Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 1257
San Ramon, California 94583
Phone: (925) 275-3801
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26 August 2008

Re: Soil Investigation Report
Atlantic Richfield Company Station No.2185
9800 International Boulevard
Oakland, California
ACEH Case No.RO0000392

"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:

Paul Supple
Environmental Business Manager

SOIL INVESTIGATION REPORT

Atlantic Richfield Company Station No. 2185
9800 International Boulevard
Oakland, California
ACEH Case No. RO0000392

Prepared for:

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

Prepared by:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

1324 Mangrove Ave., Suite 212
Chico, California 95926
(530) 566-1400
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26 August 2008

Project No. 06-08-622

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BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

26 August 2008

Project No. 06-08-622

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

Attn.: Mr. Paul Supple

Re: Soil Investigation Report, Atlantic Richfield Company Station #2185, 9800 International Boulevard, Oakland, California; ACEH Case #RO0000392

Dear Mr. Supple:

Broadbent & Associates, Inc. (BAI) is pleased to submit this *Soil Investigation Report* for Atlantic Richfield Company Station #2185 (herein referred to as Station #2185) located at 9800 International Boulevard, Oakland, California (Site). This report presents a description of field activities conducted and results obtained from drilling a soil boring to the north of the dispenser islands at the Site. This work was conducted in accordance with the BAI *Work Plan for On-site Soil Investigation* (BAI, 16 June 2008), as approved by Alameda County Environmental Health (ACEH) in their letter dated 25 June 2008.

Should you have questions or require additional information, please do not hesitate to contact us at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, P.E.
Senior Engineer

Robert H. Miller, P.G., C.HG.
Principal Hydrogeologist

PROFESSIONAL GEOLOGIST
ROBERT H. MILLER
No. 561
CERTIFIED HYDROGEOLOGIST
4-30-10
STATE OF CALIFORNIA

Enclosures

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

SOIL INVESTIGATION REPORT
Atlantic Richfield Company Station #2185
9800 International Boulevard
Oakland, California

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APPENDICES

Appendix A	Recent Regulatory Correspondence
Appendix B	Historical Soil and Ground-Water Data
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SOIL INVESTIGATION REPORT
Atlantic Richfield Company Station #2185
9800 International Boulevard
Oakland, California

1.0 INTRODUCTION

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company, Broadbent & Associates, Inc. (BAI) has prepared this Soil Investigation Report for additional soil characterization at the Atlantic Richfield Company Station #2185, located at 9800 International Boulevard, Oakland, California (Site). This on-site soil investigation was completed to assess the presence of residual hydrocarbon contamination on-site to the north of the dispenser islands. Investigation activities were conducted in accordance with the BAI *Work Plan for On-Site Soil Investigation* dated 16 June 2008, as approved with additional comments by the Alameda County Environmental Health (ACEH) in their letter dated 25 June 2008. A copy of this letter is provided in Appendix A. This report includes discussions on the Site Background, Field Activities Performed, Results of Investigation, Site Geology and Hydrogeology, Conclusions and Recommendations.

2.0 SITE BACKGROUND

The Site is an active ARCO-brand gasoline retail outlet located on the eastern corner of 98th Avenue and International Boulevard in Oakland, California. A site location map is provided as Drawing 1. The land use in the immediate vicinity of the Site is mixed commercial and residential. The Site consists of a service station building and four gasoline underground storage tanks (USTs) with associated piping and dispensers. The Site is covered with asphalt or concrete surfacing except for the vegetation along the southwestern and southeastern property boundaries.

In May 1991, ROUX Associates (ROUX) conducted a preliminary tank replacement assessment which included drilling four onsite soil borings and installing two onsite vadose zone wells (VW-1 and VW-2). Locations of wells VW-1 and VW-2 are exhibited in Drawing 2. Soil samples were collected at five and ten feet bgs in each of the borings. Laboratory analyses of the samples showed that soil near the existing USTs contained Total Petroleum Hydrocarbons in the Gasoline Range (TPH-G) and benzene at concentrations up to 350 and 19 milligrams per kilogram (mg/kg), respectively. In June 1991, ROUX conducted a one-day, vapor-extraction test on vadose wells VW-1 and VW-2. Based on the results of that test, ROUX concluded that vapor extraction would not be a suitable remedial alternative at the Site. Results of the assessment are detailed in the *Preliminary Tank Replacement Assessment, ARCO Facility No. 2185, 9800 E. 14th Street, Oakland, California* (ROUX, 8 August 1991).

In September 1991, ROUX performed a limited subsurface investigation at the Site which included drilling four additional soil borings in the proposed location of the new UST complex, northeast of the original UST complex. Laboratory analysis of the soil samples indicated that samples collected from the borings on the eastern edge of the proposed UST complex had not been impacted by petroleum hydrocarbons. Hydrocarbons were detected in the samples collected from the borings along the western edge of the proposed UST complex. Results of the investigation were documented in *Limited Subsurface Soil Investigation, ARCO Facility No. 2185, 9800 E. 14th Street, Oakland, California* (ROUX, 22 November, 1991).

Between October and November 1991, ROUX observed the excavation and removal of three gasoline USTs and associated product piping from the site. Twelve sidewall soil samples were collected from the former UST cavity and 14 soil samples were collected beneath the product line piping. Former UST cavity soil sample SW-7, collected at 14 feet bgs contained 1,100 mg/kg TPH-G and 5.9 mg/kg Benzene. Product line sample Line-9 collected at 9.5 feet bgs contained 5,400 mg/kg TPH-G and 22 mg/kg Benzene. Approximately 1,050 cubic yards of soil were excavated and disposed of during tank and product line removal. Approximately 5,000 gallons of water were pumped out of the former UST excavation and disposed of during tank removal activities. Details of the tank removal and sampling are documented in *Underground Storage Tank Removal and Soil Sampling, ARCO Facility No. 2185, 9800 E. 14th Street, Oakland, California* (ROUX, 17 June 1992). Tabulated analytical results are summarized within Appendix B.

In July 1992, RESNA conducted a subsurface investigation at the site which included drilling and installing four ground-water monitoring wells (MW-1 through MW-4). Initial ground-water flow direction was determined to be towards the southwest. Laboratory analysis of soil and ground-water samples from the wells indicated that soil and ground water immediately downgradient from the former UST complex and dispenser islands were impacted by petroleum hydrocarbons. Results of the investigation were summarized in *Initial Subsurface Investigation at ARCO Station 2185, 9800 E. 14th Street, Oakland, California* (RESNA, 28 September 1992).

Between January and May 1993, RESNA conducted an initial off-site and additional on-site subsurface investigation which included the drilling and installation of two additional on-site wells (MW-5 and MW-6) and one off-site well (MW-7). Soil samples collected from well MW-7 and well MW-5 (located west of the northern pump island) did not exhibit detectable concentrations of petroleum hydrocarbons. Soil samples from well MW-6, located west of the former UST complex and southwest of the pump islands, exhibited contamination by petroleum hydrocarbons. In addition, petroleum hydrocarbons were detected above laboratory reporting limits in the ground-water sample collected from offsite well MW-7. However, subsequent monitoring at the Site has shown that several chlorinated solvents in the ground-water at MW-7 appear to be responsible for the chromatogram pattern originally quantified as TPH-G. In addition to the characterization, a limited off-site record search and on-site aquifer pumping test were conducted. A review of historical aerial photographs identified two properties on the northwest and southwest corners of the intersection of 98th Avenue and East 14th Street (International Blvd.) as former gasoline service stations. Off-site well MW-7 was installed within 15 feet of a former pump island at the historic service station southwest across East 14th Street from the Site. Results of the investigation were documented in *Initial Off-site and Additional On-site Subsurface Investigation and Pumping Test at ARCO Station 2185, 9800 East 14th Street, Oakland, California* (RESNA, 12 October 1993).

In April 1994, RESNA installed one ground-water monitoring well at the site (MW-8) at the request of the ACEH. This well was installed so that the Site could be considered for Alternative Points of Compliance, under the Tentative Resolution of the California Regional Water Quality Control Board's (RWQCB) Basin and Amendment Plan (RWQCB, 20 November 1992). Well MW-8 was originally referred to as MW-10 by RESNA, but its identification was changed by

EMCON to MW-8, to maintain chronological consistency with other wells at the site. Details of the well installation were summarized in the letter report *Installation of Compliance Well MW-10, ARCO Service Station 2185, 9800 East 14th Street, Oakland, California* (RESNA, 6 June 1994).

Periodic ground-water monitoring and sampling at the Site was initiated in July 1992. Off-site monitoring wells MW-9 and MW-10 were installed in August 1995 by EMCON (refer to Drawing 2). Monitoring and sampling activities continued through October 1998. No environmental work has occurred on-site since October 1998.

Historic water-level elevations have yielded potentiometric ground-water flow directions usually between the west and southwest at hydraulic gradients ranging from 0.001 ft/ft to 0.01 ft/ft. The maximum TPH-G concentration was detected in well MW-3 at a concentration of 44,000 micrograms per liter (µg/L) in January 1993. The maximum concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) were detected in well MW-3 at 1,100 µg/L (January 1993), 1,100 µg/L (October 1992), 2,200 µg/L (January 1993), and 9,600 µg/L (January 1993), respectively. The maximum concentration of Methyl tert-butyl ether (MTBE) was also detected in well MW-3 at 2,200 µg/L (August 1996). The wells have shown a decreasing trend with respect to TPH-G, BTEX, and MTBE concentrations between 1992 and 1998. TPH-G and BTEX have not been detected above the laboratory reporting limits since 1992 in wells MW-1, MW-4, and MW-9. Historic soil analytical data and ground-water elevations and analytical data are provided in Appendix B.

In May and June 2008, Stratus conducted well redevelopment and ground-water monitoring and sampling at the Site in response to the special request from ACEH in their letter dated25 April 2008. Gasoline-Range Organics (GRO) were detected in two of the nine wells sampled at concentrations of 98 µg/L in well MW-3 and 360 µg/L in well MW-6. MTBE was detected in one of the nine wells sampled at a concentration of 1.8 µg/L in well MW-10. The remaining fuel additives and oxygenates were not detected above their respective laboratory reporting limits in the nine wells sampled (Well MW-1 was paved over and thus inaccessible). Based on this most recent ground-water monitoring event, detectable concentrations of GRO and MTBE are below the San Francisco Regional Water Quality Control Board Tier 1 Environmental Screening Levels for a non-drinking water resource at a commercial site. BAI concluded that these data suggest that the appropriate action for this Site is case closure. Results were previously reported in the Second Quarter 2008 Ground-Water Monitoring Report for the Site (BAI, 30 June 2008).

3.0 FIELD ACTIVITIES PERFORMED

The onsite soil investigation was completed to assess the presence of residual petroleum hydrocarbon impacted soil on-site to the north of the dispenser islands. On 18 July 2008, Stratus advanced one soil boring (identified as B-1) 9.25 feet north of the northeastern fuel pump, 21.5 feet south of the 98th Avenue curb. This location should have placed the boring four to five feet north of the existing product fuel line (as close as could be allowed with safety variance from

Atlantic Richfield Company). The soil boring B-1 location from this investigation is shown in Drawing 2.

3.1 Preliminary Field Activities

Prior to initiating field activities, Stratus obtained the necessary well drilling permit from the Alameda County Public Works Agency (See Appendix C), prepared a site health and safety plan specific to the work scope; and cleared the Site for 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 a private utility locating company to confirm the absence of underground utilities at the boring location. Boreholes were physically cleared to five feet below ground surface (bgs) using an air and water knife rig.

3.2 Soil Boring Advancement

On 18 July 2008, Stratus field personnel observed RSI Drilling (RSI) of Woodland, California advance one soil boring (B-1). RSI utilized a direct push Geoprobe 6600 drill rig to collect continuous core samples at the soil boring location to a maximum depth of 10 feet. Physical soil samples were collected at specific depths for laboratory analysis based on field observations and recommendations from ACEH.

Soil boring B-1 was advanced to a total depth of 10 feet bgs. Soil samples were collected from boring B-1 at 6, 7.5 and 9.5 feet bgs. Clay was observed from approximately 5.5 to 7.5 feet bgs. Silty clays and sandy clays were encountered from approximately 7.5 to 10 feet bgs. Following completion of soil boring advancement and sample collection, the boring was backfilled with neat cement grout to surface grade.

3.3 Investigation-Derived Residuals Management

Residual solids and liquids generated during the Site investigation activities were stored temporarily onsite in a Department of Transportation-approved 55-gallon drum pending analytical results and profiling. Following characterization and profiling, Belshire Environmental Services was scheduled to transport the investigation-derived residuals to an RM-approved facility for treatment or disposal.

4.0 RESULTS OF INVESTIGATION

Soil 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 C4-C12) by EPA Method 8015B; 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), 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromoethane (EDB), tert-Butyl alcohol

(TBA), and ethanol using EPA Method 8260B. No significant irregularities were encountered during laboratory analysis of the soil samples. Copies of the laboratory analytical reports, including chain-of-custody documentation, are provided in Appendix A. The laboratory analytical results are tabulated in Table 1 and summarized below:

The analytes were not detected above their respective reporting limits in the three soil samples collected (Table 1). Laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation pages are provided in Appendix D.

5.0 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 ground-water flow is from east to west or from the Hayward Fault to the San Francisco Bay. Ground-water 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. In the southern end of the study area however, near the San Lorenzo Sub-Area, the direction of flow may not be this simple. According to information presented in *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the small set of water level measurements available seemed to show that the ground water in the upper aquifers may be flowing south, with the deeper aquifers, the Alameda Formation, moving north. The nearest natural drainage is Arroyo Viejo, located approximately 1.1 miles north of the Site and San Leandro Creek, located approximately 1.1 miles south of the Site. The Arroyo Viejo channel flows generally east to west while San Leandro creek generally flows west to southwest near the Site vicinity.

The Site elevation is approximately 34 feet above mean sea level. The water table fluctuates seasonally. Historically, depth-to-water measurements have ranged from 6 to 12 feet bgs. Ground-water flow direction during the second quarter monitoring event on 4 June 2008 was to the west at a gradient of 0.007 ft/ft.

According to the *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, the City of Oakland does not have “any plans to develop local ground-water resources for drinking water purposes, because of existing or potential saltwater intrusion, contamination, or poor or limited quantity.” However, the RWQCB’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 ground-water basin.

