

January 31, 2003

Mr. Scott Seery  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577


**Re: Third Quarter 2002 Groundwater Monitoring Report  
ARCO Service Station # 4977  
2770 Castro Valley Blvd  
Castro Valley, California  
URS Project # 38486032**

Dear Mr. Seery

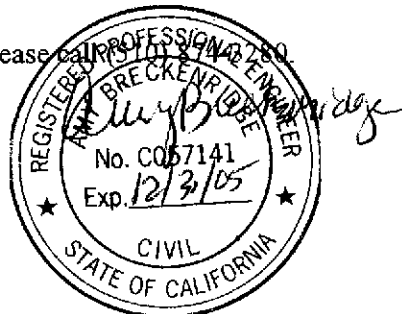
On behalf of Atlantic Richfield Company (ARCO - an affiliated company of the Group Environmental Management Company), URS Corporation (URS) is submitting the *Third Quarter 2002 Groundwater Monitoring Report* at ARCO Service Station # 4977, located at 2770 Castro Valley Blvd, Castro Valley, California.

If you have any questions regarding this submission, please call (925) 780-7800.

Sincerely,  
**URS CORPORATION**



Scott Robinson  
Project Manager



Amy P. Brekenridge, P.E.  
Portfolio Manager

Enclosure: Third Quarter 2002 Groundwater Monitoring Report

cc: Mr. Paul Supple, ARCO, PO Box 6549, Moraga, California 94570

**ARCO Products Company**

4 Centerpointe Drive  
La Palma, California 90623-1066  
Telephone 714 670 5300

Mailing Address: P.O. Box 6549  
Moraga, California 94549



January 31, 2003

Re: ARCO Station # 4977 • 2770 Castro Valley Boulevard • Castro Valley, CA  
Third Quarter 2002 Quarterly Monitoring Report

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

Submitted by:

A handwritten signature in cursive script, appearing to read "Paul Supple".

Paul Supple  
Environmental Engineer

**R E P O R T**

**THIRD QUARTER 2002  
GROUNDWATER MONITORING**

ARCO SERVICE STATION # 4977  
2770 CASTRO VALLEY BLVD  
CASTRO VALLEY, CALIFORNIA

*Prepared for*  
Atlantic Richfield Company

January 31, 2003

**URS**

URS Corporation  
500 12th Street, Suite 200  
Oakland, California 94607

38486032



Date: January 31, 2003

Quarter: 3Q 02

**ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT**

Former Facility No.: 4977 Address: 2770 Castro Valley Blvd, Castro Valley, CA  
ARCO Environmental Engineer: Paul Supple  
Consulting Co./Contact Person: URS Corporation / Scott Robinson / (510) 874-3280  
Consultant Project No.: 38486032  
Primary Agency: Alameda County Health Care Services Agency

**WORK PERFORMED THIS QUARTER (Third – 2002):**

1. Performed third quarter 2002 groundwater monitoring event.

**WORK PROPOSED FOR NEXT QUARTER (Fourth – 2002):**

1. Prepare third quarter 2002 groundwater monitoring report.
2. Perform fourth quarter 2002 groundwater monitoring event.

Current Phase of Project: GW monitoring/sampling  
Frequency of Groundwater Sampling: Wells MW-1 through MW-3  
Frequency of Groundwater Monitoring: Quarterly  
Is Free Product (FP) Present On-Site: No  
Current Remediation Techniques: Natural Attenuation  
Approximate Depth to Groundwater: 7.18 ft (MW-2) to 9.29 ft (MW-1)  
Groundwater Gradient (direction): Southwest  
Groundwater Gradient (magnitude): 0.021 feet per foot

**DISCUSSION:**

TPH-g was detected in all three wells at concentrations ranging from 130 micrograms per liter ( $\mu\text{g/L}$ ) in well MW-1 to 17,000  $\mu\text{g/L}$  in well MW-2. Benzene was detected in all three wells at concentrations ranging from 7.7  $\mu\text{g/L}$  in well MW-1 to 1,400  $\mu\text{g/L}$  in well MW-2. MTBE was detected in all three wells at concentrations ranging from 39  $\mu\text{g/L}$  in well MW-1 to 1,400  $\mu\text{g/L}$  in well MW-2.



**ATTACHMENTS:**

- Table 1 - Groundwater Elevation and Analytical Data
- Table 2 - Summary of Groundwater Flow Direction and Gradient
- Figure 1 - Groundwater Elevation Contour and Analytical Summary Map – September 27, 2002
- Attachment A - Field Procedures and Field Data Sheets
- Attachment B - Laboratory Procedures, Certified Analytical Reports and Chain-of-Custody Records
- Attachment C - EDCC Report

**Table 1**  
**Groundwater Elevation and Analytical Data**

ARCO Service Station #4977  
2770 Castro Valley Road  
Castro Valley, California

Sample ID	Date	Top of Casing Elevation (ft amsl)	Depth to Groundwater (ft. btc)	Groundwater Elevation (ft amsl)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-1	04/19/02	161.11	11.21	149.90	660	12	1.3	4.3	0.80	38
	09/27/02		9.29	151.82	130	7.7	0.87	5.4	0.79	39
MW-2	04/19/02	161.87	6.59	155.28	28,000	970	120	860	6,900	760
	09/27/02		7.18	154.69	17,000	1,400	ND<50	1,200	3,700	1,400
MW-3	04/19/02	162.14	6.94	155.20	1,200	29	1.1	43	62	1,700
	09/27/02		8.26	153.88	740	7.8	ND<2.5	6.8	4.4	1,100

amsl = above mean sea level

btc = below top of casing

TPHg = Total petroleum hydrocarbons in the gasoline range (C5-C9).

