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Don

# C A M B R I A

28 June 2002

Donna Drogos  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Re: **First Quarter 2002 Monitoring Report**  
Shell-branded Service Station  
230 West MacArthur Boulevard  
Oakland, California  
Incident# 98995741  
Cambria Project# 244-0902-002

JUL 08 2002



Dear Ms. Drogos:

Effective March 1, 2002, Equiva Services LLC and Equilon Enterprises LLC are now doing business as (dba) Shell Oil Products US (Shell). On behalf of Shell, Cambria Environmental Technology, Inc. (Cambria) is submitting this groundwater monitoring report in accordance with the reporting requirements of 23 CCR 2652d.

## FIRST QUARTER 2002 ACTIVITIES

**Groundwater Monitoring:** Blaine Tech Services, Inc. (Blaine) of San Jose, California gauged and sampled all site wells, calculated groundwater elevations, and compiled the analytical data. Cambria prepared a groundwater elevation contour map (Figure 1). Blaine's report, presenting the laboratory report, is included as Attachment A.

**Sampling Frequency Increase:** In order to more accurately evaluate chemical concentration trends, Cambria coordinated increasing the site wells' monitoring frequency to the following:

- MW-1: Sample annually in the first quarter,
- MW-2: Sample quarterly,
- MW-3: Sample annually in the first quarter, and
- MW-4: Sample quarterly.

Oakland, CA  
San Ramon, CA  
Sonoma, CA

**Cambria  
Environmental  
Technology, Inc.**

1144 65th Street  
Suite B  
Oakland, CA 94608  
Tel (510) 420-0700  
Fax (510) 420-9170

JUL 08 2002

## ANTICIPATED SECOND QUARTER 2002 ACTIVITIES

**Groundwater Monitoring:** The next sampling event is scheduled for the second quarter of 2002. At that time, Blaine will gauge all wells, sample wells MW-2 and MW-4, and tabulate the data. Cambria will prepare a monitoring report.

**Sensitive Receptor Survey and Offsite Investigation Work Plan:** Cambria is conducting a sensitive receptor survey within a ½-mile radius of the site. The survey will identify hospitals, churches, schools, water producing wells, and utility conduits in the site vicinity. The results of the sensitive receptor survey will help Cambria determine locations around the site where additional subsurface assessment is necessary. The proposed offsite investigation will attempt to show the potential for methyl tert butyl ether (MTBE) impact at any nearby sensitive receptors. Cambria will submit an offsite investigation work plan, including the results of the sensitive receptor survey, in a forthcoming report.

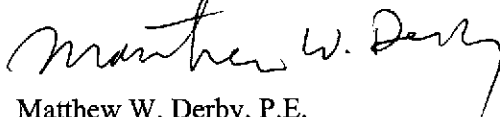
## CLOSING

We appreciate the opportunity to work with you on this project. Please call James Loetterle at (510) 420-3336 if you have any questions or comments.

Sincerely,  
**Cambria Environmental Technology, Inc**



James Loetterle  
Project Geologist



Matthew W. Derby, P.E.  
Senior Project Engineer

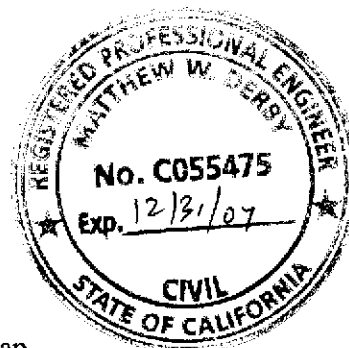


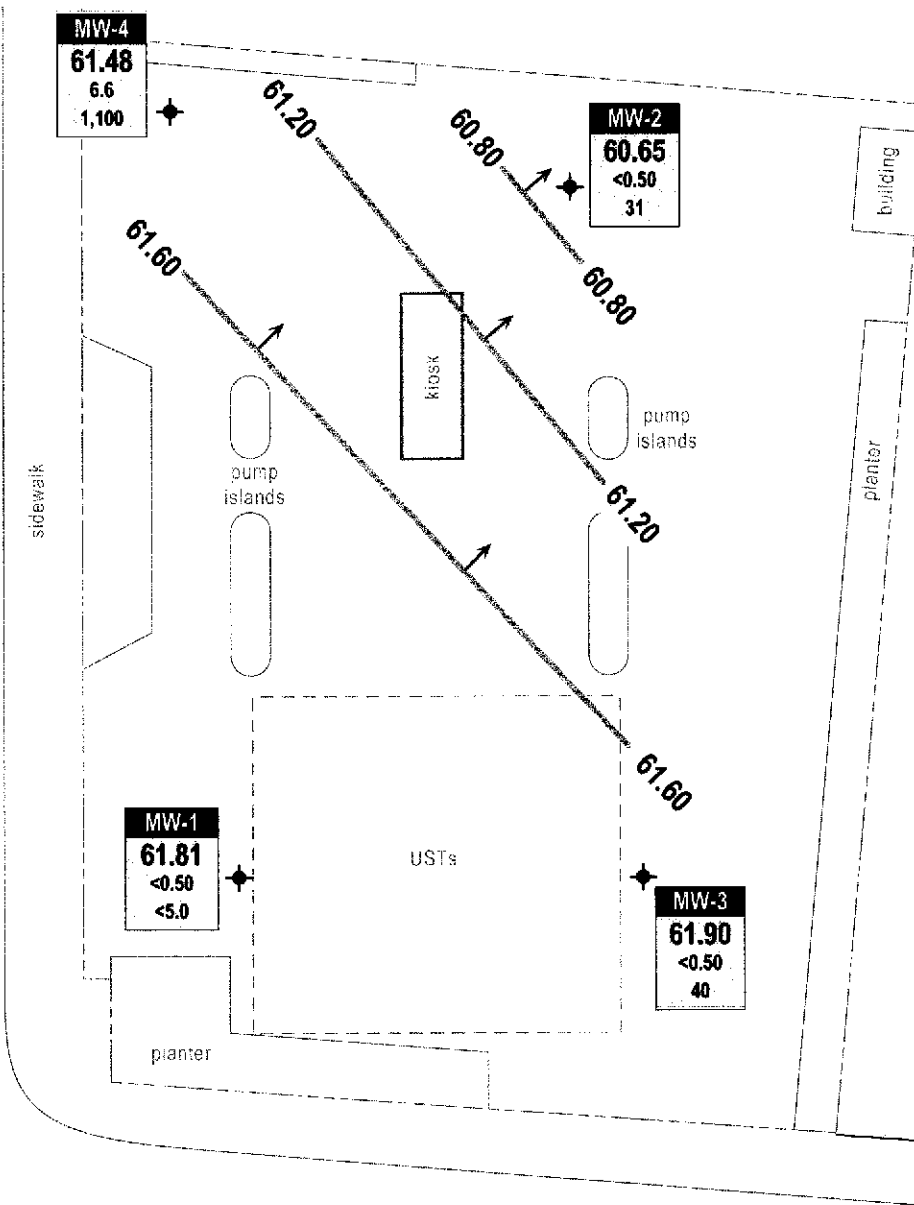
Figure: 1 - Groundwater Elevation Contour Map

