

October 15, 2004

Mr. Robert Schultz Alameda County Environmental Health 1131 Harbor Bay Parkway, 2<sup>nd</sup> Floor Alameda, CA 94502

Re: Third Quarter 2004 Groundwater Monitoring Report

ARCO Service Station #0374 6407 Telegraph Avenue Oakland, California URS Project #38486703

Dear Mr. Schultz:

On behalf of Atlantic Richfield Company (a BP affiliated company), URS Corporation (URS) is submitting the *Third Quarter 2004 Groundwater Monitoring Report* for ARCO Service Station #0374, located at 6407 Telegraph Avenue, Oakland, California.

If you have any questions regarding this submission, please call (510) 874-3280.

Sincerely,

**URS CORPORATION** 

Scott Robinson Project Manager

cc:

Robert Horwath, R.G. Portfolio Manager

Enclosure: Third Quarter 2004 Groundwater Monitoring Report

Mr. Chuck Headlee, California Regional Water Quality Control Board 1515 Clay Street,

Suite 1400 Oakland, CA 94612

Mr. Paul Supple, Atlantic Richfield Company (RM), (copy uploaded to ENFOS)

# THIRD QUARTER 2004 GROUNDWATER MONITORING

ARCO SERVICE STATION #0374 6407 TELEGRAPH AVENUE OAKLAND, CALIFORNIA

Prepared for RM

October 15, 2004



URS Corporation 1333 Broadway, Suite 800 Oakland, California 94612

Date:	October 15, 2004
Quarter:	3Q 04

#### RM QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.:	0374	Address:	6407 Telegraph Avenue, Oakland CA
RM Environmen	ntal Business Manager:		Paul Supple
Consulting Co./	Contact Person:		URS Corporation / Scott Robinson
Consultant Proje	ect No.:		38486703
Primary Agency	,		Alameda County Environmental Health (ACEH)

## WORK PERFORMED THIS QUARTER (Third – 2004):

1. Performed third quarter groundwater monitoring event on September 2, 2004.

#### WORK PROPOSED FOR NEXT QUARTER (Fourth- 2004):

- 1. Prepare and submit third quarter 2004 groundwater monitoring report.
- 2. Perform fourth quarter 2004 groundwater monitoring event.
- 3. Prepare and submit fourth quarter 2004 groundwater monitoring report.
- 4. Permanently remove ORC socks from MW-3 and MW-4.

Current Phase of Project:	GW monitoring/sampling
Frequency of Groundwater Sampling:	Quarterly: MW-1
. ,	Semi-Annually (1 <sup>st</sup> & 3 <sup>rd</sup> quarters): MW-2, MW-4
	Annually (3 <sup>rd</sup> quarter): MW-3, MW-5, MW-6
Frequency of Groundwater Monitoring:	Quarterly
Is Free Product (FP) Present On-Site:	No
Current Remediation Techniques:	Natural Attenuation
Approximate Depth to Groundwater:	5.79 (MW-6) to 8.79 (MW-5) feet
Groundwater Gradient (direction):	Southeast
Groundwater Gradient (magnitude):	0.027 feet per foot

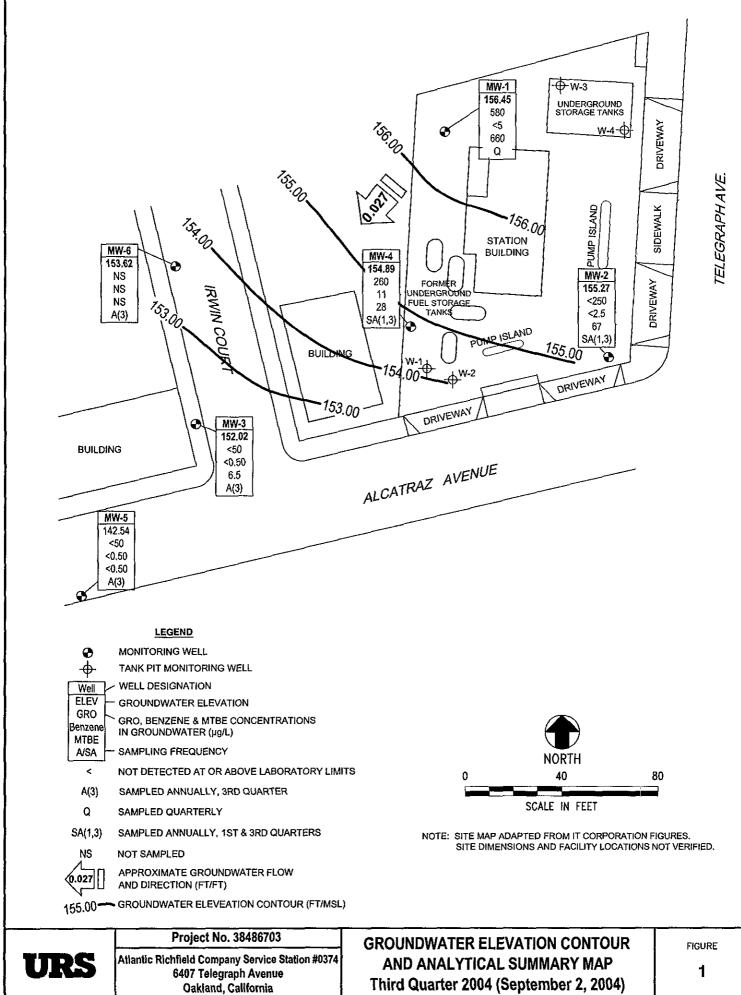
#### DISCUSSION:

Gasoline Range Organics (GRO) were detected above laboratory reporting limits in two of the five wells sampled this quarter at concentrations of 260  $\mu$ g/L (MW-4) and 580  $\mu$ g/L (MW-1). Benzene, ethylbenzene and xylenes were detected above laboratory reporting limits in MW-4 at their respective concentrations of 11  $\mu$ g/L, 5.5 $\mu$ g/L, and 14  $\mu$ g/L. Methyl tert-butyl ether (MTBE) was detected above laboratory reporting limits in four wells at concentrations ranging from 6.5  $\mu$ g/L (MW-3) to 660  $\mu$ g/L (MW-1).

Well MW-6 was not sampled due to a parked car on September 2, 2004. Another attempt was made to access the well on September 17, 2004, but the well was still blocked by a parked car.

## ATTACHMENTS:

- Figure 1 Groundwater Elevation Contour and Analytical Summary Map September 2, 2004
- Table 1 Groundwater Elevation and Analytical Data
- Table 2 Fuel Additives Analytical Data
- Table 3 Groundwater Flow Direction and Gradient
- Attachment A Field Procedures and Field Data Sheets
- Attachment B Laboratory Procedures, Certified Analytical Reports, and Chain-of-Custody Records
- Attachment C EDCC Report and EDF/Geowell Submittal Confirmation



Oct 18, 2004 - 3:26pm X: 'x\_env!\_wastelBP GEM Sites\Scott Robinson\Paul Supple\0374\Monitoring\Qv. 3, 2004\374-3Q04-GW dv.g

Table 1

# **Groundwater Elevation and Analytical Data**

ARCO Station #0374

6407 Telegraph Ave., Oakland, CA

Well No.	Date	Pi NP	Notes	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	GWE (feet)	GRO/ TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)	pН
MW-1	6/20/2000	-	<del> </del>	158.91	151.91		6.86	-	152.05	NS	NS	NS	NS	NS		NM	NM
	9/28/2000			158.91	151.91		7.50	_	151.41	NS	NS	NS	NS	NS		NM	NM
	12/17/2000	-		158.91	151.91		7.49	-	151.42	NS	NS	NS	NS	NS		NM	NM
	3/23/2001			158.91	151.91		5.90	_	153.01	<50	<0.5	<0.5	<0.5	<0.5	2,710	NA	NA
	6/21/2001	-		158.91	151.91		7.45		151.46	NS	NS	NS	NS	NS	-	NM	NM
	9/23/2001			158.91	151.91		8.46	-	150.45	NS	NS	NS	NS	NS		NM	NM
	12/31/2001			158.91	151.91		5.50		153.41	NS	NS	NS	NS	NS		NM	NM
	3/21/2002			158.91	151.91	-	4.71	-	154.20	<5,000	<50	<50	<50	<50	2,000	NA	NA
	4/17/2002	-		158.91	151.91		5.54		153.37	NS	NS	NS	NS	NS		NM	NM
	8/12/2002	-	·	158.91	151.91		7.77		151.14	NS	NS	NS	NS	NS		NM	NM
	12/6/2002	-		158.91	151.91		7.65		151.26	NS	NS	NS	NS	NS		NM	NM
	1/29/2003		b	158.91	151.91		5.88		153.03	NS	NS	NS	NS	NS		NM	NM
	5/23/2003	<b>-</b>		158.91	151.91		5.62	<b>-</b>	153.29	<10,000	<100	<100	<100	<100	1,600	1.3	7.1
	9/4/2003			158.91	151.91		7.85		151.06	NS	NS	NS	NS	NS		NM	NM
	11/20/2003	Р		158.91	7.00		8.17		150.74	1,600	<10	<10	<10	<10	1,500	1.7	6.7
	02/02/2004	P		164.57	7.00		6.71	_	157.86	2,700	<25	<25	<25	<25	1,200	1.0	9.0
	05/14/2004	Р		164.57	7.00		7.08		157.49	<2,500	<25	<25	<25	<25	1,200	1.4	6.6
	09/02/2004	P		164.57	7.00		8.12	-	156.45	580	<5.0	<5.0	<5.0	<5.0	660	3.8	6.7
MW-2	6/20/2000	-		157.92	150.92	-	7.67		150.25	NS	NS	NS	NS	NS		NM	NM
	9/28/2000			157.92	150.92		8.51		149.41	NS	NS	NS	NS	NS		NM	NM
	12/17/2000			157.92	150.92		8.14		149.78	NS	NS	NS	NS	NS		NM	NM
	3/23/2001			157.92	150.92		7.21	-	150.71	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA
	6/21/2001			157.92	150.92		7.99		149.93	NS	NS	NS	NS	NS		NM	NM
	9/23/2001			157.92	150.92		8.52		149.40	NS	NS	NS	NS	NS		NM	NM
	12/31/2001			157.92	150.92		6.01		151.91	NS	NS	NS	NS	NS		NM	NM
	3/21/2002			157.92	150.92		5.95	_	151.97	<50	<0.5	<0.5	<0.5	<0.5	45	NA	NA
	4/17/2002			157.92	150.92		6.45		151.47	NS	NS	NS	NS	NS		NM	NM
	8/12/2002			157.92	150.92		8.08	_	149.84	NS	NS	NS	NS	NS		NM	NM
	12/6/2002			157.92	150.92		8.29		149.63	NS	NS	NS	NS	NS		NM	NM
	1/29/2003	-	b	157.92	150.92		7.22		150.70	NS	NS	NS	NS	NS	-	NM	NM
	5/23/2003			157.92	150.92		6.85		151.07	<50	<0.50	<0.50	<0.50	<0.50	55	1.4	7.2
	9/4/2003	-		157.92	150.92	-	7.94		149.98	NS	NS	NS	NS	NS		NM	NM
	11/20/2003			157.92	7.00		8.05		149.87				-	_	-		_

