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*By dehloptoxic at 8:52 am, Nov 01, 2006*



Atlantic Richfield Company  
(a BP affiliated company)

P.O. Box 1257  
San Ramon, California 94583  
Phone: (925) 275-3801  
Fax: (925) 275-3815

18 October 2006

Re: Third Quarter 2006 Status Report  
ARCO Service Station # 2185  
9800 International Boulevard  
Oakland, California  
ACEH Case #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

Broadbent & Associates, Inc.  
1324 Mangrove Ave., Suite 212  
Chico, CA 95926  
Voice (530) 566-1400  
Fax (530) 566-1401



18 October 2006

Project No. 06-08-622

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

Attn.: Mr. Paul Supple

Re: Third Quarter 2006 Status Report, Atlantic Richfield Company (a BP affiliated company)  
Service Station #2185, 9800 International Boulevard, Oakland, California  
ACEH Case #RO0000392

Dear Mr. Supple:

Provided herein is the *Third Quarter 2006 Status Report* for Atlantic Richfield Company Station #2185 (herein after referred to as Station #2185), located at 9800 International Boulevard (formerly known as East 14<sup>th</sup> Street), Oakland, Alameda County, California.

Case closure was requested from Alameda County Environmental Health (ACEH) on 9 September 2003. BP is currently awaiting a response from ACEH. A copy of the Request for Case Closure report, as prepared and submitted by URS, is included as an attachment.

Should you have questions regarding this submission, please do not hesitate to contact us at (530) 566-1400.

Sincerely,

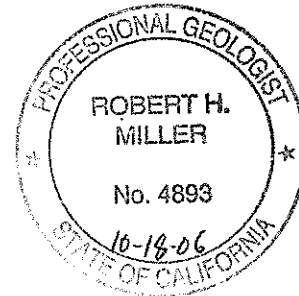
BROADBENT & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read 'Thomas A. Venus'.

Thomas A. Venus, P.E.  
Senior Engineer

A handwritten signature in black ink, appearing to read 'Robert H. Miller'.

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



Enclosures

cc: Mr. Stephen Plunkett, ACEH (Submitted via ACEH ftp site)  
Electronic copy uploaded to GeoTracker

## STATION #2185 QUARTERLY GROUND-WATER STATUS REPORT

Facility: #2185	Address: 9800 International Boulevard, Oakland, California
Environmental Business Manager:	Mr. Paul Supple
Consulting Company/Contact Person:	Broadbent & Associates, Inc.(BAI)/Rob Miller & Tom Venus (530)566-1400
Consultant Project No.:	06-08-622
Primary Agency/Regulatory ID No.:	Alameda County Environmental Health (ACEH) ACEH Case #RO0000392

### WORK PERFORMED THIS QUARTER (Third Quarter 2006):

1. Prepared and submitted the Second Quarter 2006 Status Report.
2. No environmental work was conducted at the site during the Third Quarter 2006.
3. Prepared and submitted this Third Quarter 2006 Status Report.

### WORK PROPOSED FOR NEXT QUARTER (Fourth Quarter 2006):

1. No environmental work is proposed for the site during the Fourth Quarter 2006.
2. Prepare and submit the Fourth Quarter 2006 Status Report.

### DISCUSSION:

Case closure was requested on 9 September 2003 from ACEH. BP is currently awaiting a response from the ACEH. A copy of the Request for Case Closure report, prepared by URS, is included as an attachment to this status report. A Site Map is provided as Drawing 1.

### ATTACHMENTS:

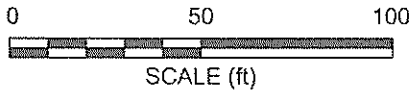
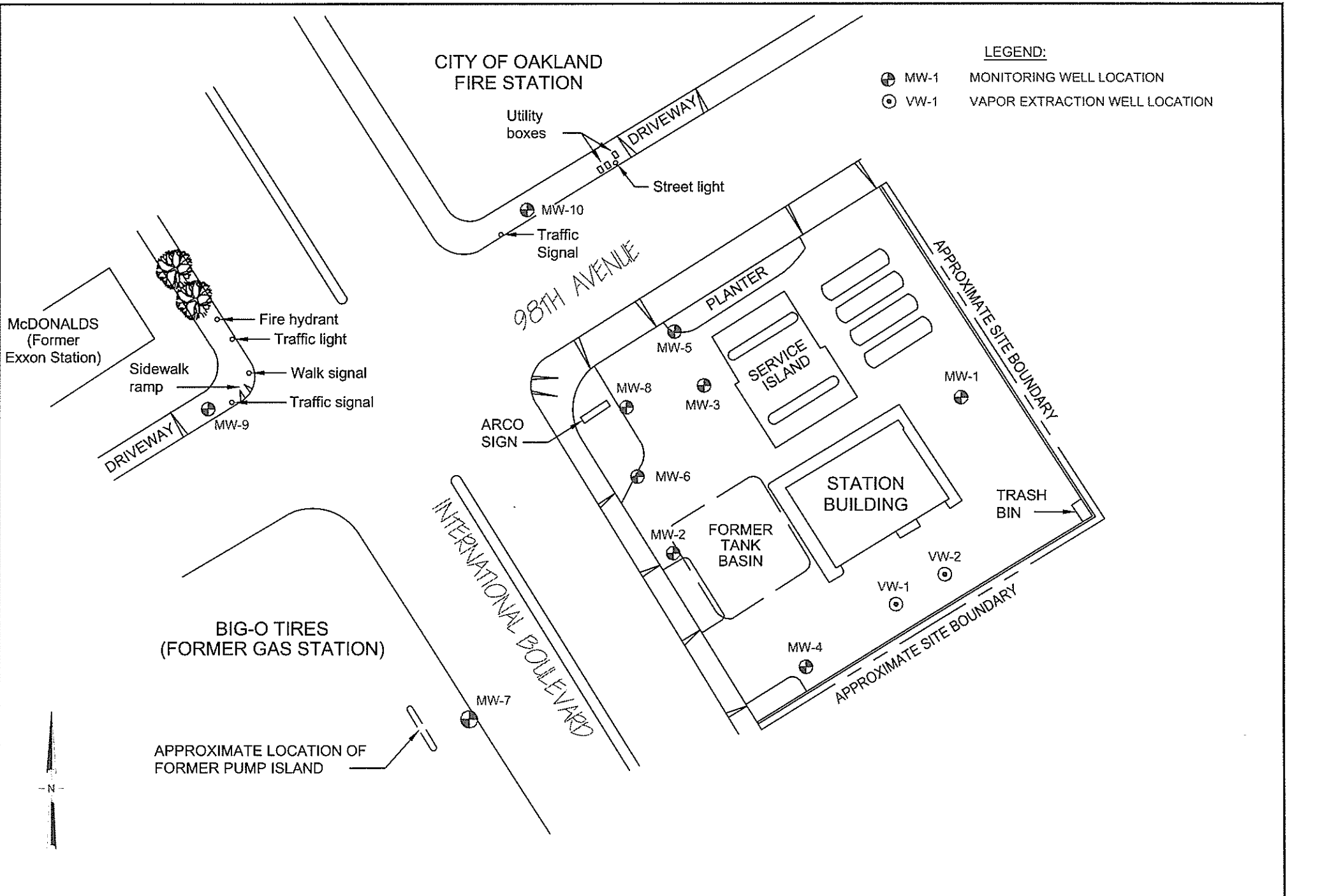
Drawing 1. Site Map, Station #2185, 9800 International Blvd., Oakland, California

Appendix A. Request for Case Closure Report (URS, 9 September 2003)

CITY OF OAKLAND  
FIRE STATION

LEGEND:

- ⊕ MW-1 MONITORING WELL LOCATION
- ⊙ VW-1 VAPOR EXTRACTION WELL LOCATION



**BROADBENT & ASSOCIATES, INC.**  
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL  
1324 Mangrove Ave. Suite 212. Chico, California  
Project No.: 06-08-622 Date: 10/03/06

Station #2185  
9800 International Blvd.  
Oakland, California

Site Map

Drawing  
**1**

**APPENDIX A**

REQUEST FOR CASE CLOSURE REPORT  
(URS, 9 September 2003)



September 9, 2003

Mr. Amir Gholami  
Environmental Health Services  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

Re: Request for Case Closure  
ARCO Service Station #2185,  
9800 East 14<sup>th</sup> Street,  
Oakland, California

Dear Mr. Gholami:

On behalf of Atlantic Richfield Company (ARCO - an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is requesting case closure for Arco Service Station #2185 located at 9800 East 14<sup>th</sup> Street, Oakland, California (Site). In a letter from Alameda County Health Care Services Agency (ACHCSA) issued May 18, 1999, Mr. Barney Chan stated that additional soil samples would need to be collected to verify residual benzene concentrations before closing the Site (Attachment A). In 1991, the concentrations of concern were detected in samples L-3, L-4, L-9 and L-10 collected between 5 and 11 feet below ground surface (bgs) from beneath the former dispenser locations (Attachments B and C). Mr. Chan was concerned that the concentrations may conservatively pose a risk to human health based on the Tier 1, Tier 2 Risk-Based Correction Action (RBCA) results for this Site (Attachments D).