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

µg/L = micrograms per liter

ND = Not detected at or above laboratory reporting limits

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

**Table 2**  
**Groundwater Flow Direction and Gradient**

ARCO Service Station #4977  
2770 Castro Valley Road  
Castro Valley, California

<b>Date Measured</b>	<b>Average Flow Direction</b>	<b>Average Hydraulic Gradient</b>
04-19-02	Southwest	0.038
09-27-02	Southwest	0.021

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

**ATTACHMENT A**  
**FIELD PROCEDURES AND FIELD DATA SHEETS**



## FIELD PROCEDURES

---

### Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and depth to bottom, and checking for the presence of free phase petroleum product (free product), using either an electronic indicator and a clear Teflon<sup>TM</sup> bailer or an oil-water interface probe. Wells not containing free product are purged approximately three casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. Equipment and purging method used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially (approximately 80%) recover. Groundwater samples (both purge and no purge) are collected using a Teflon bailer, placed into appropriate Environmental Protection Agency- (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to a California State-certified laboratory. Wells with free product are not sampled and free product is removed according to California Code of Regulation, Title 23, Div. 3, Chap. 16, Section 2655, UST Regulations.

## WELL GAUGING DATA

Project # 020923-SSI Date 9/23/02 Client 5387

Site: 20200 HEBBERIAN HAYWARD, CA

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC
MW-1	—	WELL IS	INACCESSIBLE			—	—	
MW-2	2					12.15	29.50	}
MW-3	2					10.30	25.25	
A-4	—	WELL IS COVERED - UNABLE TO LOCATE				—	—	
A-5	3					12.55	29.85	
A-6	3					12.61	34.70	
A-7	3					13.78	35.00	
A-8	2					10.75	33.85	
A-9	2					12.35	33.70	
A-10	2					DRY	12.75	
AR-1	6					11.26	33.10	
AR-2	6					12.22	35.20	V

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>SOOCH</u>	Date: <u>9/23/02</u>
Well I.D.: <u>MW-1</u>	Well Diameter: 2 3 4 6 8 <u>    </u>
Total Well Depth: <u>                    </u>	Depth to Water: <u>                    </u>
Depth to Free Product: <u>                    </u>	Thickness of Free Product (feet): <u>                    </u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: Bailer  
 Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump  
 Other:                     

Sampling Method: Bailer  
~~Disposable Bailer~~  
 Extraction Port  
 Other:                     

Top of Screen:                      If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>                    </u> 1 Case Volume (Gals.)	X	<u>3</u> Specified Volumes	=	<u>                    </u> Calculated Volume Gals.
--	---	-------------------------------	---	--

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
<b>WELL IS INACCESSIBLE. FENCED OFF DUE TO CONSTRUCTION/</b>					
<b>EXCAVATION. <del>UNABLE TO</del> NO GATE ACCESS TO ENTER.</b>					
<b>UNABLE TO SAMPLE.</b>					

Did well dewater? <u>Yes</u> No	Gallons actually evacuated: <u>                    </u>
Sampling Time: <u>                    </u>	Sampling Date: <u>9/23/02</u>
Sample I.D.: <u>                    </u>	Laboratory: <u>Pace</u> Sequoia Other <u>                    </u>
Analyzed for: <u>TPH-G BTEX MTBE TPH-D</u> Other: <u>                    </u>	
D.O. (if req'd):	Pre-purge: <u>                    </u> mg/L
	Post-purge: <u>                    </u> mg/L
O.R.P. (if req'd):	Pre-purge: <u>                    </u> mV
	Post-purge: <u>                    </u> mV

# ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>S00CH</u>	Date: <u>9/23/02</u>
Well I.D.: <u>MW 2</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth: <del>26.75</del> <u>29.50</u>	Depth to Water: <del>30</del> <u>12.15</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: Bailer      Sampling Method: Bailer  
Disposable Bailer      Disposable Bailer  
 Middleburg      Extraction Port  
 Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>2.8</u>	x	<u>3</u>	=	<u>8.4</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
<u>1437</u>	<u>70.7</u>	<u>6.9</u>	<u>1016</u>	<u>2.8</u>	<u>16 PET / OOSP</u>
<u>1441</u>	<u>70.5</u>	<u>6.9</u>	<u>1004</u>	<u>5.6</u>	"
<u>1446</u>	<u>71.0</u>	<u>6.9</u>	<u>1008</u>	<u>8.5</u>	"