Table 1
Groundwater Elevation and Analytical Data

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

Well No.	Date	P/ NP	Notes	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	GWE (feet)	GRO/ TPH-g (µg/L)	Benzene (µg/L)	Toluene (μg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)	Hq
MW-2	02/02/2004	P		163.46	7.00	-	7.00	-	156.46	74	<0.50	<0.50	<0.50	<0.50	37	1.1	8.9
	05/14/2004	-		163.46	7.00		7.97	-	155.49	-			-	_		T -	-
	09/02/2004	Р		163.46	7.00		8.19		155.27	<250	<2.5	<2.5	<2.5	<2.5	67	2.7	6.9
K-WM	6/20/2000	_		153.64	146.64	_	6.42	_	147.22	<50	<0.5	<0.5	<0.5	<1.0	<10	NA	NA
	9/28/2000	-		153.64	146.64		7.31		146.33	NS	NS	NS	NS	NS	-	NM	NM
	12/17/2000	-		153.64	146.64		6.45	-	147.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA
	3/23/2001	_		153.64	146.64		6.01	-	147.63	NS	NS	NS	NS	NS		NM	NM
	6/21/2001	_		153.64	146.64		6.80	-	146.84	110	5.5	<0.5	5.4	4.1	2.5	NA	NA
	9/23/2001	-		153.64	146.64		7.32		146.32	NS	NS	NS	NS	NS		NM	NM
	12/31/2001			153.64	146.64		4.48		149.16	<50	<0.5	<0.5	<0.5	<0.5	4.9	NA	NA
·	3/21/2002			153.64	146.64	_	4.36	-	149.28	NS	NS	NS	NS	NS		NM	NM
<del></del>	4/17/2002			153.64	146.64		5.31	-	148.33	<50	<0.5	<0.5	<0.5	<0.5	8.7	NA	NA
	8/12/2002			153.64	146.64		7.00		146.64	NS	NS	NS	NS	NS		NM	NM
	12/6/2002	-		153.64	146.64	-	7.32		146.32	<50	<0.5	<0.5	<0.5	<0.5	6.2	1.4	6.7
	1/29/2003		b	153.64	146.64		6.07		147.57	NS	NS	NS	NS	NS		NM	NM
	5/23/2003			153.64	146.64		6.45		147.19	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.9	7.7
	9/4/2003	-	С	153.64	146.64		6.93		146.71	NS	NS	NS	NS	NS		NM	NM
	11/20/2003		С	153.64	7.00	-	7.04		146.60		-						T -
	02/02/2004			159.21	7.00		5.92		153.29	-		_					_
	05/14/2004	-		159.21	7.00		7.52		151.69								-
	09/02/2004	Р		159.21	7.00	-	7.19		152.02	<50	<0.50	<0.50	<0.50	<0.50	6.5	9.3	8.9
MW-4	6/20/2000		c	156.53	149.53		7.50		149.03	20,000	5,100	440	1,000	1,700	<250	NA	NA
	9/28/2000	-		156.53	149.53		8.20		148.33	NS	NS	NS	NS	NS		NM	NM
	12/17/2000	-		156.53	149.53		8.11		148.42	4,320	1,240	<20	27.2	249	<100	NA	NA
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3/23/2001	_		156.53	149.53		6.69		149.84	NS	NS	NS	NS	NS	-	NM	NM
	6/21/2001			156.53	149.53		8.01		148.52	2,800	470	16	19	160	130	NA	NA
·	9/23/2001			156.53	149.53		8.91		147.62	NS	NS	NS	NS	NS		NM	NM
	12/31/2001	<b></b>		156.53	149.53		4.42	-	152.11	4,600	1,500	100	160	210	160	NA	NA
	3/21/2002	-		156.53	149.53		4.98		151.55	NS	NS	NS	NS	NS		NM	NM
	4/17/2002			156.53	149.53		6.23	-	150.30	7,100	2,200	110	290	450	<250	NΑ	NA
	8/12/2002	_		156.53	149.53		8.24		148.29	NS	NS	NS	NS	NS		NM	NM
	12/6/2002	-	a (Benzene)	156.53	149.53		8.42		148.11	1,500a	410	6.8	20	29	43	1.1	6.7

Table 1

## Groundwater Elevation and Analytical Data

ARCO Station #0374

6407 Telegraph Ave., Oakland, CA

Well No.	Date	P/ NP	Notes	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	GWE (feet)	GRO/ TPH-g (µg/L)	Benzene (µg/L)	Toluene (μg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)	рН
MW-4	1/29/2003	_	b	156.53	149.53		7.20	_	149.33	NS	NS	NS	NS	NS	_	NM	NM
<del></del>	5/23/2003			156.53	149.53	-	7.18	-	149.35	<5,000	1,300	89	210	260	<50	1.4	6.9
	9/4/2003		С	156.53	149.53		8.15	-	148.38	NS	NS	N\$	NS	NS	_	NM	NM
	11/20/2003	-	C	156.53	7.00	-	8.73	_	147.80	-		-			<b>~</b> -		
· · · · · · · · · · · · · · · · · · ·	02/02/2004	Р	С	163.25	7.00		6.25		157.00	980	280	21	29	38	29	1.4	10.6
·	05/14/2004			163.25	7.00	-	8.38	-	154.87	-	<del>-</del>						
	09/02/2004	Р		163.25	7.00		8.36		154.89	260	11	<1.0	5.5	14	28	2.4	7.4
MW-5	6/20/2000			151.33	141.33	<del>-</del>	7.84		143.49	<50	<0.5	<0.5	<0.5	<1.0	<10	NA	NA
	9/28/2000			151.33	141.33		8.37		142.96	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	NA
	12/17/2000			151.33	141.33	<del></del>	8.36		142.97	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
	3/23/2001			151.33	141.33		7.55		143.78	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
<del></del>	6/21/2001		<del>-</del>	151.33	141.33		8.20		143.13	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
	9/23/2001			151.33	141.33		8.68		142.65	<50	<0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
	12/31/2001			151.33	141.33		7.57		143.76	<50	<0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
	3/21/2002			151.33	141.33		6.12		145.21	<50	<0.5	<0.5	<0.5	<0.5	3.2	NA	NA
	4/17/2002	-		151.33	141.33		6.61	-	144.72	<50	<0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
****	8/12/2002			151.33	141.33	<i>-</i> -	8.14		143.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	4.1	7.6
	12/6/2002			151.33	141.33		8.65		142.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.1	6.8
	1/29/2003	-	b	151.33	141.33	<b></b>	7.22		144.11	<50	<0.5	<0.5	<0.5	<0.5	<0.5	1	6.6
	5/23/2003	-		151.33	141.33		7.31		144.02	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	6.6
	9/4/2003	1		151.33	141.33		9.50		141.83	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.2	6.7
	11/20/2003			151.33	10.00		8.31	-	143.02	-							
	02/02/2004		C	151.33	10.00		6.92		144.41	-		-					
	05/14/2004	~		151.33	10.00		8.56		142.77								
	09/02/2004	Р		151.33	10.00	<u></u>	8.79		142.54	<50	<0.50	<0.50	<0.50	<0.50	<0.50	3.5	6.8
MW-6	6/20/2000			153.84	148.00		4.79		149.05	NS	NS	NS	NS	NS		NM	NM
	9/28/2000			153.84	148.00		5.39		148.45	NS	NS	NS	NS	NS		NM	NM
	12/17/2000			153.84	148.00		4.71		149.13	NS	NS	NS	NS	NS		NM	NM
	3/23/2001			153.84	148.00		4.69	-	149.15	<50	< 0.5	< 0.5	< 0.5	< 0.5	<2.5	NA	NA
	6/21/2001			153.84	148.00		5.22		148.62	NS	NS	NS	NS	NS		NM	ΝM
	9/23/2001			153.84	148.00		5.40	-	148.44	NS	NS	NS	NS	NS		NM	NM
	12/31/2001			153.84	148.00		3.95		149.89	NS	NS	NS	NS	NS		NM	NM
	3/21/2002			153.84	148.00		2.94		150.90	<50	<0.5	<0.5	<0.5	<0.5	5.2	NA	NA

Table 1

## **Groundwater Elevation and Analytical Data**

ARCO Station #0374

6407 Telegraph Ave., Oakland, CA

Well No.	Date	P/ NP	Notes	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Product Thickness (feet)	GWE (feet)	GRO/ TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DO (mg/L)	рH
MW-6	4/17/2002	-		153.84	148.00	_	5.11		148.73	NS	NS	NS	NS	NS	-	NM	NM
<u> </u>	8/12/2002	- 1		153.84	148.00		5.23	-	148.61	NS	NS	NS	NS	NS	-	NM	NM
	12/6/2002	-		153.84	148.00		5.29	-	148.55	NS	NS	NS	NS	NS		NM	NM
	1/29/2003	-	b	153.84	148.00		4.79	_	149.05	NS	NS	NS	NS	NS	_	NM	NM
	5/23/2003			153.84	148.00	-	4.31		149.53	<50	<0.50	<0.50	<0.50	<0.50	9.4	1	6.7
	09/04/03		d	153.84	148.00		NM		NM	NS	NS	NS	NS	NS		NM	NM
	11/20/2003	1		153.84	5.00		6.31	_	147.53		-	_	-	-	-		_
	02/02/2004			159.41	5.00		4.78		154.63			-	-				_
	05/14/2004			159.41	5.00	-	6.29		153.12			-		-		-	_
	09/02/2004		d	159.41	5.00		5.79	-	153.62			-		-		-	

#### Table 1

## **Groundwater Elevation and Analytical Data**

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

#### Abbreviations:

GRO = Gasoline Range Organics, range C4-C12

TPH-g = Total Petroleum Hydrocarbons

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted (prior to 01/29/03)

ug/L = Micrograms per liter

mg/L = Milligram per liter

NM = Not measured

NS = Not sampled

NP = Not Purged

P = Purged before sampling

DTW = Depth to water measured in feet below ground surface

TOC = Top of Casing

GWE = Groundwater Elevation measured in feet above mean sea level

< = Not detected at or above the laboratory reporting limit.