On November 12, 2002, during product line upgrades at the Site, eight soil samples (DI-1 through DI-4 and LS-1 through LS-4) were collected at depths varying between 4.5 feet and 6.5 feet bgs at the former dispenser and product line trench locations (see attached figure). Details of the product line upgrade and soil sampling activities conducted at the Site are discussed in the '*Product Line Removal and Upgrade Soil Sampling Report*' submitted to ACHCSA on May 19, 2003. Soil samples DI-2, LS-2, DI-3, LS-3, DI-4, and LS-4 were collected at locations corresponding to the former sample locations L-3, L-4, L-9 and L-10 that had residual benzene concentrations of concern (see attached figure and Attachment B). The soil samples DI-1 through DI-4 and LS-1 through LS-4 were analyzed for total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, xylenes (BTEX), and MTBE by EPA Method 8260B.

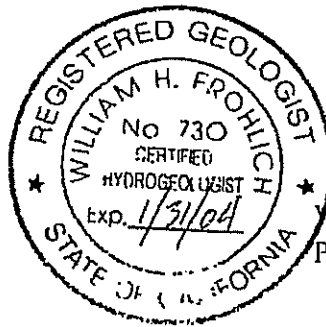


The respective soil analytical results, which are representative of the remaining hydrocarbon concentrations beneath the former dispenser locations, were non-detect for all constituents (Tables 1 and 2). As indicated by the analytical results, the current residual TPH-g and BTEX concentrations in the former dispenser locations do not exceed the Tier 1, Tier 2 RBCA results (Benzene 0.230 mg/kg - Attachment D) or the more conservative Environmental Screening Levels (ESLs, July 2003; Benzene 0.044 mg/kg - Attachment E). Accordingly, this addresses ACHCSA's concerns for residual benzene concentrations at the respective Site and qualifies the Site for case closure.

Should you have any questions or concerns, please contact me at (510) 874-3280.

Sincerely,  
URS CORPORATION

Scott Robinson  
Project Manager

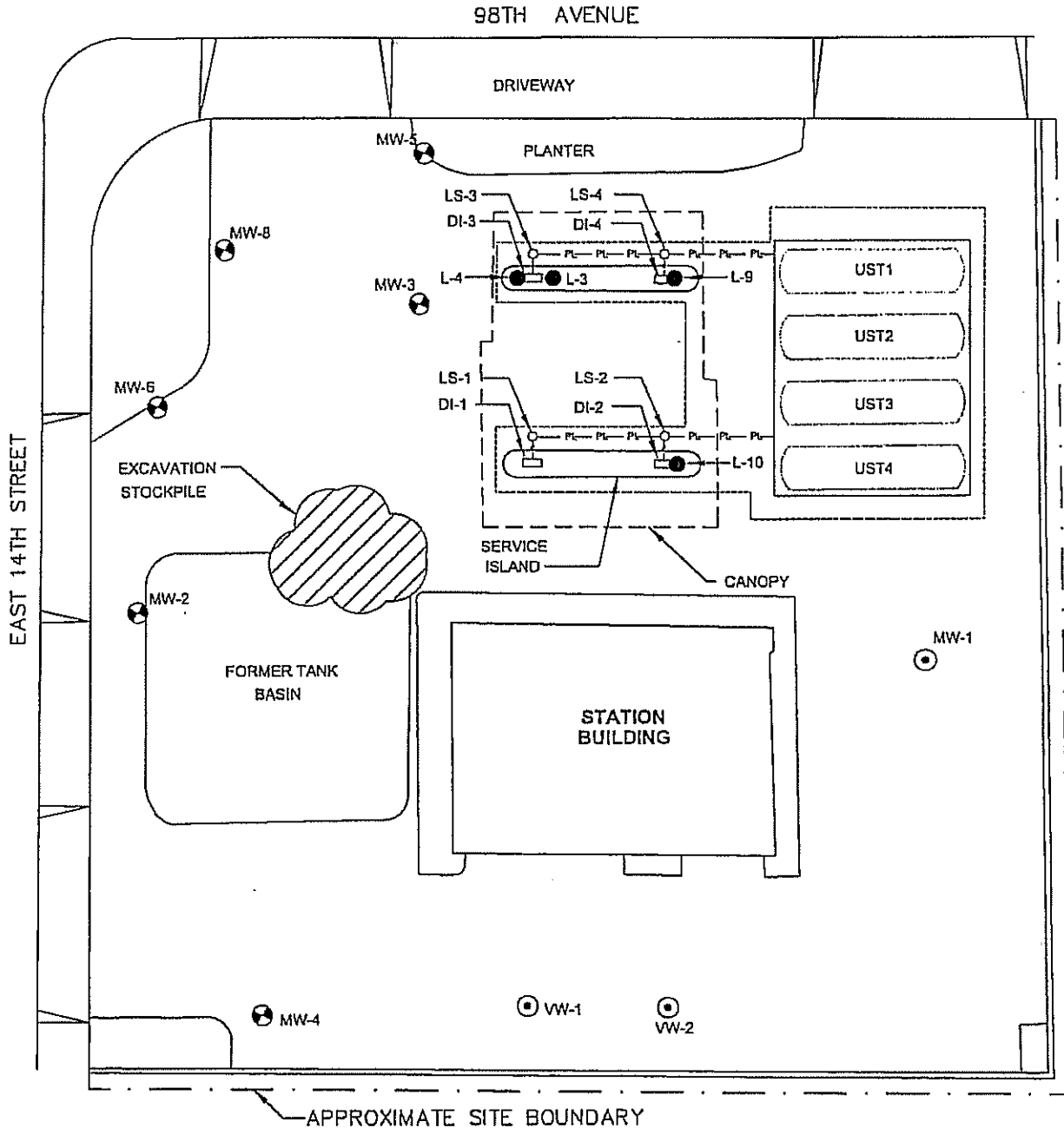


William Frohlich, C. Hg., C.E.G  
Project Geologist

cc: Mr. Paul V. Supple, ARCO (electronic copy uploaded to ENFOS)

- Attachments:
- Figure – Soil Sampling Location Plan, November 12, 2002.
  - Table 1 – Line/Dispensers Soil Sample Results from November 12, 2002.
  - Table 2 – Stockpile Soil Sample Results from November 12, 2002.
  - Attachment A: Alameda County Health Care Services Letter, March 18, 1999.
  - Attachment B: Historic Soil Sampling Location Plan.
  - Attachment C: Dispenser/Product Line Analytical Results from November 1991.
  - Attachment D: Tables 1 through 3 of the *'Tier 1, Tier 2 Risk-Based Correction Action Evaluation for ARCO Service Station 2185'* report, prepared by EMCON, October 6, 1997.
  - Attachment E: ESLs for Shallow Soils (<3m bgs) where Groundwater is Current or Potential Source of Drinking Water.
  - Attachment F: Soil Analytical Results and Laboratory Report from November 12, 2002 as reported in the *'Product Line Removal and Upgrade Soil Sampling Report'*, prepared by URS, May 19, 2003.