Did well dewater? Yes  No  Gallons actually evacuated: 8.5

Sampling Time: 1450      Sampling Date: 9/23/02

Sample I.D.: MW 2      Laboratory: Pace Sequoia Other \_\_\_\_\_

Analyzed for: TPH-G BTEX MTE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>1.6</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-SS1</u>	Station # <u>5387</u>
Sampler: <u>S00C4</u>	Date: <u>9/23/02</u>
Well I.D.: <u>MW-3</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth: <u>28.25</u>	Depth to Water: <u>10.30</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: Bailer  
Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method: Bailer  
Disposable Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>3</u>	X	<u>3</u>	=	<u>9</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
<u>1345</u>	<u>71.0</u>	<u>6.8</u>	<u>1000</u>	<u>3</u>	<u>TURBID</u>
<u>1349</u>	<u>70.5</u>	<u>6.9</u>	<u>1023</u>	<u>6</u>	<u>"</u>
<u>1353</u>	<u>71.1</u>	<u>6.9</u>	<u>1007</u>	<u>9</u>	<u>"</u>

Did well dewater? Yes  No  Gallons actually evacuated: 9

Sampling Time: 1355 Sampling Date: 9/23/02

Sample I.D.: MW-3 Laboratory: Pace Sequoia Other: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>1.0</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

# ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-SS1</u>	Station # <u>5387</u>
Sampler: <u>S00CH</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-4</u>	Well Diameter: 2 3 4 6 8 <u>    </u>
Total Well Depth:	Depth to Water:
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: <u>Bailer</u> Disposable Bailer Middleburg Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> Extraction Port Other: _____
---	---

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

I Case Volume (Gals.)	X	<u>3</u>	=	_____ Gals.
		Specified Volumes		Calculated Volume

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
					<u>WELL IS COVERED - UNABLE TO LOCATE UNDER PIPE.</u>
					<u>OF ROCK, SILT &amp; BUBBLE.</u>

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: _____	
Sampling Time: _____	Sampling Date: <u>9/23/02</u>	
Sample I.D.: _____	Laboratory: Pace Sequoia Other _____	
Analyzed for: TPH-G BTEX MTBE TPH-D Other: _____		
D.O. (if req'd):	Pre-purge: _____ mg/L	Post-purge: _____ mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

# ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>500CH</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-5</u>	Well Diameter: 2 <u>(3)</u> 4 6 8
Total Well Depth: <u>29.85</u>	Depth to Water: <u>12.55</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: <u>Bailer</u>	Sampling Method: <u>Bailer</u>
<u>Disposable Bailer</u>	<u>Disposable Bailer</u>
<u>Middleburg</u>	Extraction Port
Electric Submersible	Other: _____
Extraction Pump	
Other: _____	

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>6.5</u>	x	<u>3</u>	=	<u>19.5</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
<u>1400</u>	<u>70.9</u>	<u>6.8</u>	<u>958</u>	<u>6.5</u>	<u>TURBID</u>
<u>1505</u>	<u>69.9</u>	<u>6.7</u>	<u>977</u>	<u>13.0</u>	"
<u>1510</u>	<u>69.5</u>	<u>6.7</u>	<u>984</u>	<u>19.5</u>	"

Did well dewater? Yes <u>No</u>	Gallons actually evacuated: <u>19.5</u>
Sampling Time: <u>1515</u>	Sampling Date: <u>9/23/02</u>
Sample I.D.: <u>A-5</u>	Laboratory: Pace <u>Sequoia</u> Other _____

Analyzed for: <u>TPH-G BTEX MTBE</u> TPH-D Other:		
D.O. (if req'd):	Pre-purge: _____ mg/L	Post-purge: <u>1.0</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>50044</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-6</u>	Well Diameter: 2 <u>(3)</u> 4 6 8
Total Well Depth: <u>34.70</u>	Depth to Water: <u>12.61</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: <u>Bailer</u> Disposable Bailer <u>Middleburg</u> Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> Extraction Port Other: _____
--	---

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>6.2</u>	x	<u>3</u>	=	<u>24.6</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
1320	69.0	6.8	654	8.5	TPH-B-D
1325	68.5	6.8	643	17.0	"
1330	68.2	6.8	636	25.5	"

Did well dewater? Yes <u>No</u>	Gallons actually evacuated: <u>25.5</u>
Sampling Time: <u>1335</u>	Sampling Date: <u>9/23/02</u>
Sample I.D.: <u>A-6</u>	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-G BTEX MDE</u> TPH-D Other:	
D.O. (if req'd):	Pre-purge: _____ mg/L
	Post-purge: <u>1.4</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV
	Post-purge: _____ mV



## ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>S00CH</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-1</u>	Well Diameter: 2 <u>(3)</u> 4 6 8 <u>   </u>
Total Well Depth: <u>35.00</u>	Depth to Water: <u>13.78</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: <u>Bailer</u> <u>Disposable Bailer</u> <u>Middleburg</u> Electric Submersible Extraction Pump Other: _____	Sampling Method: <u>Bailer</u> <u>Disposable Bailer</u> Extraction Port Other: _____
---	---

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>8</u>	x	<u>3</u>	=	<u>24</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
<u>1215</u>	<u>71.9</u>	<u>6.7</u>	<u>1067</u>	<u>8</u>	<u>SLIGHTLY MURKY</u>
<u>1223</u>	<u>70.8</u>	<u>6.7</u>	<u>1055</u>	<u>16</u>	<u>ALMOST CLEAR</u>
<u>1235</u>	<u>70.5</u>	<u>6.7</u>	<u>1056</u>	<u>24</u>	<u>"</u>