NA = Not Avaliable

NM = Not Measured

#### Notes:

a = Chromatogram Pattern: Gasoline C6-C10

b = Beginning this quarter, groundwater samples were analyzed by EPA method 8260B for TPH-g, BTEX, and fuel oxygenates.

c = Wells gauged with ORC sock in well.

d = Well inaccessible

Dissolved oxygen and pH level are field measurements.

Source: The data within this table collected prior to August 2002 was provided to URS by Remediation Managment and its previous consultants. URS has not verified the accuracy of this information.

Table 2

## **Fuel Additives Analytical Data**

## ARCO Station #0374

6407 Telegraph Ave., Oakland, CA

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MtBE (µg/L)	DIPE (μg/L)	EtBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Comments
MW-1	5/23/2003	<20,000	<4,000	1,600	<100	<100	<100	NA	NA	
•	11/20/2003	<2,000 a	<400	1,500	<10	<10	<10			
	02/02/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
	05/14/2004	<5,000	<1,000	1,200	<25	<25	<25	<25	<25	
	09/02/2004	<1,000	<200	660	<5.0	<5.0	<5.0	<5.0	<5.0	
MW-2	5/23/2003	<100	<20	55	<0.50	<0.50	0.53	NA	NA	
	02/02/2004	<100	<20	37	<0.50	<0.50	<0.50	<0.50	<0.50	
	09/02/2004	<500	<100	67	<2.5	<2.5	<2.5	<2.5	<2.5	
MW-3	5/23/2003	<100	<20	1.6	<0.50	<0.50	<0.50	NA	NA	
	09/02/2004	<100	<20	6.5	<0.50	<0.50	<0.50	<0.50	<0.50	
MW-4	5/23/2003	<10,000	<2,000	<50	<50	<50	<50	NA	NA	<del></del>
<del></del>	02/02/2004	<500	<100	29	<2.5	<2.5	2.6	<2.5	<2.5	
	09/02/2004	<200	<40	28	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-5	1/29/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	NA	NA	<u>, , , , , , , , , , , , , , , , , , , </u>
	5/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	NA	NA	
	9/4/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
	09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	And the second of the second o
MW-6	5/23/2003	<100	<20	9.4	<0.50	<0.50	<0.50	NA	NA	

## Table 2

## Fuel Additives Analytical Data

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

Abbreviations:

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

#### Notes:

The data within this table collected prior to August 2002 was provided to URS by RM and its previous consultants. URS has not verified the accuracy of this information.

Table 3

## **Groundwater Gradient Data**

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

Date Sampled	Approximate Flow Direction	Approximate Hydraulic Gradient
1/31/1996	Southwest	0.04
4/10/1996	Southwest	0.04
7/16/1996	Southwest	0.03
10/14/1996	Southwest	0.03
3/27/1997	Southwest	0.04
5/27/1997	Southwest	0.03
8/12/1997	Southwest	0.04
11/17/1997	Southwest	0.03
3/16/1998	Southwest	0.03
5/12/1998	Southwest	0.04
7/27/1998	Southwest	0.04
10/15/1998	Southwest	0.02
2/18/1999	Southwest	0.05
5/24/1999	Southwest	0.03
8/27/1999	Southwest	0.03
10/26/1999	Southwest	0.03
2/3/2000	Southwest	0.047
6/20/2000	Southwest	0.035
9/28/2000	Southwest	0.034
12/17/2000	Southwest	0.032
3/23/2001	Southwest	0.034
6/21/2001	Southwest	0.032
9/23/2001	Southwest	0.029
12/31/2001	Southwest	0.043
3/21/2002	Southwest	0.038
4/17/2002	Southwest	0.031
8/12/2002	Southwest	0.032
12/6/2002	Southwest	0.02
1/29/2003	Southwest	0.027
5/23/2003	Southwest	0.039
9/4/2003	Southwest	0.033
11/20/2003	Southwest	0.029
2/2/2004	Southwest	0.043
5/14/2004	Southwest	0.037
9/2/2004	Southeast	0.027

Note:

The data within this table collected prior to August 2002 was provided to URS by RM and its 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 # <u>040902-022</u>	Date 9/2/04	Client	URS	374 Avo 347	<del></del>
Site 6407 Telearach Ave. 1	3. Flored	165			

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water	Depth to well bottom (ft.)	Survey Point: TOB or TOC	
MW-1	4				812	24.69	,	
MU-2	4				8.19	Zk.28		
MW-3	Ч				7.19	26.72		
Mc1-4	4				7.19	24-80	Ì	
MW-5	4				6.79 5.79	23.02		77.
Mn-8	4				5.79	23.02 14,54	T	
				_				
							12	
					4+			

BTS#: 🔊	40902-902	Station# 37	HA	vco		-							
Sampler:				Date: 9/2/0									
Well I.D.	: mu-(			Well Diamet	er:	2	3	<b>D</b>	6	8		-	
Total We	ll Depth:	26-69		Depth to Wa	ter:	R-1:	2_				,,,,,		
Depth to	Free Produ	ict:		Thickness of				(fee	et):		<u>-</u>	<del> </del>	
Reference	ed to:	₩ <b>B</b>	Grade	D.O. Meter (	if re	q'd):			YS)		HACI	ſ	
	Well Dinne	ter		Well Diameter	Multi	inlier		<u> </u>		1		<del></del>	
	2"		0.04 0.16	4" 6"	0.65 1.47								
	3"		0.37	Other radius <sup>2</sup> * 0,163									
Purge Meth	od:	Bailer		Sampling Metho	od:	• E	Bailer						
		isposable Bai			•	-	able Bo						
		ve Air Displa					ction Pr						
	<b>v</b> -	etric Submer		Othe	er:								
		Extraction Pur	*										
	Omer;	<del></del>											
Top of Scree	en:		If well is listed as a of screen. Otherwi					l is b	elow 1	ie top	)		
	12.	. (	x 3	_ 3	6.3	•	 Ga	ls.					
	1 Case Vol	ume (Gals.)	Specified Vo				olume						
			Conductivity		T	<del></del>							
Time	Temp (°F)	pH	(mS or 105)	Gals. Remove	d	Obse	rvatio	ns	ý				
458	68.6	7.0	900	12-1		cla	ead						
150(	66.9	6.6	901	124.2		V							
ا ا ا ا	ouateve.	10 75		NC.									
		· _		sitedeparture	.   _				<del></del> -	<del>~</del>	<del></del>		
1515	70.2	6.7	959	DTE1-25.01	1								
							<del> </del>	<del></del>					
Did well	dewater?	Ye?	No	Gallons actua	illy e	evac	uated	: 2	5				
Sampling	Time: (5	15		Sampling Date: 4/z/04									
Sample I.	D.: Mw-1			Laboratory:	Pac		Sequo	ih	Otl	ier			
Analyzed	for: OR	O BITEX	MTBE DRO	Other: See Co									
D.O. (if re	eq'd):		Pre-purge:	i me	/ <sub>L</sub>	Pe	<u>гаг-ри</u> н	ge:	3.8			ing/L	
O.R.P. (if	req'd):		Pre-purge:	in'	V	Po	ost-pu	ge:				mV	

14 09 02 PC	رح `		Station # Arce	» <u>}</u> 74				
PC								
: MU-2			Well Diamete	er: 2	3 <b>(</b>	7 6	8	
ll Depth:	26-28		Depth to Wate	er: <b>%</b> .	19			
Free Produ	uet:		Thickness of	Free Pi	roduct (fe	et):	**************************************	
ed to:	(T)	Grade	D.O. Meter (i.	f req'd	):	(TST)	HACH	
			Well Dinmeter	Multiplier				
2"			4" 6"	0,65				
3"		0.37			.3			
uq.	Railer						l	
	-	iler	* -					
	•			•				
	•		Office	•				
•			Other			-		
•		ılı						
en:	<del></del>					below the	e top	
<del></del>							-	
		<b>-</b>						
		xs	<u> </u>					
I Case Vol	ume (Gals.)	Specified Vo	dames Ca	ilculated '	Volume			
		Conductivity		T				
Temp (°F)	I-Ici	"	Cale Removed	Ohe	ominitions			
12-+	19-+	594	12	Cle	lar			
71.5	6-8	597	24	1				·
well	dewatere	doz7sal	DTW-1181-80	Tovec!	hare		_	
71 a				1	J		-	
Tiel	(0:7)	(00)	DIW=10.29	<b></b>				·
							······································	
lewater? (	<b>P</b>	No	Gallons actual	ly evac	cuated: Z	7		
Time: 14	35		Sampling Date	3: 9/21	loy			*****
	•		Laboratory:	Pace	gednoty	Othe	er	_
		APPORT DESC	Other:					
for: CR	O BTEX	MTBE DRO	Sae COC	-				
ror: GRe eq'd):	O BLEX	Pre-purge:	Other: See COC		ost-purge:	24	, II	" <sup>#</sup> /L
	PC: MU-Z II Depth: - IFree Produced to:    Well Dinner: 1" 2" 3"     Other: en:	Il Depth: 26-28  Free Product: ed to: VE  Well Diameter  1" 2" 3" od: Bailer Disposable Bail Positive Air Displace Allectric Submers Extraction Pum Other: en:  1.8 1 Case Volume (Gals.)  Temp (°F) pH 72.7 6-8  Vell Jewatere 71.9 6-9  lewater? PS  Time: 1435  D.: MW-2	PC: MU-Z  II Depth: 26-28  Free Product: ed to: VE Grade    Well Dinneter   Multiplier   0.04     2"	PC    MU-Z   Well Diameter	Date: 9/z   Well Diameter: 2	Date: q/z/ev	Date: 9/2/64	Date: q/z/pq.   Post   Post