The Site is typically underlain by silts and clays with 1 to 10 foot thick intervals of sands to a total explored depth of approximately 30 feet bgs. Boring logs for wells MW-3 and MW-6 indicate more than 5 feet of sand encountered, while those for wells MW-1, MW-2, MW-4, and MW-8 through MW-10 indicate less than 5 feet of sand encountered. In general, the lithology observed on the Site consists of an upper one to two foot layer of fill. Layers of silts and clay are found beneath the fill ranging from two to ten feet bgs. Sands and silty and clayey sands are typically encountered at depths ranging from approximately eight to 18 feet bgs. Another layer of silts and clay is generally observed ranging from approximately 15 to 20 feet bgs. Sands and silty and clayey sands have generally been recorded from 20 to 30.5 feet bgs at the Site.

6.0 CONCLUSIONS

On behalf of the Atlantic Richfield Company, RM – a BP affiliated company, BAI prepared this Soil Investigation Report for Station No.2185, located at 9800 International Boulevard, Oakland, California. Investigation activities were conducted in accordance with the BAI *Work Plan for On-Site Soil Investigation* dated 16 June 2008, as approved by the Alameda County Environmental Health (ACEH) in their letter dated 25 June 2008. Based on the findings of this investigation, BAI concludes the following:

- No petroleum hydrocarbons were detected in soil samples from 6.0 ft bgs, 7.5 ft bgs, and 9.5 ft bgs from boring B-1, collected in the vicinity of previous soil sample L-9 (6 November 1991) which had contained TPH-G at 5,400 mg/kg and Benzene at 22 mg/kg at 9.5 ft bgs.

7.0 RECOMMENDATIONS

Case closure was requested by BP on 9 September 2003 from ACEH. Following their review, ACEH determined that in order to facilitate site closure an additional soil investigation and ground-water monitoring event were required, as relayed in the ACEH letter dated 25 April 2008. The requested work plan was submitted on 16 June 2008. Ground-water monitoring and reporting was performed during the Second Quarter of 2008 in accordance with the request from ACEH to support the case closure process. Based on the analytical results obtained during the soil investigation and ground-water monitoring, progression towards case closure should proceed.

8.0 CLOSURE

This document has been prepared for the exclusive use of Atlantic Richfield Company. The findings presented in this report are based upon the observations of Stratus 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.

9.0 REFERENCES

ACEH, 25 April 2008. Fuel Leak Case No. RO 0000392 and Geotracker Global ID T0600100114, ARCO #02185, 9800 International Blvd., Oakland, CA 94603. Directive letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company).

ACEH, 25 June 2008. Fuel Leak Case No. RO 0000392 and Geotracker Global ID T0600100114, ARCO #02185, 9800 International Blvd., Oakland, CA 94603. Letter from Mr. Paresh Khatri (ACEH) to Mr. Paul Supple (Atlantic Richfield Company) approving work plan.

Broadbent & Associates, Inc., 16 June 2008. Work Plan for Onsite Soil Investigation, Atlantic Richfield Company Station No. 2185, 9800 International Blvd., Oakland, CA, ACEH Case No. RO0000392.

Broadbent & Associates, Inc., 30 June 2008. Second Quarter 2008 Ground-Water monitoring Report, Atlantic Richfield Company Station #2185, 9800 International Boulevard, Oakland, California, ACEH Case #RO0000392.

California Regional Water Quality Control Board, San Francisco Bay Region, Groundwater Committee, June 1999. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report, Alameda County and Contra Costa Counties, CA.*

EMCON, 8 January 1996. *Offsite Well Installation Report, ARCO Station #2185, Oakland, California, ACHCS Fuel Leak Case No. RO0000392.*

Pinnacle Environmental Solutions, 8 March 1999. *Quarterly Groundwater Monitoring Report, Fourth Quarter 1998, for ARCO Service Station #2185, Oakland, California.*

ROUX Associates, 22 November 1991. *UST and Line Replacement Report, ARCO Station #2185, Oakland, California.*

ROUX Associates, 8 August 1991. *Preliminary Tank Replacement Assessment, ARCO Facility No. 2185, Oakland, California.*

ROUX Associates, 17 June 1992. *Underground Storage Tank Removal and Soil Sampling, ARCO Facility No. 2185, Oakland, California.*

ROUX Associates, 28 September 1992. *Initial Subsurface Investigation at ARCO Station 2185, Oakland, California.*

ROUX Associates, 12 October 1993. *Initial Off-site and Additional On-site Subsurface Investigation and Pumping Test at ARCO Station 2185, Oakland, California.*

ROUX Associates, 6 June 1994. *Installation of Compliance Well MW-10, ARCO Service Station 2185, Oakland, California.*

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Scale (miles)

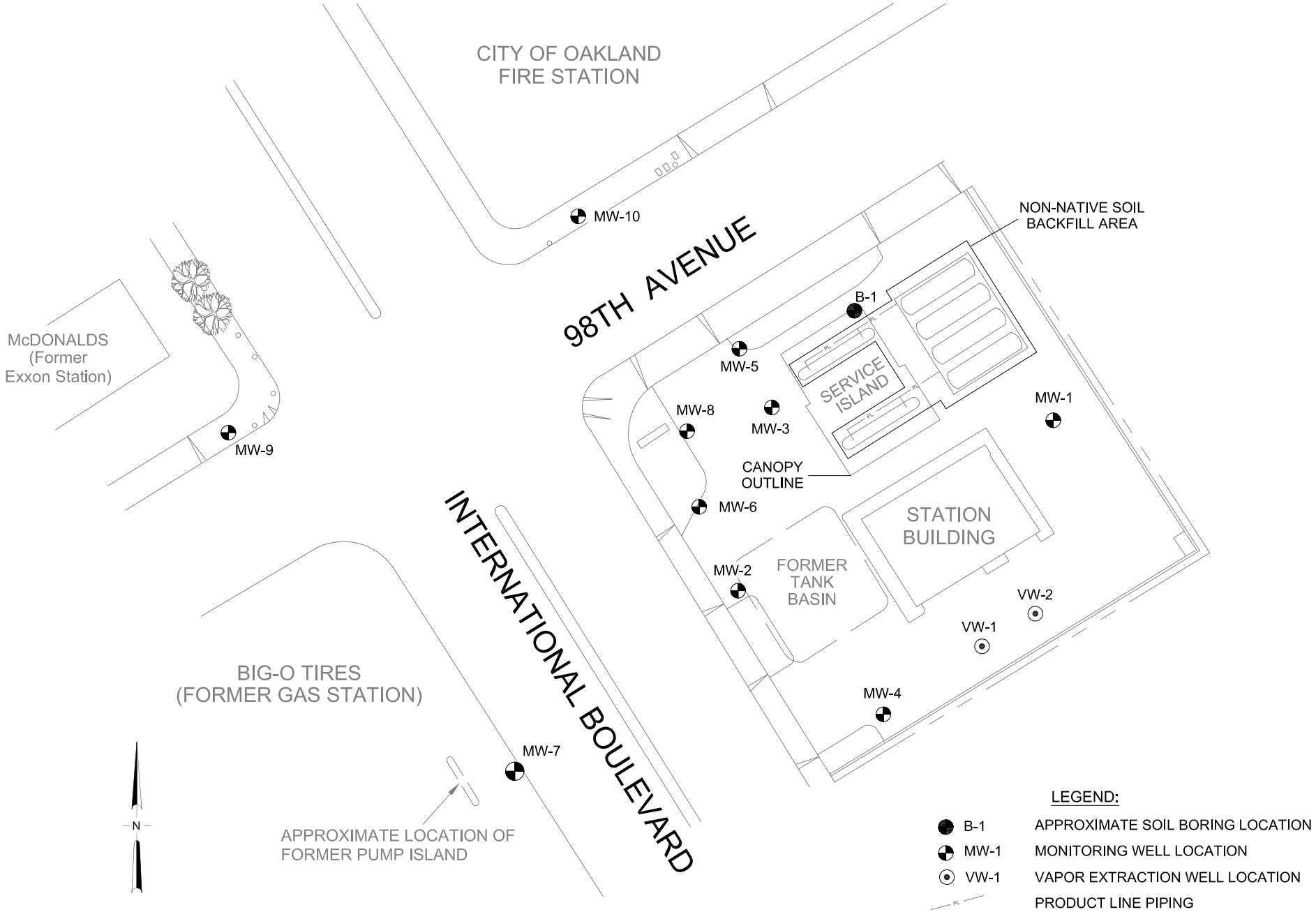
BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926

Project No.: 06-08-649 Date: 6/2/08

Station #2185
9800 International Blvd.
Oakland, California

Site Location Map

Figure 1



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SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California

Project No.: 06-08-622 Date: 8/12/08

Station #2185
9800 International Blvd.
Oakland, California

Site Layout Plan with
Soil Boring Location

Drawing
2

Table 1. Summary of Depth-Discrete Soil Sampling Data
Atlantic Richfield Company Service Station No. 2185
9800 International Boulevard, Oakland, California (ACEH Case No. RO0000392)

Boring I.D.	Date	Laboratory Analytical Results (mg/kg)												
		GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	DIPE	ETBE	TBA	TAME	Ethanol	EDB	1,2 DCA
B-1 6'	7/18/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.010	<0.0020	<0.10	<0.0010	<0.0010
B-1 7.5'	7/18/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.010	<0.0020	<0.10	<0.0010	<0.0010
B-1 9.5'	7/18/2008	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.010	<0.0020	<0.10	<0.0010	<0.0010

EDB = 1,2-Dibromoethane
1,2 DCA = 1,2 Dichloroethane
TAME = Tertiary amyl methyl ether
TBA = Tertiary butyl alcohol
GRO = Gasoline Range Organics, C4-C12
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether

APPENDIX A

RECENT REGULATORY CORRESPONDENCE

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

June 25, 2008

Paul Supple
Atlantic Richfield Company
(A BP Affiliated Company)
P.O. Box 1257
San Ramon, CA 94583

Subject: Fuel Leak Case No. RO0000392 and Geotracker Global ID T0600100114, ARCO #02185, 9800 International Boulevard, Oakland, CA 94603

Dear Mr. Supple:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Work Plan for On-site Soil Investigation," dated June 16, 2008, which was prepared by Broadbent and Associates, Inc. for the subject site.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments, perform the proposed work, and send us the technical reports described below.

TECHNICAL COMMENTS

1. **Exploratory Boring Location** – Broadbent states that "the proposed borehole can not be safely placed in the same position of the previous sample collected." ACEH request that the boring be placed as close as possible to the previously collected soil sample L-9, in order to collect a soil sample that is closely representative of current site conditions in the vicinity of soil sample L-9. Please present the results in the Soil Investigation Report requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Paresh Khatri), according to the following schedule:

- **Tuesday, September 23, 2008** – Soil Investigation Report

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

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

If you have any questions, please call me at (510) 777-2478 or send me an electronic mail message at paresh.khatri@acgov.org.

Sincerely,

Paresh C. Khatri
Hazardous Materials Specialist

Jerry Wickham, PG, CHG, CEG
Acting Supervising Hazardous Material Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Tom Venus, Broadbent & Associates, Inc., 1324 Mangrove Ave., Ste 212, Chico, CA 95926
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032
Donna Drogos, ACEH
Paresh Khatri, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.** (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses,** and the **Case Numbers (RO# available in Geotracker) you will be posting for.**

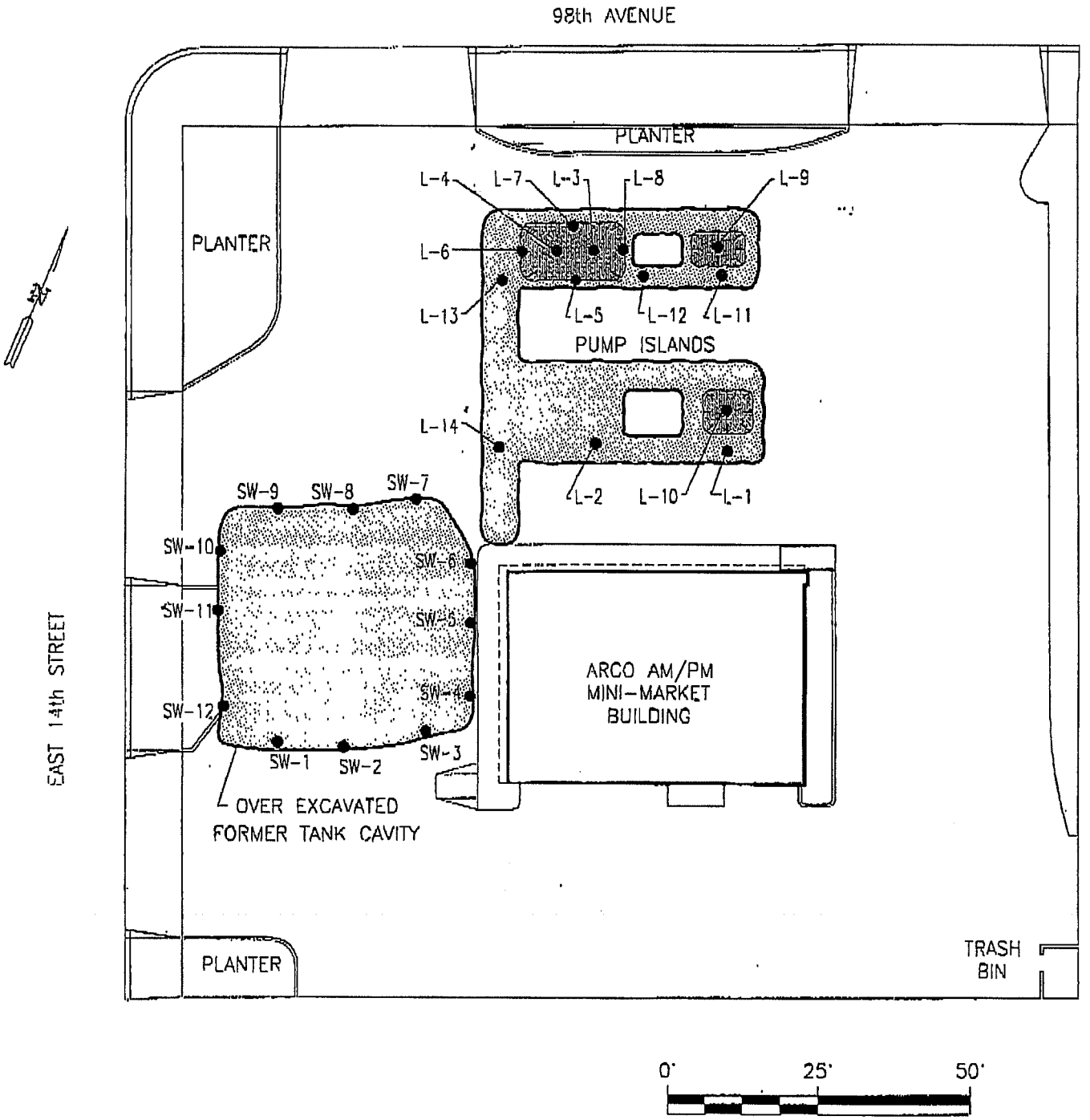
2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload.** (e.g., Subject: RO1234 Report Upload)

APPENDIX B

HISTORICAL SOIL AND GROUND-WATER DATA

November 25, 1991, Tank & Line Replacement



EXPLANATION

- EXCAVATED AREAS
- EXTENDED EXCAVATED AREAS
- ● SW-11 TANK CAVITY SOIL SAMPLE LOCATION AND DESIGNATION.
- ● L-4 PRODUCT LINE TRENCH SOIL SAMPLE LOCATION AND DESIGNATION.