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: <u>24</u>
Sampling Time: <u>1235</u>	Sampling Date: <u>9/23/02</u>
Sample I.D.: <u>A-1</u>	Laboratory: Pace <u>Sequoia</u> Other _____
Analyzed for: <u>TPH-G BTEX MTBE</u> TPH-D Other: _____	
D.O. (if req'd):	Pre-purge: _____ mg/L      Post-purge: <u>0.8</u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV      Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>500cH</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-8</u>	Well Diameter: <u>(2)</u> 3 4 6 8 <u>    </u>
Total Well Depth: <u>33.85</u>	Depth to Water: <u>10.75</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: Bailer  
Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method: Bailer  
Disposable Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>3.7</u>	X	<u>3</u>	=	<u>11.1</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
<u>1300</u>	<u>71.9</u>	<u>6.8</u>	<u>945</u>	<u>3.7</u>	<u>TPH (D)</u>
<u>1305</u>	<u>71.0</u>	<u>6.8</u>	<u>942</u>	<u>7.4</u>	"
<u>1310</u>	<u>70.0</u>	<u>6.8</u>	<u>960</u>	<u>11.5</u>	"

Did well dewater? Yes  No  Gallons actually evacuated: 11.5

Sampling Time: 1312 Sampling Date: 9/23/02

Sample I.D.: A-8 Laboratory: Pace Sequoia Other: \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>1.0</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-551</u>	Station # <u>5387</u>
Sampler: <u>Sooch</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-9</u>	Well Diameter: <u>(2)</u> 3 4 6 8
Total Well Depth: <u>33.20</u>	Depth to Water: <u>12.35</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: Bailer      Sampling Method: Bailer  
Disposable Bailer      Disposable Bailer  
 Middleburg      Extraction Port  
 Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>3.4</u>	X	<u>3</u>	=	<u>10.2</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
<u>1530</u>	<u>71.3</u>	<u>6.8</u>	<u>699</u>	<u>3.5</u>	<u>TURBID BROWN</u>
<u>1535</u>	<u>70.8</u>	<u>6.8</u>	<u>681</u>	<u>7.0</u>	<u>BROWN</u>
<u>1540</u>	<u>70.5</u>	<u>6.8</u>	<u>660</u>	<u>10.5</u>	<u>"</u>

Did well dewater? Yes  No  Gallons actually evacuated: 10.5

Sampling Time: 1542      Sampling Date: 9/23/02

Sample I.D.: A-9      Laboratory: Pace Sequoia Other \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge: <u>1.6</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

# ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>020923-SS1</u>	Station # <u>5387</u>
Sampler: <u>SPOCK</u>	Date: <u>9/23/02</u>
Well I.D.: <u>A-10</u>	Well Diameter: <u>(2)</u> 3 4 6 8 <u>    </u>
Total Well Depth: <u>12.75</u>	Depth to Water: <u>DRY</u>
Depth to Free Product: <u>    </u>	Thickness of Free Product (feet): <u>    </u>
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: ~~Bailer  
Disposable Bailer  
Middleburg  
Electric Submersible  
Extraction Pump  
Other: \_\_\_\_\_~~

Sampling Method: Bailer  
Disposable Bailer  
Extraction Port  
Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

_____	X	<u>3</u>	=	_____	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
<u>WELL IS DRY @ 12.75 FT. (OR OBSTRUCTIONS)</u>					
<u>UNABLE TO SAMPLE.</u>					

Did well dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Gallons actually evacuated: _____	
Sampling Time: _____	Sampling Date: <u>9/23/02</u>	
Sample I.D.: <u>A-10</u>	Laboratory: Pace <u>Sequoia</u> Other _____	
Analyzed for: <u>TPH-G BTEX MTBE</u> TPH-D Other: _____		
D.O. (if req'd):	Pre-purge: _____ mg/L	Post-purge: <u>    </u> mg/L
O.R.P. (if req'd):	Pre-purge: _____ mV	Post-purge: _____ mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 020923-SS1	Station # 5387
Sampler: 500cl	Date: 9/23/02
Well I.D.: AP-1	Well Diameter: 2 3 4 <u>6</u> 8
Total Well Depth: 33.70	Depth to Water: 11.26
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method: Bailer  
 Disposable Bailer  
 Middleburg  
Electric Submersible  
 Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method: Bailer  
Disposable Bailer  
 Extraction Port  
 Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>33</u>	X	<u>3</u>	=	<u>99</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or <u>µS</u> )	Gals. Removed	Observations
1405	69.9	7.0	1011	33	ORANGE TINT
1411	69.5	7.0	1000	66	" "
1417	69.3	6.9	1019	99	MURKED

Did well dewater? Yes  No  Gallons actually evacuated: 99

Sampling Time: 1420 Sampling Date: 9/23/02

Sample I.D.: AP-1 Laboratory: Pace Sequoia Other \_\_\_\_\_

Analyzed for: TPH-G BTEX MTBE TPH-D Other: \_\_\_\_\_

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	<u>1.6</u>	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV

## ARCO / BP WELL MONITORING DATA SHEET

BTS #: 020923-551	Station # 5387
Sampler: 500cH	Date: 9/23/02
Well I.D.: AP-2	Well Diameter: 2 3 4 <b>6</b> 8
Total Well Depth: 35.00	Depth to Water: 12.22
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <b>PVC</b> Grade	D.O. Meter (if req'd): <b>YSI</b> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius <sup>2</sup> * 0.163