BTS#:	040902-A	.2		Station # Avco 374						
Sampler:				Date: 9/2/04						
Well I.D	: MW-3			Well Diamete	r: 2	3 6	<b>D</b> 6	8		
1	ell Depth:	16.72		Depth to Wate	er: 7.19					
Depth to	Free Prod	uct:		Thickness of l			feet):			
Referenc	ed to:	eve	Grade	D.O. Meter (it			(TS)	НАСН		
Purge Meth	Well Diam	eler Bailer	Multiplier 0.04 0.16 0.37	Well Diameter 4" 6" Other rad	Multiplier 0.65 1.47 ius <sup>2</sup> + 0.163					
i urgo Mun	E Positi AEld I	Danter Disposable Bai Ive Air Displace Extraction Pun	cement sible	Sampling Method Other	<b>Q</b> isposa	tion Port	r 			
Top of Scre	en:		If well is listed as	a no-purge, confirm	that water	r level is	below (I	ne top		
		. 7 ume (Gals.)	X 3 Specified Vo	ise, the well must be		_ Gals,				
Time	Temp (°F)	pI-l	Conductivity (mS or #8)	Gals. Removed	Observ	vations				
1309	zy.1	7,5	716	13	clear		<del></del>	V V V V V V V V V V V V V V V V V V V		
1312	704	8,3	B38	26	4	<del></del>	***************************************			
1314	well de	natered (a)	28 gal.	DTW- Z4.39=	street	uell				
1322	69.7	B.9	857				· <del></del>			
Did well c	lewater?	Yes 1	No	Gallons actuall	y evacua	ated: >	28			
Sampling	Time: \3:	22		Sampling Date:	· ·					
Sample I.I	D.: MW-	3		r .	_	equori	Othe			
Analyzed	for: GRO	BTE	MTBE DRO	Other: see coc		S. Larville	Ome	21		
O.O. (if re			Pre-purge:	ing/L		-purge:	9.3	, mg/		
D.R.P. (if			Pre-purge:	mV	D			**************************************		
vaine Te	ch Servi	ces, Inc.	1680 Rogers	Ave., San Jos	se, CA	95112	(408)	573-0555		

DIO#. 0	10902-002	Station # 4 100	374							
Sampler:	PC			Date: 9/2 /ou					7,	
Well I.D.	:MW-4			Well Diameter	: 2	3	<b>D</b>	6	8	
Total We	ll Depth:	26.80		Depth to Wate	r: 8-3	ماد			17	
Depth to	Free Prod	uct:		Thickness of F			(fee	t):	····	· · · · · · · · · · · · · · · · · · ·
Reference	ed to:	PVC	Grade	D.O. Meter (if	req'd):		1	(S)		HACH
Dunce Math			Multiplier 0.04 0.16 0.37	4" 6" Other radi	Multiplier 0.65 1.47 us <sup>2</sup> * 0.163					
Purge Metho		Bailer Isposable Bai	ler .	Sampling Method:		Bailer abb Da	:3			
		ve Air Displa			Pispos	action Pa				
	_	etric Submer		Other:						
	Ti di	Extraction Pur	тр				~			
	Other:		Cchaise O	%DTU=以2-0	<					
Top of Scree	ei1:			a no-purge, confirm		er level	lighe	elow th	ie fon	
•				ise, the well must be				)10 W 11.	io top	
	I Case Vol	wne (Gals.)	x 3 Specified Vo	= Solumes Cal	<b>Ç</b> culated V	Ga)	s.			
	<u> </u>	· ·	Conductivity		T					
Time	Temp (°F)	pН	(mS or 2(\$)	Gals. Removed	Obse	rvatio	าร			
1,418	70.4	6.7	103	12	clea	F				
1421	68.5	7-3	1197	24	L L				,,,,	
well a	e watereda	25-01			İ					
		<del></del>		DTW-11.92						
	68-7	7-4	1(65	DTW-11.92						·
1	1		1(65	)						*
1	la8-7	7-4	1(65 No	)	y evacı	uated	: 2	5		
W50	leB-7	7.4 130		7			: 20	7		
M50 Did well d	leB-7 lewater?	7.4 132 50	No ·	Gallons actuall Sampling Date	: Alzlo			Oth	er_	
M50  Did well d  Sampling	leB-7 lewater? ( Time: 14 D.: MW-4	7-4 130 50	No ·	Gallons actuall Sampling Date Laboratory: Other: See Coc	Pace	,ų			er	
M50  Did well d  Sampling  Sample I.I	lewater? Time: 14 D.: Mu-4 for: GRe	7-4 130 50	No ·	Gallons actuall Sampling Date	: 4/z/e	,ų	シ			mg/ <sub>L</sub> .

			····							
BTS #: C	140902-PC	2		Station # Acco	374					
Sampler:				Date: 9/2/04						
Well 1.D	: MW-5			Well Diameter	: 2	3	衉	6	8	
	ell Depth:	<u> </u>		Depth to Wate	r: B.:	79		<del>,,,,,,,,</del>	·····	- *************************************
Depth to	Free Prod	uct:		Thickness of F			(fe	et):	·	<del></del>
Referenc	ed to:	(De	Grade	D.O. Meter (if	req'd)	;		<b>(S)</b>		HACH
	Well Digino	eter			Multiplier		-		7	
	- 1"   2"		0,04 0.16		0.65 1.47					
	3"		0.37		us <sup>1</sup> * 0.163	3				
Purge Meth	od:	Builer		Sampling Method:		Bailer	~	,		
	t	Disposable Bai	iler			sable Bai	ler			
	Posit	ive Air Displa	cement		•	action Po				
		etric Submer		Other:			<b></b>			
		Extraction Pur	որ							
	Other:									
Top of Scre	en:			a no-purge, confirm ise, the well must be			is b	clow tl	he top	)
	0.	<b>"</b> )	#1	lu.	<u> </u>				<del></del>	
	9.		x3		72t.	Gals _	i.			
	I Case Vol	lume (Gals.)	Specified Vo	dumes Cal	culated V	/olume	<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>		·	
		}	Conductivity							
Time	Temp (°F)	pl-I	(mS or uS)	Gals. Removed	Obs	ervation	5			
1334	72.0	8-0	634	9.2	د (ور	z√				
1336	70-2	6.8	616	18.4	J					
1337	wella	evatered	@ 19.5 gal	DTW 20.10=3	treet	well				
1345	70-0	6.8	606							
										<u> </u>
Did well	dewater?	<b>€</b>	No	Gallons actuall	y evac	cuated:	19	-5		
Sampling	Time: 134	5		Sampling Date:	$al_2$	lou				
Sample I.	D.: MU-5			Laboratory:	Pace	Sequo	3	Oth	ier <u> </u>	
Analyzed	for: A	O BLEX	MTBE DRO	Other: seecoc						<u> </u>
D.O. (if re	eq'd):		Pre-purge:	mg/L	P	est-purg	ţe:	`≥,5		<sup>mg</sup> / <sub>L</sub>
O.R.P. (if	<u> </u>		Pre-purge:	mV		ost-purg	æ:			mV
Blaine T	ech Servi	ices, Inc	. 1680 Rogers	Ave., San Jo	se, C	A 951	12	(408)	57	3-0555
								•		

		<del></del>		~							
BTS#:	140902-PC2			Statio	n# Avae	374					
Sampler:				Date:	<i>t</i> ,				······		
Well 1.D.	.: MW-6			Well I	Diameter	r: 2	3	<b>(4)</b>	6	8	
Total We	ell Depth: L	4.54		Depth	to Water	r: 5-7	79				
Depth to	Free Produ			Thick	ness of F	ree Pr	roduct	(fee	t):		, <u>, , , , , , , , , , , , , , , , , , </u>
Reference	ed to:	ER.	Grade	D.O. 1	Meter (if	rea'd)	):		?S)		НАСН
<del></del>	Well Dinmete		Multiplier \	Well Diamete		Multiplier				7	I. E. S. Sarana
	[" 2"		0.04	4"	(	0.65	•				
	3"		0.16 0.37	6" Other		1,47 ius <sup>2</sup> * 0.163	<b>-</b>				
m Rifath.		1¢	U.1 (	Other		<del></del>				_	
Purge Metho		Builer	<u></u>	Samplir	ng Method:		Bailer				
		isposable Bal				1	sable Ba				
		ve Air Displa					oction Pe	ort			
		etric Submer			Other:	·	/				
		xtraction Pur	mp			1					
	Other:										
Top of Scree	en.		If well is listed as a	n northing	e confirm	hat wa	dan laya	مرا مئا:	1 4	tot	
top or bern.	JII		of screen. Otherwi					វ រង្គ បច	low u	ae toj.	)
•	r		Of Soldon, Galory,	.5C, the	en musico	burgen	1.				<del></del> 1
	Ì		x 5	=	/		<b>ታ</b> ኒ .	•			İ
	I Case Volu	····· (Cale)			Cal	1 11 7	Gal	ls.			
·	I Case you	me (Cass.)	Specified Vo	Jumes	Cate	culated V	Volume				
	]		Conductivity					<del></del>			
Time	Temp (°F)	pl-l	(mS or µS)	Gals. I	Removed	Obs	ervation	ns			
	<del>                                     </del>	<del></del>					W	1344			
	<del>                                     </del>		Parkod - No s	- Mpic	taken	<del> </del>					·
	1	Able to	leaster I a	1	ļ	1					
	<del>                                     </del>	HAIR ID	reamono gong	BINETI.		<del></del>		·		····	
	1 1		1		J	ĺ					
	1			-		<del></del>				··	
	1		1	1	1	1					
		<del></del>				ſ <del></del>		<del></del>			
	1		1		]	ł					
Did well o	dewater?	Yes /	No	Gallon	s actually	v evac	nated	•		·	· · · · · · · · · · · · · · · · · · ·
						<del></del>	7	•		<del></del>	
Sampling	Time:			Sampli	ing Date:	: 9/2	/ /9 <sup>ር</sup> ኒ	·			_
Sample f.I	D.: MW-6	/		Labora		Pace	Soquo	ijn	Oth	ier	
Analyzed	for: GRO	BTEX	MTBE DRO	Other:	sed o	^ec_		<u>*</u>			
D.O. (if re	;q'd): /		Pre-purge:		" <sup>(1</sup> /L		ost-par	ge:	<u></u>		mg/
O.R.P. (if	req'd):		Pre-purge:		mV	<b>P</b>	ost-pur	ge:		~~	${ m mV}$
*****							•	~			

# 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 PLAINE 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, 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:

347		
Station #		
Station Address	and	
Station Address		
Total Gallons Collected From Gro	undwater Monite	ring Walle:
Total Canoni Concolor From Cro	andwater Monne	ning wens.
15·k		
added equip.	any other	
rinse water 10	adjustments	
TOTAL GALS.	loaded onto	
RECOVERED 154	BTS vehicle #	52
BTS event#	time	date
OTION OF 100 D	111	9/3/.0
04892 pc2	1400	9/2/64
signature Whan		
	•	
*******		
REC'D AT	time	date
1573		1 1
unloaded by		
signature		