SOURCE:

MAP MODIFIED FROM BLUEPRINT PROVIDED BY BARGHAUSEN CONSULTING ENGINEERS (1986)

TITLE:

LOCATION OF EXCAVATED TANK CAVITY AND PRODUCT LINE TRENCH SOIL SAMPLES

ARCO FACILITY NO. 2185

PREPARED FOR: ARCO PRODUCTS COMPANY

ROUX ASSOCIATES
ENVIRONMENTAL CONSULTING & MANAGEMENT

COMPILED BY:	G.M.	DATE:	11/91
PREPARED BY:	R.P.	SCALE:	AS SHOWN
PROJECT MANAGER:	P.S.	REVISION:	0
PROJECT NO.	A119W01	FILE #:	AR2185XX

FIGURE 2

TABLE 1: Summary of Soil Analyses: Former Tank Cavity and Product Line Trenches
ARCO Facility No. 2185, Oakland, California

Sample Designation	Date	Depth (feet bgs)	TPH-G(1)	BTEX Distinction (1) Benzene	Toluene	Ethylbenzene	Xylenes
Former Tank Cavity							
SW-1	11/1/91	14	810	3.4	1	13	50
SW-2	11/1/91	6	ND	ND	ND	ND	ND
SW-3	11/1/91	14	370	1.6	17	8.8	53
SW-4	11/1/91	14	220	0.73	1.2	2.8	15
SW-5	11/1/91	6	1.1	0.014	0.0069	0.012	0.034
SW-6	11/1/91	14	230	0.84	2.3	2.4	15
SW-7	11/1/91	14	1,100	5.9	28	15	90
SW-8	11/1/91	6	1.3	0.11	0.0054	ND	0.016
SW-9	11/1/91	14	500	3.7	0.92	7.1	32
SW-10	11/1/91	14	750	5.9	5.3	10	61
SW-11	11/1/91	6	ND	ND	ND	ND	0.012
SW-12	11/1/91	14	210	1.6	0.26	3.2	5
Product Line Trenches							
LINE-1	11/5/91	3	ND	ND	ND	ND	ND
LINE-2	11/5/91	3	ND	ND	ND	ND	ND
LINE-3	11/5/91	5	1,400	0.51	87	55	350
LINE-4	11/6/91	11	450	2.6	24	8.7	56
LINE-5	11/6/91	8	18	ND	0.029	0.042	0.38
LINE-6	11/6/91	8	ND	ND	ND	ND	ND
LINE-7	11/6/91	8	5.1	0.032	0.047	0.058	0.013
LINE-8	11/6/91	8	240	0.17	2.8	2.8	15
LINE-9	11/6/91	9.5	5,400	22	330	120	640
LINE-10	11/6/91	8	2,600	5	130	53	29
LINE-11	11/6/91	3	1.4	ND	0.014	0.012	0.1
LINE-12	11/6/91	3	ND	ND	ND	ND	ND
LINE-13	11/6/91	3	13	ND	0.026	0.05	0.7
LINE-14	11/6/91	3	ND	ND	ND	ND	ND

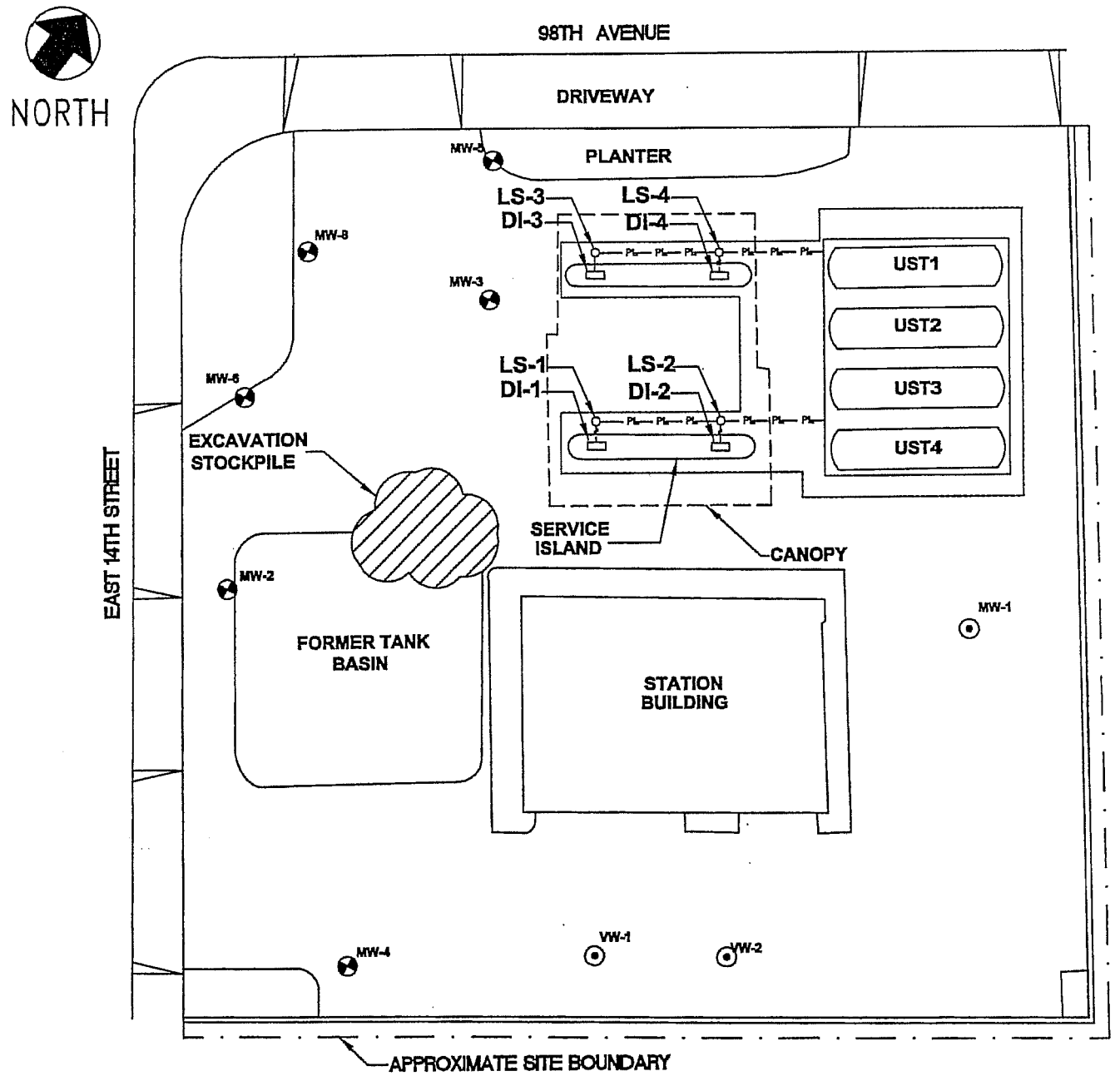
FOOTNOTES
(1) = Concentrations reported in mg/kg (ppm)
TPH-G = Total Petroleum Hydrocarbons As Gasoline (Modified USEPA 8015)
BTEX Distinction (USEPA 8020)
NA = Not Analyzed
ND = Not Detected (for detection limits see laboratory analytical results, Appendix B)
bgs = Below ground surface

Table 3

Soil and Groundwater Analytical Data
ARCO Service Station 2185

Sample Identification	Date Sampled	Depth (feet)	TPHG[2]	Benzene	Toluene	Ethylbenzene	Xylenes
Soil Data (in mg/kg[1])							
MW-9	8/17/95	6.5	<1	<0.005	<0.005	<0.005	<0.005
MW-9	8/17/95	11	<1	<0.005	<0.005	<0.005	<0.005
MW-9	8/17/95	25	<1	<0.005	<0.005	<0.005	<0.005
MW-10	8/16/95	6.5	<1	<0.005	<0.005	<0.005	<0.005
MW-10	8/16/95	11.5	<1	<0.005	<0.005	<0.005	<0.005
MW-10	8/16/95	21.5	<1	<0.005	<0.005	<0.005	<0.005
Groundwater Data (in µg/L[3])							
MW-9	9/20/95	--	<50	<0.5	<0.5	<0.5	<0.5
MW-10	9/21/95	--	<50	<0.5	<0.5	<0.5	<0.5

1 mg/kg = milligrams per kilogram
2 TPHG = total petroleum hydrocarbons as gasoline
3 µg/L = micrograms per liter
< indicates laboratory minimum reporting limit



LEGEND:

- LS-1 / D1 — FUEL LINE SAMPLING LOCATION / FUEL DISPENSER/SUMP SAMPLING LOCATION
- VW-1 — GROUNDWATER MONITORING WELL
- MW-1 — GROUNDWATER EXTRACTION WELL
- —PL— EXPOSED PRODUCT LINE PIPING
- APPROXIMATE LIMITS OF EXCAVATION

0 25 50

SCALE IN FEET

URS	Project No. 38486049 ARCO Service Station 2185 9800 East 14th Street Oakland, California	SOIL SAMPLING LOCATION PLAN NOVEMBER 12, 2002	Figure 2

Soil Analytical Data
ARCO Service Station 2185
9800 East 14th Street
Oakland, California

TABLE 1

LINE/DISPENSERS SOIL SAMPLE RESULTS

Soil Sample ID	Sample Depth (feet)	Date Sampled	TPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	MTBE (ppm)
DI-1	4.5	11/12/02	ND<1800	ND<18	ND<18	ND<18	ND<18	ND<18
DI-2	6	11/12/02	ND<1900	ND<19	ND<19	ND<19	ND<19	ND<19
DI-3	6.5	11/12/02	ND<1700	ND<17	ND<17	ND<17	ND<17	ND<17
DI-4	5	11/12/02	ND<2500	ND<25	ND<25	ND<25	ND<25	ND<25
LS-1	4.5	11/12/02	ND<1900	ND<19	ND<19	ND<19	ND<19	ND<19
LS-2	6	11/12/02	ND<2300	ND<23	ND<23	ND<23	ND<23	ND<23
LS-3	6	11/12/02	ND<2000	ND<20	ND<20	ND<20	ND<20	ND<20
LS-4	6	11/12/02	ND<2200	ND<22	ND<22	ND<22	ND<22	ND<22

TABLE 2

STOCKPILE SAMPLE RESULTS

Soil Sample ID	Sample Depth (feet)	Date Sampled	TPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	MTBE (ppm)	Total Pb (ppm)
SP (1-4)	stockpile	11/14/02	ND<0.5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.5	56

TPH	= Total purgeable petroleum hydrocarbons using EPA Method 8260B.
BTEX	= Benzene, toluene, ethylbenzene, total xylenes using EPA Method 8260B.
MTBE	= Methyl Tertiary Butyl Ether using EPA Method 8260B.
Total Pb	= Total lead by EPA Method 6000/7000.
ppb	= Parts per billion.
ppm	= Parts per million.
ND<	= Less than stated laboratory detection limit.

TABLE 1
CUMULATIVE RESULTS OF LABORATORY
ANALYSES OF SOIL SAMPLES
ARCO Station 2185
Oakland, California
(Page 1 of 2)

Sample ID	Depth	TPHg	B	T	E	X
May 1991						
B1-5	5	<1.0	0.021	<0.0050	<0.0050	<0.0050
B1-10	10	350	1.1	0.65	4.9	19
B2-5	5	<1.0	0.034	<0.0050	<0.0050	<0.0050
B2-10	10	280	1.3	0.34	3.4	10
B3-5	5	1.6	0.015	<0.0050	0.021	0.048
B3-10	10	38	<0.050	0.24	.031	2.0
B4-5	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B4-10	10	110	0.40	0.20	0.72	0.24
September 1991						
B5-5	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B5-11	11	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B5-13	13	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B6-5	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B6-10	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B7-5	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B7-11	11	1.7	0.04	0.013	0.0079	0.078
B7-13	13	1.7	0.27	0.0083	0.04	0.028
B8-5	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
B8-11	11	1.7	0.054	0.0094	0.012	0.019
B8-13	13	1.3	0.013	0.0073	0.0053	0.0069
Tank Excavation November 1991						
SW-1	14	810	3.4	1.0	13	50
SW-2	6	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
SW-3	14	370	1.6	17	8.8	53
SW-4	14	220	0.73	1.2	2.8	15
SW-5	6	1.1	0.014	0.0069	0.012	0.034
SW-6	14	230	0.84	2.3	2.4	15
SW-7	14	1100	5.9	28	15	90
SW-8	6	1.3	0.11	0.0054	<0.0050	0.016
SW-9	14	500	3.7	0.92	7.1	32
SW-10	14	750	5.9	5.3	10	61
SW-11	6	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
SW-12	14	210	1.6	0.26	3.2	5.0
Product Lines						
L-1	3	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
L-2	3	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
L-3	5	1,400	0.51	87	55	350
L-4	11	450	2.6	24	8.7	56
L-5	8	18	<0.0050	0.029	0.042	0.38
L-6	8	<1.0	<0.0050	<0.0050	<0.0050	<0.0050

See notes on page 2 of 2.