c:\env\waste\BP\_GEM\Site\Scott\_Robinson\Paul\_Supp\12165\Clasura\_Request\Figure1.dwg, 09/12/2003 02:16:33 PM, JKMT, URS

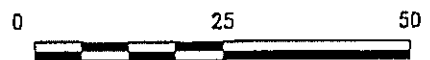


**LEGEND:**

- LS-1 FUEL LINE SAMPLING LOCATION (NOVEMBER 12, 2002)
- DI-1 FUEL DISPENSER/SUMP SAMPLING LOCATION (NOVEMBER 12, 2002)
- L-3 PRODUCT LINE TRENCH SOIL SAMPLE LOCATION AND DESIGNATION (NOVEMBER 1991)
- WW-1 GROUNDWATER MONITORING WELL
- MW-1 GROUNDWATER EXTRACTION WELL
- P— EXPOSED PRODUCT LINE PIPING
- APPROXIMATE LIMITS OF EXCAVATION



NORTH



SCALE IN FEET

Project No. 38486469



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

SOIL SAMPLING LOCATION PLAN  
NOVEMBER 1991 AND  
NOVEMBER 12, 2002

Figure  
1



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 (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)
DI-1	4.5	11/12/2002	ND<1.8	ND<0.018	ND<0.018	ND<0.018	ND<0.018	ND<0.018
DI-2	6	11/12/2002	ND<1.9	ND<0.019	ND<0.019	ND<0.019	ND<0.019	ND<0.019
DI-3	6.5	11/12/2002	ND<1.7	ND<0.017	ND<0.017	ND<0.017	ND<0.017	ND<0.017
DI-4	5	11/12/2002	ND<2.5	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.025
LS-1	4.5	11/12/2002	ND<1.9	ND<0.019	ND<0.019	ND<0.019	ND<0.019	ND<0.019
LS-2	6	11/12/2002	ND<2.3	ND<0.023	ND<0.023	ND<0.023	ND<0.023	ND<0.023
LS-3	6	11/12/2002	ND<2.0	ND<0.020	ND<0.020	ND<0.020	ND<0.020	ND<0.020
LS-4	6	11/12/2002	ND<2.2	ND<0.022	ND<0.022	ND<0.022	ND<0.022	ND<0.022

TABLE 2  
 STOCKPILE SAMPLE RESULTS

Soil Sample ID	Sample Depth (feet)	Date Sampled	TPH as Gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	Total Pb (mg/kg)
SP (1-4)	stockpile	11/14/2002	ND<0.50	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. mg/kg = Milligrams per kilograms ND< = Less than stated laboratory detection limit.									

**Note:**

Please note that the soil analytical results units were erroneously reported in Table 1 of the 'Product Line Removal and Upgrade Soil Sampling Report' dated May 19th, 2003, prepared by URS for the respective Site. The above Table 1 rectifies the error.

**ATTACHMENT A**

Alameda County Health Care Services Letter, March 18, 1999.

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

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

March 18, 1999  
StID # 3876

Mr. Paul Supple  
ARCO Products Co.  
P.O. Box 6549  
Moraga, CA 94570

Re: Additional Subsurface Investigation at ARCO Station No. 2185, 9800 E. 14<sup>th</sup> St.,  
Oakland, CA, 94603

Dear Mr. Supple:

Upon review of the recent quarterly groundwater monitoring report for the Fourth Quarter 1998 for the above site, it appears that groundwater conditions have stabilized and do not pose a risk. At this time, you may suspend future monitoring. However, one problem still remains which our office has discussed with Mr. Ray Kaminsky of EMCON. It concerns the Tier 2 RBCA for this site. The residual benzene concentration in soil samples collected beneath the former fuel dispensers may conservatively pose a risk to human health. The soil results are biased because of the results of a few soil samples with elevated benzene concentration. Therefore, to resolve this situation, our office requests an additional subsurface investigation in the areas near the former dispensers. Either soil or soil vapor samples should be collected to verify the prior analytical results. It is likely that current site conditions have changed considerably from the initial conditions taken during the tank removal in 1991. Therefore, you are encouraged to re-sample soil in the same general location as in the past. Alternatively, soil vapor samples may be taken, however, there may be some doubt as to soil conditions if this is done.

Please submit a work plan for this additional investigation to our office within 30 days or by April 19, 1999.

You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

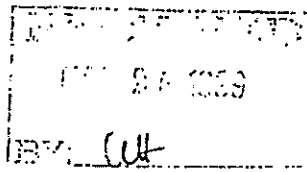
Barney M. Chan  
Hazardous Materials Specialist

C/ B. Chan, files

✓ Mr. G. Vander Veen, Pinnacle Environmental Solutions, 144-A Mayhew Way, Walnut Creek, CA 94596

Mr. R. Kaminsky, EMCON, 1921 Ringwood Ave., San Jose, CA 95131-1721

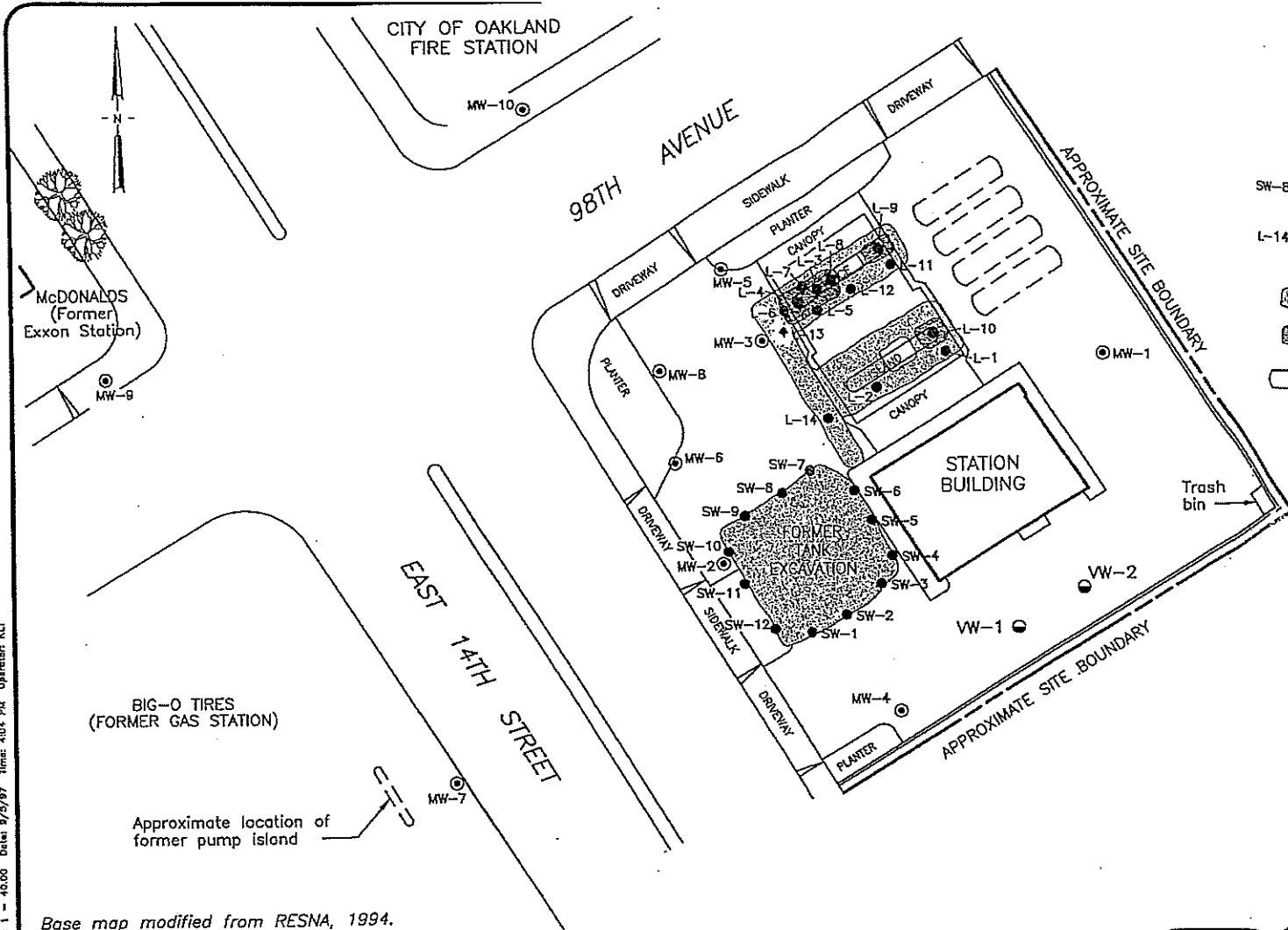
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## ATTACHMENT B

Figure 2 – Tier 1/Tier 2 RBCA Evaluation Excavated Areas from the '*Tier 1, Tier 2 Risk-Based Correction Action Evaluation for ARCO Service Station 2185*' report, prepared by EMCON, October 6, 1997.