BTS#: 046917-551					Station# 374							
Sampler:	•				Date:	4	linl	04				
Well I.D.		W-6			Well Dia	m <b>e</b> ter	: 2	3	4	6	8	
Total We	ll Depth:				Depth to	Wate	<u> </u>					
Depth to	Free Produ	ıct:			Thicknes	s of F	ree Pi	roduct	(fee	et):		
Reference	ed to:	PVC	(	Grade	D.O. Me	ter (if	req'd)	):		YSI		НАСН
Purge Metho	Well Diamete  1" 2" 3"	Bailer	Multiplier 0.04 0.16 0.37	H	Vell Diameter 4" 6" Other Sampling A	<u>N</u> ( I radju	4ultiplier ).65 1.47 us <sup>2</sup> * 0.16:		<b>y</b>			
• w.g		isposable Bai	iler		p			sable Ba	iler			
	Elec	ve Air Displace ctric Submers extraction Pun	sible	_		Other:	Extr	raction Po				
Top of Scree	en:			- is listed as a en. Otherwi					l is t	elow t	he top	
	1 Case Volt	ume (Gals.)		Specified Vo	= lumes	Calo	culated '	Gal Volume	ls.			
Time	Temp (°F)	pH		ductivity S or μS)	Gals. Ren	noved	Obs	ervatio	ns			AM
<u>Vic</u>	el c	, parle	ed	over.	110	Sim	ple	•				
		(			 							
												<u>, , , , , , , , , , , , , , , , , , , </u>
				· · · · · · · · · · · · · · · · · · ·					·		<del></del>	
Did well	dewater?	Yes	No		Gallons a	ctuall	y <sub>j</sub> eva	cuated	l;			
Sampling	Time:				Sampling	g Date	<i>!</i> :		<del></del>			
Sample I.	D.:				Laborato	ry:	Pace	Sequo	ia	Ot	her	
Analyzed	for: GR	о втех	MTBE	DRO	Other:							
D.O. (if re	eq'd):			Pre-purge:		mg/L	1	Post-pu	rge:			$^{ m mg}/_{ m L}$
O.R.P. (if	reg'd):			Pre-purge:		mV	]	Post-pu	rge:	\		mV

Blaine Tech Services, Inc. 1680 Rogers Ave., San Jose, CA 95112 (408) 573-0555

# 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 RM have been reviewed and verified by that laboratory.



20 September, 2004

Scott Robinson URS Corporation [Arco] 1333 Broadway, Suite 800 Oakland, CA 94612

RE: ARCO #0374, Oakland, CA

Work Order: MNI0165

Enclosed are the results of analyses for samples received by the laboratory on 09/03/04 15:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa Race

Senior Project Manager

CA ELAP Certificate #1210





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419 Project Manager: Scott Robinson MNI0165 Reported: 09/20/04 18:36

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	MNI0165-01	Water	09/02/04 15:15	09/03/04 15:10
MW-2	MNI0165-02	Water	09/02/04 14:35	09/03/04 15:10
MW-3	MNI0165-03	Water	09/02/04 13:22	09/03/04 15:10
MW-4	MNI0165-04	Water	09/02/04 14:50	09/03/04 15:10
MW-5	MNI0165-05	Water	09/02/04 13:45	09/03/04 15:10
TB-37409022004	MNI0165-06	Water	09/02/04 00:00	09/03/04 15:10

The carbon range for the TPH-GRO has been changed from C6-C10 to C4-C12. The carbon range for TPH-DRO has been changed from C10-C28 to C10-C36. EPA 8015B has been modified to better meet the requirements of California regulatory agencies. These samples were received with intact custody seals.





Project: ARCO #0374, Oakland, CA

Project Number. INTRIM-50419 Project Manager. Scott Robinson MNI0165 Reported: 09/20/04 18:36

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

Analyte	Result	Reporting Lamit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (MNI0165-01) Water	Sampled: 09/02/04 15:15	Received:	09/03/04	15:10					
tert-Amyl methyl ether	ND	5.0	ug/l	10	4114004	09/14/04	09/14/04	EPA 8260B	
Benzene	ND	5.0	11	U	11	**	*1	ti	
tert-Butyl alcohol	ND	200	н	IJ	10	19	**	e	
Di-isopropyl ether	ND	5.0	**	19	**	10	*1	e	
1,2-Dibromoethane (EDB)	ND	5.0	н	I#	H	*	*1	u	
1,2-Dichloroethane	ND	5.0	п	H	ŢI.	•	H	U	
Ethanol	ND	1000	*1	19	•	**	*1	n .	
Ethyl tert-butyl ether	ND	5.0	n	Ð	n		H	U	
Ethylbenzene	ND	5.0	ti	ų	n		ti	и	
Methyl tert-butyl ether	660	5.0	n	Į.	H		ŧı	H	
Toluene	ND	5.0	н	R	n	U	ti	n	
Xylenes (total)	ND	5.0	U	IP	н	н	u	II.	
Gasoline Range Organics (C4-		500	u	R	U	Ħ	U		
Surrogate: 1,2-Dichloroethane-		85 %	78-	.129	н	#		11	
MW-2 (MNI0165-02) Water	Sampled: 09/02/04 14:35	Received:	09/03/04	15:10					
tert-Amyl methyl ether	ND	2.5	ug/l	5	4114004	09/14/04	09/14/04	EPA 8260B	
Benzene	ND	2.5	17	11	19	II	u u	17	
tert-Butyl alcohol	ND	100	18	Ħ	u	IJ	19	ta.	
Di-isopropyl ether	ND	2.5	u	<b>#</b> F	IJ	н	P	Я	
1,2-Dibromoethane (EDB)	ND	2.5	10	•	W	H	II .	e	
1.2-Dichloroethane	ND	2.5		H		IJ	D	H	
Ethanol	ND	500	19	Ħ	II.	H	P	н	
Ethyl tert-butyl ether	ND	2.5	It.	н	R	10	n	e	
Ethylbenzene	ND	2.5	P	ti	n	P	n	н	
Methyl tert-butyl ether	67	2.5	IP	H	P	11	11	п	
Toluene	ND	2.5	10	n	IF	11	*1	O	
Xylenes (total)	ND	2.5	41	U	R	#	11	н	
Gasoline Range Organics (C4-C		250	**	B	н	**	41	D	
Surrogate: 1,2-Dichloroethane-	<del></del>	87 %	78-	129	,,	"	"	"	





Project: ARCO #0374, Oakland, CA

Project Number. INTRIM-50419 Project Manager: Scott Robinson MNI0165 Reported: 09/20/04 18:36

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

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MW-3 (MNI0165-03) Water S	ampled: 09/02/04 13:22	Received:	09/03/04	15:10					
tert-Amyl methyl ether	ND	0.50	ug/l	1	4114004	09/14/04	09/14/04	EPA 8260B	
Benzene	ND	0.50	0	11	O	U	Ħ	ri	
tert-Butyl alcohol	ND	20	10	ı	10	IJ	н	i.	
Di-isopropyl ether	ND	0.50	IP	It	IP .	)r	в	II.	
1,2-Dibromoethane (EDB)	ND	0.50	11	Ħ	*1	•	D	ų	
1,2-Dichloroethane	ND	0.50	Ħ	IJ	ti	a	R	t)	
Ethanol	ND	100	n	11		D	**	U	
Ethyl tert-butyl ether	ND	0.50	tr.	10	IF	II.	n	i#	
Ethylbenzene	ND	0.50	н	#	Ħ	**	В	Ü	
Methyl tert-butyl ether	6.5	0.50	H	Ħ	n	tt	If	4I	
Toluene	ND	0.50	н	H	U	п	11	ri	
Xylenes (total)	ND	0.50	11	lt.	P	p	n	it.	
Gasoline Range Organics (C4-C1:	2) ND	50	10	97	н	**	D	it.	
Surrogate: 1,2-Dichloroethane-de	4	91%	78-	129	n	"	"	n	
MW-4 (MNI0165-04) Water S	sampled: 09/02/04 14:50	Received:	09/03/04	15:10					
tert-Amyl methyl ether	ND	1.0	ug/l	2	4114004	09/14/04	09/14/04	EPA 8260B	
Benzene	11	1.0	Ħ	11	Ħ	tt .	10	)f	
tert-Butyl alcohol	ND	40	*1	tt	H	H	18	41	
Di-isopropyl ether	ND	1.0	IJ	и	n	н	11	U	
1,2-Dibromoethane (EDB)	ND	1.0	11	IF	u .	II.	O	IF.	
1,2-Dichloroethane	ND	1.0	P	11	19	n	IP	ji	
Ethanol	ND	200	**	**	tt	q	11	ęl	
Ethyl tert-butyl ether	ND	1.0	U	t)	ti	0	**	n	
Ethylbenzene	5.5	1.0	B	P	II.	v	n	e	
Methyl tert-butyl ether	28	1.0	ır	It	11	n	10	ji .	
Toluene	ND	1.0	ŧŧ	ŧ	Ħ	H	lt	#1	
Xylenes (total)	14	1.0	н	n	ti	U	Ħ	ti	
Gasoline Range Organics (C4-C	112) 260	100	D		н	10	n	10	
Surrogate: 1,2-Dichloroethane-de	4	84 %	7.9	129	**	"	#	"	





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419 Project Manager: Scott Robinson MNI0165 Reported: 09/20/04 18:36

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5 (MNI0165-05) Water	Sampled: 09/02/04 13:45	Received:	09/03/04	15:10					
tert-Amyl methyl ether	ND	0.50	ug/l	1	4114006	09/14/04	09/15/04	EPA 8260B	
Benzene	ND	0.50	U	*1	н	p	**	11	
tert-Butyl alcohol	ND	20	**	P	n	*	*	R	
Di-isopropyl ether	ND	0.50	ji	If	*1	Ħ		R	
1,2-Dibromoethane (EDB)	ND	0.50	R	H	IF	n	IJ	U	
1,2-Dichloroethane	ND	0.50	и	ti	R	41	ш	U	
Ethanol	ND	100	U	Ħ	n	17	**	*1	
Ethyl tert-butyl ether	ND	0.50	ti	**	n	IF	**	н	
Ethylbenzene	ND	0.50	4	R	tt	H		R	
Methyl tert-butyl ether	ND	0.50	D	14	#F	tı	и	T <del>e</del>	
Tolucne	ND	0.50	19	н	17	**	IJ	IJ	
Xylenes (total)	ND	0.50	н	Ħ	H	1r	n	н	
Gasoline Range Organics (C4-0	C12) <u>ND</u>	50	н	**	н	D			
Surrogate: 1,2-Dichloroethane	-d4	89 %	78-	129	"	#	#	rt	





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419
Project Manager: Scott Robinson