Purge Method:  Bailer      Sampling Method:  Bailer

Disposable Bailer       Disposable Bailer

Middleburg       Extraction Port

Electric Submersible      Other: \_\_\_\_\_

Extraction Pump

Other: \_\_\_\_\_

Top of Screen: \_\_\_\_\_ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>33.5</u>	x	<u>3</u>	=	<u>100.5</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or $\mu$ S)	Gals. Removed	Observations
1431	69.9	7.2	1062	33.5	Almost clear
1437	69.2	7.1	1046	67.0	"
1443	69.5	7.1	1074	100.5	"

Did well dewater? Yes  No  Gallons actually evacuated: 100.5

Sampling Time: 1445      Sampling Date: 9/23/02

Sample I.D.: AP-2      Laboratory: Pace **Sequoia** Other: \_\_\_\_\_

Analyzed for: <b>TPH-G BTEX MTBE</b> TPH-D Other: _____					
D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	1.0	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:		mV



### Chain of Custody Record

Project Name ARCO # 5387  
 BP BU/GEM CO Portfolio: \_\_\_\_\_  
 BP Laboratory Contract Number: \_\_\_\_\_

Date: 9/23/02 Requested Due Date (mm/dd/yy) \_\_\_\_\_

On-site Time:	Temp:
Off-site Time:	Temp:
Sky Conditions:	
Meteorological Events:	
Wind Speed:	Direction:

BP/GEM Facility No.:	BP/GEM Facility Address: 20200 Hesperian Blvd, HAYWARD, CA	Consultant/Contractor: URS
Site ID No. ARCO 5387	Site Lat/Long:	Address: 500 12th St, Ste. 200 Oakland, CA 94609-4014
California Global ID #: <u>020923-551</u>	BP/GEM PM Contact: PAUL SUPPLE	e-mail EDD: syed_rehan@urscorp.com
BP/GEM PM Contact: PAUL SUPPLE	Address:	Consultant/Contractor Project No.: J5-00005387.01 00427
BP/GEM Account No.:	Tele/Fax:	Consultant Tele/Fax: 510-874-1735/510-874-3268
BP/GEM Account No.:	Tele/Fax:	Consultant/Contractor PM: Scott Robinson
BP/GEM Account No.:	Tele/Fax:	Invoice to: Consultant/Contractor or <u>BP/GEM</u> (Circle one)
BP/GEM Account No.:	Tele/Fax:	BP/GEM Work Release No: INTRIM -50591

Bottle Order No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives				Requested Analysis						Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	HNO <sub>3</sub>	HCl	TPH-G/BTEX (8015 / 8021)	TPH-D (8015)	MTBE (8021)	MTBE, TAME, ETBE DIPE, TBA (8260)	1,2-DCA & EDB (8260)		
1	MW-2	1450	X				3			X			X	X					
2	MW-3	1355	X				3			X			X	X					
3	A-5	1515	X				3			X			X	X					
4	A-6	1335	X				3			X			X	X					
5	A-7	1235	X				3			X			X	X					
6	A-8	1312	X				3			X			X	X					
7	A-9	1542	X				3			X			X	X					
8	AR-1	1420	X				3			X			X	X					
9	AR-2	1445	X				3			X			X	X					
10																			

Sampler's Name: <u>SUCKEON SUNG</u>	Relinquished By / Affiliation: <u>[Signature]</u>	Date: <u>9/23/02</u>	Time:	Accepted By / Affiliation:	Date:	Time:
Sampler's Company: <u>BLAINE TECH</u>						
Signature Date:						
Signature Method:						
Signature Tracking No:						

Special Instructions: Address Invoice to BP/GEM but send to URS for approval

Body Seals In Place Yes \_\_\_ No \_\_\_ Temperature Blank Yes \_\_\_ No \_\_\_ Cooler Temperature on Receipt \_\_\_ °F/C Trip Blank Yes \_\_\_ No \_\_\_

# WELLHEAD INSPECTION CHECKLIST AND REPAIR ORDER

Client ARCO 5387 Inspection Date 9/23/02

Site Address 20200 Highway 120 Inspected By SOULT

1. Lid on box?	6. Casing secure?	12. Water standing in wellbox?	15. Well cap functional?
2. Lid broken?	7. Casing cut level?	12a. Standing above the top of casing?	16. Can cap be pulled loose?
3. Lid bolts missing?	8. Debris in wellbox?	12b. Standing below the top of casing?	17. Can cap seal out water?
4. Lid bolts stripped?	9. Wellbox is too far above grade?	12c. Water even with the top of casing?	18. Padlock present?
5. Lid seal intact?	10. Wellbox is too far below grade?	13. Well cap present?	19. Padlock functional?
	11. Wellbox is crushed/damaged?	14. Well cap found secure?	

Check box if no deficiencies were found. Note below deficiencies you were able to correct.

Well I.D.	Deficiency	Corrective Action Taken

Note below all deficiencies that could not be corrected and still need to be corrected.