Attachment: A - Blaine Groundwater Monitoring Report

cc: Karen Petryna, Shell Oil Products US, P.O. Box 7869, Burbank, California 91501-7869

G:\OAKLAND\230MACARTHUR\FIGURES\10M02-MP.A1

WEST MACARTHUR BOULEVARD



**EXPLANATION**

MW-1 + Monitoring well location

→ Groundwater flow direction

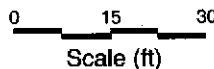
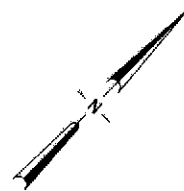
XX.XX Groundwater elevation contour, in feet above mean sea level (msl), approximately located; dashed where inferred

Well Well designation

ELEV Groundwater elevation, in feet above msl

Benzene MTBE Benzene and MTBE concentrations are in parts per billion and are analyzed by EPA Method 8260.

PIEDMONT AVENUE



FIGURE

1

**Shell-branded Service Station**

230 West MacArthur Boulevard  
Oakland, California  
Incident #98995741



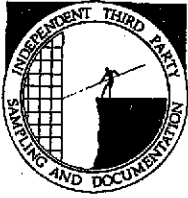
CAMBRIA

**Groundwater Elevation Contour Map**

March 14, 2002

**ATTACHMENT A**  
**Blaine Groundwater Monitoring Report**

BLAINE  
TECH SERVICES INC.



1680 ROGERS AVENUE  
SAN JOSE, CA 95112-1105  
(408) 573-7771 FAX  
(408) 573-0555 PHONE  
CONTRACTOR'S LICENSE #746684  
www.blainetech.com

March 29, 2002

Karen Petryna  
Equiva Services LLC  
P.O. Box 7869  
Burbank, CA 92510-7869

First Quarter 2002 Groundwater Monitoring at  
Shell-branded Service Station  
230 West MacArthur Blvd.  
Oakland, CA

Monitoring performed on March 12 and 14, 2002

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Groundwater Monitoring Report 020314-MM-2

This report covers the routine monitoring of groundwater wells at this Shell-branded facility. In accordance with standard procedures that conform to Regional Water Quality Control Board requirements, routine field data collection includes depth to water, total well depth, thickness of any separate immiscible layer, water column volume, calculated purge volume (if applicable), elapsed evacuation time (if applicable), total volume of water removed (if applicable), and standard water parameter instrument readings. Sample material is collected, contained, stored, and transported to the laboratory in conformance with EPA standards. Purgewater (if applicable) is, likewise, collected and transported to the Martinez Refining Company.

Basic field information is presented alongside analytical values excerpted from the laboratory report in the cumulative table of **WELL CONCENTRATIONS**. The full analytical report for the most recent samples and the field data sheets are attached to this report.

At a minimum, Blaine Tech Services, Inc. field personnel are certified on completion of a forty hour Hazardous Materials and Emergency Response training course per 29 CFR 1910.120. Field personnel are also enrolled in annual eight-hour refresher courses.

Blaine Tech Services, Inc. conducts sampling and documentation assignments of this type as an independent third party. Our activities at this site consisted of objective data and sample collection only. No interpretation of analytical results, defining of hydrological conditions or formulation of recommendations was performed.

Please call if you have any questions.

Yours truly,

Leon Gearhart  
Project Coordinator

LG/mrb

attachments: Cumulative Table of WELL CONCENTRATIONS  
Certified Analytical Report  
Field Data Sheets

cc: Anni Kreml  
Cambria Environmental Technology, Inc.  
1144 65<sup>th</sup> Street, Suite C  
Oakland, CA 94608-2411

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**230 West MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5508-0703**

Well ID	Date	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
MW-1	07/14/1988	ND	ND	ND	ND	ND	NA	NA	73.89	13.30	60.59
MW-1	10/04/1988	ND	8	4.3	ND	9	NA	NA	73.89	13.65	60.24
MW-1	11/10/1988	ND	ND	ND	ND	ND	NA	NA	73.89	13.55	60.34
MW-1	12/09/1988	ND	ND	ND	ND	ND	NA	NA	73.89	13.22	60.67
MW-1	01/10/1989	ND	ND	ND	ND	NA	NA	NA	73.89	12.86	61.03
MW-1	01/20/1989	ND	ND	NA	NA	ND	NA	NA	73.89	12.91	60.98
MW-1	02/06/1989	ND	ND	ND	ND	ND	NA	NA	73.89	12.94	60.95
MW-1	03/10/1989	ND	ND	ND	ND	ND	NA	NA	73.89	12.59	61.30
MW-1	06/06/1989	ND	ND	ND	ND	ND	NA	NA	73.89	14.05	59.84
MW-1	09/07/1989	ND	ND	ND	ND	ND	NA	NA	73.89	14.92	58.97
MW-1	12/18/1989	ND	ND	ND	ND	ND	NA	NA	73.89	14.88	59.01
MW-1	03/08/1990	ND	ND	ND	ND	ND	NA	NA	73.89	14.08	59.81
MW-1	06/07/1990	ND	ND	ND	ND	ND	NA	NA	73.89	13.89	60.00
MW-1	09/05/1990	ND	ND	ND	ND	ND	NA	NA	73.89	14.83	59.06
MW-1	12/03/1990	ND	ND	ND	ND	ND	NA	NA	73.89	15.05	58.84
MW-1	03/01/1991	ND	ND	ND	ND	ND	NA	NA	73.89	14.34	59.55
MW-1	06/03/1991	ND	ND	ND	ND	ND	NA	NA	73.89	14.16	59.73
MW-1	09/04/1991	ND	ND	ND	ND	ND	NA	NA	73.89	14.60	59.29
MW-1	03/13/1992	ND	ND	ND	ND	ND	NA	NA	73.89	13.40	60.49
MW-1	06/03/1992	ND	ND	ND	ND	ND	NA	NA	73.89	13.76	60.13
MW-1	08/19/1992	87	ND	ND	ND	ND	NA	NA	73.89	14.57	59.32
MW-1	11/16/1992	ND	ND	ND	ND	ND	NA	NA	73.89	14.78	59.11
MW-1	02/18/1993	59a	ND	ND	ND	ND	NA	NA	73.89	12.14	61.75
MW-1	06/01/1993	ND	ND	ND	ND	ND	NA	NA	73.89	13.30	60.59
MW-1	08/30/1993	ND	ND	ND	ND	ND	NA	NA	73.89	14.32	59.57