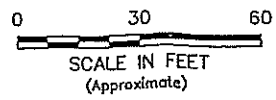
EA-SM/USE-CAD/DRAWINGS: GA 805-130 SURFACE Area: 410MS  
 Date: 9/29/97 Time: 4:04 PM Operator: RLT  
 Scale: 1" = 30.00' DimScale: 1" = 40.00'



**EXPLANATION**

- ⊙ Groundwater monitoring well
- Vapor extraction well
- SW-8 ● Tank cavity soil sample location and designation
- L-14 ● Product line trench soil sample location and designation
- ▨ Excavated areas
- ▩ Extended excavated areas
- ⬭ Existing underground gasoline storage tank

Base map modified from RESNA, 1994.



DATE: AUG. 1997  
 DWN: KLT  
 APP: \_\_\_\_\_  
 REV: \_\_\_\_\_  
 PROJECT NO. 805-130.006

**FIGURE 2**  
 ARCO PRODUCTS COMPANY  
 SERVICE STATION 2185, 9800 E. 14TH ST.  
 OAKLAND, CALIFORNIA  
 TIER 1/TIER 2 RBCA EVALUATION  
 EXCAVATED AREAS

**ATTACHMENT C**

Dispenser/Product Line Analytical Results from November 1991.

Soil Analytical Data

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

DISPENSERS/PRODUCT LINES SOIL SAMPLE RESULTS

Soil Sample ID	Sample Depth (feet)	Date Sampled	TPH as Gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)
L-1	3	11/91	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
L-2	3	11/91	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
L-3	5	11/91	1,400	0.51	87	55	350
L-4	11	11/91	450	2.6	24	8.7	56
L-5	8	11/91	18	ND<0.0050	0.029	0.042	0.38
L-6	8	11/91	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
L-7	8	11/91	5.1	0.032	0.047	0.058	0.13
L-8	8	11/91	240	0.17	2.8	2.8	15
L-9	9.5	11/91	5,400	22	330	120	640
L-10	8	11/91	2,600	5	130	53	29
L-11	3	11/91	1.4	ND<0.0050	0.014	0.012	0.1
L-12	3	11/91	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050
L-13	3	11/91	13	ND<0.0050	0.026	0.05	0.7
L-14	3	11/91	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050

Notes:

- TPH = Total purgeable petroleum hydrocarbons using EPA Method 8260B.
- ND< = Less than stated laboratory detection limit.
- mg/kg = Milligrams per kilograms

## ATTACHMENT D

Tables 1 through 3 of the *'Tier 1, Tier 2 Risk-Based Correction Action Evaluation for ARCO Service Station 2185'* report, prepared by EMCON, October 6, 1997.



**Table 1**  
**Tier 1 Results**  
**ARCO Service Station 2185**

Compounds	Groundwater to Ambient Air		Groundwater to Indoor Air	
	Representative Concentrations in Groundwater <sup>1</sup> (mg/L)	RBSL Groundwater to Ambient Air (mg/L)	Representative Concentrations in Groundwater <sup>1</sup> (mg/L)	RBSL Groundwater to Indoor Air (mg/L)
Benzene	0.084	53.4	0.084	0.214
Toluene	0.001	>S	0.001	85
Ethylbenzene	0.073	>S	0.073	>S
Xylenes	0.022	>S	0.022	>S
MtBE	2.200	>S	2.200	19,000
Compounds	Soil to Ambient Air		Soil to Indoor Air	
	Representative Concentrations in Soil <sup>2</sup> (mg/L)	RBSL Soil to Ambient Air (mg/kg)	Representative Concentrations in Soil <sup>2</sup> (mg/kg)	RBSL Soil to Indoor Air (mg/kg)
Benzene	0.23	1.33	0.23	0.032
Toluene	1.5	RES	1.5	54.5
Ethylbenzene	1.1	RES	1.1	1,100
Xylenes	3.3	RES	3.3	RES

1. The highest concentration from the last four quarters of groundwater monitoring results
2. The average concentration from the samples collected in the dispenser area at the 8 to 9.5 feet depths.

**RBSL: Risk-Based Screening Level**

RBSLs for benzene are for  $1 \times 10^{-5}$  risk level, and have been multiplied by 0.29 to account for California's slope factor for benzene.

RES: The RBSL is greater than the holding capacity of the soil, and thus the soil can be saturated and not exceed the RBSL.

>S: The RBSL is greater than the solubility of that compound in water, and thus the water can be saturated and not exceed the RBSL.

☐ Highlighted values indicate representative concentration exceeds respective RBSL.

# RBCA TIER 1/TIER 2 EVALUATION

Table 2

Site Name: ARCO 2185  
Site Location: dispenser data

Job Identification:  
Date Completed:  
Completed By: EMCON

Software: GSI RBCA Spreadsheet  
Version: v 1.0

NOTE: values which differ from Tier 1 default values are shown in bold italics and underlined.