TABLE 1
CUMULATIVE RESULTS OF LABORATORY
ANALYSES OF SOIL SAMPLES
ARCO Station 2185
Oakland, California
(Page 2 of 2)

Sample ID	Depth	TPHg	B	T	E	X	
Product Lines (cont.)							
L-7	8	5.1	0.032	0.047	0.058		0.13
L-8	8	240	0.17	2.8	2.8	15	
L-9	9.5	5,400	22	330	120	640	
L-10	8	2,600	5	130	53	29	
L-11	3	1.4	<0.0050	0.014	0.012	0.1	
L-12	3	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	
L-13	3	13	<0.0050	0.026	0.05	0.7	
L-14	3	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	
July 1992							
S-10.5-B9	10.5	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
S-13-B9	13	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
S-23.5-B9	23.5	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
S-9.5-B10	9.5	9.3	0.034	0.023	0.014		0.059
S-12-B10	12	220	1.1	0.75	5.1		6.3
S-23-B10	23	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
S-10.5-B11	10.5	<1.0	0.0060	<0.0050	<0.0050		<0.0050
S-29-B11	29	<1.0	<0.0050	0.015	0.015		0.078
S-10-B12	10	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
S-13-B12	13	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
S-23.5-B12	23.5	<1.0	<0.0050	<0.0050	<0.0050		<0.0050
Composited Stockpile Sample							
SPA-SPD	NA	<1.0	<0.0050	<0.0050	0.010		0.012

Results in parts per million (ppm).
Depth in feet below ground surface.
TPHg =Total petroleum hydrocarbons as gasoline using EPA Method 5030/8020/8015
B = benzene, T = toluene, E = ethylbenzene, X = total xylenes (EPA Method 8020/8015)
< =Below indicated laboratory reporting limits.
NA = Not applicable
Sample Identification:

S-10-B12
- Boring number
- Sample depth in feet below ground surface
- Soil sample

B1-5
- Sample depth in feet below ground surface
- Boring number

Line-1
- Sample number
- Product line sample

SW-1
- Sample number
- Former tank cavity sample

SPA-SPD
- Composite sample
- Soil pile

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present*

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240/8260 µg/L
MW-1	03-15-95	29.15	8.50	20.65	ND	NW	0.01	03-15-95	<50	<0.5	<0.5	<0.5	<0.5	--	--
MW-1	05-30-95	29.15	10.28	18.87	ND	SW	0.005	05-30-95	Not sampled: well sampled annually, during the first quarter						
MW-1	09-20-95	29.15	11.70	17.45	ND	WSW	0.005	09-20-95	Not sampled: well sampled annually, during the first quarter						
MW-1	11-07-95	29.15	12.12	17.03	ND	WSW	0.004	11-07-95	Not sampled: well sampled annually, during the first quarter						
MW-1	02-28-96	29.15	8.54	20.61	ND	NW	0.009	02-28-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-1	05-30-96	29.15	10.05	19.10	ND	W	0.007	05-31-96	Not sampled: well sampled annually, during the first quarter						
MW-1	08-20-96	29.15	11.35	17.80	ND	SW	0.005	08-20-96	Not sampled: well sampled annually, during the first quarter						
MW-1	11-19-96	29.15	11.20	17.95	ND	WSW	0.005	11-19-96	Not sampled: well sampled annually, during the first quarter						
MW-1	03-25-97	29.15	10.12	19.03	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-1	06-17-97	29.15	11.27	17.88	ND	W	0.001	06-17-97	Not sampled: well sampled annually, during the first quarter						
MW-1	08-07-97	29.15	11.83	17.32	ND	SW	0.005	08-07-97	Not sampled: well sampled annually, during the first quarter						
MW-1	11-18-97	29.15	11.80	17.35	ND	SW	0.004	11-18-97	Not sampled: well sampled annually, during the first quarter						
MW-1	02-25-98	29.15	7.02	22.13	ND	NW	0.011	02-25-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-1	05-11-98	29.15	9.17	19.98	ND	WNW	0.01	05-11-98	Not sampled: well sampled annually, during the first quarter						
MW-1	07-29-98	29.15	10.46	18.69	ND	W	0.009	07-29-98	Not sampled: well sampled annually, during the first quarter						
MW-1	10-12-98	29.15	11.27	17.88	ND	W	0.009	10-12-98	Not sampled: well sampled annually, during the first quarter						
MW-2	03-15-95	28.47	8.37	20.10	ND	NW	0.01	03-15-95	2100	7.4	<2.5	130	39	--	--
MW-2	05-30-95	28.47	9.95	18.52	ND	SW	0.005	05-30-95	1700	3.3	<2.5	120	31	--	--
MW-2	09-20-95	28.47	11.37	17.10	ND	WSW	0.005	09-21-95	1200	1	<1	68	16	<5	--
MW-2	11-07-95	28.47	11.73	16.74	ND	WSW	0.004	11-07-95	1100	<3	<3	74	14	<20	--
MW-2	02-28-96	28.47	8.12	20.35	ND	NW	0.009	02-29-96	2200	<3	<3	130	27	<20	--
MW-2	05-30-96	28.47	9.89	18.58	ND	W	0.007	05-31-96	970	<5	<1	29	3	<5	--
MW-2	08-20-96	28.47	11.05	17.42	ND	SW	0.005	08-20-96	670	<1	<1	16	1	<5	--
MW-2	11-19-96	28.47	10.96	17.51	ND	WSW	0.005	11-19-96	990	<1	<1	46	3	<5	--
MW-2	03-25-97	28.47	9.84	18.63	ND	WNW	0.006	03-25-97	540	<1	<1	<1	<1	<6	--
MW-2	06-17-97	28.47	10.99	17.48	ND	W	0.001	06-17-97	510	<7	0.9	1.1	<2	<3	--
MW-2	08-07-97	28.47	11.50	16.97	ND	SW	0.005	08-07-97	280	<0.5	<0.5	<0.5	<0.5	<3	--
MW-2	11-18-97	28.47	11.41	17.06	ND	SW	0.004	11-18-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-2	02-25-98	28.47	6.33	22.14	ND	NW	0.011	02-25-98	850	<0.5	1.1	13	1.4	<3	--
MW-2	05-11-98	28.47	8.89	19.58	ND	WNW	0.01	05-11-98	290	<0.5	<0.5	<0.5	<0.5	<3	--
MW-2	07-29-98	28.47	10.22	18.25	ND	W	0.009	07-29-98	310	<0.5	0.5	<0.5	1.1	<3	--
MW-2	10-12-98	28.47	10.95	17.52	ND	W	0.009	10-12-98	280	<0.5	<0.5	<0.5	<0.5	<3	--

Pinnacle

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present*

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240/8260 µg/L
MW-3	03-15-95	28.57	8.47	20.10	ND	NW	0.01	03-15-95	2000	<2.5	<2.5	88	82	--	--
MW-3	05-30-95	28.57	10.03	18.54	ND	SW	0.005	05-30-95	2000	3.2	<2.5	70	46	--	--
MW-3	09-20-95	28.57	11.30	17.27	ND	WSW	0.005	09-21-95	2100	12	<3	77	38	280	--
MW-3	11-07-95	28.57	11.65	16.92	ND	WSW	0.004	11-07-95	3000	18	<3	120	62	--	430[1]
MW-3	02-28-96	28.57	8.35	20.22	ND	NW	0.009	02-29-96	5100	83	<5	160	57	640	--
MW-3	05-30-96	28.57	9.77	18.80	ND	W	0.007	05-31-96	2100	41	<5	57	15	890	--
MW-3	08-20-96	28.57	11.00	17.57	ND	SW	0.005	08-20-96	2500	94	<2.5	62	14	2200	--
MW-3	11-19-96	28.57	10.92	17.65	ND	WSW	0.005	11-19-96	2400	84	<2.5	73	22	1300	--
MW-3	03-25-97	28.57	9.90	18.67	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	48	--
MW-3	06-17-97	28.57	10.95	17.62	ND	W	0.001	06-17-97	<200	<2	<2	<2	<2	200	--
MW-3	08-07-97	28.57	11.44	17.13	ND	SW	0.005	08-07-97	<500	<5	<5	<5	<5	490	--
MW-3	11-18-97	28.57	11.35	17.22	ND	SW	0.004	11-18-97	200	9	<2	7	<2	300	--
MW-3	02-25-98	28.57	6.98	21.59	ND	NW	0.011	02-25-98	250	<2	<2	7	<2	370	--
MW-3	05-11-98	28.57	9.07	19.50	ND	WNW	0.01	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-3	07-29-98	28.57	10.06	18.51	ND	W	0.009	07-29-98	<50	<0.5	<0.5	<0.5	<0.5	51	--
MW-3	10-12-98	28.57	10.96	17.61	ND	W	0.009	10-12-98	<50	<0.5	<0.5	<0.5	<0.5	98	--
MW-4	03-15-95	29.21	8.69	20.52	ND	NW	0.01	03-15-95	<50	<0.5	<0.5	<0.5	<0.5	--	--
MW-4	05-30-95	29.21	10.57	18.64	ND	SW	0.005	05-30-95	Not sampled: well sampled annually, during the first quarter						
MW-4	09-20-95	29.21	12.02	17.19	ND	WSW	0.005	09-20-95	Not sampled: well sampled annually, during the first quarter						
MW-4	11-07-95	29.21	12.42	16.79	ND	WSW	0.004	11-07-95	Not sampled: well sampled annually, during the first quarter						
MW-4	02-28-96	29.21	8.66	20.55	ND	NW	0.009	02-28-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-4	05-30-96	29.21	10.34	18.87	ND	W	0.007	05-31-96	Not sampled: well sampled annually, during the first quarter						
MW-4	08-20-96	29.21	11.67	17.54	ND	SW	0.005	08-20-96	Not sampled: well sampled annually, during the first quarter						
MW-4	11-19-96	29.21	11.50	17.71	ND	WSW	0.005	11-19-96	Not sampled: well sampled annually, during the first quarter						
MW-4	03-25-97	29.21	10.42	18.79	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-4	06-17-97	29.21	11.60	17.61	ND	W	0.001	06-17-97	Not sampled; well sampled annually, during the first quarter						
MW-4	08-07-97	29.21	12.17	17.04	ND	SW	0.005	08-07-97	Not sampled: well sampled annually, during the first quarter						
MW-4	11-18-97	29.21	12.05	17.16	ND	SW	0.004	11-18-97	Not sampled: well sampled annually, during the first quarter						
MW-4	02-25-98	29.21	6.91	22.30	ND	NW	0.011	02-25-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-4	05-11-98	29.21	9.45	19.76	ND	WNW	0.01	05-11-98	Not sampled: well sampled annually, during the first quarter						
MW-4	07-29-98	29.21	10.80	18.41	ND	W	0.009	07-29-98	Not sampled: well sampled annually, during the first quarter						
MW-4	10-12-98	29.21	11.58	17.63	ND	W	0.009	10-12-98	Not sampled: well sampled annually, during the first quarter						

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MW-5	03-15-95	28.12	8.47	19.65	ND	NW	0.01	03-15-95	170	5.6	<0.5	17	11	--	--
MW-5	05-30-95	28.12	9.69	18.43	ND	SW	0.005	05-30-95	53	0.6	<0.5	4.8	2.8	--	--
MW-5	09-20-95	28.12	10.90	17.22	ND	WSW	0.005	09-21-95	1500	47	2	120	86	70	--
MW-5	11-07-95	28.12	11.20	16.92	ND	WSW	0.004	11-07-95	140	4.5	<0.5	8.3	16	10	--
MW-5	02-28-96	28.12	8.15	19.97	ND	NW	0.009	02-29-96	900	11	<1	59	29	99	--
MW-5	05-30-96	28.12	9.48	18.64	ND	W	0.007	05-31-96	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-5	08-20-96	28.12	10.58	17.54	ND	SW	0.005	08-20-96	67	0.7	<0.5	3.6	0.6	27	--
MW-5	11-19-96	28.12	10.50	17.62	ND	WSW	0.005	11-19-96	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-5	03-25-97	28.12	9.58	18.54	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-5	06-17-97	28.12	10.52	17.60	ND	W	0.001	06-17-97	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-5	08-07-97	28.12	11.00	17.12	ND	SW	0.005	08-07-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-5	11-18-97	28.12	10.93	17.19	ND	SW	0.004	11-18-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-5	02-25-98	28.12	6.75	21.37	ND	NW	0.011	02-25-98	370	2	6	11	9	270	--
MW-5	05-11-98	28.12	9.11	19.01	ND	WNW	0.01	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	9	--
MW-5	07-29-98	28.12	9.89	18.23	ND	W	0.009	07-29-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-5	10-12-98	28.12	10.52	17.60	ND	W	0.009	10-12-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-6	03-15-95	27.79	7.75	20.04	ND	NW	0.01	03-15-95	3600	77	<5	420	180	--	--
MW-6	05-30-95	27.79	9.48	18.31	ND	SW	0.005	05-30-95	5000	68	<5	530	250	--	--
MW-6	09-20-95	27.79	10.75	17.04	ND	WSW	0.005	09-21-95	3300	36	<5	360	120	<30	--
MW-6	11-07-95	27.79	11.06	16.73	ND	WSW	0.004	11-07-95	3500	33	<5	410	110	<30	--
MW-6	02-28-96	27.79	7.86	19.93	ND	NW	0.009	02-29-96	520	33	<5	480	160	<30	--
MW-6	05-30-96	27.79	9.35	18.44	ND	W	0.007	05-31-96	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-6	08-20-96	27.79	10.43	17.36	ND	SW	0.005	08-20-96	1900	3.4	<2.5	150	21	<12	--
MW-6	11-19-96	27.79	10.36	17.43	ND	WSW	0.005	11-19-96	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-6	03-25-97	27.79	9.35	18.44	ND	WNW	0.006	03-25-97	1100	<2	<2	5	5	<10	--
MW-6	06-17-97	27.79	10.37	17.42	ND	W	0.001	06-17-97	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-6	08-07-97	27.79	10.85	16.94	ND	SW	0.005	08-07-97	53	<0.5	<0.5	<0.5	<0.5	<3	--
MW-6	11-18-97	27.79	10.75	17.04	ND	SW	0.004	11-18-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-6	02-25-98	27.79	6.30	21.49	ND	NW	0.011	02-25-98	3500	<5	18	190	54	<30	--
MW-6	05-11-98	27.79	8.55	19.24	ND	WNW	0.01	05-11-98	730	<1	<1	4	<1	<6	--
MW-6	07-29-98	27.79	9.71	18.08	ND	W	0.009	07-29-98	77	<0.5	<0.5	<0.5	<0.5	<3	--
MW-6	10-12-98	27.79	10.37	17.42	ND	W	0.009	10-12-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--

