
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1219	0.49	229		939.1	66.5	6.84	
5	1227	X	X	X	1047	65.6	6.82	
10	1234	X	X	X	1058	65.5	6.81	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons  
 Depth to Water at Sample Collection: 6.83 feet  
 Sample Collection Time: 1235

Purged Dry? (Y/N) (N)

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Groundwater Sampling Data Sheet**

Well I.D.: MW-7  
 Project Name/Location: BP 37u Project #: 06-88-702  
 Sampler's Name: E. Finn Date: 12/16/10  
 Purging Equipment: Bailer  
 Sampling Equipment: Bailer

Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 19.83 feet  
 Depth to Water: 6.52 feet  
 Water Column Thickness: = 13.31 feet  
 Unit Casing Volume\*: x 0.65 gallon / foot  
 Casing Water Volume: = 8.65 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 25.95 gallons

**\*UNIT CASING VOLUMES**  
 2" = 0.16 gal/lin ft.  
 3" = 0.37 gal/lin ft.  
 4" = 0.65 gal/lin ft.  
 6" = 1.47 gal/lin ft.

Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1024		232		755.6	64.2	7.04	
5	1031	X	X	X	780.2	64.8	7.08	
10	1036	X	X	X	764.2	64.8	7.08	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons  
 Depth to Water at Sample Collection: \_\_\_\_\_ feet  
 Sample Collection Time: 1042

Purged Dry? (Y/N) (N)

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Groundwater Sampling Data Sheet**

Well I.D.: MW-8  
 Project Name/Location: BP374 Project #: 06-88-702  
 Sampler's Name: E. Farmer Date: 12/16/10  
 Purging Equipment: Boiler  
 Sampling Equipment: Boiler

Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 20 feet  
 Depth to Water: 6.85 feet  
 Water Column Thickness: 13.15 feet  
 Unit Casing Volume\*: 0.65 gallon / foot  
 Casing Water Volume: 8.54 gallons  
 Casing Volume: 3 each  
 Estimated Purge Volume: 25.64 gallons

**\*UNIT CASING VOLUMES**  
 2" = 0.16 gal/lin ft.  
 3" = 0.37 gal/lin ft.  
 4" = 0.65 gal/lin ft.  
 6" = 1.47 gal/lin ft.

Free product measurement (if present): \_\_\_\_\_

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1057	0.46	230		589.4	68.9	7.25	
5	1103	X	X	X	650.8	67.8	6.97	
10	1108	X	X	X	782.4	68.1	6.98	
15	1113	X	X	X	744.4	69.1	7.13	
20	1119	X	X	X	724.8	68.5	7.12	
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 20 gallons  
 Depth to Water at Sample Collection: \_\_\_\_\_ feet  
 Sample Collection Time: 1125  
 Purged Dry? (Y/N) (N)

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Groundwater Sampling Data Sheet**

Well I.D.: MW-9  
 Project Name/Location: BP 379 Project #: 0688702  
 Sampler's Name: E. Farn Date: 12/16/10  
 Purging Equipment: Boiler  
 Sampling Equipment: Boiler

Casing Type: PVC  
 Casing Diameter: 4 inch  
 Total Well Depth: 20 feet  
 Depth to Water: 6.63 feet  
 Water Column Thickness: 13.37 feet  
 Unit Casing Volume\*: x 0.65 gallon / foot  
 Casing Water Volume: = 8.09 gallons  
 Casing Volume: x 3 each  
 Estimated Purge Volume: = 26.07 gallons

**\*UNIT CASING VOLUMES**

2" = 0.16 gal/lin ft.  
 3" = 0.37 gal/lin ft.  
 4" = 0.65 gal/lin ft.  
 6" = 1.47 gal/lin ft.

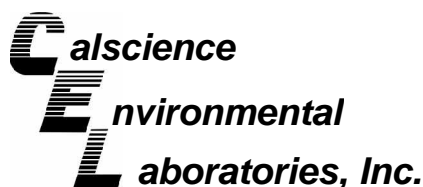
Free product measurement (if present):

Purged (gallons)	Time (24:00)	DO	ORP (mV)	Fe	Conductance (µS)	Temperature (Fahrenheit)	pH	Observations
0	1302	0.57	186		656.5	67.4	6.76	
5	1307	X	X	X	826.7	68.5	6.97	
10	1313	X	X	X	913.4	68.6	6.97	
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				
		X	X	X				

Total Water Volume Purged: 10 gallons  
 Depth to Water at Sample Collection: - feet  
 Sample Collection Time: 1318

Purged Dry? (Y/N) (N)

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



December 13, 2010

Tom Sparrowe  
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Subject: **CalScience Work Order No.: 10-11-2036**  
**Client Reference: ARCO 374 SWI**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/26/2010 and analyzed in accordance with the attached chain-of-custody.

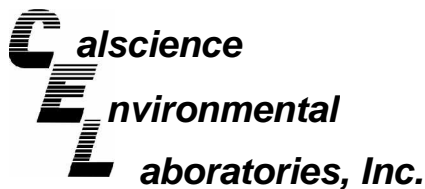
CalScience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard CalScience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Villafania'.

CalScience Environmental  
Laboratories, Inc.  
Richard Villafania  
Project Manager



Analytical Report



Broadbent & Associates, Inc  
 875 Cotting Lane, Suite G  
 Vacaville, CA 95688-9299

Date Received: 11/26/10  
 Work Order No: 10-11-2036  
 Preparation: EPA 5030C  
 Method: EPA 8015B (M)

Project: ARCO 374 SWI

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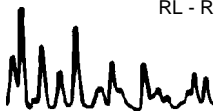
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19	10-11-2036-23-D	11/23/10 09:00	Aqueous	GC 5	12/08/10	12/08/10 13:32	101208B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	580	50	1	BU	ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	86	38-134			

<b>Method Blank</b>	<b>099-12-695-961</b>	<b>N/A</b>	<b>Aqueous</b>	<b>GC 5</b>	<b>12/08/10</b>	<b>12/08/10 11:52</b>	<b>101208B01</b>
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	81	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-11	10-11-2036-1-A	11/23/10 13:27	Solid	GC 22	12/02/10	12/02/10 13:49	101202B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	1400	20	40		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	157	42-126	LH,AY

MW-8-14.5	10-11-2036-2-A	11/23/10 13:36	Solid	GC 22	11/29/10	11/29/10 16:10	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	0.57	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	94	42-126	

MW-8-8	10-11-2036-3-A	11/23/10 13:12	Solid	GC 22	12/01/10	12/01/10 20:22	101201B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	510	10	20		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	137	42-126	LH,AY

MW-8-12.5	10-11-2036-4-A	11/23/10 13:33	Solid	GC 22	11/29/10	11/29/10 17:15	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	0.93	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	88	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-9.5	10-11-2036-5-A	11/23/10 13:16	Solid	GC 22	12/01/10	12/01/10 20:54	101201B02

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	900	10	20		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	171	42-126	LH,AY

MW-7-3	10-11-2036-6-A	11/22/10 10:00	Solid	GC 22	11/29/10	11/29/10 18:53	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	85	42-126	

MW-7-5	10-11-2036-7-A	11/22/10 10:30	Solid	GC 22	11/29/10	11/29/10 20:31	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	87	42-126	

Soil Comp	10-11-2036-8-A	11/24/10 10:44	Solid	GC 22	11/29/10	11/29/10 21:04	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	11	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	106	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-7-6</b>	<b>10-11-2036-10-A</b>	<b>11/22/10 10:35</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/29/10 21:36</b>	<b>101129B01</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	86	42-126	

<b>MW-7-11</b>	<b>10-11-2036-11-A</b>	<b>11/24/10 08:10</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/29/10 22:09</b>	<b>101129B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	84	42-126	

<b>MW-7-8</b>	<b>10-11-2036-12-A</b>	<b>11/24/10 08:03</b>	<b>Solid</b>	<b>GC 22</b>	<b>12/01/10</b>	<b>12/01/10 23:38</b>	<b>101201B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	650	50	100		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	99	42-126	

<b>MW-7-14</b>	<b>10-11-2036-13-A</b>	<b>11/24/10 08:20</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/29/10 00:19</b>	<b>101129B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	1.2	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	87	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-12.5	10-11-2036-14-A	11/24/10 08:15	Solid	GC 22	11/29/10	11/30/10 12:14	101129B02

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	84	42-126	

MW-7-9.5	10-11-2036-15-A	11/24/10 08:06	Solid	GC 22	11/29/10	11/30/10 01:24	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	85	42-126	

B-19-8	10-11-2036-17-A	11/23/10 07:55	Solid	GC 22	12/01/10	12/01/10 19:16	101201B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	190	5.0	10		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	125	42-126	

B-19-9.5	10-11-2036-18-A	11/23/10 08:00	Solid	GC 22	12/01/10	12/01/10 21:27	101201B02
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	250	10	20		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	116	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-12.5	10-11-2036-19-A	11/23/10 08:14	Solid	GC 22	11/29/10	11/30/10 03:02	101129B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	47	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	181	42-126		LH,AY	

B-19-14	10-11-2036-20-A	11/23/10 08:18	Solid	GC 22	11/29/10	11/30/10 03:34	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	82	42-126			

B-19-11	10-11-2036-21-A	11/23/10 08:08	Solid	GC 22	11/29/10	11/30/10 04:07	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	18	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	117	42-126			

B-19-15.5	10-11-2036-22-A	11/23/10 08:21	Solid	GC 22	11/29/10	11/30/10 04:39	101129B01
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Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	83	42-126			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-8-3</b>	<b>10-11-2036-24-A</b>	<b>11/22/10 12:40</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/29/10 00:52</b>	<b>101129B01</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	2.6	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	83	42-126			

<b>MW-8-5</b>	<b>10-11-2036-25-A</b>	<b>11/22/10 12:45</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 09:31</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	1.7	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	88	42-126			

<b>MW-8-6</b>	<b>10-11-2036-26-A</b>	<b>11/22/10 12:50</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 10:03</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	3.2	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	90	42-126			

<b>MW-9-6</b>	<b>10-11-2036-27-A</b>	<b>11/22/10 14:40</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 10:36</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	3.5	0.50	1		mg/kg
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	93	42-126			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-9-5</b>	<b>10-11-2036-28-A</b>	<b>11/22/10 14:34</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 11:09</b>	<b>101129B02</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	1.4	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	88	42-126	

<b>MW-9-11</b>	<b>10-11-2036-29-A</b>	<b>11/23/10 09:32</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 13:52</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	54	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	186	42-126	LH,AY

<b>MW-9-3</b>	<b>10-11-2036-30-A</b>	<b>11/22/10 14:30</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 14:25</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	5.2	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	87	42-126	

<b>MW-9-12.5</b>	<b>10-11-2036-31-A</b>	<b>11/23/10 09:34</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 14:58</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	46	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	172	42-126	LH,AY

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-9-8</b>	<b>10-11-2036-32-A</b>	<b>11/23/10 09:21</b>	<b>Solid</b>	<b>GC 22</b>	<b>12/01/10</b>	<b>12/01/10 23:05</b>	<b>101201B02</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	710	10	20		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	138	42-126	LH,AY

<b>MW-9-14</b>	<b>10-11-2036-33-A</b>	<b>11/23/10 09:41</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 16:03</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	9.3	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	103	42-126	

<b>B-19-3</b>	<b>10-11-2036-34-A</b>	<b>11/23/10 16:07</b>	<b>Solid</b>	<b>GC 22</b>	<b>12/01/10</b>	<b>12/01/10 14:55</b>	<b>101201B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	2.7	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	89	42-126	

<b>B-19-5</b>	<b>10-11-2036-35-A</b>	<b>11/23/10 16:15</b>	<b>Solid</b>	<b>GC 22</b>	<b>12/01/10</b>	<b>12/01/10 15:28</b>	<b>101201B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	2.6	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	96	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>B-19-6</b>	<b>10-11-2036-36-A</b>	<b>11/23/10 16:20</b>	<b>Solid</b>	<b>GC 22</b>	<b>12/01/10</b>	<b>12/01/10 16:00</b>	<b>101201B01</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	91	42-126	

<b>MW9-15.5</b>	<b>10-11-2036-37-A</b>	<b>11/23/10 09:44</b>	<b>Solid</b>	<b>GC 22</b>	<b>12/01/10</b>	<b>12/01/10 17:38</b>	<b>101201B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	92	42-126	

<b>Method Blank</b>	<b>099-12-697-271</b>	<b>N/A</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/29/10 12:38</b>	<b>101129B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

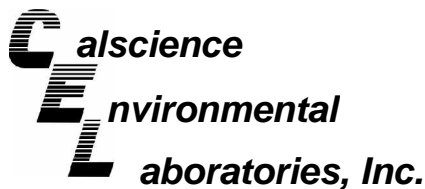
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	83	42-126	

<b>Method Blank</b>	<b>099-12-697-272</b>	<b>N/A</b>	<b>Solid</b>	<b>GC 22</b>	<b>11/29/10</b>	<b>11/30/10 07:21</b>	<b>101129B02</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>
1,4-Bromofluorobenzene	90	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-697-273	N/A	Solid	GC 22	12/01/10	12/01/10 12:44	101201B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	0.50	1		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	94	42-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-697-274	N/A	Solid	GC 22	12/01/10	12/01/10 14:22	101201B02

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	4.0	8		mg/kg

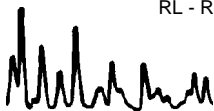
Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	95	42-126	

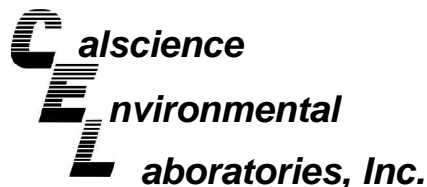
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-697-275	N/A	Solid	GC 22	12/02/10	12/02/10 13:16	101202B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	4.0	8		mg/kg

Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	91	42-126	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19	10-11-2036-23-B	11/23/10 09:00	Aqueous	GC/MS L	11/30/10	11/30/10 18:29	101130L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	20	1.0	2		Methyl-t-Butyl Ether (MTBE)	74	1.0	2	
1,2-Dibromoethane	ND	1.0	2		Tert-Butyl Alcohol (TBA)	30	20	2	
1,2-Dichloroethane	ND	1.0	2		Diisopropyl Ether (DIPE)	ND	1.0	2	
Ethylbenzene	16	1.0	2		Ethyl-t-Butyl Ether (ETBE)	ND	1.0	2	
Toluene	ND	1.0	2		Tert-Amyl-Methyl Ether (TAME)	ND	1.0	2	
Xylenes (total)	1.9	1.0	2		Ethanol	ND	600	2	
Surrogates:	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		Surrogates:	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	106	80-128			Dibromofluoromethane	104	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	98	68-120		