### DEFAULT PARAMETERS

Exposure Parameter	Definition (Units)	Residential		Commercial/Industrial		Surface Parameters	Definition (Units)	Commercial/Industrial		
		Adult	(1-16 yrs)	Chronic	Construct			Residential	Chronic	Construction
ATc	Averaging time for carcinogens (yr)					t	Exposure duration (yr)	30	25	1
ATn	Averaging time for non-carcinogens (yr)			25	1	A	Contaminated soil area (cm <sup>2</sup> )	<u>1.6E+06</u>		<u>1.8E+06</u>
BW	Body Weight (kg)			70		W	Length of affected soil parallel to wind (cm)	1.5E+03		1.0E+03
ED	Exposure Duration (yr)			25	1	W.gw	Length of affected soil parallel to groundwater (cm)	1.5E+03		
EF	Exposure Frequency (days/yr)			250	180	Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02		
EF.Derm	Exposure Frequency for dermal exposure			250		delta	Air mixing zone height (cm)	2.0E+02		
IRgw	Ingestion Rate of Water (l/day)			1		Ls	Definition of surficial soils (cm)	1.0E+02		
IRs	Ingestion Rate of Soil (mg/day)			50	100	Pe	Particulate areal emission rate (g/cm <sup>2</sup> /s)	2.2E-10		
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)			9.4E+01		<b>Groundwater</b>				
IRa.in	Inhalation rate indoor (m <sup>3</sup> /day)			20		delta.gw	Groundwater mixing zone depth (cm)	2.0E+02		
IRa.out	Inhalation rate outdoor (m <sup>3</sup> /day)			20	10	i	Groundwater infiltration rate (cm/yr)	3.0E+01		
SA	Skin surface area (dermal) (cm <sup>2</sup> )			5.8E+03	5.8E+03	Ugw	Groundwater Darcy velocity (cm/yr)	<u>1.1E+02</u>		
SAadj	Adjusted dermal area (cm <sup>2</sup> -yr/kg)			1.7E+03		Ugw.tr	Groundwater Transport velocity (cm/yr)	<u>5.5E+02</u>		
M	Soil to Skin adherence factor					Ks	Saturated Hydraulic Conductivity (cm/s)	4.4E-04		
AAFs	Age adjustment on soil ingestion				FALSE	grad	Groundwater Gradient (cm/cm)	8.0E-03		
AAFd	Age adjustment on skin surface area				FALSE	Sw	Width of groundwater source zone (cm)	6.1E+02		
tox	Use EPA tox data for air (or PEL based)					Sd	Depth of groundwater source zone (cm)	3.0E+02		
gwMCL?	Use MCL as exposure limit in groundwater?					BC	Biodegradation Capacity (mg/L)	1.6E+00		
						BID?	Is Bioattenuation Considered	FALSE		
						phi.off	Effective Porosity in Water-Bearing Unit	2.0E-01		
						loc.sst	Fraction organic carbon in water-bearing unit	1.0E-03		
<b>Matrix of Exposed Persons to Complete Exposure Pathways</b>		<b>Residential</b>		<b>Commercial/Industrial</b>		<b>Soil</b>				
						hc	Capillary zone thickness (cm)	<u>3.0E+01</u>		
						hv	Vadose zone thickness (cm)	<u>2.4E+02</u>		
						rho	Soil density (g/cm <sup>3</sup> )	<u>1.72</u>		
						loc	Fraction of organic carbon in vadose zone	<u>0.002</u>		
						phi	Soil porosity in vadose zone	<u>0.35</u>		
						Lgw	Depth to groundwater (cm)	<u>2.7E+02</u>		
						Ls	Depth to top of affected soil (cm)	<u>1.6E+02</u>		
						Lsubs	Thickness of affected subsurface soils (cm)	<u>1.2E+02</u>		
						pH	Soil/groundwater pH	6.5		
								capillary	vadose	foundation
						phi.w	Volumetric water content	<u>0.3</u>	<u>0.17</u>	<u>0.17</u>
						phi.a	Volumetric air content	<u>0.05</u>	<u>0.18</u>	<u>0.18</u>
<b>Matrix of Receptor Distance and Location on- or off-site</b>		<b>Residential</b>		<b>Commercial/Industrial</b>		<b>Building</b>				
		Distance	On-Site	Distance	On-Site	Lb	Building volume/area ratio (cm)	2.0E+02	3.0E+02	
						ER	Building air exchange rate (s <sup>-1</sup> )	1.4E-04	2.3E-04	
						Lcrk	Foundation crack thickness (cm)	1.5E+01		
						ets	Foundation crack fraction	<u>0.005</u>		
GW	Groundwater receptor (cm)				FALSE	<b>Dispersive Transport</b>				
S	Inhalation receptor (cm)				TRUE	Parameters	Definition (Units)	Residential	Commercial	
<b>Matrix of Target Risks</b>		<b>Individual</b>		<b>Cumulative</b>		<b>Groundwater</b>				
						ax	Longitudinal dispersion coefficient (cm)			
TRab	Target Risk (class A&B carcinogens)	<u>1.0E-05</u>				ay	Transverse dispersion coefficient (cm)			
TRc	Target Risk (class C carcinogens)	1.0E-05				az	Vertical dispersion coefficient (cm)			
THQ	Target Hazard Quotient	1.0E+00				<b>Vapor</b>				
Opt	Calculation Option (1, 2, or 3)	2				doy	Transverse dispersion coefficient (cm)			
Tier	RBCA Tier	2				dcoz	Vertical dispersion coefficient (cm)			

**Table 3**  
**Tier 2 Results**  
**ARCO Service Station 2185**

Compound	Soil to Indoor Air	
	Representative Concentrations in Groundwater <sup>1</sup> (mg/kg)	Site-Specific Threshold Level (mg/kg)
Benzene	0.230	0.38

1. The most recent groundwater monitoring results from well EX-2 were used.
2. The maximum soil concentrations from the underground storage tank removal in June 1991. Site-specific threshold levels for benzene are for 1x10<sup>-5</sup> risk level, and have been multiplied by slope factor for benzene.

**ATTACHMENT E:**

ESLs for Shallow Soils (<3m bgs) where Groundwater is Current or Potential Source of  
Drinking Water.

Source: *Screening For Environmental Concerns At Sites With Contaminated Soil and  
Groundwater. Volume 1: Summary Tier 1 Lookup Tables.* Prepared by California  
Regional Water Quality Control Board, San Francisco Bay Region.  
Interim Final-July 2003.

**ENVIRONMENTAL SCREENING LEVELS (ESLs)**  
**Shallow Soils ( $\leq 3$ m bgs)**  
**Groundwater IS Current or Potential Source of Drinking Water**

CHEMICAL PARAMETER	<sup>1</sup> Shallow Soil	
	<sup>2</sup> Residential Land Use (mg/kg)	Commercial/ Industrial Land Use Only (mg/kg)
TPH (gasolines)	1.0E+02	1.0E+02
BENZENE	4.4E-02	4.4E-02
TOLUENE	2.9E+00	2.9E+00
ETHYLBENZENE	3.3E+00	3.3E+00
XYLENES	1.5E+00	1.5E+00
METHYL TERT BUTYL ETHER	2.3E-02	2.3E-02
LEAD	2.0E+02	7.5E+02

**Notes:**

1. Shallow soils defined as soils less than or equal to 3 meters (approximately 10 feet) below ground surface.
  2. Category "Residential Land Use" generally considered adequate for other sensitive uses (e.g., day-care centers, hospitals, etc.)
- bgs = Below ground surface  
 mg/kg = Milligrams per kilograms  
 TPH = Total petroleum hydrocarbons

**Source:**

Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater. Volume 1: Summary Tier 1 Lookup Tables.  
 Prepared by California Regional Water Quality Control Board, San Francisco Bay Region. Interim Final-July 2003.

## ATTACHMENT F

Soil Analytical Results (Tables 1 and 2) and associated Laboratory Report from November 12, 2002 as reported in the '*Product Line Removal and Upgrade Soil Sampling Report*', prepared by URS, May 19, 2003.

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.



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19 December, 2002

Barbara Jakub  
URS Corporation [1]  
2870 Gateway Oaks Dr., Ste 300  
Sacramento, CA 95833

RE: ARCO #2185, Oakland, CA  
Sequoia Work Order: MLK0562

Enclosed are the results of analyses for samples received by the laboratory on 11/14/02  
10:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Latonya Pelt  
Project Manager  
CA ELAP Certificate #1210





URS Corporation [1]  
2870 Gateway Oaks Dr., Ste 300  
Sacramento CA, 95833

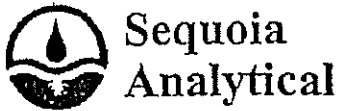
Project: ARCO #2185, Oakland, CA  
Project Number: ARCO #2185, Oakland, CA  
Project Manager: Barbara Jakub

MLK0562  
Reported:  
12/19/02 07:48

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DI-1	MLK0562-01	Soil	11/12/02 11:35	11/14/02 10:15
DI-2	MLK0562-02	Soil	11/12/02 12:05	11/14/02 10:15
DI-3	MLK0562-03	Soil	11/12/02 12:40	11/14/02 10:15
DI-4	MLK0562-04	Soil	11/12/02 13:05	11/14/02 10:15
LS-1	MLK0562-05	Soil	11/12/02 11:20	11/14/02 10:15
LS-2	MLK0562-06	Soil	11/12/02 12:15	11/14/02 10:15
LS-3	MLK0562-07	Soil	11/12/02 12:50	11/14/02 10:15
LS-4	MLK0562-08	Soil	11/12/02 13:20	11/14/02 10:15

There were no custody seals that were received with this project.