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MW-7	03-15-95	27.88	8.13	19.75	ND	NW	0.01	03-15-95	150**	<0.5	<0.5	<0.5	<0.5	--	--
MW-7	05-30-95	27.88	10.14	17.74	ND	SW	0.005	05-30-95	110**	<0.5	<0.5	<0.5	<0.5	--	--
MW-7	09-20-95	27.88	11.52	16.36	ND	WSW	0.005	09-20-95	<400**	<0.8	<0.5	<0.5	<0.5	<7	--
MW-7	11-07-95	27.88	11.70	16.18	ND	WSW	0.004	11-07-95	<500	2	<1	<1	<1	<20	--
MW-7	02-28-96	27.88	8.19	19.69	ND	NW	0.009	02-29-96	<300**	<0.5	<0.5	<0.5	<0.5	<6	--
MW-7	05-30-96	27.88	9.98	17.90	ND	W	0.007	05-31-96	<100**	<0.5	<0.5	<0.5	<0.5	<3	--
MW-7	08-20-96	27.88	11.15	16.73	ND	SW	0.005	08-20-96	<200**	<0.5	<0.5	<0.5	<0.5	<5	--
MW-7	11-19-96	27.88	10.92	16.96	ND	WSW	0.005	11-19-96	Not sampled: well sampled annually, during the first quarter						
MW-7	03-25-97	27.88	9.88	18.00	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-7	06-17-97	27.88	11.13	16.75	ND	W	0.001	06-17-97	Not sampled: well sampled annually, during the first quarter						
MW-7	08-07-97	27.88	11.65	16.23	ND	SW	0.005	08-07-97	Not sampled: well sampled annually, during the first quarter						
MW-7	11-18-97	27.88	11.46	16.42	ND	SW	0.004	11-18-97	Not sampled: well sampled annually, during the first quarter						
MW-7	02-25-98	27.88	6.35	21.53	ND	NW	0.011	02-25-98	<50	<0.5	0.5	<0.5	0.7	14	--
MW-7	05-11-98	27.88	9.15	18.73	ND	WNW	0.01	05-11-98	Not sampled: well sampled annually, during the first quarter						
MW-7	07-29-98	27.88	10.56	17.32	ND	W	0.009	07-29-98	Not sampled: well sampled annually, during the first quarter						
MW-7	10-12-98	27.88	11.22	16.66	ND	W	0.009	10-12-98	Not sampled: well sampled annually, during the first quarter						
MW-8	03-15-95	NR	8.43	NR	ND	NR	NR	03-15-95	280	<0.5	<0.5	0.7	0.7	--	--
MW-8	05-30-95	NR	9.86	NR	ND	NR	NR	05-30-95	390	<0.5	<0.5	<2	1.6	--	--
MW-8	09-20-95	28.08	11.07	17.01	ND	WSW	0.005	09-21-95	470	<0.5	<0.5	3	1.2	52	--
MW-8	11-07-95	28.08	11.40	16.68	ND	WSW	0.004	11-07-95	280	<0.5	<0.5	0.6	<0.5	94	--
MW-8	02-28-96	28.08	8.30	19.78	ND	NW	0.009	02-29-96	160	<0.5	<0.5	<0.9	<0.6	32	--
MW-8	05-30-96	28.08	9.68	18.40	ND	W	0.007	05-31-96	100	<0.5	<0.5	<0.6	<0.5	16	--
MW-8	08-20-96	28.08	10.72	17.36	ND	SW	0.005	08-20-96	140	<0.5	<0.5	<0.5	<0.5	190	--
MW-8	11-19-96	28.08	10.58	17.50	ND	WSW	0.005	11-19-96	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-8	03-25-97	28.08	9.73	18.35	ND	WNW	0.006	03-25-97	63	<0.5	<0.5	<0.5	<0.5	38	--
MW-8	06-17-97	28.08	10.67	17.41	ND	W	0.001	06-17-97	Not sampled: well sampled semi-annually, during the first and third quarters						
MW-8	08-07-97	28.08	11.15	16.93	ND	SW	0.005	08-07-97	53	<0.5	<0.5	<0.5	<0.5	390	--
MW-8	11-18-97	28.08	11.05	17.03	ND	SW	0.004	11-18-97	<500	<5	<5	<5	<5	640	--
MW-8	02-25-98	28.08	7.25	20.83	ND	NW	0.011	02-25-98	<50	<0.5	0.7	<0.5	0.9	56	--
MW-8	05-11-98	28.08	9.00	19.08	ND	WNW	0.01	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	18	--
MW-8	07-29-98	28.08	10.03	18.05	ND	W	0.009	07-29-98	<50	<0.5	<0.5	<0.5	<0.5	19	21[2]
MW-8	10-12-98	28.08	10.70	17.38	ND	W	0.009	10-12-98	<100	<1	<1	<1	<1	81	--

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MW-9	09-20-95	27.73	11.67	16.06	ND	WSW	0.005	09-20-95	<50	<0.5	<0.5	<0.5	<0.5	<4	--
MW-9	11-07-95	27.73	11.70	16.03	ND	WSW	0.004	11-07-95	<50	<0.5	<0.5	<0.5	<0.5	<4	--
MW-9	02-28-96	27.73	9.23	18.50	ND	NW	0.009	02-29-96	<50	<0.5	<0.5	<0.5	<0.5	<5	--
MW-9	05-30-96	27.73	10.50	17.23	ND	W	0.007	05-31-96	<50	0.6	<0.5	<0.5	<0.5	<8	--
MW-9	08-20-96	27.73	11.33	16.40	ND	SW	0.005	08-20-96	<50	<0.5	<0.5	<0.5	<0.5	<7	--
MW-9	11-19-96	27.73	11.20	16.53	ND	WSW	0.005	11-19-96	Not sampled: well sampled annually, during the first quarter						
MW-9	03-25-97	27.73	10.41	17.32	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	<6	--
MW-9	06-17-97	27.73	11.30	16.43	ND	W	0.001	06-17-97	Not sampled: well sampled annually, during the first quarter						
MW-9	08-07-97	27.73	11.70	16.03	ND	SW	0.005	08-07-97	Not sampled: well sampled annually, during the first quarter						
MW-9	11-18-97	27.73	11.42	16.31	ND	SW	0.004	11-18-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-9	02-25-98	27.73	8.72	19.01	ND	NW	0.011	02-25-98	<50	<0.5	<0.5	<0.5	<0.5	<8	--
MW-9	05-11-98	27.73	10.05	17.68	ND	WNW	0.01	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	5	--
MW-9	07-29-98	27.73	11.04	16.69	ND	W	0.009	07-29-98	<50	<0.5	<0.5	<0.5	<0.5	6	--
MW-9	10-12-98	27.73	11.55	16.18	ND	W	0.009	10-12-98	<50	<0.5	<0.5	<0.5	<0.5	5	--
MW-10	09-20-95	27.55	10.65	16.90	ND	WSW	0.005	09-21-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-10	11-07-95	27.55	10.85	16.70	ND	WSW	0.004	11-07-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-10	02-28-96	27.55	9.38	18.17	ND	NW	0.009	02-29-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-10	05-30-96	27.55	9.99	17.56	ND	W	0.007	05-31-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-10	08-20-96	27.55	10.47	17.08	ND	SW	0.005	08-20-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-10	11-19-96	27.55	10.44	17.11	ND	WSW	0.005	11-19-96	Not sampled: well sampled annually, during the first quarter						
MW-10	03-25-97	27.55	10.02	17.53	ND	WNW	0.006	03-25-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-10	06-17-97	27.55	10.40	17.15	ND	W	0.001	06-17-97	Not sampled: well sampled annually, during the first quarter						
MW-10	08-07-97	27.55	10.75	16.80	ND	SW	0.005	08-07-97	Not sampled: well sampled annually, during the first quarter						
MW-10	11-18-97	27.55	10.67	16.88	ND	SW	0.004	11-18-97	Not sampled: well sampled annually, during the first quarter						
MW-10	02-25-98	27.55	9.02	18.53	ND	NW	0.011	02-25-98	<50	<0.5	1.4	<0.5	1.8	12	--
MW-10	05-11-98	27.55	9.63	17.92	ND	WNW	0.01	05-11-98	Not sampled: well sampled annually, during the first quarter						
MW-10	07-29-98	27.55	10.15	17.40	ND	W	0.009	07-29-98	Not sampled: well sampled annually, during the first quarter						
MW-10	10-12-98	27.55	10.55	17.00	ND	W	0.009	10-12-98	Not sampled: well sampled annually, during the first quarter						

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Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240/8260 µg/L

ft-MSL: elevation in feet, relative to mean sea level
MWN: ground-water flow direction and gradient apply to the entire monitoring well network
ft/ft: foot per foot
TPHG: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
µg/L: micrograms per liter
EPA: United States Environmental Protection Agency
MTBE: Methyl tert-butyl ether
ND: none detected
NR: not reported; data not available or not measurable
W: west
- -: not analyzed or not applicable
[1]: confirmed by EPA method 8240
[2]: confirmed by EPA method 8260
*: For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results, ARCO Service Station 2185, Oakland, California,* (EMCON, February 27, 1996).
**: chromatogram does not match the typical gasoline fingerprint

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Desig-nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-1	07-24-92	29.15	13.38	15.77	ND	NR	NR
MW-1	08-26-92	29.15	13.92	15.23	ND	NR	NR
MW-1	09-22-92	29.15	14.18	14.97	ND	NR	NR
MW-1	10-19-92	29.15	14.52	14.63	ND	NR	NR
MW-1	11-23-92	29.15	14.54	14.61	ND	NR	NR
MW-1	12-16-92	29.15	12.20	16.95	ND	NR	NR
MW-1	01-14-93	29.15	9.32	19.83	ND	NR	NR
MW-1	02-26-93	29.15	9.38	19.77	ND	NR	NR
MW-1	03-26-93	29.15	10.04	19.11	ND	NR	NR
MW-1	04-09-93	29.15	10.50	18.65	ND	NR	NR
MW-1	05-19-93	29.15	11.26	17.89	ND	NR	NR
MW-1	06-17-93	29.15	11.53	17.62	ND	NR	NR
MW-1	07-28-93	29.15	12.00	17.15	ND	NR	NR
MW-1	08-23-93	29.15	12.31	16.84	ND	NR	NR
MW-1	09-28-93	29.15	12.60	16.55	ND	NR	NR
MW-1	10-11-93	29.15	12.74	16.41	ND	NR	NR
MW-1	11-16-93	29.15	12.96	16.19	ND	NR	NR
MW-1	12-16-93	29.15	11.68	17.47	ND	NR	NR
MW-1	02-08-94	29.15	11.29	17.86	ND	NR	NR
MW-1	03-04-94	29.15	10.61	18.54	ND	NR	NR
MW-1	05-10-94	29.15	11.12	18.03	ND	NR	NR
MW-1	08-12-94	29.15	12.55	16.60	ND	SW	0.004
MW-1	09-23-94	29.15	11.27	17.88	ND	NR	NR
MW-1	11-22-94	29.15	11.12	18.03	ND	SW	0.003
MW-1	03-15-95	29.15	8.50	20.65	ND	NW	0.01
MW-1	05-30-95	29.15	10.28	18.87	ND	SW	0.005
MW-1	09-20-95	29.15	11.70	17.45	ND	WSW	0.005

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
MW-2	07-24-92	28.47	12.95	15.52	ND	NR	NR
MW-2	08-26-92	28.47	13.55	14.92	ND	NR	NR
MW-2	09-22-92	28.47	13.78	14.69	ND	NR	NR
MW-2	10-19-92	28.47	14.09	14.38	ND	NR	NR
MW-2	11-23-92	28.47	14.06	14.41	ND	NR	NR
MW-2	12-16-92	28.47	11.70	16.77	ND	NR	NR
MW-2	01-14-93	28.47	8.87	19.60	ND	NR	NR
MW-2	02-26-93	28.47	8.98	19.49	ND	NR	NR
MW-2	03-26-93	28.47	9.57	18.90	ND	NR	NR
MW-2	04-09-93	28.47	10.02	18.45	ND	NR	NR
MW-2	05-19-93	28.47	10.81	17.66	ND	NR	NR
MW-2	06-17-93	28.47	11.08	17.39	ND	NR	NR
MW-2	07-28-93	28.47	11.60	16.87	ND	NR	NR
MW-2	08-23-93	28.47	11.90	16.57	ND	NR	NR
MW-2	09-28-93	28.47	12.17	16.30	ND	NR	NR
MW-2	10-11-93	28.47	12.31	16.16	ND	NR	NR
MW-2	11-16-93	28.47	12.54	15.93	Sheen	NR	NR
MW-2	12-16-93	28.47	11.29	17.18	ND	NR	NR
MW-2	02-08-94	28.47	10.85	17.62	ND	NR	NR
MW-2	03-04-94	28.47	10.16	18.31	ND	NR	NR
MW-2	05-10-94	28.47	10.70	17.77	ND	NR	NR
MW-2	08-12-94	28.47	12.12	16.35	ND	SW	0.004
MW-2	09-23-94	28.47	10.87	17.60	ND	NR	NR
MW-2	11-22-94	28.47	10.65	17.82	ND	SW	0.003
MW-2	03-15-95	28.47	8.37	20.10	ND	NW	0.01
MW-2	05-30-95	28.47	9.95	18.52	ND	SW	0.005
MW-2	09-20-95	28.47	11.37	17.10	ND	WSW	0.005