Method Blank	099-12-703-1,535	N/A	Aqueous	GC/MS L	11/30/10	11/30/10 12:38	101130L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
Surrogates:	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		Surrogates:	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	106	80-128			Dibromofluoromethane	106	80-127		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	86	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-11	10-11-2036-1-A	11/23/10 13:27	Solid	GC/MS Z	11/26/10	11/27/10 19:20	101127L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	0.11	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	90	63-141			1,2-Dichloroethane-d4	84	62-146		
Toluene-d8	104	80-120			1,4-Bromofluorobenzene	110	60-132		

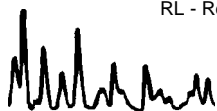
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-14.5	10-11-2036-2-A	11/23/10 13:36	Solid	GC/MS Z	11/26/10	11/27/10 13:38	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.022	0.0010	1		Xylenes (total)	0.0056	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.036	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.011	0.010	1	
Ethylbenzene	0.011	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	101	63-141			1,2-Dichloroethane-d4	98	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	99	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-8	10-11-2036-3-A	11/23/10 13:12	Solid	GC/MS Z	11/26/10	11/27/10 19:49	101127L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2.7	0.10	100		Xylenes (total)	5.0	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	0.13	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	8.8	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	87	63-141			1,2-Dichloroethane-d4	83	62-146		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	102	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-12.5	10-11-2036-4-A	11/23/10 13:33	Solid	GC/MS Z	11/26/10	11/27/10 14:07	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0041	0.0010	1		Xylenes (total)	0.0018	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0014	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.0036	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	98	63-141			1,2-Dichloroethane-d4	96	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	92	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-9.5	10-11-2036-5-A	11/23/10 13:16	Solid	GC/MS Z	11/26/10	11/27/10 20:17	101127L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.2	0.10	100		Xylenes (total)	6.7	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	12	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	88	63-141			1,2-Dichloroethane-d4	83	62-146		
Toluene-d8	103	80-120			1,4-Bromofluorobenzene	111	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-3	10-11-2036-6-A	11/22/10 10:00	Solid	GC/MS Z	11/26/10	11/27/10 12:13	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	103	63-141			1,2-Dichloroethane-d4	101	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	95	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-5	10-11-2036-7-A	11/22/10 10:30	Solid	GC/MS Z	11/26/10	11/27/10 14:36	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0017	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	102	63-141			1,2-Dichloroethane-d4	99	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	95	60-132		


Soil Comp	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
	10-11-2036-8-A	11/24/10 10:44	Solid	GC/MS Z	11/26/10	11/27/10 15:05	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.010	0.0010	1		Xylenes (total)	0.046	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.037	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.028	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	96	63-141			1,2-Dichloroethane-d4	95	62-146		
Toluene-d8	104	80-120			1,4-Bromofluorobenzene	105	60-132		

MW-7-6	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
	10-11-2036-10-A	11/22/10 10:35	Solid	GC/MS Z	11/26/10	11/27/10 15:33	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0023	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	100	63-141			1,2-Dichloroethane-d4	100	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	96	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



**Analytical Report**



Broadbent & Associates, Inc  
 875 Cotting Lane, Suite G  
 Vacaville, CA 95688-9299

Date Received: 11/26/10  
 Work Order No: 10-11-2036  
 Preparation: EPA 5030C  
 Method: EPA 8260B  
 Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-11	10-11-2036-11-A	11/24/10 08:10	Solid	GC/MS Z	11/26/10	11/27/10 16:02	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	0.0017	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.0015	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	102	63-141			1,2-Dichloroethane-d4	98	62-146		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	92	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-8	10-11-2036-12-A	11/24/10 08:03	Solid	GC/MS Z	11/26/10	11/27/10 16:30	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0047	0.0010	1		Xylenes (total)	9.3	0.20	200	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	9.2	0.20	200		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	100	63-141			1,2-Dichloroethane-d4	91	62-146		
Toluene-d8	297	80-120		LH,AY	1,4-Bromofluorobenzene	128	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-14	10-11-2036-13-A	11/24/10 08:20	Solid	GC/MS UU	11/26/10	12/07/10 18:29	101207L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	0.0024	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0080	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.0020	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	97	63-141			1,2-Dichloroethane-d4	98	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	97	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-12.5	10-11-2036-14-A	11/24/10 08:15	Solid	GC/MS Z	11/26/10	12/03/10 14:48	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	0.0021	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0017	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.0018	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	97	63-141			1,2-Dichloroethane-d4	94	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	95	60-132		

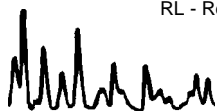
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7-9.5	10-11-2036-15-A	11/24/10 08:06	Solid	GC/MS Z	11/26/10	11/27/10 17:26	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	0.0014	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.0014	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	94	63-141			1,2-Dichloroethane-d4	89	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	93	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-8	10-11-2036-17-A	11/23/10 07:55	Solid	GC/MS Z	11/26/10	11/27/10 17:55	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.84	0.10	100		Xylenes (total)	0.044	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.015	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	5.5	0.10	100		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	0.0065	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	97	63-141			1,2-Dichloroethane-d4	85	62-146		
Toluene-d8	112	80-120			1,4-Bromofluorobenzene	168	60-132		LH,AY

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-9.5	10-11-2036-18-A	11/23/10 08:00	Solid	GC/MS Z	11/26/10	11/27/10 18:23	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.19	0.0010	1		Xylenes (total)	0.0094	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.011	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	1.4	0.10	100		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	0.0016	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	95	63-141			1,2-Dichloroethane-d4	84	62-146		
Toluene-d8	105	80-120			1,4-Bromofluorobenzene	111	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-12.5	10-11-2036-19-A	11/23/10 08:14	Solid	GC/MS Z	11/26/10	11/27/10 18:52	101127L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.018	0.0010	1		Xylenes (total)	0.0025	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0013	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.013	0.010	1	
Ethylbenzene	0.026	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	96	63-141			1,2-Dichloroethane-d4	86	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	103	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-14	10-11-2036-20-A	11/23/10 08:18	Solid	GC/MS Z	11/26/10	12/03/10 17:48	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	96	63-141			1,2-Dichloroethane-d4	95	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	98	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-11	10-11-2036-21-A	11/23/10 08:08	Solid	GC/MS Z	11/26/10	12/04/10 15:04	101204L04

Comment(s): -DF = Reporting limits elevated due to matrix interferences.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	98	63-141			1,2-Dichloroethane-d4	104	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	100	60-132		


Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-15.5	10-11-2036-22-A	11/23/10 08:21	Solid	GC/MS Z	11/26/10	12/03/10 18:46	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0034	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	96	63-141			1,2-Dichloroethane-d4	92	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	97	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-3	10-11-2036-24-A	11/22/10 12:40	Solid	GC/MS Z	11/26/10	12/03/10 19:16	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0099	0.0010	1		Xylenes (total)	0.0023	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.011	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.013	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	96	63-141			1,2-Dichloroethane-d4	93	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	100	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-5	10-11-2036-25-A	11/22/10 12:45	Solid	GC/MS Z	11/26/10	12/03/10 19:44	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.057	0.0010	1		Xylenes (total)	0.0033	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0075	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.013	0.010	1	
Ethylbenzene	0.028	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	95	63-141			1,2-Dichloroethane-d4	91	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	98	60-132		

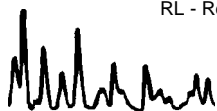
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8-6	10-11-2036-26-A	11/22/10 12:50	Solid	GC/MS Z	11/26/10	12/03/10 20:13	101203L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.23	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	0.75	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	94	63-141			1,2-Dichloroethane-d4	92	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	98	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-6	10-11-2036-27-A	11/22/10 14:40	Solid	GC/MS Z	11/26/10	12/03/10 20:42	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.025	0.0010	1		Xylenes (total)	0.0036	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.033	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.036	0.010	1	
Ethylbenzene	0.060	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	97	63-141			1,2-Dichloroethane-d4	91	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	100	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-5	10-11-2036-28-A	11/22/10 14:34	Solid	GC/MS Z	11/26/10	12/03/10 21:10	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0024	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.031	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.037	0.010	1	
Ethylbenzene	0.0052	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	96	63-141			1,2-Dichloroethane-d4	94	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	96	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-11	10-11-2036-29-A	11/23/10 09:32	Solid	GC/MS Z	11/26/10	12/04/10 15:31	101204L04

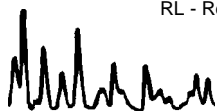
Comment(s): -DF = Reporting limits elevated due to matrix interferences.

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	101	63-141			1,2-Dichloroethane-d4	106	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	102	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-3	10-11-2036-30-A	11/22/10 14:30	Solid	GC/MS Z	11/26/10	12/03/10 22:07	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0069	0.0010	1		Xylenes (total)	0.0028	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.046	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	0.026	0.010	1	
Ethylbenzene	0.0012	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	0.0030	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	94	63-141			1,2-Dichloroethane-d4	92	62-146		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	100	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



**Analytical Report**



Broadbent & Associates, Inc  
 875 Cotting Lane, Suite G  
 Vacaville, CA 95688-9299

Date Received: 11/26/10  
 Work Order No: 10-11-2036  
 Preparation: EPA 5030C  
 Method: EPA 8260B  
 Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-12.5	10-11-2036-31-A	11/23/10 09:34	Solid	GC/MS Z	11/26/10	12/03/10 22:36	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	0.0014	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	0.12	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	94	63-141			1,2-Dichloroethane-d4	90	62-146		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	122	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-8	10-11-2036-32-A	11/23/10 09:21	Solid	GC/MS Z	11/26/10	12/04/10 15:58	101204L04

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1.2	0.20	200		Xylenes (total)	28	0.20	200	
1,2-Dibromoethane	ND	0.20	200		Methyl-t-Butyl Ether (MTBE)	ND	0.20	200	
1,2-Dichloroethane	ND	0.20	200		Tert-Butyl Alcohol (TBA)	ND	2.0	200	
Ethylbenzene	16	0.20	200		Diisopropyl Ether (DIPE)	ND	0.40	200	
Ethanol	ND	20	200		Ethyl-t-Butyl Ether (ETBE)	ND	0.40	200	
Toluene	ND	0.20	200		Tert-Amyl-Methyl Ether (TAME)	ND	0.40	200	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	99	63-141			1,2-Dichloroethane-d4	105	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	102	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9-14	10-11-2036-33-A	11/23/10 09:41	Solid	GC/MS Z	11/26/10	12/03/10 23:05	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0012	0.0010	1		Xylenes (total)	0.0017	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	0.0013	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	93	63-141			1,2-Dichloroethane-d4	90	62-146		
Toluene-d8	97	80-120			1,4-Bromofluorobenzene	94	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-3	10-11-2036-34-A	11/23/10 16:07	Solid	GC/MS Z	11/26/10	12/04/10 16:25	101204L03

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	98	63-141			1,2-Dichloroethane-d4	106	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	99	60-132		

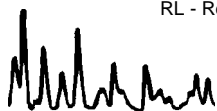
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-5	10-11-2036-35-A	11/23/10 16:15	Solid	GC/MS UU	11/26/10	12/07/10 17:34	101207L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	93	63-141			1,2-Dichloroethane-d4	98	62-146		
Toluene-d8	103	80-120			1,4-Bromofluorobenzene	100	60-132		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-19-6	10-11-2036-36-A	11/23/10 16:20	Solid	GC/MS UU	11/26/10	12/07/10 17:06	101207L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	0.0053	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.0032	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	94	63-141			1,2-Dichloroethane-d4	100	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	98	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW9-15.5	10-11-2036-37-A	11/23/10 09:44	Solid	GC/MS UU	11/26/10	12/07/10 16:39	101207L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	0.031	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	99	63-141			1,2-Dichloroethane-d4	101	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	95	60-132		

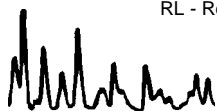
Method Blank	099-12-709-436	N/A	Solid	GC/MS Z	11/27/10	11/27/10 11:45	101127L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	107	63-141			1,2-Dichloroethane-d4	102	62-146		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	92	60-132		

Method Blank	099-12-709-437	N/A	Solid	GC/MS Z	11/27/10	11/27/10 11:16	101127L02
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	97	63-141			1,2-Dichloroethane-d4	97	62-146		
Toluene-d8	104	80-120			1,4-Bromofluorobenzene	96	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-709-442	N/A	Solid	GC/MS Z	12/03/10	12/03/10 14:19	101203L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	98	63-141			1,2-Dichloroethane-d4	99	62-146		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	96	60-132		

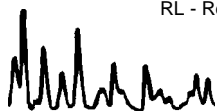
Method Blank	099-12-709-443	N/A	Solid	GC/MS Z	12/03/10	12/03/10 13:50	101203L02
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	94	63-141			1,2-Dichloroethane-d4	95	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	98	60-132		

Method Blank	099-12-709-445	N/A	Solid	GC/MS Z	12/04/10	12/04/10 11:51	101204L03
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
Dibromofluoromethane	105	63-141			1,2-Dichloroethane-d4	111	62-146		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	99	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: mg/kg

Project: ARCO 374 SWI

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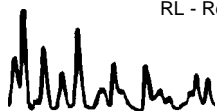
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	099-12-709-446	N/A	Solid	GC/MS Z	12/04/10	12/04/10 11:24	101204L04

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.10	100		Xylenes (total)	ND	0.10	100	
1,2-Dibromoethane	ND	0.10	100		Methyl-t-Butyl Ether (MTBE)	ND	0.10	100	
1,2-Dichloroethane	ND	0.10	100		Tert-Butyl Alcohol (TBA)	ND	1.0	100	
Ethylbenzene	ND	0.10	100		Diisopropyl Ether (DIPE)	ND	0.20	100	
Ethanol	ND	10	100		Ethyl-t-Butyl Ether (ETBE)	ND	0.20	100	
Toluene	ND	0.10	100		Tert-Amyl-Methyl Ether (TAME)	ND	0.20	100	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Dibromofluoromethane	99	63-141			1,2-Dichloroethane-d4	108	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	99	60-132		

Method Blank	099-12-709-447	N/A	Solid	GC/MS UU	12/07/10	12/07/10 13:27	101207L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
1,2-Dibromoethane	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
1,2-Dichloroethane	ND	0.0010	1		Tert-Butyl Alcohol (TBA)	ND	0.010	1	
Ethylbenzene	ND	0.0010	1		Diisopropyl Ether (DIPE)	ND	0.0020	1	
Ethanol	ND	0.10	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.0020	1	
Toluene	ND	0.0010	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.0020	1	
Surrogates:	REC (%)	Control Limits	Qual		Surrogates:	REC (%)	Control Limits	Qual	
Dibromofluoromethane	95	63-141			1,2-Dichloroethane-d4	98	62-146		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	95	60-132		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-12-0463-2	Aqueous	GC 5	12/08/10	12/08/10	101208S01

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	98	95	38-134	3	0-25	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-7-3	Solid	GC 22	11/29/10	11/29/10	101129S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	81	86	42-126	5	0-25	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-7-12.5	Solid	GC 22	11/29/10	11/30/10	101129S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	97	97	42-126	0	0-25	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