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Project: ARCO #2185, Oakland, CA  
Project Number: ARCO #2185, Oakland, CA  
Project Manager: Barbara Jakub

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Reported:  
12/19/02 07:48

**Volatile Organic Compounds by EPA Method 8260B**  
**Sequoia Analytical - Morgan Hill**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>DI-1 (MLK0562-01) Soil</b> Sampled: 11/12/02 11:35    Received: 11/14/02 10:15									
Ethanol	ND	720	ug/kg	3.6	2K23001	11/23/02	11/23/02	EPA 8260B	
tert-Butyl alcohol	ND	360	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	18	"	"	"	"	"	"	
Di-isopropyl ether	ND	18	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	18	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	18	"	"	"	"	"	"	
1,2-Dichloroethane	ND	18	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	18	"	"	"	"	"	"	
Benzene	ND	18	"	"	"	"	"	"	
Toluene	ND	18	"	"	"	"	"	"	
Ethylbenzene	ND	18	"	"	"	"	"	"	
Xylenes (total)	ND	18	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	1800	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		81.6 %	60-140	"	"	"	"	"	
<b>DI-2 (MLK0562-02) Soil</b> Sampled: 11/12/02 12:05    Received: 11/14/02 10:15									
Ethanol	ND	750	ug/kg	3.76	2K23001	11/23/02	11/23/02	EPA 8260B	
tert-Butyl alcohol	ND	380	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	19	"	"	"	"	"	"	
Di-isopropyl ether	ND	19	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	19	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	19	"	"	"	"	"	"	
1,2-Dichloroethane	ND	19	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	19	"	"	"	"	"	"	
Benzene	ND	19	"	"	"	"	"	"	
Toluene	ND	19	"	"	"	"	"	"	
Ethylbenzene	ND	19	"	"	"	"	"	"	
Xylenes (total)	ND	19	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	1900	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		87.2 %	60-140	"	"	"	"	"	

Sequoia Analytical - Morgan Hill

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.*



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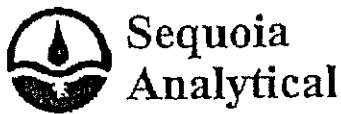
Project: ARCO #2185, Oakland, CA  
Project Number: ARCO #2185, Oakland, CA  
Project Manager: Barbara Jakub

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Reported:  
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**Volatile Organic Compounds by EPA Method 8260B**

**Sequoia Analytical - Morgan Hill**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>DI-3 (MLK0562-03) Soil</b> Sampled: 11/12/02 12:40 Received: 11/14/02 10:15									
Ethanol	ND	690	ug/kg	3.47	2K23001	11/23/02	11/23/02	EPA 8260B	
tert-Butyl alcohol	ND	350	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	17	"	"	"	"	"	"	
Di-isopropyl ether	ND	17	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	17	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	17	"	"	"	"	"	"	
1,2-Dichloroethane	ND	17	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	17	"	"	"	"	"	"	
Benzene	ND	17	"	"	"	"	"	"	
Toluene	ND	17	"	"	"	"	"	"	
Ethylbenzene	ND	17	"	"	"	"	"	"	
Xylenes (total)	ND	17	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	1700	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		93.6 %	60-140	"	"	"	"	"	
<b>DI-4 (MLK0562-04) Soil</b> Sampled: 11/12/02 13:05 Received: 11/14/02 10:15									
Ethanol	ND	990	ug/kg	4.95	2K23001	11/23/02	11/23/02	EPA 8260B	
tert-Butyl alcohol	ND	500	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	25	"	"	"	"	"	"	
Di-isopropyl ether	ND	25	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	25	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	25	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	25	"	"	"	"	"	"	
Benzene	ND	25	"	"	"	"	"	"	
Toluene	ND	25	"	"	"	"	"	"	
Ethylbenzene	ND	25	"	"	"	"	"	"	
Xylenes (total)	ND	25	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	2500	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		84.4 %	60-140	"	"	"	"	"	



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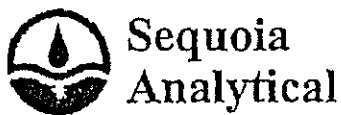
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 Project Manager: Barbara Jakub

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 Reported:  
 12/19/02 07:48

**Volatile Organic Compounds by EPA Method 8260B**  
**Sequoia Analytical - Morgan Hill**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>LS-1 (MLK0562-05) Soil</b> Sampled: 11/12/02 11:20    Received: 11/14/02 10:15									
Ethanol	ND	750	ug/kg	3.73	2K23001	11/23/02	11/23/02	EPA 8260B	
tert-Butyl alcohol	ND	370	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	19	"	"	"	"	"	"	
Di-isopropyl ether	ND	19	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	19	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	19	"	"	"	"	"	"	
<del>1,2-Dichloroethane</del>	<del>ND</del>	<del>19</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>"</del>	<del>"</del>	
1,2-Dibromoethane (EDB)	ND	19	"	"	"	"	"	"	
Benzene	ND	19	"	"	"	"	"	"	
Toluene	ND	19	"	"	"	"	"	"	
Ethylbenzene	ND	19	"	"	"	"	"	"	
Xylenes (total)	ND	19	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	1900	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		91.6 %	60-140	"	"	"	"	"	
<b>LS-2 (MLK0562-06) Soil</b> Sampled: 11/12/02 12:15    Received: 11/14/02 10:15									
Ethanol	ND	930	ug/kg	4.63	2K23001	11/23/02	11/23/02	EPA 8260B	
tert-Butyl alcohol	ND	460	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	23	"	"	"	"	"	"	
Di-isopropyl ether	ND	23	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	23	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	23	"	"	"	"	"	"	
1,2-Dichloroethane	ND	23	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	23	"	"	"	"	"	"	
Benzene	ND	23	"	"	"	"	"	"	
Toluene	ND	23	"	"	"	"	"	"	
Ethylbenzene	ND	23	"	"	"	"	"	"	
Xylenes (total)	ND	23	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	2300	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		85.4 %	60-140	"	"	"	"	"	



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Project Manager: Barbara Jakub

MLK0562  
Reported:  
12/19/02 07:48

Volatile Organic Compounds by EPA Method 8260B  
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LS-3 (MLK0562-07) Soil Sampled: 11/12/02 12:50 Received: 11/14/02 10:15									
Ethanol	ND	800	ug/kg	4	2K23001	11/23/02	11/24/02	EPA 8260B	
tert-Butyl alcohol	ND	400	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	20	"	"	"	"	"	"	
Di-isopropyl ether	ND	20	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	20	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	20	"	"	"	"	"	"	O-09
1,2-Dichloroethane	ND	20	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	20	"	"	"	"	"	"	
Benzene	ND	20	"	"	"	"	"	"	
Toluene	ND	20	"	"	"	"	"	"	
Ethylbenzene	ND	20	"	"	"	"	"	"	
Xylenes (total)	ND	20	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	2000	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		92.8 %	60-140	"	"	"	"	"	
LS-4 (MLK0562-08) Soil Sampled: 11/12/02 13:20 Received: 11/14/02 10:15									
Ethanol	ND	860	ug/kg	4.31	2K23001	11/23/02	11/24/02	EPA 8260B	
tert-Butyl alcohol	ND	430	"	"	"	"	"	"	O-09
Methyl tert-butyl ether	ND	22	"	"	"	"	"	"	
Di-isopropyl ether	ND	22	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	22	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	22	"	"	"	"	"	"	O-09
1,2-Dichloroethane	ND	22	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	22	"	"	"	"	"	"	
Benzene	ND	22	"	"	"	"	"	"	
Toluene	ND	22	"	"	"	"	"	"	
Ethylbenzene	ND	22	"	"	"	"	"	"	
Xylenes (total)	ND	22	"	"	"	"	"	"	
Gasoline Range Organics (C6-C10)	ND	2200	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		92.4 %	60-140	"	"	"	"	"	



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Project Manager: Barbara Jakub