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-3	07-24-92	28.57	12.90	15.67	Sheen	NR	NR
MW-3	08-26-92	28.57	13.51	15.06	ND	NR	NR
MW-3	09-22-92	28.57	13.73	14.84	ND	NR	NR
MW-3	10-19-92	28.57	14.04	14.53	ND	NR	NR
MW-3	11-23-92	28.57	14.02	14.55	ND	NR	NR
MW-3	12-16-92	28.57	11.73	16.84	ND	NR	NR
MW-3	01-14-93	28.57	9.17	19.40	ND	NR	NR
MW-3	02-26-93	28.57	9.30	19.27	ND	NR	NR
MW-3	03-26-93	28.57	9.83	18.74	ND	NR	NR
MW-3	04-09-93	28.57	10.22	18.35	ND	NR	NR
MW-3	05-19-93	28.57	10.91	17.66	ND	NR	NR
MW-3	06-17-93	28.57	10.74	17.83	ND	NR	NR
MW-3	07-28-93	28.57	11.60	16.97	ND	NR	NR
MW-3	08-23-93	28.57	11.93	16.64	ND	NR	NR
MW-3	09-28-93	28.57	12.13	16.44	ND	NR	NR
MW-3	10-11-93	28.57	12.26	16.31	ND	NR	NR
MW-3	11-16-93	28.57	12.48	16.09	ND	NR	NR
MW-3	12-16-93	28.57	11.26	17.31	ND	NR	NR
MW-3	02-08-94	28.57	10.93	17.64	ND	NR	NR
MW-3	03-04-94	28.57	10.33	18.24	ND	NR	NR
MW-3	05-10-94	28.57	10.77	17.80	ND	NR	NR
MW-3	08-12-94	28.57	12.07	16.50	ND	SW	0.004
MW-3	09-23-94	28.57	10.94	17.63	ND	NR	NR
MW-3	11-22-94	28.57	10.76	17.81	ND	SW	0.003
MW-3	03-15-95	28.57	8.47	20.10	ND	NW	0.01
MW-3	05-30-95	28.57	10.03	18.54	ND	SW	0.005
MW-3	09-20-95	28.57	11.30	17.27	ND	WSW	0.005

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
MW-4	07-24-92	29.21	13.68	15.53	ND	NR	NR
MW-4	08-26-92	29.21	14.12	15.09	ND	NR	NR
MW-4	09-22-92	29.21	14.46	14.75	ND	NR	NR
MW-4	10-19-92	29.21	14.74	14.47	ND	NR	NR
MW-4	11-23-92	29.21	14.75	14.46	ND	NR	NR
MW-4	12-16-92	29.21	12.45	16.76	ND	NR	NR
MW-4	01-14-93	29.21	9.46	19.75	ND	NR	NR
MW-4	02-26-93	29.21	9.54	19.67	ND	NR	NR
MW-4	03-26-93	29.21	10.19	19.02	ND	NR	NR
MW-4	04-09-93	29.21	10.67	18.54	ND	NR	NR
MW-4	05-19-93	29.21	11.52	17.69	ND	NR	NR
MW-4	06-17-93	29.21	11.79	17.42	ND	NR	NR
MW-4	07-28-93	29.21	12.30	16.91	ND	NR	NR
MW-4	08-23-93	29.21	12.60	16.61	ND	NR	NR
MW-4	09-28-93	29.21	12.88	16.33	ND	NR	NR
MW-4	10-11-93	29.21	13.03	16.18	ND	NR	NR
MW-4	11-16-93	29.21	13.24	15.97	ND	NR	NR
MW-4	12-16-93	29.21	11.96	17.25	ND	NR	NR
MW-4	02-08-94	29.21	11.54	17.67	ND	NR	NR
MW-4	03-04-94	29.21	10.84	18.37	ND	NR	NR
MW-4	05-10-94	29.21	11.38	17.83	ND	NR	NR
MW-4	08-12-94	29.21	12.82	16.39	ND	SW	0.004
MW-4	09-23-94	29.21	11.54	17.67	ND	NR	NR
MW-4	11-22-94	29.21	11.35	17.86	ND	SW	0.003
MW-4	03-15-95	29.21	8.69	20.52	ND	NW	0.01
MW-4	05-30-95	29.21	10.57	18.64	ND	SW	0.005
MW-4	09-20-95	29.21	12.02	17.19	ND	WSW	0.005

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
MW-5	02-26-93	28.12	9.00	19.12	ND	NR	NR
MW-5	03-26-93	28.12	9.41	18.71	ND	NR	NR
MW-5	04-09-93	28.12	9.80	18.32	ND	NR	NR
MW-5	05-19-93	28.12	10.50	17.62	ND	NR	NR
MW-5	06-17-93	28.12	10.73	17.39	ND	NR	NR
MW-5	07-28-93	28.12	11.15	16.97	ND	NR	NR
MW-5	08-23-93	28.12	11.43	16.69	ND	NR	NR
MW-5	09-28-93	28.12	11.66	16.46	ND	NR	NR
MW-5	10-11-93	28.12	11.80	16.32	ND	NR	NR
MW-5	11-16-93	28.12	12.00	16.12	ND	NR	NR
MW-5	12-16-93	28.12	10.81	17.31	ND	NR	NR
MW-5	02-08-94	28.12	10.53	17.59	ND	NR	NR
MW-5	03-04-94	28.12	9.89	18.23	ND	NR	NR
MW-5	05-10-94	28.12	10.37	17.75	ND	NR	NR
MW-5	08-12-94	28.12	11.60	16.52	ND	SW	0.004
MW-5	09-23-94	28.12	10.52	17.60	ND	NR	NR
MW-5	11-22-94	28.12	10.29	17.83	ND	SW	0.003
MW-5	03-15-95	28.12	8.47	19.65	ND	NW	0.01
MW-5	05-30-95	28.12	9.69	18.43	ND	SW	0.005
MW-5	09-20-95	28.12	10.90	17.22	ND	WSW	0.005
MW-6	02-26-93	27.79	8.47	19.32	ND	NR	NR
MW-6	03-26-93	27.79	9.07	18.72	ND	NR	NR
MW-6	04-09-93	27.79	9.53	18.26	ND	NR	NR
MW-6	05-19-93	27.79	10.23	17.56	ND	NR	NR
MW-6	06-17-93	27.79	10.51	17.28	ND	NR	NR
MW-6	07-28-93	27.79	10.98	16.81	ND	NR	NR
MW-6	08-23-93	27.79	11.28	16.51	ND	NR	NR
MW-6	09-28-93	27.79	11.50	16.29	ND	NR	NR
MW-6	10-11-93	27.79	11.65	16.14	ND	NR	NR
MW-6	11-16-93	27.79	11.87	15.92	ND	NR	NR
MW-6	12-16-93	27.79	10.63	17.16	ND	NR	NR
MW-6	02-08-94	27.79	10.28	17.51	ND	NR	NR
MW-6	03-04-94	27.79	9.67	18.12	ND	NR	NR
MW-6	05-10-94	27.79	10.13	17.66	ND	NR	NR
MW-6	08-12-94	27.79	11.44	16.35	ND	SW	0.004
MW-6	09-23-94	27.79	10.27	17.52	ND	NR	NR
MW-6	11-22-94	27.79	10.10	17.69	ND	SW	0.003
MW-6	03-15-95	27.79	7.75	20.04	ND	NW	0.01
MW-6	05-30-95	27.79	9.48	18.31	ND	SW	0.005
MW-6	09-20-95	27.79	10.75	17.04	ND	WSW	0.005

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-7	07-28-93	27.88	11.67	16.21	ND	NR	NR
MW-7	08-23-93	27.88	12.00	15.88	ND	NR	NR
MW-7	09-28-93	27.88	12.17	15.71	ND	NR	NR
MW-7	10-11-93	27.88	12.33	15.55	ND	NR	NR
MW-7	11-16-93	27.88	12.46	15.42	ND	NR	NR
MW-7	12-16-93	27.88	11.23	16.65	ND	NR	NR
MW-7	02-08-94	27.88	10.83	17.05	ND	NR	NR
MW-7	03-04-94	27.88	10.13	17.75	ND	NR	NR
MW-7	05-10-94	27.88	10.68	17.20	ND	NR	NR
MW-7	08-12-94	27.88	12.05	15.83	ND	SW	0.004
MW-7	09-23-94	27.88	10.85	17.03	ND	NR	NR
MW-7	11-22-94	27.88	10.60	17.28	ND	SW	0.003
MW-7	03-15-95	27.88	8.13	19.75	ND	NW	0.01
MW-7	05-30-95	27.88	10.14	17.74	ND	SW	0.005
MW-7	09-20-95	27.88	11.52	16.36	ND	WSW	0.005
MW-8	08-12-94	NR	11.43	NR	ND	NR	NR
MW-8	09-23-94	NR	10.99	NR	ND	NR	NR
MW-8	11-22-94	NR	10.42	NR	ND	NR	NR
MW-8	03-15-95	NR	8.43	NR	ND	NR	NR
MW-8	05-30-95	NR	9.86	NR	ND	NR	NR
MW-8	09-20-95	28.08	11.07	17.01	ND	WSW	0.005
MW-9	09-20-95	27.73	11.67	16.06	ND	WSW	0.005
MW-10	09-20-95	27.55	10.65	16.90	ND	WSW	0.005

TOC: top of casing
ft-MSL: elevation in feet, relative to mean sea level
MWN: ground-water flow direction and gradient apply to the entire monitoring well network
ND: none detected
NR: not reported; data not available or not measurable
SW: southwest
NW: northwest
WSW: west-southwest

Table 4
Historical Groundwater Analytical Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Sample Field Date	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L
MW-1	07-24-92	<50	<0.5	<0.5	<0.5	<0.5
MW-1	10-19-92	<50	<0.5	<0.5	<0.5	<0.5
MW-1	01-14-93	<50	<0.5	<0.5	<0.5	<0.5
MW-1	04-09-93	<50	<0.5	<0.5	<0.5	<0.5
MW-1	08-23-93	<50	<0.5	<0.5	<0.5	<0.5
MW-1	10-11-93	<50	<0.5	<0.5	<0.5	<0.5
MW-1	03-04-94	<50	<0.5	<0.5	<0.5	<0.5
MW-1	05-10-94	<50	<0.5	<0.5	<0.5	<0.5
MW-1	08-12-94	<50	<0.5	<0.5	<0.5	<0.5
MW-1	11-22-94	<50	<0.5	<0.5	<0.5	<0.5
MW-1	03-15-95	<50	<0.5	<0.5	<0.5	<0.5
MW-1	05-30-95	Not sampled: not scheduled for chemical analysis				
MW-1	09-20-95	Not sampled: not scheduled for chemical analysis				
MW-2	07-24-92	5900	510	<10	370	430
MW-2	10-19-92	4100	110	<10	100	62
MW-2	01-14-93	12000	700	10	720	680
MW-2	04-09-93	8400	220	<10	480	320
MW-2	08-23-93	3700	89	<5	230	150
MW-2	10-11-93	2700	50	<2.5	<140	68
MW-2	03-04-94	3100	49	<2.5	180	98
MW-2	05-10-94	3100	39	<2.5	220	99
MW-2	08-12-94	1800	13	<2.5	120	35
MW-2	11-22-94	2300	45	<0.5	190	93
MW-2	03-15-95	2100	7.4	<2.5	130	39
MW-2	05-30-95	1700	3.3	<2.5	120	31
MW-2	09-21-95	1200	1	<1	68	16
MW-3	07-24-92	Not sampled: well contained floating product				
MW-3	10-19-92	42000	740	1100	1500	5700
MW-3	01-14-93	44000	1100	840	2200	9600
MW-3	04-09-93	21000	33	69	350	1600
MW-3	08-23-93	13000	63	21	530	1300
MW-3	10-11-93	11000	56	13	530	1200
MW-3	03-04-94	17000	50	<10	790	1600
MW-3	05-10-94	14000	32	<10	710	1200
MW-3	08-12-94	13000	37	<10	640	970
MW-3	11-22-94	15000	150	<10	1300	2000
MW-3	03-15-95	2000	<2.5	<2.5	88	82
MW-3	05-30-95	2000	3.2	<2.5	70	46
MW-3	09-21-95	2100	12	<3	77	38

Table 4
Historical Groundwater Analytical Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Designation	Water Sample Field Date	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L
MW-4	07-24-92	<50	<0.5	<0.5	<0.5	<0.5
MW-4	10-19-92	<50	<0.5	<0.5	<0.5	<0.5
MW-4	01-14-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	04-09-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	08-23-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	10-11-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	03-04-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	05-10-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	08-12-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	11-22-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	03-15-95	<50	<0.5	<0.5	<0.5	<0.5
MW-4	05-30-95	Not sampled: not scheduled for chemical analysis				
MW-4	09-20-95	Not sampled: not scheduled for chemical analysis				
MW-5	02-11-93	9300	620	<50	890	2200
MW-5	04-09-93	960	29	<1	100	96
MW-5	08-23-93	2700	50	<2.5	260	250
MW-5	10-11-93	840	9	<1	87	41
MW-5	03-04-94	540	0.9	0.6	16	6.3
MW-5	05-10-94	1300	11	<2.5	110	68
MW-5	08-12-94	1500	10	<2.5	110	30
MW-5	11-22-94	84	1	<0.5	5	2
MW-5	03-15-95	170	5.6	<0.5	17	11
MW-5	05-30-95	53	0.6	<0.5	4.8	2.8
MW-5	09-21-95	1500	47	2	120	86
MW-6	02-11-93	4800	630	<10	490	460
MW-6	04-09-93	13000	880	<10	1000	1000
MW-6	08-23-93	6300	390	<20	450	390
MW-6	10-11-93	2900	150	3.4	190	140
MW-6	03-04-94	5800	320	<5	510	360
MW-6	05-10-94	11000	470	<10	880	650
MW-6	08-12-94	4400	170	<10	390	210
MW-6	11-22-94	7300	390	<5	940	640
MW-6	03-15-95	3600	77	<5	420	180
MW-6	05-30-95	5000	68	<5	530	250
MW-6	09-21-95	3300	36	<5	360	120

Table 4
Historical Groundwater Analytical Data

ARCO Service Station 2185
9800 East 14th Street, Oakland, California

Date: 11-08-95

Well Desig-nation	Water Sample Field Date	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L
MW-7	05-14-93	350	0.83	<0.5	<0.5	<0.5
MW-7	08-23-93	630*	7.3	<1	<1	<1
MW-7	10-11-93	620*	3.5	<0.5	<0.5	<0.5
MW-7	03-04-94	320*	<0.5	<0.5	<0.5	<0.5
MW-7	05-10-94	330*	0.6	<0.5	<0.5	<0.5
MW-7	08-12-94	360*	<0.5	<0.5	<0.5	<0.5
MW-7	11-22-94	<50	<0.5	<0.5	<0.5	<0.5
MW-7	03-15-95	150*	<0.5	<0.5	<0.5	<0.5
MW-7	05-30-95	110*	<0.5	<0.5	<0.5	<0.5
MW-7	09-20-95	<400*	<0.8	<0.5	<0.5	<0.5
MW-8	08-12-94	5100	12	<5	470	53
MW-8	11-22-94	2300	16	<0.5	140	4
MW-8	03-15-95	280	<0.5	<0.5	0.7	0.7
MW-8	05-30-95	390	<0.5	<0.5	<2	1.6
MW-8	09-21-95	470	<0.5	<0.5	3	1.2
MW-9	09-20-95	<50	<0.5	<0.5	<0.5	<0.5
MW-10	09-21-95	<50	<0.5	<0.5	<0.5	<0.5

TPHG: total petroleum hydrocarbons as gasoline
µg/l: micrograms per liter
*: chromatogram does not match the typical gasoline fingerprint

APPENDIX C

STRATUS SUBSURFACE ASSESSMENT DATA PACKAGE
(Includes Field Data Sheets, Boring Log, Drilling Permit, Site Plan, and Certified Laboratory Analytical Report with Chain-of-Custody Documentation)

STRATUS
ENVIRONMENTAL, INC.