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**Oakland, CA**  
**Wic #204-5508-0703**

Well ID	Date	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
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MW-1	12/13/1993	ND	ND	ND	ND	ND	NA	NA	73.89	14.06	59.83
MW-1	03/03/1994	100	ND	ND	ND	ND	NA	NA	73.89	13.12	60.77
MW-1	06/06/1994	ND	ND	ND	ND	ND	NA	NA	73.89	14.20	59.69
MW-1	09/12/1994	ND	ND	ND	ND	ND	NA	NA	73.89	15.72	58.17
MW-1	12/15/1994	ND	ND	ND	ND	ND	NA	NA	73.89	12.98	60.91
MW-1	3/13/1995 b	60	4.7	9.8	ND	2.9	NA	NA	73.89	11.74	62.15
MW-1	04/21/1995	ND	ND	ND	ND	ND	NA	NA	73.89	NA	NA
MW-1	06/26/1995	ND	ND	ND	ND	ND	NA	NA	73.89	13.00	60.89
MW-1	09/12/1995	ND	ND	ND	ND	ND	NA	NA	73.89	14.14	59.75
MW-1	03/21/1996	<50	<0.5	<0.5	<0.5	<0.5	ND	NA	73.89	11.03	62.86
MW-1	06/28/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	73.89	13.53	60.36
MW-1	09/19/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	73.89	14.33	59.56
MW-1	12/19/1996	NA	NA	NA	NA	NA	NA	NA	73.89	13.20	60.69
MW-1	12/05/1997	NA	NA	NA	NA	NA	NA	NA	73.89	12.39	61.50
MW-1	12/24/1998	NA	NA	NA	NA	NA	NA	NA	73.89	13.59	60.30
MW-1	12/23/1999	NA	NA	NA	NA	NA	NA	NA	73.89	15.63	58.26
MW-1	12/11/2000	NA	NA	NA	NA	NA	NA	NA	73.89	15.36	58.53
MW-1	12/27/2001	NA	NA	NA	NA	NA	NA	NA	73.89	12.09	61.80
MW-1	03/12/2002	NA	NA	NA	NA	NA	NA	NA	73.89	12.33	61.56
MW-1	03/14/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	<5.0	73.89	12.08	61.81

MW-2	07/14/1988	ND	7.9	2.6	1.1	4	NA	NA	75.24	15.18	60.06
MW-2	10/04/1988	90	ND	1.3	2.3	12	NA	NA	75.24	15.30	59.94
MW-2	11/10/1988	ND	ND	ND	ND	2	NA	NA	75.24	15.17	60.07
MW-2	12/09/1988	ND	ND	0.6	ND	3	NA	NA	75.24	14.82	60.42
MW-2	01/20/1989	ND	ND	ND	ND	ND	NA	NA	75.24	14.54	60.70



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MW-2	02/06/1989	NA	ND	ND	ND	ND	NA	NA	75.24	14.59	60.65
MW-2	03/10/1989	ND	ND	ND	ND	ND	NA	NA	75.24	14.88	60.36
MW-2	06/06/1989	ND	ND	0.5	ND	ND	NA	NA	75.24	15.30	59.94
MW-2	09/07/1989	ND	ND	ND	ND	ND	NA	NA	75.24	16.76	58.48
MW-2	12/18/1989	ND	ND	ND	ND	ND	NA	NA	75.24	16.65	58.59
MW-2	03/08/1990	ND	ND	ND	ND	ND	NA	NA	75.24	15.92	59.32
MW-2	06/07/1990	ND	ND	ND	ND	ND	NA	NA	75.24	16.10	59.14
MW-2	09/05/1990	ND	ND	ND	ND	ND	NA	NA	75.24	16.61	58.63
MW-2	12/03/1990	ND	ND	ND	ND	ND	NA	NA	75.24	17.06	58.18
MW-2	03/01/1991	ND	ND	ND	ND	ND	NA	NA	75.24	16.62	58.62
MW-2	06/03/1991	ND	ND	ND	ND	ND	NA	NA	75.24	16.65	58.59
MW-2	09/04/1991	ND	ND	ND	ND	ND	NA	NA	75.24	16.57	58.67
MW-2	03/13/1992	ND	ND	ND	ND	ND	NA	NA	75.24	14.66	60.58
MW-2	06/03/1992	ND	ND	ND	ND	ND	NA	NA	75.24	15.90	59.34
MW-2	08/19/1992	67	ND	ND	ND	ND	NA	NA	75.24	16.72	58.52
MW-2	11/16/1992	50	ND	ND	ND	1.2	NA	NA	75.24	16.66	58.58
MW-2	02/18/1993	52a	ND	ND	ND	ND	NA	NA	75.24	13.88	61.36
MW-2 (D)	02/18/1993	52a	ND	ND	ND	ND	NA	NA	75.24	13.88	61.36
MW-2	06/01/1993	ND	ND	ND	ND	ND	NA	NA	75.24	14.74	60.50
MW-2	08/30/1993	70a	ND	ND	ND	ND	NA	NA	75.24	15.85	59.39
MW-2	12/13/1993	68a	ND	ND	ND	ND	NA	NA	75.24	15.83	59.41
MW-2	03/03/1994	280a	ND	ND	ND	ND	NA	NA	75.24	14.80	60.44
MW-2	06/06/1994	ND	ND	ND	ND	ND	NA	NA	75.24	16.65	58.59
MW-2	09/12/1994	ND	ND	ND	ND	ND	NA	NA	75.24	16.72	58.52
MW-2	12/15/1994	230a	ND	ND	ND	ND	NA	NA	75.24	15.25	59.99
MW-2	03/13/1995	ND	2.9	6.3	ND	2.7	NA	NA	75.24	15.32	59.92

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Well ID	Date	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
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MW-2	04/21/1995	ND	ND	ND	ND	ND	NA	NA	75.24	NA	NA
MW-2	06/26/1995	ND	ND	ND	ND	ND	NA	NA	75.24	14.65	60.59
MW-2	09/12/1995	ND	ND	ND	ND	ND	NA	NA	75.24	15.78	59.46
MW-2	03/21/1996	<50	<0.5	<0.5	<0.5	<0.5	ND	NA	75.24	12.72	62.52
MW-2	06/28/1996	<50	<0.5	<0.5	<0.5	<0.5	160	NA	75.24	14.95	60.29
MW-2	09/19/1996	<50	<0.5	<0.5	<0.5	<0.5	27	NA	75.24	15.64	59.60
MW-2	12/19/1996	NA	NA	NA	NA	NA	NA	NA	75.24	14.47	60.77
MW-2	12/05/1997	NA	NA	NA	NA	NA	NA	NA	75.24	14.22	61.02
MW-2	12/24/1998	NA	NA	NA	NA	NA	NA	NA	75.24	14.97	60.27
MW-2	12/23/1999	NA	NA	NA	NA	NA	NA	NA	75.24	16.07	59.17
MW-2	12/11/2000	NA	NA	NA	NA	NA	NA	NA	75.24	15.78	59.46
MW-2	12/27/2001	NA	NA	NA	NA	NA	NA	95	75.24	14.25	60.99
<b>MW-2</b>	<b>03/14/2002</b>	<b>120</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>NA</b>	<b>31</b>	<b>75.24</b>	<b>14.59</b>	<b>60.65</b>