Well I.D.	Persisting Deficiency	BTS Office assigns or defers Correction to:	Date assigned	Date corrected
A-5	CRACKED WEL BOX LID. SCREW / BOLT + 1/2" WEL CAP	BTS will replace CAPS		
A-9	NEEDS 2" WEL CAP			



**BP GEM OIL COMPANY TYPE A BILL OF LADING**

SOURCE RECORD BILL OF LADING FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT BP GEM OIL COMPANY FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND- WATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED BY DILLARD ENVIRONMENTAL TO THE ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY IN LIVERMORE, CALIFORNIA.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BTS), 1680 Rogers Avenue, San Jose, CA 95112 (phone [408] 573-0555). Blaine Tech Services, Inc. is authorized by BP GEM OIL COMPANY to recover, collect, apportion into loads the Non-Hazardous Well Purgewater that is drawn from wells at the BP GEM Oil Company facility indicated below and deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one BP GEM facility to the designated destination point; from one BP GEM facility to the designated destination point via another BP GEM facility; from a BP GEM facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of BP GEM Oil Company.

This Source Record **BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the BP GEM Oil Company facility described below:

Station #		5387	
Station Address		20200 HESPERIAN HAYWARD, CA.	
Total Gallons Collected From Groundwater Monitoring Wells:			
added equip. rinse water _____		any other adjustments _____	
TOTAL GALS. RECOVERED <u>300</u>		loaded onto BTS vehicle # <u>46</u>	
BTS event #		time	date
<u>020923-551</u>		<u>1600</u>	<u>9/23/02</u>
signature <u>[Signature]</u>		_____	
*****			
REC'D AT		time	date
_____		_____	<u>1/1</u>
unloaded by signature _____		_____	

**ATTACHMENT B**  
**LABORATORY PROCEDURES,**  
**CERTIFIED ANALYTICAL REPORTS,**  
**AND CHAIN-OF-CUSTODY RECORDS**

## LABORATORY PROCEDURES

---

### **Laboratory Procedures**

The groundwater samples were analyzed for the presence of the chemicals mentioned in the chain of custody using standard EPA methods. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical reports and chain-of-custody record are presented in this attachment. The analytical data provided by the laboratory approved by Group Environmental Management Company have been reviewed and verified by that laboratory.



**Sequoia  
Analytical**

885 Jarvis Drive  
Morgan Hill, CA 95037  
(408) 776-9600  
FAX (408) 782-6308  
[www.sequoialabs.com](http://www.sequoialabs.com)

---

9 October, 2002

Scott Robinson  
URS Corporation  
500 12th Street, Suite 100  
Oakland, CA 94607

RE: ARCO #5387, Hayward, Ca  
Sequoia Report: MLI0633

Enclosed are the results of analyses for samples received by the laboratory on 09/24/02 10:02. 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  
500 12th Street, Suite 100  
Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
Project Number: ARCO #5387, Hayward, CA  
Project Manager: Scott Robinson

**Reported:**  
10/09/02 14:49

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	MLI0633-01	Water	09/23/02 14:50	09/24/02 10:02
MW-3	MLI0633-02	Water	09/23/02 13:55	09/24/02 10:02
A-5	MLI0633-03	Water	09/23/02 15:15	09/24/02 10:02
A-6	MLI0633-04	Water	09/23/02 13:35	09/24/02 10:02
A-7	MLI0633-05	Water	09/23/02 12:35	09/24/02 10:02
A-8	MLI0633-06	Water	09/23/02 13:12	09/24/02 10:02
A-9	MLI0633-07	Water	09/23/02 15:42	09/24/02 10:02
AR-1	MLI0633-08	Water	09/23/02 14:20	09/24/02 10:02
AR-2	MLI0633-09	Water	09/23/02 14:45	09/24/02 10:02

Sequoia Analytical - Morgan Hill

Latonya Pelt, Project Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



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

URS Corporation  
 500 12th Street, Suite 100  
 Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
 Project Number: ARCO #5387, Hayward, CA  
 Project Manager: Scott Robinson

**Reported:**  
 10/09/02 14:49

**Gasoline Hydrocarbons (C6-C12), BTEX and MTBE by EPA 8015M and 8021B**  
**Star Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-2 (MLI0633-01) Water</b> Sampled: 09/23/02 14:50 Received: 09/24/02 10:02									
Gasoline Range Hydrocarbons	1440	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	11.2	0.500	"	"	"	"	"	"	
Toluene	0.730	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	228	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		91.3 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		353 %	70-130		"	"	"	"	S-04
<b>MW-3 (MLI0633-02) Water</b> Sampled: 09/23/02 13:55 Received: 09/24/02 10:02									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		109 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		105 %	70-130		"	"	"	"	
<b>A-5 (MLI0633-03) Water</b> Sampled: 09/23/02 15:15 Received: 09/24/02 10:02									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	1.30	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		110 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		107 %	70-130		"	"	"	"	



URS Corporation  
500 12th Street, Suite 100  
Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
Project Number: ARCO #5387, Hayward, CA  
Project Manager: Scott Robinson