3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
(530) 676-6004 ~ Fax: (530) 676-6005

August 5, 2008

Mr. Tom Venus
Broadbent & Associates, Inc.
1324 Mangrove Ave., Suite 212
Chico, CA 95926

Re: Soil Boring Data Package, ARCO Service Station No. 2185, located at 9800 International Boulevard, Oakland, California.

General Information

Data Submittal Prepared / Reviewed by: Scott Bittinger / Jay Johnson
Phone Number: (530) 676-6000

On-Site Supplier Representative: Levi Ford

Date: July 10, 2008
Arrival: 16:00 *Departure:* 16:32
Weather Conditions: Sunny, clear
Scope of Work Performed: Marked drilling location for Underground Service Alert clearance. Notified station manager of work schedule.
Unusual Field Conditions: None noted.
Variations from Work Scope: None noted.

On-Site Supplier Representative: Levi Ford and Scott Bittinger

Date: July 18, 2008
Arrival: 6:25 *Departure:* 11:45
Weather Conditions: Cloudy, then clearing to sunny
Scope of Work Performed: Health and safety meeting with Cruz Brothers Locators and RSI Drilling, Inc. Survey work area for the presence of undergound utilities. Air knife borehole from surface grade to 5 feet bgs. Advance direct push boring B-1 to 10 feet bgs. Backfill boring and patch ground surface.
Unusual Field Conditions: None noted.
Variations from Work Scope: None noted.

This submittal presents data collected in association with the advancement of one soil boring. The attachments include the field data sheets, boring log, drilling permit, site plan, and certified analytical results. The information is being provided to BP-ARCO's Scoping Supplier for use in preparing a report for regulatory submittal. This submittal is limited to presentation of collected data and does not include data interpretations or conclusions or recommendations.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Scott G. Bittinger, P.G.
Project Manager

Jay R. Johnson, P.G.
Senior Project Supervisor

Attachments:

- Field Data Sheets
- Soil Boring Log
- Drilling Permit
- Site Plan
- Certified Analytical Results

CC: Mr. Paul Supple, BP/ARCO

Field Data Sheet

Site: ARCO 2185	Date: 07/10/08
Personnel on site: levi Ford	
Weather Conditions: Clear, Sunny	85°

Notes:

on site 1600

Safety meeting, ATW, 1600 → 1615

Talk to site manager and mark for USA 1615 - 1630

Off site 1632

Field Data Sheet

Site: 2185 **Date:** 7-18-08

Personnel on site: Scott Bittinger & Levi Ford

Weather Conditions: Cloudy, cool

Notes:

Scott B. onsite 6:25. H&S / permit to work. Speak to station attendant of work & block off work area. Levi Ford onsite 6:50 & Mike Livingston from Cruz Bros onsite 6:55 H&S meeting & begin locating utilities in work area. CRL offsite 7:40 Paul Supplee onsite at 7:50 & RSI at 8:00. Alan Ashlee onsite 8:15 H&S meeting & begin work. Cut concrete & begin air knifing at 9:10. Soils are clayey... no fill gravel or sand fill encountered. Finish air knifing to 5' bgs at 10:00 am. Borehole is 9'3" north of the fuel pump & 21'6" south of the 98th Avenue curb line. Borehole should be 4'-5' from fuel product line trench. Finish geoprobing hole at 10:35. Grout up & patch ground surface (finish at 11:00). Scott, Alan, & Paul offsite 11:00

1145 off site, drillers w/ Levi. 1 Drum soil onsite.

SOIL BORING LOG **Boring No. B-1** **Sheet: 1 of 1**

Client	ARCO 2185	Date	July 18, 2008
Address	9800 International Blvd.	Drilling Co.	RSI rig type: Geoprobe 6600
	Oakland, Ca.	Driller	Arturo
Project No.	E2185	Method	Direct Push borehole diameter: 3"
Logged By:	Levi Ford	Sampler:	Acetate Liner
Well Pack	grout: 10 ft. to 0 ft.		

Sample Type	Sample No.	Blow Count	Sample Time	Sample Recov.	Well Details	Depth Scale	Lithologic Column	Descriptions of Materials and Conditions	PID (PPM)
						1			
						2			
						3		Airknife to 5' bgs.	
						4			
						5			
S	B-1 6'		1025			6		Clay, CL, black (5Y 2.5/1), low plasticity, moist, 100% clay (5'-7.5')	N/A
						7			
S	B-1 7.5'		1028			8	CL	Silty Clay, CL, dark olive brown (2.5Y 3/3), low plasticity, moist, 90% clay 10% silt. (7.5'-9')	N/A
						9			
S	B-1 9.5'		1031			10		Sandy Clay with trace silt, CL, light olive brown (2.5Y 5/4), low plasticity, wet, 65% clay, 30% sand, 5% silt. (9'-10')	N/A
						11			
						12			
						13			
						14			
						15			
						16			
						17			
						18			
						19			
						20			

Recovery

Sample

Comments: total depth = 10'
Borehole located 9.25' from center of fuel dispenser.

STRATUS ENVIRONMENTAL, INC.

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: 07/15/2008 By jamesy

Permit Numbers: W2008-0431
Permits Valid from 07/18/2008 to 07/18/2008

Application Id: 1215634550335
Site Location: 9800 International Blvd, Oakland, CA
Project Start Date: 07/18/2008
Requested Inspection: 07/18/2008
Scheduled Inspection: 07/18/2008 at 10:00 AM (Contact your inspector, Ron Smalley at (510) 670-5407, to confirm.)

City of Project Site: Oakland
Completion Date: 07/18/2008

Applicant: Startus Environmental - Scott Bittinger
2330 Cameron Park Dr #550, Cameron Park, CA 95682
Phone: 530-676-2062

Property Owner: BP West Coast Products, LLC
6 Centerpointe Dr., La Palma, CA 90623
Phone: 925-275-3801

Client: ** same as Property Owner **

	Total Due:	$230.00
Receipt Number: WR2008-0241	**Total Amount Paid:**	$230.00
Payer Name : Stratus Environmental	Paid By: CHECK	**PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Investigation-Contamination Study - 1 Boreholes
Driller: RSI - Lic #: 802334 - Method: DP

Work Total: $230.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2008-0431	07/15/2008	10/16/2008	1	3.00 in.	15.00 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 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.

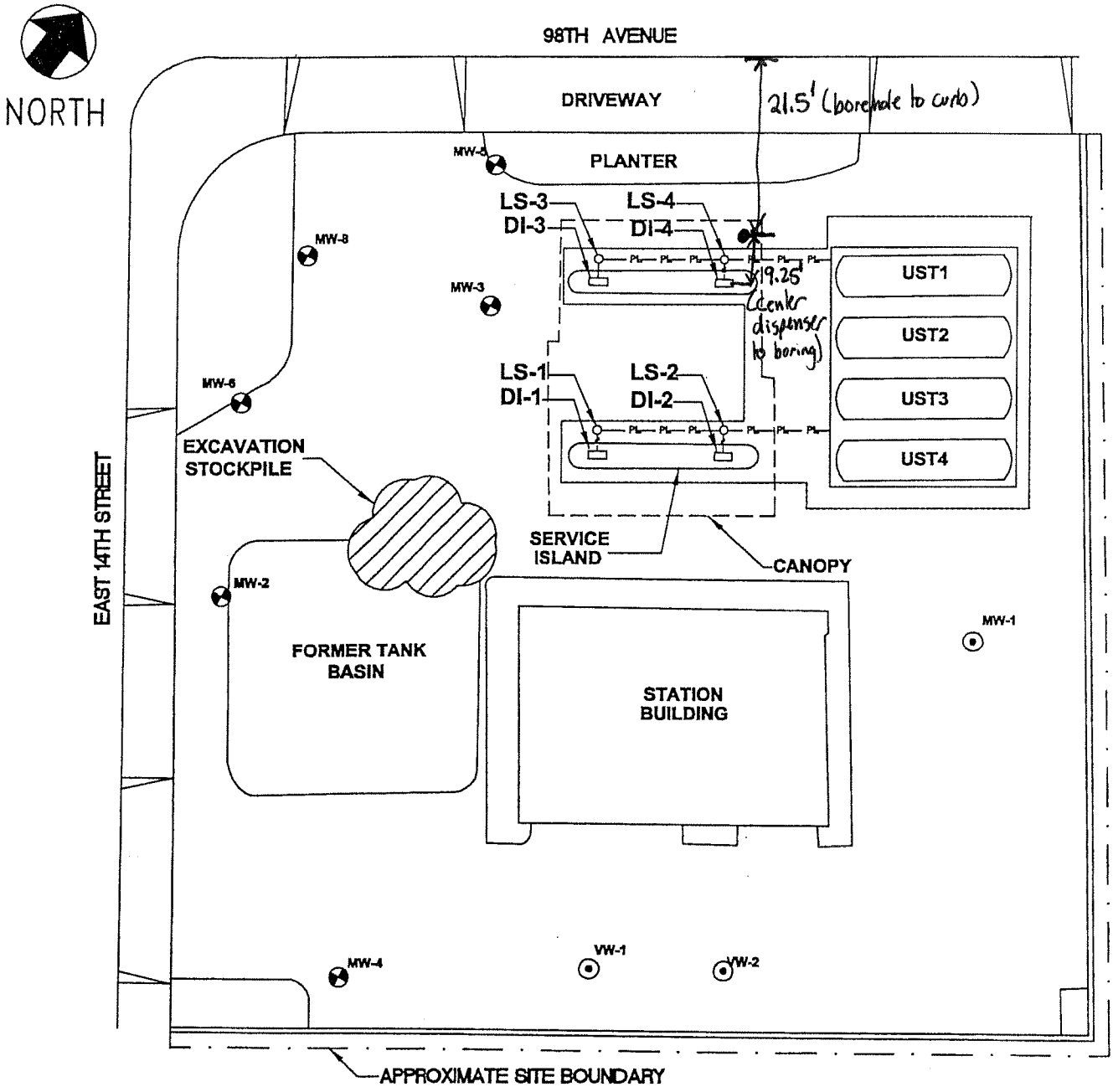
5. Applicant shall contact Ron Smalley for an inspection time at 510-670-5407 at least five (5) working days prior to

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

8. 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.



LEGEND:

- LS-1 — FUEL LINE SAMPLING LOCATION
- D1 — FUEL DISPENSER/SUMP SAMPLING LOCATION
- VW-1 — GROUNDWATER MONITORING WELL
- MW-1 — GROUNDWATER EXTRACTION WELL
- —Pl— EXPOSED PRODUCT LINE PIPING
- APPROXIMATE LIMITS OF EXCAVATION

● : Approximate Soil Boring Location

0 25 50

SCALE IN FEET

URS	Project No. 38486049 ARCO Service Station 2185 9800 East 14th Street Oakland, California	SOIL SAMPLING LOCATION PLAN NOVEMBER 12, 2002	Figure 2

Calscience
Environmental
Laboratories, Inc.

July 31, 2008

Jay Johnson
Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Subject: **Calscience Work Order No.: 08-07-1785**
Client Reference: ARCO 2185

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 7/19/2008 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. 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,

Philip Samelle for

Calscience Environmental
Laboratories, Inc.
Linda Scharpenberg
Project Manager

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	07/19/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-07-1785
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project: ARCO 2185

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC-1	**08-07-1785-4-A**	**07/18/08 10:15**	**Solid**	**ICP 5300**	**07/30/08**	**07/31/08 15:20**	**080730L01**

Parameter	Result	RL	DF	Qual	Units
Lead	7.23	0.500	1		mg/kg

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**097-01-002-11,338**	**N/A**	**Solid**	**ICP 5300**	**07/30/08**	**07/31/08 14:58**	**080730L01**

Parameter	Result	RL	DF	Qual	Units
Lead	ND	0.500	1		mg/kg

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: 07/19/08
Work Order No: 08-07-1785
Preparation: EPA 5030B
Method: EPA 8015B (M)

Project: ARCO 2185

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1 6'	**08-07-1785-1-A**	**07/18/08 10:25**	**Solid**	**GC 1**	**07/28/08**	**07/29/08 17:59**	**080729B01**

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	80	42-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1 7.5'	**08-07-1785-2-A**	**07/18/08 10:28**	**Solid**	**GC 1**	**07/28/08**	**07/29/08 18:31**	**080729B01**

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	81	42-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1 9.5'	**08-07-1785-3-A**	**07/18/08 10:31**	**Solid**	**GC 1**	**07/28/08**	**07/29/08 19:03**	**080729B01**

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	82	42-126	

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC-1	**08-07-1785-4-A**	**07/18/08 10:15**	**Solid**	**GC 1**	**07/28/08**	**07/29/08 16:23**	**080729B01**

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	60	42-126	

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	07/19/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-07-1785
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project: ARCO 2185

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-697-35**	**N/A**	**Solid**	**GC 1**	**07/28/08**	**07/29/08 14:16**	**080729B01**

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	82	42-126			

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: 07/19/08
Work Order No: 08-07-1785
Preparation: EPA 5030B
Method: EPA 8260B
Units: mg/kg

Project: ARCO 2185

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1 6'	**08-07-1785-1-A**	**07/18/08 10:25**	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08 20:48**	**080729L01**

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	104	75-141			1,2-Dichloroethane-d4	100	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	99	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1 7.5'	**08-07-1785-2-A**	**07/18/08 10:28**	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08 18:04**	**080729L01**

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	101	75-141			1,2-Dichloroethane-d4	100	73-151		
Toluene-d8	101	87-111			1,4-Bromofluorobenzene	100	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
B-1 9.5'	**08-07-1785-3-A**	**07/18/08 10:31**	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08 20:15**	**080729L01**

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	103	75-141			1,2-Dichloroethane-d4	99	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	100	71-113		

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

Calscience Environmental Laboratories, Inc.