MW-3	07/14/1988	ND	ND	ND	ND	ND	NA	NA	74.68	14.05	60.63
MW-3	10/04/1988	ND	ND	ND	ND	5	NA	NA	74.68	14.60	60.08
MW-3	11/10/1988	ND	ND	ND	ND	ND	NA	NA	74.68	14.35	60.33
MW-3	12/09/1988	ND	ND	ND	ND	ND	NA	NA	74.68	14.04	60.64
MW-3	01/10/1989	ND	ND	ND	ND	NA	NA	NA	74.68	13.70	60.98
MW-3	01/20/1989	NA	NA	ND	ND	ND	NA	NA	74.68	13.72	60.96
MW-3	02/06/1989	70	ND	ND	ND	ND	NA	NA	74.68	13.75	60.93
MW-3	03/10/1989	150	ND	ND	ND	ND	NA	NA	74.68	13.42	61.26
MW-3	06/06/1989	ND	ND	ND	ND	ND	NA	NA	74.68	14.52	60.16
MW-3	09/07/1989	ND	0.65	ND	ND	ND	NA	NA	74.68	15.52	59.16
MW-3	12/18/1989	46	1.3	ND	0.44	0.66	NA	NA	74.68	19.59	55.09
MW-3	03/08/1990	ND	ND	ND	ND	ND	NA	NA	74.68	14.72	59.96

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**Shell-branded Service Station**  
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**Wic #204-5508-0703**

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MW-3	06/07/1990	ND	ND	ND	ND	ND	NA	NA	74.68	14.65	60.03
MW-3	09/05/1990	ND	ND	ND	ND	ND	NA	NA	74.68	15.51	59.17
MW-3	12/03/1990	ND	ND	ND	ND	ND	NA	NA	74.68	14.85	59.83
MW-3	03/01/1991	1.9	59	ND	22	ND	NA	NA	74.68	14.92	59.76
MW-3	06/03/1991	ND	ND	ND	ND	ND	NA	NA	74.68	14.75	59.93
MW-3	09/04/1991	ND	ND	ND	ND	ND	NA	NA	74.68	15.14	59.54
MW-3	03/13/1992	ND	ND	ND	ND	ND	NA	NA	74.68	13.50	61.18
MW-3	06/03/1992	ND	ND	ND	ND	ND	NA	NA	74.68	14.39	60.29
MW-3	08/19/1992	92	ND	ND	ND	ND	NA	NA	74.68	15.08	59.60
MW-3 (D)	08/19/1992	76	ND	ND	ND	ND	NA	NA	74.68	15.08	59.60
MW-3	11/16/1992	200a	ND	ND	ND	ND	NA	NA	74.68	15.43	59.25
MW-3 (D)	11/16/1992	140a	ND	ND	ND	ND	NA	NA	74.68	15.43	59.25
MW-3	02/18/1993	680a	ND	ND	ND	ND	NA	NA	74.68	12.96	61.72
MW-3	06/01/1993	160a	ND	ND	ND	ND	NA	NA	74.68	13.98	60.70
MW-3 (D)	06/01/1993	150a	ND	ND	ND	ND	NA	NA	74.68	13.98	60.70
MW-3	08/30/1993	110a	ND	ND	ND	ND	NA	NA	74.68	14.82	59.86
MW-3	12/13/1993	140a	ND	ND	ND	ND	NA	NA	74.68	14.70	59.98
MW-3 (D)	12/13/1993	110a	ND	ND	ND	ND	NA	NA	74.68	14.70	59.98
MW-3	03/03/1994	61a	ND	ND	ND	ND	NA	NA	74.68	13.92	60.76
MW-3	06/06/1994	ND	ND	ND	ND	ND	NA	NA	74.68	14.73	59.95
MW-3	09/12/1994	ND	ND	ND	ND	ND	NA	NA	74.68	15.42	59.26
MW-3	12/15/1994	ND	ND	0.9	ND	0.6	NA	NA	74.68	13.80	60.88
MW-3	03/13/1995	100a	7.9	17	0.7	6.1	NA	NA	74.68	12.41	62.27
MW-3	04/21/1995	60	0.9	1.1	ND	1	NA	NA	74.68	NA	NA
MW-3	06/26/1995	ND	ND	ND	ND	ND	NA	NA	74.68	13.79	60.89
MW-3	09/12/1995 b	ND	ND	ND	ND	ND	NA	NA	74.68	14.77	59.91

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**Oakland, CA**  
**Wic #204-5508-0703**

Well ID	Date	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
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MW-3	03/21/1996	<50	<0.5	<0.5	<0.5	<0.5	17	NA	74.68	11.80	62.88
MW-3	06/28/1996	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	74.68	14.19	60.49
MW-3	09/19/1996	<50	<0.5	<0.5	<0.5	<0.5	<2.5	NA	74.68	14.85	59.83
MW-3	12/19/1996	NA	NA	NA	NA	NA	NA	NA	74.68	13.61	61.07
MW-3	12/05/1997	NA	NA	NA	NA	NA	NA	NA	74.68	13.16	61.52
MW-3	12/24/1998	NA	NA	NA	NA	NA	NA	NA	74.68	14.08	60.60
MW-3	12/23/1999	NA	NA	NA	NA	NA	NA	NA	74.68	15.92	58.76
MW-3	12/11/2000	NA	NA	NA	NA	NA	NA	NA	74.68	15.31	59.37
MW-3	12/27/2001	NA	NA	NA	NA	NA	NA	NA	74.68	12.84	61.84
MW-3	03/12/2002	NA	NA	NA	NA	NA	NA	NA	74.68	12.54	62.14
MW-3	03/14/2002	<50	<0.50	<0.50	<0.50	<0.50	NA	40	74.68	12.78	61.90