**Reported:**  
10/09/02 14:49

**Gasoline Hydrocarbons (C6-C12), BTEX and MTBE by EPA 8015M and 8021B  
Star Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A-6 (MLI0633-04) Water Sampled: 09/23/02 13:35 Received: 09/24/02 10:02</b>									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		109 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		106 %	70-130		"	"	"	"	
<b>A-7 (MLI0633-05) Water Sampled: 09/23/02 12:35 Received: 09/24/02 10:02</b>									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	3.48	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		110 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		111 %	70-130		"	"	"	"	
<b>A-8 (MLI0633-06) Water Sampled: 09/23/02 13:12 Received: 09/24/02 10:02</b>									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		111 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		107 %	70-130		"	"	"	"	



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

URS Corporation  
 500 12th Street, Suite 100  
 Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
 Project Number: ARCO #5387, Hayward, CA  
 Project Manager: Scott Robinson

**Reported:**  
 10/09/02 14:49

**Gasoline Hydrocarbons (C6-C12), BTEX and MTBE by EPA 8015M and 8021B**  
**Star Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>A-9 (MLI0633-07) Water Sampled: 09/23/02 15:42 Received: 09/24/02 10:02</b>									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		110 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		107 %	70-130		"	"	"	"	
<b>AR-1 (MLI0633-08) Water Sampled: 09/23/02 14:20 Received: 09/24/02 10:02</b>									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	20.2	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		110 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		111 %	70-130		"	"	"	"	
<b>AR-2 (MLI0633-09) Water Sampled: 09/23/02 14:45 Received: 09/24/02 10:02</b>									
Gasoline Range Hydrocarbons	ND	50.0	ug/L	1	V2J0420	10/04/02	10/05/02	EPA 8015M/8020	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.50	"	"	"	"	"	"	
Methyl tert-butyl ether	4.43	0.500	"	"	"	"	"	"	
Surrogate: a,a,a-TFT (PID)		110 %	70-130		"	"	"	"	
Surrogate: 1,4-Difluorobenzene		112 %	70-130		"	"	"	"	

Sequoia Analytical - Morgan Hill

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





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

URS Corporation  
 500 12th Street, Suite 100  
 Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
 Project Number: ARCO #5387, Hayward, CA  
 Project Manager: Scott Robinson

Reported:  
 10/09/02 14:49

**Gasoline Hydrocarbons (C6-C12), BTEX and MTBE by EPA 8015M and 8021B - Quality Control**  
**Star Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch V2J0420 - EPA 5030</b>										
<b>Blank (V2J0420-BLK1)</b>										
Prepared: 10/04/02 Analyzed: 10/05/02										
Gasoline Range Hydrocarbons	ND	50.0	ug/L							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.50	"							
Methyl tert-butyl ether	ND	0.500	"							
Surrogate: a,a,a-TFT (PID)	32.3		"	30.0		108	70-130			
Surrogate: 1,4-Difluorobenzene	32.0		"	30.0		107	70-130			
<b>LCS (V2J0420-BS1)</b>										
Prepared: 10/04/02 Analyzed: 10/05/02										
Benzene	18.4	0.500	ug/L	20.0		92.0	80-120			
Toluene	19.2	0.500	"	20.0		96.0	80-120			
Ethylbenzene	19.1	0.500	"	20.0		95.5	80-120			
Xylenes (total)	58.6	1.50	"	60.0		97.7	80-120			
Methyl tert-butyl ether	22.7	0.500	"	20.0		114	80-120			
Surrogate: a,a,a-TFT (PID)	31.0		"	30.0		103	70-130			
Surrogate: 1,4-Difluorobenzene	31.4		"	30.0		105	70-130			
<b>LCS (V2J0420-BS2)</b>										
Prepared: 10/04/02 Analyzed: 10/05/02										
Gasoline Range Hydrocarbons	500	50.0	ug/L	500		100	70-130			
<b>LCS Dup (V2J0420-BSD1)</b>										
Prepared: 10/04/02 Analyzed: 10/05/02										
Benzene	18.8	0.500	ug/L	20.0		94.0	80-120	2.15	30	
Toluene	19.5	0.500	"	20.0		97.5	80-120	1.55	30	
Ethylbenzene	19.3	0.500	"	20.0		96.5	80-120	1.04	30	
Xylenes (total)	59.8	1.50	"	60.0		99.7	80-120	2.03	30	
Methyl tert-butyl ether	23.1	0.500	"	20.0		116	80-120	1.75	30	
Surrogate: a,a,a-TFT (PID)	30.6		"	30.0		102	70-130			
Surrogate: 1,4-Difluorobenzene	31.0		"	30.0		103	70-130			



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

URS Corporation  
 500 12th Street, Suite 100  
 Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
 Project Number: ARCO #5387, Hayward, CA  
 Project Manager: Scott Robinson