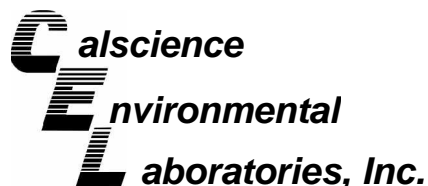
Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW9-15.5	Solid	GC 22	12/01/10	12/01/10	101201S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	89	87	42-126	1	0-25	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-11-1922-3	Aqueous	GC/MS L	11/30/10	11/30/10	101130S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	103	103	76-124	0	0-20	
Carbon Tetrachloride	111	112	74-134	1	0-20	
Chlorobenzene	98	99	80-120	1	0-20	
1,2-Dibromoethane	93	98	80-120	5	0-20	
1,2-Dichlorobenzene	95	100	80-120	5	0-20	
1,2-Dichloroethane	98	99	80-120	0	0-20	
Ethylbenzene	104	105	78-126	0	0-20	
Toluene	99	100	80-120	1	0-20	
Trichloroethene	99	98	77-120	1	0-20	
Methyl-t-Butyl Ether (MTBE)	90	94	67-121	4	0-49	
Tert-Butyl Alcohol (TBA)	97	96	36-162	1	0-30	
Diisopropyl Ether (DIPE)	101	108	60-138	7	0-45	
Ethyl-t-Butyl Ether (ETBE)	93	98	69-123	6	0-30	
Tert-Amyl-Methyl Ether (TAME)	84	87	65-120	3	0-20	
Ethanol	94	102	30-180	8	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-7-3	Solid	GC/MS Z	11/26/10	11/27/10	101127S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	89	92	61-127	3	0-20	
Chloroform	89	89	80-120	0	0-20	
1,1-Dichloroethane	88	89	80-120	1	0-20	
1,2-Dichloroethane	96	96	80-120	0	0-20	
1,1-Dichloroethene	86	86	47-143	0	0-25	
Ethanol	131	103	17-167	25	0-47	
Tetrachloroethene	92	93	80-120	1	0-20	
Toluene	91	93	63-123	2	0-20	
Trichloroethene	87	90	44-158	3	0-20	
Methyl-t-Butyl Ether (MTBE)	83	84	57-123	2	0-21	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-7-12.5	Solid	GC/MS Z	11/26/10	12/03/10	101203S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	94	95	61-127	0	0-20	
Chloroform	94	93	80-120	1	0-20	
1,1-Dichloroethane	90	90	80-120	0	0-20	
1,2-Dichloroethane	92	92	80-120	0	0-20	
1,1-Dichloroethene	98	96	47-143	2	0-25	
Ethanol	104	109	17-167	5	0-47	
Tetrachloroethene	101	102	80-120	1	0-20	
Toluene	97	97	63-123	1	0-20	
Trichloroethene	96	97	44-158	1	0-20	
Methyl-t-Butyl Ether (MTBE)	88	87	57-123	0	0-21	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-12-0309-1	Solid	GC/MS Z	12/03/10	12/04/10	101204S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	97	97	61-127	0	0-20	
1,2-Dichloroethane	102	101	80-120	1	0-20	
1,1-Dichloroethene	103	104	47-143	1	0-25	
Ethanol	125	125	17-167	0	0-47	
Toluene	97	96	63-123	0	0-20	
Trichloroethene	99	99	44-158	0	0-20	
Methyl-t-Butyl Ether (MTBE)	96	96	57-123	1	0-21	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 11/26/10  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-12-0354-8	Solid	GC/MS UU	12/04/10	12/07/10	101207S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	94	93	61-127	1	0-20	
1,2-Dichloroethane	91	90	80-120	2	0-20	
1,1-Dichloroethene	82	83	47-143	2	0-25	
Ethanol	98	87	17-167	12	0-47	
Toluene	90	90	63-123	1	0-20	
Trichloroethene	91	92	44-158	1	0-20	
Methyl-t-Butyl Ether (MTBE)	88	89	57-123	1	0-21	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-961	Aqueous	GC 5	12/08/10	12/08/10	101208B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	93	87	78-120	7	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-274	Solid	GC 22	12/01/10	12/01/10	101201B02

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	93	106	70-118	12	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

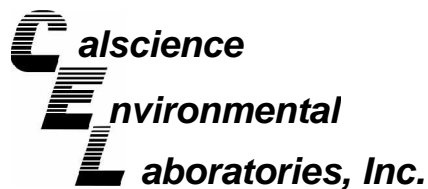
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Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-275	Solid	GC 22	12/02/10	12/02/10	101202B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	91	92	70-118	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

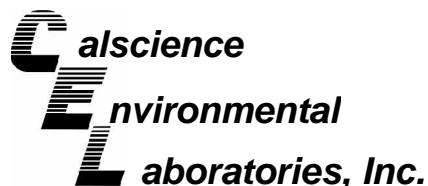
Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-271	Solid	GC 22	11/29/10	11/29/10	101129B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	95	103	70-118	8	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

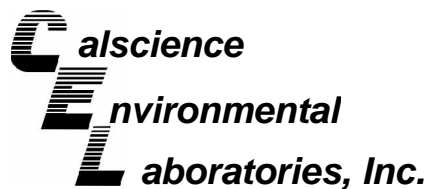
Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-272	Solid	GC 22	11/29/10	11/30/10	101129B02

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	88	85	70-118	3	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-273	Solid	GC 22	12/01/10	12/01/10	101201B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	93	106	70-118	12	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,535	Aqueous	GC/MS L	11/30/10	11/30/10	101130L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	90	88	80-120	73-127	2	0-20	
Carbon Tetrachloride	104	101	74-134	64-144	3	0-20	
Chlorobenzene	92	91	80-120	73-127	0	0-20	
1,2-Dibromoethane	89	90	79-121	72-128	1	0-20	
1,2-Dichlorobenzene	92	92	80-120	73-127	1	0-20	
1,2-Dichloroethane	89	88	80-120	73-127	1	0-20	
Ethylbenzene	97	95	80-120	73-127	1	0-20	
Toluene	96	92	80-120	73-127	4	0-20	
Trichloroethene	94	89	79-127	71-135	5	0-20	
Methyl-t-Butyl Ether (MTBE)	97	96	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	90	87	63-123	53-133	4	0-20	
Diisopropyl Ether (DIPE)	95	92	59-137	46-150	3	0-37	
Ethyl-t-Butyl Ether (ETBE)	96	95	69-123	60-132	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	88	87	70-120	62-128	1	0-20	
Ethanol	90	82	28-160	6-182	10	0-57	

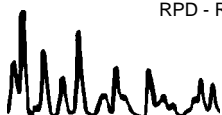
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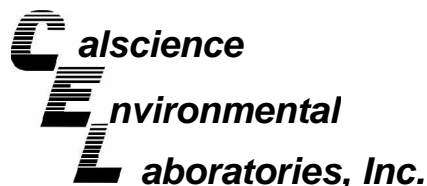
Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



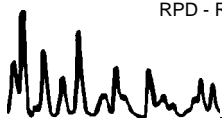
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

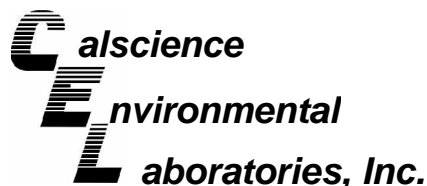
Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-436	Solid	GC/MS Z	11/27/10	11/27/10	101127L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	93	90	78-120	71-127	3	0-20	
Bromobenzene	92	92	80-120	73-127	0	0-20	
Bromochloromethane	91	93	80-120	73-127	2	0-20	
Bromodichloromethane	92	89	80-120	73-127	3	0-20	
Bromoform	89	87	80-120	73-127	3	0-20	
Bromomethane	91	91	80-120	73-127	0	0-20	
n-Butylbenzene	91	87	77-123	69-131	4	0-25	
sec-Butylbenzene	92	89	80-120	73-127	4	0-20	
tert-Butylbenzene	90	86	80-120	73-127	5	0-20	
Carbon Disulfide	86	88	80-120	73-127	2	0-20	
Carbon Tetrachloride	86	88	49-139	34-154	2	0-20	
Chlorobenzene	92	92	79-120	72-127	0	0-20	
Chloroethane	107	109	80-120	73-127	1	0-20	
Chloroform	90	92	80-120	73-127	2	0-20	
Chloromethane	86	89	80-120	73-127	3	0-20	
2-Chlorotoluene	92	92	80-120	73-127	1	0-20	
4-Chlorotoluene	90	85	80-120	73-127	6	0-20	
Dibromochloromethane	91	91	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	75	81	80-120	73-127	7	0-20	
1,2-Dibromoethane	90	93	80-120	73-127	4	0-20	
Dibromomethane	92	91	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	91	88	75-120	68-128	3	0-20	
1,3-Dichlorobenzene	94	90	80-120	73-127	4	0-20	
1,4-Dichlorobenzene	89	85	80-120	73-127	4	0-20	
Dichlorodifluoromethane	84	85	80-120	73-127	1	0-20	
1,1-Dichloroethane	88	92	80-120	73-127	5	0-20	
1,2-Dichloroethane	101	99	80-120	73-127	2	0-20	
1,1-Dichloroethene	86	86	74-122	66-130	0	0-20	
c-1,2-Dichloroethene	94	93	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	88	90	80-120	73-127	2	0-20	
1,2-Dichloropropane	93	93	79-115	73-121	0	0-25	
1,3-Dichloropropane	91	96	80-120	73-127	5	0-20	
2,2-Dichloropropane	86	88	80-120	73-127	3	0-20	
1,1-Dichloropropene	88	88	80-120	73-127	0	0-20	
c-1,3-Dichloropropene	95	95	80-120	73-127	0	0-20	
t-1,3-Dichloropropene	89	91	80-120	73-127	2	0-20	
Ethylbenzene	94	95	76-120	69-127	1	0-20	
Isopropylbenzene	95	94	80-120	73-127	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-436	Solid	GC/MS Z	11/27/10	11/27/10	101127L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	90	87	80-120	73-127	4	0-20	
Methylene Chloride	90	91	80-120	73-127	1	0-20	
Naphthalene	85	83	80-120	73-127	2	0-20	
n-Propylbenzene	92	91	80-120	73-127	1	0-20	
Styrene	93	94	80-120	73-127	1	0-20	
Ethanol	88	105	56-140	42-154	18	0-20	
1,1,1,2-Tetrachloroethane	94	93	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	90	87	80-120	73-127	3	0-20	
Tetrachloroethene	100	100	80-120	73-127	0	0-20	
Toluene	95	94	77-120	70-127	1	0-20	
1,2,3-Trichlorobenzene	88	84	80-120	73-127	4	0-20	
1,2,4-Trichlorobenzene	86	81	80-120	73-127	6	0-20	
1,1,1-Trichloroethane	88	89	80-120	73-127	2	0-20	
1,1,2-Trichloroethane	91	92	80-120	73-127	1	0-20	
Trichloroethene	91	88	80-120	73-127	3	0-20	
Trichlorofluoromethane	91	93	80-120	73-127	1	0-20	
1,2,3-Trichloropropane	90	88	80-120	73-127	1	0-20	
1,2,4-Trimethylbenzene	92	88	80-120	73-127	4	0-20	
1,3,5-Trimethylbenzene	92	92	80-120	73-127	0	0-20	
Vinyl Acetate	88	84	80-120	73-127	4	0-20	
Vinyl Chloride	92	94	68-122	59-131	2	0-20	
Xylenes (total)	92	92	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	82	85	77-120	70-127	3	0-20	
Tert-Butyl Alcohol (TBA)	81	83	68-122	59-131	1	0-20	
Diisopropyl Ether (DIPE)	87	91	78-120	71-127	4	0-20	
Ethyl-t-Butyl Ether (ETBE)	83	85	78-120	71-127	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	84	84	75-120	68-128	0	0-20	

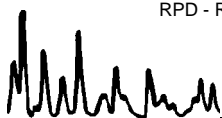
Total number of LCS compounds : 65

Total number of ME compounds : 1

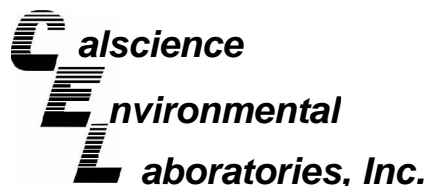
Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit







## Quality Control - LCS/LCS Duplicate



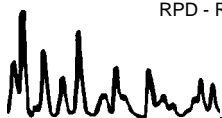
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