MW-4	01/23/1990	1,600	100	10	30	20	NA	NA	73.83	14.68	59.15
MW-4	03/08/1990	4,200	260	18	88	39	NA	NA	73.83	14.38	59.45
MW-4	06/07/1990	2,000	150	6.9	14	17	NA	NA	73.83	14.27	59.56
MW-4	09/05/1990	1,700	130	10	7.2	19	NA	NA	73.83	15.40	58.43
MW-4	12/03/1990	2,600	108	41	17	59	NA	NA	73.83	15.90	57.93
MW-4	06/03/1991	2,800	160	15	8.8	32	NA	NA	73.83	14.60	59.23
MW-4	09/04/1991	Sheen	NA	NA	NA	NA	NA	NA	73.83	15.25	58.58
MW-4	03/13/1992	2,700	180	70	5.9	29	NA	NA	73.83	12.72	61.11
MW-4	06/03/1992	1,700	190	ND	30	23	NA	NA	73.83	14.33	59.50
MW-4	08/19/1992	170	4.2	ND	0.6	1	NA	NA	73.83	15.18	58.65
MW-4	11/16/1992	2,600	92	49	50	81	NA	NA	73.83	15.39	58.44
MW-4	02/18/1993	7,400	120	38	51	87	NA	NA	73.83	12.62	61.21
MW-4	06/01/1993	7,000	1,800	1,700	1,600	1,700	NA	NA	73.83	13.68	60.15
MW-4	08/30/1993	2,100	80	11	ND	11	NA	NA	73.83	14.83	59.00

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**230 West MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5508-0703**

Well ID	Date	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
MW-4 (D)	08/30/1993	2,100	77	5.6	ND	5.5	NA	NA	73.83	14.83	59.00
MW-4	12/13/1993	2,000a	20	ND	21	52	NA	NA	73.83	14.50	59.33
MW-4	03/03/1994	3,500	150	86	85	90	NA	NA	73.83	13.48	60.35
MW-4 (D)	03/03/1994	3,200	130	73	74	76	NA	NA	73.83	13.48	60.35
MW-4	06/06/1994	590	25	ND	ND	ND	NA	NA	73.83	14.26	59.57
MW-4 (D)	06/06/1994	400	16	ND	ND	ND	NA	NA	73.83	14.26	59.57
MW-4	09/12/1994	1,800	42	ND	3.7	4.7	NA	NA	73.83	15.42	58.41
MW-4 (D)	09/12/1994	2,000	40	ND	5.7	8	NA	NA	73.83	15.42	58.41
MW-4	12/15/1994	2,900	78	14	94	17	NA	NA	73.83	13.43	60.40
MW-4 (D)	12/15/1994	2,900	90	7	96	18	NA	NA	73.83	13.43	60.40
MW-4	03/13/1995	2,700	240	24	99	34	NA	NA	73.83	12.13	61.70
MW-4 (D)	03/13/1995	2,500	300	24	140	28	NA	NA	73.83	12.13	61.70
MW-4	06/25/1995	2,100	87	10	67	25	NA	NA	73.83	13.26	60.57
MW-4 (D)	06/25/1995	2,300	92	12	74	26	NA	NA	73.83	13.26	60.57
MW-4	09/12/1995 b	1,300	33	13	9.3	15	NA	NA	73.83	14.64	59.19
MW-4 (D)	09/12/1995 b	1,500	2.1	16	11	17	NA	NA	73.83	14.64	59.19
MW-4	03/21/1996	2,100	50	3.2	40	5.4	ND	NA	73.83	11.55	62.28
MW-4 (D)	03/21/1996	1,700	24	<0.5	39	7.2	740	NA	73.83	11.55	62.28
MW-4	06/28/1996	1,300	61	6.2	53	11	1,000	NA	73.83	13.86	59.97
MW-4 (D)	06/28/1996	1,200	29	6.2	50	8.3	1,000	NA	73.83	13.86	59.97
MW-4	09/19/1996	820	12	<2.5	2.8	4.3	720	NA	73.83	14.72	59.11
MW-4 (D)	09/19/1996	580	9.6	<2.5	<2.5	<2.5	760	1,200	73.83	14.72	59.11
MW-4	12/19/1996	1,200	28	<5.0	<5.0	<5.0	<25	NA	73.83	13.06	60.77
MW-4	12/05/1997	1,900	36	9	16	18	630	NA	73.83	12.89	60.94
MW-4	12/24/1998	1,100	23	5.3	38	7.9	1,100	NA	73.83	13.92	59.91
MW-4	12/17/1999	1,100	22	21	13	11	3,800	3,200	73.83	14.28	59.55

**WELL CONCENTRATIONS**  
**Shell-branded Service Station**  
**230 West MacArthur Boulevard**  
**Oakland, CA**  
**Wic #204-5508-0703**

Well ID	Date	TPHg (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	MTBE 8020 (ug/L)	MTBE 8260 (ug/L)	TOC (MSL)	Depth to Water (ft.)	GW Elevation (MSL)
MW-4	12/23/1999	NA	NA	NA	NA	NA	NA	NA	73.83	16.24	57.59
MW-4	12/11/2000	975	25.0	11.3	<5.00	<5.00	1960	1730c	73.83	14.15	59.68
MW-4	12/27/2001	2,000	9.9	<5.0	18	<5.0	NA	1,400	73.83	12.61	61.22
<b>MW-4</b>	<b>03/14/2002</b>	<b>1,700</b>	<b>6.6</b>	<b>&lt;2.0</b>	<b>2.1</b>	<b>2.1</b>	<b>NA</b>	<b>1,100</b>	<b>73.83</b>	<b>12.35</b>	<b>61.48</b>

Abbreviations:

TPHG = Total petroleum hydrocarbons as gasoline by EPA Method 8260B; prior to December 27, 2001, by EPA Method 8015.

BTEX = Benzene, toluene, ethylbenzene, xylenes by EPA Method 8260B; prior to December 27, 2001, by EPA Method 8020.

MTBE = Methyl-tertiary-butyl ether

TOC = Top of Casing Elevation

GW = Groundwater

ug/L = Parts per billion

msl = Mean sea level

ft = Feet

<n = Below detection limit

D = Duplicate sample

ND = Not detected at or above the quantitative limit.

NA = Not applicable

Notes:

a = Chromatogram pattern indicates the presence of an unidentified hydrocarbon.

b = The laboratory noted the sample was analyzed after the method specified holding time.

c = This sample was analyzed outside of EPA recommended hold time.