**Reported:**  
 10/09/02 14:49

**Gasoline Hydrocarbons (C6-C12), BTEX and MTBE by EPA 8015M and 8021B - Quality Control**  
**Star Analytical, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch V2J0420 - EPA 5030</b>										
<b>LCS Dup (V2J0420-BSD2)</b>					Prepared: 10/04/02 Analyzed: 10/05/02					
Gasoline Range Hydrocarbons	530	50.0	ug/L	500	106	70-130	5.83	30		
<b>Duplicate (V2J0420-DUP1)</b>					Source: V210017-06 Prepared: 10/04/02 Analyzed: 10/05/02					
Gasoline Range Hydrocarbons	23000	2500	ug/L	22600			1.75	30		
Benzene	2660	25.0	"	2690			1.12	30		
Toluene	36.0	25.0	"	36.0			0.00	30		
Ethylbenzene	644	25.0	"	648			0.619	30		
Xylenes (total)	870	75.0	"	880			1.14	30		
Methyl tert-butyl ether	46.5	25.0	"	64.0			31.7	30		Q-03
Surrogate: a,a,a-TFT (PID)	31.0		"	30.0	103	70-130				
Surrogate: 1,4-Difluorobenzene	34.2		"	30.0	114	70-130				
<b>Matrix Spike (V2J0420-MS1)</b>					Source: V210017-06 Prepared: 10/04/02 Analyzed: 10/05/02					
Gasoline Range Hydrocarbons	45400	2500	ug/L	22600			0-200			
Benzene	3600	25.0	"	1000	2690	91.0	70-130			
Toluene	939	25.0	"	1000	36.0	90.3	70-130			
Ethylbenzene	1590	25.0	"	1000	648	94.2	70-130			
Xylenes (total)	3740	75.0	"	3000	880	95.3	70-130			
Methyl tert-butyl ether	1140	25.0	"	1000	64.0	108	70-130			
Surrogate: a,a,a-TFT (PID)	1530		"	1500	102	70-130				
Surrogate: 1,4-Difluorobenzene	1750		"	1500	117	70-130				



URS Corporation  
500 12th Street, Suite 100  
Oakland CA, 94607

Project: ARCO #5387, Hayward, Ca  
Project Number: ARCO #5387, Hayward, CA  
Project Manager: Scott Robinson

**Reported:**  
10/09/02 14:49

#### Notes and Definitions

- Q-03 The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- 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

**ATTACHMENT C**

**EDCC REPORT**



### Chain of Custody Record

Project Name ARCO # 5387  
 BP BU/GEM CO Portfolio: \_\_\_\_\_  
 BP Laboratory Contract Number: \_\_\_\_\_

On-site Time: \_\_\_\_\_ Temp: \_\_\_\_\_  
 Off-site Time: \_\_\_\_\_ Temp: \_\_\_\_\_  
 Sky Conditions: \_\_\_\_\_  
 Meteorological Events: \_\_\_\_\_  
 Wind Speed: \_\_\_\_\_ Direction: \_\_\_\_\_

Date: 9/23/02 Requested Due Date (mm/dd/yyyy) \_\_\_\_\_

MU10433

Send To:	BP/GEM Facility No.:	Consultant/Contractor:
Lab Name: <u>SEQUOIA</u>	BP/GEM Facility Address: <u>20200 Hesperian Blvd, HAYWARD, CA</u>	Address: <u>500 12th St, Ste. 200</u>
Lab Address: <u>885 Jarvis Dr. Morgan Hill, CA 95037</u>	Site ID No. <u>ARCO 5387</u>	<u>Oakland, CA 94609-4014</u>
	Site Lat/Long: _____	e-mail FID: <u>eyed_rehan@urscorp.com</u>
	California Global ID #: <u>020923-551</u>	Consultant/Contractor Project No.: <u>15-00005387.01 00-127</u>
Lab PM: <u>Latonya Pelt</u>	BP/GEM PM Contact: <u>PAUL SUPPLE</u>	Consultant Tele/Fax: <u>510-874-1735/510-874-3268</u>
Tele/Fax: <u>408-776-9600 / 408-782-6308</u>	Address: _____	Consultant/Contractor PM: <u>Scott Robinson</u>
Report Type & QC Level: <u>Send EDF Reports</u>	Tele/Fax: _____	Invoice to: <u>Consultant/Contractor or (BP/GEM) (circle one)</u>
BP/GEM Account No.:		BP/GEM Work Release No: <u>INTRIM -50591</u>

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives			Requested Analysis						Sample Point Lat/Long and Comments
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H <sub>2</sub> SO <sub>4</sub>	LiNO <sub>3</sub>	TC1	TPH-C/BTEX (8015/8021)	TPH-D (8015)	MTBE (8021)	MTBE, TAME, ETBE, DIPE, TBA (8240)	1,2-DCA & EDB (8260)	
X 1	MW-2	1450	X				01					X	X					
X 2	MW-3	1355	X				02					X	X					
X 3	A-5	1515	X				03					X	X					
X 4	A-6	1335	X				04					X	X					
X 5	A-7	1235	X				05					X	X					
X 6	A-8	1312	X				06					X	X					
X 7	A-9	1542	X				07					X	X					
X 8	AR-1	1420	X				08					X	X					
X 9	AR-2	1445	X				09					X	X					
10																		

Sampler's Name: <u>SUWEN SUNG</u>	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: <u>BLANE TECH</u>	<i>[Signature]</i>	<u>9/23/02</u>	<u>0908</u>	<i>[Signature]</i>	<u>9/24/02</u>	<u>908</u>
Shipment Date:		<u>9/24/02</u>	<u>1002</u>	<u>Andria Jensen</u>	<u>9/24/02</u>	<u>1002</u>
Shipment Method:						
Shipment Tracking No.:						
Special Instructions: <u>Address Invoice to BP/GEM but send to URS for approval</u>						

Custody Seals in Place Yes  No  Temperature Blank Yes  No  Cooler Temperature on Receipt  Y/N Trip Blank Yes  No