MLK0562  
Reported:  
12/19/02 07:48

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Sequoia Analytical - Morgan Hill**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2K23001 - EPA 5035</b>										
<b>Blank (2K23001-BLK1)</b> Prepared & Analyzed: 11/23/02										
Ethanol	ND	200	ug/kg							
tert-Butyl alcohol	ND	100	"							
Methyl tert-butyl ether	ND	5.0	"							
Di-isopropyl ether	ND	5.0	"							
Ethyl tert-butyl ether	ND	5.0	"							
tert-Amyl methyl ether	ND	5.0	"							
1,2-Dichloroethane	ND	5.0	"							
1,2-Dibromoethane (EDB)	ND	5.0	"							
Benzene	ND	5.0	"							
Toluene	ND	5.0	"							
Ethylbenzene	ND	5.0	"							
Xylenes (total)	ND	5.0	"							
Gasoline Range Organics (C6-C10)	ND	500	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.34		"	5.00		86.8	60-140			
<b>Laboratory Control Sample (2K23001-BS1)</b> Prepared & Analyzed: 11/23/02										
Methyl tert-butyl ether	12.5	5.0	ug/kg	10.0		125	60-140			
Benzene	10.3	5.0	"	10.0		103	60-140			
Toluene	10.1	5.0	"	10.0		101	60-140			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.38		"	5.00		87.6	60-140			
<b>Laboratory Control Sample (2K23001-BS2)</b> Prepared & Analyzed: 11/23/02										
Gasoline Range Organics (C6-C10)	ND	500	ug/kg	440		85.7	60-140			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.38		"	5.00		87.6	60-140			
<b>Laboratory Control Sample Dup (2K23001-BSD1)</b> Prepared & Analyzed: 11/23/02										
Methyl tert-butyl ether	12.8	5.0	ug/kg	10.0		128	60-140	2.37	11	
Benzene	10.5	5.0	"	10.0		105	60-140	1.92	25	
Toluene	10.1	5.0	"	10.0		101	60-140	0.00	25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.56		"	5.00		91.2	60-140			



URS Corporation [1] 2870 Gateway Oaks Dr., Ste 300 Sacramento CA, 95833	Project: ARCO #2185, Oakland, CA Project Number: ARCO #2185, Oakland, CA Project Manager: Barbara Jakub	MLK0562 Reported: 12/19/02 07:48
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**Volatile Organic Compounds by EPA Method 8260B - Quality Control  
Sequoia Analytical - Morgan Hill**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2K23001 - EPA 5035</b>										
<b>Laboratory Control Sample Dup (2K23001-BSD2)</b>					<b>Prepared &amp; Analyzed: 11/23/02</b>					
Gasoline Range Organics (C6-C10)	ND	500	ug/kg	440		70.2	60-140	19.8	25	
Surrogate: 1,2-Dichloroethane-d4	4.42		"	5.00		88.4	60-140			



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MLK0562  
Reported:  
12/19/02 07:48

### Notes and Definitions

- O-09 The result was reported with a possible high bias due to the continuing calibration verification falling outside acceptance criteria.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference





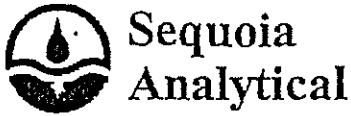
URS Corporation [1]  
2870 Gateway Oaks Dr., Ste 300  
Sacramento CA, 95833

Project: ARCO #2185, Oakland, CA  
Project Number: ARCO #2185, Oakland, CA  
Project Manager: Barbara Jakub

MLK0455  
Reported:  
11/18/02 14:24

**Total Purgeable Hydrocarbons and BTEX by DHS LUFT  
Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SP (1-4) Composite (MLK0455-01) Soil    Sampled: 11/14/02 11:00    Received: 11/14/02 10:15									
Purgeable Hydrocarbons	ND	0.50	mg/kg	1	2110221	11/14/02	11/14/02	DHS LUFT	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Surrogate: <i>a,a,a</i> -Trifluorotoluene		79 %	60-140						



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 Morgan Hill, CA 95037  
 (408) 776-9600  
 FAX (408) 782-6308  
 www.sequoialabs.com

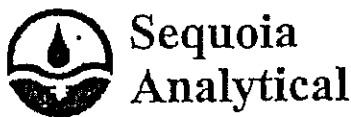
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MLK0455  
 Reported:  
 11/18/02 14:24

**Total Metals by EPA 6000/7000 Series Methods**  
**Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SP (1-4) Composite (MLK0455-01) Soil    Sampled: 11/14/02 11:00    Received: 11/14/02 10:15									
Lead	56	10	mg/kg	4	2110234	11/15/02	11/17/02	EPA 6010B	



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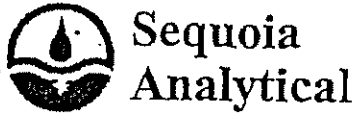
MLK0455  
Reported:  
11/18/02 14:24

**Total Purgeable Hydrocarbons and BTEX by DHS LUFT - Quality Control**  
**Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Notes
<b>Batch 2110221 - EPA 5030B (MeOH)</b>										
-Blank (2110221-BLK1) Prepared & Analyzed: 11/14/02										
Purgeable Hydrocarbons	ND	0.50	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Surrogate: a,a,a-Trifluorotoluene	0.0196		"	0.0200		98	60-140			
Laboratory Control Sample (2110221-BS1) Prepared & Analyzed: 11/14/02										
Benzene	0.0150	0.0050	mg/kg	0.0200		75	70-130			
Toluene	0.0176	0.0050	"	0.0200		88	70-130			
Ethylbenzene	0.0187	0.0050	"	0.0200		94	70-130			
Xylenes (total)	0.0569	0.0050	"	0.0600		95	70-130			
Surrogate: a,a,a-Trifluorotoluene	0.0198		"	0.0200		99	60-140			
Matrix Spike (2110221-MS1) Source: S211099-13 Prepared: 11/14/02 Analyzed: 11/15/02										
Benzene	0.0130	0.0050	mg/kg	0.0200	ND	65	60-140			
Toluene	0.0158	0.0050	"	0.0200	ND	79	60-140			
Ethylbenzene	0.0167	0.0050	"	0.0200	ND	84	60-140			
Xylenes (total)	0.0511	0.0050	"	0.0600	ND	85	60-140			
Surrogate: a,a,a-Trifluorotoluene	0.0178		"	0.0200		89	60-140			
Matrix Spike Dup (2110221-MSD1) Source: S211099-13 Prepared: 11/14/02 Analyzed: 11/15/02										
Benzene	0.0101	0.0050	mg/kg	0.0200	ND	50	60-140	25	25	QR-07
Toluene	0.0122	0.0050	"	0.0200	ND	61	60-140	26	25	QR-07
Ethylbenzene	0.0129	0.0050	"	0.0200	ND	64	60-140	26	25	QR-07
Xylenes (total)	0.0401	0.0050	"	0.0600	ND	67	60-140	24	25	
Surrogate: a,a,a-Trifluorotoluene	0.0128		"	0.0200		64	60-140			

Sequoia Analytical - Morgan Hill

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.



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Sacramento CA, 95833

Project: ARCO #2185, Oakland, CA  
Project Number: ARCO #2185, Oakland, CA  
Project Manager: Barbara Jakub

MLK0455  
Reported:  
11/18/02 14:24

**Total Metals by EPA 6000/7000 Series Methods - Quality Control  
Sequoia Analytical - Sacramento**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 2110234 - EPA 3050B</b>										
<b>Blank (2110234-BLK1)</b>										
Prepared: 11/15/02 Analyzed: 11/17/02										
Lead	ND	10	mg/kg							
<b>Laboratory Control Sample (2110234-BS1)</b>										
Prepared: 11/15/02 Analyzed: 11/17/02										
Lead	47.9	10	mg/kg	50.0		96	80-120			
<b>Matrix Spike (2110234-MS1)</b>										
Source: S211347-01 Prepared: 11/15/02 Analyzed: 11/17/02										
Lead	52.3	10	mg/kg	50.0	ND	89	80-120			
<b>Matrix Spike Dup (2110234-MSD1)</b>										
Source: S211347-01 Prepared: 11/15/02 Analyzed: 11/17/02										
Lead	51.1	10	mg/kg	50.0	ND	87	80-120	2	20	

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Analytical**

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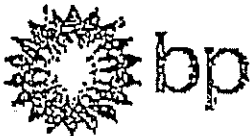
URS Corporation [1]  
2870 Gateway Oaks Dr., Ste 300  
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Project: ARCO #2185, Oakland, CA  
Project Number: ARCO #2185, Oakland, CA  
Project Manager: Barbara Jakub

MLK0455  
Reported:  
11/18/02 14:24

### Notes and Definitions

- QR-07 The RPD was outside QC acceptance limits. The results may still be useful for their intended purpose.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference