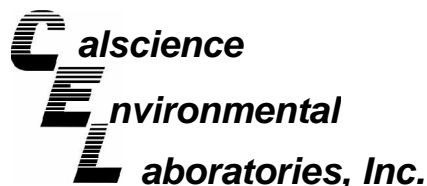
Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-437	Solid	GC/MS Z	11/27/10	11/27/10	101127L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	93	90	78-120	71-127	3	0-20	
Bromobenzene	92	92	80-120	73-127	0	0-20	
Bromochloromethane	91	93	80-120	73-127	2	0-20	
Bromodichloromethane	92	89	80-120	73-127	3	0-20	
Bromoform	89	87	80-120	73-127	3	0-20	
Bromomethane	91	91	80-120	73-127	0	0-20	
n-Butylbenzene	91	87	77-123	69-131	4	0-25	
sec-Butylbenzene	92	89	80-120	73-127	4	0-20	
tert-Butylbenzene	90	86	80-120	73-127	5	0-20	
Carbon Disulfide	86	88	80-120	73-127	2	0-20	
Carbon Tetrachloride	86	88	49-139	34-154	2	0-20	
Chlorobenzene	92	92	79-120	72-127	0	0-20	
Chloroethane	107	109	80-120	73-127	1	0-20	
Chloroform	90	92	80-120	73-127	2	0-20	
Chloromethane	86	89	80-120	73-127	3	0-20	
2-Chlorotoluene	92	92	80-120	73-127	1	0-20	
4-Chlorotoluene	90	85	80-120	73-127	6	0-20	
Dibromochloromethane	91	91	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	75	81	80-120	73-127	7	0-20	
1,2-Dibromoethane	90	93	80-120	73-127	4	0-20	
Dibromomethane	92	91	80-120	73-127	1	0-20	
1,2-Dichlorobenzene	91	88	75-120	68-128	3	0-20	
1,3-Dichlorobenzene	94	90	80-120	73-127	4	0-20	
1,4-Dichlorobenzene	89	85	80-120	73-127	4	0-20	
Dichlorodifluoromethane	84	85	80-120	73-127	1	0-20	
1,1-Dichloroethane	88	92	80-120	73-127	5	0-20	
1,2-Dichloroethane	101	99	80-120	73-127	2	0-20	
1,1-Dichloroethene	86	86	74-122	66-130	0	0-20	
c-1,2-Dichloroethene	94	93	80-120	73-127	1	0-20	
t-1,2-Dichloroethene	88	90	80-120	73-127	2	0-20	
1,2-Dichloropropane	93	93	79-115	73-121	0	0-25	
1,3-Dichloropropane	91	96	80-120	73-127	5	0-20	
2,2-Dichloropropane	86	88	80-120	73-127	3	0-20	
1,1-Dichloropropene	88	88	80-120	73-127	0	0-20	
c-1,3-Dichloropropene	95	95	80-120	73-127	0	0-20	
t-1,3-Dichloropropene	89	91	80-120	73-127	2	0-20	
Ethylbenzene	94	95	76-120	69-127	1	0-20	
Isopropylbenzene	95	94	80-120	73-127	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-437	Solid	GC/MS Z	11/27/10	11/27/10	101127L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	90	87	80-120	73-127	4	0-20	
Methylene Chloride	90	91	80-120	73-127	1	0-20	
Naphthalene	85	83	80-120	73-127	2	0-20	
n-Propylbenzene	92	91	80-120	73-127	1	0-20	
Styrene	93	94	80-120	73-127	1	0-20	
Ethanol	88	105	56-140	42-154	18	0-20	
1,1,1,2-Tetrachloroethane	94	93	80-120	73-127	1	0-20	
1,1,2,2-Tetrachloroethane	90	87	80-120	73-127	3	0-20	
Tetrachloroethene	100	100	80-120	73-127	0	0-20	
Toluene	95	94	77-120	70-127	1	0-20	
1,2,3-Trichlorobenzene	88	84	80-120	73-127	4	0-20	
1,2,4-Trichlorobenzene	86	81	80-120	73-127	6	0-20	
1,1,1-Trichloroethane	88	89	80-120	73-127	2	0-20	
1,1,2-Trichloroethane	91	92	80-120	73-127	1	0-20	
Trichloroethene	91	88	80-120	73-127	3	0-20	
Trichlorofluoromethane	91	93	80-120	73-127	1	0-20	
1,2,3-Trichloropropane	90	88	80-120	73-127	1	0-20	
1,2,4-Trimethylbenzene	92	88	80-120	73-127	4	0-20	
1,3,5-Trimethylbenzene	92	92	80-120	73-127	0	0-20	
Vinyl Acetate	88	84	80-120	73-127	4	0-20	
Vinyl Chloride	92	94	68-122	59-131	2	0-20	
Xylenes (total)	92	92	80-120	73-127	1	0-20	
Methyl-t-Butyl Ether (MTBE)	82	85	77-120	70-127	3	0-20	
Tert-Butyl Alcohol (TBA)	81	83	68-122	59-131	1	0-20	
Diisopropyl Ether (DIPE)	87	91	78-120	71-127	4	0-20	
Ethyl-t-Butyl Ether (ETBE)	83	85	78-120	71-127	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	84	84	75-120	68-128	0	0-20	

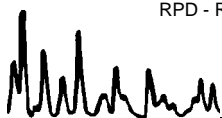
Total number of LCS compounds : 65

Total number of ME compounds : 1

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



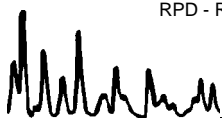
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-442	Solid	GC/MS Z	12/03/10	12/03/10	101203L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	93	92	78-120	71-127	2	0-20	
Bromobenzene	99	98	80-120	73-127	2	0-20	
Bromochloromethane	94	92	80-120	73-127	2	0-20	
Bromodichloromethane	97	95	80-120	73-127	2	0-20	
Bromoform	92	88	80-120	73-127	5	0-20	
Bromomethane	92	97	80-120	73-127	6	0-20	
n-Butylbenzene	98	94	77-123	69-131	4	0-25	
sec-Butylbenzene	95	92	80-120	73-127	3	0-20	
tert-Butylbenzene	95	90	80-120	73-127	6	0-20	
Carbon Disulfide	100	98	80-120	73-127	3	0-20	
Carbon Tetrachloride	93	89	49-139	34-154	4	0-20	
Chlorobenzene	95	94	79-120	72-127	1	0-20	
Chloroethane	116	111	80-120	73-127	4	0-20	
Chloroform	94	90	80-120	73-127	4	0-20	
Chloromethane	95	93	80-120	73-127	2	0-20	
2-Chlorotoluene	97	96	80-120	73-127	1	0-20	
4-Chlorotoluene	97	94	80-120	73-127	4	0-20	
Dibromochloromethane	93	91	80-120	73-127	2	0-20	
1,2-Dibromo-3-Chloropropane	84	80	80-120	73-127	4	0-20	
1,2-Dibromoethane	91	90	80-120	73-127	0	0-20	
Dibromomethane	92	89	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	96	93	75-120	68-128	3	0-20	
1,3-Dichlorobenzene	96	93	80-120	73-127	3	0-20	
1,4-Dichlorobenzene	97	93	80-120	73-127	4	0-20	
Dichlorodifluoromethane	128	127	80-120	73-127	1	0-20	
1,1-Dichloroethane	91	88	80-120	73-127	3	0-20	
1,2-Dichloroethane	93	90	80-120	73-127	4	0-20	
1,1-Dichloroethene	96	93	74-122	66-130	3	0-20	
c-1,2-Dichloroethene	95	92	80-120	73-127	3	0-20	
t-1,2-Dichloroethene	94	94	80-120	73-127	0	0-20	
1,2-Dichloropropane	91	90	79-115	73-121	2	0-25	
1,3-Dichloropropane	93	92	80-120	73-127	2	0-20	
2,2-Dichloropropane	98	94	80-120	73-127	4	0-20	
1,1-Dichloropropene	94	91	80-120	73-127	3	0-20	
c-1,3-Dichloropropene	95	92	80-120	73-127	3	0-20	
t-1,3-Dichloropropene	93	91	80-120	73-127	2	0-20	
Ethylbenzene	97	96	76-120	69-127	1	0-20	
Isopropylbenzene	96	95	80-120	73-127	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-442	Solid	GC/MS Z	12/03/10	12/03/10	101203L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	97	93	80-120	73-127	3	0-20	
Methylene Chloride	89	86	80-120	73-127	3	0-20	
Naphthalene	82	81	80-120	73-127	0	0-20	
n-Propylbenzene	99	98	80-120	73-127	1	0-20	
Styrene	99	97	80-120	73-127	2	0-20	
Ethanol	95	81	56-140	42-154	16	0-20	
1,1,1,2-Tetrachloroethane	94	92	80-120	73-127	2	0-20	
1,1,2,2-Tetrachloroethane	89	85	80-120	73-127	5	0-20	
Tetrachloroethene	96	105	80-120	73-127	8	0-20	
Toluene	97	94	77-120	70-127	3	0-20	
1,2,3-Trichlorobenzene	92	90	80-120	73-127	2	0-20	
1,2,4-Trichlorobenzene	97	95	80-120	73-127	3	0-20	
1,1,1-Trichloroethane	90	88	80-120	73-127	2	0-20	
1,1,2-Trichloroethane	91	89	80-120	73-127	3	0-20	
Trichloroethene	95	93	80-120	73-127	2	0-20	
Trichlorofluoromethane	110	106	80-120	73-127	4	0-20	
1,2,3-Trichloropropane	87	86	80-120	73-127	2	0-20	
1,2,4-Trimethylbenzene	94	92	80-120	73-127	3	0-20	
1,3,5-Trimethylbenzene	98	96	80-120	73-127	2	0-20	
Vinyl Acetate	89	83	80-120	73-127	7	0-20	
Vinyl Chloride	97	97	68-122	59-131	1	0-20	
Xylenes (total)	96	94	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	90	87	77-120	70-127	3	0-20	
Tert-Butyl Alcohol (TBA)	86	80	68-122	59-131	7	0-20	
Diisopropyl Ether (DIPE)	93	90	78-120	71-127	3	0-20	
Ethyl-t-Butyl Ether (ETBE)	91	89	78-120	71-127	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	92	90	75-120	68-128	2	0-20	

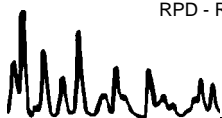
Total number of LCS compounds : 65

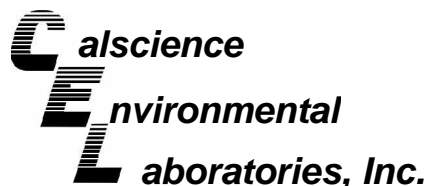
Total number of ME compounds : 1

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



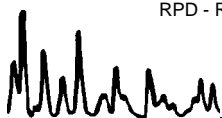
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-443	Solid	GC/MS Z	12/03/10	12/03/10	101203L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	93	92	78-120	71-127	2	0-20	
Bromobenzene	99	98	80-120	73-127	2	0-20	
Bromochloromethane	94	92	80-120	73-127	2	0-20	
Bromodichloromethane	97	95	80-120	73-127	2	0-20	
Bromoform	92	88	80-120	73-127	5	0-20	
Bromomethane	92	97	80-120	73-127	6	0-20	
n-Butylbenzene	98	94	77-123	69-131	4	0-25	
sec-Butylbenzene	95	92	80-120	73-127	3	0-20	
tert-Butylbenzene	95	90	80-120	73-127	6	0-20	
Carbon Disulfide	100	98	80-120	73-127	3	0-20	
Carbon Tetrachloride	93	89	49-139	34-154	4	0-20	
Chlorobenzene	95	94	79-120	72-127	1	0-20	
Chloroethane	116	111	80-120	73-127	4	0-20	
Chloroform	94	90	80-120	73-127	4	0-20	
Chloromethane	95	93	80-120	73-127	2	0-20	
2-Chlorotoluene	97	96	80-120	73-127	1	0-20	
4-Chlorotoluene	97	94	80-120	73-127	4	0-20	
Dibromochloromethane	93	91	80-120	73-127	2	0-20	
1,2-Dibromo-3-Chloropropane	84	80	80-120	73-127	4	0-20	
1,2-Dibromoethane	91	90	80-120	73-127	0	0-20	
Dibromomethane	92	89	80-120	73-127	4	0-20	
1,2-Dichlorobenzene	96	93	75-120	68-128	3	0-20	
1,3-Dichlorobenzene	96	93	80-120	73-127	3	0-20	
1,4-Dichlorobenzene	97	93	80-120	73-127	4	0-20	
Dichlorodifluoromethane	128	127	80-120	73-127	1	0-20	
1,1-Dichloroethane	91	88	80-120	73-127	3	0-20	
1,2-Dichloroethane	93	90	80-120	73-127	4	0-20	
1,1-Dichloroethene	96	93	74-122	66-130	3	0-20	
c-1,2-Dichloroethene	95	92	80-120	73-127	3	0-20	
t-1,2-Dichloroethene	94	94	80-120	73-127	0	0-20	
1,2-Dichloropropane	91	90	79-115	73-121	2	0-25	
1,3-Dichloropropane	93	92	80-120	73-127	2	0-20	
2,2-Dichloropropane	98	94	80-120	73-127	4	0-20	
1,1-Dichloropropene	94	91	80-120	73-127	3	0-20	
c-1,3-Dichloropropene	95	92	80-120	73-127	3	0-20	
t-1,3-Dichloropropene	93	91	80-120	73-127	2	0-20	
Ethylbenzene	97	96	76-120	69-127	1	0-20	
Isopropylbenzene	96	95	80-120	73-127	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-443	Solid	GC/MS Z	12/03/10	12/03/10	101203L02		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	97	93	80-120	73-127	3	0-20	
Methylene Chloride	89	86	80-120	73-127	3	0-20	
Naphthalene	82	81	80-120	73-127	0	0-20	
n-Propylbenzene	99	98	80-120	73-127	1	0-20	
Styrene	99	97	80-120	73-127	2	0-20	
Ethanol	95	81	56-140	42-154	16	0-20	
1,1,1,2-Tetrachloroethane	94	92	80-120	73-127	2	0-20	
1,1,2,2-Tetrachloroethane	89	85	80-120	73-127	5	0-20	
Tetrachloroethene	96	105	80-120	73-127	8	0-20	
Toluene	97	94	77-120	70-127	3	0-20	
1,2,3-Trichlorobenzene	92	90	80-120	73-127	2	0-20	
1,2,4-Trichlorobenzene	97	95	80-120	73-127	3	0-20	
1,1,1-Trichloroethane	90	88	80-120	73-127	2	0-20	
1,1,2-Trichloroethane	91	89	80-120	73-127	3	0-20	
Trichloroethene	95	93	80-120	73-127	2	0-20	
Trichlorofluoromethane	110	106	80-120	73-127	4	0-20	
1,2,3-Trichloropropane	87	86	80-120	73-127	2	0-20	
1,2,4-Trimethylbenzene	94	92	80-120	73-127	3	0-20	
1,3,5-Trimethylbenzene	98	96	80-120	73-127	2	0-20	
Vinyl Acetate	89	83	80-120	73-127	7	0-20	
Vinyl Chloride	97	97	68-122	59-131	1	0-20	
Xylenes (total)	96	94	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	90	87	77-120	70-127	3	0-20	
Tert-Butyl Alcohol (TBA)	86	80	68-122	59-131	7	0-20	
Diisopropyl Ether (DIPE)	93	90	78-120	71-127	3	0-20	
Ethyl-t-Butyl Ether (ETBE)	91	89	78-120	71-127	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	92	90	75-120	68-128	2	0-20	