Report Number : 25349

Date : 3/26/2002

Leon Gearhart  
Blaine Tech Services  
1680 Rogers Avenue  
San Jose, CA 95112-1105

Subject : 4 Water Samples  
Project Name : 230 W. MacArthur Blvd., Oakland  
Project Number : 020314-MM2  
P.O. Number : 98995741

Dear Mr. Gearhart,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,



Joel Kiff



Report Number : 25349

Date : 3/26/2002

Project Name : 230 W. MacArthur Blvd., Oakland

Project Number : 020314-MM2

Sample : MW-1

Matrix : Water

Lab Number : 25349-01

Sample Date : 3/14/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	3/20/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/20/2002
Toluene - d8 (Surr)	98.9		% Recovery	EPA 8260B	3/20/2002
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	3/20/2002

Approved By:  Joel Kiff





Report Number : 25349

Date : 3/26/2002

Project Name : 230 W. MacArthur Blvd., Oakland

Project Number : 020314-MM2

Sample : MW-2

Matrix : Water

Lab Number : 25349-02

Sample Date : 3/14/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Methyl-t-butyl ether (MTBE)	31	5.0	ug/L	EPA 8260B	3/19/2002
TPH as Gasoline	120	50	ug/L	EPA 8260B	3/19/2002
Toluene - d8 (Surr)	93.3		% Recovery	EPA 8260B	3/19/2002
4-Bromofluorobenzene (Surr)	100		% Recovery	EPA 8260B	3/19/2002

Approved By:  Joel Kiff



Report Number : 25349

Date : 3/26/2002

Project Name : 230 W. MacArthur Blvd., Oakland

Project Number : 020314-MM2

Sample : MW-3

Matrix : Water

Lab Number : 25349-03

Sample Date :3/14/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/22/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/22/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/22/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/22/2002
Methyl-t-butyl ether (MTBE)	40	5.0	ug/L	EPA 8260B	3/22/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/22/2002
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	3/22/2002
4-Bromofluorobenzene (Surr)	95.2		% Recovery	EPA 8260B	3/22/2002

Approved By:  Joel Kiff



Report Number : 25349

Date : 3/26/2002

Project Name : 230 W. MacArthur Blvd., Oakland

Project Number : 020314-MM2

Sample : MW-4

Matrix : Water

Lab Number : 25349-04

Sample Date :3/14/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	6.6	2.0	ug/L	EPA 8260B	3/23/2002
Toluene	< 2.0	2.0	ug/L	EPA 8260B	3/23/2002
Ethylbenzene	2.1	2.0	ug/L	EPA 8260B	3/23/2002
Total Xylenes	2.1	2.0	ug/L	EPA 8260B	3/23/2002
Methyl-t-butyl ether (MTBE)	1100	20	ug/L	EPA 8260B	3/23/2002
TPH as Gasoline	1700	200	ug/L	EPA 8260B	3/23/2002
Toluene - d8 (Surr)	93.2		% Recovery	EPA 8260B	3/23/2002
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	3/23/2002

Approved By:  Joel Kiff

Report Number : 25349

Date : 3/26/2002

**QC Report : Method Blank Data**

**Project Name : 230 W. MacArthur Blvd., Oakland**

**Project Number : 020314-MM2**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	3/20/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/20/2002
Toluene - d8 (Surr)	104		%	EPA 8260B	3/20/2002
4-Bromofluorobenzene (Surr)	92.2		%	EPA 8260B	3/20/2002
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/20/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	3/20/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/20/2002
Toluene - d8 (Surr)	98.7		%	EPA 8260B	3/20/2002
4-Bromofluorobenzene (Surr)	101		%	EPA 8260B	3/20/2002
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/18/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/18/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/18/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/18/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	3/18/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/18/2002
Toluene - d8 (Surr)	93.6		%	EPA 8260B	3/18/2002
4-Bromofluorobenzene (Surr)	100		%	EPA 8260B	3/18/2002

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Toluene	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	3/19/2002
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	3/19/2002
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	3/19/2002
Toluene - d8 (Surr)	104		%	EPA 8260B	3/19/2002
4-Bromofluorobenzene (Surr)	99.3		%	EPA 8260B	3/19/2002

Approved By:  Joel Kiff

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

## QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : 230 W. MacArthur Blvd.,

Project Number : 020314-MM2

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Benzene	25393-05	<0.50	40.0	40.0	39.6	38.3	ug/L	EPA 8260B	3/20/02	98.9	95.8	3.16	70-130	25
Toluene	25393-05	<0.50	40.0	40.0	43.7	42.4	ug/L	EPA 8260B	3/20/02	109	106	3.16	70-130	25
Tert-Butanol	25393-05	<5.0	200	200	199	201	ug/L	EPA 8260B	3/20/02	99.4	100	1.12	70-130	25
Methyl-t-Butyl Ether	25393-05	0.97	40.0	40.0	36.0	35.2	ug/L	EPA 8260B	3/20/02	87.6	85.5	2.48	70-130	25
Benzene	25349-01	<0.50	40.0	40.0	37.3	36.8	ug/L	EPA 8260B	3/20/02	93.2	92.0	1.27	70-130	25
Toluene	25349-01	<0.50	40.0	40.0	37.8	37.3	ug/L	EPA 8260B	3/20/02	94.4	93.2	1.28	70-130	25
Tert-Butanol	25349-01	<5.0	200	200	182	178	ug/L	EPA 8260B	3/20/02	90.9	89.2	1.90	70-130	25
Methyl-t-Butyl Ether	25349-01	2.0	40.0	40.0	38.5	37.4	ug/L	EPA 8260B	3/20/02	91.3	88.6	3.03	70-130	25
Benzene	25378-03	<0.50	40.0	40.0	42.5	42.0	ug/L	EPA 8260B	3/19/02	106	105	1.18	70-130	25
Toluene	25378-03	<0.50	40.0	40.0	40.5	39.8	ug/L	EPA 8260B	3/19/02	101	99.5	1.82	70-130	25
Tert-Butanol	25378-03	<5.0	200	200	208	213	ug/L	EPA 8260B	3/19/02	104	106	1.98	70-130	25
Methyl-t-Butyl Ether	25378-03	<0.50	40.0	40.0	34.2	34.8	ug/L	EPA 8260B	3/19/02	85.5	87.0	1.71	70-130	25
Benzene	25379-01	<0.50	40.0	40.0	43.1	41.4	ug/L	EPA 8260B	3/20/02	108	104	3.90	70-130	25
Toluene	25379-01	<0.50	40.0	40.0	44.3	43.2	ug/L	EPA 8260B	3/20/02	111	108	2.65	70-130	25
Tert-Butanol	25379-01	<5.0	200	200	199	209	ug/L	EPA 8260B	3/20/02	99.7	104	4.68	70-130	25
Methyl-t-Butyl Ether	25379-01	<0.50	40.0	40.0	41.1	39.8	ug/L	EPA 8260B	3/20/02	103	99.4	3.22	70-130	25