MNI0165 Reported: 09/20/04 18:36

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	R'PD Limit	Notes
Batch 4114004 - EPA 5030B P/T		· ···							<u>'</u> '	
Blank (4I14004-BLK1)				Prepared	& Analyze	d: 09/14/0	)4			
tert-Amyl methyl ether	ND	0 50	ug/l							
Benzene	ND	0.50	If							
tert-Butyl alcohol	ND	20	19							
Di-isopropyl ether	ND	0.50	Ħ							
1,2-Dibromoethane (EDB)	ND	0 50	"							
1,2-Dichloroethane	ND	0.50	**							
Ethanol	ND	100	lt .							
Ethyl tert-butyl ether	ND	0.50	19							
Ethylbenzene	ND	0.50	н							
Methyl tert-butyl ether	ND	0.50	**							
Toluene	ND	0.50	lf .							
Xylenes (total)	ND	0.50	19							
Gasoline Range Organics (C4-C12)	ND	50	н							
Surrogate: 1,2-Dichloroethane-d4	2.20		"	2.50		88	78-129			
Laboratory Control Sample (4I14004-BS1)				Prepared	& Analyze	d: 09/14/0	)4			
tert-Amyl methyl ether	9.98	0.50	ug/l	10.0		100	82-140			
Benzene	10.4	0.50	n	10 0		104	69-124			
tert-Butyl alcohol	50.2	20	n	50.0		100	56-131			
Di-isopropyl ether	9.91	0 50	"	10.0		99	76-130			
1,2-Dibromoethane (EDB)	10.6	0.50	17	10.0		106	77-132			
1,2-Dichloroethane	10 3	0.50		10.0		103	77-136			
Ethanol	196	100	н	200		98	31-143			
Ethyl tert-butyl ether	10 5	0.50	"	10.0		105	81-121			
Ethylbenzenc	10.9	0.50	*1	10.0		109	84-132			
Methyl tert-butyl ether	9.43	0.50	P	10.0		94	63-137			
Toluene	10.1	0.50	10	10.0		101	78-129			
Xylenes (total)	33.0	0.50	n	30.0		110	83-137			
Surrogate: 1,2-Dichloroethane-d4	2.23		"	2.50		89	78-129			



Project ARCO #0374, Oakland, CA

Project Number: INTRIM-50419 Project Manager. Scott Robinson MNI0165 Reported: 09/20/04 18:36

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<u> </u>		- Anne								
Batch 4I14004 - EPA 5030B P/T		<del></del>								
Laboratory Control Sample (4114004-BS2)				Prepared a	& Analyze	d: 09/14/0	04			
Benzene	5.73	0 50	ug/l	6.40		90	69-124			
Ethylbenzene	8.48	0.50	**	7.52		113	84-132			
Methyl tert-butyl ether	8.57	0.50	H.	9.92		86	63-137			
Toluene	32.6	0.50	19	31.9		102	78-129			
Xylenes (total)	42 1	0.50	н	36 6		115	83-137			
Gasoline Range Organics (C4-C12)	433	50	*	440		98	70-124			
Surrogate: 1,2-Dichloroethane-d4	2.27		"	2.50		91	78-129			
Laboratory Control Sample Dup (4114004-B	BSD1)	<del></del> :_		Prepared o	& Analyze					
tert-Amyl methyl ether	9.47	0 50	ug/l	10 0		95	82-140	5	20	
Benzene	11.1	0.50	11	10 0		111	69-124	7	20	
tert-Butyl alcohol	48.5	20	D	50.0		97	56-131	3	20	
Di-isopropyl ether	9.60	0.50	Ħ	10.0		96	76-130	3	20	
1,2-Dibromoethane (EDB)	9.72	0.50	н	10.0		97	77-132	9	20	
1,2-Dichloroethane	10.0	0.50	Ħ	10.0		100	77-136	3	20	
Ethanol	214	100	19	200		107	31-143	9	20	
Ethyl tert-butyl ether	10.2	0.50	19	10.0		102	81-121	3	20	
Ethylbenzene	11.0	0.50	Ħ	10.0		110	84-132	0.9	20	
Methyl tert-butyl ether	10.8	0.50	"	10.0		108	63-137	14	20	
Toluene	10.0	0.50	11	10 0		100	78-129	1	20	
Xylenes (total)	33.4	0.50	10	30.0		111	83-137	1	20	
Surrogate: 1,2-Dichloroethane-d4	2.16		"	2.50		86	78-129			
Laboratory Control Sample Dup (4I14004-B	3SD2)			Prepared:	09/14/04	Analyzed	l: 09/15/04			
Benzene	5.74	0.50	ug/l	6.40		90	69-124	0.2	20	_~
Ethylbenzene	8.40	0.50	it.	7.52		112	84-132	09	20	
Methyl tert-butyl ether	8.31	0 50	n	9.92		84	63-137	3	20	
Toluene	32.6	0.50	н	31.9		102	78-129	0	20	
(vienes (total)	41.9	0.50	4	36.6		114	83-137	0.5	20	
Gasoline Range Organics (C4-C12)	382	50	IP	440		87	70-124	13	20	
Surrogate: 1,2-Dichloroethane-d4	2.24		"	2.50		90	78-129		<del></del>	





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419
Project Manager: Scott Robinson

MNI0165 Reported: 09/20/04 18:36

1		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 4114004 - EPA 5030B P/T			·	··- <u></u> ,				·		
Matrix Spike (4I14004-MS1)	Source: M	INI0087-01		Prepared:	09/14/04	Analyzed	l: 09/15/04			
tert-Amyl methyl ether	105	5.0	ug/l	100	ND	105	82-140			
Benzene	111	5.0	D	100	2.8	108	69-124			
tert-Butyl alcohol	548	200	H	500	ND	110	56-131			
Di-isopropyl ether	102	5.0	**	100	ND	102	76-130			
1,2-Dibromoethane (EDB)	112	5.0	"	100	ND	112	77-132			
1,2-Dichloroethane	110	5.0	17	100	ND	110	77-136			
Ethanol	2080	1000	H	2000	ND	104	31-143			
Ethyl tert-butyl ether	109	5.0	4	100	ND	109	81-121			
Ethylbenzene	111	5.0	IP	100	ND	111	84-132			
Methyl tert-butyl ether	322	5.0	Ð	100	230	92	63-137			
Toluene	103	5 0	n	100	1.8	101	78-129			
Xylenes (total)	335	5.0	n	300	ND	112	83-137			
Surrogate: 1,2-Dichloroethane-d4	2.12		"	2.50		85	78-129			
Matrix Spike (4I14004-MS2)	Source: M	INI0051-08		Prepared:	09/14/04	Analyzed	l: 09/17/04			
Matrix Spike (4114004-MS2) Gasoline Range Organics (C4-C12)	Source: M 22700	1N10051-08 2500	ug/l	Prepared: 22000	09/14/04 2600	Analyzec 91	70-124			
			ug/l	<u>-</u>		<u>-</u>				
Gasoline Range Organics (C4-C12)	22700 2.21			22000	2600	91 88	70-124			
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4	22700 2.21	2500		22000	2600	91 88	70-124 78-129	6	20	
Gasoline Range Organics (C4-C12) Surrogate: 1,2-Dichloroethane-d4 Matrix Spike Dup (4114004-MSD1)	22700 2.21 Source: M	2500 1N10087-01	"	22000 2,50 Prepared:	2600 09/14/04	91 88 Analyzed	70-124 78-129 I: 09/15/04	6 5	20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether	22700 2.21 Source: M. 99.0	2500 1N10087-01 5 0	ug/I	22000 2,50 Prepared: 100	2600 09/14/04 ND	91 88 Analyzed	70-124 78-129 1: 09/15/04 82-140			
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether  Benzene	22700 2.21 Source: M 99.0 106	2500 1NI0087-01 5 0 5 0	ug/l	22000 2.50 Prepared: 100 100	2600 09/14/04 ND 2.8	91 88 Analyzed 99 103	70-124 78-129 4: 09/15/04 82-140 69-124	5	20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4114004-MSD1)  tert-Amyl methyl ether  Benzene  tert-Butyl alcohol	22700 2.21 Source: M 99.0 106 570	2500 1NI0087-01 5 0 5 0 200	ug/l	22000 2,50 Prepared: 100 100 500	2600 09/14/04 ND 2.8 ND	91 88 Analyzed 99 103 114	70-124 78-129 1: 09/15/04 82-140 69-124 56-131	5	20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether  Benzene tert-Butyl alcohol  Di-isopropyl ether	22700 2.21 Source: M 99.0 106 570 97.9	2500 1NI0087-01 5 0 5 0 200 5.0	ug/l	22000 2,50 Prepared: 100 100 500 100	2600 09/14/04 ND 2.8 ND ND	91 88 Analyzed 99 103 114 98	70-124 78-129 i: 09/15/04 82-140 69-124 56-131 76-130	5 4 4	20 20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4114004-MSD1)  tert-Amyl methyl ether  Benzene tert-Butyl alcohol Di-isopropyl ether 1,2-Dibromoethane (EDB)	22700 2.21 Source: M 99.0 106 570 97.9 112	2500 1NI0087-01 5 0 5 0 200 5.0 5.0	ug/l	22000 2,50 Prepared: 100 100 500 100 100	2600 09/14/04 ND 2.8 ND ND ND	91 88 Analyzed 99 103 114 98 112	70-124 78-129 1: 09/15/04 82-140 69-124 56-131 76-130 77-132	5 4 4 0	20 20 20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether  Benzene tert-Butyl alcohol  Di-isopropyl ether 1,2-Dibromoethane (EDB) 1,2-Dichloroethane	22700 2.21 Source: M 99.0 106 570 97.9 112 104	2500  INI0087-01  5 0  5 0  200  5.0  5.0  5.0	ug/l	22000 2,50 Prepared: 100 100 500 100 100 100	2600 09/14/04 ND 2.8 ND ND ND ND	91 88 Analyzec 99 103 114 98 112 104	70-124 78-129 1: 09/15/04 82-140 69-124 56-131 76-130 77-132 77-136	5 4 4 0 6	20 20 20 20 20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether  Benzene tert-Butyl alcohol Di-isopropyl ether 1,2-Dibromoethane (EDB) 1,2-Dichloroethane Ethanol	22700 2.21 Source: M 99.0 106 570 97.9 112 104 2140	2500  1NI0087-01  5 0  5 0  200  5.0  5.0  5.0  1000	ug/l " " " " "	22000 2,50 Prepared: 100 100 500 100 100 100 2000	2600 09/14/04 ND 2.8 ND ND ND ND ND	91 88 Analyzed 99 103 114 98 112 104 107	70-124 78-129 8: 09/15/04 82-140 69-124 56-131 76-130 77-132 77-136 31-143	5 4 4 0 6 3	20 20 20 20 20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether  Benzene  tert-Butyl alcohol  Di-isopropyl ether  1,2-Dichloroethane (EDB)  1,2-Dichloroethane  Ethanol  Ethyl tert-butyl ether	22700  2.21  Source: M  99.0  106  570  97.9  112  104  2140  105	2500 1NI0087-01 5 0 5 0 200 5.0 5.0 5.0 1000 5.0	ug/l	22000  2.50  Prepared: 100 100 500 100 100 2000 100	2600 09/14/04 ND 2.8 ND ND ND ND ND ND ND ND ND ND ND ND ND	91 88 Analyzed 99 103 114 98 112 104 107 105	70-124 78-129 i: 09/15/04 82-140 69-124 56-131 76-130 77-132 77-136 31-143 81-121	5 4 4 0 6 3 4	20 20 20 20 20 20 20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4114004-MSD1)  tert-Amyl methyl ether  Benzene  tert-Butyl alcohol  Di-isopropyl ether  1,2-Dibromoethane (EDB)  1,2-Dichloroethane  Ethanol  Ethyl tert-butyl ether  Ethylbenzene	22700  2.21  Source: M  99.0  106  570  97.9  112  104  2140  105  110	2500 1NI0087-01 5 0 5 0 200 5.0 5.0 5.0 1000 5.0 5.0	ug/l	22000  2.50  Prepared: 100 100 500 100 100 2000 100 100 100	2600  09/14/04  ND 2.8  ND ND ND ND ND ND ND ND ND ND ND ND ND	91 88 Analyzed 99 103 114 98 112 104 107 105 110	70-124 78-129 i: 09/15/04 82-140 69-124 56-131 76-130 77-132 77-136 31-143 81-121 84-132	5 4 0 6 3 4 0.9	20 20 20 20 20 20 20 20 20	
Gasoline Range Organics (C4-C12)  Surrogate: 1,2-Dichloroethane-d4  Matrix Spike Dup (4I14004-MSD1)  tert-Amyl methyl ether  Benzene tert-Butyl alcohol Di-isopropyl ether 1,2-Dibromoethane (EDB) 1,2-Dichloroethane Ethanol Ethyl tert-butyl ether Ethylbenzene Methyl tert-butyl ether	22700  2.21  Source: M  99.0  106  570  97.9  112  104  2140  105  110  315	2500  INI0087-01  5 0  5 0  200  5.0  5.0  5.0  5.0  5.0  5.0  5.	ug/l	22000  2,50  Prepared: 100 100 500 100 100 2000 100 100 100 100 100	2600  09/14/04  ND 2.8  ND ND ND ND ND ND ND ND ND ND ND ND ND	91 88 Analyzed 99 103 114 98 112 104 107 105 110 85	70-124 78-129 i: 09/15/04 82-140 69-124 56-131 76-130 77-132 77-136 31-143 81-121 84-132 63-137	5 4 0 6 3 4 0.9 2	20 20 20 20 20 20 20 20 20 20	