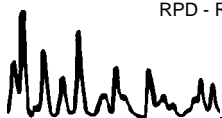
Total number of LCS compounds : 65

Total number of ME compounds : 1

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



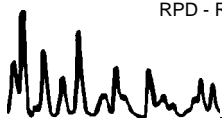
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-445	Solid	GC/MS Z	12/04/10	12/04/10	101204L03		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	93	96	78-120	71-127	2	0-20	
Bromobenzene	92	93	80-120	73-127	1	0-20	
Bromochloromethane	96	97	80-120	73-127	1	0-20	
Bromodichloromethane	96	96	80-120	73-127	0	0-20	
Bromoform	76	77	80-120	73-127	1	0-20	
Bromomethane	93	92	80-120	73-127	1	0-20	
n-Butylbenzene	99	99	77-123	69-131	1	0-25	
sec-Butylbenzene	98	98	80-120	73-127	0	0-20	
tert-Butylbenzene	94	94	80-120	73-127	1	0-20	
Carbon Disulfide	104	106	80-120	73-127	1	0-20	
Carbon Tetrachloride	91	91	49-139	34-154	0	0-20	
Chlorobenzene	93	95	79-120	72-127	2	0-20	
Chloroethane	113	115	80-120	73-127	2	0-20	
Chloroform	99	101	80-120	73-127	1	0-20	
Chloromethane	107	110	80-120	73-127	2	0-20	
2-Chlorotoluene	96	97	80-120	73-127	1	0-20	
4-Chlorotoluene	100	101	80-120	73-127	2	0-20	
Dibromochloromethane	87	87	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	85	89	80-120	73-127	5	0-20	
1,2-Dibromoethane	90	93	80-120	73-127	3	0-20	
Dibromomethane	90	92	80-120	73-127	2	0-20	
1,2-Dichlorobenzene	98	99	75-120	68-128	2	0-20	
1,3-Dichlorobenzene	97	99	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	97	98	80-120	73-127	1	0-20	
Dichlorodifluoromethane	131	135	80-120	73-127	3	0-20	
1,1-Dichloroethane	101	103	80-120	73-127	2	0-20	
1,2-Dichloroethane	96	100	80-120	73-127	4	0-20	
1,1-Dichloroethene	101	105	74-122	66-130	4	0-20	
c-1,2-Dichloroethene	97	99	80-120	73-127	2	0-20	
t-1,2-Dichloroethene	99	101	80-120	73-127	2	0-20	
1,2-Dichloropropane	96	98	79-115	73-121	2	0-25	
1,3-Dichloropropane	92	94	80-120	73-127	2	0-20	
2,2-Dichloropropane	100	102	80-120	73-127	2	0-20	
1,1-Dichloropropene	98	100	80-120	73-127	3	0-20	
c-1,3-Dichloropropene	93	95	80-120	73-127	2	0-20	
t-1,3-Dichloropropene	91	92	80-120	73-127	1	0-20	
Ethylbenzene	97	99	76-120	69-127	2	0-20	
Isopropylbenzene	97	98	80-120	73-127	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-445	Solid	GC/MS Z	12/04/10	12/04/10	101204L03		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	98	99	80-120	73-127	1	0-20	
Methylene Chloride	90	92	80-120	73-127	2	0-20	
Naphthalene	81	84	80-120	73-127	3	0-20	
n-Propylbenzene	99	100	80-120	73-127	1	0-20	
Styrene	96	98	80-120	73-127	2	0-20	
Ethanol	96	99	56-140	42-154	3	0-20	
1,1,1,2-Tetrachloroethane	89	88	80-120	73-127	0	0-20	
1,1,2,2-Tetrachloroethane	88	92	80-120	73-127	5	0-20	
Tetrachloroethene	107	110	80-120	73-127	3	0-20	
Toluene	93	95	77-120	70-127	2	0-20	
1,2,3-Trichlorobenzene	87	88	80-120	73-127	1	0-20	
1,2,4-Trichlorobenzene	92	92	80-120	73-127	0	0-20	
1,1,1-Trichloroethane	95	98	80-120	73-127	3	0-20	
1,1,2-Trichloroethane	90	92	80-120	73-127	3	0-20	
Trichloroethene	95	97	80-120	73-127	2	0-20	
Trichlorofluoromethane	110	115	80-120	73-127	5	0-20	
1,2,3-Trichloropropane	84	87	80-120	73-127	4	0-20	
1,2,4-Trimethylbenzene	97	99	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	97	98	80-120	73-127	1	0-20	
Vinyl Acetate	82	81	80-120	73-127	2	0-20	
Vinyl Chloride	97	102	68-122	59-131	5	0-20	
Xylenes (total)	96	98	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	93	97	77-120	70-127	4	0-20	
Tert-Butyl Alcohol (TBA)	84	84	68-122	59-131	0	0-20	
Diisopropyl Ether (DIPE)	111	114	78-120	71-127	3	0-20	
Ethyl-t-Butyl Ether (ETBE)	103	107	78-120	71-127	3	0-20	
Tert-Amyl-Methyl Ether (TAME)	91	94	75-120	68-128	3	0-20	

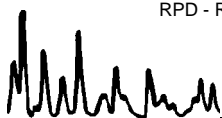
Total number of LCS compounds : 65

Total number of ME compounds : 1

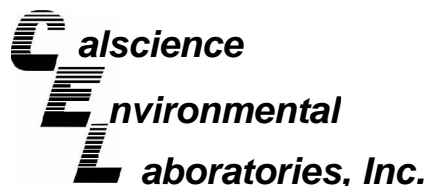
Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit







## Quality Control - LCS/LCS Duplicate



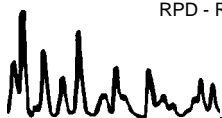
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

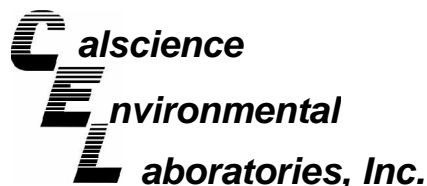
Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-446	Solid	GC/MS Z	12/04/10	12/04/10	101204L04		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	93	96	78-120	71-127	2	0-20	
Bromobenzene	92	93	80-120	73-127	1	0-20	
Bromochloromethane	96	97	80-120	73-127	1	0-20	
Bromodichloromethane	96	96	80-120	73-127	0	0-20	
Bromoform	76	77	80-120	73-127	1	0-20	
Bromomethane	93	92	80-120	73-127	1	0-20	
n-Butylbenzene	99	99	77-123	69-131	1	0-25	
sec-Butylbenzene	98	98	80-120	73-127	0	0-20	
tert-Butylbenzene	94	94	80-120	73-127	1	0-20	
Carbon Disulfide	104	106	80-120	73-127	1	0-20	
Carbon Tetrachloride	91	91	49-139	34-154	0	0-20	
Chlorobenzene	93	95	79-120	72-127	2	0-20	
Chloroethane	113	115	80-120	73-127	2	0-20	
Chloroform	99	101	80-120	73-127	1	0-20	
Chloromethane	107	110	80-120	73-127	2	0-20	
2-Chlorotoluene	96	97	80-120	73-127	1	0-20	
4-Chlorotoluene	100	101	80-120	73-127	2	0-20	
Dibromochloromethane	87	87	80-120	73-127	0	0-20	
1,2-Dibromo-3-Chloropropane	85	89	80-120	73-127	5	0-20	
1,2-Dibromoethane	90	93	80-120	73-127	3	0-20	
Dibromomethane	90	92	80-120	73-127	2	0-20	
1,2-Dichlorobenzene	98	99	75-120	68-128	2	0-20	
1,3-Dichlorobenzene	97	99	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	97	98	80-120	73-127	1	0-20	
Dichlorodifluoromethane	131	135	80-120	73-127	3	0-20	
1,1-Dichloroethane	101	103	80-120	73-127	2	0-20	
1,2-Dichloroethane	96	100	80-120	73-127	4	0-20	
1,1-Dichloroethene	101	105	74-122	66-130	4	0-20	
c-1,2-Dichloroethene	97	99	80-120	73-127	2	0-20	
t-1,2-Dichloroethene	99	101	80-120	73-127	2	0-20	
1,2-Dichloropropane	96	98	79-115	73-121	2	0-25	
1,3-Dichloropropane	92	94	80-120	73-127	2	0-20	
2,2-Dichloropropane	100	102	80-120	73-127	2	0-20	
1,1-Dichloropropene	98	100	80-120	73-127	3	0-20	
c-1,3-Dichloropropene	93	95	80-120	73-127	2	0-20	
t-1,3-Dichloropropene	91	92	80-120	73-127	1	0-20	
Ethylbenzene	97	99	76-120	69-127	2	0-20	
Isopropylbenzene	97	98	80-120	73-127	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-446	Solid	GC/MS Z	12/04/10	12/04/10	101204L04		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	98	99	80-120	73-127	1	0-20	
Methylene Chloride	90	92	80-120	73-127	2	0-20	
Naphthalene	81	84	80-120	73-127	3	0-20	
n-Propylbenzene	99	100	80-120	73-127	1	0-20	
Styrene	96	98	80-120	73-127	2	0-20	
Ethanol	96	99	56-140	42-154	3	0-20	
1,1,1,2-Tetrachloroethane	89	88	80-120	73-127	0	0-20	
1,1,2,2-Tetrachloroethane	88	92	80-120	73-127	5	0-20	
Tetrachloroethene	107	110	80-120	73-127	3	0-20	
Toluene	93	95	77-120	70-127	2	0-20	
1,2,3-Trichlorobenzene	87	88	80-120	73-127	1	0-20	
1,2,4-Trichlorobenzene	92	92	80-120	73-127	0	0-20	
1,1,1-Trichloroethane	95	98	80-120	73-127	3	0-20	
1,1,2-Trichloroethane	90	92	80-120	73-127	3	0-20	
Trichloroethene	95	97	80-120	73-127	2	0-20	
Trichlorofluoromethane	110	115	80-120	73-127	5	0-20	
1,2,3-Trichloropropane	84	87	80-120	73-127	4	0-20	
1,2,4-Trimethylbenzene	97	99	80-120	73-127	1	0-20	
1,3,5-Trimethylbenzene	97	98	80-120	73-127	1	0-20	
Vinyl Acetate	82	81	80-120	73-127	2	0-20	
Vinyl Chloride	97	102	68-122	59-131	5	0-20	
Xylenes (total)	96	98	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	93	97	77-120	70-127	4	0-20	
Tert-Butyl Alcohol (TBA)	84	84	68-122	59-131	0	0-20	
Diisopropyl Ether (DIPE)	111	114	78-120	71-127	3	0-20	
Ethyl-t-Butyl Ether (ETBE)	103	107	78-120	71-127	3	0-20	
Tert-Amyl-Methyl Ether (TAME)	91	94	75-120	68-128	3	0-20	

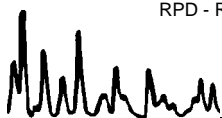
Total number of LCS compounds : 65

Total number of ME compounds : 1

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



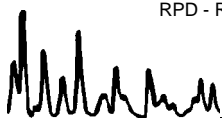
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-447	Solid	GC/MS UU	12/07/10	12/07/10	101207L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	100	100	78-120	71-127	1	0-20	
Bromobenzene	103	104	80-120	73-127	0	0-20	
Bromochloromethane	100	100	80-120	73-127	0	0-20	
Bromodichloromethane	101	100	80-120	73-127	1	0-20	
Bromoform	111	112	80-120	73-127	1	0-20	
Bromomethane	76	78	80-120	73-127	2	0-20	
n-Butylbenzene	103	101	77-123	69-131	2	0-25	
sec-Butylbenzene	106	105	80-120	73-127	1	0-20	
tert-Butylbenzene	108	106	80-120	73-127	1	0-20	
Carbon Disulfide	91	92	80-120	73-127	2	0-20	
Carbon Tetrachloride	99	99	49-139	34-154	0	0-20	
Chlorobenzene	101	99	79-120	72-127	2	0-20	
Chloroethane	105	102	80-120	73-127	3	0-20	
Chloroform	96	97	80-120	73-127	1	0-20	
Chloromethane	94	95	80-120	73-127	2	0-20	
2-Chlorotoluene	101	101	80-120	73-127	0	0-20	
4-Chlorotoluene	106	105	80-120	73-127	1	0-20	
Dibromochloromethane	105	106	80-120	73-127	1	0-20	
1,2-Dibromo-3-Chloropropane	127	123	80-120	73-127	4	0-20	
1,2-Dibromoethane	106	107	80-120	73-127	1	0-20	
Dibromomethane	103	103	80-120	73-127	0	0-20	
1,2-Dichlorobenzene	102	102	75-120	68-128	1	0-20	
1,3-Dichlorobenzene	103	101	80-120	73-127	2	0-20	
1,4-Dichlorobenzene	100	97	80-120	73-127	3	0-20	
Dichlorodifluoromethane	120	117	80-120	73-127	3	0-20	
1,1-Dichloroethane	98	98	80-120	73-127	0	0-20	
1,2-Dichloroethane	101	99	80-120	73-127	1	0-20	
1,1-Dichloroethene	90	96	74-122	66-130	6	0-20	
c-1,2-Dichloroethene	100	100	80-120	73-127	0	0-20	
t-1,2-Dichloroethene	98	98	80-120	73-127	0	0-20	
1,2-Dichloropropane	101	101	79-115	73-121	0	0-25	
1,3-Dichloropropane	103	103	80-120	73-127	0	0-20	
2,2-Dichloropropane	100	101	80-120	73-127	1	0-20	
1,1-Dichloropropene	96	98	80-120	73-127	2	0-20	
c-1,3-Dichloropropene	113	114	80-120	73-127	1	0-20	
t-1,3-Dichloropropene	115	115	80-120	73-127	0	0-20	
Ethylbenzene	103	100	76-120	69-127	2	0-20	
Isopropylbenzene	107	106	80-120	73-127	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-11-2036  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-709-447	Solid	GC/MS UU	12/07/10	12/07/10	101207L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
p-Isopropyltoluene	104	104	80-120	73-127	0	0-20	
Methylene Chloride	96	95	80-120	73-127	2	0-20	
Naphthalene	110	109	80-120	73-127	1	0-20	
n-Propylbenzene	104	104	80-120	73-127	0	0-20	
Styrene	104	104	80-120	73-127	0	0-20	
Ethanol	97	98	56-140	42-154	1	0-20	
1,1,1,2-Tetrachloroethane	104	104	80-120	73-127	0	0-20	
1,1,2,2-Tetrachloroethane	111	111	80-120	73-127	0	0-20	
Tetrachloroethene	105	105	80-120	73-127	0	0-20	
Toluene	99	99	77-120	70-127	0	0-20	
1,2,3-Trichlorobenzene	104	101	80-120	73-127	3	0-20	
1,2,4-Trichlorobenzene	102	98	80-120	73-127	4	0-20	
1,1,1-Trichloroethane	98	98	80-120	73-127	1	0-20	
1,1,2-Trichloroethane	104	105	80-120	73-127	1	0-20	
Trichloroethene	99	99	80-120	73-127	0	0-20	
Trichlorofluoromethane	99	96	80-120	73-127	3	0-20	
1,2,3-Trichloropropane	108	106	80-120	73-127	1	0-20	
1,2,4-Trimethylbenzene	106	103	80-120	73-127	3	0-20	
1,3,5-Trimethylbenzene	104	103	80-120	73-127	1	0-20	
Vinyl Acetate	91	93	80-120	73-127	2	0-20	
Vinyl Chloride	98	98	68-122	59-131	0	0-20	
Xylenes (total)	103	101	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	102	105	77-120	70-127	3	0-20	
Tert-Butyl Alcohol (TBA)	95	99	68-122	59-131	4	0-20	
Diisopropyl Ether (DIPE)	99	101	78-120	71-127	2	0-20	
Ethyl-t-Butyl Ether (ETBE)	99	101	78-120	71-127	2	0-20	
Tert-Amyl-Methyl Ether (TAME)	106	106	75-120	68-128	0	0-20	

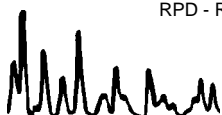
Total number of LCS compounds : 65

Total number of ME compounds : 2

Total number of ME compounds allowed : 3

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

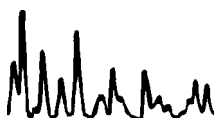


Work Order Number: 10-11-2036
 

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<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
LW	Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
LX	Quantitation of unknown hydrocarbon(s) in sample based on diesel.
MB	Analyte present in the method blank.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
PC	Sample taken from VOA vial with air bubble > 6mm diameter.
PI	Primary and confirm results varied by > than 40% RPD.
RB	RPD exceeded method control limit; % recoveries within limits.
SG	A silica gel cleanup procedure was performed.