KIFF ANALYTICAL, LLC

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

Approved By:  Joel Kiff

## QC Report : Laboratory Control Sample (LCS)

Project Name : 230 W. MacArthur Blvd.,

Project Number : 020314-MM2

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	3/20/02	98.3	70-130
Toluene	40.0	ug/L	EPA 8260B	3/20/02	110	70-130
Tert-Butanol	200	ug/L	EPA 8260B	3/20/02	103	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	3/20/02	88.5	70-130
Benzene	40.0	ug/L	EPA 8260B	3/20/02	94.4	70-130
Toluene	40.0	ug/L	EPA 8260B	3/20/02	96.8	70-130
Tert-Butanol	200	ug/L	EPA 8260B	3/20/02	93.1	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	3/20/02	88.6	70-130
Benzene	40.0	ug/L	EPA 8260B	3/18/02	107	70-130
Toluene	40.0	ug/L	EPA 8260B	3/18/02	100	70-130
Tert-Butanol	200	ug/L	EPA 8260B	3/18/02	104	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	3/18/02	88.6	70-130
Benzene	40.0	ug/L	EPA 8260B	3/19/02	103	70-130
Toluene	40.0	ug/L	EPA 8260B	3/19/02	109	70-130
Tert-Butanol	200	ug/L	EPA 8260B	3/19/02	101	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	3/19/02	86.1	70-130

KIFF ANALYTICAL, LLC

Approved By:  Joel Kiff

720 Olive Drive, Suite D Davis, CA 95616 530-297-4800

# EQUIVA Services LLC Chain Of Custody Record

Lab Identification (if necessary):

Address:

City, State, Zip:

Equiva Project Manager to be invoiced:

Karen Petryna

25349

- SCIENCE & ENGINEERING
- TECHNICAL SERVICES
- CRMT HOUSTON

INCIDENT NUMBER (S&E ONLY)

9 8 9 9 5 7 4 1

SAP or CRMT NUMBER (TS/CRMT)

DATE: 3/14/02

PAGE: 1 of 1

SAMPLING COMPANY <b>Blaine Tech Services</b>		LOG CODE: <b>BTSS</b>	SITE ADDRESS (Street and City): <b>230 W. MacArthur Blvd., Oakland</b>		GLOBAL ID NO.: <b>T0600101240</b>
ADDRESS <b>1680 Rogers Avenue, San Jose, CA 95112</b>		EDF DELIVERABLE TO (Responsible Party or Designee): <b>Ann Kreml</b>	PHONE NO: <b>(510) 420-3335</b>	E-MAIL: <b>ShellOaklandEDF@cambria-env.com</b>	CONSULTANT PROJECT NO: <b>BTS # 020314 MW</b>
PROJECT CONTACT (Hardcopy or PDF Report to): <b>Leon Gearhart</b>		SAMPLER NAME(S) (Print): <b>Matthew Miller</b>			LAB USE ONLY
TELEPHONE: <b>408-573-0555</b>	FAX: <b>408-573-7771</b>	E-MAIL: <b>lgearhart@blainetech.com</b>			

TURNAROUND TIME (BUSINESS DAYS):  
 10 DAYS  5 DAYS  72 HOURS  48 HOURS  24 HOURS  LESS THAN 24 HOURS

LA - RWQCB REPORT FORMAT  UST AGENCY:

GC/MS MTBE CONFIRMATION: HIGHEST \_\_\_\_\_ HIGHEST per BORING \_\_\_\_\_ ALL \_\_\_\_\_

SPECIAL INSTRUCTIONS OR NOTES: CHECK BOX IF EDD IS NEEDED

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING		MATRIX	NO. OF CONT.	TPH - Gas, Purgeable	BTEX	MTBE (8021B - 5ppb RL)	MTBE (8260B - 0.5ppb RL)	Oxygenates (5) by (8260B)	Ethanol (8260B)	Methanol	EDB & 1,2-DCA (8260B)	EPA 5035 Extraction for Volatiles	VOCs Halogenated/Aromatic (8021B)	TRPH (418.1)	Vapor VOCs BTEX / MTBE (TO-15)	Vapor VOCs Full List (TO-15)	Vapor TPH (ASTM 3418m)	Vapor Fixed Gases (ASTM D1946)	Test for Disposal (48- )	TPH - Diesel, Extractable (6015m)	MTBE (8260B) Confirmation, See Note	FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes	
		DATE	TIME																						
	MW-1	3/14	1547	W	3	X	X	X																-01	
	MW-2	↓	1627	W	3	X	X	X																	-02
	MW-3	↓	1607	W	3	X	X	X																	-03
	MW-4	↓	1645	W	3	X	X	X																	-04

Relinquished by: (Signature) <i>Mark John</i>	Received by: (Signature) <i>John C. Kuff Analytical</i>	Date: <b>031502</b>	Time: <b>1033</b>
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:





## EQUIVA WELL MONITORING DATA SHEET

BTS #: 020314-17002	Site: 230 W. MacArthur Oakland
Sampler: M.J.M.	Date: 3/14/02
Well I.D.: MLW-1	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 29.30	Depth to Water: 12.08
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

- Bailer  
 Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Waterara  
 Peristaltic  
 Extraction Pump  
 Other: \_\_\_\_\_

Sampling Method:

- Bailer  
 Disposable Bailer  
 Extraction Port  
 Dedicated Tubing  
 Other: \_\_\_\_\_

11 (Gals.) X 3 = 33 Gals.  
 I Case Volume      Specified Volumes      Calculated Volume

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

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1540	67.0	7.04	424	60	11	clear
1541	68.0	7.06	413	41	22	cloudy
1542	68.6	7.03	410	101	33	"

Did well dewater? Yes  No  Gallons actually evacuated: 33

Sampling Time: 1547 Sampling Date: 3/14/02

Sample I.D.: MLW-1 Laboratory: Sequoia Columbia Other KIFF

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

EB I.D. (if applicable): @ Time Duplicate I.D. (if applicable):

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

## EQUIVA WELL MONITORING DATA SHEET

BTS #: 020314-17022	Site: 230 W. MacArthur Oakland
Sampler: WJTM	Date: 3/14/02
Well I.D.: MW-2	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 27.69	Depth to Water: 14.59
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

- Bailer  
 Disposable Bailer  
 Middleburg  
 Electric Submersible  
 Waterra  
 Peristaltic  
 Extraction Pump  
 Other \_\_\_\_\_

Sampling Method:

- Bailer  
 Disposable Bailer  
 Extraction Port  
 Dedicated Tubing  
 Other: \_\_\_\_\_

$8.5 \text{ (Gals.)} \times 3 = 25.5 \text{ Gals.}$   
 1 Case Volume      Specified Volumes      Calculated Volume

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

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1618	66.1	6.93	694	8	8.5	clear
1620	67.3	6.82	702	9	17	"
1622	68.3	6.80	664	25	25.5	

Did well dewater? Yes  No  Gallons actually evacuated: 25.5

Sampling Time: 1627      Sampling Date: 3/14/02

Sample I.D.: MW-2      Laboratory: Sequoia Columbia Other KIFF

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

EB I.D. (if applicable): @ \_\_\_\_\_ Duplicate I.D. (if applicable):

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

## EQUIVA WELL MONITORING DATA SHEET

BTS #: 020314-MW2	Site: 230 W. MacArthur - Oakland
Sampler: MWTM	Date: 3/14/02
Well I.D.: MW-3	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 28.11	Depth to Water: 12.78
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