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419
Project Manager: Scott Robinson

MNI0165 Reported: 09/20/04 18:36

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4I14004 - EPA 5030B P/T										
Matrix Spike Dup (4I14004-MSD2)	Source: N	1NI0051-08		Prepared:	09/14/04	Analyzed	: 09/17/04			
Gasoline Range Organics (C4-C12)	22800	2500	ug/l	22000	2600	92	70-124	0.4	20	
Surrogate: 1,2-Dichloroethane-d4	2.36		"	2.50		94	78-129			
Batch 4I14006 - EPA 5030B P/T						,			······································	
Blank (4I14006-BLK1)				Prepared	& Analyze	d: 09/14/	04		· 	
tert-Amyl methyl ether	ND	0 50	ug/l						· ·	
Benzene	ND	0 50	н							
tert-Butyl alcohol	ND	20	**							
Di-isopropyl ether	ND	0.50	11							
1,2-Dibromoethane (EDB)	ND	0.50	H							
1,2-Dichloroethane	ND	0.50	10							
Ethanol	ND	100	19							
Ethyl tert-butyl ether	ND	0.50	19							
Ethylbenzene	ND	0 50	U							
Methyl tert-butyl ether	ND	0 50	U							
Toluene	ND	0.50	ti							
Xylenes (total)	ND	0.50	**							
Gasoline Range Organics (C4-C12)	ND	50	**							
Surrogate: 1,2-Dichloroethane-d4	4.75		н	5.00		95	78-129			•
Laboratory Control Sample (4I14006-BS1)				Prepared a	& Analyze	d: 09/14/	04			
tert-Amyl methyl ether	8.94	0.50	ug/l	10.0		89	82-140			
Benzene	9.26	0.50	"	10.0		93	69-124			
tert-Butyl alcohol	47.8	20	В	50.0		96	56-131			
Di-isopropyl ether	8.67	0.50	0	10.0		87	76-130			
1,2-Dibromoethane (EDB)	9.92	0 50	0	10.0		99	77-132			
1,2-Dichloroethane	9.71	0 50	н	10.0		97	77-136			
Ethanol	190	100	er	200		95	31-143			
Ethyl tert-butyl ether	8.94	0 50	**	10.0		89	81-121			
Ethylbenzene	8.75	0.50	41	10.0		88	84-132			
Methyl tert-butyl ether	9.18	0.50	**	10.0		92	63-137			
Toluene	8 82	0.50	**	10.0		88	78-129			
Xylenes (total)	26.1	0.50	lt .	30.0		87	83-137			
Surrogate: 1,2-Dichloroethane-d4	3.58		"	5.00		72	78-129		· · · · · · · · · · · · · · · · · · ·	





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419
Project Manager: Scott Robinson

MNI0165 Reported: 09/20/04 18:36

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
						,0100			2711111	
Batch 4114006 - EPA 5030B P/T									· · ·	
Laboratory Control Sample (4I14006-				Prepared a	& Analyze					
Benzenc	5.32	0.50	ug/l "	6 40		83	69-124			
Ethylbenzene	7.23	0.50	,	7 52		96	84-132			
Methyl tert-butyl ether	8.21	0.50	,	9 92		83	63-137			
Toluene	32.8	0.50	"	31 9		103	78-129			
Xylenes (total)	36.0	0.50		36 6		98	83-137			
Gasoline Range Organics (C4-C12)	359	50		440		82	70-124	· · · · · · · · · · · · · · · · · · ·		
Surrogate: 1,2-Dichloroethane-d4	4.45		"	5.00		89	78-129			
aboratory Control Sample Dup (4114	1006-BSD1)			Prepared a	& Analyze	d: 09/14/0	04			
tert-Amyl methyl ether	8.87	0.50	ug/l	10.0		89	82-140	0.8	20	
Benzene	9.68	0 50	tt	10.0		97	69-124	4	20	
ert-Butyl alcohol	46.7	20	**	50.0		93	56-131	2	20	
Di-isopropyl ether	8.68	0.50	¢1	100		87	76-130	0 1	20	
1,2-Dibromoethane (EDB)	10.0	0 50	*	100		100	77-132	0.8	20	
,2-Dichloroethane	9.89	0 50	11	10.0		99	77-136	2	20	
Ethanol	162	100	10	200		81	31-143	16	20	
Ethyl tert-butyl ether	8.90	0 50	n	10.0		89	81-121	0.4	20	
Ethylbenzene	8.93	0.50	p	10 0		89	84-132	2	20	
Methyl tert-butyl ether	8.95	0 50	11	10.0		90	63-137	3	20	
Toluene	9.30	0.50	19	10.0		93	78-129	5	20	
Xylenes (total)	26.4	0.50	и	30.0		88	83-137	1	20	
Surrogate: 1,2-Dichloroethane-d4	4.43		"	5.00		89	78-129			
Matrix Spike (4114006-MS1)	Source: M	INI0063-03		Prepared &	& Analyze	d: 09/14/0	04			
Веп <b>z</b> епс	537	50	ug/l	640	ND	84	69-124			
Ethylbenzene	720	50	n	752	ND	96	84-132			
Methyl tert-butyl ether	2610	50	н	992	1800	82	63-137			
Toluene	3310	50	n	3190	ND	104	78-129			
Xylenes (total)	3620	50	Ħ	3660	ND	99	83-137			
Gasoline Range Organics (C4-C12)	37500	5000	n	44000	4100	76	70-124			
Surrogate: 1,2-Dichloroethane-d4	4.63		"	5.00		93	78-129			





Project: ARCO #0374, Oakland, CA

Project Number: INTRIM-50419 Project Manager: Scott Robinson MNI0165 Reported: 09/20/04 18:36

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4114006 - EPA 5030B P/T										
Matrix Spike Dup (4I14006-MSD1)	Source: M	N10063-03	<u>-</u>	Prepared a	& Analyze	d: 09/14/	04			
Benzene	566	50	ug/l	640	ND	88	69-124	5	20	
Ethylbenzene	767	50	B	752	ND	102	84-132	6	20	
Methyl tert-butyl ether	2700	50	tt	992	1800	91	63-137	3	20	
Toluene	3500	50	н	3190	ND	110	78-129	6	20	
Xylenes (total)	3790	50	**	3660	ND	104	83-137	5	20	
Gasoline Range Organics (C4-C12)	40100	5000		44000	4100	82	70-124	7	20	
Surrogate: 1,2-Dichloroethane-d4	4.70		"	5.00		94	78-129			





Project ARCO #0374, Oakland, CA

Project Number: INTRIM-50419 Project Manager: Scott Robinson MNI0165 Reported: 09/20/04 18:36

## **Notes and Definitions**

LG Surrogate recovery below the acceptance limits.

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 374 GWM

BP BU/GEM CO Portfolio Retail MUNOS

BP Laboratory Contract Number: Atlantic Richfield Company
Requested Due Date (maddd/yy) 14 day TAT

On-site Time 120 Temp: 805
Off-site Time: 1515 Temp: 805
Sky Conditions: Clear

Sky Conditions: etca.