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



**Laboratory Management Program LaMP Chain of Custody Record**

BP/ARC Project Name: ARCO 374 SWI  
BP/ARC Facility No: 374

Req Due Date (mm/dd/yy): 14 day TAT Rush TAT: Yes  No   
Lab Work Order Number: 10-11-2036

Lab Name: Cal Science	BP/ARC Facility Address: 6407 Telegraph Ave.	Consultant/Contractor: Broadbent & Associates, Inc. (BAI)
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Fairfield, Ca	Consultant/Contractor Project No: 06-88-602-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda Co	Address: 875 Cotting Ln., Suite G, Vacaville, CA 95688
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600100106	Consultant/Contractor PM: Tom Sparrowe
Lab Shipping Acct: 9255	Enfos Proposal No: 000XK-0017 (co)	Phone: 707-455-7290/707-455-7295 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: <u>tsparrowe@broadbentinc.com</u>
Other Info:	Stage: Operate (5) Activity: Monitoring (822)	Invoice To: <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP/ARC EBM: Chuck Carmel				Matrix		No. Containers / Preservative		Requested Analyses				Turnaround Time		Report Type & QC Level							
EBM Phone: (925) 275-3803				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO (8015)	BTEX (8260)	5-Oxys (8260)*	1,2-DCA, EDB, Ethanol (8260B)	24-hours	Standard	Standard <input checked="" type="checkbox"/>		
EBM Email: <u>charles.carmel@bp.com</u>																			Full Data Package <input type="checkbox"/>		
Lab No.	Sample Description	Date	Time																Comments		
1	MW-8-11	11/23/10	1327	X			1	X					X	X	X	X			X	* MTBE, TBA, TAME, DIPE, & ETBE	
2	MW-8-14.5	11/23/10	1330																		
3	MW-8-8	11/23/10	1312																		
4	MW-8-12.5	11/23/10	1333																		
5	MW-8-9.5	11/23/10	1316																		
6	MW-7-3	11/22/10	1000																		
7	MW-7-5	11/22/10	1030																		
8	Soil Comp	11/24/10	1044				2														
9	Rinse water	11/24/10	1034		X															11/29 - tests cancelled	
10	MW-7-6	11/22/10	1035				2													On Hold	

Sampler's Name: <u>Emil F...</u>	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: BAI			11/24/10	1400			11/26/10	0940
Shipment Method: <u>650</u>	Ship Date: <u>11/24/10</u>							
Shipment Tracking No: <u>106836662</u>								

Special Instructions: Please cc results to bpedf@broadbentinc.com

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



# Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 374 SWI  
 BP/ARC Facility No: 374

Req Due Date (mm/dd/yy): 14 day TAT Rush TAT: Yes  No   
 Lab Work Order Number: 10-11-2036

Lab Name: Cal Science	BP/ARC Facility Address: 6407 Telegraph Ave.	Consultant/Contractor: Broadbent & Associates, Inc. (BAI)
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Fairfield, Ca	Consultant/Contractor Project No: 06-88-602-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda Co	Address: 875 Cotting Ln., Suite G, Vacaville, CA 95688
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600100106	Consultant/Contractor PM: Tom Sparrowe
Lab Shipping Acctn: 9255	Enfos Proposal No: 000XK-0017 (co)	Phone: 707-455-7290/707-455-7295 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: <a href="mailto:tsparrowe@broadbentinc.com">tsparrowe@broadbentinc.com</a>
Other Info:	Stage: Operate (5) Activity: Monitoring (822)	Invoice To: <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP/ARC EBM: Chuck Carmel				Matrix		No. Containers / Preservative						Requested Analyses				Turnaround Tim		Report Type & QC Level	
EBM Phone: (925) 275-3803																		Standard <input checked="" type="checkbox"/>	
EBM Email: <a href="mailto:charles.carmel@bp.com">charles.carmel@bp.com</a>																		Full Data Package <input type="checkbox"/>	
Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO (8015)	BTEX (8260)	5-Oxys (8260)*	1,2-DCA, EDB, Ethanol (8260B)	24-hours	Standard	Comments
11	MW-7-11	11/24/10	0810	X			1	X					X	X	X	X		X	* MTBE, TBA, TAME, DIPE, & ETBE
12	MW-7-8	11/24/10	0903																
13	MW-7-14	11/24/10	0825																
14	MW-7-12.5	11/24/10	0815																
15	MW-7-9.5	11/24/10	0806				2												
16	Trip Blank	11/24/10	-			X	2												On Hold
																			On Hold

Sampler's Name:	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: BAI							11/24/10	0945
Shipment Method:	Ship Date:							
Shipment Tracking No:								

Special Instructions: Please cc results to [bpedf@broadbentinc.com](mailto:bpedf@broadbentinc.com)

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

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# Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 374 SWI  
 BP/ARC Facility No: 374

Req Due Date (mm/dd/yy): 14 day TAT Rush TAT: Yes  No   
 Lab Work Order Number: 10-11-2036

Lab Name: Cal Science	BP/ARC Facility Address: 6407 Telegraph Ave.	Consultant/Contractor: Broadbent & Associates, Inc. (BAI)
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Fairfield, Ca	Consultant/Contractor Project No: 06-88-602-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda Co	Address: 875 Cotting Ln., Suite G, Vacaville, CA 95688
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600100106	Consultant/Contractor PM: Tom Sparrowe
Lab Shipping Acct: 9255	Enfos Proposal No: 000XK-0017 (co)	Phone: 707-455-7290/707-455-7295 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: <u>tsparrowe@broadbentinc.com</u>
Other Info:	Stage: Operate (5) Activity: Monitoring (822)	Invoice To: <input checked="" type="checkbox"/> Contractor <input type="checkbox"/>

BP/ARC EBM: Chuck Carmel				Matrix		No. Containers / Preservative						Requested Analyses				Turnaround Time		Report Type & QC Level	
EBM Phone: (925) 275-3803				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO (8015)	BTEX (8260)	5-Oxys (8260)*	1,2-DCA, EDB, Ethanol (8260B)	24-hours	Standard	Standard <input checked="" type="checkbox"/>
EBM Email: <u>charles.carmel@bp.com</u>																			Full Data Package <input type="checkbox"/>
Lab No.	Sample Description	Date	Time																Comments
17	B-19-8	11/23	0755	X			1	X					X	X	X	X		X	* MTBE, TBA, TAME, DIPE, & ETBE
18	B-19-9.5	11/23	0600																
19	B-19-12.5	11/23	0814																
20	B-19-14	11/23	0818																
21	B-19-11	11/23/10	0808																
22	B-19-15.5	11/23/10	0821																
23	B-19	11/23/10	0900		X		6			X									
24	MW-8-3	11/22/10	1240	X															
25	MW-8-5	11/22/10	1245																
26	MW-8-6	11/22/10	1250																On Hold

Sampler's Name:	Relinquished By / Affiliation		Date	Time	Accepted By / Affiliation		Date	Time
Sampler's Company: BAI					<i>[Signature]</i>		11/23/10	0945
Shipment Method:	Ship Date:							
Shipment Tracking No:								

Special Instructions: Please cc results to bpedf@broadbentinc.com

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

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# Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 374 SWI  
 BP/ARC Facility No: 374

Req Due Date (mm/dd/yy): 14 day TAT Rush TAT: Yes X No      
 Lab Work Order Number: 10-11-7036

Lab Name: Cal Science	BP/ARC Facility Address: 6407 Telegraph Ave.	Consultant/Contractor: Broadbent & Associates, Inc. (BAI)
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Fairfield, Ca	Consultant/Contractor Project No: 06-88-602-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda Co	Address: 875 Cotting Ln., Suite G, Vacaville, CA 95688
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600100106	Consultant/Contractor PM: Tom Sparrowe
Lab Shipping Acct#: 9255	Enfos Proposal No: 000XK-0017 (co)	Phone: 707-455-7290/707-455-7295 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <u>X</u> OOC-BU <u>   </u> OOC-RM <u>   </u>	Email EDD To: <u>tsparrowe@broadbentinc.com</u>
Other Info:	Stage: Operate (5) Activity: Monitoring (822)	Invoice To: <u>   </u> Contractor <u>   </u>

BP/ARC EBM: Chuck Carmel	<b>Matrix</b>	<b>No. Containers / Preservative</b>	<b>Requested Analyses</b>	<b>Turnaround Tim</b>	<b>Report Type &amp; QC Level</b>
EBM Phone: (925) 275-3803					Standard <u>X</u>
EBM Email: <u>charles.carmel@bp.com</u>					Full Data Package <u>   </u>

Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO (8015)	BTEX (8260)	6-Oxys (8260)*	1,2-DCA, EDB, Ethanol (8260B)	24-hours	Standard	Comments
27	MW-9-6	11/22	1440	X			1	X					X	X	X	X		X	* MTBE, TBA, TAME, DIPE, & ETBE
28	MV-9-5	11/22	1434																
29	MW-9-11	11/23	0932																
30	MV-9-3	11/22	1430																
31	MV-9-12.5	11/23	0934																
32	MV-9-8	11/23	0921																
33	MW-9-14	11/23	0941																
34	B-19-3	11/23	1607																
35	B-19-5	11/23/10	1615																
36	B-19-6	11/23/10	1620																On Hold

Sampler's Name:	<b>Relinquished By / Affiliation</b>		<b>Date</b>	<b>Time</b>	<b>Accepted By / Affiliation</b>		<b>Date</b>	<b>Time</b>
Sampler's Company: BAI								
Shipment Method:	Ship Date:							
Shipment Tracking No:								

**Special Instructions:** Please cc results to bpedf@broadbentinc.com

THISLINE - LAB USE ONLY: Custody Seals In Place: Yes / No    Temp Blank: Yes / No    Cooler Temp on Receipt: \_\_\_\_\_ °F/C    Trip Blank: Yes / No    MS/MSD Sample Submitted: Yes / No



2026

PLEASE PRESS FIRMLY

**1 FROM**

DATE: 11/24/10  
 COMPANY: BAI  
 ADDRESS: 875 Cottonwood Lane  
 ADDRESS:  
 CITY: Vacaville  
 STATE/ROOM: G  
 ZIP CODE: 94988  
 SENDERS NAME: Eric Farrow  
 PHONE NUMBER: 707-247-7701

**2 TO**

COMPANY: CAL SCIENCE  
 NAME:  
 ADDRESS: 100 LINCOLN WAY  
 ADDRESS:  
 CITY: GARDEN GROVE  
 STATE/ROOM:  
 ZIP CODE:

**3** YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

SPECIAL INSTRUCTIONS



1-800-322-5555  
WWW.GSO.COM

SHIPPING AIR BILL

**4 PACKAGE INFORMATION**

LETTER (MAX 8 OZ)  
 PACKAGE (WT) 30  
 DECLARED VALUE \$  
 COD AMOUNT \$ (CASH NOT ACCEPTED)

**5 DELIVERY SERVICE**  PRIORITY OVERNIGHT BY 10:30 AM  EARLY PRIORITY BY 8:00 AM  SA/DE

\*DELIVERY TIMES MAY BE LATER IN SOME AREAS • CONSULT YOUR SERVICE GUIDE OR CALL GOLDEN

**6 RELEASE SIGNATURE**  
 SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

**7**

**8 PICK UP INFORMATION** TIME DRIVER # ROL

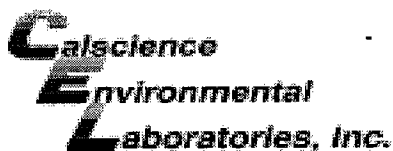
106836682

PEEL OFF HERE



**9 GSO TRACKING NUMBER**

106836682



WORK ORDER #: 10-11-2036

# SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent & Associates

DATE: 11/26/10

**TEMPERATURE:** Thermometer ID: SC1 (Criteria: 0.0°C – 6.0°C, not frozen)

Temperature 2.5 °C + 0.5°C (CF) = 3.0 °C  Blank  Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).

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

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature:  Air  Filter

Initial: YL

**CUSTODY SEALS INTACT:**

Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A

Initial: YL

Sample  \_\_\_\_\_  No (Not Intact)  Not Present

Initial: [Signature]

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH / Residual Chlorine / Dissolved Sulfide received within 24 hours.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

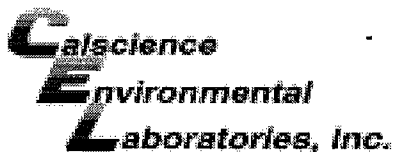
**Solid:**  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (S/B)  EnCores®  TerraCores®  \_\_\_\_\_

**Water:**  VOA  VOAh  VOAna<sub>2</sub>  125AGB  125AGBh  125AGBp  1AGB  1AGBna<sub>2</sub>  1AGBs  
 500AGB  500AGJ  500AGJs  250AGB  250CGB  250CGBs  1PB  500PB  500PBna  
 250PB  250PBn  125PB  125PBzna  100PJ  100PJna<sub>2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

**Air:**  Tedlar®  Summa® **Other:**  \_\_\_\_\_ **Trip Blank Lot#:** 101019A **Labeled/Checked by:** [Signature]

**Container:** C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** WSC

**Preservative:** h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> zna: ZnAc<sub>2</sub>+NaOH f: Field-filtered **Scanned by:** WSC



WORK ORDER #: 10-11-2036

## SAMPLE ANOMALY FORM

**SAMPLES - CONTAINERS & LABELS:**

- Sample(s)/Container(s) NOT RECEIVED but listed on COC
- Sample(s)/Container(s) received but NOT LISTED on COC
- Holding time expired – list sample ID(s) and test
- Insufficient quantities for analysis – list test
- Improper container(s) used – list test
- Improper preservative used – list test
- No preservative noted on COC or label – list test & notify lab
- Sample labels illegible – note test/container type
- Sample label(s) do not match COC – Note in comments
  - Sample ID
  - Date and/or Time Collected
  - Project Information
  - # of Container(s)
  - Analysis
- Sample container(s) compromised – Note in comments
  - Water present in sample container
  - Broken
- Sample container(s) not labeled
- Air sample container(s) compromised – Note in comments
  - Flat
  - Very low in volume
  - Leaking (Not transferred - duplicate bag submitted)
  - Leaking (transferred into CalScience Tedlar® Bag\*)
  - Leaking (transferred into Client's Tedlar® Bag\*)
- Other: \_\_\_\_\_

**Comments:**

(27) received 1 sleeve  
 labeled as MW9-15.5,  
 11/23/10 @ 09:44  
 11/29/10 - Per Tom Sparrowe, analyzed  
 for GRO & BTEX/OXYS suite.