Analytical Report

Stratus Environmental, inc.	Date Received:	07/19/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-07-1785
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8260B
	Units:	mg/kg
Project: ARCO 2185		Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
SWC-1	**08-07-1785-4-A**	**07/18/08 10:15**	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08 21:21**	**080729L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.0010	1		Xylenes (total)	ND	0.0010	1	
Ethylbenzene	ND	0.0010	1		Methyl-t-Butyl Ether (MTBE)	ND	0.0010	1	
Toluene	ND	0.0010	1						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
Dibromofluoromethane	103	75-141			1,2-Dichloroethane-d4	103	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	100	71-113		

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-12-709-44**	**N/A**	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08 17:32**	**080729L01**

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	100	75-141			1,2-Dichloroethane-d4	99	73-151		
Toluene-d8	100	87-111			1,4-Bromofluorobenzene	100	71-113		

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

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.	Date Received:	07/19/08
3330 Cameron Park Drive, Suite 550	Work Order No:	08-07-1785
Cameron Park, CA 95682-8861	Preparation:	EPA 5030B
	Method:	EPA 8015B (M)

Project ARCO 2185

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B-1 6'	**Solid**	**GC 1**	**07/28/08**	**07/29/08**	**080729S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	5	48	42-126	166	0-25	LN,BA,AY

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: 07/19/08
Work Order No: 08-07-1785
Preparation: EPA 5030B
Method: EPA 8260B

Project ARCO 2185

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
B-1 7.5'	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08**	**080729S01**

Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	78	78	78-114	0	0-14	
Chloroform	81	82	80-120	2	0-20	
1,1-Dichloroethane	77	79	80-120	3	0-20	3
1,2-Dichloroethane	87	87	80-120	1	0-20	
1,1-Dichloroethene	68	69	73-127	1	0-21	3
Ethanol	80	79	45-135	0	0-29	
Tetrachloroethene	63	65	80-120	3	0-20	3
Toluene	80	80	74-116	0	0-16	
Trichloroethene	76	77	74-122	1	0-17	
Methyl-t-Butyl Ether (MTBE)	91	90	69-123	1	0-18	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.	Date Received:	N/A
3330 Cameron Park Drive, Suite 550	Work Order No:	08-07-1785
Cameron Park, CA 95682-8861	Preparation:	EPA 3050B
	Method:	EPA 6010B

Project: ARCO 2185

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
097-01-002-11,338	**Solid**	**ICP 5300**	**07/30/08**	**07/31/08**	**080730L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	98	100	80-120	1	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.		Date Received:	N/A
3330 Cameron Park Drive, Suite 550		Work Order No:	08-07-1785
Cameron Park, CA 95682-8861		Preparation:	EPA 5030B
		Method:	EPA 8015B (M)

Project: ARCO 2185

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-697-35	**Solid**	**GC 1**	**07/28/08**	**07/29/08**	**080729B01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Gasoline Range Organics (C6-C12)	118	118	70-118	0	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: N/A
Work Order No: 08-07-1785
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 2185

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-44	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08**	**080729L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	94	92	84-114	3	0-7	
Bromobenzene	98	97	80-120	2	0-20	
Bromochloromethane	95	92	80-120	4	0-20	
Bromodichloromethane	100	98	80-120	1	0-20	
Bromoform	108	104	80-120	3	0-20	
Bromomethane	100	108	80-120	8	0-20	
n-Butylbenzene	102	100	77-123	2	0-25	
sec-Butylbenzene	102	100	80-120	2	0-20	
tert-Butylbenzene	96	93	80-120	3	0-20	
Carbon Disulfide	85	80	80-120	5	0-20	
Carbon Tetrachloride	102	96	69-135	7	0-13	
Chlorobenzene	98	96	85-109	3	0-8	
Chloroethane	92	91	80-120	1	0-20	
Chloroform	98	94	80-120	4	0-20	
Chloromethane	96	98	80-120	2	0-20	
2-Chlorotoluene	98	95	80-120	3	0-20	
4-Chlorotoluene	98	96	80-120	2	0-20	
Dibromochloromethane	105	102	80-120	2	0-20	
1,2-Dibromo-3-Chloropropane	112	108	80-120	3	0-20	
1,2-Dibromoethane	101	99	80-120	2	0-20	
Dibromomethane	97	96	80-120	1	0-20	
1,2-Dichlorobenzene	98	96	80-110	2	0-10	
1,3-Dichlorobenzene	98	95	80-120	2	0-20	
1,4-Dichlorobenzene	97	96	80-120	1	0-20	
Dichlorodifluoromethane	99	97	80-120	2	0-20	
1,1-Dichloroethane	97	93	80-120	3	0-20	
1,2-Dichloroethane	96	94	80-120	2	0-20	
1,1-Dichloroethene	92	87	83-125	5	0-10	
c-1,2-Dichloroethene	94	91	80-120	3	0-20	
t-1,2-Dichloroethene	93	88	80-120	6	0-20	
1,2-Dichloropropane	96	97	79-115	1	0-25	
1,3-Dichloropropane	98	96	80-120	2	0-20	
2,2-Dichloropropane	96	93	80-120	3	0-20	
1,1-Dichloropropene	97	91	80-120	6	0-20	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Stratus Environmental, inc.
3330 Cameron Park Drive, Suite 550
Cameron Park, CA 95682-8861

Date Received: N/A
Work Order No: 08-07-1785
Preparation: EPA 5030B
Method: EPA 8260B

Project: ARCO 2185

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-12-709-44	**Solid**	**GC/MS Z**	**07/29/08**	**07/29/08**	**080729L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
c-1,3-Dichloropropene	101	98	80-120	3	0-20	
t-1,3-Dichloropropene	105	101	80-120	4	0-20	
Ethylbenzene	98	96	80-120	2	0-20	
Isopropylbenzene	100	97	80-120	2	0-20	
p-Isopropyltoluene	102	100	80-120	2	0-20	
Methylene Chloride	93	92	80-120	1	0-20	
Naphthalene	109	105	80-120	3	0-20	
n-Propylbenzene	100	98	80-120	2	0-20	
Styrene	100	98	80-120	2	0-20	
Ethanol	89	95	50-134	6	0-23	
1,1,1,2-Tetrachloroethane	101	97	80-120	4	0-20	
1,1,2,2-Tetrachloroethane	101	99	80-120	3	0-20	
Tetrachloroethene	102	104	80-120	2	0-20	
Toluene	98	96	79-115	2	0-8	
1,2,3-Trichlorobenzene	105	102	80-120	3	0-20	
1,2,4-Trichlorobenzene	100	97	80-120	3	0-20	
1,1,1-Trichloroethane	97	92	80-120	5	0-20	
1,1,2-Trichloroethane	100	99	80-120	1	0-20	
Trichloroethene	97	96	87-111	1	0-7	
Trichlorofluoromethane	99	95	80-120	4	0-20	
1,2,3-Trichloropropane	99	96	80-120	4	0-20	
1,2,4-Trimethylbenzene	99	97	80-120	2	0-20	
1,3,5-Trimethylbenzene	99	97	80-120	2	0-20	
Vinyl Acetate	101	87	80-120	15	0-20	
Vinyl Chloride	91	89	72-126	3	0-10	
p/m-Xylene	94	93	80-120	2	0-20	
o-Xylene	97	95	80-120	3	0-20	
Methyl-t-Butyl Ether (MTBE)	97	96	75-129	1	0-13	
Tert-Butyl Alcohol (TBA)	97	100	66-126	4	0-24	
Diisopropyl Ether (DIPE)	95	92	77-125	3	0-13	
Ethyl-t-Butyl Ether (ETBE)	97	94	72-132	3	0-12	
Tert-Amyl-Methyl Ether (TAME)	96	95	77-125	1	0-10	

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 08-07-1785

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	A Marginal Exceedance (ME) is defined as a LCS percent recovery beyond the normal 3 standard deviation Control Limits but still within the marginal exceedance limits (set at 4 standard deviations from the mean)
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
LN	MS and /or MSDbelow acceptance limits. See Blank Spike (LCS).
BA, AY	BA = Relative percent difference out of control. AY = Matrix interference suspected.

Atlantic Richfield Company
bp
A BP affiliated company

Chain of Custody Record

172861

(1785)

Project Name: ARCO Station 2185
BP BU/AR Region/Enfos Segment: Alameda Portfolio
State or Lead Regulatory Agency: Alameda County Environmental Health
Requested Due Date (mm/dd/yy): Standard T.A.T

On-site Time:	0625	Temp:	60°
Off-site Time:	1145	Temp:	75°
Sky Conditions:	Foggy		
Meteorological Events:	—		
Wind Speed:	—	Direction:	—

Lab Name:	Cal Science
Address:	7440 Lincoln Way, Garden Grove, CA 92841
Lab PM:	Linda Schaffenburg
Tele/Fax:	714-895-5494
BP/AR EBM:	Paul Supple
Address:	2010 Crow Canyon Place, #150, San Ramon, CA
Tele/Fax:	925-275-3801

BP/AR Facility No.:	2185
BP/AR Facility Address:	9800 International Blvd, Oakland
Site Lat/Long:	
California Global ID No.:	T0600100114
Enfos Project No.:	GOC2F-0013
Provision or OOC (circle one)	
Phase/WBS:	assessment
Sub Phase/Task:	analytical cost
Cost Element:	Contractor labor

Consultant/Contractor:	Stantec Environmental, Inc.
Address:	5330 Cameron Park Dr. #550, Cameron Park, CA 95682
Consultant/Contractor Project No.:	E-2185
Consultant/Contractor PM:	J. Johnson
Tele/Fax:	530-676-2626000
Report Type & QC Level:	level 1 w/ edf
E-mail EDD To:	
Invoice to: Consultant or BP or Atlantic Richfield Co. (circle one)	

Lab Bottle Order No:

Item No.	Sample Description	Time	Date 2008	Matrix: Soil/Solid	Water/Liquid	Air		Laboratory No.	No. of Containers	Preservative: Unpreserved	H_2SO_4	HNO_3	HCl	Methanol		Requested Analysis: GRO	BTEX	5 oxys	1,2-DCA, EDB	Ethanol	Total Lead	MTBE					Sample Point Lat/Long and Comments
1	B-1 6'	1025	7/18	X					1	X						X	X	X	X	X	X						
2	B-1 7.5'	1028	"	X					1	X						X	X	X	X	X	X						
3	B-1 9.5'	1031	"	X					1	X						X	X	X	X	X	X						
4	SWC-1	1015	"	X					1	X						X	X				X	X					
5																											
6																											
7																											
8																											
9																											
10																											

Sampler's Name:	Scott Bittinger / Levi Ford
Sampler's Company:	Stantec Environmental, Inc.
Shipment Date:	
Shipment Method:	
Shipment Tracking No:	925555175Z

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
	07/18/08	1501	GSO		
GSO	7-19-08	10:00		7-19-08	10:00

Special Instructions:

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

08-07-1785

Linda Scharpenberg

From: Scott Bittinger [sbittinger@stratusinc.net]
Sent: Monday, July 21, 2008 8:22 AM
To: Linda Scharpenberg
Subject: ARCO 2185 Soil Samples

Linda:

On Saturday, you should have received some soil samples from ARCO site 2185 in Oakland.

There is a mistake on the analyses requested; the first three samples listed (B-1 6', B-1 7.5', and B-1 9.5') do not need analyzed for total lead. Please make this change to our request for lab services.

Thanks,

Scott Bittinger

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 08 - 07 - 1785

Cooler 1 of 1

SAMPLE RECEIPT FORM

CLIENT: ATLANTIC RICHFIELD DATE: 07-19-08

TEMPERATURE – SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

_____ Chilled, cooler with temperature blank provided.
_____ Chilled, cooler without temperature blank.
_____ Chilled and placed in cooler with wet ice.
_____ Ambient and placed in cooler with wet ice.
_____ Ambient temperature (For Air & Filter only).

___ ___.___ °C Temperature blank.

LABORATORY (Other than Calscience Courier):

13.0 °C Temperature blank.
___ ___.___ °C IR thermometer.
_____ Ambient temperature (For Air & Filter only).

Initial: TD

CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: ✓ No (Not Intact) : _____ Not Present: _____

Initial: TD

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples	✓		
Sampler's name indicated on COC		✓	
Sample container label(s) consistent with custody papers	✓		
Sample container(s) intact and good condition	✓		
Correct containers and volume for analyses requested	✓		
Proper preservation noted on sample label(s)			✓
VOA vial(s) free of headspace.			✓
Tedlar bag(s) free of condensation			✓

Initial: TD

COMMENTS:

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION

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!

Submittal Type:	**SWI_R**
Submittal Title:	**Soil Investigation Report**
Facility Global ID:	**T0600100114**
Facility Name:	**ARCO #02185**
File Name:	**08071785a.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**8/14/2008 8:54:58 AM**
Confirmation Number:	**3933731555**

VIEW QC REPORT

VIEW DETECTIONS REPORT