Chain of Custody Record

Project Name STATION 2185

BP BU/GEM CO Portfolio: \_\_\_\_\_

BP Laboratory Contract Number: \_\_\_\_\_

Date: 11-14-02

Requested Due Date (mm/dd/yy) 2 WEEK

MIX 0562

Page 01

On-site Time: 9:00 AM Temp: \_\_\_\_\_  
 Off-site Time: 1:45 PM Temp: \_\_\_\_\_  
 Sky Conditions: Cloudy  
 Meteorological Events: \_\_\_\_\_  
 Wind Speed: \_\_\_\_\_ Direction: \_\_\_\_\_

Send To: \_\_\_\_\_  
 Lab Name: MORGAN A-14  
 Lab Address: \_\_\_\_\_  
 Lab PM: LATOYA PELT  
 Tel/Fax: \_\_\_\_\_  
 Report Type & QC Level: \_\_\_\_\_  
 BP/GEM Account No.: \_\_\_\_\_

BP/GEM Facility No.: 2185  
 BP/GEM Facility Address: 9800 EAST 14TH ST OAKLAND  
 Site ID No.: \_\_\_\_\_  
 Site Lat/Long: \_\_\_\_\_  
 California Global ID #: \_\_\_\_\_  
 BP/GEM PM Contact: PAUL SUPPLE  
 Address: \_\_\_\_\_  
 Tele/Fax: 425-299-8891

Consultant/Contractor: BRS CORP  
 Address: 2870 GATEWAY OAKS DR. SUITE 300 SAC CA 95833  
 e-mail EDD: \_\_\_\_\_  
 Consultant/Contractor Project No.: \_\_\_\_\_  
 Consultant/Contractor Telephone: 510-874-3296  
 Consultant/Contractor E-mail: BARBARA.DAKUB  
 Invoice to: Consultant/Contractor or BP/GEM. (Circle one)  
 BP/GEM Work Release No.: \_\_\_\_\_

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservation				Requested Analysis				Sample Point Lat/Long and Comments
			Solid	Water/Liquid	Sediment	Air			Unpreserved	1450	1100	1101	1102	1103	1104	1105	
1	DI-1	11:35	X				01						X	X			
2	DI-2	12:05	X				02						X	X			
3	DI-3	12:40	X				03						X	X			
4	DI-4	1:05	X				04						X	X			
5	LS-1	11:20	X				05						X	X			
6	LS-2	12:15	X				06						X	X			
7	LS-3	12:50	X				07						X	X			
8	LS-4	1:20	X				08						X	X			
9																	
10																	Paradise

Sample's Name: BILL CERRITO Belonged to / Affiliation: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Sample's Company: BRS CORP William Jones Date: 11/14/02 Time: 12:15 Accepted by / Affiliation: Monica Golden Date: 11/15/02 Time: 11:15  
 Shipment Date: 11-14-02 Monica Golden Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Shipment Method: \_\_\_\_\_ Date: 11-15 Time: 1726  
 Shipment Tracking No.: \_\_\_\_\_ Date: 11-15 Time: 1850  
 Additional Instructions: \_\_\_\_\_

Seals in Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt 2 Trip Blank Yes No

# SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: URS  
 REC. BY (PRINT): FL  
 WORKORDER: MUR 2562

DATE Received at Lab: 11/15/02  
 TIME Received at Lab: 1:55 PM  
 LOGIN DATE: 11-26-02

Drinking water for regulatory purposes: YES /  NO  
 Wastewater for regulatory purposes: YES /  NO

CIRCLE THE APPROPRIATE RESPONSE		LAB SAMPLE #	#	CLIENT ID	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMPLED	REMARKS-CONDITION (ETC.)
1. Custody Seal(s)	Present / <input checked="" type="radio"/> Absent Intact / Broken*	1		DE - 1	107 Mixed Gas	3	11/15/02	
2. Chain-of-Custody	Present / <input checked="" type="radio"/> Absent*	2		-2				
3. Traffic Reports or Parking List	Present / <input checked="" type="radio"/> Absent	3		-3				
4. Airbill:	Airbill / <input checked="" type="radio"/> Sticker Present / <input checked="" type="radio"/> Absent	4		-4				
5. Airbill #:		5		LS - 1				
6. Sample Labels:	Present / <input checked="" type="radio"/> Absent	6		-2				
7. Sample IDs:	Label / <input checked="" type="radio"/> Not Listed or Chain-of-Custody	7		-3				
8. Sample Condition:	Intact / <input checked="" type="radio"/> Broken* / Leaking*	8		-4				
9. Does information on custody reports, traffic reports and sample labels agree?	<input checked="" type="radio"/> Yes / <input checked="" type="radio"/> No*							
10. Sample received within hold time	<input checked="" type="radio"/> Yes / <input checked="" type="radio"/> No*							
11. Proper Preservatives used:	<input checked="" type="radio"/> Yes / <input checked="" type="radio"/> No*							
12. Temp Rec. at Lab: (Acceptance range for samples requiring thermal pres. is +4/-2°C)	<input checked="" type="radio"/> Yes / <input checked="" type="radio"/> No*							
*Exception (if any):								

\*If Circled, contact Project Manager and attach record of resolution.

Sample Receipt Log  
 Revision 2.2 (04/11/02)  
 Success Revision 2.1 (11/10/00)  
 Date 04/15/02



# Chain of Custody Record

Project Name: STATION 2185  
 BP/BUGEM CO Portfolio:  
 BP Laboratory Contract Number:

MLK0955

Date: 11-14-02

Requested Due Date (mm/dd/yy) 48 HOUR

On-site Time: <u>9:00 AM</u>	Temp:
Off-site Time: <u>1:45</u>	Temp:
Sky Conditions: <u>CLUMPY</u>	
Meteorological Events:	
Wind Speed:	Direction:

NOV 14 2002 12:12PM SECTION 990

Send To:	BP/GEM Facility No.: <u>2185</u>	Consultant/Contractor: <u>MRS CORP</u>
Lab Name: <u>ADORGAN H211</u>	BP/GEM Facility Address: <u>4800 EAST 14TH ST. DAKOTA</u>	Address: <u>2870 GATEWAY OAKS DR.</u>
Lab Address:	Site ID No.:	<u>.SUITE 300 SAC CA 95833</u>
	Site Lat/Long:	e-mail BDD:
	California Global ID #:	Consultant/Contractor Project No.:
Lab PM: <u>LATONYA PELT</u>	BP/GEM PM Contact: <u>DAVE SUPPLE</u>	Consultant/Contractor Tele/Fax: <u>510-871-3296</u>
Tele/Fax:	Address:	Consultant/Contractor PMI: <u>BARBARA JAKUP</u>
Report Type & QC Levels:		Invoice to: Consultant/Contractor or BP/GEM (Circle one)
BP/GEM Account No.:	Tele/Fax: <u>925-299-8891</u>	BP/GEM Work Release No.:
Lab Portfolio Order No.:		

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives			Requested Analysis				Sample Point Lat/Long and Comments
			Solid	Liquid	Sediments	Air			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	BILEX 8021	BILEX/PH <sub>2</sub>	EPA 8260	
1	SP-1-4	11:00	X				4				X		X			COMPOSITE
2																
3																
4																
5																
6																
7																
8																
9																
10																

Sampler's Name: <u>BILL CERRITO</u>	Requested By / Affiliation:	Date:	Time:	Accepted By / Affiliation:	Date:	Time:
Sampler's Company: <u>MRS CORP</u>	<u>William Jackson</u>	<u>11/14/02</u>	<u>10:15</u>	<u>Monica Bigham/Sac Sac</u>	<u>11/14/02</u>	<u>10:55</u>
Shipment Date: <u>11-14-02</u>						
Shipment Method:						
Shipment Tracking No.:						
Special Instructions:						

Body Seals In Place Yes No      Temperature Blank Yes No      Cooler Temperature on Receipt °C      Trip Blank Yes No

LABORATORY

BP-COC Rev.1 2/3/02