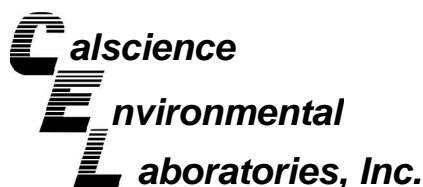
**HEADSPACE – Containers with Bubble > 6mm or ¼ inch:**

Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Vials Received	Sample #	Container ID(s)	# of Cont. received	Analysis

Comments: \_\_\_\_\_

\*Transferred at Client's request.

Initial / Date: WLC 11/26/10



December 22, 2010

Tom Sparrowe  
Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Subject: **CalScience Work Order No.: 10-12-1488**  
**Client Reference: ARCO 374 SWI**

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/17/2010 and analyzed in accordance with the attached chain-of-custody.

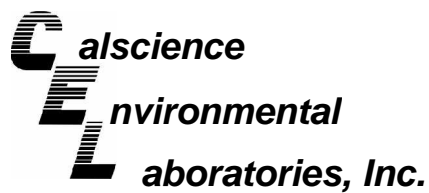
CalScience Environmental Laboratories certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analysis, if any, is provided herein, and follows the standard CalScience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Villafania'.

CalScience Environmental  
Laboratories, Inc.  
Richard Villafania  
Project Manager



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	10-12-1488-1-B	12/16/10 10:10	Aqueous	GC 11	12/18/10	12/18/10 17:24	101218B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	80	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	10-12-1488-2-B	12/16/10 12:00	Aqueous	GC 11	12/18/10	12/18/10 20:13	101218B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	79	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	10-12-1488-3-B	12/16/10 12:35	Aqueous	GC 11	12/18/10	12/18/10 20:46	101218B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	15000	500	10		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	92	38-134			

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	10-12-1488-4-B	12/16/10 10:42	Aqueous	GC 11	12/18/10	12/18/10 21:20	101218B01

Parameter	Result	RL	DF	Qual	Units
Gasoline Range Organics (C6-C12)	700	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	88	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>MW-8</b>	<b>10-12-1488-5-B</b>	<b>12/16/10 11:25</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>12/18/10</b>	<b>12/18/10 21:54</b>	<b>101218B01</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	520	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	87	38-134			

<b>MW-9</b>	<b>10-12-1488-6-B</b>	<b>12/16/10 13:18</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>12/18/10</b>	<b>12/18/10 22:28</b>	<b>101218B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	330	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	86	38-134			

<b>Method Blank</b>	<b>099-12-695-972</b>	<b>N/A</b>	<b>Aqueous</b>	<b>GC 11</b>	<b>12/18/10</b>	<b>12/18/10 16:50</b>	<b>101218B01</b>
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<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>
Gasoline Range Organics (C6-C12)	ND	50	1		ug/L
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>		<u>Qual</u>	
1,4-Bromofluorobenzene	76	38-134			

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 374 SWI

Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-1	10-12-1488-1-E	12/16/10 10:10	Aqueous	GC/MS L	12/21/10	12/21/10 16:26	101221L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	2.0	4		Methyl-t-Butyl Ether (MTBE)	140	2.0	4	
1,2-Dibromoethane	ND	2.0	4		Tert-Butyl Alcohol (TBA)	ND	40	4	
1,2-Dichloroethane	ND	2.0	4		Diisopropyl Ether (DIPE)	ND	2.0	4	
Ethylbenzene	ND	2.0	4		Ethyl-t-Butyl Ether (ETBE)	ND	2.0	4	
Toluene	ND	2.0	4		Tert-Amyl-Methyl Ether (TAME)	ND	2.0	4	
Xylenes (total)	ND	2.0	4		Ethanol	ND	1200	4	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	111	80-128			Dibromofluoromethane	110	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	99	68-120		

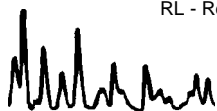
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-2	10-12-1488-2-F	12/16/10 12:00	Aqueous	GC/MS L	12/20/10	12/21/10 04:46	101220L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	17	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	105	80-128			Dibromofluoromethane	108	80-127		
Toluene-d8	98	80-120			1,4-Bromofluorobenzene	97	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-4	10-12-1488-3-F	12/16/10 12:35	Aqueous	GC/MS L	12/20/10	12/21/10 05:15	101220L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	1800	25	50		Methyl-t-Butyl Ether (MTBE)	ND	25	50	
1,2-Dibromoethane	ND	25	50		Tert-Butyl Alcohol (TBA)	ND	500	50	
1,2-Dichloroethane	ND	25	50		Diisopropyl Ether (DIPE)	ND	25	50	
Ethylbenzene	270	25	50		Ethyl-t-Butyl Ether (ETBE)	ND	25	50	
Toluene	82	25	50		Tert-Amyl-Methyl Ether (TAME)	ND	25	50	
Xylenes (total)	210	25	50		Ethanol	ND	15000	50	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	101	80-128			Dibromofluoromethane	104	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	99	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 374 SWI

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-7	10-12-1488-4-F	12/16/10 10:42	Aqueous	GC/MS L	12/20/10	12/21/10 05:43	101220L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	62	2.0	4	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	15	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	32	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	101	80-128			Dibromofluoromethane	101	80-127		
Toluene-d8	102	80-120			1,4-Bromofluorobenzene	101	68-120		

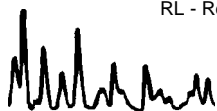
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-8	10-12-1488-5-F	12/16/10 11:25	Aqueous	GC/MS L	12/20/10	12/21/10 06:12	101220L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	43	5.0	10		Methyl-t-Butyl Ether (MTBE)	150	5.0	10	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	4.1	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	1.7	0.50	1	
Xylenes (total)	21	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	108	80-128			Dibromofluoromethane	105	80-127		
Toluene-d8	99	80-120			1,4-Bromofluorobenzene	102	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MW-9	10-12-1488-6-C	12/16/10 13:18	Aqueous	GC/MS L	12/20/10	12/21/10 06:41	101220L02

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	18	0.50	1		Methyl-t-Butyl Ether (MTBE)	390	10	20	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	40	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	11	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	4.1	0.50	1	
Xylenes (total)	38	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	107	80-128			Dibromofluoromethane	109	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	99	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



## Analytical Report



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B  
Units: ug/L

Project: ARCO 374 SWI

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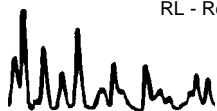
Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-12-703-1,558</b>	<b>N/A</b>	<b>Aqueous</b>	<b>GC/MS L</b>	<b>12/20/10</b>	<b>12/20/10 23:34</b>	<b>101220L02</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	113	80-128			Dibromofluoromethane	109	80-127		
Toluene-d8	101	80-120			1,4-Bromofluorobenzene	98	68-120		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-12-703-1,559</b>	<b>N/A</b>	<b>Aqueous</b>	<b>GC/MS L</b>	<b>12/21/10</b>	<b>12/21/10 12:11</b>	<b>101221L01</b>

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Methyl-t-Butyl Ether (MTBE)	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tert-Butyl Alcohol (TBA)	ND	10	1	
1,2-Dichloroethane	ND	0.50	1		Diisopropyl Ether (DIPE)	ND	0.50	1	
Ethylbenzene	ND	0.50	1		Ethyl-t-Butyl Ether (ETBE)	ND	0.50	1	
Toluene	ND	0.50	1		Tert-Amyl-Methyl Ether (TAME)	ND	0.50	1	
Xylenes (total)	ND	0.50	1		Ethanol	ND	300	1	
<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>		<u>Surrogates:</u>	<u>REC (%)</u>	<u>Control Limits</u>	<u>Qual</u>	
1,2-Dichloroethane-d4	115	80-128			Dibromofluoromethane	110	80-127		
Toluene-d8	100	80-120			1,4-Bromofluorobenzene	99	68-120		

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers





## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
MW-1	Aqueous	GC 11	12/18/10	12/18/10	101218S01

<u>Parameter</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	93	98	38-134	5	0-25	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-12-0994-1	Aqueous	GC/MS L	12/20/10	12/21/10	101220S02

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	110	110	76-124	0	0-20	
Carbon Tetrachloride	109	109	74-134	0	0-20	
Chlorobenzene	107	104	80-120	3	0-20	
1,2-Dibromoethane	107	105	80-120	2	0-20	
1,2-Dichlorobenzene	103	105	80-120	1	0-20	
1,2-Dichloroethane	108	109	80-120	1	0-20	
Ethylbenzene	108	104	78-126	4	0-20	
Toluene	108	107	80-120	1	0-20	
Trichloroethene	108	106	77-120	2	0-20	
Methyl-t-Butyl Ether (MTBE)	112	116	67-121	3	0-49	
Tert-Butyl Alcohol (TBA)	114	99	36-162	14	0-30	
Diisopropyl Ether (DIPE)	110	109	60-138	1	0-45	
Ethyl-t-Butyl Ether (ETBE)	109	111	69-123	2	0-30	
Tert-Amyl-Methyl Ether (TAME)	105	107	65-120	2	0-20	
Ethanol	127	112	30-180	13	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - Spike/Spike Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: 12/17/10  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B

Project ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
10-12-1118-1	Aqueous	GC/MS L	12/21/10	12/21/10	101221S01

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	106	105	76-124	1	0-20	
Carbon Tetrachloride	117	123	74-134	5	0-20	
Chlorobenzene	105	107	80-120	1	0-20	
1,2-Dibromoethane	104	108	80-120	4	0-20	
1,2-Dichlorobenzene	100	104	80-120	5	0-20	
1,2-Dichloroethane	110	112	80-120	1	0-20	
Ethylbenzene	107	107	78-126	0	0-20	
Toluene	109	108	80-120	1	0-20	
Trichloroethene	111	107	77-120	3	0-20	
Methyl-t-Butyl Ether (MTBE)	99	137	67-121	7	0-49	LM,AY
Tert-Butyl Alcohol (TBA)	100	105	36-162	5	0-30	
Diisopropyl Ether (DIPE)	105	108	60-138	3	0-45	
Ethyl-t-Butyl Ether (ETBE)	108	112	69-123	3	0-30	
Tert-Amyl-Methyl Ether (TAME)	105	107	65-120	2	0-20	
Ethanol	120	138	30-180	14	0-72	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8015B (M)

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-695-972	Aqueous	GC 11	12/18/10	12/18/10	101218B01

<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Gasoline Range Organics (C6-C12)	104	99	78-120	4	0-20	

RPD - Relative Percent Difference , CL - Control Limit



## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,558	Aqueous	GC/MS L	12/20/10	12/20/10	101220L02		
<u>Parameter</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>%REC CL</u>	<u>ME CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Benzene	104	103	80-120	73-127	1	0-20	
Carbon Tetrachloride	105	102	74-134	64-144	3	0-20	
Chlorobenzene	102	100	80-120	73-127	1	0-20	
1,2-Dibromoethane	102	103	79-121	72-128	0	0-20	
1,2-Dichlorobenzene	100	102	80-120	73-127	1	0-20	
1,2-Dichloroethane	103	105	80-120	73-127	2	0-20	
Ethylbenzene	104	102	80-120	73-127	1	0-20	
Toluene	105	105	80-120	73-127	0	0-20	
Trichloroethene	108	106	79-127	71-135	2	0-20	
Methyl-t-Butyl Ether (MTBE)	109	110	69-123	60-132	1	0-20	
Tert-Butyl Alcohol (TBA)	99	94	63-123	53-133	5	0-20	
Diisopropyl Ether (DIPE)	106	103	59-137	46-150	3	0-37	
Ethyl-t-Butyl Ether (ETBE)	107	106	69-123	60-132	0	0-20	
Tert-Amyl-Methyl Ether (TAME)	103	104	70-120	62-128	1	0-20	
Ethanol	113	110	28-160	6-182	3	0-57	

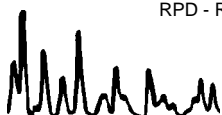
Total number of LCS compounds : 15

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit





## Quality Control - LCS/LCS Duplicate



Broadbent & Associates, Inc  
875 Cotting Lane, Suite G  
Vacaville, CA 95688-9299

Date Received: N/A  
Work Order No: 10-12-1488  
Preparation: EPA 5030C  
Method: EPA 8260B

Project: ARCO 374 SWI

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number		
099-12-703-1,559	Aqueous	GC/MS L	12/21/10	12/21/10	101221L01		
Parameter	LCS %REC	LCSD %REC	%REC CL	ME CL	RPD	RPD CL	Qualifiers
Benzene	102	98	80-120	73-127	3	0-20	
Carbon Tetrachloride	106	109	74-134	64-144	3	0-20	
Chlorobenzene	101	101	80-120	73-127	1	0-20	
1,2-Dibromoethane	103	104	79-121	72-128	1	0-20	
1,2-Dichlorobenzene	100	99	80-120	73-127	1	0-20	
1,2-Dichloroethane	104	101	80-120	73-127	3	0-20	
Ethylbenzene	101	104	80-120	73-127	3	0-20	
Toluene	103	102	80-120	73-127	1	0-20	
Trichloroethene	103	102	79-127	71-135	0	0-20	
Methyl-t-Butyl Ether (MTBE)	107	105	69-123	60-132	2	0-20	
Tert-Butyl Alcohol (TBA)	99	103	63-123	53-133	4	0-20	
Diisopropyl Ether (DIPE)	101	95	59-137	46-150	5	0-37	
Ethyl-t-Butyl Ether (ETBE)	104	99	69-123	60-132	5	0-20	
Tert-Amyl-Methyl Ether (TAME)	104	99	70-120	62-128	6	0-20	
Ethanol	117	129	28-160	6-182	10	0-57	

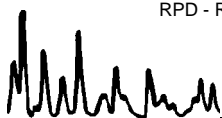
Total number of LCS compounds : 15

Total number of ME compounds : 0

Total number of ME compounds allowed : 1

LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit



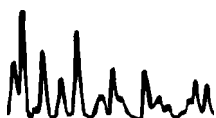


Work Order Number: 10-12-1488
 

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<u>Qualifier</u>	<u>Definition</u>
AX	Sample too dilute to quantify surrogate.
BA	Relative percent difference out of control.
BA,AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.
BB	Sample > 4x spike concentration.
BF	Reporting limits raised due to high hydrocarbon background.
BH	Reporting limits raised due to high level of non-target analytes.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
BY	Sample received at improper temperature.
BZ	Sample preserved improperly.
CL	Initial analysis within holding time but required dilution.
CQ	Analyte concentration greater than 10 times the blank concentration.
CU	Surrogate concentration diluted to not detectable during analysis.
DF	Reporting limits elevated due to matrix interferences.
DU	Insufficient sample quantity for matrix spike/dup matrix spike.
ET	Sample was extracted past end of recommended max. holding time.
EY	Result exceeds normal dynamic range; reported as a min est.
GR	Internal standard recovery is outside method recovery limit.
IB	CCV recovery above limit; analyte not detected.
IH	Calibrtn. verif. recov. below method CL for this analyte.
IJ	Calibrtn. verif. recov. above method CL for this analyte.
J,DX	J=EPA Flag -Estimated value; DX= Value < lowest standard (MQL), but > than MDL.
LA	Confirmatory analysis was past holding time.
LG,AY	LG= Surrogate recovery below the acceptance limit. AY= Matrix interference suspected.
LH,AY	LH= Surrogate recovery above the acceptance limit. AY= Matrix interference suspected.
LM,AY	LM= MS and/or MSD above acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LN,AY	LN= MS and/or MSD below acceptance limits. See Blank Spike (LCS). AY= Matrix interference suspected.
LQ	LCS recovery above method control limits.
LR	LCS recovery below method control limits.
LW	Quantitation of unknown hydrocarbon(s) in sample based on gasoline.
LX	Quantitation of unknown hydrocarbon(s) in sample based on diesel.
MB	Analyte present in the method blank.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
PC	Sample taken from VOA vial with air bubble > 6mm diameter.
PI	Primary and confirm results varied by > than 40% RPD.
RB	RPD exceeded method control limit; % recoveries within limits.
SG	A silica gel cleanup procedure was performed.