- |                             |                 |
|-----------------------------|-----------------|
| Bailer                      | Waterra         |
| Disposable Bailer           | Peristaltic     |
| Middleburg                  | Extraction Pump |
| <u>Electric Submersible</u> | Other _____     |

Sampling Method:

- |                   |
|-------------------|
| <u>Bailer</u>     |
| Disposable Bailer |
| Extraction Port   |
| Dedicated Tubing  |
| Other: _____      |

10 (Gals.) X 3 = 30 Gals.  
 1 Case Volume      Specified Volumes      Calculated Volume

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

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1557	67.4	6.77	455	15	10	clear
1559	69.0	6.81	476	31	20	"
1602	69.0	6.83	461	34	30	"

Did well dewater? Yes  No  Gallons actually evacuated: 30

Sampling Time: 1607      Sampling Date: 3/14/02

Sample I.D.: MW-3      Laboratory: Sequoia Columbia Other KIFF

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

EB I.D. (if applicable): @ \_\_\_\_\_ Duplicate I.D. (if applicable):

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):	mV	Post-purge:	mV

## EQUIVA WELL MONITORING DATA SHEET

BTS #: 020314-MIN2	Site: 230 W. MacArthur - Oakland
Sampler: MWTM	Date: 3/14/02
Well I.D.: MW-4	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: 2400	Depth to Water: 12.35
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): YSI HACH

Purge Method:

- Bailer
- Disposable Bailer
- Middleburg
- Electric Submersible
- Waterra
- Peristaltic
- Extraction Pump
- Other \_\_\_\_\_

Sampling Method:

- Bailer
- Disposable Bailer
- Extraction Port
- Dedicated Tubing
- Other: \_\_\_\_\_

7.5 (Gals.) X	3	= 22.5 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

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

Time	Temp (°F)	pH	Cond.	Turbidity	Gals. Removed	Observations
1632	65.6	6.97	599	47	7.5	clear
1634	67.1	7.04	654	21	15	11 / 6.5
1640	66.8	7.09	650	15	22.5	"

Did well dewater? Yes  No  Gallons actually evacuated: 22.5

Sampling Time: 1645 Sampling Date: 3/14/02

Sample I.D.: MIN-4 Laboratory: Sequoia Columbia Other KIFF

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

EB I.D. (if applicable): \_\_\_\_\_ @ \_\_\_\_\_ Duplicate I.D. (if applicable): \_\_\_\_\_

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



# WELL DEVELOPMENT DATA SHEET

Project #: <u>020312-50-2</u>	Client: <u>Equilon</u>
Developer: <u>O. Bryan</u>	Date Developed: <u>3/12/02</u>
Well I.D. <u>MW-1</u>	Well Diameter: (circle one) 2 3 <b>(4)</b> 6
Total Well Depth: Before <u>29.69</u> After <u>29.43</u>	Depth to Water: Before <u>12.33</u> After <u>24.30</u>
Reason not developed:	If Free Product, thickness:
Additional Notations:	

Volume Conversion Factor (VCF):  
 $(12 \times (d^2/4) \times \pi) / 231$   
 where  
 12 = in / foot  
 d = diameter (in.)  
 $\pi = 3.1416$   
 231 = in<sup>3</sup>/gal

Well dia.	VCF
2" =	0.16
3" =	0.37
4" =	0.65
6" =	1.47
10" =	4.08
12" =	6.87

<u>11.3</u>	X	<u>10</u>	=	<u>113</u>
I Case Volume		Specified Volumes		gallons

Purging Device:    Bailer                       Electric Submersible   
                          Middleburg                       Suction Pump

Type of Installed Pump \_\_\_\_\_  
 Other equipment used 4" Surge Block

TIME	TEMP (F)	pH	COND.	TURBIDITY	VOLUME REMOVED:	NOTATIONS:
1258						Started MR pump @ varied rate. Surged well for 10 minutes
1312	65.8	7.0	406	>200	12	Stopped Pump. Brown tint
1317	66.1	6.6	506	2200	27	Switched to ES @ 10 gpm
1318	66.2	6.6	410	>200	37	Brown Tint
1319	67.2	6.4	418	>200	47	Clouded
1320	67.5	6.4	402	>200	57	
1322	67.6	6.4	394	2200	67	Well Dewatered
1325	67.7	6.4	411	>200	77	
1326	67.7	6.5	397	2200	87	Well Dewatered
1328	68.1	6.6	396	2200	97	Clearing
1329	67.7	6.6	392	131	107	Well Dewatered
1333	67.5	6.6	397	112	117	Stopped Pump

Did Well Dewater? Yes If yes, note above.                      Gallons Actually Evacuated: 117

\* Hard Bottom

# WELL DEVELOPMENT DATA SHEET

Project #: 020312-50-2	Client: Ferguson
Developer: O'Boyan	Date Developed: 3/12/02
Well I.D. MW-3	Well Diameter: (circle one) 2 3 <b>4</b> 6
Total Well Depth: 28.09	Depth to Water: 12.54
Before	After <del>29.25</del> 29.25
Before	After 25.32
Reason not developed:	If Free Product, thickness:
Additional Notations:	

Volume Conversion Factor (VCF):  
 $(12 \times (d^2/4) \times \pi) / 231$   
 where  
 12 = in / foot  
 d = diameter (in.)  
 $\pi = 3.1416$   
 231 = in<sup>3</sup>/gal

Well dia.	VCF
2"	0.16
3"	0.37
4"	0.65
6"	1.47
10"	4.08
12"	6.87

<u>10.1</u>	X	<u>10</u>	=	<u>101</u>
1 Case Volume		Specified Volumes		gallons

Purging Device:    Bailer        Electric Submersible      
                          Middleburg        Suction Pump   

Type of Installed Pump \_\_\_\_\_  
 Other equipment used    4" Surge Block

TIME	TEMP (F)	pH	COND.	TURBIDITY	VOLUME REMOVED:	NOTATIONS:
1340						Started MB pumps @ varied rate. Surged well for 10 minutes.
1350	67.0	6.4	462	7200	10	Stopped Pump, Brown tint
1356	69.2	6.4	462	7200	25	Switched to ES. Clearing
1357	69.5	6.4	487	7200	35	clouded, well dewatered
1359	69.9	6.3	515	7200	45	" "
1402	70.1	6.3	524	7200	55	" "
1405	70.3	6.3	510	7200	65	" "
1407	70.3	6.3	478	7200	75	" "
1410	70.2	6.4	463	7200	85	" "
1416	69.5	6.5	462	92	97.5	" "
1418	69.7	6.5	461	88	102.5	Stopped Pump

Did Well Dewater?     If yes, note above.    Gallons Actually Evacuated: 102.5