Meteorological Events: Mone
Wind Speed: Direction:

Send To:						BP/GEM Facility	No.:		ΑĪ	CO3	74							Consu	ltant/	Contrac	clor:	URS			_
Lab Name	: SEQUOIA					BP/GEM Facility.	Addres	s: (	3407	TELI	EGR.	АРН А	VE,	OAKI	ANI	D, C	4						Suite 800	<del></del>	· <del>-</del>
Lab Addre	ss: 885 Jarvis Or.		<u>-</u>			Site ID No.			ARC	O 37	4					-				Daklan					
	Morgan Hill, CA 95	037				Site Lat/Long:												e-mail	EDE	): doni	na co:	SDC:(	@URSCorp.cor	n	
					(	California Global	D#:	$\geq$	TO	30010	0100	3						Солзи	ltaut/	Contrac	tor P	rojec	No.: 35-0000	374.01	00427
Lab PM I	<del></del>					8P/GEM PM Con	act:		PA	UL S	UPPI	LE.											93-3600/510-		58 . ,
Tele/Pax:	408-776-9600 / 408-	782-6308	3			Address:	_ P.C	). Bo	x 65	49								ta					Scott Robinso	_	
Report Ty	pe & QC Level: 1 Send El	DF Report	S				Mo	raga	<u>, CA</u>	9457	0	<u> </u>						17					actor of BP/G		cie ana)
BP/GEM	Account No.:		,,			Tele/Fax:	92	-299	988-0	31/92	5-29	9-8872	:					BP/G	em v	ork Re	elease	No: 1	INTRIM -5041	9	
Lab Bottle	Order No:			Mair	ix				)	Presei	vativ	/CS					Reque	sted A	nalys	is					
Item No.	Sample Description	Time	Soil/Solid	Water/Licuid	Seciments Air	Laboratory No.	No of containers		H. 40.	ENO,		-		GRO / BTEX  D8015/8021   08260	) W/SG	MTBE (8021)	MTBE, TANE, ETBE	122	Ethanol (8260)				Sample Poi Co	nt Lat/f	
11	M 1-1	1515		1		1	<u> ج. ا</u>	<del> </del>		· .	<u>k</u>			_		4	1	1	1		1	<u> </u>	<u> </u>		
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adu	Cools In Dissa Van A	NT_			Tanan	crature Blank Ve	- 24	No			Con	ler Te	mne	era fra re	on!	Rece	inf	OF	C	т	'rin R	lank	Yes / No.		

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

JENT NAME: Arco 374 DATE REC'D AT LAB: 9/3/04

For Requiatory Purposes? CLIENT NAME: DRINKING WATER YES! NO TIME REC'D AT LAB: 1510 (HH) OA REC. BY (PRINT) DATE LOGGED IN: Q/7/O WASTE WATER (YES) NO MINIONOF WORKORDER: (For clients requiring preservation checks at receipt, document here SAMPLE DATE REMARKS: PRESERV CIRCLE THE APPROPRIATE RESPONSE BAJ DASH CONTAINER CLIENT ID MATRIX SAMPLED CONDITION (ETC.) DESCRIPTION ATIVE SAMPLE # 1CI 41204 (Present / Absent NW-1 BOA 3 1. Custody Seal(s) Intact / Broken\* -2 Present/ Absent\* 2. Chain-of-Custody 3. Traffic Reports or Present / Absent Packing List: 18-37-409072004 4. Airbill: Airbill / Sticker KOA 2 Present Absent 5. Airbill #: (Present) Absent 6. Sample Labels: Listed Not Listed 7. Sample IDs: on Chain-of-Custody 8. Sample Condition: Intact PBrokon\*/ Leaking\* 9. Does information on chain-of-custody, traffic reports and sample labels Yes No\* agree? 10. Sample received within (Yes) No\* hold time? 11. Adoquate sample volume Yes No\* received? 12. Proper Preservatives Yes No used? 13. Trip Blank Wemp Blank Received? (Yos /No (circle which, if yos) 14. Temp Rec. at Lab: Yes No" Is temp 4 +/-2°C? (Acceptance range for samples requiring thermal pros.) \*\*Exception (if any): METALS / DFF ON ICE or Problem COC 1F CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.

SRL Revision 6
Replaces Rev 5 (05/07/04)

Page\_\_\_\_of.\_\_\_\_

	ATTACHMENT C	
EDCC REPORT AND ED	F/GEOWELL SUBMI	TTAL CONFIRMATION

# **Electronic Submittal Information**

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## **UPLOADING A GEO WELL FILE**

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

**Submittal Title:** 

3Q04 GEO\_WELL SUBMITTAL SITE

#0374

Submittal Date/Time: 10/8/2004 2:22:04 PM

Confirmation

Number:

1940337955

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CONTACT SITE ADMINISTRATOR.

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#### SUCCESSFUL EDF CHECK - NO ERRORS

**ORGANIZATION NAME:** 

**URS** Corporation-Oakland

Office

USER NAME:

URSCORP-OAKLAND

DATE CHECKED:

GLOBAL ID:

T0600100106

ARCO#0374-EDF-FILE UPLOADED:

MNI0165.zip

No errors were found in your EDF upload file.

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ARCO Regional Board - Case #: 01-0114

6407 TELEGRAPH SAN FRANCISCO BAY RWQCB (REGION 2) -

(BG)

OAKLAND, CA 94609 Local Agency (lead agency) - Case #: 3884

ALAMEDA COUNTY LOP - (RWS)

## SAMPLE DETECTIONS REPORT

- # FIELD POINTS SAMPLED 5 # FIELD POINTS WITH DETECTIONS 2
- # FIELD POINTS WITH WATER SAMPLE DETECTIONS ABOVE MCL SAMPLE MATRIX TYPES WATER

#### METHOD QA/QC REPORT

METHODS USED 8260FA **TESTED FOR REQUIRED ANALYTES?** 

MISSING PARAMETERS NOT TESTED:

- 8260FA REQUIRES DBFM TO BE TESTED
- 8260FA REQUIRES BR4FBZ TO BE TESTED
- 8260FA REQUIRES BZMED8 TO BE TESTED

LAB NOTE DATA QUALIFIERS

Y

## QA/QC FOR 8021/8260 SERIES SAMPLES

0 TECHNICAL HOLDING TIME VIOLATIONS METHOD HOLDING TIME VIOLATIONS 0 LAB BLANK DETECTIONS ABOVE REPORTING DETECTION LIMIT 0 LAB BLANK DETECTIONS 0 DO ALL BATCHES WITH THE 8021/8260 SERIES INCLUDE THE FOLLOWING?

- LAB METHOD BLANK

- MATRIX SPIKE DUPLICATE

- MATRIX SPIKE Υ

- BLANK SPIKE			Υ
- SURROGATE SPIKE			Υ
WATER SAMPLES F	OR 8021/8260 SERIES	<b>;</b>	
	SPIKE DUPLICATE(S) % RE	•	Υ
MATRIX SPIKE / MATRIX	SPIKE DUPLICATE(S) RPD	LESS THAN 30%	Υ
SURROGATE SPIKES % R	ECOVERY BETWEEN 85-11	5%	Υ
BLANK SPIKE / BLANK SP	IKE DUPLICATES % RECOV	/ERY BETWEEN 70-130%	Υ
135% MATRIX SPIKE / MATRIX SURROGATE SPIKES % R	SPIKE DUPLICATE(S) % RE SPIKE DUPLICATE(S) RPD   ECOVERY BETWEEN 70-12: IKE DUPLICATES % RECO\	LESS THAN 30% 5%	n/a n/a n/a n/a
FIELD QC SAMPLES			
<u>SAMPLE</u>	COLLECTED	DETECTIONS > R	EPDL.
QCTB SAMPLES	N	0	
QCEB SAMPLES	N	0	

Logged in as URSCORP-OAKLAND (CONTRACTOR)

CONTACT SITE ADMINISTRATOR.

# **Electronic Submittal Information**

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Confirmation Number: 7523611366

**Date/Time of Submittal:** 10/8/2004 2:09:00 PM

Facility Global ID: T0600100106

**Facility Name: ARCO** 

Submittal Title: 3Q04 GW Monitoring Report Site 0374

Submittal Type: GW Monitoring Report

Click here to view the detections report for this upload.

**ARCO** Regional Board - Case #: 01-0114 6407 TELEGRAPH AVE SAN FRANCISCO BAY RWQCB (REGION 2) - (BG) OAKLAND, CA 94609 Local Agency (lead agency) - Case #: 3884 ALAMEDA COUNTY LOP - (RWS) CONF# QUARTER Q3 2004 7523611366 3Q04 GW Monitoring Report Site 0374 SUBMIT DATE **STATUS** SUBMITTED BY 10/8/2004 PENDING REVIEW Srijesh Thapa SAMPLE DETECTIONS REPORT # FIELD POINTS SAMPLED 5 # FIELD POINTS WITH DETECTIONS 4 # FIELD POINTS WITH WATER SAMPLE DETECTIONS ABOVE MCL 2 SAMPLE MATRIX TYPES WATER METHOD QA/QC REPORT METHODS USED 8260FA TESTED FOR REQUIRED ANALYTES? MISSING PARAMETERS NOT TESTED: - 8260FA REQUIRES DBFM TO BE TESTED - 8260FA REQUIRES BR4FBZ TO BE TESTED - 8260FA REQUIRES BZMED8 TO BE TESTED LAB NOTE DATA QUALIFIERS Υ QA/QC FOR 8021/8260 SERIES SAMPLES TECHNICAL HOLDING TIME VIOLATIONS 0 METHOD HOLDING TIME VIOLATIONS 0 LAB BLANK DETECTIONS ABOVE REPORTING DETECTION LIMIT 0 LAB BLANK DETECTIONS n DO ALL BATCHES WITH THE 8021/8260 SERIES INCLUDE THE FOLLOWING? - LAB METHOD BLANK - MATRIX SPIKE - MATRIX SPIKE DUPLICATE - BLANK SPIKE - SURROGATE SPIKE WATER SAMPLES FOR 8021/8260 SERIES

MATRIX SPIKE / MATRIX SPIKE DUPLICATE(S) % RECOVERY BETWEEN 65-135%

MATRIX SPIKE / MATRIX S	PIKE DUPLICATE(S) RPD LESS	THAN 30%	Υ
SURROGATE SPIKES % RE	COVERY BETWEEN 85-115%		Υ
BLANK SPIKE / BLANK SPI	KE DUPLICATES % RECOVERY	BETWEEN 70-130%	Υ
SOIL SAMPLES FOR	8021/8260 SERIES		
MATRIX SPIKE / MATRIX S	PIKE DUPLICATE(S) % RECOVE	RY BETWEEN 65-135%	n/a
MATRIX SPIKE / MATRIX S	PIKE DUPLICATE(S) RPD LESS	THAN 30%	n/a
•	COVERY BETWEEN 70-125%		n/a
SURROGATE SPIKES % RE	COVERY BETWEEN 70-125% KE DUPLICATES % RECOVERY	BETWEEN 70-130%	n/a n/a
SURROGATE SPIKES % RE BLANK SPIKE / BLANK SPI		BETWEEN 70-130%	
SURROGATE SPIKES % RE		BETWEEN 70-130%  DETECTIONS >	n/a
SURROGATE SPIKES % RE BLANK SPIKE / BLANK SPI FIELD QC SAMPLES	KE DUPLICATES % RECOVERY		n/a
SURROGATE SPIKES % RE BLANK SPIKE / BLANK SPI FIELD QC SAMPLES SAMPLE	KE DUPLICATES % RECOVERY  COLLECTED		n/a

Logged in as URSCORP-OAKLAND (CONTRACTOR)

CONTACT SITE ADMINISTRATOR.