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





Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: ARCO 374 SWI  
 BP/ARC Facility No: 374

Req Due Date (mm/dd/yy): 12/23/10 Rush TAT: Yes  No   
 Lab Work Order Number: 10-12-1488

Lab Name: Cal Science	BP/ARC Facility Address: 6407 Telegraph Ave.	Consultant/Contractor: Broadbent & Associates, Inc. (BAI)
Lab Address: 7440 Lincoln Way	City, State, ZIP Code: Fairfield, Ca	Consultant/Contractor Project No: 06-88-602-5-822
Lab PM: Richard Villafania	Lead Regulatory Agency: Alameda Co	Address: 875 Cotting Ln., Suite G, Vacaville, CA 95688
Lab Phone: 714-895-5494 / 714-895-7501 (fax)	California Global ID No.: T0600100106	Consultant/Contractor PM: Tom Sparrowe
Lab Shipping Acct: 9255	Enfos Proposal No: 000XK-0017 (co)	Phone: 707-455-7290/707-455-7295 (fax)
Lab Bottle Order No:	Accounting Mode: Provision <input checked="" type="checkbox"/> OOC-BU <input type="checkbox"/> OOC-RM <input type="checkbox"/>	Email EDD To: <a href="mailto:tsparrowe@broadbentinc.com">tsparrowe@broadbentinc.com</a>
Other Info:	Stage: Operate (5) Activity: Monitoring (822)	Invoice To: x Contractor

BP/ARC EBM: Chuck Carmel				Matrix		No. Containers / Preservative						Requested Analyses				Turnaround Time		Report Type & QC Level	
EBM Phone: (925) 275-3803				Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	Methanol	GRO (8015)	BTEX (8260)	S-Oxys (8260)*	1,2-DCA, EDB, Ethanol (8260B)	24-hours	5-DAY	Standard <input checked="" type="checkbox"/>
EBM Email: <a href="mailto:charles.carmel@bp.com">charles.carmel@bp.com</a>																			Full Data Package
Lab No.	Sample Description	Date	Time															Comments	
1	MW-1	12/16/2010	1010		X		6					X	X	X	X			X	* MTBE, TBA, TAME, DIPE, & ETBE
2	MW-2	12/16/2010	1200		X		6					X	X	X	X			X	
3	MW-4	12/16/2010	1235		X		6					X	X	X	X			X	
4	MW-7	12/16/2010	1042		X		6					X	X	X	X			X	
5	MW-8	12/16/2010	1125		X		6					X	X	X	X			X	
6	MW-9	12/16/2010	1318		X		6					X	X	X	X			X	
7	TB-374-101216	101216	-																On Hold

Sampler's Name: Eric Farrar	Relinquished By / Affiliation				Date	Time	Accepted By / Affiliation				Date	Time
Sampler's Company: BAI					10/2/16	1600					12/17/10	1015
Shipment Method: GSO	Ship Date: 10/2/16											
Shipment Tracking No: 106193862												

Special Instructions: Please cc results to [bpedf@broadbentinc.com](mailto:bpedf@broadbentinc.com)

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

Page 1 of 10

DATE 1/16/10  
 COMPANY BAI  
 ADDRESS 875 Cotting Lane  
 ADDRESS  
 CITY Vacaville  
 SENDERS NAME Eric Finner  
 PHONE NUMBER 725-217-7901  
 STE/ROOM 6  
 ZIP CODE 95688

---

COMPANY CAL SCIENCE  
 NAME  
 PHONE NUMBER  
 ADDRESS 7401 LINCOLN WAY  
 ADDRESS  
 CITY GARDEN GROVE  
 ZIP CODE

---

YOUR INTERNAL BILLING REFERENCE WILL APPEAR ON YOUR INVOICE

---

SPECIAL INSTRUCTIONS



1-800-322-5555

WWW.GSO.COM

SHIPPING AIR BILL

PACKAGE LABEL

- 4 PACKAGE INFORMATION
- LETTER (MAX 8 OZ)
- PACKAGE (WT) \_\_\_\_\_
- DECLARED VALUE \$ \_\_\_\_\_
- COD AMOUNT \$ \_\_\_\_\_ (CASH NOT ACCEPTED)

- 5 DELIVERY SERVICE
- PRIORITY OVERNIGHT BY 10:30 AM
- EARLY PRIORITY BY 8:00 AM
- SATURDAY DELIVERY

\*DELIVERY TIMES MAY BE LATER IN SOME AREAS • CONSULT YOUR SERVICE GUIDE OR CALL GOLDEN STATE OVERNIGHT

- 6 RELEASE SIGNATURE
- SIGN TO AUTHORIZE DELIVERY WITHOUT OBTAINING SIGNATURE

7

- 8 PICK UP INFORMATION
- TIME DRIVER # ROUTE #

106193862

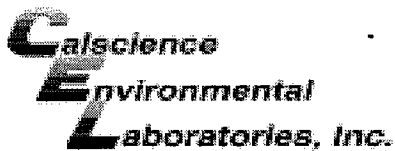
PEEL OFF HERE



- 9 GSO TRACKING NUMBER

106193862

1488



WORK ORDER #: 10-12-1488

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: Broadbent

DATE: 12/17/10

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0°C - 6.0°C, not frozen)

Temperature 2.7°C + 0.5°C (CF) = 3.2°C [X] Blank [ ] Sample

- [ ] Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).
[ ] Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.
[ ] Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: [ ] Air [ ] Filter

Initial: [Signature]

CUSTODY SEALS INTACT:

- [X] Cooler [ ] \_\_\_\_\_ [ ] No (Not Intact) [ ] Not Present [ ] N/A
[ ] Sample [ ] \_\_\_\_\_ [ ] No (Not Intact) [X] Not Present

Initial: [Signature]

Initial: [Signature]

SAMPLE CONDITION:

Table with 4 columns: Item, Yes, No, N/A. Rows include Chain-Of-Custody (COC) document(s) received with samples, COC document(s) received complete, Sampler's name indicated on COC, etc.

CONTAINER TYPE:

- Solid: [ ] 4ozCGJ [ ] 8ozCGJ [ ] 16ozCGJ [ ] Sleeve (\_\_\_\_) [ ] EnCores® [ ] TerraCores® [ ] \_\_\_\_\_
Water: [ ] VOA [X] VOAh [ ] VOAna2 [ ] 125AGB [ ] 125AGBh [ ] 125AGBp [ ] 1AGB [ ] 1AGBna2 [ ] 1AGBs
[ ] 500AGB [ ] 500AGJ [ ] 500AGJs [ ] 250AGB [ ] 250CGB [ ] 250CGBs [ ] 1PB [ ] 500PB [ ] 500PBna
[ ] 250PB [ ] 250PBn [ ] 125PB [ ] 125PBzanna [ ] 100PJ [ ] 100PJna2 [ ] \_\_\_\_\_ [ ] \_\_\_\_\_ [ ] \_\_\_\_\_

Air: [ ] Tedlar® [ ] Summa® Other: [ ] \_\_\_\_\_ Trip Blank Lot#: 101019A Labeled/Checked by: [Signature]

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: [Signature]

Preservative: h: HCL n: HNO3 na2: Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 zanna: ZnAc2+NaOH f: Field-filtered Scanned by: [Signature]

**APPENDIX C**

**GEOTRACKER UPLOAD CONFIRMATION RECEIPTS**

STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_BORE FILE

**SUCCESS**

Your GEO\_BORE file has been successfully submitted!

<b><u>Submittal Type:</u></b>	<b>GEO_BORE</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100106</b>
<b><u>Field Point:</u></b>	<b>B-19</b>
<b><u>Facility Name:</u></b>	<b>ARCO #0374</b>
<b><u>File Name:</u></b>	<b>GEO_BORE B-19.pdf</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>1/14/2011 12:10:28 PM</b>
<b><u>Confirmation Number:</u></b>	<b>3006560564</b>

STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_BORE FILE

**SUCCESS**

Your GEO\_BORE file has been successfully submitted!

<b><u>Submittal Type:</u></b>	<b>GEO_BORE</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100106</b>
<b><u>Field Point:</u></b>	<b>MW-7</b>
<b><u>Facility Name:</u></b>	<b>ARCO #0374</b>
<b><u>File Name:</u></b>	<b>GEO_BORE MW-7.pdf</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>1/14/2011 12:11:36 PM</b>
<b><u>Confirmation Number:</u></b>	<b>1202637672</b>

STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_BORE FILE

**SUCCESS**

Your GEO\_BORE file has been successfully submitted!

<b><u>Submittal Type:</u></b>	<b>GEO_BORE</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100106</b>
<b><u>Field Point:</u></b>	<b>MW-8</b>
<b><u>Facility Name:</u></b>	<b>ARCO #0374</b>
<b><u>File Name:</u></b>	<b>GEO_BORE MW-8.pdf</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>1/14/2011 12:12:27 PM</b>
<b><u>Confirmation Number:</u></b>	<b>2473203301</b>



STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_BORE FILE

**SUCCESS**

Your GEO\_BORE file has been successfully submitted!

<b><u>Submittal Type:</u></b>	<b>GEO_BORE</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100106</b>
<b><u>Field Point:</u></b>	<b>MW-9</b>
<b><u>Facility Name:</u></b>	<b>ARCO #0374</b>
<b><u>File Name:</u></b>	<b>GEO_BORE MW-9.pdf</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>1/14/2011 12:13:04 PM</b>
<b><u>Confirmation Number:</u></b>	<b>7121728479</b>

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_MAP FILE

**SUCCESS**

Your GEO\_MAP file has been successfully submitted!

<b><u>Submittal Type:</u></b>	<b>GEO_MAP</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100106</b>
<b><u>Facility Name:</u></b>	<b>ARCO #0374</b>
<b><u>File Name:</u></b>	<b>374 GEO_MAP.pdf</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>1/14/2011 11:39:50 AM</b>
<b><u>Confirmation Number:</u></b>	<b>7563826799</b>

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_XY FILE

## SUCCESS

Processing is complete. No errors were found!  
Your file has been successfully submitted!

<b><u>Submittal Type:</u></b>	GEO_XY
<b><u>Submittal Title:</u></b>	GEO_XY MW-1 to MW-9
<b><u>Facility Global ID:</u></b>	T0600100106
<b><u>Facility Name:</u></b>	ARCO #0374
<b><u>File Name:</u></b>	GEO_XY.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
<b><u>Username:</u></b>	BROADBENT-C
<b><u>IP Address:</u></b>	67.118.40.90
<b><u>Submittal Date/Time:</u></b>	1/14/2011 11:38:10 AM
<b><u>Confirmation Number:</u></b>	<b>6888611793</b>

[VIEW GEO\\_XY SUBMITTAL DATA ON MAP](#)

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_Z FILE

**SUCCESS**

Processing is complete. No errors were found!  
Your file has been successfully submitted!

<b><u>Submittal Type:</u></b>	GEO_Z
<b><u>Submittal Title:</u></b>	GEO_Z MW-1 to MW-9
<b><u>Facility Global ID:</u></b>	T0600100106
<b><u>Facility Name:</u></b>	ARCO #0374
<b><u>File Name:</u></b>	GEO_Z.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
<b><u>Username:</u></b>	BROADBENT-C
<b><u>IP Address:</u></b>	67.118.40.90
<b><u>Submittal Date/Time:</u></b>	1/14/2011 11:39:13 AM
<b><u>Confirmation Number:</u></b>	<b>5462583184</b>

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_WELL FILE

**SUCCESS**

Processing is complete. No errors were found!  
Your file has been successfully submitted!

<b><u>Submittal Type:</u></b>	GEO_WELL
<b><u>Submittal Title:</u></b>	4Q10 GEO_WELL 374
<b><u>Facility Global ID:</u></b>	T0600100106
<b><u>Facility Name:</u></b>	ARCO #0374
<b><u>File Name:</u></b>	GEO_WELL.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
<b><u>Username:</u></b>	BROADBENT-C
<b><u>IP Address:</u></b>	67.118.40.90
<b><u>Submittal Date/Time:</u></b>	1/14/2011 11:51:41 AM
<b><u>Confirmation Number:</u></b>	<b>5839625060</b>

STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A EDF FILE

## SUCCESS

Processing is complete. No errors were found!  
Your file has been successfully submitted!

<b><u>Submittal Type:</u></b>	EDF - Soil and Water Investigation Report
<b><u>Submittal Title:</u></b>	Soil Boring Samples 1110
<b><u>Facility Global ID:</u></b>	T0600100106
<b><u>Facility Name:</u></b>	ARCO #0374
<b><u>File Name:</u></b>	10112036.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
<b><u>Username:</u></b>	BROADBENT-C
<b><u>IP Address:</u></b>	67.118.40.90
<b><u>Submittal Date/Time:</u></b>	1/14/2011 11:49:25 AM
<b><u>Confirmation Number:</u></b>	<b>3529611170</b>

[VIEW QC REPORT](#)

[VIEW DETECTIONS REPORT](#)

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A EDF FILE

## SUCCESS

Processing is complete. No errors were found!  
Your file has been successfully submitted!

<b><u>Submittal Type:</u></b>	EDF - Monitoring Report - Quarterly
<b><u>Submittal Title:</u></b>	4Q10 GW Monitoring
<b><u>Facility Global ID:</u></b>	T0600100106
<b><u>Facility Name:</u></b>	ARCO #0374
<b><u>File Name:</u></b>	10121488.zip
<b><u>Organization Name:</u></b>	Broadbent & Associates, Inc.
<b><u>Username:</u></b>	BROADBENT-C
<b><u>IP Address:</u></b>	67.118.40.90
<b><u>Submittal Date/Time:</u></b>	1/14/2011 11:41:16 AM
<b><u>Confirmation Number:</u></b>	<b>1226941704</b>

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